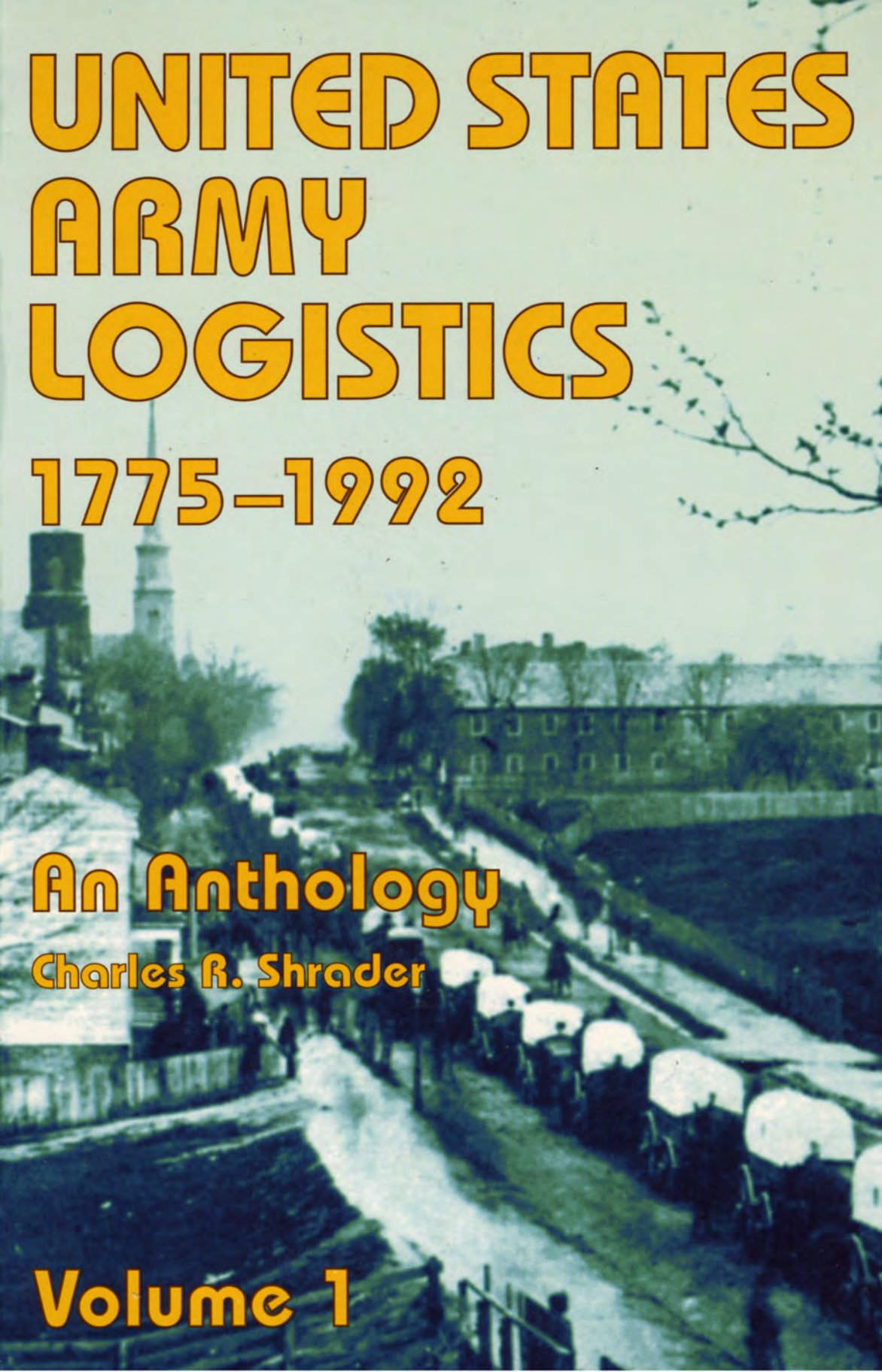
UNITED STATES ARMY LOGISTICS 1775–1992



An Anthology

Charles R. Shrader

Volume 1

United States Army Logistics, 1775–1992
An Anthology

Selected and Edited by

Charles R. Shrader

In Three Volumes
Volume 1



CENTER OF MILITARY HISTORY
UNITED STATES ARMY
WASHINGTON D.C., 1997

Library of Congress Cataloging-in-Publication Data

United States Army logistics, 1775–1992 : an anthology / selected and edited by Charles R. Shrader.

p. cm.

Includes bibliographical references.

1. United States. Army—Supplies and stores—Management—History—Sources. 2. United States. Army—Transportation—Management—History—Sources. 3. Logistics—History—Sources. I. Shrader, Charles R.

UC263.U55 1997

355.4'11'0973—dc21 96–44553

CIP

CMH Pub 68–1

First Printing

Foreword

Perhaps no other field of military science is more misunderstood than logistics. Yet the means of supply, transportation, maintenance, and a variety of other supporting services frequently affect the daily lives of soldiers, the tactics of divisions, and the strategies of nations. In the Foreword to James A. Huston's classic work, *The Sinews of War: Army Logistics, 1775–1953*, Brig. Gen. Hal Pattison, the Chief of Military History in 1965, compared the importance of logistics to "the same way that a well-run household supports the people who live in it." Battles have been won, and wars have been lost, at least in part because of an army's ability to sustain itself in combat.

U.S. Army Logistics, 1775–1992: An Anthology is designed to introduce to the soldier and the student of logistics a variety of topical selections that cover over 200 years of our Army's history. In many cases, the reader may be intrigued by how often problems were repeated in different conflicts. There were remarkable similarities in transportation problems during the Mexican War and World War II, and comparable supply management difficulties arose during the Korean War and the war in Vietnam. How military personnel dealt with these issues and what successive generations learned from these experiences provide valuable insights for logisticians and commanders today.

The selections for this anthology were made by Lt. Col. Charles R. Shrader, who was eminently qualified for this task. Blending his years of experience as an Army logistician and historian, Colonel Shrader has assembled a unique collection of essays that cover both the breadth and depth of Army logistics from the frozen hills of Valley Forge to the burning deserts of Southwest Asia. For the commander and the logistician, the soldier and the student, here is a book that will stimulate thought, encourage discussion, and provide perspective to an essential element of military science.

Washington, D.C.
September 1996

JOHN W. MOUNTCASTLE
Brigadier General, U.S. Army
Chief of Military History

The General Editor

Charles R. Shrader retired from the United States Army in 1987 as a lieutenant colonel after 23 years' service as an Infantry and Transportation Corps officer. He served as an infantry platoon leader and battalion operations officer at Fort Carson, Colorado, on two tours with transportation units in Vietnam, and later as a liaison officer between major logistical headquarters and as a truck battalion executive officer in Germany.

For most of his military career Dr. Shrader was active in the study and teaching of history and the administration of historical programs within the Army. He served as an assistant professor of history at the United States Military Academy and as a history instructor at the U.S. Army Command and General Staff College. He was the first acting director of the Combat Studies Institute at Fort Leavenworth, Kansas, and later served as chief of the Oral History Branch of the U.S. Army Military History Institute at Carlisle Barracks, Pennsylvania, where he also held the General of the Army George C. Marshall Chair of Military Studies at the U.S. Army War College. He later served as the curriculum director of the NATO Defense College in Rome, and at the time of his retirement from active duty he was chief, Historical Services Division, U.S. Army Center of Military History, in Washington, D.C.

Dr. Shrader earned the B.A. degree in history (*cum laude* with "High Honors in History" and Phi Beta Kappa) from Vanderbilt University in 1964 and the doctorate in medieval history from Columbia University in 1976. He is also a graduate of the U.S. Army Command and General Staff College, the U.S. Army War College, and the NATO Defense College.

Dr. Shrader has published several articles on medieval history and manuscript studies as well as on various topics in American military history. He is the author of *Amicicide: The Problem of Friendly Fire in Modern War* and of major articles on logistics in the Civil War, World War I, World War II, and the Korean War. He is also the general editor of a five-volume *Reference Guide to U.S. Military History* (1990–1995), the editor of *U.S. Military Logistics, 1607–1990: A Research Guide* (1992), and the author of *Communist Logistics in the Korean War* (1995).

Preface

Any anthology represents the personal preferences of its compiler, and this anthology is no exception to that rule. The readings which comprise the body of this volume are, no less than the introductory essay and suggestions for further reading, reflections of my own knowledge and understanding of the history of United States Army logistics. They represent pieces which I have found congenial as to style or particularly useful as to content. The balance among types of material, authors, temporal periods, and topics has thus been predicated on my perception of what themes should be examined by the student of Army logistics as well as the topics which I believe should be of lasting interest to the general reader. Although each item was selected on the basis of its perceived quality and usefulness, specific consideration was given to the degree to which it addresses one or more of nine key topics: the definition of logistics; the relationship of logistics to strategy and tactics; the organization for logistics; the evolution of logistical force structure; the evolution of logistical doctrine; the art and science of logistical operations; the impact of key personalities; the impact of overseas operations; and the impact of cooperative logistics.

The reader will note that almost all of the selections deal exclusively with U.S. Army logistical matters. This is not to deny that there is much to be learned from the logistical history of the other services or of foreign armed forces. Such is certainly the case, but the student of logistical history is well advised to begin with the history of his own nation and service before proceeding afield. The same rationale applies to the fact that the selections are in almost every case from the pen of American writers.

The temporal scope of the selections runs from 1775 to 1992; that is, from the birth of the U.S. Army during the Revolution through the war in Southwest Asia in 1991–1992. Although the selections tend to provide more detail and to focus at lower levels as we move closer to the present, it should be pointed out that there is something important to be learned from every period. In general, periods of major conflict, such as the Civil War, Spanish-American War, World War I, and World War II, receive somewhat greater attention inasmuch as they were times of significant change in logistical doctrine and methods. But in the field of logistics the preparatory activities in peacetime are perhaps equal in significance to the actual conduct of logistical operations in wartime. Accordingly, the selections in this anthology do cover both "the Preparation for War" and "the Conduct of War" as Clausewitz calls the two major aspects of warfare.

I have generally avoided lengthy selections on such quasi-civilian logistical activities as procurement, production, and mobilization, although some briefer selections essential to understanding the overall scope of logistics in modern warfare have been included. I have also tried to select readings which cover all of the various logistical functions. Thus, there are selections discussing supply, rations,

ordnance, transportation, and maintenance as well as logistics in the more general sense. I have also included selections which inform the reader about the organizational history of each of the traditional supply departments: Quartermaster, Commissary, Ordnance, and Transportation. Unfortunately, the limits of space have precluded the inclusion of material dealing with the one remaining major area of Army logistics, medical service, or with the important contributions to logistical operations of the Corps of Engineers.

The broad field of Army logistics involves many activities outside the actual theater of operations. Nevertheless I have consciously sought to focus the selections principally on what might be called the operational level of logistics, that is, on the theater level. However, activities and issues at both higher and lower levels have not been neglected; the selections in fact provide a wide variety of perspectives. Some pieces reflect the view from the highest national political and military levels while others present the issues from the viewpoint of the theater commander or his logistical staff. A few pieces even provide a "user/doer" or division/battalion/company-level view.

Overall, I have sought to balance the selections in terms of original documents and secondary works of analysis and description while still exposing the wide variety of types of material available. Thus, journal articles both contemporary and retrospective, books, official reports and orders, correspondence by participants, and other varieties of material have been included. Of course, I have selected items which cover the key events and personalities, but I have also sought to introduce the reader to some of the "classic" sources of information on U.S. Army logistical history and to historians working in the field. The various historical and professional journals in which one is likely to find good logistically oriented materials are also well represented. If I seem to have relied too heavily on any particular author, book, or journal, it is simply because the best pieces were to be found there. Some articles or topics may have been omitted, but it was not possible to include everything that might be sought by every user of this anthology.

Although the principal purpose of this anthology is to provide a convenient selection of readings which the teacher and student can use to support lectures on the history of U.S. Army logistics or to supplement a text such as James A. Huston's *The Sinews of War*, the readings should prove equally interesting to the professional historian and the general reader interested in military affairs. In some cases the selection can scarcely be considered definitive, but the bibliographical notes of the piece should lead the reader to additional information. To that end I have also included a section entitled "Suggestions for Further Reading," which can be used as an introductory self-study course by the reader interested in pursuing the subject. I have also provided as an aid to the reader three appendixes which list the key logistical personalities over the years and set forth two important sets of background data: the expenditures of the Army and the strength of the Army at various dates. In every case I have sought to stimulate interest and further exploration of the fascinating and important field of logistics.

This anthology traces its origins back to a similar collection of readings which I prepared for a course on the history of U.S. Army logistics at the U.S. Army

Command and General Staff College in the late 1970s. Both my knowledge of the subject and of the available literature have greatly expanded since that time due mainly to the many excellent suggestions provided by colleagues to whom I am greatly indebted. I would be remiss if I did not acknowledge two of them by name: Dr. Tommy R. Young II and Col. Thomas W. Sweeney. I am also indebted to the staff of the Combined Arms Research Library at Fort Leavenworth and to the personnel of the Reference Branch and the reading room staff of the U.S. Army Military History Institute at Carlisle Barracks for their professional advice and willing assistance. At the Center of Military History, Ms. Beth MacKenzie collected the illustrations, designed the text, and formatted the manuscript, while Mr. Cody Phillips reviewed the entire text to purge transcription errors and made editorial corrections. And I am most grateful for the informed guidance of the Army's Chief Historian, Dr. Jeffrey J. Clarke, and for the support of two previous Chiefs of Military History, Maj. Gen. William A. Stofft and Brig. Gen. Harold W. Nelson. I also am thankful to the current Chief of Military History, Brig. Gen. John W. Mountcastle, for his support in seeing this anthology published.

The views expressed in these selections are those of the authors and do not reflect the official policy or positions of the Departments of Army and Defense or the U.S. government.

Carlisle, Pennsylvania
September 1996

Charles R. Shrader

Contents

Volume 1

Page

STUDYING THE HISTORY OF U.S. ARMY LOGISTICS 1

PART I: INTRODUCTION TO THE HISTORY OF U.S. ARMY LOGISTICS

Selection 1: Logistics—The Word and the Thing 17
The Revolution in Warfare 17
Changing Conceptions of Logistics 22
The Vagaries of Usage 24
Selection 2: Principles of Army Logistics 29
Selection 3: Logistics and Modern War 33

PART II: THE ERA OF CREATION

Chapter 1: Logistics in the American Revolution

Selection 4: Logistics of the British Army in North America 49
Selection 5: Some Advice for Eighteenth Century Logisticians 55
To the Quarter-Master 55
To the Quarter-Master Serjeant 56
Selection 6: The Logistical Problems of the Continental Army 59
Supply Limitations 60
Importance of French Aid 62
Responsibility for Supply Shortages 62
Supply Abuses 64
Conduct of the Populace 65
Supply Chiefs and Trade 66
Evaluation of Supply Agencies 69
Patriotism and Profits 73
Selection 7: The Desperate Winter at Valley Forge 75
Selection 8: General Washington on Logistical Organization 81
Of Cloathing the Army 82
Of the Quarter Master General's Department 84
Of the Commissary's Department 87
Selection 9: Transportation and the Failure of Burgoyne's Invasion 91

Chapter 2: Logistics in the Early National Period

Selection 10: Supply in the War of 1812 97
Organizing With War Upon Us 98

Page

Lessons of the War for Independence Lost 98
The System that Failed 98
"Passing the Buck" On Supply 99
Division Into Supply Areas 99
Responsibility Not Fixed 100
Settler's Supply So-Called Luxuries 101
System for Issue of Rations 102
Divided Responsibility 102
General Change in Military Organization 104
Superintendent of Military Stores at Philadelphia 104
Clothing for Uniforms Lacking 105
Buying Cloth Abroad 106
Medical Procurement 107
Quartermasters Purchased Local Medical Supplies 108
Department of Ordnance Created 108
Colonel Wadsworth Heads Ordnance 108
Women and Children Employed 109
Q. M. Duty Defined 110
Rapid Expansion But No Co-ordination 111
Emergency Purchasing Provision Abused 112
Supply Less Organized Than In the Revolution 112
General Upton's Indictment 113
Selection 11: The Lessons of the War of 1812 117
Selection 12: Army Supply in the Old Northwest 119
Military Stores and the System of Supply 120
Selection 13: Army Transportation in the Old Northwest 127
Public Transportation 128
Steamboats on the Upper Mississippi 129
Lake Traffic 131
Interior Hauls 132
The Significance of Army Transportation Business 134
Selection 14: Thomas Sydney Jesup: The Father of the Quartermaster Corps 137

PART III: THE ERA OF PROFESSIONALIZATION

Chapter 3: Logistics of the Mexican War

Selection 15: Subsisting on the Countryside 153
Selection 16: Subsistence or Plunder? 155
Selection 17: Logistical Planning for the Campaign in Mexico 157
Selection 18: Allowances of Transport for the Campaign in Mexico 161
Selection 19: An Early Call for Enlisted Logistical Specialists 163

Page

Selection 20: Logistical Coordination in the Mexican War 167
Selection 21: The Difficulties of Support in Mexico 169
Selection 22: A Slight Difference of Opinion 175
Selection 23: Some Lessons of the War with Mexico 187
The Lessons of the War 187

Chapter 4: Logistics of the Civil War

Selection 24: Organization for Logistics in the Civil War 191
Organization for Logistics 194
The Soldier's Load 199
Arms and Ammunition 199
Subsistence 201
Clothing and Camp Equipment 202
Horses and Mules 204
Forage 204
Transportation 205
A Few Remarks on the Maryland Campaign of 1862 211
Conclusion 215
Selection 25: Confederate Logistics and Strategy 217
Selection 26: Quartermaster Operations in the Eastern Theater 223
Gettysburg Campaign 224
Orange and Alexandria Railroad 226
Culpeper Campaign 227
Selection 27: Quartermaster Operations in the Western Theater 251
Selection 28: General Hood as Logistician 261
Selection 29: Working on the Railroad 275
Military Railroads 275
General Remarks 288

Chapter 5: Logistics of the Frontier Army

Selection 30: Logistical Support of Operations on the Frontier 297
Frontier Posts 297
Indian Wars 299
Connor's Powder River Expedition 299
Sheridan's Winter Campaign of 1868 300
Stanley's Yellowstone Expedition 301
Campaigns Against the Sioux, 1876 302
End of Indian Hostilities 304
Summary 305
Selection 31: Peacetime Logistics in the Frontier Army 307
Selection 32: The Need for Enlisted Logistical Specialists 315

Volume 2

PART IV: THE ERA OF SPECIALIZATION

Chapter 6: Logistics of the Spanish-American War

Page

Selection 33: Logistical Planning for the War with Spain 327
Selection 34: The Dodge Commission Assesses the Work of the Quartermaster Department in the War with Spain 335
Railroads 335
Water Transportation 337
Transports for Porto Rico 340
The Manila Expedition 341
Selection 35: Official Allowances for Supplies, Equipment, and Transport, 1898 345
Selection 36: The V Corps Embarks at Tampa 347
Selection 37: Logistical Problems in Cuba, 1898 353
The Inspection at Chickamauga 354
Cuban Campaign 356
General Observations 358
Selection 38: The Campaign in Puerto Rico, 1898 365
Selection 39: Logistical Operations in the Philippines, 1898 369
Selection 40: Secretary Root Outlines His Reform Program 373
Selection 41: The Evolution of the General Staff Concept 379
Chaotic Preparations 379
Problems and Proposals 380
Orchestrated Changes 381
General Staff Bill 382
Opposition to Reform 382
Wood vs. Ainsworth 383
Conclusion 384

Chapter 7: Logistics of the First World War

Selection 42: Army Logistics in Mexico, 1916 389
The Provocation 389
The Expedition 390
Logistical Support of the Expedition 391
Transportation 394
General Supplies and Support 395
Forage and Rations 396
Logistical Limits on Key Operations 396
The Withdrawal 397
Selection 43: Industrial Mobilization for the First World War 401

Page

America Unprepared 401
Limited Industrial Preparedness 403
The War Industries Board 403
War Department Reorganization 404
America's Supply Role 405
The Winter Crisis 406
Industrial Performance 406
Summary 408
Selection 44: World War I Allied Industrial and Economic Cooperation 411
Selection 45: Organization of the Quartermaster Department in World War I 419
Selection 46: Logistical Support of the AEF in the Field 431
Battlefield Logistics 431
Saint-Mihiel 433
The Meuse-Argonne 434
Facilities 436
Summary 437
Selection 47: Accomplishments of the Quartermaster Corps, AEF 441
Selection 48: The Military Board of Allied Supply 445
Selection 49: Cooperative Logistics in World War I 449
British Agreement 449
Only Riflemen There 449
"Unlearning" Much 450
A Ban on Rum 450
British Rifles for Americans 451
Passing On The Word 451
Stripping Down Their Baggage 451
Shuffle of Belt and Scabbards 452
The British "Indent" 452
Salvaging Our Cast-offs 453
The British Ration 453
Supplied from Tommy's Stock 454
No Swapping of Shirts 454
"Blighters" and Stationery 454
Patient John Bull 455

Chapter 8: Logistics of the Second World War

Selection 50: Industrial Mobilization Planning Between the Wars 457
Industrial Mobilization Planning—A War Department Responsibility . 457
The Planning Branch 459
The Army Industrial College 460

Page

The Army and Navy Munitions Board 461
Early Implementation of Industrial Planning 463
Selection 51: Logistics and World War II Army Strategy 467
Victory Program 1941 470
Conclusions 475
Selection 52: Logistical Support of the Army in World War II 477
North African Campaign 482
Sicilian Campaign 485
Italian Campaign 486
European Theater of Operations 487
Persian Gulf Command 490
China, Burma, India 491
Aleutians Campaign 493
Early Pacific Campaigns 494
The Philippines 496
Preparation for the Final Assault on Japan 498
Redeployment 498
Selection 53: The Logistical Bottleneck in Northwest Europe 501
Organization of the Allied Expeditionary Forces 502
Strategic Planning for Post-OVERLORD Operations 502
Pre–D-Day Logistical Planning 504
Development of Strategy 508
Logistical Stringency 510
Favorable Circumstances 510
Coalition Aspects 513
Selection 54: Logistical Limitations on Tactical Decisions 517
Basic Assumptions 518
Facing Realities 518
Additional Difficulties 519
Comparison 519
Logistic Limitations 520
A Forced Decision 520
Another Deep-Water Port a Necessity 522
Reasons for the Dilemma 522
Selection 55: Achievements of the Services of Supply in the European Theater of Operations 525
Brains and Guts 525
3,065,505 Men on a Shoestring 529
Selection 56: Division-Level Logistical Support in the Battle of Schmidt 541
Selection 57: The Division Slice in Two World Wars 551
Analysis of Division Slices in the Two Wars 552
Interpretations 553
Combat Capabilities of Infantry Divisions in 1918 and 1945 554

Page

Reasons for the Disparity Between Division Slices in the Two Wars . . 554
Inflation of the Division Slice in World War II 559
Lessons Applicable to a Future War 560
Conclusion 562
Selection 58: The Logistics Lessons of World War II 565
Summary 571

Volume 3

PART V: THE ERA OF INTEGRATION

Chapter 9: Logistics in the Korean War

Selection 59: Logistical Support in Korea 577
$17 Billion Price Tag 577
World War II a Prerequisite 578
Japan Highly Important 580
Ammunition Supply Problem 580
Limited by Transportation 581
Air Freight Negligible 581
Maintenance Difficult 582
Couldn't Happen Again 583
No Prepared Plans Ready 583
Experience Is Valuable 584
Imagination Helped 584
Quartermaster Innovation 584
Mobile Hospitals Tested 585
Air Evacuation Rapid 585
New Methods Devised 586
How to Divide Manpower? 586
Local Labor a Big Help 587
Detailed Policy Needed 587
Not Enough Technicians 588
Dual Role Headquarters 588
Overlapping in Korea 589
Army Organization Sound 589
Emphasis Shifting 590
Combat Men in Minority 590
Learned Valuable Lessons 590
Patterns for Future 591
Success Within Limits 591
US Alerted to Danger 592
Important Decisions Made 592

Page

Creeping Mobilization 593
Keep Eyes on the Future 593
Budget Was Inadequate 593
Buildup Was Delayed 594
Consistency Lacking 595
More Emphasis on Asia 595
Selection 60: Amphibious Logistics—Inchon, September 1950 597
Selection 61: Logistical Support of the 24th Infantry Division in Korea 603
First 90 Days 604
Last 90 Days 609
Conclusion and Lessons Learned 610
Selection 62: Transportation Truck Operations in Korea 615
Selection 63: Division-Level Maintenance Support in Korea 623
Selection 64: Division-Level Quartermaster Operations in Korea 627
Selection 65: Rear Area Security Operations in Korea 637
Selection 66: Cooperative Logistics in Korea 641
Selection 67: Logistical Difficulties and Lessons Learned in Korea 645

Chapter 10: Logistics in Vietnam

Selection 68: Secretary of Defense McNamara's Management "Reforms" 651
The Beginning 651
New Form of Budget 653
Development Costs 653
Complexity and Cost 654
Efficient Management Machinery 654
A Lesson Learned 655
Correction of Deficiencies 656
Support Functions 657
Manager Management 658
Five-Year Program 658
Summary 659
Selection 69: The Logistics Environment in Vietnam 661
Logistic Concept (1965) and In-Country Planning 662
Major Logistics Constraints 668
War Reserve Stocks 669
Logistical Management Organizations 670
Engineer Construction 670
Logistic Support Principles 670
Port Situation in Vietnam 673
Warehousing and Storage Facilities 675
Selection 70: Logistics and the Helicopter in Vietnam 677

Page

Use of Helicopters in Logistic Support 677
Aerial Resupply 678
Growth of Aviation Logistic Support in South Vietnam 679
Aircraft Maintenance Personnel 680
Selection 71: Logistical Support of the South Vietnamese Armed Forces 683
A Change in Policy 683
Support for Saigon 685
Selection 72: The Logistics Lessons of Vietnam 691
Economy of Force 692
Logistic Fundamentals 693
Planning Requirements 693
Management Intelligence 693
Direct Logistic Support 696
Logistic Command and Control 696
Integrated Logistic Support 697
Selection 73: Findings of the Joint Logistics Review Board 701
15 Major Findings of the Joint Logistics Review Board 701
Conclusions 704
Applicability of Lessons Learned 704

Chapter 11: The Logistics of Rapid Deployment

Selection 74: Rapid Deployment in 1942 707
Selection 75: Rapid Deployment Logistics—Lebanon, 1958 719
The Operation 719
Problems 721
Airhead 722
Maritime Operation 724
Result 725
Summary 726
Selection 76: Logistical Support for the Intervention in the Dominican Republic, 1965 729

Chapter 12: Logistics in the 1990s

Selection 77: Logistical Support for the AirLand Battle 743
Rear Battle and Deep Attack 744
Launching the Deep Attack 745
Executing the Deep Attack 746
Selection 78: Logistical Coordination Between Allied Forces 749
World War I 749
Procurement 751

Page

World War II 752
German-Italian Supply 753
Korea 754
NATO 755
Summary 756
Conclusions 759
Selection 79: The Logistical Support of DESERT STORM 761
Formation of the Support Command 762
Receipt of XVIII Airborne Corps 763
Receipt of VII Corps 764
Support Command Plans 765
The Enemy Situation 766
Operational Highlights 766
Observations 768

EPILOGUE

Selection 80: The "Tooth-to-Tail" Ratio 773
Planning 777
Understanding 779
Selection 81: The Evolution of Army Logistics in Context 789
Selection 82: The Continuity of Change 797
Administration 799
Requirements 803
Research and Development 804
Transportation 806
Communication 806
The Organization Revolution 807
Experience for the Future 807
Selection 83: "A Sad, Embittered Race of Men" 811

SOME SUGGESTIONS FOR FURTHER READING 813

APPENDIXES:

A. Key Army Logistical Personalities, 1775–1991 825
B. Expenditures of the Army, 1775–1991 831
C. Strength of the Army, 1775–1991 835

All photographs in this anthology are from Department of Defense files.

Studying the History of U.S. Army Logistics

Since 1775 American military leaders have wrestled continuously with the problems of providing adequate logistical support to our forces in the field and in garrison. Finding the necessary resources, creating efficient organizations and effective doctrine, and achieving a proper balance between fighting and supporting forces have never been easy. The history of how our predecessors coped with these problems, either successfully or unsuccessfully, offers us many guidelines for facing similar problems now and in the future.

Many of the factual details and a segmented, but fairly complete, narrative exposition of the institutional and operational history of U.S. Army logistics are provided by the selections included in this anthology, and they need not be summarized here. It is perhaps more useful to direct the reader toward some of the more effective methods for comprehending the mass of factual data and to suggest frameworks by which the narrative descriptions can be understood. There are a number of such methods. Each is suited to a particular level of expertise and interest, but all are equally effective means of making sense of what is, after all, an enormous body of very complex material. The accumulation of a mass of facts without some organizing principles may be sufficient for the buff or antiquarian but does not suffice for the serious study by soldiers of their profession. Thus in this introduction I have elected to dispose with the usual "executive summary" and try instead to provide some simple suggestions as to how the serious student of U.S. Army logistics, and even the more casual reader, can obtain the maximum benefit from his or her efforts by organizing the material around one or more of the systematic frameworks available.

The Traditional Narrative Approach

The history of U.S. Army logistics is perhaps most easily understood in terms of the traditional "challenge and response" formula used by historians from time immemorial. Such an approach has the advantage of simplicity, directness, and clarity. Properly employed it can portray cause and effect relationships quite clearly. It is thus particularly well suited to the needs of the casual reader or beginning student, but can also be employed by the more advanced student for more complex and sophisticated analyses.

Each period of our national history has posed some new and many old challenges for Army logisticians. The essential question that arises is: How were those challenges met and with what effect? That question can best be examined by dividing it into a number of narrower questions. Thus, with respect to any chronological period we should ask: What were the challenges? What resources of men,

money, materiel, technology, and ideas were available? How were those resources organized and managed and by whom? What were the results achieved? How did the outcomes affect future developments?

This traditional approach implies some division of the logistical history of the Army into discrete periods of time. The most obvious periods are marked out by each of America's wars, but a consideration of U.S. Army logistical history arranged solely by war is not entirely satisfactory inasmuch as logistical (as well as strategic and tactical) organization and doctrine develop unevenly. The development of many key concepts cannot be neatly pigeon-holed and may in fact extend over a considerable time span if not the entire period since 1775. We are perhaps somewhat more justified in arranging the history of U.S. Army logistics in the four grand periods, or eras, used to organize this anthology, keeping in mind that developments and themes frequently cross the rather permeable temporal boundaries of the periods.

The period from 1775 to 1845 can perhaps be called the Era of Creation. It is the period in which civilian and Army leaders struggled to create effective mechanisms for supporting an army just as the nation as a whole searched for effective mechanisms of government and social organization. The challenge of building a system from scratch was ultimately met, but not without significant delays, setbacks, and near disasters. Eventually we entered a second era, an Era of Professionalization, in which the primitive organizations and procedures were placed on a regular and continuous basis and the practitioners of Army logistics developed standards of training and performance suitable for a well-established organization. This period runs roughly from the Mexican War of 1846–1848 to the Spanish-American War of 1898 and includes, of course, the great Civil War. The advent of modern technology and the necessity of worldwide operations after 1898 forced on Army logisticians a new Era of Specialization, which lasted roughly until the end of the Second World War. The relatively simple logistical tasks and organizations which had met the needs of earlier times became much more complex and required more and better trained personnel, larger and more diverse logistical organizations, and greater management and control. The Era of Specialization overlaps with a fourth era, the Era of Integration, which began even before World War II and continues into our own day. This most recent era is characterized by a focus on centralized direction of logistical activities, organization along functional lines, and heavy emphasis on joint and combined operations dependent on a variety of advanced technologies. And, of course, we now may be well into a new era without even recognizing it.

To further maximize one's efforts and to avoid becoming swamped by the ocean of available information the student applying the traditional narrative approach is well advised to focus on only one or two special aspects of logistics at a time. Some of the more obvious topical headings are doctrine, organization, specific operations, specific procedures, the impact of technology, and people. One of the most effective methods of understanding the attempts of past Army leaders to meet the challenges of their time is to focus on the evolution of logistical force structure. Force structure reflects not only the missions and tasks assigned or

assumed but also highlights the resources available, the strategic and tactical doctrines in vogue, and the organizational and management concepts available to help shape the logistical forces. The adequacy of the logistical force structure at any given time can also be assessed rather easily in terms of its effectiveness in meeting the challenges posed.

Another effective method is to look at the challenges faced and responses made in terms of the human beings who faced the challenges and made the responses. After all, the history of logistics, like the history of any other human activity, is about the strengths and weaknesses of men and women. Individual human beings, not offices or organizations, make the decisions and develop the concepts. Thus, the study of individual and collective biography, considered in the traditional challenge-response framework, is a most interesting and effective way of understanding the why and how of events and ideas. The biographical focus can also draw attention to the one constant in the Army's logistical development since 1775—the high quality of the men and women who have provided support to our combat forces. Without their dedication, skill, and endurance the outcome on the battlefields of the past would have been uncertain regardless of the number of the machines and the sophistication of the doctrines employed. Moreover, any calculation which fails to take into account this human factor in war is doomed to be inadequate if not downright dangerous.

The Thematic Approach

A second and somewhat more difficult approach is to study the history of U.S. Army logistics by examining the continuing themes and trends which have appeared over the course of that history. This approach implies a more thorough grounding in the basic historical facts and presupposes a good deal of reading and study on the part of the student. It is thus perhaps better suited to the more advanced student, although handled properly it can work at any level. A sound grasp of the themes and trends is particularly useful when one wants to see where we have been and where we may be going.

The history of the development of military logistics in America is complex, but the salient themes are fairly obvious and can be stated concisely. Perhaps the most consistent and long-term characteristic of American military logistics is the tendency to neglect logistical activities in peacetime and to expand and improvise them hastily once conflict has broken out. Indeed, the cyclical nature of the attention devoted to logistical activities, Emory Upton's "chronic unpreparedness," is one of the major themes in American military history. American political and military leaders have always proclaimed at the end of every war that we shall never be caught unprepared again; but somehow we always are and are saved only by our enormous resources of human and material capital. There are those who would argue that the pattern has been broken in the last ten years or so, but the lack of sustained attention to matters of military logistics, except perhaps for the lucrative field of weapons research and development, remains one of the most serious problems of Army logistics.

Our "on again–off again" interest in logistical preparedness runs directly contrary to another American, or rather worldwide, trend in military logistics. Since 1898 logistical considerations have increasingly dominated the formulation and execution of both strategy and tactics. This is patently obvious to even the most untutored observer, but in practice many military leaders continue to ignore the importance of logistics. At best logistical considerations and logisticians are seen as necessary but unwelcome adjuncts to the planning of grandiose strategies and the management of "important" problems such as tactical doctrine. Nevertheless, the reality is that logistics is the primary consideration in all modern military operations and can be ignored only at peril. World War II provides an excellent example. The outcome of World War II was determined in the first instance by our ability to organize and to project our industrial might, and the great demand for logistical support engendered in World War II had a basic and profound effect on the organization and strategies we adopted. The basic strategic decision of the war, to defeat "Germany First," and its corollary, the abandonment of our forces in the Philippines, were dictated in large part by logistical considerations. So too were such key strategic decisions as the timing of D-Day for the invasion of Europe and the pace of the attack across France.

The increasing dominance of logistics is connected to the fact that the complexity and scale of the logistical support activities of the American military forces have increased steadily in the twentieth century. The scope and complexity of modern war itself continues to increase, and since the Spanish-American War of 1898 our military forces have operated on a worldwide scale in a variety of climates and terrain. Technology also continues to evolve at a heady pace. The new tactical doctrines and organizations required to incorporate new technology demand corresponding new, larger, and more complex logistical doctrines and organizations. Although the scale of recent wars has been restricted when compared to World Wars I or II, the distances from base at which our forces are required to operate is, if anything, even greater, and the time available to respond even shorter. The effect of increasing mechanization and the use of technically sophisticated systems has been to increase the demand for logistical support of an ever more complex nature.

American war-making in the twentieth century has been largely a coalition activity, and since World War I we have been forced willy-nilly to provide support to our allies or, in some cases, to receive logistical support from them. This trend has introduced further complexities into the problem of providing adequate logistical support for forces in the field, and on occasion our productive capacity has been severely challenged to support our allies while supporting our own forces. Although cooperative logistical arrangements have worked effectively in most instances, national preferences and prejudices make the logistician's job much more difficult and greatly expand the number and types of items that have to be supplied. More recently, in an effort to do more with less and to reduce costs, American military forces have turned increasingly to "host nation support" and "burden sharing" with our allies as the means of providing our combat troops with the necessary logistical support.

Since 1775 the increasing size and diversity of our military forces and the wide variety of geographic and climatic conditions under which they have been required to operate have also had a significant impact on the size and composition of our logistical support forces. Modern mechanized, total war conducted with allies on a global scale has demanded the creation of ever greater numbers and types of logistical units staffed with highly trained soldier-specialists. This trend is not unique to military affairs. Since the advent of the Industrial Revolution in the late eighteenth century, there has been a steady drive toward greater specialization and division of labor in all human activities brought on by the increasing complexity and diversity of modern life.

American armed forces have traditionally relied on advanced technology rather than mass manpower to achieve victory in war. Technological advances in the first decades of the twentieth century introduced new requirements for specialized support of combat forces. The radio, the airplane, and the motor vehicle all required specialists to operate and service them. For example, in 1917 the U.S. Army Quartermaster Corps had four different types of units; by November 1918 the Quartermaster Corps in France alone had 26 distinct types of units and another 6 types awaiting approval. In France by 15 December 1918, there were 706 Quartermaster Corps depot, supply, refrigeration, laundry, sterilization and bath, gasoline supply, graves registration, salvage, remount, and repair units, each with specialized equipment and specially trained personnel. And these were only the Quartermaster varieties; similar diversity was to be found in the Ordnance Corps, the Motor Transport Corps, and elsewhere, and the expansion of logistical operations in the United States added even more variety.

The First World War clearly demonstrated that "combat power" cannot be measured simply in terms of the numbers of weapons and combat troops available. Thenceforth, Army leaders would be obliged to devote as much attention to the composition and efficiency of the logistical "tail" as they did to the combat "jaws." Indeed, it appeared that the adequacy of logistical support was a critical factor in the success of combat operations and that a nation's ability to mobilize and support the combat forces was perhaps equal in importance with the actual performance of such forces on the battlefield. Some commanders fought to keep the Army lean and simple with a very high proportion of combat troops. In World War II they lost the fight, but the battle over the "tooth-to-tail" ratio has continued right down to the present. World War II offered the lesson that modern, complex, mechanized, and technically sophisticated armies operating worldwide in every conceivable climate and terrain, often in conjunction with a coalition of allies, require that a significant portion of the total force, if not the majority of it, must consist of personnel dedicated to providing the required logistical support to the few who actually do the fighting.

Finding the manpower needed to provide adequate logistical support to the combat forces has been a continuing problem, and traditionally American military leaders have relied in large part on civilians to perform logistical tasks. Overseas operations and the drive toward specialization in the first half of this century led to an increased emphasis on uniformed, disciplined logistical personnel. Nevertheless,

the overall trend has been toward increasing civilianization of military logistics, particularly at higher management levels. Closely allied with the trend toward using civilians to manage Army logistics (for example, the "dollar-a-year men" in World Wars I and II) has been the increasing adoption of business methods to manage Army logistics. Early in this century Secretary of War Elihu Root expressed the opinion that the Army was in effect a "big business" which could best be managed by the methods of big business. Frederick W. Taylor's "time and motion" prescriptions were tried briefly in Army depots before 1917, and World War I brought to the services the concept of statistical controls. World War II saw increased use of statistics and the advent of "operations research" and "systems analysis." This trend hopefully peaked during the Vietnam War era of Secretary of Defense Robert S. McNamara and his "whiz kids," most of whom came from American industry and who introduced such counterproductive concepts as the "body count" and "cost-effectiveness analysis." The military forces have benefited in many ways from the utilization of civilian experts and civilian techniques for the management of logistics, but there have been serious adverse effects as well.

Given the trends toward greater size, complexity, and variety of logistical forces it is only natural that American military leaders have sought to use the best available techniques of management.[1] The principal outcomes of those methods have been the increasing centralization of control over logistical planning and operations focused at the War (Defense) Department level and a parallel effort to increase efficiency by organizing logistical tasks along functional rather than commodity-related lines. The process began in earnest with the organizational reforms of Secretary of War Root, precipitated by logistical failures in the War with Spain in 1898. Root's reform program, and in particular the establishment of a War Department General Staff as the central logistical planning and coordination agency, provoked a long and bitter quarrel between the advocates of traditional methods of managing Army logistics and the proponents of centralized control and decentralized execution. Gradually, the "modernists" prevailed, principally due to the enormous management problems associated with modern military logistical support. The Quartermaster, Subsistence, and Paymaster Departments were consolidated in 1912 as a first step toward increasing efficiency through functional alignment and central control. In World War I control over Army logistics was further centralized in the General Staff. Although the centralizing tendency was relaxed following World War I, it was revived and prospered during the Second World War, when the control of major logistical functions was centralized in just three competing agencies: the War Production Board, the Logistics Group of the Operations Division of the War Department General Staff, and Headquarters, Army Service Forces, leaving the traditional supply departments with little effective power. The traditionalists continued to fight a losing battle against centralized control and functional organization after World War II. Until December 1961, each of the Army's technical branches (Quartermaster, Medical, Ordnance, Engineers, Signal, Transportation, Chemical) retained primary responsibility for the development, procurement, and distribution of supplies and equipment pertinent to their major function. This responsibility, as well as control over branch officer procure-

ment and training and other key functions, was removed from the branch chiefs by Secretary of Defense McNamara in an effort to streamline the Army and organize its logistical business along functional rather than traditional lines. Responsibilities were consolidated at Department of Defense level, and the duplication of effort was greatly reduced although the adherents of the old way of doing things were little pleased with the loss of power and prestige associated with the McNamara "reorganization."

And finally, in each of our wars there has been a perpetual failure to mobilize logistical facilities before mobilizing personnel. This trend can be seen clearly in every conflict since the Civil War.[2] The fault has been in our planning for mobilization. It takes comparatively little time to assemble men and begin their military training, but the lead time for housing, clothing, feeding, and equipping them is much longer, a fact that mobilization planners often seem to forget. The situation has been compounded by the tendency to demobilize support units first at the end of a war and to form and deploy them last once war has begun. The results, however, have been all too obvious: troops guarding the Capitol in 1861 without trousers and soldiers in 1941 training with wooden "guns," stovepipe "artillery," and automobiles marked "tank." Fortunately, we have thus far managed to escape the consequences of such faulty planning. Until now we have always had the time needed to correct the problems, and in the end our enormous industrial capacity has allowed us to compensate for many mistakes. Obviously, such may not be the case in the future.

The close study of these and other themes and trends in the history of U.S. Army logistics can pay great dividends in terms of understanding where we may be headed in the future. Although the emphasis may change from era to era, certain continuities do exist, and the student of Army logistics would do well to understand them thoroughly and consider what their impact may be on the future.

The "Principled" Approach

Most students of modern warfare are generally familiar with the nine Principles of War: mass, objective, simplicity, unity of command, maneuver, offensive, surprise, security, and economy of force. These principles were developed to serve as guides to the conduct of strategy and tactics. The principles governing the conduct of logistics, the other coequal aspect of war, are less well known but no less important and offer yet another method for approaching the study of the history of U.S. Army logistics in a systematic manner. The Principles of War are, of course, not absolute laws but rather guides. Perhaps their most useful function is as categories for the analysis of military operations or as teaching tools. The same is true of the Principles of Logistics. They provide excellent standards by which the military historian or analyst can evaluate logistical operations in the past, present, or future. Like the thematic approach, the "principled" approach requires a good deal of background knowledge of the subject and is thus better suited to the more advanced student. But all students of the history of Army logistics should have at least a basic knowledge of the Principles of Logistics.

"Lessons learned" are often confused with "principles" in discussions of the Principles of War or the Principles of Logistics. It should be remembered that "lessons learned" are usually very narrowly defined and situation-specific. They also generally apply best at the operator level. The Principles of Logistics, however, are at the other end of the scale. If they are truly principles, they must apply at every time and in every situation. They are in effect statements of natural law, and that is why a good set of principles is so hard to define.

There are perhaps as many sets of Principles of Logistics as there are commentators who have tried to define them. The official Principles of Logistics are set forth in Chapter 3 of Army Regulation 11–8.[3] The nine principles are:

> LOGISTICS INTELLIGENCE: Commanders must have accurate and timely logistics information in order to provide effective logistic support.
> OBJECTIVE: Logistics endeavors must be directed toward a clear and attainable objective.
> GENERATIVE LOGISTICS: The professional application of initiative, knowledge, and ingenuity and the innovative exploration of technical and scientific advances are fundamental to the generation of logistics system improvements.
> INTERDEPENDENCE: Logistic system efficiency requires effective interrelationships among all functional parts of the system.
> SIMPLICITY: Simplicity is essential at all levels of the logistics system.
> TIMELINESS: Logistics support must be provided in the right quantity and at the proper time and place for accomplishment of the mission.
> IMPETUS: The impetus of logistics support is forward to support the combat mission.
> COST EFFECTIVENESS: Efficient management of logistics resources is essential to cost-effective logistic support.
> SECURITY: Security of every facet of the logistics system must be maintained to preserve resources and assure sustained combat capability.

In a 1977 article in *Military Review*, Richard L. Kelley provided an excellent brief discussion of the nine official Principles of Army Logistics.[4] The author, then a captain in the Ordnance Corps, discussed the Principles of Logistics outlined in Army Regulation 11–8 and provided a few examples and illustrations of each principle from recent U.S. Army logistical doctrine and operations. He also used some examples from the 1973 Arab-Israeli War. Kelley, too, noted that these principles are perhaps most useful as tools of evaluation, particularly the evaluation of a commander's performance.

Many other commentators have offered their formulation of the Principles of Logistics. The noted logistical historian James A. Huston, for example, proposed fourteen principles based primarily on the American experience in war.[5] Most of these lists of principles are too long and involved for most practical pedagogical purposes. A more functional list should be somewhat more concise. Thus I propose the following list of five Principles of Logistics. It should be remembered

that these so-called principles are simply suggested categories to be used as aids in evaluating logistical operations in the past.

1. CONCENTRATION (MASS): Concentration is the key and dominant principle of logistics and its accomplishment involves the positioning of superior combat power at the decisive time and place. Logistics is the means by which the commander achieves mass, the controlling principle of war. Our successes in World War II and more recently in Operation DESERT STORM were due to observing just this principle.

2. AUSTERITY: Resources are always limited, and successful military forces must operate under conditions of logistical austerity. Austerity has two aspects: economy and simplicity. As to economy, the availability of maximum combat power at the decisive point is achieved through conservation of available resources before battle and the economic distribution of combat power/materiel to other, less vital, areas. Economy involves avoiding both excessive expenditure and unnecessary duplication of resources. One must also avoid the problem of "false economy." Simplicity of doctrine, plans, equipment, and organization are equally essential to the successful logistical support of combat operations. Simplicity also involves the simplicity of design for equipment as well as organizations and plans. The rule might be stated: "Never opt for the complex when the simple will do the job."

3. VISIBILITY: The successful commander or logistician must always know what he has and where it is at all times. Perhaps the clearest historical example of a failure to observe the principle of visibility may be the embarkation of the V Corps at Tampa in May 1898. The failure to maintain visibility over the enormous quantity of supplies being assembled for the invasion of Cuba came close to forestalling the operation altogether.

4. MOBILITY: Mobility of troops and equipment is essential to success on the modern battlefield. Equipment must be designed with mobility in mind, and adequate transportation must be provided for all military operations. A good illustration of the positive application of this principle is provided by the logistical operation connected with the recent Gulf War.

5. FLEXIBILITY: The successful commander or logistician must always be ready to accommodate the unforeseen. This can be accomplished by flexibility of organization, plans, and materiel, and, above all, by flexibility of mind.

These so-called principles can be used in a number of contexts for analyzing logistical events in the past. They provide useful categories for analysis and help to establish standards by which we may judge how well, or how poorly, our predecessors met the logistical challenges which they faced.

The Analytical Approach

One final approach to the study of the history of U.S. Army logistics might be called the analytical approach, although all of the methods previously suggested are to a greater or lesser degree analytical. Several years ago the Combat Studies Institute at Fort Leavenworth developed what was called "A Suggested Method for

the Systematic Study of Operational Military History."[6] The purpose of that method was to introduce into the historical study of combat operations the same degree of system, coherence, uniformity, and rigorous analysis as the five-paragraph field order gave to the preparation and issuance of combat orders. The method was designed to aid the student in analyzing campaigns and battles, but it can easily be adopted to the analysis of the logistical aspects of combat operations and provides an excellent systematic method for either the novice or the advanced student of the history of U.S. Army logistics. It can be especially useful for organizing serious research and writing on logistical history topics. In its basic form the analytical method consists of an outline which the student follows to guide his or her contemplation of the situation or operation under consideration. That outline is as follows:

I. DEFINE THE SUBJECT

A. Determine the date, location, and principal antagonists.
B. Determine the sources.
C. Evaluate the sources.

II. REVIEW THE STRATEGIC SETTING

A. Determine the causes of the conflict.
B. Compare the principal antagonists as to:

1. Political, economic, religious, social, and technological factors.
2. National (strategic) objectives.
3. Military systems.
4. Previous performance.

III. REVIEW THE TACTICAL SITUATION

A. Study the area of operations.

1. Climate and weather.
2. Terrain (observation, cover, concealment, obstacles, and avenues of approach).

B. Compare the opposing forces.

1. Size and composition.
2. Technology.
3. Logistical and administrative systems.
4. Command, control, and communications systems.
5. Intelligence.
6. Doctrine and training.

7. Condition and morale.
8. Leadership.

C. State the immediate military objectives of each antagonist.
D. Consider the feasible course of action for each antagonist.

IV. DESCRIBE THE ACTION

A. Describe the disposition of forces at the beginning of the action.
B. Describe the opening moves by each antagonist.
C. Outline the major phases (i.e., establish a relative chronology).
D. Describe the key events.
E. State the outcome.

V. ASSESS THE SIGNIFICANCE OF THE ACTION

A. Immediate.
B. Long-term.
C. Military "lessons learned."

It takes no great intuition to see how this basic outline might be adapted to logistical matters. One simply needs to concentrate on only the logistical aspects at each stage, keeping in mind such additional questions as: What were the key logistical problems in the operation studied? Were the problems overcome? If so, how? If not, why not? What was the effect of the logistical situation on the strategic and tactical conduct of the operation studied? Who were the key personnel involved in the logistical aspects of the operation studied? Did they play a positive or a negative role in solving the logistical problems of the operation?

Conclusion

In many respects the analytical method brings us full circle, for it is essentially a more systematic and hyperdeveloped form of the traditional approach outlined at the beginning of this essay. Indeed, all of the methods for the study of U.S. Army logistical history outlined here can be used simultaneously if desired. The adoption of one does not preclude the use of another, even within the study of the same situation. Each is complementary of the others and together they provide a variety of ways in which the student can gain a firm grasp of the factual details and the concepts involved in any given historical scenario.

Like the study of any large and complex subject, the study of the history of U.S. Army logistics requires time, motivation, and application of intellect. Such effort may not result in immediate gratification, but its constant practice over time will produce an understanding of the past which cannot but inform the decisions of the future in a most efficacious manner. The studied application of the methods suggested here will facilitate the process and help to ensure that a maximum ben-

efit is derived from the time and effort expended. The students who take the trouble to make a systematic study of their profession will at least earn the right to be called professionals, and, in the words of Confederate Lt. Gen. Richard Taylor:

> Conscientious study will not perhaps make them great, but it will make them respectable; and when responsibility of command comes, they will not disgrace their flag, injure their cause, nor murder their men.[7]

Notes

[1] The development of Army management philosophy is examined in depth by James E. Hewes, Jr., in *From Root to McNamara: Army Organization and Administration, 1900–1963* (Washington, D.C.: U.S. Army Center of Military History, 1975).

[2] This theme is traced in some detail in Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army, 1775–1945*, Department of the Army Pamphlet 20–212 (Washington, D.C.: Department of the Army, June 1955).

[3] Army Regulation 11–8, *Principles and Policies of the Army Logistics System* (Washington, D.C.: Headquarters, Department of the Army, 18 March 1976), Chapter 3.

[4] Richard L. Kelley, "Applying Logistics Principles," *Military Review* 57, no. 9 (September 1977): 57–63.

[5] James A. Huston, *The Sinews of War: Army Logistics, 1775–1953* (Washington, D.C.: U.S. Army Center of Military History, 1966), pp. 655–68. Huston's list of principles included: first with the most (mass); equivalence; materiel precedence; economy; dispersion; flexibility; feasibility; civilian responsibility; continuity; timing; unity of command; forward impetus; information; and relativity.

[6] The Lorraine campaign of World War II was used as a vehicle for introducing students to the method, and for several years students at the Command and General Staff College and at other Army schools received formal instruction on the method and its application.

[7] Richard Taylor (late Lieutenant General, CSA), *Destruction and Reconstruction* (1879), cited in Robert Debs Heinl, Jr., ed., *Dictionary of Military and Naval Quotations* (Annapolis, Md.: U.S. Naval Institute, 1966), p. 253.

Part I

Introduction to the History of U.S. Army Logistics

1

Logistics—The Word and the Thing

Introduction. In the introduction to the first volume of their masterful study of global logistics and strategy in World War II official Army historians Richard M. Leighton and Robert W. Coakley define "logistics," discuss how the term has been used, and explain how the concept of logistics has changed over time. They also provide a brief discussion of the impact on military logistics of the revolution in warfare arising from technological change and summarize the views on logistics of the classic military theorists Jomini and Clausewitz.

Logistics is an ancient word and a still more ancient thing.[1] Like many ancient words, it has meant different things at different times, and the thing itself has been, and still is, often called by other names. Yet the several current usages of the word, in military vocabulary, seem to be of rather recent vintage, probably no earlier than 1838 when Antoine Henri Jomini erected a theory of the art of war upon the trinity—strategy, grand tactics, and logistics.[2] While the word had been used occasionally in military parlance before that time, it apparently had had no single or very specific meaning. Since then its uses have been varied, and for long periods it has fallen into almost complete disuse. Meanwhile, the thing itself (whether we define the word narrowly or broadly) has grown from the comparatively humdrum, routine activity it once was into a very complex "Big Business" embracing a considerable part, some would say the greater part, of all the business of modern war.

The Revolution in Warfare

Jomini's attempt to incorporate into a rational theory of war the miscellaneous noncombatant activities on which armies and navies had always depended in order to live and fight occurred at a time when warfare itself was about to undergo a fundamental transformation. Signs of the impending change had already appeared

---

Reproduced from Richard M. Leighton and Robert W. Coakley, *Global Logistics and Strategy, 1940–1943*, U.S. Army in World War II (Washington, D.C.: U.S. Army Center of Military History, 1955), pp. 3–13.

during the long period of almost continuous warfare in Europe from 1792 to 1815—most conspicuously, a tremendous increase in mobility and the range of movement of armies, made possible by improved roads and the growing productivity of agriculture. Jomini himself, though most impressed by the tactical symptoms of these underlying changes, dimly perceived other more disturbing phenomena—the growing size of armies, the mounting ferocity of warfare, and the emergence of a new, more murderous technology. Jomini's attention was mainly captured by the latest improvements in artillery, particularly by a new "steam" gun that seemed to hold horrendous promise. A far more portentous phenomenon, steam-propelled rail transport, he dismissed as an instrument of peace only, although five years earlier a French general had declared in the Chamber of Deputies that the strategic use of railways would cause a revolution in military science, and across the Rhine Friedrich List was trying hard to impress the same point on his countrymen.[3] All of these developments were in fact harbingers of a resolution that was not to reach full tide until the great wars of the twentieth century, though governments and high commands began to grapple with the problems it presented from the midnineteenth century on.[4]

Like all revolutions, this one grew out of the double challenge of new demands and new opportunities. Nationalism and conscription produced huge armies; new weapons multiplied fire power. To feed the armies and unleash their fire power, military staffs had no choice but to come to terms with the new technologies of supply and movement—mass production of munitions and foodstuffs, the railroad, the steamship, the long-distance pipeline, the internal combustion engine, eventually the transport airplane. Wars came to be fought along wide fronts of continental extent; lines of communications became deep zones containing an elaborate establishment of military administration and services.

Stupendous magnitudes were involved. World War I saw an expenditure of artillery ammunition by British and French forces, during one average month, more than twice as great as that by the Union forces during the entire four years of the War Between the States, a conflict that itself revealed many characteristics of the new warfare. In the seven days of the Battle of the Somme in 1916, British artillery fired about 4 million rounds, roughly 1,200 times as many as the Union Army fired in the three-day Battle of Gettysburg in 1863.[5] World War II piled Pelion upon Ossa. During the first nineteen months of its participation in World War II, the U.S. Army purchased almost 950,000 trucks, nineteen times the number it had procured during the corresponding period of World War I. From Pearl Harbor to V–J Day it procured for its own and Allied forces some 84,000 tanks, 2.2 million trucks, 6.2 million rifles, 350,000 artillery pieces, .5 billion rounds of ground artillery ammunition, [and] 41 billion rounds of small arms ammunition. It shipped overseas 127 million measurement tons of cargo, and 7.3 million troops and other passengers. The U.S. Army Air Forces dropped over two million tons of bombs on the enemy.[6]

The new juggernaut armies' voracious appetite for food, fuel, and munitions dictated a basic change in the method of supply. From the earliest times the swiftly moving, hard-hitting, self-contained force, living off the country and a lean bag-

gage train, had been the dream of every commander. In the hands of Hannibal, Xenophon, Subotai, Gustavus, Marlborough, Napoleon, Jackson, and Sherman, such forces had performed spectacular exploits. When armies became chained to depots and their trains grew heavy and sluggish, as happened in some of the wars of the eighteenth century, warfare itself became a mere appendage of logistics in which, as Frederick the Great is said to have observed, "the masterpiece of a skillful general is to starve his enemy." In the new warfare, the possibility, of self-containment almost disappeared. Under the logistical system that emerged in the late nineteenth century, first formalized by Prussia in 1866, armies were supplied not by a train, but by a "tail"—vehicles shuttling in relays over segments of the total distance between the army and its sources of supply, thus pushing freight continuously forward as though by a series of endless conveyor belts. As an army advanced, its "tail," in order not to lose contact with the base, naturally stretched out, requiring more and more transport to keep supplies moving forward.[7]

The basic elements of this system were adopted by all large modern armies in the first half of the twentieth century. Given the necessity for continuous resupply, some system of staging was dictated in any case when freight was transshipped from one form of transportation to another—normally, at port, at railhead, and at truckhead. The principle of continuous movement of supply from rear to front was supplemented, on a large scale, by the older method of stocking supplies at convenient distribution points. Since the rate of movement over all stages of the line of supply could never be uniform because of differences in the capabilities of the means of transport and handling, backlogs of freight plied up at bottlenecks along the line, usually at transshipping points. Additional reserves had to be stocked forward of such critical bottlenecks as insecure transoceanic communication lines and ports of entry of meager capacity. Against the threat of enemy penetration and in order to utilize alternate communication lines, reserves in war theaters had to be dispersed among many magazines, both laterally and in depth. Large-scale offensive operations, in addition, demanded immense accumulations of munitions, fuel, and subsistence close behind the point of impact—requiring months and sometimes years to build up—in order to provide crushing initial force and sustained impetus.

World War I, in the western theater, with its creeping, scaled front and enormous concentration of forces in small areas, offered a natural habitat for the modified system of staged, continuous resupply. The abrupt return to mobility in 1939–45 strained the system to the limit. To supply staffs, a break-through by their own forces presented problems almost as formidable as one by the enemy, for the methodical disposition forward of depots, dumps, fuel pipelines, and transport systems could not possibly keep pace with racing armored columns, even if the capacity of supply lines to the rear could be expanded rapidly enough. Roads, rail lines, and bridges in territory abandoned by the enemy could be expected to be seriously damaged; in the absence of prepared relay and transshipping facilities, transport would have to operate in abnormally long shuttles. The mobility necessary to sustain a break-through, in consequence, could only be gained by lavish use of all forms of transportation, far beyond the amounts normally available.

Yet, short of curtailing drastically the scale of military operations, World War II brought forth no real alternative to continuous resupply. Guerrilla forces, ill armed and without regular supply lines, won amazing successes against regular troops in the Soviet Union and the Balkans, and on occasion were able to carry out large-scale operations, but only for limited periods at a time. What was likely to happen to an army cut off from its sources of resupply, even when it had substantial stocks on hand, seemed to be demonstrated by the fate of MacArthur's forces in the Philippines in 1942, an experience that made a lasting impression on the American high command. Mountains, jungles, and vast ocean distances in the theaters of the war against Japan dictated many compromises in the lavish logistical support to which American forces were accustomed, but the solution was not found in a return to self-containment. In the end these obstacles were overcome simply by moving up the apparatus of land, sea, and air power on so massive a scale that it was possible not merely to crush the enemy at selected points of impact but also to contain him elsewhere, to protect communication lines and bases of operations, and even to neutralize and bypass major enemy strong-holds.[8] This kind of logistical support demands virtually unlimited resources in munitions, supplies, and transport. With them, and employing the staging method of resupply in combination with accumulated reserves near the front, armies can strike hard, move swiftly, and sustain their driving force, even though with diminishing returns in mobility and flexibility, and increasing risk that road, rail, or port bottlenecks may clog and result in paralysis. Without abundant resources, armies can only strive by austere living and improvisation to stretch their limited transport, using it mainly to sustain fire power, and to make mobility offset weakness in offensive strength. Austerity, improvisation, and even mobility are military virtues, not because they are ends in themselves but because they serve to extract the maximum of effective power from available resources, thus to some degree compensating for lack of abundance.

Supply and transportation were only one aspect, though unquestionably the most important one, of the new logistics. This logistics was deeply embedded in the economy of the nation. Armies drew from science and the civil professions many things besides weapons and means of transport—medicine and surgery, electric power, the telegraph, the telephone, radio and radar, the bulldozer, psychiatry, business management, propaganda, planned recreation, techniques of indoctrination. Armies became, in fact, complex communities in themselves, miniature and specialized replicas of the societies that sustained them. The traditional cleavages between the noncombatant and combatant skills, and those between military and civilian spheres of activity, became blurred. Engineers in many armies became shock troops; signal corpsmen were expected to work and fight with the most advanced units, truck drivers to man antiaircraft machine guns. In coming to terms with the new technologies of war, the military profession had to broaden and dilute its training to include dozens of skills remote from combat and command. The technicians and administrators within its ranks multiplied and in many fields drew closer to the civilian community in outlook and professional qualifications than to their colleagues in the combat arms.

Even so, the military profession could not hope to master all the skills it had to exploit. In time of war the needs of sudden expansion could only be met by a wholesale influx of civilians into the military administrative establishment, and whether they donned uniform or not scarcely affected the character of their employment. Nor could the military extend very far, in relation to the immensity of the field, its administrative control and supervision over the noncombatant activities it was unable to master. In the United States the military services controlled the procurement of most of the finished munitions and a limited part of the transportation they used, but even this control was vigorously attacked during World War II and after.[9] In many other countries the power rested in civilian government agencies. In fact, from the late nineteenth century on, the pressure to expand military control over various segments of national economies usually encountered, and yielded to, the more powerful drive of the state, through its central civil agencies, to mobilize under its own aegis the nation's war-making resources.[10]

The revolution in warfare thus brought an immense growth in the range and complexity of activities supporting armies and navies. The range of professional military skills also broadened, but not nearly to the limits of the whole field that war now exploited, while military control tended to shade off into various forms of partnership with government agencies and private enterprise as it reached back into the vast expanse of services that supported a nation's military effort. What theorists had once called logistics had spread to embrace a considerable part of the economic life of the nation.

Since the end of World War II the rapid development of the air arm, the promise of transcontinental guided missiles, and above all the emergence of a whole family of weapons employing the principles of nuclear fission and fusion have enormously accelerated two very old trends in weapons—increasing destructiveness and increasing range. Whether these developments presage a new revolution in logistics it is still too early to determine. Certainly they seem likely to accentuate and continue trends already manifest. By bringing rear administrative areas, lines of communications, and even sources of supply progressively under fire, the new weapons will further enhance the necessity for dispersion of installations and channels of movement, disrupt orderly administration, interrupt the continuity, and reduce the net volume of supply—phenomena familiar to every Allied theater commander in World War II and conspicuous ones in the final collapse of Germany and Japan. On the other hand, the growing range of fire power involves a corresponding diminution of the distances over which the ingredients of fire power must be transported, to that extent simplifying the logistical problem; conceivably the necessity for massive overseas establishments may eventually disappear altogether. There are signs, moreover, that growing reliance on long-range weapons of tremendous per-unit destructiveness may in time actually reduce the aggregate amounts of supply requirements for all forces in the field, thus reversing one of the oldest trends of logistics. In the end, by raising the possibility that a conflict may be won or lost within the first few days or even hours, the new technology may virtually eliminate the whole problem of military

supply and reduce to irrelevance most of the complex apparatus of industrial potential that for almost a century has been an indispensable requirement for sustaining, as well as for launching, a major war. Neither World War II nor the Korean conflict, however, put the newest weapons to the test. As these words are being written, armies appear to be still dependent upon an elaborate rear area administrative establishment and a massive, uninterrupted flow of food, fuel, and munitions from secure sources of supply.

Changing Conceptions of Logistics

This transformation of the environment in which logistics operated inevitably brought about an adjustment in attitudes and conceptions concerning it. The character of the adjustment was strongly colored by the doctrines of Karl von Clausewitz, whose teachings dominated European military thought during the last quarter of the nineteenth century.[11] A contemporary of Jomini, Clausewitz did not even use the term "logistics." In his celebrated work *On War*, he defined the "conduct of war"—which he identified with strategy and tactics—as "the art of making use of given means in combat," and from this he sharply differentiated, as purely preparatory and contributory processes, both the creation of armed forces (mobilization, training, and so forth) and their maintenance in time of war—"subservient" services which, although they stood "in a constant reciprocal relation to the use of troops," were not yet part of "the conduct of war properly so called." Clausewitz was well aware that certain activities, notably "marches, camps and quarters" and subsistence, sometimes exerted a decisive influence on the outcome of battles and campaigns, but he dismissed them as irrelevant to his discussion.

> We are at present occupied not with the concrete facts of any individual case, but with abstract theory . . . . the theory of war itself is occupied not with perfecting these means but with their use for the object of the war. It needs only the results of them, that is to say the knowledge of the principal properties of the means it has taken over.

Convinced as he was of the superiority of moral to material forces in war, Clausewitz had little interest in the "subservient" services, even though he conceded their importance. Out of the 125 chapters of *On War*, his discussion of these services occupies only half a chapter.[12]

The generation that burned incense at Clausewitz' altar did not, of course, keep this doctrine pure. A very few exaggerated and oversimplified it into a crass disparagement of all noncombatant services, which they relegated to technicians and menials as something apart from the profession of arms. Veneration of Clausewitz, however, did not prevent his most brilliant disciples—the elder Moltke and Schlieffen, for example—from readily grasping and vigorously exploiting the potentialities of "given means" that Clausewitz could not have foreseen. The Prussian victories of 1866 and 1870–71 owed much to the railroad and the telegraph, perhaps even more to a well-greased machinery of military administration, which functioned as it did because professional soldiers did not scorn to give it

their personal attention.[13] The importance of the major logistical innovation of nineteenth-century warfare, moreover, was recognized by the formation of a Railway Section in the Prussian Great General Staff, specially trained military railway troops, and a centralized military-civilian organization for co-ordinating railway operations in Prussia in time of war.[14]

More fundamentally, military organization and practice rejected the doctrine, strongly implied though not explicitly asserted by Clausewitz, that the "subservient" services could be relegated to a separate compartment from the conduct of combat operations. European armies after 1870, and ultimately the U.S. Army, placed the specific function of co-ordinating important logistical activities (as well as the responsibility for general co-ordination) at the general staff level cheek by jowl with the staff sections charged with strategy and tactics.[15] "Logistics," declared a U.S. Army staff text in 1926, "cannot be separated from tactics and strategy. It is a major factor in the execution of strategic and tactical conceptions, so inextricably interwoven that it is an integral part of each"—a doctrine that harked back almost a hundred years to Jomini's observation that logistics was the province "not merely of staffs, but also of generals-in-chief."[16]

Yet the basic ingredients of the Clausewitzian view remained. In the analytical and interpretive literature on war by professional military writers since the middle of the nineteenth century, the expanding role of the noncombatant services has received only perfunctory recognition, while scarcely any of the writers have chosen to describe the actual mechanics of administration. Among professional officers of the U.S. Army, at least until recently, indifference to logistics was widespread and traditional—a striking paradox in an army that can claim some of the most spectacular advances in that field. This attitude, in the opinion of many who once shared it, can be traced back to a general military education in which, down to World War II, logistics was held in low esteem.[17] Since the end of World War II logistical subjects have been given a more prominent place in courses at the U.S. Military Academy and the Command and General Staff School as well as at the more specialized schools, and, with the broadening of opportunities for advancement in the logistical field, there has been some quickening of interest in it. But staff organization and practice, in the American as in most other armies, continue to elevate the operations function over the administrative, and officers schooled in the mysteries of logistics are employed more as expert consultants than as active participants in the processes of strategic and tactical planning.[18]

Military thought, in short, has clung to two characteristically Clausewitzian ideas: that the primary function of the soldier is to use the tools of war in combat, not to fashion or provide them, and that material forces have not yet diminished the classic and decisive role of courage, leadership, and the arts of command. The development of warfare has subjected both these principles to considerable strain. The once clear distinction between the use and the providing of weapons has been virtually obliterated, and modern war engages more soldiers in the latter task than in the former. Courage and leadership are steadily losing the power to override heavy material odds. The Clausewitzian conception of logistics, in its pure form, is clearly unsuited to the conditions of modern warfare. It remains to be seen

whether it can continue to adapt itself to a revolution in warfare still under way, or whether it will be replaced by a radically new approach.

The Vagaries of Usage

The revolution in warfare raised a semantic problem in connection with the term "logistics" that remains unresolved to this day. What precisely is the scope of activity embraced by logistics? The question was and is of more than academic interest, for, as one writer pointed out in 1917, when the word was only beginning to come into American military usage,

> The purpose of the definition is to establish a division of labor, and if two divisions [strategy and tactics] are properly drawn while the third is not, there will be either duplication of effort, or some functions will be overlooked entirely, with the result that certain preparations for war will not be made.[19]

In Jomini's own day logistics was thought of vaguely as military staff business in general, a "science of detail." Jomini ascribed the derivation of the word to the title of the *mayor généraux* (or *maréchaux*) *des logis* in French armies of the eighteenth century who, originally charged with miscellaneous administrative functions such as the arrangements for marches and quarters, had come to serve in effect as chiefs of staff to higher commanders—as did their counterparts, the *Quartiermeister*, in Prussian armies. While Jomini clearly intended to use "logistics" in a broader sense, his discussion, in contrast to the logical clarity of most of his writing, is inconclusive and vague.[20] Tradition, nevertheless, drew from Jomini's brief disquisition the implication that he supposed logistics to cover all or almost all of the field of military activities supporting combat.

As a practical matter such a conception had little meaning for military men who had to organize and administer these activities. Such matters as transportation, supply, engineering, and medical care were continuing problems, which no commander or staff could afford to ignore, particularly under the new conditions of warfare, while others, such as legal and religious affairs, pay and allowances, and many of the details of personnel administration, were under ordinary circumstances peripheral or routine. To lump them all under a single name implied a unity that did not in fact exist. It is significant that the word "logistics," despite the enormous influence of Jomini's writings during the long middle span of the nineteenth century, remained an academic, almost archaic term throughout that century, rarely used by theorists, hardly at all by soldiers.[21] Shortly before World War I it began to creep into military service parlance in the United States, but down to World War II it seldom appeared in the working vocabulary of the average Army or Navy officer. It was used, moreover, in a rather narrow sense, meaning simply transportation and supply in the field; the noncombatant services as a whole were known, instead, by the term "administration," a usage similar to that in British service terminology.[22]

With World War II the word "logistics" in American usage came into sudden, luxuriant vogue. Every writer on military subjects began to employ it with joyous

abandon, and its meaning lost what little stability it had possessed when restricted to the vocabularies of military theorists and a few bookish staff officers. Wide usage brought immediately into conflict the urge to adopt "logistics" as a convenient term covering all primarily noncombatant military activities and the inertia of habit wedded to a more limited meaning. Official Army usage of the word received a powerful impulse toward a broader definition as a result of the consolidation, during World War II, of most of the Army's supply and service activities in the United States under a single command, the Army Service Forces (Services of Supply in the period covered by this volume). That organization's final report defined "logistics," largely in terms of its own functions, to include an impressive list of activities: procurement, storage, and distribution of equipment and supplies; transport of troops and cargo; construction and maintenance of facilities; communications; care of the sick and wounded; induction, classification, assignment, welfare, and separation of personnel.[23] Many military agencies during and after the war began to adopt the label "logistics" or "logistical," though none performed so wide a range of functions as had the Army Service Forces, and soon after the end of the war the Army developed a group of type headquarters called "logistical commands," each designed to co-ordinate all the supporting services for a territorial area of specified size within a theater of operations.[24] In the Navy the word "logistics," with a somewhat longer tradition behind it, enjoyed a comparable renaissance.[25] In 1950, the Year IV of Unification, the whole process culminated when the three military services agreed on an official definition, assigning to "logistics" all activities in the military establishment involved in the handling of personnel, matériel, facilities, and services—in effect, the entire field of military administration.[26]

But official definitions, as Burke observed of the English constitution, go but a little way. Usage remains stubbornly inconsistent, conservative, and opportunist. Army field service regulations, a bible for operating personnel, did not even recognize the term "logistics" until 1949, and then in a sense more narrow than that of the official joint definitions of 1948 and 1950.[27] Among the Army's technical services, especially the Engineer, Signal, and Chemical Corps, which have a strong combat tradition, there is an ingrained resistance to any label such as "logistics" that seems to imply nonexposure to battle. None of the agencies so labeled, in any case, has functional responsibilities covering more than a portion of the field of logistics as officially defined.

To the average Army officer, at least, "logistics" is something both narrower and vaguer than the official definition of 1950, though perhaps not so narrow or vague as it was to one highly placed officer in 1943 who held that a certain committee handled "not only logistics matters but also . . . personnel, organization, troop basis, requirements, production, supplies and matériel."[28] Repeated use of such locutions as "logistics and administration," "logistics and construction," and even, inexplicably, "logistics and supply" betrays a widespread uncertainty in the military profession itself as to precisely where logistics stops and something else begins. Evidently the term is still in process of rapid and healthy growth.[29] Until it matures and settles down, we must accept it, perforce, in whatever guise it

appears—that is to say, with the specific shape, content, and emphases it derives from its concrete environment.

Notes

[1] The original derivation of the word "logistics" was Greek, from *logistikos* meaning "skilled in calculating." In Roman and Byzantine times there appears to have been a military administrative official with the title *logista*, whose duties, it is easy to imagine, must have required an intimate familiarity with *logistics*, the science of mathematical computation—a meaning still carried in most general dictionaries along with the more modern military meaning. For many centuries European warfare lacked an organized administrative science in anything like the modrrn sense, and most noncombatant services (as well as certain combatant ones such as siegecraft and the use of artillery) were performed for a long time by civilians. The word "logistics," as applied to military administration, did not apear until the eighteenth century. See articles on logistics in the *Enciclopidia universal ilustrada* (Barceelona, 1907–30), Vol. XXX; the *Enciclopidia italiana* (Rome, 1934), Vol. XXI; and the *Encyclopedia Americana* (New York, 1953), Vol. XVII.

[2] See Antoine Henri, Baron de Jomini, *Précis de l'art de la guerre*, 2 vols. (Paris, 1838), Vol. II, Ch. VI. Jomimi mentioned, but without discussing them, two additional branches of warfare—engineering and minor tactics.

[3] (1)Jomini, *Précis de l'art de la guerre*, II, 284–85. (2) Edwin A. Pratt, *The Rise of Rail Power in War and Conquest, 1833–1914* (London, 1915), Ch. I. (3) Edward Mead Earle, *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler* (Princeton University Press, Princeton, N.J., 1948), pp. 148–52.

[4] Only a sampling of the literature on this subject can be given here. (1) Most of the works of Maj. Gen. John F.C. Fuller deal with the subject, primarily with reference to mechanization and armor; see especially his *The Reformation of War* (New York, E.P. Dutton & Co., Inc., 1923), and *Armament and History: A Study of the Influence of Armament on History* (New York, C. Scribner's Sons, 1945). See also: (2) Baron Colmar von der Goltz, *The Nation in Arms*, translated by Philip A. Ashworth (London, 1913), and *The Conduct of War*, translated by Joseph T. Dickman (Kansas City, Mo., 1896), Chs. I–II, VIII; (3) Jan Gottlieb Bloch, *The Future of War in Its Technical, Economic and Political Relations*, translated by R. C. Long (Boston, Ginn & Company, 1902); (4) Jean Colin, *The Transformations of War* (London, 1913), Chs. IV–V; (5) Edwin A. Pratt, *The Rise of Rail Power in War and Conquest, 1833–1914* (London, 1915); (6) Victor W. Germains, *Mechanization of War* (London, 1927), Chs. IX, XII; (7) Lowell M. Limpus, *Twentieth Century Warfare: How Modern Battles Are Won and Lost* (New York, E. P. Dutton & Co., Inc., 1910); (8) Quincy Wright, *A Study of War*, 2 vols. (Chicago, The University of Chicago Press, 1942), Ch. XII; (9) Benedict Crowell, *America's Munitions, 1917–1918* (Washington, 1919); (10) Brooks Emeny, *The Strategy of Raw Materials* (New York, The Macmillan Company, 1944); (11) Bernard Brodie, *Sea Power in the Machine Age* (Princeton, N.J., Princeton University Press, 1941); (12) James P. Baxter, III, *Scientists Against Time* (Boston, Little, Brown and Company, 1946); (13) Vannevar Bush, *Modern Arms and Free Men* (New York, Simon & Schuster, Inc., 1949); (14) John U. Nef, *War and Human Progress: An Essay on the Rise of Industrial Civilization* (Harvard University Press, Cambridge, Mass., 1950); (15) Lewis Mumford, *Technics and Civilization* (New York, Harcourt, Brace and Company, 1934); (16) Irving B. Holley, *Ideas and Weapons* (New Haven, Conn., Yale University Press, 1953); (17) George E. Turner, *Victory Rode the Rails: The Strategic Place of the Railroads in the Civil War* (Indianapolis, Ind., Bobbs-Merrill, 1953); and (18) Lt. Col. John D. Millett, "Logistics and Modern War," *Military Affairs*, Vol. IX, No. 3 (Fall 1945), pp. 193–207.

[5] Benedict Crowell and Robert F. Wilson, *The Armies of Industry*, 2 vols. (New Haven, Conn., Yale University Press, 1921), I, 27, 29, 31.

[6] (1) *Annual Report of the Army Service Forces, 1943* (Washington, 1944), p. 271. (2) Theodore E. Whiting, Statistics, a volume in preparation for the series UNITED STATES ARMY IN WORLD WAR II, Procurement Sec, 9 Apr 52 draft. (3) *Third Report of the Commanding General of the Army Air Forces to the Secretary of War, 12 November 1945*, p. 64.

[7] (1) Brevet Lt. Col. G. C. Shaw, *Supply in Modern War* (London, 1938). (2) Goltz, *The Nation in Arms*, Pt. IV, Ch. 6, and Pt. V. (3) Henry G. Sharpe, *The Art of Subsisting Armies in War* (New York, John Wiley & Sons, 1893), Ch. III.

[8] (1) For the logistical problems created by the Allied break-through in France in July 1944, see Roland G. Ruppenthal, *Logistical Support of the Armies* (Washington, 1953). (2) See also, Louis Morton's forthcoming volume on strategy, command, and logistics in the Pacific war, and, for the first Philippine campaign in particular, his *The Fall of the Philippines* (Washington, 1953). All are in the series UNITED STATES ARMY IN WORLD WAR II.

[9] For the attack on the military procurement power in the United States, see: (1) John D. Millet, *The Organization and Role of the Army Service Forces*, UNITED STATES ARMY IN WORLD WAR II (Washington, 1954), Ch. XIX; (2) Bureau of the Budget, *The United States at War: Development and Administration of the War Program of the Federal Government* (Washington, 1946), pp. 129–31.

[10] For a survey of the systems in various countries during World War II, see Foreign Logistical Organizations and Methods, 15 October 1947, Report of the Secretary of the Army, OCMH.

[11] (1) Dallas D. Irvine, "The French Discovery of Clausewitz and Napoleon," *Journal of the American Military Institute*, Vol. IV, No. 3 (Fall, 1940), pp. 144–45. (2) Herbert Rosinski, *The German Army* (New York, Harcourt, Brace and Company, 1940), pp. 121–29.

[12] Karl von Clausewitz, *On War*, translated by 0. J. Matthijs Jolles (New York, Random House, Inc., 1943), pp. 61–66.

[13] (1) General Fieldmarshal Count Alfred von Schlieffen, *Cannae* (Fort Leavenworth, Kans., The Command and General Staff School Press, 1931), Chs. III–IV. (2) Pratt, *The Rise of Rail Power*, Chs. X–XII.

[14] (1) Dallas D. Irvine, "The French and Prussian Staff Systems Before 1870," *Journal of the American Military History Foundation*, Vol. II, No. 4 (Winter, 1938), pp. 193–94. (2) James D. Hittle, *The Military Staff: Its History and Development* (Harrisburg, Pa., Military Service Pub. Co., 1949), p. 66. (3) Pratt, *The Rise of Rail Power*, Chs. X–XI.

[15] (1) See Hittle, *The Military Staff*, Chs. 3–6, *passim*. (2) See also, Otto L. Nelson, Jr., *National Security and the General Staff* (Washington, Infantry Journal Press, 1946). (3) FM 100–10, Field Service Regulations: Administration, any edition. (4) FM 100–5, Field Service Regulations: Operations, any edition.

[16] (1) Command, Staff and Logistics: A Tentative Text, issued by The General Service Schools, Fort Leavenworth, Kans., 1926, Sec 11, par. 12. (2) Jomini, *Précis de l'art de guerre*, II, 150.

[17] See the testimony of Lt. Gen. LeRoy Lutes and other observers as noted below, Ch. XVI.

[18] For a statement of this doctrine, see Ray S. Cline, *Washington Command Post: The Operations Division*, UNITED STATES ARMY IN WORLD WAR II (Washington, 1951), pp. 1–7, 258–61. See also below, Chs. IX, XXIV.

[19] George Cyrus Thorpe, *Pure Logistics: The Science of War Preparation* (Kansas City, Mo., Franklin Hudson Publishing Co., 1917), p. 16.

[20] Jomini, *Précis de l'art de la guerre*, II, 146–50.

[21] For example, see: (1) Marmont, *Esprit des institutions militaires* (Paris, 1845); (2) Ardant du Picq, *Battle Studies: Ancient and Modern Battle*, translated by Col. John N. Greely and Maj. Robert C. Cotton (New York, The Macmillan Company, 1921); (3) V. Derrecagaix, *Modern War*, 3 vols., translated by C. W. Foster (Washington, 1888); and (4) M. Alfred Rambaud, *Termes militaires français-anglais* (Paris, 1903). None of these mention the word "logistics."

[22] (1) Command, Staff and Logistics, Sec 11, par. 12. (2) FM 100–10, Field Service Regulations: Administration, 9 Dec 40.

[23] *Logistics in World War II*, Final Report of the Army Service Forces (Washington, 1947), p. vii.

[24] James A. Huston, Time and Space, MS, 1953, Pt. 1, Ch. II. pp. 180–88, and Pt 2, Ch. V, pp. 12–19, OCMH.

[25] Duncan S. Ballantine, *U.S. Naval Logistics in the Second World War* (Princeton, N.J., Princeton University Press, 1947), Ch. I, especially pp. 1–8, 30–31.

[26] *Dictionary of U.S. Military Terms for Joint Usage* (Washington, June 1950).

[27] FM 100–10, Field Service Regulations: Admimistration, Sep 49.

[28] Memo, Brig Gen Albert C. Wedemeyer for CofS, 5 Mar 43, sub: Orgn of Plng Agencies Subsidiary to JCS, WDCSA 334 JCS.

[29] For a recent, far from definitive, effort to fix the meaning of the word, see Rear Adm. Henry E. Eccles, USN (ret.), "Logistics—What Is It?" *U.S. Naval Institute Proceedings*, Vol. 79, No. 6 (June 1953), pp., 645–53.

2

Principles of Army Logistics

Introduction. Chapter 3 of Army Regulation 11–8 contains the official statement of the nine principles which guide the development and evaluation of logistical concepts, systems, policies, objectives, and operations in the United States Army today. Such principles are perhaps best used as guides to study rather than absolute prescriptions for actual planning and operations.

3–1. General. The basic mission of the logistics system is to support the soldier in the field with what is needed, when, where and in the condition and quantity required, at minimum expenditure of resources. This mission is the common thread which connects all logistic activity, governs application of principles, and establishes a framework of fundamental logistic principles that guide mission accomplishment. These principles guide development and evaluation of logistic concepts, systems, policies, objectives and operations. They support the principles of war through support of military strategy and tactics. As with the principles of war, the relative emphasis to be given any one principle at a given time depends upon the existing set of circumstances.

3–2. Logistics principles. The fundamental logistics principles are:

a. Logistics intelligence. COMMANDERS MUST HAVE ACCURATE AND TIMELY LOGISTIC INFORMATION IN ORDER TO PROVIDE EFFECTIVE LOGISTIC SUPPORT. The magnitude, complexity and diversity of Army activities dictate that logistic essential elements of information be readily available to commanders at all levels. Essential management data must be provided to show present and expected trouble areas, asset visibility to include quantity and location of intransit materiel, etc. High speed communications and mechanized processing not only provide the information necessary for centralized control and management, but reduce the reporting and record keeping requirements of subordinate echelons.

b. Objective. LOGISTICS ENDEAVORS MUST BE DIRECTED TOWARD A CLEAR AND ATTAINABLE OBJECTIVE. Logistics objectives should pro-

---

Reproduced from Chapter 3, "Principles of Army Logistics," in Army Regulation 11–8, *Principles and Policies of the Army Logistics System* (Washington, D.C.: Headquarters, Department of the Army, 18 March 1976).

vide standards by which progress is measured and a means to determine when a task has been accomplished. Objectives must serve to standardize and improve the logistics system.

c. Generative logistics. THE PROFESSIONAL APPLICATION OF INITIATIVE, KNOWLEDGE AND INGENUITY, AND THE INNOVATIVE EXPLORATION OF TECHNICAL AND SCIENTIFIC ADVANCES ARE FUNDAMENTAL TO THE GENERATION OF LOGISTICS SYSTEM IMPROVEMENTS. This principle emphasizes the professional aspects of human endeavors that must be applied in developing logistics system improvements. The exploitation of evolutionary and technological advances in design are the basis for the continuous improvement to the system.

d. Interdependence. LOGISTIC SYSTEM EFFICIENCY REQUIRES EFFECTIVE INTERRELATIONSHIPS AMONG ALL FUNCTIONAL PARTS OF THE SYSTEM. This principle relates to the five major functional divisions of the logistics system and their related subfunctions. It emphasizes that effective and efficient logistics operations depend on the degree to which the functions within the operating system either can be coordinated (i.e., properly interfaced) or, where feasible, integrated.

e. Simplicity. SIMPLICITY IS ESSENTIAL AT ALL LEVELS OF THE LOGISTICS SYSTEM. The application of simplicity offsets the tendency of logistic systems to increase in complexity as they expand in scope. Standardization of design and procedures is a means of applying simplicity.

f. Timeliness. LOGISTICS SUPPORT MUST BE PROVIDED IN THE RIGHT QUANTITY AND AT THE PROPER TIME AND PLACE FOR ACCOMPLISHMENT OF THE MISSION. This principle emphasizes the interrelationship between resource distribution, mobility and responsiveness which is required to provide timely logistic support. Timing must be relative to the objective, whether in resupply of tactical forces or wholesale procurement and it is often the key element in logistics support.

g. Impetus. THE IMPETUS OF LOGISTICS SUPPORT IS FORWARD TO SUPPORT THE COMBAT MISSION. This principle highlights the combat mission role and emphasizes the forward logistics support which must be provided. Supported commanders should be relieved of all possible details while retaining control of their own logistics support.

h. Cost effectiveness. EFFICIENT MANAGEMENT OF LOGISTICS RESOURCES IS ESSENTIAL TO COST EFFECTIVE LOGISTIC SUPPORT. Application of this principle requires austerity in providing only that logistics support required, and efficiency in the administration of that support. The competition for limited resources requires efficient planning, programing and management by professional logisticians to provide logistics support that is consistent with tactical requirements and within national economic constraints.

i. Security. SECURITY OF EVERY FACET OF THE LOGISTICS SYSTEM. MUST BE MAINTAINED TO PRESERVE RESOURCES AND ASSURE SUS-

TAINED COMBAT CAPABILITY. This principle emphasizes the requirement for proper security measures that will prevent disruption of the logistics system and preserve resources to assure sustained support provided to the combat forces is dependent on the proper application of the principle.

3

Logistics and Modern War

Introduction. Lt. Col. John D. Millett defines the place of logistics in modern war and discusses the impact of the citizen army and the Industrial Revolution on military logistics. He then briefly explains the interrelationship of logistics and strategy in World War II and goes on to outline the importance of adequate, linked procurement and distribution systems and the impact of the requirement for overseas movement on American military logistics.

Military commanders of whatever rank—the company's captain, the regiment's colonel, the division's major general, the theater's commanding general, the chief of staff under the commander-in-chief—have never been free from supply worries. Preparations for battle have always been the greatest task of the military leader, have always demanded his most sustained attention. If campaigns have not always been won by the best prepared, wars have seldom been lost by the nation with the greatest resources in men and equipment.

Yet surprisingly enough, only passing attention is usually given to supply problems in the memoirs of the great military figures of history. Military analysts have written at length about marches, the deployment of forces, and the reduction of fortified places. Yet only a few words are given to logistics.

Von Clausewitz remarks:

> An army is like a tree. From the ground out of which it grows it draws its nourishment; if it is small it can easily be transplanted but this becomes more difficult as it increases in size. A small body of troops has also its channels, from which it draws the sustenance of life but it strikes root easily where it happens to be; not so a large army. When, therefore, we talk of the influence of the base on the operations of an army, the dimensions of the army must always serve as the scale by which to measure the magnitude of that influence.[1]

Reproduced by permission of The American Military Institute and *The Journal of Military History* from John D. Millett, "Logistics and Modern War," *Military Affairs* 9, no. 3 (Fall 1945): 193–207.

Von Clausewitz also remarks that "the system of subsistence will control the war, as far as the other conditions on which it depends permit; but when the latter are encroached upon the war will react upon the subsistence system and in such case determine the same."[2]

Vegetius remarked that an army unsupplied with corn and other necessary provisions will be vanquished without striking a blow.[3] He pointed out:

> Famine makes greater Havoc in an Army than the Enemy, and is more terrible than the Sword. Time and Opportunity may help to retrieve other Misfortunes; but where Forage and Provisions have not been carefully provided, the Evil is without Remedy. The main and principal Point in War is to secure Plenty of Provisions, and to destroy the Enemy by Famine. An exact Calculation must therefore be made, before the Commencement of the War, of the Number of Troops, and the expenses incident thereto, that the Provinces may timely furnish the Forage, Corn, and all other Kinds of Provisions demanded of them, to be transported, in more than sufficient Quantity, into the strongest and most convenient Cities, before the Opening of the Campaign. If the Provinces cannot raise their Quotas in Kind, they must compound for them in Money, to be employed in procuring all Things requisite for the Service: for the Possessions of the Subject can not otherwise be secured than by the Defence of Arms.

Napoleon is said to have had as one of his maxims "according to the laws of war, every general who loses his line of communication deserves to be shot. I understand by a line of communication that in which are the hospitals, succor for the sick, ammunition, provisions, where an army reorganizes recruits and regains in a few days' rest its morale lost by some unforeseen accident."[4] Napoleon may not have always paid attention to his own maxims, but there is at least an indication that he appreciated in part the importance of supply operations.

The leading advocate within the German General Staff of army control over the national economy, Major General Georg Thomas, wrote before 1939 that "the military-political estimate of a country's strength will in the future depend upon the estimate of its economic defense power."

No military authority has suggested that the problems of supply are necessarily the final decisive factor in war. On the other hand, it is amply evident, particularly today, that no army can wage war successfully without unlimited resources for its support in the field.

Behind all combat organization and all modern strategy lies a nation's capacity to produce and provide the weapons of war. The present war has provided many examples of brave troops whose courage and determination were inadequate against an army with superior equipment and complete control of supply lines.

II.

The problems of supply have always affected the course of military campaigns. Caesar was as famous for his road building as for his military campaigns.

In fact, the two were synonymous. The Romans were only able to bring those areas north of the Po under their permanent domination as they built roads and provided permanent garrisons which could be supported in hostile territory. The inability of the Germanic tribes to organize and support large forces against the Romans explained in considerable part their failure to resist Roman conquest for four centuries.

The military efforts to rescue the Holy Land from the Mohammedans were unsuccessful because individual military victories were not followed up by systematic provisions of supplies. Lodged on a hostile shore, the Crusaders were dependent upon provisions and equipment brought from Italian ports. Since there was no organization to assure this supply, the Crusades ended in complete failure.

Gustavus Adolphus was successful in his campaigns upon the European Continent during the Thirty Years' War largely because of the care which he provided for the supply of his troops on foreign soil. Indeed, it is suggested that one of the most important contributions of Gustavus Adolphus to military science was his practice of organizing depots behind his advancing troops. He saw to it that these depots were kept full from Sweden or by systematic contribution from the countries traversed. There was a regular staff of commissaries who distributed provisions to regiments in bulk. The Swedish king was himself an expert engineer and he organized a superb corps of engineers to accompany his troops and provide the necessary facilities for their support. It is said that German princes and their military captains were amazed to find "men of science" accompanying an army.[5]

The great French Marshal, Turenne, was noted for his ceaseless activity in obtaining rations for his troops. The Duke of Marlborough had a similar reputation. The long lines of wagons following his forces were, a remarkable sight in his day. Such great victories as that at Blenheim could be traced in part to his enemy's conviction that he could never move a force of men to such distances from his bases in the Lowlands. This certainty was to cost the French and Austrians dearly on several occasions.

During the American Revolution General Washington was able to muster a large force for only a few days at any one time because of the lack of any means for systematic supply of his troops. One historian has noted that Washington was "forced to be a collector of supplies when he hoped to be a leader of men."[6] The equipment of the individual soldier was almost entirely what he was able to bring with him. An enlistment blank of the day enjoined the soldier to "furnish a good firearm, cartouch box, blanket, and knapsack." In place of a firearm the recruit was directed to bring a good sword or a tomahawk and later a shovel, spade, pick-axe, or scythe. Powder was always short and lead was obtained from various sources, including statues. The individual soldier molded his own bullets and manufactured cartridges. These reasons had much to do with the ineffective size and operation of the Revolutionary Army. On the other hand, British support of its forces was negligible. In order to provide food and quarters, the British were compelled to divide their forces, particularly in winter, among many different communities. In consequence, it was possible for the Americans to strike at isolated garrisons at Princeton and Trenton and thus obtain tactical victories. The only large

British expedition of the whole Revolutionary War which moved any extended distance from its major base ended in complete disaster with Burgoyne's Surrender at Saratoga. The American forces under Gates at that time numbered 22,000 men but this force could have been kept together for no more than three weeks because of the supply situation.

French assistance to the American cause meant even more in terms of material than it did in terms of men. Even so, there are those who say the American fight for independence was primarily successful because of the political situation in Europe rather than because of any military victory by the American Confederation of States.

Two of Napoleon's greatest defeats resulted from a complete underestimate of supply difficulties. Wellington was able to maintain his forces in the Peninsula because of his sea communications with England and his steadfast insistence upon adequate supply from the homeland. The French armies in Spain were compelled to disperse in order to forage, while Wellington, with his communications line, was able to concentrate his forces and defeat the French in piecemeal fashion. The disaster at Moscow in 1812 was almost entirely a supply defeat. If Napoleon had examined with care the success of Charles the XII in Russia he might not have made such a mistake. On each field of battle the French armies were successful against the Russians but inability to obtain supplies compelled Napoleon to retreat from Moscow and eventually to lose most of his force to the climate and Russian guerrilla tactics.

Even in British colonial wars supply organization played a major part. Kitchener's famous advance to Khartum was an advance of supply bases. He built a railroad in order to keep his force intact and supplied. The eventual defeat of the Fuzzywuzzies was a foregone conclusion.

In other words, warfare has always been affected by considerations of space and locale. These are considerations which are synonymous with supply, since the purpose of all logistical operations is to free military tactics as far as possible from the limitations of space and locale.

III.

At the end of the 18th Century two great changes occurred which were to have far-reaching effect upon the conduct of war. The French Revolution introduced the practice of large armies based upon a draft of civilians. Until this time armies traditionally had been made up of small professional groups of men. Commanders were necessarily economical in their battles since their ability to raise forces depended upon their reputation for conserving the lives of their men. It was not uncommon for the small professional armies of a European principality to be hired by some other king or noble to fight his battles. The French Revolution changed all this. The citizen army became a fundamental characteristic of modern war.

At the time of Napoleon the first steps had already been taken which were to be hailed as the industrial revolution. The growth in the use of power to operate machines brought entirely new practices in the manufacture of weapons as in the

manufacture of civilian goods. Economic resources in the form of raw materials, machines, labor and transportation became more and more important to the conduct of war.

The citizen army and the industrial revolution together wrought fundamental changes in the logistical factor in warfare. Previously the accepted military maxim had been "to live off the country." This was feasible when the most important item of supply was subsistence and forage. It was equally possible as long as armies were small bodies of men. Henceforth to live off the land was no longer an acceptable military practice although this development was not entirely appreciated until well into the 19th Century.

The American Civil War demonstrated to the whole world the emerging importance of industrial power in military conflict. The Confederate states represented an agrarian economy. The North, in the long run, won the conflict because of its superior economical resources and its successful blockade of the southern states. General Lee might win battles but he could not win a war. General McClellan may have been slow and even reluctant to risk battle, but he was thorough in his organization of supply facilities. Each time he invaded the North General Lee was compelled to retire not only because of a temporary repulse at Antietam and Gettysburg but even more because he was unable to move and supply his forces.

Sherman's campaign into the South was to demonstrate clearly the place that supply now played in war. The advance from Chattanooga upon Atlanta was a series of flanking attacks against Johnston. But each new advance was followed by a careful system of depots and supply lines supporting the Union forces. Only when Atlanta had been outflanked and captured did the Confederates suddenly move to sever Sherman's line of communications. Sherman decided upon a bold move. A part of his force was sent back to Chattanooga. With some 60,000 remaining, he marched across Georgia to Savannah where he was to be supplied from the North by sea. Before he could turn to make a junction with Grant's forces in the east he had to establish a base for his support. Savannah was a supply objective. Much has been said about how Sherman lived off the country from Atlanta to Savannah. This was an incidental phase of the campaign. General Sherman himself later related that upon the approach to Savannah he explained to General Hagen that the success of the whole campaign and the safety of the army depended upon an immediate assault upon the city and an establishment of contact with the fleet awaiting in the sound.[7]

The collapse of the southern cause in the early spring of 1865 was induced as much by supply exhaustion as by military operations. The South had been active in its efforts to organize sufficient support for its armies in the field. The interruption of trade with Europe and the virtual absence of any industrial power of its own brought about the defeat of the South.

The lessons of the American Civil War were only slowly appreciated. Such rapid campaigns as those of the Prussian Army against Denmark, Austria, and France from 1866 to 1870 overshadowed the superior preparations which had preceded the actual military operations.

The Spanish-American War was too short to do more than demonstrate the inadequacies of American military organization and our complete lack of preparedness. The even weaker position of the enemy made the outcome swift and sure.

The Russo-Japanese War was again a lesson in the importance of supply. Afterwards the Russian commander had many observations to make about the importance of supply. The following are only a few:

> We were glued to the railway, and could not move away without risk of being left without supplies. Our field artillery and heavy four-wheeled transport carts were unable to travel over most of the hill roads. The summer rains made the movements of the army, with its heavy baggage trains and parks, extremely difficult; teams of twenty horses were harnessed to guns, and even empty carts had to he man-handled.
>
> * * *
>
> The War showed that our army organization gave us too small a percentage of actual combatants as compared with the total numbers whom we rationed. . . . Even so the number of non-combatants laid down in the establishments for each unit was not sufficient to perform the duties that fell to them, and it became necessary. . .to detail combatants for domestic duties. . . . The fighting number was never more than 75 per cent of the number of men on the strength.
>
> * * *
>
> The reason why the lines of communication in the field took so large a number away from our fighting line was that we had no proper communication units, and the large working parties necessary for the light railway, road and bridge work had to be drawn from the fighting troops. It was entirely owing to the care with which the commanding officers on the line of communications—especially those in the engineers—had been selected that we were able to fight, and at the same time to make roads of some hundreds of miles' length for inter-communication between corps.
>
> * * *
>
> The great development of science in warfare is very marked, but the late war did not display the employment of scientific forces that will be made in a struggle between two European powers. . . . The speedy construction of strong fortifications, the laying of railways (especially of field railways) and construction of metalled roads, the organization of aerial and wireless telegraphy, of signalling by heliograph, lamps, and flags, the employment of balloons, motors, and bicycles, are all duties for which the demand increases every day, while the great quantity also

> of artificial obstacles, wires, mines, hand-grenades, explosives, reserves of entrenching tools, etc., now required must exist ready for use in large quantities. A much larger number of engineer troops, including sappers, telegraph and railway units, than we had available in Manchuria is necessary, in order that all this technical equipment may be used to the best advantage.
>
> * * *
>
> The security of our communications was literally vital, for even their temporary disorganization meant catastrophe. Not only the flow of reinforcements to the front, but the collection and distribution of local supplies would have ceased. As we were over 5,300 miles away from our base (Russia), we had been forced to form a local supply base and the loss of this would have threatened the army with starvation.[8]

IV.

The First World War in one sense demonstrated the logical consequence of civilian armies and industrial power—total mobilization. *The War Memoirs* of David Lloyd George vividly portrayed the steps necessary to mobilize all the economic resources for war—industry, agriculture, labor, and transportation.

When the United States entered the war against Germany in April 1917, our industrial preparation was negligible. The American forces eventually sent to France received almost all of their heavy equipment from the British and the French governments. On a tonnage basis the report of the Services of Supply at the end of the war showed that 51 per cent of all supplies for the AEF were provided by our Allies. The most important items received from the United States were foodstuffs and miscellaneous quartermaster supplies. All heavy artillery pieces and all combat airplanes were provided by the British and French. At the end of the war American munitions were just beginning to flow on a large scale from American factories. It was America's manpower, however, and not American supplies which turned the tide in World War I. British mobilization of industrial resources outran her manpower resources.

The Assistant Secretary of War in 1917–1919, Benedict Crowell, observed:

> The really amazing thing which America did was to place in France in 19 months an army of the size and the ability of the American Expeditionary Force. The war taught us that America can organize, train, and transport troops of a superior sort at a rate which leaves far behind any program for the manufacture of munitions. It upset the previous opinion that adequate military preparedness is largely a question of trained man power. . . . The experience of 1917 and 1918 was a lesson in the time it takes to determine types, create designs, provide facilities, and establish manufacture.[9]

The nations of the world learned the importance of industrial preparedness as a result of the experience in World War I. In the United States this demonstration led Congress to confer upon the War Department responsibility for planning for the industrial mobilization of the nation's resources for the eventuality of another war. Far-reaching steps to put America's military forces and industrial resources in a state of preparedness were taken between June 1940 and December 1941.

World War II has demonstrated the interlocking considerations of strategy and logistics. The great objectives of German military operations were the economic resources of the European continent to support her own military production. The determination to attack Russia in the summer of 1941, often hailed as Hitler's greatest mistake, was to a great degree dictated by logistical considerations. It is altogether probable that the Japanese decision to attack the United States was prompted by the measures taken to curtail essential raw materials for the support of Japan's war in China.

After the entry of the United States into the war against the Axis, joint British-American strategy was determined by logistical factors. Japan's rapid advance throughout the Pacific area and Malaysia went unchecked except temporarily on Bataan because of Allied inability to move men and supplies into the area. Eventually it was decided to launch the major blows upon the Axis directly against Germany for the simple reason that England was available as a base for the attack. Here were large sources of supplies which did not have to be transported for the British Army. The distance of British ports from the United States was only half the distance of Australian ports. The capacity to unload and handle supplies in England was far superior to that available in Australia. These considerations made deployment of a major striking force in Europe possible far sooner than in the Pacific. There a holding action with individual tactical offensives was the only alternative because of the logistical situation.

World War II was a struggle of economic forces as well as military forces. The sinews of war were not the muscles of a soldier but the labor of a nation.

The first essential in the logistics of modern war is the adequate procurement of supplies. The production of military equipment requires industrial facilities, raw materials, and labor. The provision of all of these takes time. It is impossible when a nation does not have the resources with which to begin in the first place.

Although the United States had begun to convert her industrial resources to the output of munitions before December 7, 1941, the progress made was inadequate to meet the immediate needs when this country was attacked. General Marshall summarized the situation in these words:

> On all the fighting fronts the Allies were in a desperate situation due to lack of adequate materiel while facing an enemy who possessed an abundance of the most modern equipment conceived at that time. The trying problem of the War Department was to meet the urgent necessities of critical fronts without jeopardy to the security of continental United States. Money in large appropriations had been made available

> but not available was the time in which to convert this money into munitions ready for issue.[10]

The broad problems of procurement in war time may be divided into three major categories—the division of a nation's output, the role of the military in procurement operations, and the distribution system.

The first great problem is the division of the nation's economic resources between the armed forces, the immediate production for maintaining direct war output, and the production necessary to sustain the civilian population producing war goods. The calculation of war requirements is an indispensable feature to the planning which results in a division of national resources. Industrial facilities, raw materials, and manpower must all be divided. Under conditions of total war there cannot be war competition between the armed forces and the civilian population. All are a part of the war effort. Adjustments are nonetheless possible which affect the type of war to be waged, the strategy for its successful completion, and its duration.

When the requirements for the U. S. Army were first calculated on a complete basis after Pearl Harbor, it was evident that the American economy would be unable to provide the necessary supplies and equipment. Considerable adjustments then followed which reduced the number of armored divisions and later the entire size of the Army.

The second great problem in procurement was to determine the role of the War Department in managing the resources made available for war production. Because of the close interrelationship between strategy and logistics, even to the point of modification of weapons to meet particular tactical needs, the War Department had its own organization for the purchase and manufacture of supplies. The War Department asked the right to control the utilization made of its share of national resources. This problem revealed itself in the machinery established for the control of raw materials, the scheduling of production, and the utilization of labor. Eventually satisfactory lines of mutual cooperation were worked out between the great civilian agencies controlling the mobilization of economic resources as a whole and the War Department controlling the procurement of specific military supplies.

In the third place, the distribution system for the supplies of the Army had a vital relationship to procurement. Inventories maintained within the United States to insure the continuous flow of supplies to troops affected military requirements. Moreover, the prompt location of supplies wherever they might be was essential in order to meet troop demands. In other words, the efficient utilization of the production made possible by the resources available for war production required an adequate system of distribution. The two could not be divorced.

There were incidental aspects to procurement which proved troublesome during the war effort—price control, renegotiation of contracts, disposal of surplus properties, and the termination of contracts.

Constant research and development were essential to the improvement of war materiel. This continued throughout the war effort. Within three years after Pearl Harbor there was scarcely a single weapon that remained unchanged. Nonetheless,

research and development was the qualitative aspect of what remained throughout the war essentially a quantitative problem.

VII.

The protection of the United States on battlefields thousands of miles from our continental limits focused particular attention upon transportation. From the beginning of the war the merchant marine available for the movement of troops and supplies became the key factor in military operations. This situation is evident from the determined onslaught by the Axis upon shipping lines and port facilities. Not until effective countermethods had been devised for submarine and aerial attack could the Allies support a sustained military offensive.

Many devices were used to conquer transportation defects. The United States shipped many of its supplies unassembled in order to preserve shipping space. Constant pressure was exerted to provide full loads. Deck spaces were utilized to the fullest extent.

Landing ships were built and used to haul supplies over short distances in combat readiness. This helped avoid the tie-up of transport vessels in large-scale military movement until they could be efficiently used. Strict limits were required to reduce the haul of unnecessary items. Balance was necessary between lifting capacity for supplies and lifting capacity for troops. In some instances pre-shipment was resorted to build up overseas supply areas in anticipation of future large-scale military operations. A close integration was essential between the distribution machinery and transportation machinery. This was achieved in the supply system of the War Department during the war.

All the great conferences of military leaders throughout the war determined military strategy in the light of transportation possibilities. In his 1943 report to the Secretary of War the Chief of Staff of the American Army reported that the Casablanca Conference "covered strategic plans throughout the world, a careful breakdown of ship tonnage allotments, convoy movements, naval dispositions, etc."[11]

Time was essential to transportation. Military operations had to be scheduled as transportation conditions permitted. The attack upon Sicily, for example, was originally planned before the final completion of the North African campaign. An inability to provide the necessary transportation compelled a postponement of D–Day. Later the Commander-in-Chief of the North Africa Theater of Operations estimated that if one additional division could have been transported to Sicily, the escape of the Germans after their defeat there could have been prevented.

Transportation limitations affected strategic decisions in other ways. The military planners for the North African operation had to choose between a large assault force without its trucks and other wheeled vehicles or a smaller force fully equipped with all of its vehicles for inland movement. The decision was made in favor of a large assault force. The initial success in taking all objectives was followed by a period of inactivity until means of inland movement could be transported to North Africa.

Finally, no surer evidence of the importance of transportation to modern war can be assembled than the continuing attention given by both sides to interruption of transportation facilities.

VIII.

In the last place, supply is a problem of movement overseas wherever troops operate against the enemy. Amphibious warfare has emphasized the problem of bases, ports, and supply lines immediately behind combat troops. Supplies must be unloaded and strengthened in preparation for an assault upon the enemy. No military operation is possible until adequate buildup has taken place close to the expected scene of conflict. Much has been said about the new elements of warfare introduced by the airplane. This is true. Yet, the success of the airplane in use against the enemy is dependent upon ground transportation. This has been amply demonstrated in the difficulties in supporting active aerial operations against the Japanese in China.

In commenting about the shift of aerial operations from the Philippines to Australia early in 1942, the Chief of Staff pointed out:

> While this sudden reversal of a movement half way around the earth demonstrated the mobility of the airplane, it also demonstrated the lack of mobility of air forces until a lengthy process of building up ground service forces and supplies (mechanics, ordnance and radio technicians, signal personnel, radar warning detachments, antiaircraft, medical, and quartermaster units, as well as the troops to capture airfields and defend them against land attack, and the accumulation of repair machinery, gasoline, bombs, and ammunition) had been laboriously completed by transport plane, passenger and cargo ship—the last two largely being slow-moving means of transportation. The planes flew to Australia in 10 days. The ground units and materiel to service the planes and keep them flying required approximately 2½ months or longer for the transfer.[12]

Bases are as essential to the movement of supplies as they are to aerial operations. As troops advance, supply lines must continue to follow. As already mentioned above, the forces originally landing in North Africa on November 8, 1942 were unable after the seizure of Oran and Algiers to advance into Tunisia. The occupation of that area by the Germans could not be prevented because the forces necessary could not be moved and kept supplied. Advancing patrols came within 60 miles of Tunis by November 16 and were within 30 miles by November 25. The nearest ports to supply this force were Bone and Phillippeville. The eventual defeat of the Germans in Tunisia was made possible only by the construction of rail and road facilities which moved men and supplies in sufficient force against the enemy. Ten gasoline pipelines were constructed before the attack began. This was a single illustration of the essentials for modern war.

In the Pacific, where ports have been unavailable, amphibious trucks had to be used to unload supplies. Landing craft likewise provided a means for direct sup-

port of military operations. One by one new points of operations were found and kept supplied by a constant stream of vessels. Thus coastwise traffic in the Southwest Pacific took the place of inland traffic characteristic of military campaigns in North Africa and Europe. In both cases continuing flow of supplies was indispensable to successful operation against the enemy. Sustained pressure was only possible when a sustained flow of supplies was assured.

The delivery of supplies to troops in combat presented far-reaching difficulties. Yet any slow-up was immediately evident on the fighting lines themselves.

IX.

The experience of the Second World War has demonstrated certain lessons which must be borne in mind by future generations if military defeat for this country is to be avoided.

The first of these lessons is the importance of industrial preparedness. Military training and an adequate military force are of little avail without industrial facilities and organization capable of supporting the forces to be put in the field. War is an insatiable consumer of supplies. Heavy equipment such as military airplanes, mobile weapons, communications equipment, and ammunition have few civilian counterparts. We have learned that 18 months is only time to plan the conversion of an economy from peacetime output to defense output when we must begin from zero. American industrial potential has swung the balance in World War II against Germany because, thanks first to Britain and then to Russia, we had the time to make our great industrial might effective. Will that time always be available? May not a future aggressor aim his initial blows at destroying the industrial potential of the United States before those resources can be marshalled against him?

In the second place, supply and strategic considerations have today become so intertwined that no line of demarkation is possible. Total war knows no differentiation between military economy and civilian economy. Unless victory is to be jeopardized, all resources must be used for war. This is not to say that all resources are to be used for the output of immediate war goods. The nation's transportation system must be maintained, its health guarded, adequate housing assured, some recreation provided. These are indispensable to the continued sustained output of military supplies. Nonetheless, military organization must assume a large responsibility for the control of economic resources if military needs are to be translated at once into procurement performance.

World War II has demonstrated a practical line of division of authority. Just as the Commander-in-Chief is a civilian under the American democratic system, so the war direction of a nation's economic resources is entrusted to civilian agencies. But within that area of total resources allotted to military use, military authorities themselves should maintain complete control. That there should be constant check on how these resources are used is desirable. Criticism can serve a helpful purpose. Responsibility, however, should remain with the same individuals who must achieve military success.

In the third place, procurement without a completely adequate distribution system is of little avail. Supplies must be moved and moved promptly. Waste in the accumulation of large inventories means ineffective military operations. Waste in the accumulated supplies that cannot be properly identified and moved when desired means ineffective military operations. Distribution and procurement are so interlocked that it has not been uncommon for certain supplies to move directly from production lines to ports of embarkation. One organization must direct procurement and distribution and insure that both function efficiently. It has been evident in World War II that distribution experience reflecting the demands of troops is an important element in the determination of military requirements. No advance planning can fully take the place of distribution experience.

In the fourth place, American defense is dependent upon its overseas transportation facilities. If once an enemy is permitted to occupy American soil and sustain an attack upon our continental territory, the prospects of successful resistance are meager. America depends upon her foreign outposts and those foreign outposts can only be maintained with adequate control of the sea. This means not only naval power but also the vessels to move troops and supplies. This lesson was amply demonstrated by the attack by Japan upon the Philippines in 1941. The use of England as a base for the defeat of Germany on the soil of France, the Lowlands, and Germany was made possible by our transportation system. The American attack upon Pacific bases gathered momentum as increased transportation facilities became available. Supplies must be moved overseas and until the day when the airplane can take over the whole burden, the United States is dependent upon its merchant marine for successful defense.

In the fifth place, military operations overseas are dependent upon their own supply machinery. Supplies unloaded from the United States must be stored until needed and then promptly moved in support of military attack. No Army can afford to ignore the machinery available to it for its constant support. Depots, railroads, roads, trucks, pipelines—all these come increasingly indispensable as troops move away from coastal bases. When water rather than land is the means of communications, one base serves as the supply point for the next area of operation. The job of logistics is to make possible the free movement of troops and free them from the limitations of time and space.

If these lessons are fully appreciated not only by our military leaders of tomorrow but also by an alert citizenry, the United States may look forward to its future security with reasonable assurance.

Notes

[1] Carl Von Clausewitz, *On War*, translated by Col. J. J. Brahom, Vol. 11, p. 113.
[2] *Ibid.*, p. 101.
[3] John Clark, *Military Institutions of Vegetius*, p. 161.
[4] L. E. Henry, *Napoleon War Maxims*, p. 137.
[5] Theodore Dodge, *Great Captains, Gustavus Adolphus*.
[6] W. A. Ganoe, *The History of the United States Army*, p. 20.
[7] *Memoirs of General William T. Sherman*, Vol. II, p. 183.
[8] General A. N. Kuropatkin, *The Russian Army and the Japanese War*, translated by Capt. A. D. Lindsay and edited by Maj. E. D. Swinton, Vol. II, pp. 33, 44–5, 50–1, 141, and 322.
[9] *America's Munitions, 1917–1918*, pp. 17–18.
[10] *Biennial Report of the Chief of Staff of the United States Army to the Secretary of War, July 1, 1941–June 30, 1943*, pp. 6–7.
[11] Biennial Report, *op. cit.*, p. 43.
[12] Biennial Report, *op. cit.*, p. 5.

Part II

The Era of Creation

Chapter 1

Logistics in the American Revolution

4

Logistics of the British Army in North America

Introduction. In the introduction to his study of the logistics of the British Army in the American Revolution historian R. Arthur Bowler surveys the existing historical literature on his subject, offers a few general comments on the study of the history of logistics, and discusses the thrust of his work, "to demonstrate that the fighting efficiency of an army is very often a function of its logistical efficiency and to point out where logistical and administrative problems in America affected the course of the war." He then goes on to describe in general the supply requirements and organization of the British army in America. [N.B.: The official spelling for General Greene's first name was Nathanael. Many sources, however, including contemporaries of General Greene used the variant spelling of Nathaniel.]

When asked by George Washington to take up the post of quartermaster general for the American army, General Nathaniel Greene at first demurred. "Who," he asked, "ever heard of a Quarter Master in History as such?"[1] Greene was an ambitious man and his point was well taken. In the study of warfare, logistics and military administration have been neglected stepchildren. Since human society began, minstrels and historians have told over and again the exploits of men on the field of battle while condemning to limbo by the process of neglect the more prosaic activities of contractors, commissaries, quartermasters, subtlers, and administrators generally. Victories and defeats are seen only in terms of such factors as training, generalship, numerical strength, and luck. Even the great Sir John Fortescue could not cast this veil from his eyes.[2] Only in the present century, when the full application of the industrial revolution to warfare has resulted in the consumption of staggering quantities of materiel and hence made it brutally clear that sound logistics and intelligent administration can mean the difference between victory and defeat, have historians come to consider this aspect of war seriously. The

---

From R. Arthur Bowler, *Logistics and the Failure of the British Army in North America, 1775–1783* (Princeton, N.J.: Princeton University Press, 1975), pp. 3–11. Reprinted by permission of Princeton University Press.

result, although much remains to be done, has been such impressive studies as R. G. Albion's *Forests and Sea Power* (Cambridge, Mass., 1926), R. Glover's *Peninsular Preparation* (Cambridge, 1963), R. E. Scouller's *The Armies of Queen Anne* (Oxford, 1966), and J. A. Huston's *The Sinews of War* (Washington, 1966).

If the history of military administration generally has suffered from neglect, that of the British army during the American Revolution has been doubly cursed. While the American side of the war has undergone the minutest investigation from Lexington to the final evacuation of New York, the British side has been, with equal thoroughness, neglected. Only recently have such books as Piers Mackesy's *The War of America* (London, 1964), William Willcox's *Portrait of a General* (New York, 1964), and Franklin and Mary Wickwire's *Cornwallis* (Boston, 1970) begun adequately to probe the reasons for the British defeat. But despite these heartening trends one great myth about the war remains, that implicit in William Willcox's rhetorical question, "Why were the British such fools as to be defeated?"[3] This is the myth of the British "military machine" which remains despite the pioneering work of E. E. Curtis in his *Administration of the British Army during the American Revolution* (New York, 1926). The myth sets up the British army as the finest fighting force of its day, a war machine that normally rolled over the opposition. So set up it serves as a foil against which, on the one side, the astounding effects of liberty on the fighting qualities of the American yeomanry and the generalship of Washington and Greene can be extolled, and, on the other, the total inadequacy of Howe, Clinton, and Germain can be exposed.

It is the purpose of this work to investigate the idea of the invincible fighting machine. The premise on which it is based is that an army, to be an effective fighting force, must be adequately fed, clothed, housed, transported, and serviced generally. This is not, of course, to deny that the fighting qualities of either British or American soldiers had any effect on the outcome of the war. Nor is it meant to supersede the conclusions of Mackesy, respecting administrative and strategic confusion in Britain and the problems of war aims, or the conclusions of Willcox, the Wickwires, and others respecting the quality of British generalship. These were all critical factors in determining the outcome of the war. Rather, this book seeks to demonstrate that the fighting efficiency of an army is very often a function of its logistical efficiency and to point out where logistical and administrative problems in America affected the course of the war.

Although the word was not coined until recently, logistics has been an integral part of warfare since men first organized to do battle with each other. A mark of successful commanders has always been their ability to choose outstanding officers to administer logistics. In the Middle Ages the task, if not easy, was at least relatively simple; the feudal levy provided its own arms and the unlucky countryside through which it marched was ravaged to feed men and animals: logistics was basically the organization of marches. The introduction of firearms and professional soldiers changed things somewhat, but the real development of the field did not come until the late seventeenth century. That era, with its growing nationalism and general pattern of bureaucratic growth, saw the creation of the modern army. From collections of hired mercenary bands, armies became long-service profes-

sional corps, made up of various arms, whose officers were commissioned by the state. The command structure that still exists today came into being then. With the army the complete creature of the state, its logistics, in the interests of uniformity and efficiency, became also a state function. Further, the development of linear tactics acted at the same time to make logistics a more vital concern. To bring men to stand up in ordered ranks on the field of battle and deliver and receive volleys required long training in intricate formation movements and the instillation of stern discipline. It seldom took less than two years to transform a raw recruit into a competent soldier. Such a soldier, although little respected as a person, was a valuable investment. As such it was important that he be well clothed and armed, properly housed in time of peace, and when campaigning supplied with the paraphernalia of a reasonably healthful life in the open. For this same reason, as well also because of the eighteenth-century humanistic idea that civilians in war areas should not be left destitute by the passage of scavenging armies and to reduce soldiers' opportunities for desertion, it was desirable that the supplying of food and forage cease to be a matter of unit or individual enterprise.[4] All of these considerations, then, brought about the development of logistical organizations at least as complex as the military organizations they supported.

Nevertheless, it is tempting in these days of elephantine vehicles, nuclear artillery, airborne infantry, and moveable ports and airfields to think of eighteenth-century army logistics as simple and relatively unimportant. To do so is self-deception. Rommel's observation that before the fighting proper the battle is won or lost by quartermasters[5] is as applicable to the eighteenth century as to our own time. The needs of the eighteenth-century army were indeed few and small when compared to those of a modern army, but in relation to the facilities available to satisfy them and the ability of government to command and organize those facilities, they bulked as large as the needs of a modern army. Further, during the American Revolution Britain supported an unprecedented number of troops overseas—over 92,000 at one point, including those in the Floridas and the West Indies.[6] For the most part those troops had to be not only equipped but also fed from Britain. And if the eighteenth-century commander did not have to think in terms of the bulk, variety, and complexity of material demanded by the modern army, neither does the twentieth-century commander have to face the incredible problems of supplying troops over a 3,000-mile supply line harried not merely by the enemy but also by the wind or the lack of it, nor those of preserving and stockpiling food in the era before the tin can.

In any case, the needs of the British armies that fought in America during the Revolution were by no means simple. Beginning with the basic uniform, the personal needs of the soldier ran through such predictable items as boots, shirts, stockings, leggings, and coats to the more esoteric weskit, shoebuckles, stocks, rollers, epaulettes, and sashes. The expected replacement period for most of these items was, even in times of peace, one year. And uniforms were just the beginning. The eighteenth-century commander, reluctant to subject his small and expensive army to the rigors of cold-weather campaigning, considered the winter as a period of rest and recuperation. In Europe an army could be provided for at this season by billet-

ing the soldiers on the hapless civilians of numerous towns and cities, but this was not possible in thinly populated America. Hence barracks were usually necessary, equipped with beds and bedding, stoves, lanterns, and fireplace equipment, and supplied with coal, wood, and candles. For periods spent in the field an entirely different set of equipment was needed, including tents of various sizes, camp kettles, axes, haversacks, knapsacks, water bottles, and water decks. Again little was expected to survive for a second campaign. The cavalry, of course, required not only the above but a whole range of equipment for outfitting, controlling, and caring for their mounts and considerable special equipment for themselves.

Then, both men and horses had to eat. In the eighteenth century the staples of the British soldier's diet were bread and meat and his daily ration one pound of the former and either one pound of beef or nine ounces of pork. In addition to these basics he was entitled also to a number of "small species" issued on a weekly basis. He received eight ounces of oatmeal and either butter or cheese and three pints of pease as well as an occasional issue of rice at the rate of one ounce a day.[7] Considerations of morale and of the health of an army in the field and operating in a cold climate led during the American Revolution to a number of special issues. Rum, previously considered as a reward for arduous duty, came to be a daily issue at the rate of a quart for each six men. It was apparently considered as a water purifier for its use was usually justified as being necessary for the health of the troops.[8] In the field the ration was mixed in each soldier's canteen of water under the supervision of sergeants. The ever-present threat of scurvy led to several special issues. For the winter of 1775–1776 some 468,750 gallons of porter were provided for the 12,000 men at Boston—almost a quart per day for each man from October through March.[9] Porter, however, was soon replaced by spruce beer brewed in America. Concocted of a fermented mixture of spruce essence (extracted by boiling spruce needles), molasses, and water, it was at first sold to regiments at the rate of 4/6 per barrel and later issued at the rate of three to four quarts per man per day. Sauerkraut and vinegar shipped from Britain and fresh vegetables grown in every available space within the army posts were also considered necessary to the soldier's health. The extent of the food requirements of the army on the American coast alone can be judged from quantities that passed through the hands of Commissary General Daniel Wier from 27 May 1777 to 11 November 1781: 79,465,184 pounds of bread, flour, and rice; 10,711,820 pounds of salt beef and 38,202,081 pounds of salt pork as well as 3,093,952 pounds of fresh meat; 3,997,043 pounds of butter; 7,282,071 pounds of oatmeal; 427,452 bushels of pease; 176,672 gallons of molasses; 134,378 gallons of vinegar; and 2,865,782 gallons of rum.[10]

The diet of draft animals and cavalry horse made up in bulk what it lacked in variety. A working horse, depending on size, required up to twenty pounds of hay and nine of oats a day as well as green grazing in season. Thus the 4,000 or so horses that the armies on the average maintained from 1776 required annually some 14,000 tons of hay and 6,000 of oats.

Weapons, of course, were another whole area of supply: they began with the infantryman's Brown Bess. The soldier was also equipped with bayonet, scabbard,

and cartridge box as well as cleaning equipment and cartridges. The cavalry required another set of equipment including carbines with their buckles, swivels and straps, pistols and holsters, and swords, scabbards, and sword belts. Artillery was another special field with a large range of requirements. Guns ranged from the light field pieces that accompanied infantry units to the incredibly heavy twenty-four and thirty-two pounders that loured from the embrasures of permanent fortifications, and each required its own handling and servicing equipment.

In addition to equipment the armies in America required a broad range of services, themselves complex and requiring a considerable range of skills and equipment. There had first to be organizations for the procurement and distribution of the equipment and supplies mentioned above. While most procurement was through contract with civilian firms in Britain, it had to be organized and there still remained the task of organizing ships, warehouses, docks, purchasing agents, packers, coopers, shippers, clerks, and laborers by the hundred. Further, since some of the food and other supplies consumed by the armies in America was procured in America, a whole range of tradesmen from butchers to woodcutters were regularly employed there.

Transportation was one of the most important service requirements. This meant an establishment of thousands of horses, hundreds of wagons, and an armada of small ships. The wagon transport service, which controlled the bulk of the army's horse population, was responsible for the transportation of provisions, stores, and special equipment during land operations and for the normal transportation needs of the garrisons. Duties as mundane as the transportation of food and fuel between the various parts of the garrison complex at New York City, and as romantic as the carrying of dispatches and the moving of raiding parties, kept a fleet of small ships busy. The operation of this transportation service required not only the vehicles themselves and teamsters and sailors, but also support facilities and a whole cast of repair and maintenance men. Carpenters, wagon makers, wheelwrights, collar and harness makers, blacksmiths, and stable men crowded every major British base, and the army shipyard at New York City employed men in every trade concerned with ship building and ship maintenance.

Engineering services were also required on a grand scale. Primarily employed in the construction of the fortifications of varying complexity that sprouted like ugly mushrooms every time an army paused for more than a few days, the engineers nevertheless also carried on such regular chores as the erection of barracks and bridges and the maintenance of services in occupied cities.

The logistical needs of the army that fought in America, then, were not inconsiderable. Britain, of course, had long experience in the maintenance of overseas forces, most recently during the incredibly successful Seven Years' War (1756–1763) when she fielded forces in India, the Caribbean, America, and Europe. During that war much of the organizational structure that was to last through the American war took form.

Notes

[1] M. F. Treacy, *Prelude to Yorktown* (Chapel Hill, N.C., 1963), 29.

[2] J. W. Fortescue, *A History of the British Army* (London, 1902). Fortescue compresses all the administration problems Britain faced in the American war into a simple condemnation of "Germain with his blindness to facts" (vol. III, 397).

[3] W. B. Willcox, "Why did the British lose the American Revolution" (*University of Michigan Alumnus Quarterly Review*, LXII, Summer 1956), 317.

[4] R. A. Preston, S. F. Wise, and H. O. Werner, *Men in Arms* (2d ed., New York, 1962), 129–146.

[5] Eric Robson, *The American Revolution in its Political and Military Aspects, 1763–1783* (New York, 1966), quoted on p. 102.

[6] Norman Baker, *Government and Contractors: The British Treasury and War Supplies, 1775–1783* (London, 1971), 4. This was the peak year of 1780–1781. In 1776 supplies for about 60,000 were contracted for. The supplies were for British, German, and Provincial forces.

[7] T 1/550, 405–406. At various times and places this varied in one or more items but it was the basic ration.

[8] Add. Mss. 38,343, 61–62, "Observations on the Extraordinaries."

[9] T 1/513, 140–149, Mure, Son & Atkinson to Howe, 25 Sept. 75.

[10] AO 3/224, "A General Account of provisions, Rum &c Received, Issued and Expended by Daniel Wier Esq. . . ."

5

Some Advice for Eighteenth Century Logisticians

Introduction. The author of this well-known piece of military satire, believed to be the contemporary British military writer Francis Grose, provides a humorous view of the responsibilities and failings of the officers and noncommissioned officers responsible for supply functions in the British army of the eighteenth century. [N.B.: The conventional spelling from the original text was retained in this reprint, but the typography was altered to facilitate reading the text.]

To the Quarter-Master.

The standing maxim of your office is to receive whatever is offered you, or you can get hold of, but not to part with any thing you can keep. Your store-room must resemble the lion's den;

Multa te advorsum spectantia, pauce retrorsum.

Live and let live, is also another golden rule, which you must remember and practise, particularly respecting the contractor for bread and forage; who, if he is grateful, will not forget your kindness: whence you may find it in reality a golden rule.

Observe the same with respect to straw and wood. It is mechanical, and unbecoming a gentleman, to be weighing them like a cheesemonger. When the soldiers are receiving straw for the hospital, order them to drop a truss or two at your hut in the rear. This will lighten their burthen, and make the task less toilsome. The same may be done with the wood for the hospital; and the sick, especially the feverish, have little need of fire in summer.

Whenever any regimental stores are sent to the regiment, be sure to unpack them immediately, and seize upon the packages as your own perquisite. At the conclusion of a campaign take care also to secure the tents of the rear and quarter-guards.

Reproduced from [Francis Grose], *Advice to the Officers of the British Army*, 6th ed. (London: W. Richardson for G. Kearsley, 1783), pp. 51–56 and 91–97. The notes have been omitted.

When your regiment is ordered out of barracks, as you are the principal depredator, it will be necessary for you to get out of the way first. Go off therefore the day before, under the pretence of providing quarters for the regiment; by which means you will get out of the barrack-master's clutches; whom you need not previously be at the trouble of settling with; but leave him to do it, as well as he can, with the quarter-master of the corps that is to march into the barracks.

You need not mind, whether the provision issued to the soldiers be good or bad. If it were always good, they would get too much attached to eating to be good soldiers,—and as a proof that this gormandising is not military, you will not find in a gallant army of 50,000 men a single fat man, unless it be a quarter-master, or a quarter-master-serjeant.

If the soldiers complain of the bread, taste it, and say, better men have eat much worse. Talk of the *bompernicle*, or black rye bread of the Germans, and swear you have seen the time when you would have jumped at it. Call them a set of grumbling rascals, and threaten to confine them for mutiny. This, if it does not convince them of the goodness of the bread, will at least frighten them, and make them take it quietly.

If any good rum or brandy should be delivered to you from the commissary's stores for the soldiers, or wine (which might possibly happen) for the hospital, you should rectify what was certainly a mistake in the contractors, by appropriating it to your own use and substituting some of an inferior quality,—unless the commanding officer should insist upon this as his perquisite. By so doing you will prevent them from becoming dainty: for should they once taste such choice liquor, it might tend to make them discontented with their common allowance.

Always keep a horse or two. It would be hard, if you could not have hay and corn enough to maintain them, considering how much passes through your hands.

When you go before the regiment to take quarters, be sure to get drunk with the quarter-master of the regiment that you are to relieve. Your quarter-master-serjeant may draw the billets, receive the store-rooms, &c.; and if he also should get drunk with his brother quarter-master-serjeant, it is no great matter:—let the soldiers wait; it will prevent their going into their quarters in a heat.

The quarter-master is considered as the steward of the colonel—You must therefore be careful to discharge your duty like a good steward, who has such a regard for his master, as to extend it even to his servants; amongst whom, he does not forget himself; but, knowing the value of his own services, takes care to secure to himself a due proportion; merely that his master may not be charged with ingratitude. You must on all occasions endeavour to inculcate the doctrines of witchcraft and inchantment: it will be difficult to account on other principles for the sudden and frequent disappearance of various articles out of your magazine.

To the Quarter-Master Serjeant.

YOU must not suffer the quarter-master to engross all the emoluments of office to himself, but must take care to secure the small tithes, whilst you leave the larger to your superior. For as you share, like a faithful squire, all the fatigues and

dangers of the field, it is but reasonable that you should come in for your portion in the plunder; and, you know, distributive justice is observed even among thieves.

Remember this maxim; that every thing may be converted to profit. This was fully exemplified by one of your calling, who being entrusted with the delivery of candles, used to dip them in hot water, in order to wash them clean; whereby he paid himself for his trouble, by sweating off a considerable quantity of tallow, which he sold to the chandler.

Thread, cartridge paper, and ball afford variety of good perquisites, and find a ready market.

In making up blank cartridges for reviews and field-days, do not fill them too full, as they might stick in going down the barrel or the piece, and so retard the firing. Besides, too much powder might cause it to burst, and thereby kill or maim the Lord knows how many men. And it is surely much better that you should sell a little powder to the grocer, or to the boys who wish to shew their loyalty on his Majesty's birth-night, than to have it burned in waste, or perhaps to do mischief to one's friends.

As you are undertaker-general to the regiment, take particular care, when a soldier dies, to see the external offices of his funeral performed with decency. If any young surgeon should want a body for anatomical purposes, you may safely answer it to your conscience to furnish him. To be cut up and quartered is the least a man can expect, who enlists into the army; and, after he is dead, it is ten to one, he will know nothing of the matter. It will lighten the burthen of the supporters, who have fatigue enough without that of carrying dead bodies; and whether you bury a corpse or an empty coffin, it is the same thing to the regiment, and to the parson—provided the latter has his fee.

In camp the rear affords your superior, the quarter-master, a plentiful harvest; and, doubtless, it is but just, that you should come in for the gleanings. Six-pence kept back from every half-crown paid him by the petty sutlers, is surely no unreasonable deduction; and an odd sixpence and a dram, now and then, to overlook irregularities, of particular huts, are no more than you may take without scruple.

As you are commandant of the pioneers, you may safely let two-thirds of them go to work for the neighbouring farmers, and take half their earnings. Should they be such ungrateful dogs as to grumble or complain, you may easily find jobs enough for them in camp, or perhaps contrive to get them a good flogging.

When your regiment is on the march, and you are sent to require the constable to press waggons, be sure to charge for a warrant. If you have none, it is no matter; for you know you might have had one. And if you should allow the waggoners to reckon a mile or two more than the real distance, or, on weighing the baggage, permit them to charge a hundred or two more than the real weight, the share you may get of the money will be but the just perquisites of your office.

In loading the baggage you have an opportunity of obliging the ladies of the regiment: but remember never to let an ugly woman ride in a convenient or elevated station, as she might disgrace the corps.

When you arrive at the place the regiment rests at for the night, be sure to require more billets than you have effectives in the division; and, if the constable

trusts you with them, secure two or three of the snuggest houses for yourself, your friend the serjeant-major, and other particular favourites. The overplus you may convert into shillings and half-crowns, without any skill in alchymy.

Should the constable be suspicious, and insist upon seeing the men billeted off, tell him that you have a good many behind with the baggage, or sick men, the time of whose arrival will be uncertain; and should he after this persist in his obstinacy, take care that some of the guard knock him up twice or thrice in the dead of the night, to demand billets, as if just arrived. This will soon sicken him; and if you do not immediately benefit by it, some of your succeeding brethren may.

In delivering out the small mounting, at the annual clothing, it is very hard if you cannot get an odd shirt, or two or three pair of shoes and stockings. It is but robbing the colonel, who makes no scruple of robbing the whole regiment.

When in camp, you will receive pick-axes, shovels, rakes, spades, and other tools from the artillery. These you may let out at so much per week to the labouring men in the neighbourhood; and should they be damaged or broken, you can produce evidence, that it was done in working.

6

The Logistical Problems of the Continental Army

Introduction. In brief compass Quartermaster historian Erna Risch summarizes her excellent study of the logistics of the Continental Army, 1775–1781. She reviews the limitations on operations imposed by considerations of supply and transportation, the difficulties of procurement and financing faced by the American forces, the importance of French aid, problems of supply discipline, and the effect of shortages. She also points out the key personnel in the logistical system of the American Army and outlines the deleterious effect of individual peculation and ineffective organization on the support of the Army.

In the eighteenth century a military campaign began in the spring, not infrequently in the late spring. It lasted until winter brought a halt to operations and the troops withdrew to winter quarters, where they remained until another spring and the condition of the roads permitted renewal of operations. Military history in that century has been aptly characterized as "the study of summer campaigns begun late, prosecuted without vigor, and ending to the relief of all concerned when winter threatened."[1] Washington and Brig. Gen. Richard Montgomery ignored the calendar in their late December attacks on Trenton and Quebec, but these were exceptions to the traditional avoidance of military operations in winter months. This rule, however, had no application in the Southern Department, where fighting did not depend on seasonal weather. There, for example, a British expeditionary force captured Savannah, Georgia, on 29 December 1778, and a force of Continental regulars and militiamen overwhelmingly defeated British troops at Cowpens, South Carolina, on 17 January 1781.

It was in the winter months that the supply chiefs and their subordinates with the main Continental army prepared for the next year's campaign by building up magazines, by contracting for the production of wagons and other essential sup-

---

Reproduced from Erna Risch, *Supplying Washington's Army* (Washington, D.C.: U.S. Army Center of Military History, 1981), pp. 416–38.

plies, and by repairing old equipment. Unfortunately, these supply efforts seldom resulted in the Continental troops' being adequately supplied, equipped, and prepared to take the field against the enemy in the spring. Frustrations constantly hampered supply efforts; essential materials were often in short supply. On occasion, for example, tentmakers could neither make new tents nor repair old ones because canvas and twine were not available. Consequently, tentage available at the start of a campaign fell short of demand. As prices rose with inflation, lack of funds also restricted supply efforts. Wagon contracts negotiated early in the winter by quartermasters remained uncompleted in the spring if manufacturers saw no prospect of payment. Farmers similarly were reluctant to exchange their wheat and cattle for a depreciating currency and even more so for cerificates. Depreciation also led to complaints from the teamsters, artisans, and laborers whose services were needed to support the troops. In preparing estimates and making plans in the winter, the supply chiefs, the Commander in Chief, and the Board of War all relied on purchases abroad to provide the clothing, arms, and ammunition needed by the troops. In spring, however, the eagerly awaited ship carrying such supplies might be delayed, be lost at sea, or be captured by a British warship. The vessel might even arrive without the supplies, having left them on a French dock.

Commanders, well aware of the unforeseen delays that could occur in supplying their troops, resignedly accepted the inevitable supply deficiencies. Troops took the field supplied to the extent possible, often not to engage in a definitive battle with the enemy but to maneuver and delay until cold weather ended operations. Commanders always entertained the hope that the next spring would find the troops more adequately supplied. No better example of skillful maneuvering by ill-equipped troops can be found than in Maj. Gen. Nathanael Greene's campaign in the Carolinas that culminated in the battle of Guilford Court House in March 1781 and led directly to the surrender of Cornwallis at Yorktown.[2] Washington fully understood that regardless of the logistical shortcomings of the supply departments, only by holding his army together and evading irretrievable defeat could he prevent the collapse of the Revolution.

Supply Limitations

Given this nature of eighteenth century warfare, it is not surprising to find that nothing in the records ascribes the loss of any battle in the American Revolution to a failure of supply. On the contrary, the troops who trudged over icy and snowy roads on Christmas Eve to win victory at Trenton were compelled to "victual themselves where they could," were clad in threadbare summer clothing, and in many cases were shoeless.[3] If battles were not lost by supply failures, military plans were certainly frustrated by supply deficiencies.

The restrictions imposed on military operations by supply deficiencies were immediately revealed in 1775. Although prewar preparations had been undertaken, at best they were limited in scope, and they were wholly inadequate to meet wartime demands. When Washington in mid-February 1776 thought the season and the frozen harbor afforded a golden opportunity for launching an attack on Boston,

his general officers rejected the plan because they lacked sufficient men, powder, and cannon to take the offensive against the British. Washington could undertake the fortification of Dorchester Heights only after the states and the Continental Congress had sent powder and Col. Henry Knox had brought cannon from Ticonderoga. Meanwhile, the American thrust into Canada was not only blunted but reversed by shortages of food and clothing and, even more significantly, by the appalling lack of medical care for the troops. The disastrous retreat of the Northern Army laid open the Lake Champlain—Hudson River route to the British.

In the fall of 1777 Washington found his plans impeded by a lack of provisions for his troops. He had no hesitancy later in attributing this shortage to Congress' reorganization of the Commissary Department in the midst of the campaign. By December the supply of rations had deteriorated to such an extent that he was unable to send out even small detachments to block the efforts of British foraging parties in the Philadelphia area. If the enemy had crossed the Schuylkill River, he warned the President of Congress on 22 December, his divisions would have been unable to move to meet them for the same reason.[4] The supply crisis at Valley Forge was, in fact, so serious that if General Howe had violated military tradition by advancing in December on the Continental troops quartered there, he might have readily overwhelmed them and possibly ended the war.

There was no major engagement in the north after the battle of Monmouth in June 1778, and the war there moved into a stalemate. Supply problems multiplied as the financial situation of the country worsened. Conditions at Morristown in the winter of 1779–80 were far worse than the soldiers had experienced at Valley Forge. Washington nevertheless made plans for a possible attack on New York in 1780 to close that year's campaign "with some degree of eclat." These plans, however, had to be abandoned because "the means were inadequate to the end," as Washington advised Gouverneur Morris, who had written him about undertaking such a movement.[5] The Quartermaster General could not put the main army in motion for lack of funds to complete purchases of wagons or to pay for repair work. Nor could he furnish the necessary horses; all transportation on the supply lines had to be accomplished by impressment. The Ordnance Department also was restricted in its efforts to make necessary preparations by lack of funds. Thus, it was not only the failure of powder and arms to arrive from France but also the dismal supply situation that called a halt to Washington's plans in 1780.

The troops were on the verge of famine, for the system of specific supplies had failed to produce adequate stores of provisions where they were needed. Reviewing the distress of his army in December 1780 and the difficulty of moving it to its places of cantonment that winter, Washington added that "it would be well for the Troops, if like Chameleons, they could live upon Air, or like the Bear, suck his paws for sustenance during the rigour of the approaching season."[6] Actually, there was no real lack of available provisions in 1780. What was lacking, as Greene protested, was the means to draw out the resources—that is, cash in hand to pay for the wheat, flour, cattle, and other subsistence items which farmers otherwise were reluctant to release. The French found no difficulty in exchanging cash for flour, nor did the agents sent out by Robert Morris on the eve of the

Yorktown campaign. At a later date Washington attributed the prolongation of the war to Congress' lack of powers. "More than half of the perplexities I have experienced in the course of my command, and almost the whole of the difficulties and distress of the Army, have their origin here."[7] Neither Congress nor the states, however, were in a position to create a strong central government with adequate powers, particularly the essential power to finance the war through taxation.

Importance of French Aid

In the spring of 1781 lack of funds continued to hamper all supply operations. The deputy quartermaster for New York advised that there was "an entire loss of confidence in public faith." Individuals in consequence were seizing public property and either selling it or converting it to their own use. At Albany the assistant quartermaster feared he would be left without anyone to assist him. The coopers had already quit. He had prevailed upon the oarmakers to work another week, but if he got no cash by that time to pay them, he would have to "hide myself from them." At Peekskill another assistant quartermaster found his situation equally disagreeable as artificers, teamsters, and boatmen called on him for payment of back wages. Most of these people, he informed the Quartermaster General, had one year's pay due them. Many of them had been in service "upwards of four years and for want of the common necessaries of life cannot do their duty." The deputy quartermaster in Virginia also reported an insistent demand for the payment of old debts. "I never saw a country so loaded with certificates as the State of Virginia," he wrote the Quartermaster General. "There is not an article scarcely that can be mentioned but what has been taken, and nothing but a bare certificate left in payment even to breakfasts and dinners for officers and likewise for many Soldiers."[8]

In view of this deteriorating logistical support, French assistance was crucial. French aid extended through Roderique Hortalez and Company opportunely provided the arms and military stores needed for achieving victory at Saratoga in 1777. That aid was "predicated and carried out on the basis of sustaining and aiding a fighting American Army."[9] The success of American arms on the battlefield made possible an alliance with France and its open support of the war. When in 1781 the rumor of an approaching French fleet was confirmed, past disappointments concerning joint action were forgotten. Washington galvanized his army and the country into making one last, supreme effort to defeat the British. More than ever he acted as his own chief supply officer, ably supported by Robert Morris and aided by those states that responded to his appeals for assistance. Understandably, much of what was required to support the allied forces at Yorktown was obtained through impressment, but French help was indispensable. One can only conclude that without that aid the Americans could not have defeated Cornwallis or won the war.

Responsibility for Supply Shortages

Supply officers are usually given little recognition in the annals of war, as Maj. Gen. Nathanael Greene was quick to point out in 1779.[10] When notice was

taken during the Revolution, it was frequently unfavorable. It occurred when commanding generals, including Washington on occasion, blamed supply officers for impeding their battle plans. A more unsavory notoriety grew out of the inevitable investigations conducted to expose abuses and frauds. Supply deficiencies in the American Revolution, however, have to be charged not only to the shortcomings of quartermasters and commissaries but also to the Continental Congress, state governments, line officers, and the populace itself, as a brief summary will make clear.

The first ration shortages occurred among the troops in Canada. For the first time in the war commissaries had to provision a moving army, forwarding supplies over great distances. Transportation on the supply lines was disrupted by line officers who appropriated wagons and boats needed for hauling provisions to support the troops. On later occasions line officers commanding in military departments stopped wagons en route and seized for their own troops in garrison parcels of clothing or forage that were destined for the troops of the main Continental army in the field. In consequence, the latter were inadequately supplied, since the supply officer with the main army was deprived of the quantities he had counted on receiving. Line officers also at times flouted regulatory measures of supply officers intended to protect and preserve supplies at deposit points. On occasion, too, commanding generals ignored the efforts of the supply departments and designated their own purchasing agents, thus promoting competition between the latter and the departmental supply personnel who had been authorized to support their activities.

State authorities, whose agents competed with Continental agents in the procurement of military supplies, also were guilty in certain instances of diverting Continental supplies to equip and clothe their militia. Competition extended not only to foreign markets but also to port areas within the respective states where private merchants disposed of clothing, powder, and other supplies on the domestic market. Moreover, state governments failed to appreciate the need to pool resources for the support of the Continental Army. They insisted, for example, that the Clothier General restrict distribution of any clothing and blankets sent by a particular state to the troops of that state and retain any surplus articles for their use only. Such parochial views promoted dissatisfaction among those troops drawn from states without access to ports and thus unable to clothe their soldiers. State governments always responded, though sometimes tardily, to Washington's pleas for transportation and supplies, but they regarded their first obligation as defense of their states. Their restrictive laws, particularly those governing the use of wagons, pasture lands, and forage, were enacted to protect the interests of their citizens and did much to hamper the efforts of Continental commissaries and quartermasters to supply the transportation needs of the Continental Army. The Continental Congress itself failed to see any immediate need for centralized control of procurement in the administrative supply agencies it created in 1775. It frequently diminished the authority it had granted to the head of a supply agency by appointing independent purchasing agents, a practice that promoted confusion by creating overlapping authorities and stimulating competitive procurement.

Although the times were not propitious for a strong central government, the Continental Congress was often most dilatory in exercising the authority it did possess. The sufferings of the soldiers at Valley Forge were in large part the result of congressional delay in appointing a new Quartermaster General. The Continental Congress left that post vacant for about five months at a time when energetic action by that department was required for the transportation of supplies. It permitted the Clothing Department to be without a chief for an even longer time. On the other hand, its insistence on reorganizing the Commissary Department in the midst of the campaign of 1777 had led to a deterioration of the supply of subsistence without its even being aware of the fact. The successive appointments that Congress made to fill the posts under that reorganization were time-consuming and had a disastrous impact on subsistence supply at Valley Forge. By 1780 Washington lamented the relinquishment of congressional powers to the states under the system of specific supplies. All business, he declared, was "now *attempted*, for it is not done, by a timid kind of recommendation from Congress to the States." Instead of pursuing one uniform system, each state was determining for itself whether it would comply, in what manner it would do so, and when.[11]

Still another factor had an impact on supply preparations during the latter years of the war. Toward the close of each year the states and Congress hoped that peace would soon be at hand. This expectation, Washington wrote, "never fails to produce an apathy which lulls them into ease and security, and involves the most distressing consequences at the opening of every Campaign."[12] Contracts were canceled and supply operations were delayed by these false hopes of peace. As a result, adequate supply preparations were not made in due time for the approach of each campaign.

Supply Abuses

Supply abuses have undoubtedly occurred in every war, and the American Revolution was no exception. An account of abuses practiced from the lowest to the highest echelons of authority in the supply agencies does not provide an edifying story. The purchase of supplies was quite naturally placed in the hands of merchants. While one may find their practice of conducting private and public business at one and the same time unacceptable in terms of today's standards, it is necessary to place their actions in the framework of eighteenth century mercantile capitalism. Similarly, the outraged cries against speculators that rang through the land and the price and wage controls against monopolistic practices that both Congress and state governments enacted have to be viewed against a long colonial history of such denunciation and regulation.

At the same time, one has to recognize that some genuine abuses did exist. As early as 1775, when quartermasters were experiencing difficulty in procuring wood and forage for the troops at Cambridge, Washington denounced monopolizers who withheld needed supplies from the market to raise prices and thereby gain profits at public expense. To monopolizers he added "speculators, various tribes of money makers, and stock jobbers of all denominations," declaring that

their avarice and thirst for gain would ruin the country.[13] Washington would make this criticism again and again throughout the war. In such denunciations he and other men were "voicing sentiment deeply rooted by the eve of the conflict" in colonial experience and were not making accusations unique to the American Revolution.[14] Speculation was so commonly pursued that even some delegates to the Continental Congress engaged in it. By the spring of 1779, however, there had been so much criticism that most of the speculators who had been in Congress were said to have withdrawn. A delegate prayed that if there were "more of these reptiles among us God send us a thorough deliverance." One such speculator was the Maryland delegate Samuel Chase. On the approach of the French fleet in 1779, he cornered the supply of flour in the expectation of making a profit at the expense of the French forces.[15]

Conduct of the Populace

It was characteristic of the populace in the American Revolution to be extremely suspicious of any supply officer engaged in procurement for the Continental Army. Regardless of whether the procurement officer was paid a salary or collected a commission on his purchases, the citizen was convinced that he was growing wealthy at the expense of the public. This attitude likely reflected the fact that many of the purchasing agents were merchants who continued to conduct their private businesses. Sharp practices by merchants in the past had not been unheard of, and few colonial citizens could believe that merchants were not using public business to promote private interests. As pointed out by Robert A. East, "the colonial mind was predominantly agrarian" in many respects. When Arthur Lee bitterly attacked Silas Deane, the insinuations and accusations against Deane, Morris, and their commercial and land-speculating associates that emerged in speeches and publications divided Congress itself into bitter camps and confirmed most colonists in their agrarian prejudices and hostility to merchants.[16] The sufferings of the inhabitants living in the path of the armies, both British and American, as they marched and countermarched through the land destroying crops and impressing whatever they needed, undoubtedly generated further hostility and a determination to outwit supply officers. The perception of waste in the Continental Army also promoted a conviction that more was taken than what was needed, while the prosperity of some supply officers only deepened the suspicions of the citizens.

The sharp practices of some of the citizens themselves perhaps also accounted for their ready acceptance of charges of corruption on the part of all supply officers. Cobblers used green leather in producing shoes for the troops; tailors skimped on cloth in making uniforms; farmers used false bottoms in measuring and selling forage to the Continental Army; and millers turned out flour that was deficient in quality and short in weight per barrel. So prevalent was the abuse in the supply of flour that it was proposed that each barrel be marked with the brand of the miller who had produced it. Not a few citizens also traded with the enemy when it was safe to do so.[17]

Pilferage was common on the supply lines and at magazines. Government-owned clothes, tents, shovels, picks, axes, and horseshoes, as well as vinegar, salt, and other provisions, were found in the hands of private citizens. Wagoners on the supply lines helped themselves from the cargoes they carried. Citizens appropriated any government supplies left unguarded. At times supplies expressly placed in their care because of a breakdown of teams or wagons or because of the bad condition of the roads were never again reported by them. From government-owned muskets placed in the hands of militia when they were called into service to government-owned horses and cattle delivered to farmers to be pastured, all were readily converted to private use; few people had any regard for public property rights. So widespread was pilferage that the Continental Congress recommended that the legislatures enact laws imposing heavy fines or other penalties on those who did not deliver government-owned supplies on the demand of the proper officer or who failed to report such supplies to the executive power of the state in which they resided.[18]

Poor products, outright theft, and diversion of government-owned articles diminished the supplies available to the Revolutionary soldier. Citizens, however, felt justified in retaining government-owned supplies because the supply departments often failed to pay for the work done for them. A warrant to impress was the only resource the purchasing agent had for obtaining badly needed supplies during the last years of the war. Citizens soon accepted certificates only under duress. The deteriorating financial situation largely explains why manufacturers refused to complete contracts for various products ordered by quartermasters and why farmers were reluctant to sell their produce to purchasing commissaries.

* * *

Supply Chiefs and Trade

Since the concept of conflict of interests was largely unknown in eighteenth century America, when traders and merchants accepted appointments in the supply departments during the American Revolution, they saw no need to divest themselves of their business interests. As supply officers they still concerned themselves with their family business interests and with those of their immediate circle of partners and close contacts in trade.

Thomas Mifflin, the first Quartermaster General of the Continental Army, was a prominent Philadelphia merchant. Though he devoted his attention wholly to his office when not engaged in other duties assigned him by the Continental Congress, he took care of family interests by giving government business to his cousin Jonathan Mifflin and to his partner, William Barret; both were important Philadelphia merchants. Since Mifflin was handling clothing supply, he was in a position to advise them on the kinds of fabrics in demand, though he was careful to inform them that he wanted no part of their profits. He did as much also for Matthew Irwin, another relative and Philadelphia merchant.[23] Although he urged these men to exercise discretion, speculation about the link between their com-



Nathanael Greene



Thomas Mifflin

mercial activities and their relationship to the Quartermaster General soon arose. Fearing possible irregularities, Washington hinted to Mifflin of his apprehensions, but the Quartermaster General protested that his only profits came from the 5 percent commission allowed him by Congress on the goods he purchased. Aside from directing business to his relatives, Mifflin, according to his biographer, engaged in no improper or dishonest dealings in trade while he held the office of Quartermaster General.[24]

Like his predecessor, Nathanael Greene also took care of family interests when he became Quartermaster General. He offered his brother Jacob the post of purchasing agent for the Quartermaster's Department in Rhode Island. At that time Jacob Greene and Company, consisting of Jacob and Nathanael Greene and their cousin Griffin Green, operated the family-owned Coventry Ironworks and engaged in trade, financed privateers, and sold supplies to the Continental Army. The company appears never to have had any extensive business with the Army despite the Quartermaster General's aid and advice, and, so far as Greene's biographer could determine, it received the prevailing market price for goods sold to the Quartermaster's Department.[25]

That supply officers shared the spirit of gain sweeping the country is clear. No venture looked more alluring to investors than privateering, especially since the activities of privateers were considered beneficial to the country. Henry Knox, Chief of Artillery, abominated the idea of making any profit at public expense, yet he, too, speculated in privateering. At a time when inflation was

increasing sharply, he urged his brother to invest in a privateer. "I am exceedingly anxious to effect something in these fluctuating times, which may make us lazy for life."[26] Greene found the commissions he earned as Quartermaster General equal to his "utmost wishes," and for two years he supplied Jacob Greene and Company with large sums to be invested in privateering and shipping, According to a "List of Vessels that belong to Jacob Greene & Co.," the latter owned varying shares in 20 vessels, ranging in size from 14 to 150 tons. Unlike some others in public life, Greene never used public funds for private purposes. But like Knox and many other investors, the Quartermaster General had little return on his wartime investments through Jacob Greene and Company, for it suffered heavy losses in privateering.

In 1779, while still Quartermaster General, Greene entered into a business partnership with Jeremiah Wadsworth, then Commissary General of Purchases, and Barnabas Deane, brother of Silas Deane. Greene was not as scrupulous as Washington in avoiding any acts that might provide a base for charges of wrongdoing, but he was discreet enough to clothe with secrecy his business operations with Barnabas Deane and Company. The partners even used a code in their correspondence.[27] Much later this secrecy gave rise to speculations that the company had been created expressly to sell supplies to the Quartermaster's Department. Examination of all pertinent records has led Greene's biographer to conclude that this was not the case; most of the capital was invested in shipping and privateering, and only occasionally were there any records of sales to the Continental Army. The latter were small, incidental orders.

Offers to participate in privateering ventures also were made to supply officers by New England promoters. In 1779 Quartermaster General Greene, Commissary General Wadsworth, and Clement Biddle, then commissary general of forage, were each offered an interest in a privateer being built by Joseph Webb. Greene did not accept the offer, for he was not inclined to invest in privateering, yet because privateers were "calculated to annoy the enemy and consequently to favor our cause," that fall he bought a thirty-second share in a privateer offered him by Samuel Otis of Boston.[28] He also invested with Assistant Quartermaster General Charles Pettit in a number of other privateers, but by the summer of 1780 they had losses rather than returns on their investments.

There has been considerable speculation that Greene may have been a partner in the subsistence contracts that the firm of Wadsworth and Carter held for supplying French and American forces between 1780 and 1783. By this time both Greene and Wadsworth had resigned their respective supply posts. While not conclusive, the frequent correspondence between the two men has stimulated the speculation.

In pursuit of a profitable investment, Quartermaster General Greene and Assistant Quartermasters General Pettit and John Cox bought shares in the Batsto Ironworks in southern New Jersey. They anticipated selling cannon, shot, shells, and bar iron to the Board of War, and cannon and shot to shipbuilders and privateers. In August 1780 the ironworks had a contract with the Board of War for about 100 tons of shot and shell, which it completed. As in the case of many other iron-

masters, however, the account went unpaid for a long time. Poor sales, high operating costs, and the disastrous effects of a flood and fire at the ironworks so discouraged the investors that they tried to dispose of their shares before the war ended. There is nothing to indicate that the investors in the Batsto furnace sold their products to the Board of War at anything other than a fair price, competitive with that asked by other ironmasters. Thus Greene was largely unsuccessful in both manufacturing and privateering. Perhaps this outcome was to be expected, since he devoted little time to his private financial affairs and left their management, as well as the actual selection of his investments, to other men.

If the Quartermaster General, the Commissary General of Purchases, and the commissary general of forage engaged in no illegal activities and avoided public censure in their investments, other supply chiefs were not so successful. Dr. William Shippen, Director General of the Hospital Department, claimed there was no regulation or law prohibiting speculation in hospital stores, but a court-martial viewed such conduct as reprehensible even though it had to acquit him of all charges for lack of evidence. He was discharged from arrest and resumed his post. James Mease more clearly strayed beyond legal hounds. In 1778, when he had submitted his resignation as Clothier General but was still reluctantly continuing to fill the office until Congress appointed a successor, Mease entered into an agreement with Maj. Gen. Benedict Arnold, commanding the American troops reoccupying Philadelphia after the British had evacuated the city. Under Washington's orders, Arnold closed all shops and suspended all private trade in the city until Continental procurement agents had an opportunity to buy any imported goods found there that could be useful to the troops. By arrangement with Arnold, the Clothier General and his deputy bought goods in excess of need, the surplus being sold for the benefit of Arnold, Mease, and his deputy. This activity was not uncovered until long after Mease had ceased to be Clothier General. It was January 1781 before the president of the Pennsylvania Council called the attention of Congress to the "high abuse of office" by Mease and his deputy in taking unnecessary quantities of merchandise from the people for their private gain. Congress recommended that the president direct the state's attorney to prosecute the two men.[29]

* * *

Evaluation of Supply Agencies

In view of the abuses, how adequate were the organizations established for supplying the Continental Army, and how effective were supply officers in performing their duties? Only on two occasions did Washington find the work of any supply officer in the Revolution worthy of favorable comment to the President of Congress. He had high praise for Commissary General Joseph Trumbull in June 1776. "Few Armies, if any," he wrote, "have been better and more plentifully supplied than the Troops under Mr. Trumbull's care." In the summer of 1778 he was again pleased, this time with the efficiency shown by Commissary General Wadsworth and Quartermaster General Greene. He found the former "indefatiga-

ble in his exertions to provide for the Army, and since his appointment," Washington informed the President of Congress, "our supplies of provision have been good and ample." In the same letter he wrote that Greene had so overcome the deficiencies that had marked the complete breakdown of transportation in the winter of 1777–78 that Washington had been able "with great facility to make a sudden move with the whole Army and baggage from Valley Forge in pursuit of the Enemy and to perform a march" to the Highlands.[42] Occasionally, he wrote a letter of appreciation to a supply officer who was resigning from his post. Generally speaking, however, Washington had a low degree of toleration for any shortcomings of supply officers regardless of cause.

A brief review may set in proper perspective the adequacy of the supply organizations established in the Revolutionary War. With one exception, Congress directed no attention to organizational details in the supply departments during the first two campaigns of the war. The exception was its establishment of a Hospital Department, for which it drafted a regulation without seeking the advice of any physician. Probably as a result, the organization was skeletal, and the department was underfunded. Moreover, Congress overlooked the need for regimental surgeons and surgeon's mates, as well as the urgent need to resolve the contest already joined between regimental and general hospitals. When it provided for a Quartermaster General and a Commissary General of Stores and Provisions, it left to those two officers the development of their respective supply organizations. As developed by Mifflin and Trumbull, these were well adapted to the needs of a stationary army. Each might be described as being primarily a field organization supported by a purchasing arm. There were few problems, and both agencies operated effectively in support of the troops at Cambridge. In 1775 Washington appointed a Commissary of Military Stores, who was primarily a field officer, but Congress made no provision for an Ordnance Department and overlooked entirely the need for a Clothing Department.

When the troops left Boston for New York, the situation changed. Not only did a moving army pose new supply problems but the seeming predilection of Congress for appointing independent deputy commissaries and directors of hospitals only promoted confusion in both the Commissariat and the Hospital Department. The consequences were unnecessary competition for supplies as well as a struggle for control within these supply departments. It soon also became apparent that clothing the troops could not be satisfactorily accomplished by making the Quartermaster General responsible for the production and distribution of clothing. That officer, heavily burdened with a variety of duties, was beset by transportation problems as Washington's army retreated before the enemy. The widening area of operations necessitated the appointment of assistants in the supply departments. Mifflin and the main Continental army were well served by the appointment of the able Hugh Hughes in New York; Trumbull was not so fortunate in his appointment of Carpenter Wharton in Pennsylvania. By the close of the 1776 campaign complaints in both the Northern Army and the main Continental army about shortages of subsistence and clothing, lack of transportation, and neglect of the sick and wounded had reached alarming proportions. The three

existing supply agencies had not developed organizations that could adequately supply a moving army.

The wave of reform that swept through Congress in the spring of 1777 resulted in the passage for the first time of a number of regulatory measures. Applicable to the Hospital, Quartermaster's, and Commissary Departments, they all included some desirable features for improving supply operations. Providing a Wagon and a Forage Department within the Quartermaster's Department promoted efficiency in transportation, which was much needed, as the campaign of 1776 had clearly demonstrated. Similarly, the new regulation for the Hospital Department provided improved departmental staffing for the general hospitals; arranged for the first time for a flying hospital in the field, undoubtedly in the hope of resolving the persistent controversy between regimental and departmental hospitals; and eliminated former errors by bringing all hospitals, except those in the Southern District, under the superintendency of the Director General of the Hospital Department. The Commissariat was the particular target of congressional reform in 1777. Dividing it into two departments—one for the purchase and the other for the issue of rations—was organizationally sound and an improvement approved by Trumbull and Washington. The latter had concluded that the department was too large for any one man to supervise, and that Trumbull in several instances had "been infamously deceived by his Deputies."[43]

Unfortunately, the anticipated improvements from the new regulations failed to materialize in 1777. Introducing the changes in the midst of the campaign posed many difficulties. In addition, some of the regulatory provisions at once provoked criticism and demands for amendments. For example, uniting responsibility in one man for directing the military hospitals, caring for the sick and wounded, and procuring all hospital supplies was considered ill-advised by many physicians, who argued that no precedent could be found in any European army. Providing an inordinately detailed regulation for the Department of the Commissary General of Purchases and the Department of the Commissary General of Issues served only to paralyze subsistence supply for the last six months of 1777 and to bring hardship at Valley Forge. On the other hand, while there was no criticism of the changes made in the Quartermaster's Department, the failure of Congress to appoint a successor to Mifflin immediately after receiving his resignation contributed immeasurably to the distress of the troops in the winter of 1777–78.

Incorporated in the regulations of 1777, and retained until 1780, was the idea of including in each military department a completely staffed subordinate unit of each of the three affected supply departments. This organizational concept resulted in an unnecessary increase in supply personnel. In the case of the Hospital Department, it eventually kept idle some of the physicians serving in these units in the military departments at a time when they could have been more usefully assigned to the active theater of operations to relieve its shortage of physicians. On balance, the reform efforts of Congress to improve supply in 1777 were counterproductive, while the supply chiefs themselves made no notable contributions to the development of more effective supply organizations.

In 1778 Congress relinquished its reform efforts as far as the Quartermaster's Department and the Department of the Commissary General of Purchases were concerned. The newly appointed supply chiefs, Greene and Wadsworth, were left free to administer their agencies as they desired. They made relatively few changes in either personnel or organization, although Greene did centralize transportation control by implementing separate Wagon, Forage, and Boat Departments in his agency. That the two supply chiefs effectively operated the agencies, however, is evident in the praise that both won from Washington. Congress stilled at least some of the criticism of the Hospital Department by creating the post of purveyor and relieving the Director General of all procurement responsibility. On the other hand, in enacting the first regulation for the Ordnance Department, Congress exhibited a woeful lack of understanding of the proposals made by General Knox. So thoroughly did it confuse field and department matters that the Chief of Artillery was left without information on where to turn for supplies, and Ordnance operations were considerably hampered during the campaign of 1778. Another year went by before Congress provided clarification by amending the regulation, and only at that late date did it enact the first regulation for the Clothing Department.

The 1778 campaign was the last in which any supply agency operated effectively. This loss of effectiveness occurred not because the intrinsic organizations of the supply services were faulty, but because the deteriorating financial situation of the country left them without funds. A "vicious circle" was created. Lacking funds, the Quartermaster General and the Commissary General of Purchases had to use a greater number of agents to collect supplies, by force if necessary. Employment of these additional personnel only served to increase operating costs in agencies that were already overstaffed. Moreover, to draw supplies from every part of the country, many agents were located in areas remote from supply headquarters. Neither the supply chiefs nor Congress ever solved the problem of controlling such subordinates. Supply chiefs had to depend on selecting men who were capable of acting without minute instructions or supervision. Unfortunately, such independence allowed considerable leeway for abuses by those imbued with the acquisitive spirit of the times. A system of accountability was never developed in the Revolutionary War.

The supply organizations never evolved any units whose personnel were devoted to handling storage problems. There were magazines, primarily stocked with rations or forage needed for a given campaign, but there were no depots in which other supplies were accumulated. The latter were acquired only as needed, despite Washington's pleas for a long-range accumulation of ordnance supplies and of cloth that would be available for conversion into uniforms as required. Supplies were passed from agent to agent until placed in the hands of the troops by the issuing supply officer. In the process it was not unusual for wagoners to leave supplies in a barn under the care of a private individual. Much-needed clothing, for example, was found abandoned in barns many months after being deposited there, forgotten and made useless by mildew and moths. Nor was it uncommon for supplies to be exposed to the elements wherever they were deposited. Waste is

a concomitant of war, but the waste resulting from the lack of any storage system added considerably to expenditures in the American Revolution.

Patriotism and Profits

Although some purchasing agents prospered by collecting large commissions, the majority of the personnel employed in the supply departments were paid salaries, which were inadequate and frequently months in arrears. This situation was conducive to abuses because men found fraudulent or illegal ways to supplement their incomes. Not a few salaried supply officers were able to continue in service only by drawing on their family resources. Pleading for adequate pay for his staff, Quartermaster General Timothy Pickering pointed out that a line officer could bear such hardship with more patience because he had "honour and promotion in view" and expected "a continued recompense" as long as he lived. The supply officer gained nothing but abuse and reproach, and his reward lasted no longer than his service.[44] Only medical personnel received the same rewards as line officers.

Although congressional delegates were critical of supply officers, they certainly did not view all of those officers as malefactors who were best dismissed from public service. Despite accusations against Mifflin and the fact that Trumbull refused to serve unless paid a commission, Congress thought well enough of both men to appoint them to the Board of War. Some delegates might grumble that Greene was making a fortune too rapidly, but at Washington's insistence they appointed him commanding general of the Southern Army. And despite their suspicions of the trade practices of Robert Morris, they were happy to designate him Superintendent of Finance, fully expecting him to perform financial miracles.

The work of a supply officer was arduous. It entailed much traveling and continuous activity not only during campaigns but also when the troops were in winter encampments. Nevertheless, a number of men held a succession of supply positions during the war, sometimes operating as state agents, at other times as supply officers for the Continental supply agencies. In one capacity or another Jeremiah Wadsworth, for example, procured subsistence for the Connecticut troops, the Continental Army, and the French forces in America. The lure of profits was not the only motive of these supply personnel. Motivated by patriotism, Hugh Hughes rejected commissions offered by Greene and served as a salaried deputy under Mifflin and again under Pickering. Ephraim Blaine served throughout the war whether paid a commission or a salary.

Supply personnel—from laborer and artisan to deputy and chief of a supply agency—performed an essential role in the war. Washington's army could not have been maintained in the field or in winter quarters without the work performed by supply officers. A detailed analysis of the logistical support of the main Continental army reveals a mixture of acquisitiveness and patriotism, but that mixture was more common among the people of that day than has been readily admitted. Supply officers shared with line officers the achievement of winning victory in the American Revolution.

Notes

[1] French, *The First Year of the American Revolution*, p. 93.

[2] See Theodore Thayer, *Nathanael Greene: Strategist of the American Revolution* (New York, 1960), pp. 307 ff.

[3] Fitzpatrick, *Writings of Washington*, 6:457 (to Robert Morris, 30 Dec 76); 7:60–61 (to Robert Ogden, 24 Jan 77).

[4] Ibid., 9:238 (to Pres of Cong, 19 Sep 77); 10:183–84, 193–94 (to same, 22 and 23 Dec 77).

[5] Ibid., 14:457–59 (10 Dec 80).

[6] Ibid.

[7] Ibid., 26:277 (to Alexander Hamilton, 31 Mar 83). See also 26:495 (circular to states, 8 Jun 83).

[8] RG 1 1, CC Papers, item 192, fols. 57–63 (Pickering to Pres of Cong, 30 Mar 81).

[9] Peckham, *The War for Independence*, p. 202.

[10] Taking the post of Quartermaster General only with reluctance, Greene protested that no one had ever heard of a quartermaster in history. Washington Papers, 104:82 (to Washington, 24 Apr 79).

[11] Fitzpatrick, *Writings of Washington*, 19:131–33 (to Fielding Lewis, 5 May-6 Jul 80).

[12] Ibid. See also 19:317–18 (to Bd of War, 3 Aug 80).

[13] Ibid., 14:300 (to George Mason, 27 Mar 79). See also 3:455–56 (to Mass. legislature, 29 Aug 75); 13:21 (to Gouverneur Morris, 4 Oct 78); 383 (to Joseph Reed, 12 Dec 78); 467 (to Benjamin Harrison, 18 Dec 78).

[14] Morris, "Labor and Mercantilism in the Revolutionary Era," *Era of the American Revolution*, p. 89.

[15] Burnett, *Letters*, 4:235–36 (Daniel of St. Thomas Jenifer to _____, 26 May 79).

[16] (1) East, *Business Enterprise in the American Revolutionary Era*, p. 26. (2) For land speculation, see Thomas P. Abernethy, *Western Lands and the American Revolution* (New York, 1959), pp. 183 ff.

[17] Force, *Am. Arch.*, 4th ser., 3:844 (Albany Committee to N.Y. Convention, 28 Nov 76).

[18] (1) *JCC*, 14:869 (23 Jul 79). (2) See also APS, Greene Letters, 5:55,68 (James Abeel to Greene, 22 and 23 May 79).

[23] Kenneth R. Rossman, *Thomas Mifflin and the Politics of the American Revolution* (Chapel Hill, 1952), pp. 47–49.

[24] (1) Ibid., p. 51. (2) Fitzpatrick, *Writings of Washington*, 4:432 (to Joseph Reed, 25 Mar 76).

[25] (1) See Thayer, *Nathanael Greene: Strategist of the American Revolution*, pp. 230–38. (2) See also Freeman, *George Washington*, 5:505–07.

[26] Francis S. Drake, *Life and Correspondence of Major General Henry Knox* (Boston, 1873), p. 61.

[27] For an example of a coded letter, see "Letters of General Nathanael Greene to Colonel Jeremiah Wadsworth," *Pennsylvania Magazine of History and Biography*, 22:211–16.

[28] Greene Papers, vol. 5 (Greene to Samuel Otis, 17 Sep 79).

[29] (1) Carl C. Van Doren, *Secret History of the American Revolution* (New York, 1941), pp. 169–70. (2) *JCC*, 19:40 (9 Jan 81).

[42] Fitzpatrick, *Writings of Washington*, 5:192 (28 Jun 76); 12:277 (3 Aug 78).

[43] Ibid., 8:25–26 (to Brig Gen Alexander McDougall, 7 May 77).

[44] RG 93, Pickering Letters, 82:191–94 (to Bd of War, 20 Sep 81).

7

The Desperate Winter at Valley Forge

Introduction. In this letter to the President of Congress, dated December 23, 1777, General George Washington describes the near disintegration of the Continental Army as it languished at Valley Forge in the winter of 1777–1778. General Washington makes clear the critical role played by logistics in sustaining not only the physical existence of an army but its spirit as well.

*To THE PRESIDENT OF CONGRESS

Valley Forge, December 23, 1777.

Sir: Full as I was in my representation of matters in the Commys. departmt. yesterday, fresh, and more powerful reasons oblige me to add, that I am now convinced, beyond a doubt that unless some great and capital change suddenly takes place in that line, this Army must inevitably be reduced to one or other of these three things. Starve, dissolve, or disperse, in order to obtain subsistence in the best manner they can; rest assured Sir this is not an exaggerated picture, but [and] that I have abundant reason to support what I say.

Yesterday afternoon receiving information that the Enemy, in force, had left the City, and were advancing towards Derby with apparent design to forage, and draw subsistence from that part of the Country, I order'd the Troops to be in readiness, that I might give every opposition in my power; when, behold! to my great mortification, I was not only informed, but convinced, that the Men were unable to stir on Acct. of Provision, and that a dangerous Mutiny begun the Night before, and [which] with difficulty was suppressed by the spirited exertion's of some officers was still much to be apprehended on acct. of their [for] want of this Article.

Reproduced from the letter of General George Washington to the President of Congress, dated Valley Forge, December 23, 1777, in John C. Fitzpatrick, ed., *The Writings of George Washington from the Original Manuscript Sources, 1745–1799* (Washington D.C.: Government Printing Office, 1933), vol. 10, pp. 192–98.

This brought forth the only Comy. in the purchasing Line, in this Camp; and, with him, this Melancholy and alarming truth; that he had not a single hoof of any kind to Slaughter, and not more than 25. Barls. of Flour! From hence form an opinion of our Situation when I add, that, he could not tell when to expect any.

All I could do under these circumstances was, to send out a few light Parties to watch and harrass the Enemy, whilst other Parties were instantly detached different ways to collect, if possible, as much Provision as would satisfy the present pressing wants of the Soldiery. But will this answer? No Sir: three or four days bad weather would prove our destruction. What then is to become of the Army this Winter? and if we are as often without Provisions now, as with it [them], what is to become of us in the Spring, when our force will be collected, with the aid perhaps of Militia, to take advantage of an early Campaign before the Enemy can be reinforced? These are considerations of great magnitude, meriting the closest attention, and will, when my own reputation is so intimately connected, and to be affected by the event, justifie my saying that the present Commissaries are by no means equal to the execution [of the Office] or that the disaffection of the People is past all belief. The misfortune however does in my opinion, proceed from both causes, and tho' I have been tender heretofore of giving any opinion, or lodging complaints, as the change in that departmt. took place contrary to my judgment,[63] and the consequences thereof were predicted; yet, finding that the inactivity of the Army, whether for want of provisions, Cloaths, or other essentials, is charged to my Acct., not only by the common vulgar, but those in power, it is time to speak plain in exculpation of myself; with truth then I can declare that, no Man, in my opinion, ever had his measures more impeded than I have, by every department of the Army. Since the Month of July, we have had no assistance from the Quarter Master Genl.[64] and to want of assistance from this department, the Commissary Genl. charges great part of his deficiency; to this I am to add, that notwithstanding it is a standing order (and often repeated) that the Troops shall always have two days Provisions by them, that they may [might] be ready at any sudden call, yet, no oppertunity has scarce[ly] ever yet happened [offered] of taking advantage of the Enemy that has not been either totally obstructed or greatly impeded on this Acct., and this tho' the great and crying evil is not all. Soap, Vinegar and other Articles allowed by Congress we see none of nor have [we] seen [them] I believe since the battle of brandywine; the first indeed we have now little occasion of [for] few men having more than one Shirt, many only the Moiety of one, and Some none at all; in addition to which as a proof of the little benefit received from a Cloathier Genl., and at the same time as a further proof of the inability of an Army under the circumstances of this, to perform the common duties of Soldiers (besides a number of Men confind to Hospitals for want of Shoes, and others in farmers Houses on the same Acct.) we have, by a field return this day made no less than 2898 Men now in Camp unfit for duty because they are bare foot and otherwise naked and by the same return it appears that our whole strength in continental Troops (Including the Eastern Brigades which have joined us since the surrender of Genl. Burgoyne) exclusive of the Maryland Troops sent to Wilmington amount

to no more than 8200 In Camp fit for duty. Notwithstanding which, and that, since the 4th Instt. our Numbers fit for duty from the hardships and exposures they have undergone, particularly on Acct. of Blankets (numbers being [having been] obliged and [still are to] do set up all Night by fires, instead of taking comfortable rest in a natural [and common] way) have decreased near 2000 Men. we find Gentlemen without knowing whether the Army was really going into Winter Quarters or not (for I am sure no resolution of mine would warrant the remonstrance)[65] reprobating the measure as much as if they thought Men [the Soldiery] were made of Stocks or Stones and equally insensible of frost and Snow and moreover, as if they conceived it [easily] practicable for an inferior Army under the disadvantages I have describ'd our's to be wch. is by no means exagerated to confine a superior one (in all respects well appointed, and provided for a Winters Campaign) within the City of Phila., and [to] cover from depredation and waste the States of Pensa., Jersey, &ca. but what makes this matter still more extraordinary in my eye is, that these very Gentn. who were well apprized of the nakedness of the Troops, from occular demonstration [who] thought their own Soldiers worse clad than others, and advised me, near a Month ago, to postpone the execution of a Plan, I was about to adopt (in consequence of a resolve of Congress) for seizing Cloaths, under strong assurances that an ample supply would be collected in ten days agreeably to a decree of the State,[66] not one Article of wch., by the bye, is yet come to hand, should think a Winters Campaign and the covering these States from the Invasion of an Enemy so easy [and practicable] a business. I can assure those Gentlemen that it is a much easier and less distressing thing to draw remonstrances in a comfortable room by a good fire side than to occupy a cold bleak hill and sleep under frost and Snow without Cloaths or Blankets; however, although they seem to have little feeling for the naked, and distressed Soldier, I feel superabundantly for them, and from my Soul pity those miseries, wch. it is neither in my power to relieve or prevent.

It is for these reasons therefore I have dwelt upon the Subject, and it adds not a little to my other difficulties, and distress, to find that much more is expected of me than is possible to be performed, and that upon the ground of safety and policy, I am obliged to conceal the true State of the Army from Public view and thereby expose myself to detraction and Calumny.

The Honble. Comee of Congress went from Camp fully possessed of my Sentiments respecting the Establishment of this Army, the necessity of Auditors of Accts, appointment of Officers, new arrangements, &ca. I have no need therefore to be prolix on these Subjects, but refer to them after adding a word or two to shew, first, the necessity of some better provision for binding the Officers by the tye of Interest to the Service (as No day, nor scarce an hour passes without the offer of a resignd Commission) otherwise I much doubt the practicability of holding the Army together much longer. In this I shall, probably, be thought more sincere, when I freely declare that I do not, myself, expect to derive the smallest benefit from any establishment that Congress may adopt, otherwise than as a Member of the Community at large in the good which I am perswaded will result from the measure by making better Officers and better Troops, and Secondly to point out

the necessity of making the Appointments, arrangements, &ca. without loss of time. We have not more than 3 Months to prepare a great deal of business in; if we let these slip, or waste, we shall be labouring under the same difficulties all next Campaign as we have done this, to rectifie mistakes and bring things to order. Military arrangements and movements in consequence, like the Mechanism of a Clock, will be imperfect, and disordered by the want of a part; in a very sensible degree have I experienced this in the course of the last Summer, Several Brigades having no Brigadiers appointed to them till late and some not at all; by which means it follows that an additional weight is thrown upon the Shoulders of the Commander in chief to withdraw his attention from the great line of his duty. The Gentlemen of the Comee. when they were at Camp talk'd of an expedient for adjusting these matters, which I highly approved and wish to see adopted namely, that two or three Members of the Board of War or a Comee of Congress should repair immediately to Camp where the best aid can be had and with the Commanding Officer, or a Comee of his appointing[ment] prepare and digest the most perfect plan that can be devised for correcting all abuses, making new arrangements, considering what is to be done with the weak and debelitated regiments (if the States to wch they belong, will not draft men to fill them, for as to enlisting Soldiers it seems to me to be totally out of the question) together with many other things that would occur in the course of such a conference, and after digesting matters in the best manner they can to submit the whole to the ultimate determination of Congress. If this measure is approved of I would earnestly advise the immediate execution of it and that the Comy. General of Purchases whom I rarely see, may be directed to form Magazines without a Moments delay, in the Neighbourhood of this Camp in order to secure Provision for us in case of bad weather; the Quarter Mr. Genl. ought also to be busy in his department; in short there is as much to be done in preparing for a Campaign as in the active part of it; in fine, every thing depends upon the preparation that is made in the several departments in the course of this Winter and the success, or misfortunes of next Campaign will more than probably originate with our activity, or supineness this Winter. I am &ca.[67]

Notes

[63] The change was ordered by Congress. (See resolves of June 10, Oct 4, and Nov. 24, 1777, in *Journals of the Continental Congress*.)

[64] Maj. Gen. Thomas Mifflin. He had resigned as Quartermaster General of the Continental Army Nov. 7, 1777, to become a member of the Continental Board of War.

[65] The Pensylvania Legislature addressed a remonstrance to Washington against putting the Army into winter quarters. (See *Pennsylvania Archives*, First Series, 6, 104.)

[66] Col. John Bayard and James Young were a committee of the Pennsylvania Council of Safety which consulted Washington on the matter of clothing for the Pennsylvania troops.

[67] The bracketed words in this letter are Robert Hanson Harrison's efforts to improve Washington's diction. The letter sent is missing from the *Papers of the Continental Congress*. It was sold at auction in 1933 and, from the catalogue description, was a copy, by Harrison, of Washington's autograph draft. Harrison's copy, which Washington signed, shows a few minor verbal variations. (See note to letter of Washington to the President of Congress, Dec. 22, 1777, *ante*.)

8

General Washington on Logistical Organization

Introduction. In this letter to the Committee of Congress, dated Valley Forge, January 29, 1778, General George Washington outlines his ideas for remedying the many deficiencies in the organization and administration of the Continental Army. He also sets forth his concept of the proper functions and organization of the supply of clothing and the offices of Quartermaster General and Commissary General of Subsistence.

To THE COMMITTEE OF CONGRESS
WITH THE ARMY[27]

[Head Quarters, January 29, 1778.]

Gentlemen: The numerous defects in our present military establishment, rendering many reformations and many new arrangements absolutely necessary, and Congress having been pleased to appoint you a Committee, in concert with me, to make and recommend such as shall appear eligible, in pursuance of the various objects expressed in their Resolution for that purpose; I have in the following sheets, briefly delivered my sentiments upon such of them as seemed to me most essential; so far as observation has suggested and leisure permitted. These are submitted to consideration and I shall be happy, if they are found conducive to remedying the Evils and inconveniences we are now subject to and putting the Army upon a more respectable footing. Something must be done, important alterations must be made; necessity requires that our resources should be enlarged and our system improved for without it, if the dissolution of the army should not be the consequence at least, its operations must infallibly be feeble, languid and ineffectual.

Reproduced from the letter of General George Washington to the Committee of Congress with the Army, dated 29 January 1778, in John C. Fitzpatrick, ed., *The Writings of George Washington from the Original Manuscript Sources, 1745–1799* (Washington, D.C.: Government Printing Office, 1933), vol. 10, pp. 362, 382–94, 401, and 403.

* * *

Of Cloathing the Army

In regard to cloathing, experience has evinced, that the mode of providing hitherto in practice, is by no means adequate to the end; and that unless our future efforts are more effectual, it will be next to impossible to keep an army in the field. I am in hopes that valuable consequences will accrue from a resolution of Congress of the 22d of November, directing

> That the several states from time to time exert their utmost endeavours to procure, in addition to the allowance of cloathing heretofore made by Congress, supplies of blankets &c. for the comfortable subsistence of the Officers and Soldiers of their respective batalions.

As this puts the business into a greater variety of hands, than it has heretofore been in, and under the providence of a more diffusive attention, besides exciting a laudable rivalship, and operating upon the attachments of the different states, it will probably, be not a little instrumental in bringing us the needed supplies. But it is not an expedient that can be relied on altogether; of which, I doubt not, Congress are fully sensible and will only consider it as an auxiliary to their exertions. Indeed with several states which happen to be more or less the theatres of the war, and labor under other local impediments, it would be impracticable to furnish but a very small part of their proportion.

For my own part (with all deference I speak it) I have little conception, that our extensive wants can be completely satisfied, in any other way, than by national or governmental contracts, between Congress and the Court of France. If we are to depend wholly upon the resources of our mercantile credit, they must from the nature of things be too limited and contingent. While the seas are crowded with the British navy, and no foreign maritime power is employed in the protection of our trade, the precariousness of remittances from this Continent must be so great, as to destroy, or, at least, sicken our commercial credit; and make it neither the interest, nor within the abilities of private individuals, to adventure so largely upon that foundation, as our necessities demand.

It is not in my power to judge with certainty, what terms we may be upon with the French Court, what may have been already attempted, or may be now negociating, in the matter here suggested. Perhaps the project of national contracts is not practicable; but, if it is, it would certainly be our interest to embrace it. Besides placing our supplies, in so essential an article, on a sure and unfailing foundation, it would cement the connexion between the two countries, and, if discovered, prove a new and powerful topic of hostility between France and Britain. At the same time, I do not think, that the fear of a discovery, from an unwillingness on the part of France, to force on an immediate war, supposing it to exist, need be any insuperable obstacle. Things might be conducted in such an indirect and discreet manner, as to make them go on, in all appearance as they do at present, and render a detection of the part the government bore in the affair, morally impossible.

The resolution, before cited, recommends to the respective states, the appointment

> of one or more persons to dispose of the articles (procured) to the officers and soldiers, in such proportions as the General officers from the respective states, commanding in the army, shall direct, and at such reasonable prices, as shall be assessed by the Cloathier General or his deputy and be in just proportion to the Wages of the officers and soldiers, charging the surplus to the cost of the United States: adding that all cloathing hereafter to be supplied to the officers and soldiers of the Continental army, out of the public stores of the United States, beyond the bounties already granted, shall be charged at the like prices.

The regulation contained in this clause is very wholesome, generous and equitable. It will give great satisfaction to the army and conduce to removing the difficulties stated in the first section of these remarks, arising from the insufficiency of the present provision for officers. Nor do I know whether it admits of any improvement, by being made more definite. As the criterion of reasonableness in the prices seem to lie with the Cloathier General, or deputy, it may perhaps be liable to uncertainty and abuse, and may be the subject of dispute between them and the Officers. If to prevent this, a catalogue of rates could be established as the standard, it would be desirable; but perhaps the great difference and the variety in the quality and kinds of goods, may not admit of such a Measure.

It will of course be necessary for each state to have agents for importing and purchasing goods, towards its quota of supplies; and the Cloathier General should have a deputy in every state, for purchasing all overplus articles wanted in his department,

> provided that effectual measures be taken by each state for preventing any competition between their agents or the Cloathier General and his agents, who are severally directed to observe the instructions of the respective states, relative to the prices of cloathing purchased within such state.[32]

There should also be a sub-clothier or clerk from every state, constantly with the army; to receive and distribute the cloathing, see that the goods brought correspond with the invoices, and that the issues are made conformable to some general rule established, to do justice to the public, to regiments and to individuals.

The rule I would propose for issuing and distributing cloathing is this; That the captains of companies in the first place give certificates, containing the names of his Men, with the particular wants of each: That these be digested into a regimental return signed by the officer commanding the regiment: That the pay Master draw the cloathing, lodging the regimental return, so signed, with the Clothier as a Voucher for the delivery, who is to keep an account with the regiment for the same: That the paymaster, retaining the certificates for his own government, distribute the cloathing to the Men, agreeable to them, taking their receipts and keeping an exact account with every individual; which he can easily do, as he is sup-

posed to have accounts open for their Monthly pay: And that all cloathing delivered to the Men be given credit for in the pay rolls, with accounts signed by the sub-clothiers, annexed, for the information of the Pay Master General.

To make soldiers look well and bestow proper attention and care upon their cloathes, they ought to receive them at stated periods. This gives a taste for decency and uniformity and makes the Officers regardful of the appearance of the men; a matter of no small moment in an Army, as tending to promote health, and foster a becoming pride of dress; which raises soldiers in their own esteem and makes them respectable to their enemy.

The periods I would fix upon for delivery are on the first days of June and January. In June should be given a waistcoat with sleeves, flannel, if to be had, two pair of linnen overalls one shirt, a black stock of hair or leather, a small round hat bound and a pair of shoes. In January, a waistcoat to be worn over the former, close in the skirts and double breasted resembling a sailors to have a collar and cuff of a different color, in order to distinguish the regiments, a pair of breeches, woolen overalls, yarn stockings, shirt, woolen cap, and a blanket, when really necessary. Watchcoats ought, if possible, to be provided for sentinels. Whatever might be furnished more than these, the soldier ought to have stopped out of his pay, upon the terms fixed by Congress, in their late resolve: A list of the cloathing to be kept by the commanding officer of each company, an inspection into them made at least once a Week, and punishment inflicted, or restitution made, for every article missing unless well accounted for. If it could be done, which is much to be doubted, it would be well to discriminate the troops of each state, by the colour of their cloathes and each regiment by that of the collar and cuff.

If this plan could be adopted, and a quantity of supernumerary articles laid in, for occasional demands, our men would appear infinitely better, be much healthier, and the army a great deal stronger, than it commonly is.

The Clothier General ought to be authorised and directed to enter into contracts, for as large quantities as possible, of shoes and stockings to be manufactured in the Country. These are articles that can least be dispensed with, and the deficiency of which we have most severely felt. A Mr. Henry of Lancaster, I am told would contract for one, or two hundred thousand pair of shoes, annually, to be paid for in raw hides. The number of cattle killed for the consumption of the army, enables us to make this contract to great advantage.

Of the Quarter Master General's Department

In this department, are comprehended, Forage Masters, waggon masters, artificers &c. with all their appendages. It is a department of great trust and magnitude, on the due administration of which all the operations of an army essentially depend. The person who fills it, ought to be a military character, a man of abilities, of business and activity, well versed in the resources of the country and of sufficient prudence and rectitude, to exercise his office, in drawing the necessary supplies, in a manner least distressing to the inhabitants.

His duty requiring him to be almost constantly with the army, to see and know its wants, superintend the movements of his department in the different branches, and to prevent or rectify the abuses that may be creeping into it, he will stand in need of assistants, to execute the business abroad under his direction. It is not easy to ascertain the number of these assistants, that will be required: circumstances vary and must govern. But I cannot forbear observing, that some measures ought to be taken, to restrain that extravagant rage of deputation, now too prevalent among us. It has served to create a number of mere sinecures, and to render the execution of every office more perplexed, more expensive and less satisfactory than formerly, both to the army and country.

I should imagine, that a great part of the business of this department might be managed by contracts with people capable of performing them and bound by sufficient securities. This would unburthen the public of large sums now paid in stationary wages, often for temporary purposes, and would perhaps answer the end of supplies better. Standing wages are very apt to beget indolence and inattention, and commonly continue an incumbrance, when the cause, that gave rise to appointments, ceases to exist, from the difficulty of throwing off the persons to whom they were given; on which account they ought to be avoided, whenever any point can be effected without them.

I am also unacquainted with the number of persons, the Quarter Master General may find it necessary to employ in camp or elsewhere, as storekeepers, clerks, and the like; but under the [head?] of these remarks, I have given my opinion of all the assistant Quarter Masters required in the subordinate duties of the office in Camp. More than these should not be allowed. Division Quarter Masters, Forage and Waggon Masters should be abolished.

Who may be in contemplation to fill the place of Quarter Master General is as yet to me unknown,[33] and equally indifferent, provided he be a fit person. But in making the appointment, not a moments time should be lost: The least procrastination will be extremely prejudicial, as the season is already far advanced, which we ought to be improving in preparations for the next campaign.[34] Everything is to be done; the old waggons to be repaired, new ones provided, horses and pack saddles procured, Bell tents for arms and tents for the Men, haversacks and knapsacks made, tools of different kinds prepared, and artificers and waggoners engaged.

And here I shall take occasion to declare, that however inconvenient it may be to the Quarter masters to provide, or expensive to the public to pay for waggoners, it ought nevertheless, at all events, to be done. Soldiers are drafted for waggoners and many other purposes, by which their services in the line are intirely superseded, while they actually compose a part of our numbers, and appear on the returns to compose part of our strength. This may be tolerated in quarters or in a season of inaction, though even then the soldiers would be better employed, in learning the duties of their profession, but it ought not to be submitted to in the progress of the campaign, as has been of late the unvariable practice.

Several new regulations, will I believe be necessary in the Forage department, the particulars of which, the Gentleman at the head of it, will be best able to point out.

One thing I shall observe, that the manner of paying the Forage master has been a subject of discussion. It has been suggested that the allowing a commission, instead of a fixed determinate pay, opens a wide door to fraud and peculation. In mentioning this not the least insinuation is intended to the prejudice of the Gentleman now acting in this capacity, it is merely hinted as a matter worth consideration on general principles. I think however it may be safely asserted, that the assistant forage masters are not, in general so accurate as they ought to be, in receiving or delivering forage, and that, depending too much upon the farmers reports and their own conjectures, the public pays for much more than they receive.

We have to lament that we are suffering exceedingly from a scarcity of forage; an article not less essential to the well being of an army, than that of provisions. Should we be able to shift through the winter, this want will be no small obstacle and delay to our operations in the spring; especially, as we are exhausting the small stock now on the spot, which will probably be the immediate scene of them. We have numbers of Horses dying daily, for the want of provender; what then must become of them, when it grows scarcer, and the distance to fetch it greater? How are magazines to be formed under these circumstances? And without Magazines, how are our horses to be supported in the early part of the next campaign; when their numbers shall be greatly augmented? These are serious questions, not easy of solution, and are proposed, that every exertion may be made to avert an evil of no small consequence.

A Waggon Master General is a necessary officer, and there would be a great saving to the public, if the duties of the office were discharged by an active careful man, who would make a judicious choice of deputies, and not be himself above his business, as has been the case with most of those heretofore in this line. They have been apt to indulge fantastical notions of rank and importance; and assume titles very inapplicable to their stations; which have served to destroy a great part of their usefulness; and make them the objects of general contempt and resentment. This inconvenience must be obviated in future, by allowing no rank to any of them, from the highest to the lowest.

The number of Assistants requisite cannot be precisely ascertained, as it must depend upon the number of waggons. There must be one to each brigade to superintend the baggage waggons; but how many will be wanted to take charge of forage, provisions and for a variety of other purposes, I am at a loss to judge. This must be left to the quarter master general of whose department this is a branch and to the waggon master general, who is the immediate agent. One deputy however to every twenty waggons appears to me fully sufficient.

The men employed in this capacity should be plain, sober, diligent Men, acquainted with the management of horses and waggons, and untainted with absurd fancies of gentility; who would understand the end and design of their appointment, and not consider the means of making themselves useful, as a degradation of their imaginary dignity.

I shall close this head with an observation on the mode, hitherto in practice, of estimating and paying for damages, done by the army in quarters, or in the field;

which appears to me objectionable, on several accounts. The payments have usually been made, on certificates of appraisement by farmers or other persons in the neighbourbood of the parties injured, chosen by themselves, and whenever the accounts were presented and there was money in hand to pay them.[35] This mode is unequal and gives the injured party an evident advantage over the public; and has no doubt in many instances been attended with gross impositions. Besides this defect, it would probably promote the service and be productive of more regularity; if a fixed time was appointed, when these payments should be made. There would not be such frequent large drafts upon the Quarter Master, in the most active part of a campaign, when he wants money for more pressing exigencies, and the entries of his disbursements might be made with more order and exactness, if these were deferred to a time of greater leisure. It is submitted, in the first place whether the appointment of two, or more persons would not be proper to accompany the army constantly, for the purpose of ascertaining damages, with a like number of persons, chosen by the party interested; whose certificates should be a sufficient justification to the Quarter Master, for paying them; and, in the second place, what time or times would be proper to satisfy demands of this nature. Perhaps two different periods would be best, both in the interval of tranquillity; one a little after the entrance of the army into Winter Quarters, and the other just before the opening of the campaign.

Of the Commissary's Department

This department has been all along in a very defective and for some time past, in a very deplorable situation. One important change has already taken place in it; since which it has been with the utmost difficulty we were able to keep the army together. Whether this proceeded from the revolution being ill-timed, or too great, from the difficulties in the way of executing the office being multiplied, or from the present Gentleman, at the head of it, not having yet had leisure to digest his plan and form his connexions, I shall not undertake to determine. But unless a very considerable alteration shortly takes place, I see no prospect of adequate supplies for the succeeding campaign. To attempt supplying the army from hand to Mouth (if I may be allowed the phrase) scarcely ever having more than two or three days provisions beforehand, and sometimes being as much in arrears, is a dangerous and visionary experiment. We shall ever be liable to experience want in the most critical conjunctures, as we have frequently done heretofore; and to suspend or forego, the most interesting movements, on account of it.

Whether the first establishment of this department, the present, or the mode of supplying the army by contract, at certain stipulated rates, be preferable; is a question not for me to decide, though well worth a strict and candid examination. But I shall not scruple, in explicit terms to declare, that unless ample magazines are laid up in the course of this winter and the approaching spring, nothing favourable is to be looked for, from the operations of the next campaign; but our arms, enfeebled by the embarrassments of irregular and fluctuating supplies of provisions, will reap no other fruits than disgrace and disappointment. To obviate this, no possible exertion should be omitted; the ablest and best qualified men in the several

states, whence provisions are drawn, should be called forth to aid in the matter; such as are acquainted with the resources of the country and may have been conversant in business of the kind.

The choosing of fit places for Magazines in defensive war, is equally momentous and difficult. Expence and hazard are naturally incident to them; because the possible movements of an enemy must ever be conjectural and it is precarious, when, where and, often, how they are to be removed. According to present appearances, magazines any where in the rear of the army from Lancaster to the North River would not be amiss, and the more numerous they are, the better; as their mutiplicity [*sic*], decreasing the importance of each, would leave no one a sufficient object of enterprise; enhance the trouble of destroying them, and lessen the labour and expence of forming them in the first instance.

Whether the Commissaries should be dependent upon the Quarter masters, for teams, or be empowered to provide for themselves, is a matter they can perhaps best settle between themselves. But it is necessary they should come to some agreement or determination upon the subject, to remove the inconveniences hitherto incurred on this score; the Commissaries having frequently imputed the deficiency of supplies to a want of the means of transportation.

It is a point of prodigious consequence, and in which we have been amazingly deficient, that vinegar, vegetables and soap should be regularly and abundantly furnished to the army; nothing contributing, more than this, to the health, comfort and contentment of soldiers. Certainly, there are no insurmountable obstacles to doing it; and if not, no pains should be spared to accomplish so valuable an end.

A ration should be more precisely defined than it now is, and the quantity of spiritous liquors allowed the soldier, fixed. It should also be considered, whether any and what quantity should be allowed officers at the public expence; at all events, the Commissaries should be obliged to provide for them, if at their own charge, as they would otherwise have no opportunity of getting it, and in the hard and fatiguing service they pass through, it is indispensable, even to the most temperate men.

* * *

The difficulty of getting waggoners and the enormous wages given them, would tempt one to try any expedient to answer the end on easier and cheaper terms. Among others, it has occurred to me, whether it would not be eligible to hire Negroes in Carolina, Virginia and Maryland for the purpose. They ought however to be freemen, for slaves could not be sufficiently depended on. It is to be apprehended they would too frequently desert to the enemy to obtain their liberty; and for the profit of it, or to conciliate a more favorable reception, would carry off their waggon-horses with them.

* * *

Upon the whole Gentlemen, I doubt not you are fully impressed with the defects of our present military system, and the necessity of speedy and decisive measures, to put it upon a satisfactory footing.[38] The disagreeable picture, I have

given you, of the wants and sufferings of the army, and the discontents reigning among the officers, is a just representation of evils, equally melancholy and important; and unless effectual remedies be applied without loss of time, the most alarming and ruinous consequences are to be apprehended. I have the honor, etc.[39]

Notes

[27] This committee, generally known as the committee of conference, had been chosen on January 10 as Francis Dana, Joseph Reed, Nathaniel Folsom, and John Harvie, together with three members of the Board of War, who were selected on January 12, to wit, Maj. Gen. Horatio Gates, Maj. Gen. Thomas Mifflin, and Col. Timothy Pickering. On January 20 Charles Carroll and Gouverneur Morris were added, after Gates, Mifflin, and Pickering were excused from acting. The committee held its sessions at Moore Hall, the house of William Moore, about two and a half miles north of the Valley Forge headquarters.

[32] The resolves of Nov. 22, 1777. (See *Journal of the Continental Congress.*)

[33] Maj. Gen. Thomas Mifflin, Quartermaster General of the Continental Army, had resigned Nov. 7, 1777.

[34] Maj. Gen. Nathanael Greene was appointed Quartermaster General of the Continental Army by Congress Mar. 2, 1778; he served until Sept. 30, 1780.

[35] In what seems to be the first draft of this letter, in Alexander Hamilton's writing, is the following, in Washington's writing, which appears to have been intended for insertion at approximately this point, but was afterwards discarded:

"Among the many hardships which the Inhabitants, who happen to live in the rout of an army experience, is that of destruction of Fences; wch. in spite of all the vigilance and care that can be used will, and in some cases must, from necessity, be taken for firing, to the great detriment of the proprietor, or ultimately to the Public, and no method has yet been adopted to estimate the damage by any just rule, or any rule at all, by which means the sufferer is left to ascertain his own loss or, which amounts nearly to the same thing, get two of his neighbours who either are, or expect to be in the same predicament to do this which involves the public, if she pay it, in great."

[38] The difficulties of raising men for the army at this time are pictured in Tench Tilghman's letter to Lieut Col. Aaron Burr (January 30). A captain who was advanced $200 for recruiting bounties found, after enlisting a few men, that he could not compete with the high State bounties. He was allowed, therefore, to "take back the men that he has enlisted and repay the 200 Dollars." Four of these men were in Burr's regiment, so Tilghman requested their delivery to the captain. Tilghman's letter is in the *Washington Papers*.

[39] The text is from the original report, which seems to have been left with Washington by the committee. It is 38 folio pages in length, in the writing of Alexander Hamilton, signed by Washington, and indorsed by Francis Dana. Prior to the arrival of the committee of Congress at Valley Forge, Washington requested the opinion of the general officers, in writing, upon a "proposed new establishment and regulation of the army." The foregoing report is based upon these observations of the general officers, which are in the *Washington Papers* and entered in a group in the Variek Transcripts in the Library of Congress.

9

Transportation and the Failure of Burgoyne's Invasion

Introduction. R. Arthur Bowler here discusses the logistics of British General John Burgoyne's campaign of 1777–1778, with particular emphasis on the importance of transportation in the failure of Burgoyne's invasion of New York from Canada. The transportation problems encountered by "Gentleman Johnny" were equally well known to American commanders throughout the Revolution.

1777 was the year of Burgoyne's campaign. Historians have generally seen his defeat as a triumph of American arms, but it is better classified as a disaster of British planning. No campaign of the war better illustrated the logistical problems of operations in America or the consequences of failure to understand them. The logistical preparations for this campaign commenced in January when Nathaniel Day began to stockpile provisions at St. John at the head of navigation on the Richelieu River. When Burgoyne, who had spent the winter of 1776–1777 in England, arrived back in Canada on May 7, the provisioning was complete.[36] The army, after spending a comfortable winter, was already assembling and the fleet was ready to carry it and the provisions to the south end of Lake Champlain. Burgoyne brought a considerable quantity of equipment with him, but by early June most of it too had been transported to St. John and the loading of ships there had begun.[37] On May 28 the "magnificent armament" sailed.

There was only one flaw in the army's preparations: land transportation. In January, when Day began to assemble stores, he noted in a memorandum to Carleton that no provision had been made for the transportation of the army when it got to the other end of Lake Champlain.[38] The memorandum passed unnoticed, and not until early in June, when General Phillips brought up the question with respect to the artillery, did anyone apparently consider land transport again. Then, in a flurry of activity, contracts were let with Jacob Jordan, a Montreal merchant, for the hire of 400 horses for the artillery and 500 two-horse carts with drivers for the army.[39] But

---

From R. Arthur Bowler, *Logistics and the Failure of the British Army in North America, 1775–1783* (Princeton, N.J.: Princeton University Press, 1975), pp. 225–30. Reprinted by permission of Princeton University Press.

it was too late. Perhaps if there had been a long siege of Ticonderoga, as everyone expected, the train would have been ready when the time for the overland movement to the Hudson and then to Albany came. As it was, the American army evacuated Ticonderoga immediately and if it was to be brought to battle pursuit had to be immediate and close. But the wagon train, which came overland from St. John, did not begin to arrive until mid-July and then was woefully short in numbers.[40] Without horses and wagons to transport supplies and artillery, first across the portage from Lake Champlain to Lake George and then from Lake George to Fort Edward on the Hudson, such pursuit was impossible. Although the Americans evacuated Ticonderoga on July 6, Burgoyne, who decided to march the main body of the army from Skenesboro to Fort Edward, leaving the supplies to go by Lake George, did not leave Skenesboro until July 23 or take possession of Fort Edward on the Hudson until early in August. There the army stalled. Only 180 of the contracted wagons had arrived and over the abominable road from Fort George to Fort Edward they could do little more than keep the army in day-to-day supply. Even to do that the horses had to be driven to the point of collapse.[41] Not until September 13 was a reserve of supplies, including provisions for thirty days, collected and the army able to move on. It was in order to obtain more horses and an easier supply of provisions that Burgoyne detached Colonel Baume on his disastrous attempt on the American supply depot at Bennington. By the time Burgoyne was ready to move, the American forces, demoralized by the retreat from Ticonderoga, had recovered. When he crossed the Hudson and thus cut off his communications with Canada, they closed in around him.

The great logistical problem of Burgoyne's campaign, then, was transportation. But, in fact, behind that was a whole series of fundamental failings. These began with the incredible failure even to consider the problem of land transportation until three weeks before the army departed. This resulted from a combination of errors. First, it was, apparently, and incorrectly, assumed by Burgoyne that at least part of the transportation needs of the army could be met by *corvees*—legal labor services due to the state—on the French Canadian peasants.[42] More important, Burgoyne seems to have assumed that he would have no trouble obtaining all the horses and wagons he required from the Americans once he landed south of the lakes. For, even when he did finally let the contract for wagons, it was only for 500, barely enough to carry fourteen days' supplies, although it was planned to carry thirty days' provisions at all times.[43] As it turned out, Burgoyne was entirely wrong. Although the wagonmaster with the army had instructions to hire or purchase as many vehicles as he could find, only thirty oxcarts were added to the train for the move from Fort George to Fort Edward.[44]

The assumption that the army could obtain many of the vehicles it needed from the Americans was a fundamental error, apparently resulting from bad intelligence. As a letter to Lord Rochford in 1775 indicated, Burgoyne had some awareness of the problems that an army in America would meet when attempting to move through hostile territory.[45] Yet for this campaign he was prepared "to trust to the resources of the expedition" for most of the horses and wagons and all of the oats and hay he required.[46] His trust was not well placed. Much of the area through

which the army passed was so sparsely settled that under the best of circumstances it would have been difficult to obtain anything from it. Further, the people of the area proved to be anything but friendly. As a result the required horses and wagons, as well as horses for the German Dragoons with the expedition, were never acquired, and forage for the horses with the army was in perpetually short supply;[47] at Fort Edward the total supply of oats, a most necessary part of the diet of working horses, amounted to a wagon load—less than 800 pounds.[48]

On this problem of transportation, two more points deserve consideration. First there is a question concerning the size of the artillery train that accompanied the army. After the failure of the expedition, critics, who recognized the part played in it by transportation problems took Burgoyne to task for taking with him an artillery train far larger than the situation demanded. The train was indeed huge, consisting of two twenty-four pounders, four twelve-pounders, eighteen six-pounders, six three-pounders, and twelve mortars of various sizes.[49] Burgoyne defended its presence on the grounds that it was necessary for the reduction of the defensive works that the Americans were so adept at throwing up, and claimed that never interfered with the transportation of provisions. The first point can be doubted, especially as it applies to the period after the fall of Ticonderoga; the second point was pure evasion. It was probably true, as Burgoyne led many witnesses before the parliamentary inquiry into the expedition to admit, that the provisions' train was never required to assist the artillery.[50] But that was not the point. What was important was that from the beginning of the expedition the artillery employed 400 horses that not only ate up large parts of the supplies of hay and oats, but might have been used to carry provisions or even to mount the German Dragoons.

The second point concerns the discipline of the army. As noted earlier,[51] eighteenth-century officers were notorious for the quantities of personal luggage they insisted on carrying with them on campaign. Foreseeing that this might cause problems, Burgoyne ordered officers to strip their baggage to a bare minimum even before the army left Canada.[52] At Skenesboro widespread disobedience made it necessary to repeat the order and to enjoin officers against purchasing horses for their own use and against appropriating provisions' carts to carry personal baggage. These orders likewise fell on deaf ears, as did threats that private vehicles and horses would be expropriated and private goods found on government vehicles burned.[53] One German officer wrote with an air of pride-of-accomplishment that although the army was desperately short of transport, he had acquired two horses for himself "and fortune will probably provide a third."[54] At Fort Edward it was discovered that government horses and wagons were being hidden in the woods and brought out only for use in transporting private goods, and as late as September 14 Burgoyne had to issue another General Order condemning the "enormous mismanagement . . . in respect to the King's carts."[55]

The whole concept of the campaign of 1776 from Canada has been criticized by almost every historian who has written about the Revolution. Whether or not it was a strategic blunder is not in the purview of this study to decide. That it was filled with tactical blunders there is no question, and fundamental among them were those related to logistics.

Notes

[36] T 64/103, 55–59.

[37] T 64/103, 154, Day to deputy commissary at St. John, 31 May 77.

[38] T 64/103, 55, Memorandum 26 Jan 77.

[39] Lieutenant General John Burgoyne, *A State of the Expedition from Canada* (London, 1780), xxviii–xxx.

[40] *Ibid.*, xxi, Burgoyne to Germain, 20 Aug 77.

[41] *Ibid.*, 41–42, evidence of Captain Money.

[42] *Ibid.*, xxx, Burgoyne to Carleton, 7 June 77.

[43] *Ibid.* In response to a request from Burgoyne, Day prepared a chart showing the number of wagons required for provisions for forces of various sizes for various lengths of time. According to it an army of 10,000 required 1,125 carts, each capable of carrying 800 pounds, to carry 30 days' provisions. (*Ibid.*, xxx, Burgoyne to Day, 4 June 77; *ibid.*, appendix Aa.)

[44] *Ibid.*, Evidence of Captain Money. By the middle of August the figure was 50 ox carts. (*Ibid.*, xxi, Burgoyne to Germain, 20 Aug 77.)

[45] *Supra*, 62–63.

[46] Burgoyne, xxx, Burgoyne to Carleton, 7 June 77.

[47] *Ibid.*, 53, Evidence of Captain, The Earl of Harrington; DeFonbalanque, 262; Newcastle Papers, NeC. 2,810, Phillips to Newcastle, 10 July 77; Hadden, *Journal*, 107–108; Add. Mss. 32,413, "Diary of William Digby," 64, 70, 79.

[48] Burgoyne, 70, evidence of Capt. Bloomfield, Lieut. Digby ("Diary," 79) states that by the end of September horses were dying from a combination of overwork and lack of grain.

[49] *Ibid.*, 9.

[50] *Ibid.*, 42, 68, 78.

[51] *Supra*, 57–58.

[52] Burgoyne, 72.

[53] *Ibid.*, 40, 73; O'Callahan, 27, 37; Hadden, 310, 312.

[54] Pettengill, 83.

[55] O'Callahan, orders of 27 Aug and 14 Sep 77.

Chapter 2

Logistics in the Early National Period

10

Supply in the War of 1812

Introduction. Historian Marguerite McKee provides an excellent overview of the struggle to devise adequate means for providing logistical support to a fledgling army already called upon to operate outside the borders of the United States. She outlines the organization for logistics of the Army from the Revolution through the War of 1812 and describes the continuing weaknesses of the system, notably the inadequacies of the civilian contracting system for the supply of rations, transportation, and other logistical support. She goes on to outline the reformation of the office of the Quartermaster General and the creation of the office of the Chief of Ordnance.

After the signing of the Treaty of Paris in 1783, the United States Army was almost completely dispersed. A few troops only were kept in the service to guard the frontiers. Several times during the interim between 1793 and 1812, the peace of the nation seemed to be threatened, and at such times attempts were made to introduce into Congress bills providing for the revival of the Army, but very little was accomplished. In the spring of 1812 Congress realized that the relations between the United States and her European neighbors were so shaken that war would be inevitable. War, with the Army organized as it was then was unthinkable. Therefore, the legislators for the nation set to work to provide for a reorganization of the soldiery.

Thomas Jefferson, in most concerns a strong supporter of the administration, was of the opinion that the War Department needed a new head as badly as the Army needed reorganizing. Writing to William Duane, the Philadelphia editor, he pictured the country as in the dilemma of being unable to avoid war, and yet unable to carry on a war under the exiting conditions.[1] Jefferson thoroughly disapproved of Secretary Eustis, and, although he still advocated small standing armies in peace and the extensive use of militia in war, he knew that a well-organized, well-directed Army and War Department were essential in a successful conclusion of war.

Reproduced with the permission of the American Logistics Association from Marguerite M. McKee, "Service of Supply in the War of 1812 [Part II]," *The Quartermaster Review* 6 (March–April 1927): 45–55.

Organizing With War Upon Us

During the months from January until June, Congress was at work creating the new organization. Changes had to be made in all of the departments which were engaged in furnishing the Army with supplies, and several new departments had to be created. Congress was, on the whole, only lukewarm in its support of the war policy and its temperature showed in the laws which it passed for the new Army, creating what Governor Claiborne, of Louisiana, termed a "lemonade system."[2] In fact, Congress seemed afraid to test the popularity of the government by a full utilization of its powers in conducting a war.

Lessons of the War for Independence Lost

With the mustering out of the Army shortly after the formal return to peace in 1783, most of the lessons which the earlier war had taught were buried as if by an avalanche. The Continental Congress had been compelled to shift to the states the responsibility of providing men, because of its own lack of authority during the earlier war, though all of the officers had been opposed to the short-term militia system. Nevertheless, in the War of 1812, reliance was again placed in the militia for the larger part of the troops. Jefferson and his followers still maintained that it was nonsense to talk of regulars. "They could not be had among a people so easy and happy at home as ours; we might as well rely upon calling down an army of angels from heaven."[3]

The System that Failed

Under the Act of 1792, a uniform militia had been provided for, to consist of all the able-bodied white males between the ages of 18 and 45, each of whom was to be ready upon call, provided with a good musket or firelock, a bayonet and belt, two spare flints, a knapsack, a pouch and box to contain 24 cartridges with a proper quantity of powder and ball; or as an alternative, a good rifle, knapsack, shot pouch and powder horn, twenty balls suited to the bore of the rifle and a quarter pound of powder.[4] The enforcement of the act was nonchalantly put upon the states, and when in 1812 Secretary Eustis called upon Connecticut and Massachusetts for militia, Governors Sharon and Strong had it within their power to make all too effective their refusals to comply with the request.[5] In time of actual hostilities, when, as was often the case, the men were unable to supply themselves, the states or sometimes the United States made up the deficiency.[6] For the regulars, the volunteers, and in some cases the militia, the national agents had to furnish all the supplies; and for all the troops engaged in the national service they had to supply the food.

In January, 1812, Congress provided for the raising of 24,860 officers and men to be in readiness to make a dash into Canada, which, in the opinion of a number of the members of that body, would immediately secure the assistance of that province, and with it the compliance of the British. For the proper arming and equipping of these troops Secretary Eustis estimated that $6,697,892 would be

required.[7] On April tenth another act was passed requesting the states to call out one hundred thousand militia,[8] and to provide for the equipment of these men. Congress revived the Militia Act of 1792, which has been described.

"Passing the Buck" On Supply

Between the termination of the Revolution and the outbreak of the War of 1812, the agencies for supplying the troops were transferred back and forth between the Departments of War and of the Treasury. Shortly before the second war was declared, all the divisions concerned with supplying the Army were transferred back to the War Department,[9] thus "uniting the purse and the sword in the person of the Secretary of War."[10] With a good executive in office and a sufficiently large staff of assistants, this should (with due respect for General Emory's criticism) have worked much better than a division of the responsibilities between the two departments. But the War Department did not possess either a competent head or an effective staff. Complaints and details which should have been settled by subordinates were brought directly to the head of the department, and Secretary Eustis found himself involved in such matters as that of requisitions for food of one division of the Army while he was totally ignorant as to whether other divisions had any supplies at all.

The provisions which Congress made for the staff departments, which were to supply the Army, varied with the kind of article to be furnished. Food was to be provided by contractors as it had been since the closing years of the Revolution, except that the contracts were now let by the Secretary of War instead of by the Financier. A Purchasing Department was established for the purpose of buying arms, ammunition, clothing and accoutrements. Anything not included in the category of articles to be purchased by this agency was to be obtained by the Quartermaster's Department, which was also to buy all riding horses, pack horses, teams, wagons and forage. In case of emergency, any article whatever might be purchased by the Quartermasters or deputies at the order of the Commanding Officer.[11] The transportation of such supplies, together with that of all Army baggage, was the chief business of the Quartermaster. The head of each of the departments was to be appointed by the President with the advice and consent of the Senate. There were, of course, later changes, but this was the basis upon which the supply departments were organized.

Division Into Supply Areas

During the first years of the Revolution it had been found more practical to divide the states into districts for the buying and issuing of food. When Robert Morris, appointed Financier in 1780, began to feed the troops by contract, the contracts were let for rationing divisions of the Army, such as the Northern Army, wherever that body of troops might happen to be situated. After the close of that war with the expansion of the country westward, it was found more efficient to let contracts for the feeding of whatever troops happened to be in the different sec-

tions. The country was, therefore, divided into districts and the contracts let for the districts. These had no necessary connection with the military districts which were later established, although it was natural in many cases that the boundary lines should coincide. The districts were: One, consisting of Michigan, Ohio, north of the forty-first parallel and Lake Ontario; two, consisting of Kentucky and Tennessee; three, consisting of Ohio, south of the forty-first parallel, Illinois, Indiana and Missouri; four, consisting of Mississippi, Territory, Louisiana and the vicinity north of the Gulf of Mexico; five, consisting of Maine, New Hampshire and its northern vicinity; six consisting of Vermont and its northern vicinity; seven, consisting of Massachusetts except Springfield; eight, consisting of Rhode Island and Connecticut; nine, consisting of New York and its northern dependencies; ten, consisting of New Jersey; eleven, of Pennsylvania; twelve, of Maryland, Delaware and the District of Columbia; thirteen, of Virginia; fourteen, of North Carolina; fifteen, of South Carolina; sixteen, of Ocmulgee, Old Fields, Georgia and the country to the south.[12] For each of these a separate contract was let. Bids were received for furnishing rations to the troops raised, stationed, or marching through the districts.[13] No provision was made for supplying an Army which should invade the territory of the enemy, if war occurred. Civilians, over whom neither the officers of the Army or the War Department had any special jurisdiction, were thus entrusted with the vital business of feeding the Army.

The system must have been based on the theory that the food could be obtained at a lower price. The ration was supposed to be delivered by the contractor to the individual soldier for the price fixed in the agreement. There was no provision by which he could be compelled to keep sufficient supplies within the vicinity of the Army so that the officers could be assured that their men would be fed from day to day, unless they demanded a deposit, that is, the delivery of a definite number of rations to a given magazine, post, or store on or before a fixed day. When the requisition for such a deposit had been filled, the contractor was justified in charging the full contract price for the amount of food so delivered and, if it were desired that he issue it from the store, he received extra compensation; moreover, if a change in the situation made the removal of the deposit advisable, the Government had to pay for the transportation. It was, therefore, to the advantage of the contractor to persuade the officer in command to order deposits and then to obtain the work of issuing for himself. The officers were apt to give orders so ambiguous that it was difficult for the contractor to tell whether an actual deposit was wanted or merely a certain number of rations to be ready for issue at a certain place at the time stated.[14]

Responsibility Not Fixed

In case the contractor failed, we have seen that the officer in command was empowered to appoint special commissaries to feed the troops. So much use was made of this emergency provision that it was almost impossible to keep the system in anything like order. The grant of this power to the officers also took from the contractor the brunt of the responsibility for allowing the Army to starve. At the same

time the provision that the contractor was responsible for the daily issues, once the proper requisition had been made, took from the commanders the duty and even the authority to discover in advance what chances there were that food would be forthcoming. These somewhat conflicting measures gave to the officers an opportunity, if they chose to take it, to punish the contractors by appointing special commissaries when the contractor wanted to supply, and at the same time gave the contractor an opportunity to accuse the officers of acting from spite whether or not such was the case. According to the contractors, the rations purchased by the commissaries were much more expensive than those which they, the contractors, obtained.[15] When a contractor failed to supply, either because he could not get the necessary food, could not secure the transportation facilities, or because he might lose money in doing so, it was to be expected that the commissary would be faced with like conditions. Moreover, while the contract provided that at least thirty days' notice be given for procuring the provisions, the special commissary as a rule did not receive his orders until the officers had learned that the contractor could not supply. In most cases this meant that the food had to be obtained at once to keep the men from want.

The method used by the contractors and those used by the special agents to procure food were usually somewhat different. The contractors were accustomed to receive sums of money or credit from the United States at the opening of their contract periods. These advances were usually sufficient to enable them to make heavy purchases without expending much of their own capital.[16] Thereupon they sent agents throughout the country to buy the necessary food and inserted advertisements in the papers for the articles which they needed or for persons who could contract to supply some or any part of them for a given price at a fixed date.[17] Sometimes the whole business was let out to a subcontractor, whose bids were low enough to allow the original contractor to make a profit. By this system it was possible for a man to contract with the Federal Government to supply the Army, then to receive a sum to enable him to carry out the agreement.

The special commissaries went about the country buying food wherever it was to be found with money furnished by the United States or with drafts or abstracts upon the War Department. The farmers, knowing that the commissaries would probably pay higher prices than the contractors, very likely held out for a larger profit on their goods than they would have demanded under a single system of purchases. There seems to have been no complaint during the war that the various agents were raising prices by bidding against each other for the same goods in the same territory. However, there was much trouble in the Northwest with contractors who failed to supply, and then went about purchasing up the commissaries' abstracts and submitting them to the Treasury as their own. In these cases, the commissary must have purchased for less than the contract price or it would not have been worth the contractor's trouble to collect the papers.[18]

Settler's Supply So-Called Luxuries

Besides the regular organization for supplying rations, which were furnished at the expense of the government, some means had to be provided for the soldiers

to obtain the so-called luxuries. When the meagreness of the variety of food in the ration is recalled, this need will be readily admitted. Vegetables, chocolate, coffee and tobacco, except where supplied as hospital stores, were all left to be sold by the suttlers. Sometimes, as during the Revolution, the suttlers had to obtain the express permission of the officer in command before he could locate himself at an encampment.[19] Whether or not licenses were required, the suttlers were usually under the supervision and regulations of the officers. Sometimes even the prices which they were allowed to charge were fixed by a board of officers.[20] Usually the sale of liquor to privates or musicians was carefully retricted, though the restrictions were often not observed.[21] There was much cause for criticism of some of the suttlers who sold too much liquor to the men. There were instances of suttlers who persuaded military guards to assist them in the transportation of their wares.[22] In an investigation of the affairs of the special commissaries of the Northern Army, testimony was brought forward that the commissaries were in the habit of removing part of the food obtained with government funds, such as beef's livers, and, acting as suttlers, selling them to the troops.[23] Almost identical charges were made against the agents purchasing beef for Schuyler's troops during the Revolution. While many of the suttlers took all kinds of advantages of the soldiers, many of them must have lost heavily from the soldiers who did not pay their debts. Although warned time and again that no soldier could be compelled to pay a debt contracted after his enlistment, until he should be discharged, the suttlers were always hopeful and continued to encourage the men to buy on credit.[24]

System for Issue of Rations

No special set of officials was provided for the business of issuing the rations to the troops. The contractors' responsibility in that direction was supposed to have removed all necessity for such a department. To provide some kind of military supervision for the purely civil responsibility of feeding the men properly, the Regimental Quartermasters were expected to attend carefully at the time the rations were issued and were clothed with authority to protest if the rations were lacking in either quantity or quality.[25] Where the food was purchased by a special commissary or by special Quartermasters, the Regimental Quartermasters usually made the issues, although in a few instances the special Commissaries did so.

Divided Responsibility

With an Army made up of men, some of whom were called out by the Nation, some by the states for national service, and others by the state for state service, it is not to be wondered that there was much uncertainty as to which troops were to be supplied by the federal contractors. State militia called out solely under the orders of the state governments and serving under state authority alone, could not be fed by the Nation, it was decided. Indians might be included among those to whom food was to be issued for the sake of policy whenever the Secretary of War thought such a course possible and wise, but it was only to be done upon the

express orders of the War Department.[26] The last class about whom there was some question was the prisoners of war. Since such persons were under the jurisdiction of the Department of State, it was decided that that department would have to take whatever measures it thought best for feeding them.[27] Of course, all the troops in the federal service were to be fed by the Nation.

The most objectionable feature of the system was the lack of military responsibility. To give the business of feeding the entire Army into the hands of contractors whose interest was mainly in the profits they might make and against whose failure the only recourse was suit against the bond of the contractor in the civil courts,[28] was certainly tempting Providence. Of course, it was to the interest of the contractor to procure his goods as cheaply as possible, even if they were not of the best quality. The attitude of the men engaged in the business was, unfortunately, in favor of taking advantage of every loophole. They seemed to believe firmly in the adage that "all is fair in war," applying it alike to the enemy and their own Government. Whenever fulfilling the obligations of his contract would bring the contractor a profit, he had no doubt whatever that the gains were his; but as soon as prices began to rise or for any reason profits vanished, he became a much injured person and insisted that extra compensation was due him.[29]

While the highly important matter of the food supply was left to the vagaries of the civil contractor, the purchase of all other articles for the Army was put in the hands of Government agents. The business of buying clothes, equipment, military stores, arms, ammunition, medicine and hospital supplies was confided to the Purchasing Department. At its head was placed the Commissary General of Purchases, who, acting under the Secretary of War, took the place of the Purveyor General, the officer, who had up to the spring of 1812, made the purchases for the Army. The new department was to be properly provided with deputies and assistants, who were to procure supplies under the order of the Secretary of War, the head of their own department, the officers in command of the troops or Quartermaster General or his deputies.[30] The duties of the department were defined at much greater length in the *Army Register for 1814*, which states that all ordnance, ordnance stores, laboratory utensils, artificers tools, artillery carriages, ammunition wagons, lumber and other materials for making and repairing these, artillery harness, small arms, ammunition, accoutrements, equipment and clothing, dragoon saddles and bridles, tents, tentpoles, camp kettles, messpans, bed sacks, medicines, surgical instruments, hospital stores, and all other articles required by the public service of the United States, except only such as were directed to be obtained by the Quartermaster's Department, were to be bought by the purchasers. Its work was of the greatest importance. The appropriation first made for it was so meagre that there was much difficulty in finding a man who would accept the direction of it. It was first offered to William Jones,[31] who refused it, then to Samuel Caswell,[32] who accepted, but for some reason never undertook the work. After an increase had been made in the appropriation, the office was offered to Callender Irvine,[33] who for eight years had been Superintendent of Military Stores at Philadelphia. He accepted, and, on August eighth, took up the work of the department.[34]

General Change in Military Organization

Before the work of this department or of the other supply departments is taken up in more detail, it should be noted that in the spring of 1813 there was a general change in the military organization of the country which might have been expected to have a very definite effect on the problems of supply. It was decided that the troops were so scattered and the organization of the Army so loose that some measure must be taken to make the military administration simpler by injecting greater compactness into the whole system. The country was, therefore, divided into nine military districts; at the head of each of which was to be placed a commanding officer, and the agents of the Supply Departments were to be divided in accordance with the districts. The division made of Massachusetts and New Hampshire, district number one; of Rhode Island and Connecticut, number two; of New York to the highlands and that section of New Jersey which did not furnish the first division of militia, number three; of the rest of New Jersey, Pennsylvania and Delaware, number four; of Maryland and Virginia, number five; of North and South Carolina and Georgia, number six; of Louisiana, Mississippi Territory and Tennessee, number seven; of Kentucky, Ohio and the territories of Indiana, Michigan, Illinois and Missouri, number eight; and of New York north of the highlands and Vermont, number nine.[35] As a matter of fact the change made very little difference to supplies.

Most of the articles included the category of supplies to be bought by the Purchasing Department had to be contracted for in advance. Some of them had to be imported, and most of them had to undergo certain changes before they were in a form useful to the Army. All of them required storing and transporting. In 1813, therefore, the head of the department was informed that thereafter it would be responsible for the safekeeping and distribution of the goods purchased,[36] although most of the actual work in these lines was carried on by the other departments as it had been. At the same time Commissary General Irvine was given full power to instruct the Quartermasters concerning the transportation of such articles. The Superintendent of Military Stores at Philadelphia was given orders to make duplicate reports to the Secretary of War and to Irvine.[37]

Superintendent of Military Stores at Philadelphia

This office of Superintendent of Military Stores at Philadelphia, which Irvine had himself held for some time, was by no means unimportant, especially at the opening of the war. This officer seems to have had in his charge all of the supplies which were collected into the neighborhood of Philadelphia, including those stored at the arsenal on the Schuylkill. Most of the stores for the Regular Army seem to have been sent there and a large part of the distribution to the rest of the country was carried on from there. As the war progressed and the number of storehouses increased, this office tended to lose its importance, although it still was an important depot for the storing of salt peter and sulphur, which were to be made into powder. From it these ingredients were delivered to the manufacturers of pow-

der, who made the powder either on shares or for a set price and redelivered the finished product to the same store.

The rapid increase in the number of stores tended to add to the disintegration of the Purchasing Departments. With the magazines in close proximity to the purchases, the supplies were sent to the nearest one, and reports of the purchase was often not turned in until a long time had elapsed. Whenever the officer in charge of a body of troops could obtain what he needed from a nearby store, without reporting the matter further, he did so. The division of the country into military districts aided this general trend. Undoubtedly much transportation was thereby saved, however.

Clothing for Uniforms Lacking

A department charged with procuring so many different kinds of goods had to adapt its methods to the types of supplies. Some times, it is true, a single agent was burdened with the buying of all kinds of things from bandages to uniforms; but, as a rule, different agents were employed for the different classes of articles. Much of the clothing had to be procured from foreign, even enemy sources, in spite of the boasts of the newspapers in the spring of 1812 that abundant provision had been made to supply the Army with clothing of "American Manufacture."[38] And an agent had more than he could do to find and secure cloth for uniforms.

Whether of foreign or domestic manufacture, the purchase of materials for clothing was attended with many difficulties. It was the business of the Commissary General to see that agents were appointed for every section of the country where the desired goods might be for sale, and to see that after their appointment they secured whatever desired supplies were within their district. In October, 1812, General Dearborn complained to the Secretary of War that the Purchasing Department needed shaking up, as no deputy had been appointed in the vicinity of Pittsfield where a large quantity of cloth and blankets was to be had. At the time no proper steps had been taken to supply Dearborn's men with winter clothing, hence he was much annoyed.[39]

The clothing was brought in the form of cloth which was then transformed into uniforms under the supervision of the department. To make this transformation, tailors and seamstresses around Baltimore, Philadelphia and New York seem to have been used almost exclusively.[40] They were supplied with the materials, including buttons, needles and thread, and were paid by the piece.[41] This system required the transportation of the cloth to the tailor and then of the uniform to the part of the Army in need. General Dearborn, again displeased with the Purchasing Department, was much exercised by this needless expense. "Why, in the name of common sense," he wrote, "must cloth be sent from Albany to Philadelphia to be made up? Is it to be presumed that there are no tailors except at Philadelphia?"[42] General Dearborn undoubtedly had grounds for his criticism, but it was very natural that the persons appointed to make up cloth should have been located somewhere near the office of the Commissary General of Purchases.

Buying Cloth Abroad

The experience of the purchasers soon proved the vanity of the assertions of the *Weekly Register* concerning the adequacy of our domestic factories in meeting the needs of the Army. At the opening of the war the Massachusetts' Legislature had also been sure that the state it represented alone was both able and willing to supply such clothing as the general Government might wish to contract for with its citizens in sufficient quantities to meet any contingency which might occur.[43] Nevertheless, most of the clothing had to be bought from persons who obtained it abroad. In his estimate of the needs of his department for the year 1814, the Commissary General of Purchases acknowledged that it had been necessary to obtain $536,250 worth or over 26 per cent. of the cloth for the Army abroad during 1813.[44] How much of the other 74 per cent. had been smuggled into the country there seems to be no way of ascertaining. At the time of reporting the estimate, Commissary Irvine tried to persuade himself and the public that the country would soon be making clothing material enough to furnish all that he needed, but his later reports failed to show much justification for his assumption.[45]

Once obtained, the clothing had to be distributed, each man who remained in the service for one year being entitled to one complete outfit. Until it reached the Regimental Quartermasters, who made the issues to the men, it remained in the charge of the Purchasing Department. Until 1813 the regulations concerning the issue were somewhat vague. In the spring of that year the Commissary General of Purchases was authorized to appoint six Commissaries, who were to be attached to whatever Armies or reside at whatever places the Secretary of War might direct. It would be their business to receive from the Commissary General of Purchases or his deputies and distribute to the Regimental Quartermasters, or such other persons as the Secretary of War might designate, the clothing or other supplies purchased by the department.[46] In May, 1814, orders were issued that all clothing sent to any division of the Army must be consigned to the nearest issuing Commissary,[47] and it was clearly stipulated that issues were not to be made by the purchasing deputies, except upon the receipt of special orders and the requisitions of commanding officers of regiments or companies were not to be considered as such.

Should the Secretary of War deem extra supplies of clothing necessary, he was at liberty to deposit such surplus with the Paymasters of the separate districts, and under their direction it could be furnished the men when they needed it. In such cases it was to be paid for at the contract price by stopages from the arrears of the monthly pay of the recipients.[48] Later the President was authorized to prescribe the quantity and kind of clothing to be issued annually, but this power was not given him until the last year of the war and consequently it had little effect on the supply.[49]

Like clothing, personal and camp equipment were both bought and issued by the Purchasing Department. Under the head of equipment were grouped a varied assortment of articles, of which it was almost impossible to keep track. All kinds of tools, from bullet molds to pick axes, camp kettles, tents, tent poles, and some-

times belts, scabbards and knapsacks were so designated. They were bought by the Purchasing Department and distributed by it to the Regimental Quartermasters or other persons specially appointed to receive them. The system was very much like the system of supplying clothing, except that the articles in question were much more easily lost and accounts thereof much more difficult to make. So great was the wastage from loss that eventually a regulation was made that requisitions would have to be accompanied by the name of the regiment or corps and a return of the articles of this class in the possession of the troops at the time.[50] If this rule could have been enforced, much money would have been saved, but its enforcement was impossible. It was difficult enough to get reports of what would be needed two weeks in advance from the officers,[51] in fact, very few of them had much idea of the number of tools that were in the possession of their men. The Purchasing Department had to go on buying to make up for the unnecessary wastage, whether or not the money was forthcoming to meet the cost.[52]

Medical Procurement

Hospital stores were also procured by the Purchasing Department, but, unlike the clothing and equipment, they were distributed by another organization. During the Revolution, there had been much difficulty in the conduct of the Hospital Department, because it had been invested with the power to supply its own needs. The directors and physicians were criticized severely on the ground that they manipulated the purchases to secure personal gain at the expense of the health of their patients. It was hoped that under the system created for the prosecution of the War of 1812, the repetition of such unpleasantness might be avoided. Medicine, surgical instruments, bandages, beds, bedding, bed sacks and special luxuries in food stuffs had to be bought by the Purchasing Department upon the requisition of the Hospital Department.[53] Regular rations were to be supplied by the usual contractors, however, and the Quartermasters furnished straw, fuel and transportation. There were a few instances in which special contractors were appointed for hospitals, but they were not important. The whole organization was poor, but it must not be forgotten that we had some very poor examples upon which to pattern it. At that time the physicians for the British troops in Europe were being appointed without a diploma of any kind and were often placed over the heads of experienced practitioners. So poor was the organization even for Wellington's Army, that his Chief Medical Officer, finding it hopeless to get any good from the base hospitals in the Peninsula, pleaded for regimental hospitals to keep the base hospitals empty.[54]

Closely associated with the Department of Purchases in the matter of providing hospitals supplies for the troops was the Department of the Apothecary General. It was the business of this department to receive, store and distribute such articles as were included in the category of hospital stores, medicines and surgical instruments. Under the term of storing was the preparation of medicines and the repair of surgical instruments. The preparation of medicines was to be done under the supervision of the Apothecary General himself.[55] For the repairing of instruments, special cuttlers were appointed.[56] The Purchasing Department was to turn

over all its acquisitions in hospital stores to the Apothecary General or his deputies,[57] who would deliver them to the hospital stewards upon receiving requisitions from the hospital surgeons. Once delivered to the stewards, the supplies were charged to the hospital.[58] The Department was to consist of the Apothecary General and as many deputies and assistants as the President might think necessary.[59] Dr. Francis Le Baron, who had begun his military career as a surgeon's mate in the Navy, was chosen to head the Department.[60] He look up his residence at once in the City of Albany, and from there supervised the distribution of stores to the distant Northwest and even to New Orleans.

Quartermasters Purchased Local Medical Supplies

Although Le Baron sent medical supplies and stores for the sick over the long, poorly made roads from Albany to Pittsburgh, from where they were forwarded to the West, the amounts were small in comparison to the size of the Western Armies and the amount of sickness to which they were subject. Most of the supplies of this kind for the Western troops were either purchased by the states or obtained in the neighborhood of the men by the Regimental Quartermasters. All this increased the difficulty of keeping the accounts of the department in order; in fact, all of the stores from medicines to beds were included in the returns which the poor, overworked hospital surgeons were responsible for making, consequently they were not able to keep them all in order.

Department of Ordnance Created

It was realized, even before the Declaration of War, that a Department of Issues, separate from the Purchasing Department, would have to be organized to care for and issue munitions. In 1812, therefore, there was created the Department of Ordnance. Its duties were very numerous. In general they included the reception, storing, care and repair of all munitions. The members of the department were required to supervise the inspection and proof of all cannon, shot, shells and gunpowder. They were to oversee the construction of all the gun carriages, ammunition wagons, equipment for cannon and all other machines and ordnance stores which the artillery and infantry used. The department was, furthermore, expected to furnish to the Secretary of War semi-annual returns exhibiting the actual state of the ordnance and ordnance stores throughout the United States, together with a general estimate of the wear, tear and and expenditure hereon, so that he might be adequately informed to make the contracts and purchases necessary secure sufficient supply for the future.[61]

Colonel Wadsworth Heads Ordnance

The head of this department was to be designated as the Commissary of Ordnance. The office was created in May, but it was not until July that a man could be found who could and would undertake the work. Then Colonel Decius

Wadsworth, who had resigned his commission in the artillerists and engineers, apparently because of the difference of opinion between the President and the engineers as to the rank of their officers in relation to the rest of the officers of the Army, accepted the appointment. He was assisted by four deputies and eight assistant deputies. Although the department was responsible for the reception of all ordnance, whether made by private or public establishment, the national arsenals at Springfield and Harper's Ferry were still left to the direction of their superintendents.[62] Besides its general supervisory and distributive work, the department made large quantities of bullets and carriages.

Several changes were made in the department from time to time. Secretary Armstrong, who became head of the War Department, in 1813, wanted to add five deputies to the four already provided, so that there might be one for each of the military districts. According to this plan, each of the deputies would then be authorized to establish a "laboratory" at which fixed ammunition could be made and the expense of transporting it from district to district saved. Such laboratories would also be useful, he thought, for repairing guns which could not be repaired on the grounds.[63] He succeeded in getting Congress to authorize the appointment of the additional deputies, but nothing was done about the laboratories.[64] *The Army Register for May*, 1813, made the suggestion that there should be erected three principal laboratories in the country under the Ordnance Department where all gun carriages, ammunition wagons, traveling forages and every other apparatus for the artillery should be made and all kinds of ammunition prepared for the garrison and field service.[65] The principal arsenal for gun carriages, it was suggested should be placed in Pennsylvania,[66] because of the excellency of the workmanship and material that could be procured there. The principal arsenal for the making of fixed ammunition and small articles of equipment was to be placed at Albany[67] under the supervision of the Assistant Commissary of Ordnance, Major George Bomford.[68] A large arsenal was also suggested for Pittsburgh to be used as a "laboratory" and for the construction of military carriages, because the whole Ohio, Mississippi and Indian Frontier to Presqu's Isle would have to draw its supplies through that city wherever they might be made.[69]

Women and Children Employed

As the war progressed, more and more duties were found for Wadsworth's Department. In consequence large numbers of persons of varying types and stations had to be employed, armorers to repair muskets, smiths, wheelwrights, general mechanics and other artisans were very soon among its workers.[70] In the making of ammunition, civil artisans were used and women and children were very often employed because they could be had for very low wages,[71] and often did their work better than such men as could be found outside the Army willing to do it.

As a result of its duty of inspecting all munitions which it accepted on the part of the United States, this department became responsible for their quality. Whenever a delivery was expected on a contract, it was the duty of the Commissary General of

Purchases to notify Colonel Wadsworth of the date and place.[72] Thereupon Wadsworth appointed an inspector whose duty it was to test the articles, and if they reached the standard, to sign receipts. When the supplies were received by the general officers they were again tested. At times this led to confusion, and complaints were sometimes made that the Ordnance department was accepting goods which were of an inferior quality and should have been returned to the maker. Special complaints were made of the Whitney muskets and of some of the arms made at the Springfield Arsenal. Colonel Wadsworth insisted that the failure of the muskets to stand the proof was due to the fact that the artillery officers tried them with a heavier charge of powder than was required by the regulations of 1798, which were still in force. He demanded that the complaints be substantiated by even a single instance of a gun which had exploded in the hands of a soldier.[73] Except for a few such accusations the department seems to have been unusually free from criticism.

From 1802 to 1812 the system of supplying the Army had been through military agents, who had taken complete charge of the transportation of supplies, as well as of issuing them. There had been no need, therefore, of a Quartermaster's Department, and it had been dropped. On January 1, 1812, William Eustis, the Secretary of War, in his statement to Congress, informed the representatives of the people that the inconveniences, embarrassments and loss of property arising from the irregular and unprecedented manner in which the Quartermaster's Department had been conducted, were inestimable.[74] The Secretary of War had been forced to perform the duties of the Quartermaster General, which he could do in a manner satisfactory neither to himself nor the President. In case of war, the department would have to be revived.[75] Realizing the need for improvement in the transportation, Congress created a new department which consisted of a Quartermaster General, four deputies and as many assistants as the public service should, in the opinion of the President, require. The Quartermaster General and his deputies were to be appointed by the President with the advice and consent of the Senate; the assistants were to be appointed by the President, acting alone; and, should the exigencies of the service require it, the President was also authorized to appoint additional deputies.[76] The first head of the new department was Morgan Lewis, of New York.[77] He remained in office for a little over a year without materially increasing the efficiency of his department in any way. In March, 1813, he resigned to become a Major General in the Army.[78] His place was filled by Robert Swarthwout, who had previously served as an officer in the New York Militia, but his administration of the department was no better than that of his predecessor.

Q. M. Duty Defined

The duties assigned to the department thus created were to be regulated and defined by the Secretary of War. As described in the *Army Register of 1814*, they included the transportation of troops, military stores, equipage and artillery; the opening and repairing of roads; the reception from the Purchasing Department of all clothing, camp equipage, arms, ammunition, ordnance for transportation, and

distribution according to the orders of the General in command of the district to which the goods had been ordered; the provision of all forage and fuel for the troops; and the provision of food and sufficient storehouses for articles deposited under contract between individuals and the Government. No purchases on the public account were to be made by the Department except for forage, fuel, straw for the soldiers bedding, stationary, dragoon and artillery horses, oxen, wagons, carts and boats for the transportation of baggage; boards, planks and nails for the construction and repair of barracks, hospitals and bridges. Repairs to gun carriages and artillery wagons in the field were to be made by order of the Senior Officer of the artillery at the expense of the Quartermaster's Department. But should the President deem it expedient he could empower any officer or officers of the department to supply and issue the whole or any part of the subsistence to the Army whether the necessity arose from want of a contractor, from a deficiency in the contractor's supplies or from any other cause.[79] By this provision the Quartermaster's Department became the maid of all work for the rest of the Supply Departments. Not only did the President see fit to act upon his own discretion in this, but he delegated the power to the officers in command. Again and again in the campaigns the Quartermasters were called on to supply.

Rapid Expansion But No Co-ordination

No sooner was the department organized than it began to expand. In April a corps of artificers, consisting of a superintendent, appointed by the President, four assistants, two wagon masters, two master carpenters, two master blacksmiths, two master armorers, twelve saddle and harness makers and twenty-four laborers, who should be selected from the privates of the Army or engaged from private citizens, were added.[80] With the re-organization in the spring of 1813, and the division of the country into military districts, the department was enlarged. There was to be as head of the department, the Quartermaster General with the principal Army, Robert Swartwout. In addition there was to be a Quartermaster General for each of the other eight districts, eight deputies and thirty-two assistants. Within his own district each Quartermaster General was authorized to appoint, under the direction of the Secretary of War, forage, wagon and barracks masters, and each Quartermaster attached to a separate Army, command or district was empowered to appoint as many artificers, mechanics and laborers as the service should require. As thus constituted, the department had one Quartermaster General in charge in each district, with one district, the ninth, in the hands of the head of the department. What actually happened was that General Swartwout turned all his attention to his own district and the department as a whole was like the "Headless Horseman."

In this business, where more than any other place efficiency and centralization were needed to obtain every economy of time and expense in transportation, we find the least. Teams, purchased at an extravagant price in one section of the country, were sold shortly thereafter at an enormous loss, just at the time when a neighboring district needed them badly. Wagons and pack horses were sent loaded with

supplies to an encampment from which, to use a nautical term, they returned "in ballast," while other teams set out loaded from the same vicinity and headed in the same direction. Orders for purchases instead of being going into the hands of a single person and being given to the member of the department best fitted to obtain the desired articles, were given by the officers directly to one of the Quartermasters, who procured whatever they could in their district.

Emergency Purchasing Provision Abused

The widespread use of the emergency provision allowing any number of different persons to purchase and issue when the regular agencies failed, made the keeping of accounts almost impossible. The expenditures were to be charged to the department responsible for them, according to the regulation. Had the various persons, upon whom descended the duty of making reports, been expert bookkeepers, all might have gone well; but, alas, most of them could scarcely make their returns legible, many of them forgot to include such things as clothing among their issues and few of them made any attempt to give exact quantities or prices.[81] To bring some order out of the chaos, in the spring of 1813, the office of the Superintendent General of Military Supplies was created. The Secretary of War was authorized to direct the Superintendent to keep all accounts of the military stores and supplies of every description, purchased or distributed for the list of the Army of the United States, and for the volunteers and militia employed in its service, by the several officers of the Quartermaster's Department, the Regimental Quartermasters, the Hospital Surgeons, the officers of the Hospital Department and Medical Department and by all other persons, officers or agents who should have received, distributed or been intrusted with such stores and supplies. But such accounts were not to include the specie accounts for money disbursed by such officers or agents. These were to be rendered as before to the accountant of the War Department.[82]

Supply Less Organized Than In the Revolution

Thus in the War of 1812, we find the supply departments less well organized than in the Revolution. The Commissary General of the War for Independence had given place to the civilian contractor, who had also taken over the duties of the Commissary General of Issues. The Board of War, the Commissary of Clothing and the Commissary of Military Stores were replaced by the Commissary General of Purchases and the Commissary of Ordnance. All of the duties of the first Quartermaster's Department were taken over by its successor, which also received the duty of finding any and all supplies in case of need.

In writing of the Revolution, Professor W. G. Sumner has remarked, "We are amazed at the recklessness with which the Colonists plunges into the contest, when we realize their defenseless condition."[83] However, a century of perspective was not needed to bring this quality of recklessness into view; the citizen generals, and, indeed, nearly everyone else, sadly realized the handicap which they hoped to overcome by sheer courage and devotion. There were no precedents on

which much calculation could be based, comparatively little economic capital, and, most important, no general political authority at all adequate to bring the resources of the country in men and materials into effective play. Slowly, during the next four decades, a government had been developed which represented a nation not only much more tightly knit together, but enriched by its industry and its astounding growth, and a government, moreover, which could have easily utilized the hard-learned lessons of the Revolutionary War. It might have been expected that the war declared July 18, 1812, would have begun and been carried through with an efficiency contrasting strongly with the blunders and hesitations of thirty-seven years before.

General Upton's Indictment

Instead of which, we find the organization, of which the supply departments have just been described, so poor that General Emory Upton, presumably still to be ranked as the leading historian of American military policy, summing up its effectiveness in the telling statement, "In the war under the Confederation, Congress, in its own name, could not raise a dollar, nor arm nor equip a single soldier. Under the Constitution, it had the sovereign authority to call forth the entire financial and military resources of the people." In spite of this, in the first war, two British Armies of more than six thousand men each, were made captive; and in the second, a small British Army "brought war and devastation into our territory and successfully withstood the misapplied power of seven million people."[84]

Notes

[1] Jefferson Correspondence, v. 196, p. 34910. Library of Congress.

[2] W. C. C. Claiborne, *Notes in the War in the South*, p. 7.

[3] Jefferson Correspondence, v. 202, p. 36018.

[4] E. UPTON, *Military Policy of the United States*, p. 141.

[5] *American State Papers, Military Aff.*, v. 1, pp. 322–26. NB: Although this note was listed in the original text, its placement in the narrative was not given, but it appears to be at the location cited herein.

[6] When the United States made up the deficiency, the cost was usually charged to the individual and deducted from his pay. Military Books, Letters Sent, VI. 183. The two series, Letters sent by the Secretary of War and Letters received by him are in the files of the War Department, Washington, D.C.

[7] This was distributed in the following amounts: Pay, $2,110,277.92; Subsistence, $1,611,146.50; Forage, $231,652.95; Clothing, $863,244.00; Bounties, $442,260.00; Horses, $282,000.00; Harness and other Equipment, $58,760.00; Wagons, $47,640.00; Camp Equipment, $206,100.00; Medical and Hospital Stores, $125,000.00, and contingent expense for recruiting services, quarters, fuel, straw, tools and implements, $719,811.17.

[8] This number was to be divided among the states as follows: New Hampshire, 3,500; Pennsylvania, 14,000; Massachusetts, 10,000; Delaware, 1,000; Kentucky, 5,500; Connecticut, 3,000; Maryland, 6,000; Ohio, 5,000; Rhode Island, 500; Virginia, 12,000; Tennessee, 2,500; Vermont, 3,000; North Carolina, 7,000; South Carolina, 5,000; New York, 13,500; New Jersey, 5,000, and Georgia, 3,500.

[9] Act of March 28, 1812.

[10] E. UPTON, *Military Policy of the United States*, p. 130.

[11] Act of Mar. 28, 1812.

[12] Taken from an advertisement for bids for contracts for the year 1813–1814, appearing in the *National Intelligencer*, July 6, 1812.

[13] Extracts from the most important provisions of a typical contract may be interesting:

Articles of Agreement—March 10, 1813—John Armstrong and Orr and Greeley, to supply and issue all rations, to consist of all articles hereinafter specified, required of them for the use of the United States at all places where the troops may be stationed; marched or recruited within the state of Ohio, Michigan Territory and the Canadian shore of Lake Erie and the upper Lakes, thirty days' notice being given of the post or place where the rations may be wanted or the number of troops to be furnished on the march, from June 1, 1813, to May 31, 1814, both days inclusive, at the following prices;—within the state of Ohio, south of the Indian Boundary Line and a line drawn from the eastern extremity thereof to Georgetown on the Ohio River, $.17 a ration; at all other places north of this and in Michigan Territory where not otherwise provided hereafter and at Forts Wayne, Chicago and Michilimackinac, $.25 a ration; at other places on Lake Erie from the western boundary line of Pennsylvania to and including Cleveland, $.18 a ration, and at all other places between Cleveland and Detroit including Detroit Lower Sandusky, the River Raisin, Brownstown and the Canadian Shore of Lake Erie and the Detroit River at $.20 a ration. From the "Gano Papers" in the *Ohio Hist. and Phil. Soc. Pub.* V. 16, p. 57.

[14] J. Wilkinson, *Memoirs*, V. 3, p. 368.

[15] Whenever the contractor failed to meet a requisition he was theoretically responsible for whatever amount it cost the government to procure the food to make up for his deficiency, but actually the contractors were not held to this clause of the agreement; *National Intelligencer*, May 9, 1814.

[16] Military Books, Letters Sent, V. 6, p. 239; V. 7, p. 372; McArthur Correspondence, V. 23, p. 44544.

[17] An example of such an advertisement is to be found in the *Troy Post*, Oct. 6, 1812. I am indebted to Miss Myrtle Cline for calling this paper to my attention.

[18] J. H. Piatt complained of this to the War Department.

[19] J. WILKINSON, *Memoirs*, V. 3, appendix No. 4.

[20] "Winchester Papers" in the *Michigan Pioneer and Historical Society Collections*, V. 31, p. 283.

[21] *Herkimer Orderly Book*, Regimental Orders, Horse Island, July 22, 1813. MSS. New York State Library.

[22] J. WILKINSON, *Memoirs*, vol. III, appendix No. 4.

[23] *American State Papers, Military*, V. 1, p. 479.

[24] "Winchester Papers" in the *Michigan Pioneer and Historical Society Collections*, V. 32, p. 283. An investigation made after the close of the war, according to Dr. Lovell, Surgeon General, showed that if the suttler could have been sure that he would be paid for his goods, he could have supplied a mess of ten men with all the groceries that were required for a month for ten dollars a month, whereas during the last war they were accustomed to spending one-half their pay and then were but very poorly supplied. *American State Papers, Military*, V. 1, p. 806. The attendance of suttlers upon the U.S. Army was not abolished until July 28, 1866.

[25] Order Book of the Northern Army at Sachett's Harbor, General Orders for January 5, 1815, MSS. Library of Congress.

[26] The confusion over the supplies for the Indians was a product of the former system under which the military agents had supplied both the Indians and the troops with goods. For the orders issued by the Secretary of War, the McArthur Correspondence, XXI, p. 3166, and Military Books, Letters Sent, V. 7, p. 272, are valuable.

[27] Military Books, Letters Sent, VII, p. 226.

[28] This was too slow a process to serve as an effective remedy.

[29] E. ANDERSON, *Claims Against the United States*, pp. 14, 15, 16. *American State Papers, Claims*, p. 754 *et seq.*

[30] *Annals of Congress*, 12th Cong., 1st Sess., col. 2258.

[31] Military Books, Letters Received, V., p. 248.

[32] *Ibid.*, V. 6, letter dated August 1, 1812.

[33] The new Commissary General had also served as a Captain in the Artillery from 1798 to 1801.

[34] Military Books, Letters Sent. V. 6, pp. 71, 72.

[35] *American State Papers, Military*, I., p. 432. Later the region around the Chesapeake was set off as district number ten. This is described in Chapter 6. The officers in command of the districts at first were:—

District No. 1—Brigadier General T. H. Cushing.
District No. 2—Brigadier General H. Burbeck.
District No. 3—Major General Henry Dearborn.
District No. 4—Brigadier General Joseph Bloomfield.
District No. 5—Major James Bankhead, Fifteenth Infantry.
District No. 6—Major General Thomas Pinckney.
District No. 7—Brigadier General Thomas Flournoy.
District No. 8—Major General William Henry Harrison.
District No. 9—Major General Morgan Lewis.

[36] Military Books, Letters Sent, V. 6, p. 275.

[37] *Ibid.*, p. 276.

[38] H. NILES, *The Weekly Register*, V. 3, p. 6.

[39] Dearborn Letter Books, I., p. 241, MSS. New York Historical Society Library.

[40] Military Books, Letters Received, V. 8, p. 250.

[41] Miscellaneous Records of Clothing Accounts, Papers of the War of 1812, Old Records Division, War Department.

[42] Dearborn Letter Books, I., p. 242.

[43] H. NILES, *The Weekly Register*, V. 2, p. 17.

[44] *American State Papers, Finance*, II., p. 818.

[45] *American State Papers, Military*, II., p. 43.

[46] T. H. S. HAMERSLY, *Register of the U.S. Army*, Pt. 2, p. 327.

[47] *Ibid.*, p. 76.

[48] The custom of making stoppages in the soldiers' pay to pay for their clothing and other supplies was an old one in the British Army.

[49] *Annals of Congress*, 1813–1814, V. 2, col. 2814.

[50] McArthur Corres., V. 13, p. 2425.

[51] In some of the company books no accounts were kept even of clothing issued.

[52] Military Books, Letters Sent, V. 7, p. 313. "It is impossible for the department to remit funds at this time—but you must continue to furnish tents and camp equipage." Secretary of War to Callender Irvine.

[53] E. B. BROWN, *History of the Medical Department of the U.S. Army*, p. 97, Military Books, Letters Sent, VI., p. 468.

[54] J. W. FORTESCUE, *History of the British Army*, V. 8, p. 194 *et seq*.

[55] *Register of the U.S. Army*, June, 1814, p. 78.

[56] Records of the War of 1812, MSS. New York State Library, Military Books, Letters Sent, VII., p. 202.

[57] *Ibid.*, p. 25.

[58] E. R. BROWN, *The Medical Department of the U.S. Army*, p. 94.

[59] *Annals of Congress*, 12th Congress, 1st Sess.

[60] Military Books, Letter Sent, V. 8. p. 25.

[61] *Laws of U.S.*, V. 4, pp. 430, 431.

[62] Not until after the war were these placed under the Ordnance Department.

[63] *Annals of Congress*, 1813–1814, V. 2, col. 2351.

[64] *Ibid.*, col. 2766.

[65] *Ordnance Reports*.

[66] The recommendation was of a very general character and gave no definite place at which the work should be erected.

[67] *American State Papers, Military*, I., p. 390.

[68] *Ordnance Reports*, pp. 2, 3.

[69] *Annals of Congress*, 1813–1814, V. 2, col. 2816.

[70] *American State Papers, Military*, V. 1, p. 430.

[71] Children from ten to fourteen were found to be particularly useful in making cartridges.

[72] *Register of the U.S. Army*, June, 1814, pp. 73, 74.

[73] *Ordnance Reports*, pp. 4, 5.

[74] The military agents and their assistants had been appointed by the President and the Brigadier Quartermasters by the Brigadiers and the Regimental Quartermasters by the Colonels. As a result the Brigadier and Regimental Quartermasters were not responsible to the military agents and the distribution of supplies was made difficult. Nor was there any person responsible for the property of the department.

[75] *American State Papers, Military*, I., p. 256.

[76] T. H. S. HAMERSLY, *Register of the U.S. Army*, Pt. 2, p. 324.

[77] Morgan Lewis had been a Deputy Quartermaster General in the Northern Army during the Revolution. F. S. HEITMAN, *Historical Register of the Officers of the Continental Army*, p. 263.

[78] William Duane wrote of Lewis: "How can the people believe that the government is in earnest when such men as Morgan Lewis was first made Quartermaster General, one function of which he was not fit to perform, and then a Major General when found unfit to be Quartermaster." *Jefferson Papers*, V. 207, p. 35867.

[79] *U.S. Statutes*, V. 4, p. 522.

[80] H. A. ROYCE, *A Sketch of the Organization of the Quartermaster's Department*, p. 19.

[81] This inaccuracy gave opportunities for all kinds of waste and dishonesty.

[82] T. H. S. HAMERSLY, *Register of the U.S. Army*, Pt. 2, p. 327 *et seq*.

[83] W. G. SUMNER, *The Financier and Finances of the American Revolution*, V. 1, p. 106.

[84] EMORY UPTON, *The Military Policy of the United States*, p. 142.

11

The Lessons of the War of 1812

Introduction. In this brief selection from their detailed study of Army mobilization official historians Marvin A. Kreidberg and Merton G. Henry summarize the lessons learned in the mobilization of the American Army for the War of 1812 and point to the inadequacies of the civilian contracting system, the importance of transportation, and the need for staff departments with adequate numbers of well-trained experts to manage the raising and supporting of the Army.

The Lessons of the War

The lessons of the Revolutionary War, which were repeated and intensified in the War of 1812, are reasonably obvious:

1. Mobilization of manpower and resources for war must be planned in advance to avoid inefficiency, waste, and defeats.

2. Mobilization planning and implementation can never be accomplished in advance without an integrated, well-coordinated staff to which that mission has been assigned.

3. Unity of command and coordinated staff planning, rather than independent staff bureaus, are vitally necessary for efficient military operations.

4. Volunteering will not provide sufficient manpower for the armed services in a protracted war: some kind of compulsion must be resorted to.

5. Untrained troops of any classification, be it Militia, Volunteers, or Regulars, are unsatisfactory and expensive. The inescapable corollary of this is that proper training of troops requires a certain minimum time and that if Militia are to be employed as soon as they are mobilized, their peacetime training must be efficient.

6. Short-term enlistments are harmful because they allow time neither for efficient training of the men nor for long-range tactical planning for their employment.

Reproduced from Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army, 1775–1945*, Department of the Army Pamphlet 20–212 (Washington, D.C.: Department of the Army, June 1955), pp. 59–60.

7. Procurement for the armed forces in war must be based on sound assessment of the nation's economic and industrial capacity and must include some arbitrary allocation of resources to ensure a flow of supplies to sustain the war effort. Where critical shortages exist in national resources, some assured means of supply must be secured, whether it be by stockpiling or other means.

8. Women and, if need be, children, can be advantageously employed in the manpower availability pool, particularly in farming and industry.

9. The supply of rations to the armed forces by the civilian contract system is unserviceable at any time and perniciously dangerous in wartime.

10. Transportation and routes of supply must indispensably be provided for in war planning.

11. Military leaders cannot be trained overnight. Aptitude in business or in politics is not necessarily a sound indicator of military leadership qualifications.

12. Military training, to be truly efficient, must have adequate training literature and competent instructors.

These were the lessons, twice taught in the first two major wars of the United States. Only lesson 9 was well learned, for the contract ration supply system was abandoned in 1818. The other lessons were to be taught again many times in succeeding wars, but they were never to be learned until the world wars of the 20th century.

12

Army Supply in the Old Northwest

Introduction. Historian Francis Paul Prucha, S. J., describes Army supply requirements of the forts on the Old Northwest frontier in the period between the War of 1812 and the Civil War and how they were satisfied. In particular he demonstrates the stimulus provided by Army posts to the economic development and physical security of the region and thus introduces a common theme in the history of the United States Army: the degree to which Army installations and the associated requirements for logistical support have influenced the development of nearby civilian communities.

> At that day, there was not only the ordinary trade of a frontier town, but there being a large garrison of United States troops stationed at the Bay, quite an extensive business grew out of contracts let by the commissary's and quartermaster's departments of the garrison, for supplies of various kinds, transportation, etc., etc.—ALBERT G. ELLIS, Green Bay pioneer.[1]

Wherever located, the army post tendered an economic opportunity to the nearby settler. Garrisons needed supplies, and the army had the money to pay for them. In the larger centers of population the business derived from military establishments might be overshadowed by other economic activity, but not so in the frontier wilderness. Here where no market had existed before there suddenly appeared a new community which, although obliged to be self-sufficient in some measure, was soon calling loudly for sundry goods and services. The advance of military forces into a new area did not follow the traditional pattern of settlement—a few persons or families at a time, each a self-sufficient unit isolated from its neighbors, perhaps for many years. When the army arrived to establish a new post, it made a resounding splash in the wilderness community. Two hundred men might have been an inconsequential number in a bustling metropolis like

---

Reproduced with permission of the State Historical Society of Wisconsin and the author; from Francis Paul Prucha, *Broadax and Bayonet: The Role of the United States Army in the Development of the Northwest, 1815–1860* (Lincoln: University of Nebraska Press, 1973), pp. 149–57.

Philadelphia or Cincinnati in the year 1819, but what a stir and commotion Leavenworth and the men of the Fifth Infantry made when they arrived at the mouth of the Minnesota River in that year. The detachment was an overwhelming addition to an area that had thus far witnessed only the quiet passing of the fur traders and the temporary, if somewhat more dramatic, expeditions of Zebulon M. Pike and Stephen H. Long a few years before. And what a jolt the arrival of aggressive army officers with their men must have given the quiet, almost vegetating settlements of Green Bay and Prairie du Chien, where Fort Howard and Fort Crawford were built in 1816. For decades these communities of French half-breeds had shown no signs of growth; having no immediate market for any agricultural surplus, they had produced only enough for their own subsistence. Suddenly they were offered a market for hay and wood and oats, and if few of the older inhabitants had spirit enough to grasp the opportunity, they were soon joined by Yankee newcomers who did have.

For thirty years the army posts were a stimulus to the economic life of the Northwest. They were a constant market for provisions and forage, for building materials and skilled labor, for fresh beef and prairie hay, and for the transportation of men and supplies. The twin blessings which the army posts offered nearby communities—economic opportunity and security from Indian attack—cannot easily be differentiated in importance. Who can say whether the zealous frontier entrepreneur was most gratified by the profit he derived from doing business with Uncle Sam or by the realization that the presence of the army post meant fewer Indian dangers?

The supplies required to keep an army post going in the decades before the Civil War were simplicity itself as compared with the requirements of the present-day army. But if the needs were simple, so too was the economic system that furnished them. The officers charged with the duty of providing goods for posts at the far end of tenuous lines of transportation faced logistical and financial problems of no mean dimensions.[2]

Military Stores and the System of Supply

The materiel on which the existence of a military garrison depended was divided neatly into distinct classifications according to the kind of supplies and the War Department agencies responsible for their purchase and distribution. Of the several categories, three entered little into the economic life of the upper Mississippi Valley except as they furnished cargo for the river steamers, being composed of goods produced largely in the East. These were ordnance supplies, military clothing and equipment, and medical and hospital supplies. All were essential to the military garrisons but were needed in relatively small quantities once the initial issue had been received.

The supply of arms and munitions to army posts was the responsibility of the ordnance department, which purchased or manufactured the necessary stores and then distributed them to the posts where they were needed. Large quantities of firearms and munitions were manufactured in government arsenals in the Eastern



Old Fort Howard, Green Bay, Wisconsin, c. 1840

states from raw materials purchased in Philadelphia and other Eastern centers. In the West, however, where there was only a handful of troops at any given spot and long years passed without any Indian fighting, the amount of ordnance stores needed was not great.[3]

Much the same was true of military clothing and equipment except that they were of larger bulk. The innumerable items, large and small, that made up the uniform and garrison equipment of the United States soldier—the knapsacks and shoes, the blue and scarlet and green cloth, the blankets and iron camp kettles—were manufactured in the East and purchased there by the commissary general of purchases. From his headquarters in Philadelphia he contracted for the various articles within his province as they were needed by the army units. They were then assembled in Eastern depots and from there distributed to the posts where they were to be used: down the Ohio to St. Louis and up the Mississippi to Forts Snelling and Crawford; or over the Lakes from Buffalo to Detroit, to Mackinac, and to Green Bay. Here there was little economic opportunity for the Western middleman; only the steamboat captain who carried the goods upriver, or some Green Bay or Prairie du Chien trader who hauled them in wagons or boats to Fort Winnebago, derived any financial return from the handling of these supplies.[4]

So too with the medical and hospital supplies. Each post had its hospital and army surgeon, but medical knowledge was still very limited, and the articles pro-

vided by the medical department did not constitute a very large part of the total shipments to the interior posts.

Of far greater importance were the subsistence stores sent to the garrisons. Flour, beans, pork, and other staples were contracted for in Washington by the commissary general of subsistence himself after he had advertised for bids in the newspapers and had given notice of the time and place at which commodities were to be delivered. Contracts for fresh beef were made by the assistant commissaries at the individual posts, again after sealed bids had been received. If contractors failed to make delivery or if the goods proved unsatisfactory, the assistant commissaries were authorized to purchase the needed supplies where they could, drawing bills payable at sight on the commissary general.[5]

The purchase of rations was governed by laws and regulations specifying the items to be included and the quality and amount of each. That the soldier's diet was determined by considerations of appetite rather than delicacy of palate is obvious. In 1802 the daily ration consisted of the following unadorned staples: one and a quarter pounds of beef or three-quarters of a pound of pork; eighteen ounces of bread or flour; and one gill of rum, whisky, or brandy. For every hundred rations two quarts of salt, four quarts of vinegar, four pounds of soap, and a pound and a half of candles were allowed. That this was not only a tiresome fare but an unhealthy one became increasingly evident, especially during the War of 1812, and the secretary of war took steps to improve it. In 1818 he increased the vegetable part of the ration and directed that twice a week a half allowance of meat be supplemented by a suitable quantity of peas or beans, and that twice a week fresh meat be substituted for salted.[6]

The subsistence supplies for a given post or group of posts were generally contracted for in a single lot. The contractor undertook to supply the whole gamut of items—everything from the salt pork to the tallow candles—in accordance with specifications drawn up by the commissary general of subsistence. Periodic reports were sent to Washington from each post, with estimates of supplies on hand and of requirements for the coming year. On the basis of these reports the commissary general purchased the supplies for the next year, specifying delivery for late spring or early summer. These annual contracts were sizable business deals. In 1844, for example, the year's subsistence stores at Fort Snelling amounted to 822 barrels valued at $5,992.30; at Fort Crawford, 1073 barrels worth $7,481.40; at Fort Atkinson, 530 barrels worth $3,757.40; at Fort Des Moines, 530 barrels worth $3,791.20; and at Fort Winnebago, 270 barrels worth $2,371.60. The huge contract awarded in 1818 for delivery of subsistence stores at Detroit exceeded $72,000.[7]

In view of the amounts involved and the importance of prompt delivery, large bonds were required of the contractor, and none could hope to compete who did not have enough capital or credit to assemble the stores, provide the stipulated bond, and command the transportation facilities necessary to deliver the cargo at the specified time and place. Even so the contracts were not always fulfilled to the satisfaction of the army. Inspection frequently revealed that the commodities were of such poor quality that they could not be issued to the troops. "The provisions

have arrived," wrote one commissary officer to his superior, "and from their appearance & *Smell* I am induced to believe them all much damaged."[8]

The pork, flour, beans, soap, candles, salt, and vinegar which made up the subsistence stores were in large measure beyond the production capacities of the communities surrounding the posts, and whoever received the contract had to scurry around to collect the required items. Successful production of these commodities by the troops themselves was rare. Some flour, and occasionally candles and soap, were produced at the forts, and attempts were made to distil vinegar from tomatoes raised in the gardens, but the hopes for self-sufficiency were never realized.[9]

The fresh beef in the rations of course had to be supplied periodically and hence from the vicinity of the post. Assistant commissaries at the posts made contracts with local farmers or traders, who undertook to supply the garrison with fresh beef at stated times (generally once or twice a week) or to provide a specified amount on the hoof.[10] Contracts for beef seldom called for exact quantities; "to be delivered as required" was a standard specification. Until such time as the agricultural community near a post was large enough to provide the requisite cattle, the contractors were forced to drive them in from more heavily settled regions.

A final component of the diet was the garden truck produced by the troops themselves. Though large-scale production of field crops proved unsuccessful, gardening seems to have been a regular activity at every frontier post. There is little evidence that garden truck was purchased in the civilian community.

Other requirements of the posts were the responsibility of the quartermaster general. It was he who arranged for the quartering and transportation of the troops, provided them with fuel, straw, and forage, and obtained the materials needed for constructing and repairing barracks, hospitals, and other post facilities. These supplies and services were purchased by post or regimental quartermasters or by officers farther up in the hierarchy of the department.[11] As with subsistence supplies a system of contracts based on sealed bids was the accepted procedure, though it was not universally endorsed. It often proved more expensive than purchases on the open market because of the price-fixing combinations formed by the few responsible men in small communities who were in a position to bid.[12]

Those were days when men little dreamed of a mechanized army; whatever power was needed beyond human strength was supplied by sturdy oxen or horses. These beasts of burden—as well as the "fresh beef" still on the hoof—consumed tremendous quantities of forage. At isolated posts the oats, corn, and hay required were obtained by the sweat of the soldier's brow. The military reservations included meadows that yielded rich prairie hay, and the soldiers could be put to work cultivating extensive areas of corn and oats. But it was not long before the settlers in the area accessible to the posts realized that they could profit from army needs, and the soldiers were only too happy to relinquish the unmilitary tasks of haying and harvesting. The army posts became a market for the surplus corn and oats of the region, and enterprising farmers could get army contracts to cut and stack hay for the garrison livestock, often on the military reservation itself. Nature supplied the prairie grasses, which needed only to be cut and cured, although occasionally the higher priced timothy was purchased for the posts. So

too with firewood, which civilians supplied whenever the War Department relaxed restrictions against its purchase.

For the imposing array of buildings that constituted the finished post considerable quantities of building materials were needed: timber and lumber, hundreds of thousands of shingles, pickets for the stockade, and brick and lime and stone for chimneys and storehouses, if not for more pretentious architectural features. At Fort Snelling, so long removed from any real civilian community, and to a large extent at the other forts, the officers and men had to depend on their own efforts to assemble the necessary construction materials; they built sawmills, split shingles, felled timber, and quarried stone. But for these materials, too, civilians were soon called upon to lend a hand. The quartermaster department let many contracts for building stone, timber, lime, bricks, and shingles; and on occasion some contractor might be engaged to build a stable or warehouse, providing both the materials and the labor.[13]

Notes

[1] "Fifty-Four Years' Recollections of Men and Events in Wisconsin," in *Wisconsin Historical Collections*, 7:254 (Madison, 1876).

[2] Report of the Quartermaster General, 1851, in 32 Congress, 1 session, Senate Executive Document no. 1 (serial 611), 216 ff.

[3] The ordnance department had been organized in 1812 and reorganized in 1815 with enlarged duties. From 1821 to 1832 it was merged with the artillery, but its officers continued to function more or less autonomously. *United States Statutes at Large*, 3:203; General Regulations for the Army, [1821], Article 68, in *American State Papers: Military Affairs*, 2:244; Lurton D. Ingersoll, *A History of the War Department of the United States* (Washington, 1879), 305 ff. In 1844 George Talcott, lieutenant colonel of ordnance, reported that the small arms, ammunition, and paints for gun carriages sent to Fort Atkinson, Fort Des Moines, and Prairie du Chien during the previous year amounted to $5,910 and that this was "probably beyond the annual average value of stores required from this department for that region of country." *Documents Showing Annual Amount of the Trade and Commerce on the Upper Mississippi River* (28 Congress, 1 session, Senate Document no. 242, serial 434, Washington, 1844), 2.

[4] The office of commissary general of purchases was established in 1816, its duties being defined as the purchase of all articles not provided by other departments, including clothing, tents, and camp equipment. *United States Statutes at Large*, 3:298; General Regulations for the Army, [1821], Article 70, in *American State Papers: Military Affairs*, 2:252. The office was abolished in 1842 and its duties transferred to the quartermaster department. *United States Statutes at Large*, 5:513.

[5] The army system for supplying subsistence stores rested upon an act of Congress approved April 14, 1818. *United States Statutes at Large*, 3:426–427. The act had been passed, after considerable delay, in response to the demands of high army officials that the existing evils be rectified. Under the old system the responsibility for supplying subsistence was delegated to civilian contractors, who often delivered inferior stores or failed to deliver any at all, and who were not subject to military jurisdiction. The new law created the office of commissary general of subsistence, which was henceforth to purchase and issue rations to the army. The able arguments of Secretary of War Calhoun in favor of the new system may be found in *American State Papers: Military Affairs*, 1:781. For a review of the problem of supply under the old system and the movement to replace it see Edgar B. Wesley, *Guarding the Frontier: A Study of Frontier Defense from 1815 to 1825* (Minneapolis, 1935), 78–81.

The new system materially reduced the cost of the ration and it was retained with little modification when the army was reorganized in 1821. *United States Statutes at Large*, 3:615. See the report on the comparative cost of rations under the old and the new system in *American State Papers: Military Affairs*, 2:72–74. Even the new system, however, had shortcomings, and in his report for 1849 George Gibson, who had been commissary general of subsistence since 1818, urged its abandonment. 31 Congress, 1 session, Senate Executive Document no. 1 (serial 549), 204.

[6] *United States Statutes at Large*, 2:134, 672; 3:427; report of Surgeon General Lovell on army rations, November 16, 1818, in *American State Papers: Military Affairs*, 1:804–807; report of Calhoun on size of the army, December 11, 1818, *ibid.*, 781. In 1832 ardent spirits were removed from the ration and replaced by an allowance of eight pounds of sugar and four pounds of coffee per one hundred rations. In 1838 these amounts were increased to six and twelve pounds, respectively. *United States Statutes at Large*, 5:258–259.

[7] *Trade and Commerce on the Upper Mississippi* (28 Congress, 1 session, Senate Document no. 242, serial 434), 3; War Department, *Statements of Contracts Made in the Year 1818* (15 Congress, 2 session, House Document no. 148, serial 24). The 1818 contract for subsistence stores for Detroit was broken down as follows; 1373 barrels of pork at $15 per barrel, $20,670 [*sic*]; 2871 bushels of peas or beans at $2.75 per bushel, $7,895.25; 3691 barrels of flour at $7.50 per barrel, $27,682.50; 643 barrels of whisky at 45 cents per gallon, $9,259.20; 230 hundredweight of soap at 12 cents per pound, $3,091.20 [*sic*]; 9645 pounds of candles at 17 cents per pound, $1,639.65; 402 bushels of salt at $1.50 per bushel, $562.80 [*sic*]; 6430 gallons of vinegar at 25 cents per gallon, $1,607.50. An indi-

cation of the quantities purchased for in individual fort may be obtained from an advertisement in the *Pioneer and Democrat* of November 1, 1855, which called for bids on the following supplies to be delivered to Fort Ripley the next summer: 200 barrels of pork, 376 barrels of fresh super-fine flour, 150 bushels of new white field beans, 2628 pounds of good hard soap, 986 pounds of good hard tallow candles, 42 pounds of good clean dry fine salt, and 657 gallons of good cider vinegar.

[8] Lieutenant Reuben Holmes to General Henry Leavenworth, June 10, 1829, in Army Commands, Department of the West, Letters Received.

[9] Office of the Commissary General of Subsistence, Registers of Letters Received, vols. 1–4, *passim*.

[10] An example of an advertisement for proposals on fresh beef is the following, which appeared in the *Minnesota Pioneer* of July 31, 1851:

"SEALED Proposals, to be endorsed 'Proposals for Fresh Beef', will be received at this office until 12 o'clock, M., on the 30th day of September next, for the delivery to the troops at Fort Snelling, of Fresh Beef, of a good and wholesome quality, in quarters, with an equal proportion of each (necks and shanks to be excluded,) in such quantities as may be from time to time required for the troops, not exceeding thrice each week, on such days as shall be designated by the Assistant Commissary of Subsistence.

"The proposals, after being opened, will be submitted to the Commissary General of Subsistence, who reserves to himself the right of acceptance; or of rejection, if the bids should be considered unreasonable. Should any bid be accepted, the delivery of beef under the contract will commence about the 1st day of June, 1852. The average quantity of beef consumed monthly at the post, will probably be about 4000 pounds. Corn-fed beef will be required during the winter months. The contractor will be required to give bond, with approved security, in the sum of half the amount involved, for the faithfull fulfillment of his contract."

Since the cattle for the supply of the upper Mississippi posts came from the settlements in Illinois, the beef contracts were often made by the quartermaster officer at St. Louis. See correspondence in Army Commands, Department of the West, Letters Received.

[11] The quartermaster department was organized as such in 1818, and its duties were set forth in detail in the 1821 edition of army regulations. See *United States Statutes at Large*, 3:427; Ingersoll, *War Department*, 182–183; General Regulations for the Army, [1821], Article 69, *American State Papers: Military Affairs*, 2:247–252.

[12] Captain N. J. T. Dana to Major Samuel Woods, commander at Fort Ridgely, September 2, 1853, in Army Commands, Fort Ridgely Records, Letters Received. Inspector General Croghan reported the same sort of difficulty in respect to contracts for fuel. "The expence of fire wood at this post," he wrote from Fort Crawford, "would be lessened 50 per cent. were it furnished by private contract. In issuing proposals to furnish agreeably to the usual mode conspiratories are sure to be formed, whereby the government becomes much the loser. Proposals are never handed in by more than one person, but he is the representative of some half dozen of his neighbors, equally interested with himself in the price which is to be obtained, because they are to be equal sharers in the profits of the contract." Report of October 11, 1836, in Office of the Inspector General, Inspection Reports, 3:129 (first pagination).

[13] According to a report of the quartermaster general, the following sums were expended at the Northwest posts for construction and repairs during the decade 1849–58: Fort Ridgely, $48,048.14, of which $40,365.35 was spent from a special appropriation for the construction of the fort; Fort Snelling, $24,743.43; Fort Ripley, $23,997.99; Fort Clark [Dodge], $5,010.51; Fort Howard, $2,585.79; Fort Dodge, $1,409.09; Fort Crawford, $884.06; Fort Winnebago, $189.41; Fort Atkinson, $147.14. These figures did not, the quartermaster general added, represent the total cost of the posts for "rents or for construction and repairs," since numerous claims for "rents and for labor and materials" were presented to and paid by his office. *Expenditures for Barracks and Quarters* (35 Congress, 2 session, House Executive Document no. 93, serial 1008, Washington, 1859).

13

Army Transportation in the Old Northwest

Introduction. In this second excerpt from his book on the Army in the Old Northwest Francis Prucha, S.J., describes the role played by Army logistical requirements in the development of the system of land and water transportation in the upper Mississippi Valley in the first half of the nineteenth century. He describes the needs of Army forts in the region for various modes of transportation and how those needs were met by a combination of Army assets and civilian contractors.

> In the course of the spring, during the period of the floods, a steam-boat ascends the stream as far as the St. Peter's River, to convey government stores to the Two Forts; and the rest of the year, the means of communication are restricted to boats, sledges, and canoes.—CHARLES J. LATROBE in 1833.[1]

There is no better gauge of the development of the upper Mississippi Valley and contiguous areas than the activity on its thoroughfares of commerce and communication. The interior might continue barren of population, and the beasts of the backwoods remain oblivious of the human settlements threatening their precincts, but the wilderness soon lost its aura of mystery when channels of communication were cut deeply across it. The Indians, viewing in amazement and alarm the increasing numbers of keelboats traversing the broad waters of Lake Pepin and the steaming river boats that followed in their wake, could not fail to realize that a transformation was being worked in the lands they called their own. The silent gliding of the fur trader's canoe through the beautiful valley of the Mississippi or Wisconsin River had made scarcely a ripple compared with the churning set up by the steamboats that ventured up the Father of Waters bringing supplies to the government's new communities in the Northwest. These supplies were large in bulk

---

Reproduced with permission of the State Historical Society of Wisconsin and the author; from Francis Paul Prucha, *Broadax and Bayonet: The Role of the United States Army in the Development of the Northwest, 1815–1860* (Lincoln: University of Nebraska Press, 1973), pp. 172–85.

and constant in flow, and the demand for facilities to transport them was the stimulus that gave steam transportation its start on the upper reaches of the Mississippi. So, too, the army forts at Chicago, Green Bay, and Mackinac were magnets that drew lake vessels from the safe harbor at Detroit across the often stormy waters of Lake Huron and Lake Michigan.

Public Transportation

In the interests of economy and convenience the army provided as much of its own transportation as possible. The quartermaster department maintained in all the army posts and units at least a modicum of "public transportation." Each garrison had its teams of oxen or horses, which were essential for hauling hay, fuel, and lumber from adjacent areas, and which occasionally carried supplies over longer distances. Sometimes, when special circumstances dictated the operation of long and frequent supply trains, a fort held large numbers of these public animals. Thus with the establishment of Fort Abercrombie on the Red River of the North in the late fifties the army quartermasters in the area controlled many wagon teams which brought supplies to the post; at times they were so numerous that civilian teamsters had to be hired to drive them. Mules augmented the oxen and were farmed out in large numbers to citizens of the region for winter care.[2]

With respect to water transportation also the army enjoyed a measure of self-sufficiency, especially before the steamboat displaced the simple canoes, bateaux, and keelboats of the earlier years. Army posts situated on navigable water seem always to have possessed some boats, and in the early days of the Western posts river transportation was largely in the hands of the troops. The Fifth Infantry traveled from Green Bay to Prairie du Chien in 1819 in boats which had been constructed for the purpose at Green Bay, and Colonel Leavenworth boasted of the economy with which the movement had been accomplished. Fifth Department headquarters at Detroit, indeed, had decreed in 1817 that every garrison should construct as many boats as would be required to move its troops and that they should be kept in constant repair and reported as public property. In subsequent years the troops at Fort Howard were directed again and again to build boats for movements of troops from Green Bay to the Mississippi—in 1821 sufficient bateaux to transport three hundred men to the Mississippi; in 1823 enough to move two hundred men and their baggage; in 1825 enough to transport three hundred and twenty men; and in 1829 thirty Mackinac boats. Late in 1819, when Fort Armstrong at Rock Island was made a depot for provisions and stores, all transportation northward was assigned to the troops. Even after steamboats had become fairly numerous on the upper Mississippi, the army keelboats still saw active service, for until the river was improved the steamboats could not pass the rapids except in stages of high water. In 1826, for example, when the failure of the corn crop at Fort Snelling necessitated late-season shipment of corn from St. Louis, supplies were carried north on public keelboats sent down from Fort Snelling for the purpose.[3]

But as private means of transportation increased in the Western settlements and steamboat traffic became more firmly established, the army found it expedi-

ent to make contracts with outsiders for the movement of supplies and troops. Steamboats were much faster and more economical than keelboats, and army commanders could ill afford to assign soldiers permanently to transportation duties. To have maintained numerous vessels for occasional shipments would have been false economy. Similarly, it was unthrifty to maintain many teams of oxen for overland transportation if they were likely to be idle for long periods, especially when hay and other forage were so difficult to obtain. Large movements were altogether beyond the army's ability to handle, and the great military expeditions up the Missouri and the Mississippi in 1819 necessitated reliance on private contractors. James Johnson was awarded a huge contract to move troops and supplies on the Missouri and to carry supplies up the Mississippi by keelboat to Fort Crawford and Fort Snelling, at the rate of three and seven cents a pound for the two posts, respectively.[4]

Steamboats on the Upper Mississippi

Steamboats were soon able to ascend the Mississippi as far as Fort Snelling, and the *Virginia* and the *Rambler*, which arrived in 1823, were the forerunners of a steady procession of steamers which thrived on the trade occasioned by the army posts and Indian agencies. By 1826 fourteen more had steamed north with army goods and army personnel. This government traffic in supplies and men gave a tremendous impetus to river transportation, and the army benefited too, by virtue of the greater economy of steamboat transportation.[5]

The subsistence stores were almost a bonanza for the early steamboat operators. The bids for supply included delivery at the posts, and as great a profit might be made from the transportation as from the sale of the stores. Even fresh beef, which was commonly driven overland to its destination, was sometimes delivered by steamboat, cattle pens being constructed on the lower decks. The corn and oats which constituted the bulk of the forage for the public animals were frequently brought from downriver, and a substantial part of their delivered price represented transportation costs. The percentage depended of course on the length of the journey. A contract for the delivery of corn made by the quartermaster at St. Louis in 1829, for example, called for two hundred and fifty bushels at Fort Armstrong at sixty-two cents a bushel, eight hundred bushels at Fort Crawford at seventy-five cents, and seven hundred bushels at Fort Snelling at ninety-five cents. In the same year a steamboat captain agreed to deliver corn at Fort Crawford at seventy-five cents a bushel, at Fort Snelling for eighty-five cents, and at Fort Winnebago for a dollar and a half. Contracts for the delivery of subsistence stores, too, reveal an advance in unit price as the distance from St. Louis increased, though the differential was not always marked.[6]

Army quartermasters also arranged for the transportation of large quantities of military equipment, hospital stores, ordnance stores, and other commodities needed by the garrisons, including building materials and even sawmills. Often shipment was made of small lots of goods, perhaps some last-minute arrivals which could be tucked away with other cargo that had been contracted for. Not infre-

quently the contracts called for the delivery of a given lot of goods to a frontier post for a stipulated sum, ranging from a few dollars to many hundreds. When large quantities were being contracted for, the charge was more often expressed as a given rate per hundred pounds. The amounts and the prices varied from year to year and from one contract to another, a good deal depending upon the state of the river at the season of shipment.[7]

Scarcely less important in the river trade was the transportation of troops, for there was a steady movement of soldiers from post to post. There were always troops to be transferred from Eastern rendezvous to the frontier, where they replaced men who had served their terms or who had slipped into the wilderness, deserting the service of the United States.[8] Changes in defense policy entailed heavy troop movements as established forts were abandoned and new ones established to meet new Indian threats or to protect the advancing frontier of settlement. As often as possible, too, regiments were switched to provide a change for those which had been buried in the wilderness for several years, and again a flow of personnel was entailed. All this was standard peacetime operation. When warfare upset the normal routine, the rate of troop movements increased in spurts.

These movements of troops, as of supplies, were a great boon to the river steamboat captains. Innumerable parties of officers, enlisted men, and laundresses with their accouterments and supplies moved up and down the Mississippi between St. Louis, Fort Snelling, and the intermediate posts. Most of the agreements stipulated a flat rate per soldier with his ordinary arms and provisions. A higher rate was usually charged for officers, who were furnished cabin instead of deck passage. Camp women were counted with the privates. Extra subsistence or other military stores were charged at a specified rate per hundred pounds.

As with supplies, the charges for transporting military personnel varied from year to year and from one contract to another. In May, 1829, Captain Joseph Throckmorton was engaged to transport from Jefferson Barracks to Fort Armstrong a detachment consisting of one officer and forty-five privates and women with their arms, provisions, and baggage for $4.75 per person. Two years later he carried troops downstream between the same two posts at the much lower rate of $328 for nine officers, one hundred and forty-eight men, and "the usual servants and women, stores, &c." For the upriver trip to Prairie du Chien Otis Reynolds received in that same year $7.00 per officer and $3.00 per enlisted man, and in 1833 Captain P. Hunt received $8.00 and $4.50, respectively. Fares in succeeding decades were comparable. One contract awarded in 1848 stipulated $12.00 per officer and $3.50 per enlisted man for the journey from Jefferson Barracks to Fort Snelling; in 1850 troops were carried the same distance for $12.00 and $5.00, respectively, and in 1860 for $13.00 and $4.00. These fares were not out of line with civilian passenger fares, which also varied considerably, as did freight rates, with the stage of water on the river and the severity of the competition.[9]

Especially choice items of business were the large-scale movements which attended the evacuation of a post. When Fort Crawford was abandoned for the last time in 1856 and troops of the Tenth Infantry were transferred to Fort Snelling,

the owners of the *War Eagle* were paid $2,750 for chartering the steamer to the post quartermaster.[10]

The army business was widely distributed. True, the names of certain steamboat captains appear frequently in the army contracts, but actually the quartermaster dollars were disbursed to many individuals. To list the steamboats that engaged in army transport in the decade and a half before the Civil War is virtually to make a catalog of the steamers on the Mississippi River.[11]

When wars or threats of Indian uprisings increased the tempo of troop movements, the business of the river captains boomed. The Winnebago uprising of 1827 prompted the dispatch of a formidable expedition of five hundred troops from Jefferson Barracks to the Winnebago country. The troops embarked in three steamboats, the *Hamilton*, the *Indiana*, and the *Essex*, which carried them as far as the Des Moines Rapids, where they were forced to transfer to keelboats because of the low water. In 1831 six companies left Jefferson Barracks on the *Enterprise* to quell Indian disturbances at Rock Island. During the Black Hawk War the steamboats transported many troops, both regular and militia, to Forts Crawford and Armstrong and back and forth along the frontier. In 1832 in the midst of the war the army chartered steamboats for the rapid transport of troops. The *Java* of Otis Reynolds was hired for six days at $140 a day, the *Warrior* and a barge for ten and a half days for the sum of $2100, "for attending U.S. troops against the Sacs and Fox Indians," and a boat belonging to J.W. Beatty for three days at $150 a day. During the Mexican War and again during the Civil War large contingents of regular troops and volunteers were transferred by steamboat from the northern posts to the battle areas.[12]

Lake Traffic

As the upper Mississippi forts were a stimulus to river traffic, so the forts at Green Bay and Chicago promoted lake traffic from Eastern points. After troops garrisoned Fort Howard, vessels began to arrive at Green Bay with supplies for the post and the civilian settlement. Chicago for many years saw no traffic except the occasional vessel which dropped anchor there to unload troops or supplies.[13]

The lake forts received their supplies and recruits via Detroit, and the Michigan capital became an entrepôt rivaling St. Louis. Merchants and steamer captains reaped rich harvests from their contracts for the supply and transportation of goods to the lake forts and the transport of recruits and other troops across Lakes Huron and Michigan. With the regarrisoning of Fort Dearborn at the time of the Black Hawk War lake transportation boomed as troops were moved to Chicago and large quantities of supplies were shipped in to feed and equip them.[14] These shipments were matched during the peacetime years by a steady flow of troop reinforcements and subsistence stores.

The movement of military troops and supplies up and down the Mississippi and across the Great Lakes was carried on largely by business enterprisers who lived on the fringes of the Northwest: at St. Louis or perhaps Galena, at Detroit, or at Buffalo. The shippers carried cargoes and men between the old settlements

and the new regions, mapping out water lanes that tied the interior to the frontier. Pioneering in new routes, they cut and deepened by constant travel the pathways through which the commerce of the new regions passed.

Interior Hauls

These lines between center and periphery were not, however, the only transportation development born of the needs of the army in the Northwest. Within the region short hauls, too, needed to be made, and local merchants at Green Bay, Prairie du Chien, or early St. Paul found many opportunities to augment their business by furnishing transportation overland or on the smaller rivers where steamboats and lake schooners dared not venture.

Among the posts dependent on such means of transportation was Fort Winnebago. Lying midway between Fort Howard and Fort Crawford, this Wisconsin post was supplied from two directions, either from Green Bay, whither troops and supplies had come from Detroit, or from Prairie du Chien, to which stores had been brought upriver from St. Louis. Local residents hauled over the Fox-Wisconsin waterway, or later along the military road, army men and supplies that the public transportation facilities were unable to handle.[15] Among such enterprisers was James H. Lockwood, early Prairie du Chien lawyer and businessman, who in August, 1829, contracted with the quartermaster at Fort Crawford to transport thirty barrels of subsistence stores to Fort Winnebago for $120. Another was Joseph Rolette, who in 1830 was paid the same amount for transporting three hundred bushels of corn from Prairie du Chien to Fort Winnebago, and a third was Hercules L. Dousman, who was paid $160 for moving four hundred bushels to the fort. In 1829 a prominent Green Bay trader, John P. Arndt, received $317.21 for moving certain military stores to Fort Winnebago and in 1832 he entered into contract to deliver such stores for $1.47 per hundred pounds. In the meantime another Green Bay trader, Daniel Whitney, had also been carrying military stores to the fort, the rate having been $1.47 per hundred pounds in 1830 and $1.09 the following year.

The movement of troops also offered an opportunity to the Green Bay settlers who could furnish transportation. For moving small numbers of soldiers from the Bay to Fort Winnebago the usual charge was ten dollars per man. The contracts for larger movements might include both troops and supplies, and sometimes extra men were hired as pilots and boatmen. Year after year the traffic continued. There seemed to be no end to the goods and detachments that needed to be moved to the portage from Green Bay or Prairie du Chien, and when the army lacked transportation facilities itself, some enterprising settler was on hand to do the job. The charges were heavy as compared with the rates of the Mississippi steamboats. It cost more to move a hundred pounds of stores from Fort Howard to Fort Winnebago via the Fox River or the military road, a distance of little more than a hundred miles, than to ship the same amount by steamboat from St. Louis to Fort Snelling, more than six times the distance.[16]

When forts were established in Iowa and Minnesota which could not be served directly by the Mississippi, new transportation lines had to be laid out, and again

a profitable business was offered to men who could take advantage of the opportunity. Contractors who furnished hay and corn to Fort Atkinson also transported quartermaster stores, subsistence supplies, and lumber to the new fort from the public warehouses on the Mississippi River. The stores and baggage which Fort Des Moines received from Fort Crawford were carried overland in two-horse wagons, for each of which the owner received five dollars a day. When this Iowa fort was evacuated, a Missouri businessman contracted to transfer the government stores to St. Louis for $1.50 per hundred pounds. Supplies for Fort Dodge were hauled long distances overland from ports on the Mississippi; in the fiscal year ending in January, 1852, the cost of transporting stores to the fort from the depots on the river came to $6,121.07.[17]

Fort Ripley, on the northern fringe of the frontier, stimulated commerce on and along the Mississippi River above the Falls of St. Anthony. Charles W. Borup, a St. Paul banker who ventured into all sorts of business enterprises, agreed in 1850 to transport public property from St. Paul to Fort Ripley for $1.36 per hundred pounds, and in 1856 to store and transport all stores for that post for $2.15 per hundred pounds. The establishment of the new fort certainly hastened the building of steamboats on the river above the Falls of St. Anthony. The *Governor Ramsey*, which was put into service in 1850, the year after the garrisoning of the fort, carried both troops and supplies to it.[18]

Fort Ridgely on the upper Minnesota was the goal of the steamboats which first ascended the river that far. In times of high water small boats could travel the winding course of the river as far as the fort; in less favorable seasons the freight was landed at Henderson or Traverse des Sioux for transshipment overland. The large quantities of supplies which the fort and the Indian agencies beyond it required for troops and Indians gave an impetus for years to steamboat traffic on the Minnesota.[19]

The *West Newton*, which carried the soldiers to Fort Ridgely in 1853, was the first steamboat to navigate the upper reaches of the river. And what a commotion the movement made! The quartermaster department, charged with transferring the troops of the Sixth Infantry to the new fort, chartered, besides the *West Newton*, two slower boats, the *Tiger* and the *Clarion*, each of which towed a couple of barges. Two companies of infantry, the soldiers' wives and children, their stores and equipment, and their cattle and dogs were huddled together in the boats as they steamed up the placid river to the fort. The undertaking was a big one, a venture into unknown regions that could hardly have been attempted except as a government enterprise; as yet no private individuals had business there that could justify so great an outlay. Other boats that made frequent trips up the Minnesota were the *Equator*, the *Franklin Steele*, and the *Globe*, all of which hauled stores, cattle, and troops to Fort Ridgely.[20]

Directly or indirectly the activities of the army on the frontier provided the steamboats with other passengers: inspectors general and their parties making their tours of inspection; troops sent to Indian councils to accompany Indian delegates, to escort Indian movements, or to assist in the disbursement of annuities; members of surveys and other scientific expeditions; mechanics and laborers north from St. Louis to participate in fort building.[21]

Besides these more sizable deals, the Western frontiersmen were able to pick up many odds and ends of business that stemmed from army needs. They rented wagons and teams to the garrisons; they transported soldiers detailed to labor on the military roads between Forts Crawford and Howard; they hauled Durham boats from one Wisconsin post to another and put boats and boatmen at the disposal of military personnel lacking other means of travel; during the Mexican War they conveyed troops to St. Louis by horse and wagon when river travel was impossible. They even contributed to the execution of the army's disciplinary duties: several citizens of Prairie du Chien, for instance, earned six dollars a day when they rented their two-horse sleighs to officers in pursuit of deserters. In these and a score of other ways the Western communities served the army garrisons in their midst.

The Significance of Army Transportation Business

The river and lake traffic that grew out of government business cannot be attributed solely to the needs of the army garrisons. The Indian agents, too, demanded large volumes of supplies for their charges, and as the tribes parted with their lands, annuity payments became increasingly heavy. In 1844, for example, the goods shipped for distribution to the Winnebago, Sac and Fox, and Sioux Indians far outweighed the quartermaster stores sent to Forts Snelling, Crawford, Des Moines, Atkinson, and Winnebago. Granted that quartermaster stores constituted only a portion of the army supplies, it is obvious that the shipments to the Indian agencies represented a significant part of the government transportation business.[22]

Certainly it was only the needs of the forts and the agencies that impelled steamboats to proceed farther north than Galena in the early days, and it was Fort Ridgely and the neighboring Sioux agencies that first induced them to travel far up the Minnesota. Steamboats ascended the Mississippi as far as Prairie du Chien only when they carried government supplies to the Indian agency or the fort. At Henderson on the Minnesota large amounts of goods were deposited for transportation to Fort Ridgely and the agencies; fifty tons a week were forwarded to the fort alone. When James Goodhue, the fiery editor of Minnesota's first newspaper, outlined for his readers in his initial issue the prospects for St. Paul's economic greatness, he did not fail to remark that the supplies destined for Fort Snelling and Fort Ripley, as well as the supplies for the Indian payments, would pass through the city.[23]

At times the steamboats made a greater profit from transporting soldiers than from their regular passenger trade, and even as late as 1853 St. Paul did a bigger business in government stores than in the commodities sold to settlers.[24] Army business gradually died out, but the transportation facilities it had fostered continued to serve the civilian communities as they slowly but steadily pushed the army garrisons into the background of their economic life.

Notes

[1] *Rambler in North America* (New York, 1835), 2:193.

[2] Unless otherwise indicated, all information on the hiring of transportation by the quartermaster department is taken from the printed abstracts of War Department contracts. See above, page 159, note 15.

[3] General Jacob Brown, commander of the Division of the North, to Secretary of War Calhoun, August 8, 1819, in the Jacob Brown Official Letter Books, vol. 2, in the Library of Congress; Leavenworth to Calhoun, September 10, 1819, in War Department, Letters Received; Department Orders, Fifth Military Department, May 4, 1817, and January 6, 1821, in Army Commands, Fifth Military Department Order Book; Adjutant General Roger Jones to Colonel Ninian Pinkney, commander at Fort Howard, July 7, 1823, in Adjutant General's Office, Letters Sent, vol. 6; Adjutant and Inspector General Daniel Parker to Leavenworth, December 27, 1819, *ibid.*, vol. 5; Jones to Major Daniel Baker, commander at Fort Howard, December 30, 1825, *ibid.*, vol. 7; Aide-de-camp Samuel Cooper to Colonel William Lawrence, commander at Fort Howard, September 25, 1829, Headquarters of the Army, Letters Sent, vol. 2; Captain Joshua B. Brant, quartermaster at Fort Snelling, to Quartermaster General Thomas S. Jesup, October 23, 1826, in Office of the Quartermaster General, Consolidated Correspondence File, Fort Snelling.

[4] Report of Calhoun, "Transportation on the Yellowstone Expedition," in *American State Papers: Military Affairs*, 2:68–69. Johnson filed a claim for $256,818.15 in payment of transportation up the Missouri and the Mississippi.

[5] William J. Petersen, *Steamboating on the Upper Mississippi, the Water Way to Iowa* (Iowa City, 1937), 169.

[6] In 1824 a barrel of pork was delivered at Fort Crawford for $12 and at Fort Snelling for $13.25. In 1825 the prices were, respectively, $12 and $14. Office of the Commissary General of Subsistence, Copies of Contracts, vol. 1.

[7] Contracts for the transportation of military goods up the river from St. Louis in 1829 will give some indication of the size of shipments and the charges made. Delivery was made at Fort Crawford of 18,847 pounds of military stores at $1.00 a hundredweight and 104,900 pounds at 87½ cents a hundredweight, 30,000 pounds of pork at 75 cents, 53,000 pounds of flour at $1.00, and 78,000 pounds of subsistence stores at $1.00; at Fort Snelling delivery of 7882 pounds of military stores at $1.25, 56,000 pounds of subsistence stores at $1.50, and 1000 bushels of corn at $1.08; and at Fort Winnebago, 168,272 pounds of military stores at $1.25. These rates were substantially lower than the charges made for transporting goods by keelboat ten years earlier.

[8] In 1853 Secretary of War Jefferson Davis estimated that "more than one-third of the army must every year be recruited, and transferred from the depots to their regiments." Report of the Secretary of War, 1853, in 33 Congress, 1 session, Senate Executive Document no. 1, part 2, p. 8 (serial 691).

[9] William J. Petersen estimates that "about three quarters of a million dollars might well have been expended in transporting troops by steamboat in the decades preceding the Civil War." He bases this conclusion on estimates that five hundred soldiers were transported annually, that they traveled an average of six hundred miles from St. Louis, and that steamboat captains, charging the government more than the regular rates, averaged $40 a round trip per soldier. *Steamboating*, 194–195. Petersen's estimate is seriously open to question. The reports of contracts made with river captains reveal that the rates charged were actually much lower than his estimated average. Seldom, in fact, did the steamboat captains receive as much as $20 for carrying an officer from St. Louis to Fort Snelling, and the fares for enlisted men were considerably less than for officers. There is a brief discussion of steamboat rates in Mildred L. Hartsough's *From Canoe to Steel Barge on the Upper Mississippi* (Minneapolis, 1934), 163 ff. She suggests that in the years before 1860 the cabin fare from St. Louis to St. Paul was $12 and that deck passage was usually about half the cabin fare. Petersen would seem to be in error when he assumes that the army regularly paid a higher tariff than ordinary passengers. *Steamboating*, note 228.

[10] Orders No. 109, Headquarters Fort Crawford, June 1, 1856, and Orders No. 118, June 8, 1856, in Army Commands, Fort Crawford Order Book.

[11] Between 1848 and 1860 the following steamboats were listed as carriers of troops or supplies on the upper Mississippi and the Minnesota: *Champlain*, *Eudora*, *Ne Plus Ultra*, *North Alabama*, *Odd Fellow*, *Revenue Cutter*, *Senator*, *Alexander Hamilton*, *Dr. Franklin*, *Montauck*, *Highland Mary*, *Nominee*, *Savannah*, *Julius D. Morton*, *Excel*, *Shenandoah*, *Excelsior*, *Blackhawk*, *Prairie State*, *Minnesota Belle*, *Globe*, *Die Vernon*, *War Eagle*, *Equator*, *Reveille*, *Itasca*, *Time and Tide*, *Franklin Steele*, *Dew Drop*, *Metropolitan*, and *W. L. Ewing*. It is probable that many others shared in the army business.

[12] See Petersen, *Steamboating*, 174–175, for some account of wartime movements.

[13] Augustin Grignon, "Seventy-two Years' Recollections of Wisconsin," in *Wisconsin Historical Collections*, 3:282 (Madison, 1857); James W. Biddle, "Recollections of Green Bay in 1816–1817," *ibid.*, 1:50 (1855); Ebenezer Childs, "Recollections of Wisconsin since 1820," *ibid.*, 4:195 (1859).

[14] The abstracts of contracts for 1832 show the following transactions for transportation of troops and supplies to Chicago from Buffalo, Detroit, and intermediate points: military stores for $5,500, troops and stores for $4,000, troops for $3 per private and provisions for 37½ cents a barrel, troops for $700, 176 barrels of military stores for 75 cents a barrel, public stores for $400, troops for $690, hospital and public stores for $444.56¼, two companies of troops for provisions and baggage for $500, ordnance and subsistence stores for $252.87½, subsistence stores for $204, and quartermaster stores for $421.40.

[15] Fort Winnebago also was a stimulus to steamboat travel on the Wisconsin River, as William J. Petersen points out: "In July, 1834, the *Jo Daviess*, loaded to the guards with troops and military stores, ascended the Wisconsin River as far as the portage, and during the course of the summer she made two more trips to Fort Winnebago." "Captain Daniel Smith Harris," in the *Iowa Journal of History and Politics*, 28:511 (October, 1930).

[16] The cost of transporting subsistence supplies from Fort Howard to Fort Winnebago in 1830 was reported as follows: pork per barrel, $4.82½; flour per barrel, $3.17½; beans per barrel, $3.76½; vinegar per barrel, $4.70½; whisky per barrel, $4.56; and 1177 pounds of candles, $24.16¾. Lieutenant St. Clair Denny to Commissary General of Subsistence George Gibson, June 6, 1830, in Office of the Commissary General of Subsistence, Letters Received.

[17] Report of the Quartermaster General, 1852, in 32 Congress, 1 session, Senate Executive Document no. 14, pp. 1–2 (serial 614).

[18] "Freight, of course, is a very important part of the business of this boat [*Governor Ramsey*]; and especially the transportation of Indian and garrison supplies," declared the editor of the *St. Paul Pioneer* on June 12, 1851. Quoted in Mary W. Berthel, *Horns of Thunder: The Life and Times of James M. Goodhue, Including Selections from His Writings* (St. Paul, 1948), 114–115.

[19] See Thomas Hughes, "History of Steamboating on the Minnesota River," in *Minnesota Historical Collections*, vol. 10, part 1, p. 139 (St. Paul, 1905), and William J. Petersen, "The Early History of Steamboating on the Minnesota River," in *Minnesota History*, 11:137 (June, 1930).

[20] An eyewitness account of the movement of the Sixth Infantry to Fort Ridgely was published in the *Minnesotian* of May 7, 1853. The article has been edited by Willoughby M. Babcock and reprinted under the title "Up the Minnesota Valley to Fort Ridgely in 1853" in *Minnesota History*, 11:161–184 (June, 1930).

[21] For examples of these activities see Petersen, *Steamboating*, 170–173.

[22] See the reports in *Trade and Commerce on the Upper Mississippi* (28 Congress, 1 session, Senate Document no. 242, serial 434).

[23] Alfred Brunson, "Memoir of Thomas Pendleton Burnett," in *Wisconsin Historical Collections*, 2:238 (Madison, 1856); Berthel, *Horns of Thunder*, 136; *Henderson Democrat*, April 3, 1856.

[24] Petersen, *Steamboating*, 194, 203.

14

Thomas Sydney Jesup: The Father of the Quartermaster Corps

Introduction. An excellent series of biographical sketches entitled "Quartermaster Generals of the Past" appeared in The Quartermaster Review *in the early 1950s. In this selection from that series Quartermaster historian Chester L. Kiefer gives us a solid short biography of Thomas S. Jesup, who served forty-two years as Quartermaster General (1818–1860) and is generally acclaimed as "the Father of the Quartermaster Corps."*

For length of service and lasting contributions to the Quartermaster's department, predecessor of the Quartermaster Corps, the record of Thomas Sidney Jesup as Quartermaster General is unequaled. He took over the Department which had long been in a more or less disorganized state and established it upon a sound military and business basis. Many of the rules he formulated for its guidance have remained unchanged in their essential characteristics for more than 130 years.

The length of his tenure is almost unbelievable today. He held the post for forty-two years, from 1818 to 1860, a period that represents virtually one-fourth of the 177-year history of the organization. That he was a remarkably able administrator is attested by the fact that he retained the office under eleven Presidents, from James Monroe to James Buchanan, and under fifteen Secretaries of War, from John C. Calhoun to John B. Floyd.

The voluminous collection of his letters, memoranda, and reports preserved at the National Archives reveals that Jesup possessed a rare combination of qualities. He had not only foresight, a grasp of the broad problems of his Department, and the ability to plan a sound organization that would function in both peace and war, but he had also the patience and perseverance that enabled him to exercise close supervision over the most minute details of administration. Moreover, because of his skill in selecting and training men, his influence persisted even during his long absences from the office when he was with troops in the field.

Reproduced with the permission of the American Logistics Association from Chester L. Kiefer, "Quartermaster Generals of the Past," *The Quartermaster Review* 32, no. 2 (January–February 1953): 32–35 and 104–19. N.B.: *The Quartermaster Review* is a discontinued publication of the American Logistics Association.



Thomas S. Jesup

Another outstanding trait was the scrupulous exactitude he required of himself and his subordinates. He insisted that the regulations he laid down for his Department be followed to the letter, and those who failed to do so were quickly rebuked. On the other hand, he was just as quick to bestow praise where it was due. Though a strict disciplinarian, his sense of justice, his tact, and his warm and charming personality won for him a devotion which grew into reverence over the passing years.

Jesup's reputation was not confined to his achievements as Quartermaster General. He had a distinguished career as a young officer in the War of 1812 and later as a brevet major general in command of troops in the Seminole War, 1836–38, during which he was severely wounded but remained with his men and succeeded in capturing Osceola, the famous Indian chief. A lake in Florida bears his name in commemoration of his prominent part in the campaigns in that State. Two frontier ports—Fort Jesup in Louisiana and Camp Jesup near Atlanta, Ga.—were also named in his honor.

Since he was the first Quartermaster General to have headquarters in the nation's capital, under the plan instituted by Calhoun, as Secretary of War in 1818, of establishing permanent staff supply agencies in Washington, Jesup knew most of the leading public figures over a period of more than four decades. He had close relationships not only with the Presidents and Secretaries of War, but also with senators and representatives, particularly those functioning on committees, such as Thomas Hart Benton, chairman of the Senate Committee on Military Affairs. Jesup was a friend of the noted Senator from Kentucky, Henry Clay, for whom he acted as second in the famous bloodless duel with John Randolph of Virginia in 1826.

One biographer says that friends of Jesup, after his reputation had become well-established, requested permission to use his name as a candidate for the Presidency but that he refused primarily because he believed that the position he held in the Army made it improper for him to become affiliated with any political party.

Jesup's death on June 10, 1860, in his seventy-second year, ended his long stewardship of the Quartermaster's Department and fifty-two years of continuous service in the Army. In honor of his memory the Secretary of War ordered all offices of the War Department closed on the day of his funeral. The services were attended by President Buchanan, members of his cabinet, and many other dignitaries.

"Thus has departed," Secretary of War Floyd wrote in his formal announcement of Jesup's death to the Army, "one of the few veterans remaining in the Regular Army of that gallant band who served in the War of 1812. A man long known, respected, and beloved, alike for his varied and distinguished public services, his sterling integrity, untiring devotion to business, constancy in friendship, and general social qualities."

A vivid picture of the man was given some years later in a tribute paid by General Thomas Swords, who once had served under Jesup in the Quartermaster's Department. He wrote:

> What could I say that would do him justice! In character he was so unlike any one whom I ever had the pleasure to serve. He was so free from any display, any ostentation; yet his mind was stored with military and civil law, as well as with the choicest literature. On any subject that was presented to him, either officially or socially, he was ever ready to impart, pleasingly and instructively, what he was so thoroughly conversant with, having remarkable conversational powers.
>
> The warmth and earnestness of his friendships frequently called forth remark, and drew to him many trusting and admiring friends. No intimation to the disparagement of one to whom this strength of affection had been given would be for a moment tolerated. This, with many kind, watchful attentions, made it so pleasing to serve him officially; one had such infinite trust that strict discipline never seemed a restriction. Then, too, his approbation was readily expressed for well-performed duties.
>
> Socially his home was the most delightful in Washington, and his charming warm-hearted hospitality was extended to both resident friends and strangers visiting the Capital.

Jesup headed the Quartermaster's Department during a period of tremendous growth and change in the United States between the end of the War of 1812 and the start of the Civil War. Undoubtedly the most dominant factor in American life was the expanding frontier and the westward march of civilization. This expansion, necessarily accompanied by the establishment of many new military posts for the protection of the advancing settlers, increased tremendously the workload of the Department which was responsible for transporting troops and supplies. During his administration, Jesup saw the United States achieve its present continental boundaries, beginning with the acquisition of East Florida in 1819 and ending with the Gadsden purchase in 1853. During this time Texas was annexed; Oregon Territory was established—the 49th parallel having been accepted by Great Britain as the boundary line in the far northwest; and California and the Mexican cession in the southwest were acquired as a result of the Mexican War.

"Old America seems to be breaking up and moving westward," an English observer wrote the year before Jesup became Quartermaster General. At that time Americans for the most part lived east of the Mississippi river except for the settlements about St. Louis and New Orleans. Before Jesup's death, settlers had

pushed into Minnesota, Iowa, Nebraska, Kansas, and halfway across Texas. The Mormons had established themselves in the Great Salt Lake basin, pioneers had journeyed over the Oregon trail to settle in the Columbia River valley, and the gold rush had brought thousands to California.

While settlement moved westward, the East was experiencing the changes introduced by the coming of the industrial revolution. Both East and West felt the need of adequate transportation. The program of road-building was rapidly expanded, supplemented by the construction of canals, and before the Civil War the East had a skeleton system of railroads. Throughout the whole period, river commerce forged ahead with the development of the steamboat, which replaced the slow-moving flatboat and keelboat. The government made determined efforts to improve transportation in the Far West, even to the extent of experimenting with the use of camels, but oxen and mules continued to be used on the overland trails. Toward the end of Jesup's life, communication was improved by the establishment of regular stagecoach and mail service and the inauguration of the pony express in 1860 by the freighting company of Russell, Majors, & Waddell, which for years had been transporting Army supplies to the West under contract. All of these developments had an impact upon the operations of the Quartermaster's Department which Jesup had to meet in the course of his administration.

Thomas Sidney Jesup came from early pioneer stock, being a descendant of an English emigrant, Edward Jesup, who was living in Stamford, Conn., as early as 1649. He was born on December 16, 1788, in Berkeley County, Va., now a part of West Virginia. His parents were James Edward and Ann (O'Neill) Jesup. His father, a native of Wilton, Conn., settled in Virginia while still a young man, but later moved to Kentucky about the time it was admitted as a State. He died there around 1796, leaving a widow and four children, of whom Thomas, then 8, was the eldest.

Jesup often said that it seemed as though he had never been a boy, since he had to go to work at such an early age to help his mother provide for the family, whose fortunes remained precarious throughout his boyhood. It was not until after he entered the Army at 19 that he finished paying off the family's debts. He apparently had little time to acquire a formal education but as a result of his studious habits he developed into a well-read and cultured man.

His career in the Army began on May 3, 1808, when he was commissioned from Ohio as a second lieutenant in the 7th Infantry. That was the same day two other men who were to gain military distinction entered the service—Winfield Scott, who became General-in-chief of the Army and a nominee of the Whigs for President, and George Gibson, who immediately preceded Jesup as Quartermaster General (in the Southern Division) and was the only man in history to serve as head of one department of the Army longer than Jesup. Gibson was Commissary General of Subsistence throughout the period that Jesup was head of the Quartermaster's Department. He continued to hold the post after Jesup died, in June 1860, until his own death in September 1861.

At the start of the War of 1812, Jesup was brigade major and acting adjutant general on the staff of Brig. Gen. William Hull. He was taken prisoner by the

British in August 1812, about two months after war was declared, when Hull surrendered his forces without a fight. Jesup gained his freedom soon after in an exchange of prisoners, was promoted to captain in January 1813, and to major of the 19th Infantry the following April. On July 5, 1814, he was brevetted lieutenant colonel for distinguished and meritorious service in the battle of Chippewa, and on the 25th of the same month was brevetted colonel for gallant conduct and distinguished skill in one of the hardest fought battles of the war, at Lundy's Lane on the Niagara frontier, in which he was severely wounded. It was at Chippewa that Jesup, as commander of the 25th Regiment, captured the British Major General Riall. In his official report of the battle, General Scott said of Jesup: "He deserves, in my humble opinion, everything which conspicuous skill and gallantry can win from a grateful country."

Jesup's reputation was rapidly becoming established. Late in 1814 President James Madison sent him to Connecticut, ostensibly on a recruiting mission but in reality to keep the administration informed on the progress of the Hartford Convention, called by ardent Federalists to confer on their grievances growing out of their opposition to the war. Extremists including Timothy Pickering, a Quartermaster General in the Revolutionary War, hoped that the convention would demand a revision of the Constitution to protect New England interests. There were strong hints of secession. Jesup, on the basis of his observations, was able to relieve the President of his apprehension by assuring him that a resolution to secede could not pass.

After the war the Army was reorganized and sharply reduced, but Jesup was retained in the service. In April 1817 he was made lieutenant colonel in the 3rd Infantry and the following March became adjutant general, with the rank of colonel, in the Northern Division of the Army under General Jacob Brown. On May 8, 1818, President Monroe appointed him Quartermaster General with the rank of brigadier general. Jesup was then 29 years old.

Actually, Jesup was second choice for the office. William Cumming of Georgia, who had been Adjutant General of the Army until he resigned in 1815, originally was offered the post but declined it because, as he wrote Calhoun, he was preoccupied with "civil pursuits."

Upon learning that he had been selected to fill the vacancy, Jesup wrote to a friend: "One hour before receiving the appointment, I had as little expectation of it as of taking a voyage to the moon. It places me in the second rank in the army; and presents a more extensive field than any other military situation in time of peace."

Jesup became Quartermaster General at the time when Calhoun, appointed Secretary of War only five months earlier, was instituting the most thoroughgoing reorganization the Army and War Department had ever experienced, and developing basic policies for coastal protection and frontier defense, while at the same time striving to maintain the size of the Army in the face of strong pressure from many members of Congress to reduce all military appropriations.

Jesup was in sympathy with Calhoun's objectives and eager to accept the challenge which the post of Quartermaster General posed, even though he was "well aware that some reputation is risqued in the attempt to give system to a

Department which has hitherto in our service been in a state of confusion and disorganization." He was confident that, with Calhoun's support, he could make it the first Department of the Army as it was in all European services. "I wish," he wrote Calhoun, "to give it that character, and those features, which will render it efficient in time of war, and which both in peace and war, will insure a strict responsibility in all its branches."

He had given considerable study and reflection to the need for converting the Quartermaster's Department into an efficient organization. In accepting the appointment, Jesup urged that young officers from the line be utilized in his office, since he thought of it as a military one. He was opposed to the employment of "professional clerks." He contended that only men who had seen active service in the field and were familiar with military procedures would be of use to him in achieving the objectives for which the office was established. Moreover, he viewed his office as a school of instruction, in which "young gentlemen of the army, at the same time that they might be usefully employed, should have an opportunity of acquiring habits of business and of educating themselves for the various duties of the staff." His ideas won the approval of the War Department.

He maintained that the functions of the Quartermaster General were not those of an accountant, examining and adding vouchers, but embraced "in addition to a military and administrative control of every branch of the department throughout the union the marking of military estimates, reports & statements and a strict military scrutiny into disbursements of every character." This concept of his duties and of the nature of the office remained unchanged throughout his administration. To the conduct of the Department's business he applied a strict ethical code. It was not sufficient simply to act correctly, he advised an assistant, "but to pursue such a course as to put it out of power of malignity itself to misconstrue your motives."

A month after taking office, Jesup cast his concept of the nature and functions of the Quartermaster's Department and the duties of its officers into a formal series of rules and regulations. These were based on his own experience both in the staff and the line, together with such information as he was able to obtain from examining the correspondence of Generals Mifflin and Green and Colonel Pickering, Quartermasters General of the Revolutionary Army under General Washington, and from studying the administration procedures of the French, Prussian, and British armies. His regulations were approved by Calhoun and embodied by General Scott in the code of regulations published for the information and guidance of the Army in July 1821.

Experience in office increased Jesup's faith in the efficiency of the system he had inaugurated in 1818. Many years later, after he had commanded troops in the field during the Seminole War, he wrote:

> I had, under the most difficult circumstances, an opportunity of testing the high efficiency of the system—an efficiency which I had never before witnessed in the Department when serving in the field. I never found the slightest difficulty from the working of the regulations; nor do I believe that any difficulty is occasioned by the regulations; all the

> difficulties I have observed since the system has been in operation, have resulted from Commanding officers forgetting their own high position and descending to, and interfering with, the minutest details of the duties of Quarter Masters—or in other words the difficulties have not resulted from the system, but from an unnecessary interference with it.

The Quartermaster's Department expanded and contracted under the impact of wars and peacetime economy. When Jesup took charge in 1818 he was assisted by two deputies, sixteen assistants, and eighteen regimental and battalion quartermasters. His staff remained intact for about three years, but in 1821 the Congressional advocates of economy in military expenditures reduced the size of both the Army and the staff departments. Of the thirty-seven officers in the Quartermaster's Department only thirteen were retained.

This drastic reduction presented Jesup with a difficult problem, for his duties were simultaneously increased when the Secretary of War called upon him to assume certain clothing responsibilities formerly handled by the Office of the Commissary General of Purchases. Ultimately the Quartermaster's Department was to absorb all remaining functions of this Purchasing Department when it was abolished in 1842. In the meantime, the Quartermaster's Department was so seriously handicapped by the shortage of personnel that Jesup requested more officers late in 1821 and again in 1823. He contended that the reduction of the Army from 10,000 to 6,000 men did not bring a corresponding reduction in the Department's work, pointing out that its labors depended "not on the number of troops in service, but on the number and remoteness of the posts occupied, the extent of the frontiers, and the dispersed state of the military resources of the nation."

Jesup's arguments fell upon deaf ears. Not until 1826 was he able to get an increase in personnel. At that time Congress finally made a formal transfer to the Quartermaster's Department of the clothing responsibilities which it already had been administering for five years, and, in addition, ordered the Quartermaster General to prescribe and enforce a system of accountability for all clothing and equipage issued to the Army. In recognition of this "added burden," Congress permitted Jesup to add twelve officers, making a total of twenty-five in the Department.

For the next twelve years the organization of the Department remained unchanged. Neither the Black Hawk War nor the Seminole campaign brought any increase in the standing army since militia were called out by several of the States to meet the Indian attacks. In 1838, however, the threat of serious complications with Great Britain over boundary issues caused Congress to enlarge both the Army and the staff departments. Thirty-seven men were authorized for the Quartermaster's Department but as military conflict with England was avoided, the Department was not built up to its authorized strength. Instead, under the influence of the Panic of 1837 which again produced economy measures, vacancies occurring in the Department were not filled. On the eve of the Mexican War, Jesup complained to Secretary of War William L. Marcy that he had only twenty-five offi-

cers "for the great depots, for service in the field, and for superintending the works being erected."

When war was declared in May 1846, Congress provided for a volunteer force of 50,000 men, and the following month authorized the President to appoint such additional quartermasters as the service might require, but not to exceed one quartermaster for each brigade, and one assistant quartermaster for each regiment. In February 1847, it increased the force by ten regiments, each to have a quartermaster. In addition, it authorized the President to add four Quartermasters and ten Assistant Quartermasters to the Department. After the close of the Mexican War and the disbandment of the volunteers, the Army gradually decreased in size. It had slightly less than 13,000 officers and enlisted men at the time of Jesup's death in 1860, and the Quartermaster's Department again had a total of thirty-seven officers plus seven military storekeepers. Because of the dispersed state of the Army, however, this staff was by no means large enough to perform all the laborious duties of the Department. In consequence, Jesup was compelled to employ more than a hundred regimental officers.

Operations of the Department during Jesup's long administration were centered primarily, except for the Mexican War, upon supplying the needs of troops scattered over the ever-widening frontiers and supporting them in the Indian warfare, which for all practical purposes kept the Army on active-service basis throughout the greater part of the period. The Mexican War itself, in which he supported the armies of Zachary Taylor, Winfield Scott, and Stephen Kearny, did much to increase the problems of the Department in the postwar years, since it added considerable territory to the United States.

In the decade following the War of 1812, the Army launched an unprecedented advance into the Indian country, undertaking a program of constructing posts that entailed arduous transportation and supply problems for the Department. It was in the latter part of this period, in 1818, that Jesup became Quartermaster General. He had been in office only ten months and had barely completed his reorganization of the Department when Calhoun ordered him to St. Louis to supervise preparations for troop movements in the West. Two expeditions were being sent out by the War Department to combat British influence, enlarge and protect the fur trade, and effect permanent peace on the frontier by controlling the Indians. The main expedition was to move up the Missouri to the mouth of the Yellowstone river and erect posts at Council Bluffs and Mandan village, near the present site of Bismarck, N.D. The other was to advance up the Mississippi to the mouth of the St. Peter's river (the Minnesota river of today) where it was to establish a strong post in what has since become the metropolitan area of St. Paul.

Supply preparations for the expeditions had been started in the winter of 1818–19 while Jesup was still in Washington. These included the shipment of ordnance and ordnance stores, clothing, tools, and medical and hospital stores. Subsistence also had to be provided. Under the influence of Colonel Richard M. Johnson, a Kentuckian serving in the House of Representatives who in 1837 became Vice President of the United States, a contract was awarded by the Quartermaster's Department to his brother. Colonel James Johnson. The latter was

to furnish and deliver the required provisions to the ultimate destination points of the expeditions. He was also to provide steamboats for the transportation of supplies and troops.

The movement of the 6th Infantry, comprising 1,100 men, from Plattsburg, via New York, Pittsburgh, and St. Louis, to Council Bluffs, 800 miles above the mouth of the Missouri river, was characterized by Jesup as "the most important and most expensive" as well as "the longest movement of an American military expedition" undertaken to that time—2,628 miles. The main body of the Mississippi expedition, comprising 300 men of the 5th Infantry, sailed from Detroit by way of the lakes, and traveled over the Green Bay, Fox, and Wisconsin rivers to Prairie du Chien, then up the Mississippi to St. Peter's, a distance of 1,270 miles.

When the time came for the Missouri expedition to move from St. Louis in June, a situation developed similar to that which had plagued so many earlier Army operations—the contractor was not ready. Completely disgusted, Jesup declared that "the Johnsons are entirely without military capacity" and that the combined talents and energies of the whole concern "would hardly be sufficient for a common quarter master sergeant." Fortunately, Jesup, in anticipation of just such an emergency, had made provisional arrangements, with the result that the expedition set out in detachments using keelboats furnished by the Quartermaster's Department.

Colonel Johnson's shortcomings were due to financial difficulties and the considerable trouble he had with his steamboats, which were not well-constructed and lacked sufficient power. In consequence of the delay and the difficulties of navigating the Missouri, caused partially by the lowness of the water, the main expedition advanced only as far as Council Bluffs. Under his contract, Colonel Johnson submitted an itemized statement amounting to more than $250,000. Jesup, however, refused to admit some of the claims and these differences were later referred to arbitrators for settlement.

Though preparations were made in the winter of 1819 to continue the Missouri expedition to Mandan village, charges of extravagance brought an investigation and Congress refused to appropriate further funds. Consequently the troops did not move beyond Council Bluffs. Fort-building on the frontier came to an end temporarily in the wake of an economy move that developed out of the Panic of 1819.

Retrenchment became the order of the day as Calhoun sought to prevent disbandment of the Army and Congress drastically reduced its size from 10,000 to 6,000 men. Even before Congress enacted that legislation, Jesup was warning members of his staff that public expenditures must be reduced. He wrote to his assistant at Detroit that "I have an extensive and intimate acquaintance with the public men of the Country, and knowing their sentiments, am convinced that nothing but retrenchment can save the army." He immediately adopted stern economy measures. He ordered all stores and provisions for the frontier posts transported by the troops themselves in public boats rather than by contractors. He scrutinized more closely than ever accounts submitted by subordinates and promptly deducted all irregular and unauthorized expenditures. He interpreted more rigidly than

before the allowances permitted officers under the regulations, disapproving per diem payments when circuitous rather than direct routes of travel were followed or when the officers rented expensive housing instead of utilizing public quarters. He directed his Quartermasters to compute their estimates of requirements as accurately as possible on the basis of allowances permitted and the number of men to be served.

Though his Department was reduced in personnel, Jesup had to assume additional burdens relative to the administration of clothing in 1821. Considerable supplies of clothing and equipage were stored in depots throughout the country. Some was stock remaining after the War of 1812; some was material sent out for issue from Philadelphia in the postwar years. One of Jesup's first objectives was to clear out these depots as much as possible by issuing clothing to the troops stationed in the vicinity of the depots.

The adoption of this practice, together with the considerable supply on hand at the principal depot at Philadelphia by reason of the reduction in the size of the Army in 1821, sharply decreased expenditures for clothing during the next three years. Thereafter the need to build up reserves at depots located at remote points gradually increased expenditures. In the meantime, under Jesup's guidance the Quartermaster's Department had weathered the storm.

It had been a strenuous decade since Jesup had assumed the duties of his office. Early in 1828, when it appeared that a brigadier-generalship would become vacant by the designation of either General Scott or General Edmund P. Gaines to command of the Army, Jesup solicited the appointment. Like most of his predecessors, Jesup had grown weary of the burdens imposed by his office. Though the appointment would confer no additional rank, its duties, he informed the Secretary of War, "would be more agreeable to me than those I now perform, and would, besides, be less injurious to my health." But Jesup was too valuable as Quartermatster General and he was not granted the coveted command. However on May 8 he was promoted to the rank of Major General by brevet "for ten years' faithful service."

More than ever his abilities as an administrator were in demand. Early in the following year, the President having transferred the management and superintendence of the breakwater at the mouth of the Delaware river from the Navy to the War Department, the Secretary of War assigned the execution of this work to Jesup. For the next seven years the administration of this public work remained the responsibility of the Quartermaster's Department until at its request in 1836, it was transferred to the Engineers Department.

At the same time the Quartermaster's Department also sought relief from responsibility for the construction of certain roads being opened in Arkansas. Road-building in the states and territories facilitated communication with the western military frontier and a number of such projects had been undertaken after Jesup assumed office. The wave of economy that had brought a halt to post construction and to the Missouri expedition had also caused the suspension of road construction. Not until the mid-1820's was such work resumed under specific Congressional direction. While the labor of troops had frequently been used to

open roads required for their operations, after the reduction of the Army in 1821 sufficient soldiers could not be spared from their other duties to build roads between the posts on the frontier or between the frontier and more settled areas. Consequently when road building was again initiated the Quartermaster's Department resorted to the use of contracts and hired laborers.

The efforts of the Department to reduce its responsibilities in the summer of 1836 were dictated by the inadequacy of its staff to meet all demands being made upon it. In addition to its routine duties of supervising the construction of roads, barracks, hospitals, and similar facilities, and transporting supplies and troops, the Department was burdened with the duties of other agencies which involved much labor and heavy pecuniary responsibility. Among these were the payment of Indian annuities and the purchase of supplies for the department of Indian affairs, which in 1836 amounted to about $800,000. Quartermasters were also subjected to duty in the Subsistence Department, and under the direction of the Secretary of War were often required to purchase large supplies of camp equipage, medicines, hospital stores, and, occasionally, arms and ammunition.

In 1836 Major Thomas Cross, acting Quartermaster General in Jesup's absence, requested additional personnel not only to meet these demands but also to provide Quartermaster support for the military operations being initiated against the Creek and Seminole Indians. Both the regular Army and the 10,000 volunteers authorized by Congress had to be transported and supplied by the Department, and since Indian operations necessarily occurred in wildernesses far removed from sources of supply and adequate lines of communication, the task was arduous. Though many more Quartermasters were needed for field service the Department's request went unheeded.

Jesup himself was away from the office for two years, having been assigned by President Jackson on May 19, 1836, to command troops called out by Alabama and Georgia to operate against the Creeks. This was an entirely unsolicited assignment, for Jesup, far from aspiring at that time to the command of an army in the field, was slowly recovering from a serious illness. As he phrased it: "This is a service which no man would seek with any view other than the performance of duty. Distinction or increase in reputation is out of the question."

He was directed to subdue the Indians, preventing their retreat into Florida to join the hostile Seminoles, and to remove them west of the Mississippi. Though he regarded this policy of removal as of "extremely doubtful propriety," he did his utmost to carry out the instructions of the government. In the course of operations he found it necessary, under the existing military exigency, to disregard the orders of General Scott, his superior officer, who had charge of the entire Indian campaign, generally referred to as the Florida or Seminole War. The correspondence exchanged at that time threatened to jeopardize the lifelong friendship of the two men but the reason for his conduct was explained to the complete satisfaction of Scott.

After Scott was removed and a court of inquiry instituted into his conduct of operations, Jesup in December 1836 assumed the command of the whole campaign. Though severely wounded in January 1838, he nonetheless moved with his

army. The nature of the country and the climate, however, placed obstacles in the way of any completely successful campaign in Florida. Jesup was charged with "imbecility and inefficiency" on the floor of the Senate and the continuance of the war was imputed to his incapacity. This effort to provoke an inquiry was thwarted by Senator Benton, who ably defended Jesup and showed to the satisfaction of his fellow Senators and countrymen that the General had accomplished much despite obstacles.

Jesup, aware that operations had fallen short of public expectations, reminded the Secretary of War that the troops were "attempting that which no other armies of our country have been required to do." He and his predecessors not only had "to fight, beat, and drive the enemy before us, but to go into an unexplored wilderness and catch them"—action that neither Wayne, Harrison, nor Jackson had been required to take. When Jesup was relieved of the command in May 1838, the Secretary assured him that he had accomplished all that could be expected, and that in withdrawing him the War Department was not activated by any lack of confidence in his zeal or ability to carry the war to a successful issue, but from the belief that he might, without injury to the public service, return to the duties of the Quartermaster's Department.

From 1839 until the fall of 1846, Jesup remained in Washington directing the affairs of the Department. As the effects of the Panic of 1837 were felt, and Congress cut appropriations sharply, he reduced Quartermaster activities. He insisted that "to save the army we must come back to the economy which characterised Mr. Calhoun's administration of the War Department." The parsimony with which Congress treated the Army in these years accounted in part for the almost total lack of preparations for the war with Mexico in May 1846. Yet overnight Jesup was expected to furnish clothing, equipage, and transportation for three widely-scattered armies fighting in rough, semi-desert areas that were almost totally lacking in roads and deep waterways and could provide virtually nothing in the way of supplies.

Under these circumstances, Quartermaster officers were compelled to obtain supplies wherever they could get them. The difficulties of procurement were more than matched by the problems of distribution. Mules, wagons, and steamboats in large numbers were required to transport men and materiel over supply lines that were longer than any previously used in military operations of the United States and involving, for the first time, the establishment of an oversea supply line, since there were no passable land routes to Mexico. The difficulties attending Quartermaster operations and the delays in communicating with Washington induced Jesup to go to New Orleans in the fall of 1846 to direct supply activities in his capacity as an officer of the staff. During the seven months he spent in the field, Jesup visited not only New Orleans but Brazos, Santiago, Tampico, and Vera Cruz.

The scope of Quartermaster operations may be judged from the fact that within a period of a few months more than 11,500 horses, about 16,300 oxen, and nearly 23,000 mules were purchased as well as approximately 7,000 wagons and hundreds of small boats. In addition several hundred sail and steam vessels were hired.

These means of transportation, with the vast supplies required, were collected from a territory exceeding in extent the whole of Europe, as Jesup pointed out in his 1847 annual report in which he effectively summarized the steps taken by the Department to support the armies in the field. He concluded that:

> With our nearest depots farther from the sources of supply than Algiers is from Toulon or Marseilles, we accomplished more in the first six months of our operations in Mexico than France, the first military power in Europe, has accomplished in Africa in seventeen years. And heavy as the expenditures unquestionably have been, there is not another instance in the last two centuries in which so much has been accomplished by any other nation, in so short a time, with so small a force and at so little cost.

Of all the troublesome problems encountered during the war, none equalled the difficulty of obtaining civilian mechanics, teamsters, laborers, and other operatives required in the various and widely extended operations, Jesup declared. He contended that only the organization of a corps "subject to the laws which govern the army, and entitled to all the advantages secured to the troops of the line" would provide the solution. His proposal, repeated many times but shelved without action, anticipated the creation of Quartermaster units, a development that was not to occur until 1912.

With the restoration of peace, the primary task of the Department was the return to their homeland of more than 40,000 troops, but the secondary and more troublesome one involved salvage disposal. The sudden termination of the war left on hand, in the United States and Mexico, a large amount of Quartermaster property, the greater part of which, particularly the sea and river transports, was not needed in peacetime. At the suggestion of Jesup, the most useful transports were transferred to the Treasury Department for the coast survey and to the Navy Department; the others were sold. All damaged property along with that which could not readily be reshipped to the United States was disposed of by the Department in auction sales at Vera Cruz. This was the first salvage disposal program undertaken by a Quartermaster General in a foreign land.

The vast territories acquired as a result of the war with Mexico posed new supply problems that greatly increased the expenditures of the Quartermaster's Department. Before 1845 the extreme frontier posts extended from the Gulf of Mexico to Lake Superior, most of them on navigable waters. They were therefore easily accessible and could be supplied readily and cheaply. Following the war the new outposts were located on the Rio Grande, the Pacific Coast, and on the route to Oregon—all remote from sources of supply. Troop reinforcements as well as supplies had to be taken from the older States, over long land and water routes, at enormous expense.

The effect this had on the cost of operating the Quartermaster's Department is graphically illustrated by a comparison of expenditures in the fiscal years 1844 and 1850. The cost of Army transportation in 1844 was less than $120,000 and the total expenditures of the Quartermaster's Department amounted to only $871,000.

In the fiscal year 1850 transportation costs jumped to nearly $2,000,000, while the expenditures of the Department totaled $4,295,000.

Surveying and opening roads that would provide the shortest and best routes along which to supply and reinforce the Army's distant posts claimed a major share of Jesup's attention in the period following the war with Mexico. Year after year in his annual reports he proposed the construction of turnpikes and the improvement of rivers in the newly-acquired territory. As he pointed out, "every military man knows that the expansion of our population over those territories, without the means of rapid communication, so far from increasing our military power has diminished it at least one third."

By 1852 he recognized that the peculiar condition of the country made railroads the only system of improving transportation. He urged their construction as a means of retaining and defending the country's vast territories and as the "single measure by which the expense can be materially reduced." Such a railroad system was necessary "not only to the economy and efficiency of the service in our Indian operations and frontier defense, but to secure us from the effects of European combination and aggression." His arguments, reiterated many times, were fully endorsed by Jefferson Davis, who was Secretary of War from 1853–1857. Though such railroads were not built until after the Civil War, Jesup had helped prepare the way for them.

Despite his advanced years Jesup was in active personal discharge of his duties as Quartermaster General until three days before his sudden death from paralysis on June 10, 1860. The editor of the *National Intelligencer* wrote that he had met him "with firm and elastic step on the street, with an apparent prospect of continued usefulness" only a few days before. The press marked his passing with editorials praising his distinguished career. As an official tribute, he was accorded full funeral honors. Forty carriages, conveying officials and prominent Washingtonians, followed his hearse and charger to the Congressional cemetery, [where] his body was first placed in a vault. Even in death he was not granted undisturbed repose. His body was first removed to Oak Hill cemetery in Georgetown on April 1, 1862, and then on December 26, 1912, to Arlington National cemetery.

Part III

The Era of Professionalization

Chapter 3

Logistics of the Mexican War

15

Subsisting on the Countryside

Introduction. This first of two related selections comprises the instructions regarding the practice of subsisting an army on the country of an enemy issued by Secretary of War William L. Marcy to Brig. Gen. Zachary Taylor as the latter prepared to move his army into Mexico in 1845. Logistical support of an army in the field by exacting supplies from enemy civilians was a traditional method soon to pass into disuse with the growth of modern logistical organizations. This selection and the one which follows are particularly interesting when one considers that General William T. Sherman's notorious march through Georgia and the Carolinas was only twenty years in the future.

In order to raise supplies for the army, the Secretary of War instructed Taylor to resort to the miserable system of forced contributions upon the inhabitants. Part of his instructions to this effect were as follows:

"It is far from being certain that our military occupation of the enemy's country is not a blessing to the inhabitants in the vicinity. They are shielded from the burdens and exactions of their own authorities, protected in their persons, and furnished with a most profitable market for most kinds of their property. A state of things so favourable to their interests may induce them to wish the continuance of hostilities.

"The instructions heretofore given have required you to treat with great kindness the people, to respect private property, and to abstain from appropriating it to the public use, without purchase at a fair price. In some respects, this is going far beyond the common requirements of civilized warfare. An invading army has the unquestionable right to draw its supplies from the enemy without paying for them, and to require contributions for its support. It may be proper, and good policy requires that discriminations should be made in imposing these burdens. Those who are friendly disposed or contribute aid should be treated with liberality; yet

---

Reproduced with the permission of Harper & Row Publishers from "Instructions of the Secretary of War to General Zachary Taylor Regarding Subsistence on the Countryside," in *General Taylor and His Staff: Comprising Memoirs of Generals Taylor, Worth, Wool, and Butler* . . . (Philadelphia: Lippincott, Grambo and Company, 1851), pp. 54–66.

the enemy may be made to feel the weight of the war, and thereby become interested to use their best efforts to bring about a state of peace.

"It is also but just that a nation which is involved in a war, to obtain justice or to maintain its just rights, should shift the burden of it, as far as practicable, from itself, by throwing it upon the enemy.

"Upon the liberal principles of civilized warfare, either of three modes may be pursued in relation to obtaining supplies from the enemy; first to purchase them on such terms as the inhabitants of the country may choose to exact; second, to pay a fair price without regard to the enhanced value resulting from the presence of a foreign army; and third, to require them as contributions, without paying or engaging to pay therefor.

"The last mode is the ordinary one, and you are instructed to adopt it, if in that way you are satisfied you can get abundant supplies for your forces; but should you apprehend a difficulty in this respect, then you will adopt the policy of paying the ordinary price, without allowing to the owners the advantages of the enhancement of the price resulting from the increased demand. Should you apprehend a deficiency under this last mode of dealing with the inhabitants, you will be obliged to submit to their exactions, provided by this mode you can supply your wants on better terms than by drawing what you may need from the United States. Should you attempt to supply your troops by contributions, or the appropriation of private property, you will be careful to exempt the property of all foreigners from any and all exactions whatsoever. The President hopes you will be able to derive from the enemy's country, without expense to the United States, the supplies you may need, or a considerable part of them; but should you fail in this, you will procure them in the most economical manner."

To these suggestions General Taylor replied, that it would have been impossible before and was then to sustain the army to any extent by forced contributions of money or supplies. The country between the Rio Grande and Sierra Madre being poor, furnishing only corn and beef, these articles were obtained at moderate rates; but if a different system had been adopted, it was certain that they would not have been procured at all in sufficient quantities. The prompt payment in cash, for the few articles of supply drawn from the country, neutralized much of the unfriendly feeling with which the army was regarded, and contributed greatly to facilitate operations. The people had it in their power at any time to destroy their crops, and would undoubtedly have done so, rather than see them taken forcibly. Added to which they would have had no inducements to plant again. The prices paid were reasonable, being in almost all cases the prices of the country.

16

Subsistence or Plunder?

Introduction. In this second selection on the subject of subsisting an army on the countryside, Brig. Gen. Zachary Taylor addresses the fine line between authorized exaction and illegal plunder of an unfriendly civilian population. With his invasion of Mexico just beginning, General Taylor issued Orders No. 62 to prohibit the plundering of private property.

Orders
No. 62.

HEAD-QUARTERS, ARMY OF OCCUPATION,
Camp near Fort Brown, Texas, May 17, 1846.

1. [Omitted]

2. The commanding general is pained to find himself under the necessity of issuing orders on the subject of plundering private property. Instances have been brought to his knowledge where volunteers have seized private cattle, and sold them for their private benefit. Such conflict will not be tolerated. The general wishes to impress it distinctly upon every officer and soldier of his command, whether of the regular or volunteer force, that all property captured from the enemy becomes from that moment the property of the United States, and must be turned over to the proper department. All cattle and articles of subsistence will be delivered to the commissary, all arms and ammunition to the ordnance officer, and all means of transportation to the quartermaster's department. Any officer who may be found violating or sanctioning a violation of this order shall answer for it before a court martial. Any regular soldier detected in violating its provisions shall be brought to trial; and any volunteer soldier so detected will be instantly discharged with disgrace from the service. The commanding general is determined that the army under his command shall not be disgraced by scenes of plunder.

By order of Brigadier General Taylor:

W. W. S. BLISS,
Assistant Adjutant General.

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), p. 489.

17

Logistical Planning for the Campaign in Mexico

Introduction. In this letter from his advanced headquarters at Matamoros Bvt. Maj. Gen. Zachary Taylor outlines the line of communications for his forthcoming overland march into the interior of Mexico. He alludes to the difficulties of planning and the necessity for reliable logistics intelligence. He notes in particular the difficulties of transportation and subsistence which he anticipates. Taylor's letter also clearly reveals the importance of logistical considerations in the formulation of campaign strategy.

[No. 58.] HEAD-QUARTERS, ARMY OF OCCUPATION,
Matamoras, July 2, 1846.

SIR: In reply to the communications of the Secretary of War dated May 28 and June 8, and to that of the general-in-chief dated June 12, I have the honor to submit the following views in regard to the operations against Mexico from this quarter. I will remark that my constant efforts to procure information in relation to the nature of the country, amount of supplies, &c, have not been as satisfactory as I could wish, the various accounts often differing even in important particulars. Either from the ignorance or interested motives of those who profess to give information, it is extremely difficult to obtain any upon which we can implicitly rely.

In calling upon the States of Louisiana and Texas for an auxiliary force of about 5,000 men, it was my expectation with that force to be able to clear the course of the Rio Grande as high as Laredo, and to occupy or control the country to the foot of the mountains, capturing and holding Monterey, if circumstances permitted. With the proper river transportation, this could have been easily done: a depot

---

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), pp. 329–32.

would now have been established at Camargo, and our operations pushed up the valley of the San Juan. The difficulties and embarrassments that I have experienced for want of such transportation have already been sufficiently made known. These difficulties have been increased by the great excess of volunteers that have been sent out—say 3,000 men beyond my original call. I nevertheless propose, upon the arrival of the steamers now hourly expected, to throw forward this force with the regular troops to Camargo, and establish there a depot and base from which to operate towards the mountains. My reasons for retaining these six-months volunteers in service have been set forth in another communication; and I desire, from motives of health and other considerations, to keep them employed as actively as possible. The twelve-months volunteers can in the mean time form camps at healthy points in my rear, and, while receiving instruction, await the season for more extensive operations. The above dispositions can be made in the rainy seasons perhaps better than at any other time, as the river is then in a good navigable state. For operating with a heavy force, say 6,000 men, from this point towards Monterey and Saltillo, through which passes the only artillery route across the mountains, it is indispensable to employ the river as a channel of supply, and the valley of the San Juan, on one of the heads of which Monterey is situated, as a line of operations. The direct land route from this point to Monterey is much longer than the line from Camargo; in wet weather, impassable for artillery or heavy wagons, and in dry scantily supplied with water. Assuming, then, Camargo as the depot, and the valley the San Juan as the line of operations, the question arises, what amount of supplies can be obtained and how can a column be subsisted on this route? It is pretty well determined that we cannot depend upon any considerable supply of breadstuffs short of Monterey, or perhaps Saltillo, seventy five miles further south. Beef in abundance, it is believed, may be procured; and on this, with perhaps occasional issues of mutton, we must mainly depend for the meat part of the ration. From Camargo to Saltillo, then, we must expect to depend upon our depot for bread; and I am of opinion, from all I can learn of the resources of the country in pack mules and means of transportation generally, that a column exceeding 6,000 men cannot be maintained in bread alone as far as Saltillo. Saltillo itself is at no great distance from two or three fertile grain-growing districts; but how far the production in those districts may exceed the supply, I cannot with any certainty determine.

The above calculations in regard to subsistence are made on the supposition that we shall find the people of the country, if not friends, at least passive, and willing to part with their produce to the best advantages. I believe we shall find such to be their temper on this side of the mountains; whether this neutrality or indifference extends beyond, may well be questioned. Should they prove hostile, destroy their corps [*sic*], and drive away their stock, it will be an extremely difficult matter to sustain a column at Saltillo—still more so to pass beyond that city.

Supposing a column of the above strength (say 6,000 men) able to maintain itself at Saltillo, it will become a question, depending for its solution upon the elements above indicated, how far that force may be increased, or what amount of the twelve months volunteers may be safely and profitably thrown forward from the rear, with a view to future operations.

From Camargo to the city of Mexico is a line little if any short of 1,000 miles in length. The resources of the country are, to say the best, not superabundant, and over long spaces of the route are known to be deficient. Although the road, as we advance south, approaches both seas, yet the topography of the country, and the consequent character of the communications, forbid the taking up a new line of supply either from Tampico or the Pacific coast. Except in the case (deemed improbable) of entire acquiesence, if not support, on the part of the Mexican people, I consider it impracticable to keep open so long a line of communication. It is, therefore, my opinion that our operations from this frontier should not look to the city of Mexico, but should be confined to cutting off the northern provinces—an undertaking of comparative facility and assurance of success.

With the view of cutting off the northern provinces, the projected expedition from San Antonio to Chihuahua may be of great importance. From the best information, however, which I now possess, I would suggest mounted troops alone for that expedition. I am satisfied that the route from that point to Chihuahua is not practicable for artillery or wagons, and infantry would rather embarrass the movement of a mounted expedition. Mounted howitzers, to be packed, with their carriages, on mules, might be advantageously employed on that service, and indeed with the column designed to penetrate to Saltillo. There may be a great difficulty in supplying any considerable force between San Antonio and Chihuahua, although the line is not very long—probably not exceeding 300 miles. I hope to procure better information than any I now possess in regard to this route.

It will be perceived that my remarks on the line of operations from the Rio Grande southward have been confined to the question of subsistence, which is certainly the most important one to be considered. There are military obstacles on the route, particularly in the space between Monterey and Saltillo, where the defile of "La Riconada" is represented to be of great strength. This point, and perhaps others, if fortified, may give us some trouble; but if they can be turned by light troops—and such I believe to be the case—they will not long impede our march.

In regard to the "description of troops best adapted to operations in the interior of Mexico," I am scarcely prepared at this time to give a definite reply. The facility or difficulty of obtaining forage must necessarily control to some extent the amount of cavalry employed. At the estate of the Conde de Jarral, some 40 leagues from Saltillo, there will, I understand, be no difficulty in obtaining a remount when necessary, and forage for the cavalry. The field artillery under my orders (four batteries, including Washington's) will, particularly if filled up to the complement of guns, be quite sufficient for any operation in this quarter. We may have occasion for heavier guns, and I have directed two 12-pounder field guns to be procured, which, with the 24-pounder howitzers now in depot at Point Isabel, will constitute an efficient battery. We shall have two, perhaps three, regiments of horse from Texas under my original call. They are now organizing, under the governor's directions, at Point Isabel. These are six-months men. Should I find it necessary to increase the cavalry force, I can draw certainly one regiment from San Antonio and still leave quite enough for the expedition to Chihuahua.

I have given my views on most of the points connected with the operations from this frontier, purposely abstaining from any reference to movements against Tampico or Vera Cruz. The former place, I am induced to believe, could have been easily taken a month since, and could be so even now; but the yellow fever would not have permitted us to hold it, and I deemed it best to undertake no movement in that direction at this season of the year. Should we advance as far as San Luis Potosi, which has a communication, though not for wheels, with Tampico, the possession of the latter place would be important.

I am awaiting with the utmost impatience the arrival of steamboats suited to the navigation of this river to establish a depot at Camargo and throw the troops gradually forward to that point. The rainy season has commenced, and the river is now in the best possible condition for navigation. Several boats were to leave New Orleans about the 20th of June. If not wrecked in the recent severe gales, they may be hourly expected here.

I have the honor to be, very respectfully, general, your obedient servant,

Z. TAYLOR,

Brevet Major General U. S. A., commanding

The ADJUTANT GENERAL *of the Army,*

Washington, D. C.

18

Allowances of Transport for the Campaign in Mexico

Introduction. In this first of two related selections Maj. Gen. Zachary Taylor prescribes the official allowance for field transportation for his army as it prepares to advance into Mexico. In so doing he highlights both the importance of land transport and the serious shortage thereof faced by his army. It may be interesting to compare the transport allowances for Taylor's army with those prescribed for Grant's army in 1864 (see Selection 26).

Orders
No. 109.

HEAD-QUARTERS, ARMY OF OCCUPATION,
Camargo, August 29, 1846.

1. & 2. [omitted]

3. The allowance of transportation for the coming march has been regulated as follows:

To each division and brigade head-quarters, 1 wagon.

To the field and staff of each regiment or battalion, 4 pack mules.

To the officers of each company, if not more than three, 1 pack mule.

To the officers of each company, if more than three, 2 pack mules.

To every 8 non-commissioned officers, musicians, and privates, 1 pack mule.

Three wagons in addition will be assigned to each regiment—one for the transportation of water, and two for the transportation of such articles as cannot be packed on mules.

4. Generals commanding divisions, and officers commanding detached brigades and regiments of volunteers, are authorized to discharge men on surgeons' certificate of disability for service. [See paragraphs 130 to 134, general regulations.]

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), pp. 501–02.

5. The resignations of officers of volunteers will be forwarded to head-quarters for the action of the commanding general. After notification of acceptance, elections will be duly held to fill the vacancies thus occasioned.

By order of Major General Taylor:

W. W. S. BLISS,
Assistant Adjutant General.

19

An Early Call for Enlisted Logistical Specialists

Introduction. In this letter to the Quartermaster General from Corpus Christi on 28 November 1845, Colonel and Assistant Quartermaster General Trueman Cross outlines the need for field transport and associated personnel under direct military control rather than reliance on contracted civilian wagons and teamsters. This letter has often been cited as one of the earliest calls for the creation of a corps of enlisted personnel to perform logistical duties. Colonel Cross' recommendation for the creation of such a corps of enlisted logistical specialists would not to be implemented until the creation of the Quartermaster Corps in 1912.

CAMP AT CORPUS CHRISTI,
November 23, 1845.

SIR: Among the many defects in our system, none is more evident to me than the want of an *organized wagon train*, and the deficiency is quite as apparent in what may be called the *personnel* as in the *materiel* of such an establishment.

It would undoubtedly be of great advantage to have in constant readiness for service a train of three or four hundred wagons, all made by an established pattern, and with the precise uniformity of a gun carriage, where the parts of one would fit another so perfectly that one complete wagon might be readily made out of two or three crippled ones; but no less advantage I conceive would result from having an efficient corps of *enlisted train drivers*, ready for service at all times when the army goes into the field. If any doubt should be entertained on those points, a review of the events of the last few months ought, I think, to bring conviction to the minds of the most skeptical.

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), pp. 646–48.

An army of several thousand men has hastened hither from remote points in August and September, under the most exciting circumstances, and landed upon a desert coast, for active operations, without bringing with them, for the most part, any means of field transportation whatever. Three thousand out of the four were sent here wholly destitute, and the residue were but partially provided; nor had the government any means in readiness to send. It is known to you that the wagons had to be made in haste, in Philadelphia and Cincinnati—I may almost say taken from the stump after the troops were ordered to the field; and the consequence is, that down to the present date a sufficient number has not arrived here to enable the army to move with its necessary supplies, even if the other essential elements of a field train were at hand. Happily, however, the commanding general has not desired to move, though he knows not how soon the contingency may occur that would call the army to the Rio Grande.

But, besides the gathering of the requisite number of animals, amounting to at least twelve hundred, which, if not drawn by stealth from Mexico, with whom we were supposed to be in conflict, must be obtained from some other quarter more remote—for mules are not to be got in Texas—a corps of three hundred *drivers* were to be collected and organized in a country where, advanced as we are beyond the meagre frontier settlements, a common laborer can scarcely be obtained at any price.

Now, I know not how all this may be regarded by others, but I consider it by far a more difficult operation than raising a regiment; yet it would seem that it is expected to be accomplished in the brief space of a few weeks, and in the midst of manifold labors connected with the procurement and issue of all kinds of supplies for the most improvident army in the world, which has come to the field without even an adequate supply of spades, axes, and camp kettles.

But even when all these means, so difficult to obtain, shall have been collected from abroad and brought to the scene of action, the army may still be paralyzed at the most critical moment under the present system; for its movements depend upon the train, and that is dependant [*sic*] upon the caprice of a corps of *hired* drivers, who may quit us at their pleasure, or extort their own price by a general strike for higher wages, as has already happened at the beginning of the present month with every driver in this camp, where, being entirely without any other resource here, we are compelled to submit to their terms.

It must be evident to all that such a system, if it deserve the name, cannot succeed. On the contrary, it must inevitably fail whenever it is tried, if any thing like promptness is necessary to effect the object in view. I repeat, then, that among the most needful provisions for the service are an organized wagon train, and a corps of enlisted drivers. Without these, an army sent into the field can never go prepared for active operations. It must incur ruinous delays, and cannot fail to be embarrassed in all its movements.

I do not make these suggestions with any expectation that they will lead to a speedy change; much less with an idea that any thing will be done at this stage of affairs to aid our preparations on the present occasion. For our wants here, we must provide now as well as we can. But if this system of non-preparation in such essen-

tial means is to be continued, I desire to relieve myself from any responsibility that might attach from an apparent acquiescence in it. And I will add that my sole motive is the public good; for it is not at all likely that I shall ever again be personally charged with duties that would be facilitated by the improvements here suggested.

Respectfully, I am, sir, your obedient servant,

T. CROSS,

Colonel and Assistant Quartermaster General.

To the QUARTERMASTER GENERAL.

20

Logistical Coordination in the Mexican War

Introduction. In two brief memorandums Maj. Gen. Winfield Scott outlines his plans for his forthcoming campaign in Mexico, with particular emphasis on transportation requirements. Both items are also of interest as indicators of the very summary coordination among the staff departments at this date.

Memoranda for the chiefs of the general staff of the army at Washington.

An army of some twenty odd thousand men, regulars and volunteers, including the troops already in Texas, is about to be directed against Mexico, in several columns.

For the numbers of troops yet to be sent into Texas, the rendezvous or points of departure, and the routes of march thither, each chief of the general staff will obtain the information needful to his particular department from the Secretary of War's calls upon the governors of several States, and from the adjutant general.

Arms, accoutrements, ammunition, and camp equipage must be thrown in advance upon the several rendezvous or points of departure, unless depots or arsenals should be in the routes which may be given to volunteers. It is not foreseen that guns or field artillery will be given to any body of volunteers other than a detachment which will march under Colonel Kearny, from Fort Leavenworth. (See instructions on the subject given to that officer.)

Subsistence will also be thrown in advance upon the several rendezvous given, and as far as practicable on the several routes thence to be given to both regulars and volunteers. Hard bread and bacon (side pieces or middlings) are suggested and recommended for marches, both on account of health and comparative lightness

---

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), pp. 546–47.

of transportation. On many of the routes it is supposed beef cattle may be obtained in tolerable abundance.

With the means of transportation by water and land, according to the several routes to be given to the troops—and, on land, whether wagons or pack mules, or both wheels and packs—the quartermaster general will charge himself at once, and as fast as the necessary data can be settled or known. It may, however, be now assumed by him, and the two other chiefs of staff in question, that Cincinnati, and Newport (Kentucky;) [*sic*] Madison or Jefferson, Indiana; Louisville and Smithland, Kentucky; Quincy or Alton, Illinois; Memphis and Nashville, Tennessee; Washington or Fulton, on the Red river, and Natchez, Mississippi, will be appointed as places of rendezvous for considerable bodies of volunteers, about to be called for by the War Department. For marches by land, a *projet* [*sic*] for the means of transportation, by company, battalion, or regiment, according to route, is requested, as a general plan. The means of transportation on and beyond the Rio Grande, using for the latter purpose those which may accompany the troops, will require a particular study; but boats for transporting supplies on that river should be early provided—assuming the depth of water to a certain height (up the river) at three or three and a half feet, and to another distance, higher up, at two and a half feet.

WINFIELD SCOTT.

HEAD-QUARTERS OF THE ARMY,
May 15, 1846.

MAY 18, 1846.

It is further desirable that the surgeon general should take early measures to throw necessary supplies from his department upon the places of rendezvous (as fast as they can be ascertained, as above) for the different bodies of volunteers and regulars to be put in route for the Rio Grande, and for the augmented forces about to be assembled on that river.

WINFIELD SCOTT.

General T. S. JESUP,
Quartermaster General.
General GEORGE GIBSON,
Commissary General Subsistence.
General N. TOWSON,
Paymaster General.
Colonel GEORGE TALCOTT,
Ordnance Department.
Dr. THOMAS LAWSON,
Surgeon General.

21

The Difficulties of Support in Mexico

Introduction. Neither Maj. Gen. Zachary Taylor, advancing overland into Mexico, nor Maj. Gen. Winfield Scott, moving by sea to Vera Cruz and thence overland to Mexico City, found themselves satisfied with the logistical arrangement for support of their forces. In a letter to the Adjutant General from Camargo on 1 September 1846, General Taylor complains of the support provided. Taylor's letter is accompanied by the endorsement thereto from the Secretary of War to the Quartermaster General and the latter's response to Taylor's criticisms dated 5 December 1846.

[No. 83.]

HEAD-QUARTERS, ARMY OF OCCUPATION,
Camargo, September 1, 1846.

SIR: Before marching for the interior, I beg leave to place on record some remarks touching an important branch of the public service, the proper administration of which is indispensable to the efficiency of a campaign. I refer to the quartermaster's department. There is at this moment, when the army is about to take up a long line of march, a great deficiency of proper means of transport, and of many important supplies.

On the 26th April, when first apprizing you of the increased force called out by me, I wrote that I trusted the War Department would "give the necessary orders to the staff department for the supply of this large additional force;" and when first advised of the heavy force of 12-months volunteers ordered hither, I could not doubt that such masses of troops would be accompanied, or preferably preceded, by ample means of transportation, and all other supplies necessary to render them

---

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), pp. 557–61.

efficient. But such has not been the case. Suitable steamboats for the Rio Grande were not procured without repeated efforts directed from this quarter, and many weeks elapsed before a lodgement could be made at this place, the river being perfectly navigable. After infinite delays and embarrassments, I have succeeded in bringing forward a portion of the army to this point, and now the steamers procured in Pittsburg are just arriving. I hazard nothing in saying that, if proper foresight and energy had been displayed in sending out suitable steamers to navigate the Rio Grande, our army would long since have been in possession of Monterey.

Again, as to land transport. At this moment our wagon train is considerably *less* than when we left Corpus Christi—our force being increased *five-fold*. Had we depended upon means from without, the army would not have been able to move from this place. But fortunately the means of land transport existed to some extent in the country in the shape of pack mules, and we have formed a train which will enable a small army to advance, perhaps, to Monterey. I wish it distinctly understood that our ability to move is due wholly to means created here, and which could not have been reckoned upon with safety in Washington.

I have adverted to the grand points of water and land transportation. Of the want of minor supplies, the army has suffered more than enough. The crying deficiency of camp equipage has been partially relieved by the issue of cotton tents of indifferent quality. Our cavalry has been paralyzed by the want of horse shoes, horse shoe nails, and even common blacksmiths' tools, while many smaller deficiencies are daily brought to my notice.

I respectfully request that the above statement, which I make in justice to myself and the service, may be laid before the general-in-chief and Secretary of War.

I am, sir, very respectfully, your obedient servant,

Z. TAYLOR,
Major General U. S. A., commanding.

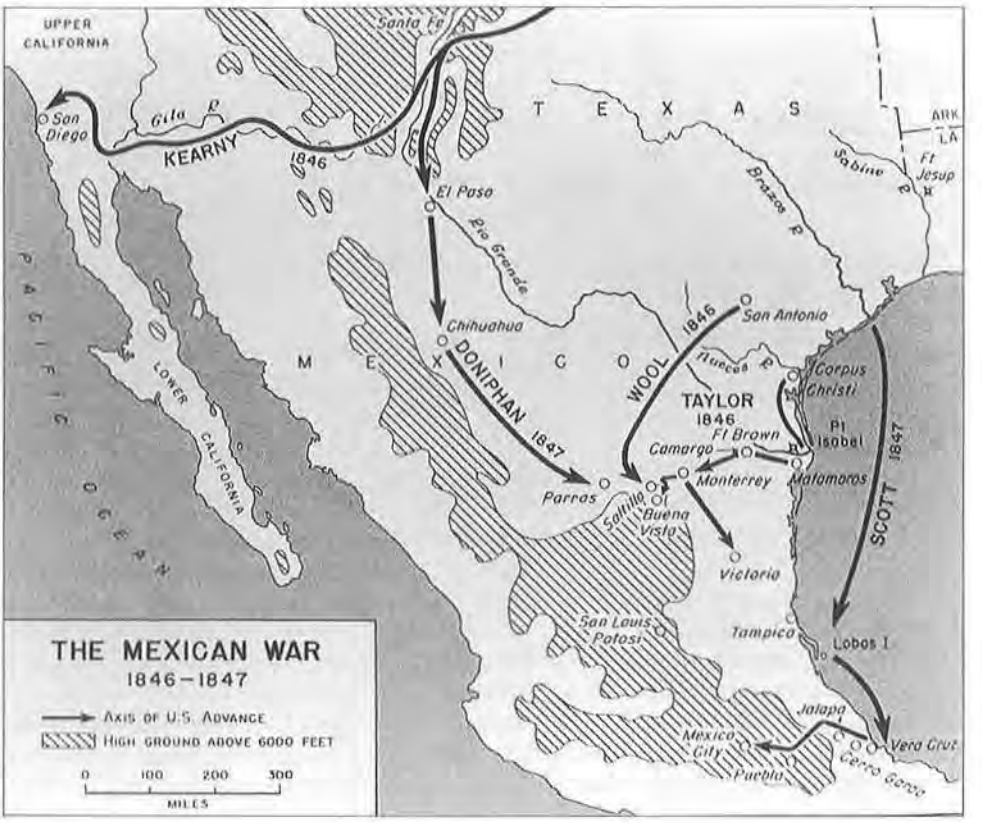
The ADJUTANT GENERAL *of the Army,*
Washington, D. C.

WAR DEPARTMENT
Washington, September 21, 1846.

SIR: A letter of Major General Taylor, of the 1st instant, addressed to the adjutant general, and by him laid before me, pursuant to the request therein, is of such an extraordinary character, and impeaches in such unqualified terms the management of that branch of the public service committed to you, that I have deemed it to be my duty to order a copy of it to be placed in your hands, and to direct your particular attention to it.

The avowed object of Gen. Taylor in presenting these complaints, or rather accusations, against the quartermaster's department, is to make them a matter of record. I am extremely unwilling, and I presume you cannot be less so than myself, that they should there remain without explanation or investigation.

I am fully aware of the great difficulties unavoidable in the management of the quartermaster's department on the sudden occurrence of a war, when the country was not prepared for such an emergency. General Taylor must be presumed to be as



well acquainted with all the circumstances of embarrassment attending the quartermaster's department as any other person, and yet his arraignment of it is not qualified by any allusion to them. The inference is, that, all proper allowances made, he considers that the management of the affairs of the quartermaster's department has been such as to deserve censure. Such appears to me to be his meaning, and such, I apprehend, will be the general impression resulting from the perusal of his letter. If this censure is really deserved, it is proper that those obnoxious to it should be ascertained, and dealt with as their conduct deserves; but if, on the contrary, it shall be found that the officers of the quartermaster's department have done their duty in a proper and efficient manner, as I trust will be case, steps must be taken to remove the erroneous impression and vindicate their official conduct.

Very respectfully, your obedient servant,

W. L. MARCY,
Secretary of War.

Major General THOMAS S. JESUP,
Quartermaster General U.S. Army.

N.B.—The copy has been furnished to the quartermaster general by the adjutant general.

NEW ORLEANS, *December* 5, 1846.

SIR: When I received your letter of the 21st September, on the subject of Major General Taylor's complaints, I was apprehensive that neglect or omissions had occurred on the part of some one or more of the subordinate officers of the department, by which his operations had been seriously embarrassed; but I have looked into the whole matter, and I am bound in justice to say that no class of officers, not even General Taylor and the most distinguished men around him, have better or more faithfully performed their duty; and if any thing has been wanting which they could have supplied, it has been because the proper orders were not given or timely requisitions made.

In conducting a war, it is the duty of the government to designate the object to be accomplished; it is then the duty of the general who conducts the operations to call for the means required to accomplish that object. If he fail to do so, he is himself responsible for all the consequences of his omission. General Taylor complains of want of water and land transportation, camp equipage, and shoes for his cavalry horses. As to water transportation, I find that he called for a single light draught steamer early in May. Lieutenant Colonel Hunt could not at once obtain a suitable boat, but be executed the order as soon as it was possible. Late in May, or early in June, General Taylor considering four boats necessary, appointed his own agents to obtain them. I was at the time taking measures, under the orders of General Scott, to obtain suitable boats for the navigation of the Rio Grande; but, having no reliable information in relation to the navigation of that river, and believing General Taylor's agents possessed of the requisite knowledge, I preferred that they should execute his orders; and I limited my action in the matter to doubling the number called for by General Taylor, and authorising a further increase, if considered necessary, by his brother and one of his agents. The number required by the general was, I believe, nearly quadrupled, ultimately, by the officers of the department. As to the complaint of the general, that the steamers from Pittsburg were then (September 1st) just arriving, it is proper to state that these were the very boats procured by one of his own agents. When at Pittsburg, I inquired into the delay of those boats; and it is but justice to Captain Sanders, General Taylor's agent, to say, that no effort was spared to get them into service as early as possible.

As to the compliant in regard to the want of land transportation, it is proper to remark, that there was no information at Washington, so far as I was informed, to enable me or the War Department to determine whether wagons could be used in Mexico. General Taylor, though be had both mounted troops and topographical engineers, had not supplied the want of that information; besides, he had not, as far as I know, or believe, intimated to any department his intentions, or wishes, in regard to the means of transportation to be used. It was known that he had a wagon train amply sufficient for double the force he commanded before the arrival of the volunteers. Added to that, he had General Arista's means of transportation; and he was in a country abounding in mules—the means of transportation best adapted to the country, and the only means used by the enemy. A general is expected to avail himself of the resources of the country in which he operates. If General Taylor

failed to do so, and was without the necessary transportation, he alone is responsible. Those means were limited only by his own will. He had officers of the quartermaster's department able to have executed his orders, and willing to carry out his views; his authority alone was wanting.

As to camp equipage, you are aware that the appropriation which I asked for last year was stricken out, and that not a cent was appropriated, which could be legally applied to that object, before the 9th and 13th of May. When the appropriations were made, the officers of the departments were compelled to obtain materials wheresoever they could get them, and such as they could get. Cotton cloth was necessarily substituted for linen in the fabrication of tents. I have no doubt a great deal of the material was of the quality represented by General Taylor; but that was, under the circumstances, unavoidable. The officers obtained the best they could get, and deserve credit for their exertions, in place of the censures they have received.

I am somewhat at a loss to imagine why the deficiency of shoes for the dragoon horses was made a subject of complaint against the quartermaster's department. A blacksmith is allowed, by law, to every troop of dragoons. It is the duty of every commander of a troop to have his shoeing tools complete, and to have, at all times, the necessary shoe and nail iron; and it is the duty of the regimental commander to see that timely requisitions be made. Now, if those officers failed to have what was necessary to the efficiency of their commands, let General Taylor hold them accountable. The quartermaster's department is not responsible for their neglects.

As I came through the western country to this city, I was informed that a report was circulating that General Taylor would have taken forward to Monterey a much larger force of volunteers, but for the neglect of the quartermaster's department to furnish the means of transportation. In reply to that report, I respectfully ask your attention to the letter of General Taylor of the 2d of July, to the adjutant general. There he tells you, through that officer, that he proposes to operate from Camargo to Monterey; he tells you that he will operate with a column of about 6,000 men; that he must rely on the country for meat, and depot at Camargo for bread; and adds, as the reason for not taking a greater force, that a column exceeding six thousand men cannot be supplied on that route with bread alone.

I feel, sir, that every officer of the department has performed his duty faithfully, if not ably, and that the charges of General Taylor are both unjust and unmerited. As regards myself, I feel that I have performed my whole duty, both to the country and to the army; and, if the slightest doubt remain on that subject, I owe it to myself to demand an immediate and thorough investigation of my conduct, and that of the department, from the commencement of operations on the Texan frontier, as well previous to, as during the war.

I am, sir, most respectfully, your obedient servant,

TH. S. JESUP.
Major General, Quartermaster General.

The Hon. WM. L. MARCY,
Secretary of War, Washington city.

22

A Slight Difference of Opinion

Introduction. Like his colleague Zachary Taylor, Maj. Gen. Winfield Scott, never an easy man to deal with, made long and detailed complaints of unusual vehemence regarding his treatment at the hands of the Secretary of War and the lack of adequate logistical support for his invasion of Mexico. In this letter of April 21, 1848, Secretary of War William L. Marcy replies curtly to Scott's criticisms. Marcy's letter includes two letters of Quartermaster General Thomas S. Jesup, dated February 17 and February 18, 1848, which reply in detail to Scott's specific complaints regarding logistical support. Jesup's letters outline the difficulties of securing both water and land transport adequate to the needs of Scott's expedition and highlight the degree to which transportation was a limiting factor in the operations of the United States Army in the war with Mexico.

WAR DEPARTMENT,
Washington, April 21, 1848.

SIR: It would not be respectful to you to pass unnoticed your extraordinary letter of the 24th of February, nor just to myself to permit it to remain unanswered on the files of this department.

To attempt to dispel the delusions which you seem to have long pertinaciously cherished, and to correct the errors into which you have fallen, devolves upon me a duty which I must not decline; but in performing it I mean to be as cautious as you profess to have been, to abstain from any "wanton discourtesy," and I hope to be alike successful. Your prudent respect for the "5th article of war" has induced you to hold me ostensibly responsible for many things which, you are aware, are not fairly chargeable to me. The device you have adopted to assail the President, by aiming your blows at the Secretary of War, does more credit to your ingenuity

---

Reproduced from *Messages of the President of the United States with the Correspondence Therewith Communicated between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War*, Executive Document no. 60, House of Representatives, 30th Cong., 1st sess., "Mexican War Correspondence" (Washington, D.C.: Wendell and Van Benthuysen, 1848), pp. 1226, 1236–41, and 1250–55.

as an accuser, than to your character as a soldier. A premeditated contrivance to avoid responsibility does not indicate an intention not to do wrong.

The general aspect of your letter discloses an evident design to create a belief that you were drawn forth from your quiet position in a bureau of this department, and assigned to the command of our armies in Mexico, for the purpose of being sacrificed; and that, to accomplish this end, "neglects, disappointments, injuries, and rebukes" were "inflicted" on you, and the necessary means of prosecuting the war with success withheld; or, in other words, that the government, after preferring you to any other of the gallant generals within the range of its choice had labored to frustrate its own plans, to bring defeat upon its own armies, and involve itself in ruin and disgrace, for an object so unimportant in its bearing upon public affairs. A charge so entirely preposterous, so utterly repugnant to all the probabilities of human conduct, calls for no refutation.

* * *

The execution of the most difficult branch of duties appertaining to a military expedition—providing for transportation—is by the distribution of the business in the War Department allotted to the quartermaster general. As an expedition against Vera Cruz had been resolved on some time before you were assigned to take command of it, General Jesup had gone to New Orleans to be in the best position to make the necessary preparations for such an enterprise. From his great knowledge, and long experience in military affairs, not only in his appropriate department, but as a commander in the field, the government thought it fortunate that you could have the advice and assistance of so able a counsellor.

Your suggestion that it might be necessary to send ships in ballast from the north, for transports, was not neglected or unheeded by me. Whether it would be necessary, or not, depended, according to your statement to me, upon the means of transportation which could be procured at New Orleans, &c. My first step was, to write to the quartermaster general, then at that place, for information on that subject. In my letter to him of 11th of December, I said: "It is expected that most of the vessels in the service of the quartermaster's department can be used as transports for the expedition. It will be necessary that the department here should know what portion of the transportation can be furnished by the ordinary means which the quartermaster's department has now under its control for the purposes of its expedition. I have to request that information on this point should be furnished without delay.

"Another point upon which the department desires information is, what amount of means of transportation, for such an expedition, can be furnished at New Orleans, Mobile, and in that quarter.

"The expense of procuring transports from the Atlantic cities will be exorbitant. Freights are very high, and most of the good vessels are engaged for the ordinary purposes of commerce."

It is important to bear in mind that you saw this letter, on your first arrival at New Orleans. In writing to me from that place, December 21st, you observe, "I

have seen your letter (in the hands of Lieutenant Colonel Hunt) to the quartermaster general, dated the 11th." You could not mistake its object, because it was clearly expressed. I asked distinctly what means of transportation for the expedition can be furnished at New Orleans, &c., and referred to the expense and difficulty of procuring transports from the Atlantic cities. You could not, therefore, but know that my course, as to sending ships in ballast from the north, would be regulated by the quartermaster general's reply. While waiting for this information, and in order to prevent delay, and be sure not to deserve the imputation you now cast upon me, I issued the order of the 15th of December, to which you refer, knowing that it could be modified and conformed to the exigencies of the service, according to the answer which I should receive from General Jesup. His reply is dated the 27th of December, and in it he says:

"*Transportation can be provided here for all the troops that may be drawn from the army under the command of General Taylor*, and for all the ordnance, ordnance stores, and other supplies, which may be drawn either from this depot, [the Brazos,] or from New Orleans. The public transports, I mean those owned by the United States, that can be spared for the contemplated operations, it is estimated, will carry three thousand men, with all their supplies. *Vessels can be chartered here, on favorable terms, for any additional transportation that may be required.*" This letter was submitted to, and read by, you, as appears from your endorsement thereon. After referring to some other matters in the letter, you conclude your endorsement as follows: "I recommend that Brevet Major General Jesup's suggestions be adopted." This fact shows that the letter received your particular attention.

When this letter, which you knew was forwarded to the department, was here received, showing that your apprehended difficulty in obtaining sufficient transportation at the south was unfounded, and that it could be provided in that quarter in great abundance on favorable terms, my order of the 15th of December, so far, and only so far, as it related to sending out vessels in ballast, was countermanded. It is strange, indeed, that, after you were made acquainted with the object of my inquiries and General Jesup's letter in reply to them, you should have looked for transport vessels in ballast from the Atlantic cities; and, still more strange, that their non-arrival should be the proof you rely on to convict me of having neglected my duty in this instance. If, in truth, you delayed the expedition nearly two months for these transports, I am blameless; the responsibility is in another quarter. It cannot be said that this statement, as to the sufficiency of transports to be obtained at the south, had an implied reference to what I had ordered from the Atlantic cities; for my order was then unknown to yourself and the quartermaster general. You first received a copy of it several days after the date of General Jesup's letter to me, and of your endorsement thereon. [See your letter to me of the 12th of January.] Resisted, as you were, by "head winds," enveloped in "frightful northers," and oppressed with complicated and perplexing duties in arranging and preparing the expedition against Vera Cruz, some temporary bewilderment may be excused; but to charge the War Department with your own misapprehensions and mistakes is inexcusable.

My reply to your accusations forces me to expose some of your misstatements of fact. You allege that the expedition, for the want of the "ten vessels," was delayed from the 15*th of January* to the 9th of March. You certainly mean to be understood that, on the 15th of January, your troops were ready to embark, and were delayed for want of these transports; but this was not so, and I am indebted to you for most abundant proof to establish your inaccuracy. The great body of your troops, for the expedition, was drawn from General Taylor's command at Monterey and in the interior of Mexico, and no part of them had reached either the Brazos or Tampico, the points of embarkation, on the 15th of January. In your letter, of the 12th of that month, to General Brooke, at New Orleans, you said: "I have now to state that it is probable the troops I have called for from General Taylor's immediate command, to embark here [the Brazos] and at Tampico, will not reach those points till late in the present month, [January,] say about the 25th." In a letter to me, of the 26th of January, you remark that General Butler responded to your call for the troops with the utmost promptitude, and that General Worth made an admirable movement: "the head of his division arrived with him at the mouth of the Rio Grande the day before yesterday," [24th January.] When the remainder came up, is not stated; yet one of your "naked historical facts" places the whole command at the points of embarkation, waiting for the "ten vessels" at least nine days before the actual arrival of any part of them. But, if they had been there, why should they have been detained for these vessels? In the same letter, written but two days after the arrival of the head of the first division, and probably before the other troops had come up, you say: "that the quartermaster general, Brevet Major General Jesup, at New Orleans, I find, has taken all proper measures, with judgment and promptitude, to provide everything depending on his department for the despatch and success of my expedition." If more was wanted, cumulative proof might be drawn from the same source—your own correspondence—to show, not only that this charge against me has no foundation in truth, but that you can have no apology for having preferred it.

After showing how unfortunate you have been in your specific charges, I may, with propriety, meet those of a general and sweeping character with a less particular detail of proofs to show their groundlessness.

Though the "ten vessels" were not, for the very sufficient reasons I have assigned, sent out in ballast from the Atlantic cities, yet a very large number were sent thence with stores, supplies, and troops to co-operate in the expedition. In General Jesup's letter to me, of the 17th instant, a copy of which is sent herewith, he states that fifty-three ships, barques, brigs, and schooners, were sent from the north, and the department actually furnished, at New Orleans, Brazos, and Tampico, for the army, before it took up the line of march into the interior, one hundred and sixty-three vessels.

I have alluded to the large number of surf-boats, and the great difficulty of procuring them, as the cause of the delay in their arrival. I have, also, a similar reason to offer in reply to your complaint for not having seasonably received the siege-train and ordnance supplies. The delay is to be ascribed to the enormously large outfit you required. If it was necessary, and despatch was used in procuring

it, no one is in fault; if too large, you certainly should not regard, as a reprehensible delay, the time necessarily taken up in preparing it. To show that it was large, and required much time to procure it, I will select from many, a single item. You demanded from eighty to one hundred thousand ten-inch shells, and forty or fifty mortars of like calibre. This enormous quantity of shells—about four thousand tons—was mostly to be manufactured after you left Washington. All the furnaces in the country, willing to engage in the business, were set to work; but, with the utmost diligence and despatch, the supply of this one article, or even two-thirds of it, having to be manufactured and transported to the seaboard from the furnaces, (located, in most instances, in the interior of the country,) at a season of the year when water communications were obstructed by ice, could not be ready to be sent forward to you in many months after your departure from Washington. Had your requisitions been moderate, and, undoubtedly, more moderate ones would have sufficed, they could have been furnished at a much earlier period.

The memorandum which you left "for the siege train and ammunition therefor," was submitted to me by the ordnance department on the 26th of November, with an intimation that it could not be complied with in season for the expedition to go forward as early as you had contemplated. I endorsed upon it, "*comply with the above as far as practicable*;" and this order, I am satisfied, after full examination, was faithfully executed.

What could be done at Washington, was done promptly. You had with you the quartermaster general, with all the means at the command of the War Department, and with unrestricted authority to do whatever you might require. He was under your supervision, and subject to your orders, able and willing to execute them; and you have never intimated that he, in any respect, failed in his duty, but on the contrary, you have spoken in highly commendatory terms of his efficient services. I have already quoted your acknowledgment that he had "taken all proper measures, with judgment and promptitude, to provide everything depending on his department for the despatch and success of your expedition." In an issue of fact between you and the head of the War Department, his testimony, next to your own confessions, is the best that can be offered to correct your misstatements, and to refute your charges. In his letter to me of the 2d of January, 1847, he says: "General Scott left for the interior on the 29th ultimo, and I am taking active measures to have everything depending upon me ready for his operations. The quartermaster's department, I find, is called upon to do a great deal that should be done by other branches of the staff. So far as General Scott's operations go, I shall have everything done that is necessary, whether it belongs to my department or to other departments to do it." You had with you, and subject to your orders, not only the quartermaster general, but officers of the other staff departments. They did not look to the War Department, but to yourself, for directions; and it was your duty, and not mine, to see that your requirements were complied with. That they were so, to the utmost practicable extent, I have no reason to doubt; but, if they were not, the fault, if any, is not with the War Department. You also gave the instructions in relation to providing the means of land transportation, and the officers charged with that duty were under your immediate control; and, if there is blame anywhere

for any deficiency in this respect, it cannot be imputed to the War Department. Your whole correspondence with me, and the staff officers with you, shows that you very properly took upon yourself the whole charge of giving directions in this matter. In a letter to Captain Hetzel, senior quartermaster at the Brazos, speaking on the subject of the land transportation which may be needed after the descent on the enemy's coast, near Vera Cruz, you say: "I have already discussed and arranged with you the detail of the *early* land transportation train," &c. On the 19th of March you furnished General Jesup with your estimates and directions on this subject. The staff officers being with you, and under your orders, nothing further was, or properly could be, required or expected to emanate from Washington beyond the supply of funds; and, this being done, if you were disappointed in not realizing your expectations, you have not a colorable pretence for imputing blame to "the head of the War Department."

As a ground of complaint, and a matter of accusation, you refer to your deficiency of means to make the descent, and to capture the city of Vera Cruz and the castle of San Juan d'Ulloa, and assume that the extent of that deficiency was the difference between what you received and what you required. It would be quite as correct reasoning to say that what you had having proved sufficient for the purpose, the difference showed the extent of the errors in your estimates. The truth lies, perhaps, between the two extremes. You had less, probably, than you should have had, and you required much more than was necessary. That you did not have more, and, indeed, all you asked for, I have already shown, was not the fault of the War Department.

General Jesup was with you at Vera Cruz, saw your means, and is capable of forming an estimate of their sufficiency. He is, as his letter herewith shows, disposed to be just, and even generous to your fame. To his opinion on the subject, no well founded exception can be taken. He says, in reference to your complaints on account of a deficient supply of surf boats, siege train, and ordnance stores, "the result shows that he [General Scott] had surf boats and stores enough;" and of the delay of which you complain, he fully exonerates the War Department, and ascribes the whole to yourself and to unavoidable accidents.

The imputation that you were *designedly* crippled in your means, is a charge as preposterous as it is unfounded.

I am aware that the execution of some of the many arrangements for the Vera Cruz expedition was obstructed and delayed by accidents; but they were such as human sagacity could not forsee, or human agency control. They were not, however, more than a considerate mind, bringing into view all the vast difficulties of the case, would have expected. When your complaints on this subject were first received here, evincing, as they did, that you intended to hold the department responsible for every untoward event, the heads of the several bureaus were called on by me to show how they had executed the duties which had been confided to them, particularly in regard to matters referred to by you. The evidence they presented of having done all that was required, or could have been expected, convinced me, and I venture to say that, on a full examination, it will satisfy any mind open to conviction, that all your complaints, so far as they imputed blame to the

War Department, or any of its branches, are unfounded. It will do much more—it will show that great industry, promptness, uncommon capacity, and extraordinary exertions, in relation to every thing connected with the war, have characterized the action of each of these subordinate departments. As a commendation justly merited by these several branches of the department, assailed, as they are, indirectly by you, I see no good reason for withholding my opinion, that an instance cannot be found where so much has been done, and well done, in so short a time, by any similar body of officers, under similar circumstances.

* * *

I cannot, however, but regard your solicitude for the support of discipline to be more ostentatious than profound. When a general at the head of an army of freemen, who do not lose their rights as citizens by becoming soldiers, sets up pretensions to dictatorial power—when be contemns [*sic*] the authority of his government, and is much more ready to censure than to execute its orders and instructions—when he denounces as an outrage and a punishment the attempt to submit his acts, charged to be an offence against a subordinate officer, to an investigation in the mildest form—when he administers an indignant reproof to his superior for upholding the sacred right of appeal, upon which depend the security and protection of all under his command—such a general sets an example of insubordinate conduct of wide and withering influence upon sound military discipline.

By extending my comments upon your letter, I might multiply proofs to show that your accusations against the head of the War Department are unjust; that your complaints are unfounded; that the designs imputed by you to the government to embarrass your operations, impair your rightful authority as commander, and to offer outrage and insult to your feelings, are all the mere creations of a distempered fancy; but to do more than I have done would, in my judgment, be a work of supererogation.

In conclusion, I may be permitted to say that, as one of the President's advisers, I had a *full share* in the responsibility of the act which assigned you to the command of our armies in Mexico. I felt interested even more than naturally appertained to my official position that success and glory should signalize your operations. It was my duty to bring to your aid the efficient co-operation of the War Department. I never had a feeling that did not harmonize with a full and fair discharge of this duty. *I know it has been faithfully performed.* There are some men for whom enough cannot be done to make them grateful, or even just, unless acts of subserviency and personal devotedness are superadded. From you I expected bare justice, but have been disappointed. I have found you my accuser. In my vindicator I have endeavored to maintain a defensive line, and if I have gone beyond it at any time, it has been done to repel unproked aggression. To your fame I have endeavored to be just. I have been gratified with the many occasions I have had to bear public testimony to your abilities and signal services as a military commander in the field. It has been, and, under any change in our personal relations, it will continue to be, my purpose to be liberal in my appreciation of your distinguished

military merits. In respect to your errors and our faults, though I could not be blind, I regret that you have not permitted me to be silent.

I have the honor to be, very respectfully, your obedient servant,

W. L. MARCY,
Secretary of War.

To Major General WINFIELD SCOTT,
U. S. Army, Mexico.

P.S. Papers herewith sent:
1. Duplicate of General Jesup's letter to me of the 18th February, 1848.
2. General Jesup's letter of the 17th instant.
3. do do 18th do

QUARTERMASTER GENERAL'S OFFICE,
Washington city, February 18, 1848.

SIR: In reply to the complaint of General Scott, in his despatch of the 25th of December, that Lieutenant Colonel Johnson's train had returned without *one blanket, coat, jacket, or pair of pantaloons*, the small depot at Vera Cruz having been exhausted by the troops under Generals Patterson, Butler, and Marshall, respectively, all fresh from home, I have the honor to state that, if the facts are as set forth by General Scott, the responsibility lies at other doors than mine. Understanding fully his views and wishes, I made ample provision for the old corps under his command. Those corps, I believe, never exceeded in the aggregate seven thousand men. To supply them I placed in depot at Vera Cruz, eleven thousand forage caps, fourteen thousand wool jackets, and four thousand cotton jackets; fifteen thousand flannel shirts, and seventeen thousand cotton shirts; eighteen thousand pairs of wool overalls, and four thousand pairs of cotton overalls; seventeen thousand pairs of flannel drawers; thirty-seven thousand pairs of bootees, (I ordered fifty thousand pairs;) twenty-seven thousand pairs of stockings; two thousand four hundred great coats, and nine thousand two hundred blankets. These supplies were all sent to Vera Cruz previous to the 30th of June.

I made no provision for the volunteers, for you are well aware I had not a single cent that I could legally apply to the purchase of clothing for them. If the generals named by General Scott exhausted the clothing placed in depot at Vera Cruz, by applying it to the use of their respective commands, they acted in violation of the 36th article of war, and the general should hold them accountable.

It is known here that several thousand suits of clothing, sent to New Orleans and Mexico, for the use of the old army, have been issued to the new regiments and to volunteers; but General Scott is mistaken in supposing that the depot at Vera Cruz was entirely exhausted by those issues; for I have official information that as late as the 6th of December, some time after Lieutenant Colonel Johnson's train left Vera Cruz, there still remained in the depot at that post eight thousand forage caps; three thousand nine hundred wool coats and jackets, and six thousand nine hundred cotton jackets; nineteen hundred wool and seven thousand seven hundred cotton overalls; twenty-seven hundred flannel and thirteen thousand seven hundred cotton

shirts; fifteen thousand six hundred pairs of drawers; two thousand seven hundred great coats; and seven thousand blankets, and eleven thousand pairs of bootees.

If the volunteers and new regiments went to Mexico without the proper supplies, that was the fault of those who commanded them. General Butler, I understand, was specially directed to superintend the organization, equipment, and movement of the volunteer force. It was his business, not mine, to see that they were properly clothed and supplied; and neither he, General Patterson, nor General Marshall had any right to take for their commands the supplies I had placed at Vera Cruz for General Scott's old regiments.

For the new regiments I had made timely arrangements, and would have sent to Vera Cruz, in November, a large supply of clothing, but I received, in October, a report from Captain Irwin, the acting quartermaster general of General Scott's army, dated at the city of Mexico the 27th of September, of which the following is an extract: "*I have now a thousand people engaged in making clothing; the quality of the material is not so good as our own, and the price on the average is fifty per cent. higher. Still supposing the road between this and Vera Cruz to be entirely open, I think the government will lose little, if anything, by purchasing here. I shall be able to fill, in a very short time, every requisition which has been made on me, with clothing, which, though not exactly of our uniform, will be comfortable and good.*"

This information, sir, was from a man who not only knew how to supply an army, by putting into requisition all the resources of the country around him, but was better qualified to command a large army than most of your generals in the field. The report of Captain Irwin delayed my action here, but, in December, I ordered from Philadelphia a supply of clothing sufficient for the whole army, regulars and volunteers.

To enable me to do this, I have been obliged to apply, on my own responsibility, three hundred and sixty-eight thousand dollars of the funds of the quartermaster's department to the purchase of clothing, and to authorize purchases to be made on credit, which have been paid for by bills drawn on me at ninety days, which I have accepted, hoping Congress, by making an appropriation, will enable me to meet them by the time they become due.

I have the honor to be, sir, your obedient servant,

TH. S. JESUP,
Quartermaster General.

Hon. W. L. Marcy,
Secretary of War, Washington City.

Quartermaster General's Office,
Washington City, April 17, 1848.

Sir: I have received the extracts from General Scott's letter to you, dated the 24th of February, complaining of the want of means of transportation, of supplies, and of funds, from the quartermaster's department, in consequence of which he informs you he was embarrassed and delayed in his operations, as well in the attack on Vera Cruz as in his movements afterwards; and I have to state in reply,

that delays did occur in the movement upon Vera Cruz which were most vexatious, but which were not occasioned by any neglect or omission on my part, or on that of any other officer of the department, as a detail of the facts will show. The memorandum from the War Department for the quartermaster general, alluded to by General Scott, fixed the number of transport ships for his expedition at forty-one, viz: twelve for the volunteers, ordnance, and supplies, from the Atlantic; fire for surf boats or lighters; ten to go out in ballast for troops on the gulf of Mexico; and fourteen to be supplied by the officers of the quartermaster's department at New Orleans and on the gulf. That number, I take it for granted, was determined upon by General Scott himself or by the War Department, with his assent, as I have not understood that he, at any time, objected to the number as insufficient. He complains that the ten in ballast for troops were not sent, and that the embarkation was delayed thereby "in whole, or in part, from the 15th of January to the 9th of March."

Colonel Stanton informs me that the order to charter those ten vessels was countermanded in consequence of a letter from me, dated at Brazos Santiago the 27th day of December, which was read by General Scott before it was sealed, and to which he added a postscript. The general, no doubt, relied upon those vessels. I expected them, for I believed they would be chartered and on the way before my letter could be received; but so boisterous was the season that I thought it unsafe to trust to their arrival, and made my arrangements as if they had actually failed, which fact I reported to General Scott, as well as I now remember, either through Captain Wayne or the late Captain Hetzel.

It will be seen by reference to the memorandum referred to, that twenty-seven vessels were to be sent from the Atlantic with troops, supplies, and in ballast. Not one was sent in ballast; but there were actually fifty-three ships, barques, brigs, and schooners, sent with troops and supplies. It was expected that I should furnish fourteen ships; the department actually furnished at New Orleans, Brazos, and Tampico, for the army, before it took up the line of march into the interior, one hundred and sixty-three vessels, some of which made several voyages.

I submit a copy of a report from the late Captain Hetzel, marked A, dated at the Brazos the 21st of February, 1847, which shows what had been done by the department up to that time. Of the 102 vessels contained in that report, five were from the Atlantic, four only of which had reported there, the other had been wrecked. I also submit paper marked B, which is a list of vessels chartered at Tampico, to transport thence troops, horses, and mules.

Under the most favorable circumstances much time would have been required to organize so extensive a transport service; but, owing to the drenching rains throughout the month of January, the ships and other vessels chartered at New Orleans could not be prepared and sent to sea as rapidly as was desirable; and the frightful northers described by General Scott in his letter of the 12th of January, 1847, and mentioned in many of his subsequent letters, delayed their arrival at the Brazos and Tampico, as well as the movement from those points. The time lost from these causes alone may be fairly estimated at from twenty-five to thirty days. But a measure of General Scott, which he seems to have over-

looked in summing up his difficulties, produced not only embarrassment and increased expense, but delays more injurious to the service than the want of ten ships promised from the Atlantic, even had others not been substituted in their place. It was the change in the destination of the Mississippi, Louisiana, North Corolina, Massachusetts and Virginia regiments. Had the two former been sent direct to Lobos, and a regiment already at Tampico been left there for the defence of the place, and the regiment replaced by the Mississippi regiment been left with General Taylor, double lighterage would have been avoided at a time when lighters were not abundant, delay would have been prevented, and six ships, that were rendered comparatively useless, would have been available for the campaign, the places of which had to be supplied. Had cutters or pilot-boats been despatched to cruise off cape St. Antonio, with orders for the North Carolina, Massachusetts and Virginia regiments to proceed direct to Sacrificios, double lighterage, as well as the transports for the troops that replaced them, would have been saved.

General Scott certainly had the right to change the destination of those regiments, but he, not you or I, is responsible for the embarrassment, increased expense and delay occasioned by that change.

As to the complaint of the want of funds, you are aware that the appropriations were nearly exhausted—the small amount available I was obliged to use so as to preserve the credit of the department; and I made the only arrangement in my power for the supply of funds by authorizing the officers of the department to draw on me without limit. The service, I know, was carried on with as little embarrassment as ever attended the service of any army in a foreign war.

The complaint of General Scott in regard to clothing, is fully answered in my report of the 18th of February last, which will be found in Executive document No. 56, page 250, to which I respectfully refer.

General Scott complains that not more than half of the surf boats he required came at all, and of the siege train and ordnance stores, only about one-half had arrived when the Mexican flags were replaced by those of the United States at Vera Cruz. The science and valor of the army, he says, had to supply all deficiencies. The result shows that he had surf boats and stores enough; and one of his high merits as a commander is, that he never doubted the science and valor of his army, but made the best use of both. He had invaded a country with resources sufficient to support large armies against us; he availed himself with great ability of the resources of the enemy. This, I know, you and the President expected him to do. Had he failed to do so, or had he doubted the science and valor of his army, he would have proved himself unfit for the high trust confided to him; and those who placed him in command would have had a heavy account to settle with the country. But his complaints are entirely groundless, as he, in his cooler moments, I have no doubt will admit. He is one of the best informed military men now living; but it would puzzle him to show a single instance in the military history of the last two centuries in which an army, whose personel [*sic*] and materiel had to be collected from so vast a territory, was as well appointed and supplied as his army has been. The glorious results of his campaign are a sufficient answer to all his complaints—

results so astonishing that the faithful chronicler of the events as they occurred will probably be considered rather the compiler of fables than the relator of facts.

I have the honor to be, sir, your obedient servant,

TH. S. JESUP,
Quartermaster General.

Honorable WM. L. MARCY,
Secretary of War, Washington city.

23

Some Lessons of the War with Mexico

Introduction. In this brief selection Kreidberg and Henry summarize the lessons learned from the Mexican War of 1845–1848, stressing the need for adequate transportation and for careful joint planning for overseas operations as well as the impact of excessive luxury services for troops in the field.

The Lessons of the War

The lessons of the Mexican War were never studied a great deal, probably because the war had been so brief and successful. The victory expanded the United States to the Pacific Ocean, thus fulfilling Manifest Destiny, and put Zachary Taylor and Franklin Pierce in the White House. Those results were remembered, but most of the mobilization lessons were forgotten.

The old lessons which were repeated again were:

1. Military policy and foreign policy must be coordinated at all times.
2. Staff planning for war in advance of the war itself is most necessary, but will never be accomplished until a specific agency is charged with that planning.
3. The departments which control and accomplish mobilization must be coordinated in their operations to prevent confusion and inefficiency.
4. Unplanned for, piecemeal activities in wartime are costly, slow, wasteful, and confusing.
5. The ability, experience, and leadership of the peacetime Regular Army must be more effectively diffused through the entire wartime army.
6. Training can be effectively accomplished only when there is time, a program, and sufficient capable instructors and instructional material.
7. Adequate means of transportation must be provided for military purposes. The importance of transportation was becoming even greater as the transportation

---

Reproduced from Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army, 1775–1945*, Department of the Army Pamphlet 20–212 (Washington, D.C.: Department of the Army, June 1955), pp. 81–82.

media became faster. The need for organic transportation in a military force was reemphasized.

8. War plans must be based on adequate and accurate intelligence information.

9. The inability of the Militia as organized to provide a reservoir of military manpower was not only reaffirmed but was emphasized, for by 1846 the Militia was not only inefficient, it was verging closely on extinction.

10. The accepted system of election of officers by their men was inefficient and needed replacement by a system of Federal selection of officers, selection to be based on impartial standards. Federal rather than state control of officer selection was better because only under Federal control could officer standards be made uniform.

11. The complexity of this war made it even more necessary than in previous wars that the term of service be for the duration of the war.

Lessons which were perhaps new or which first acquired major significance in this war were:

1. The extent to which civilian luxury services accompany troops in the field must be strictly limited, or the weight of those luxury services will immobilize the Army.

2. Supply planning for a mobilizing Army must be based on the total force. The assumption that elements of the force could provide for their own equipment and uniforms or else obtain them from their states was not only fallacious but led to procurement competition which impeded the overall procurement effort.

3. Joint operations of the Army and Navy can be successfully accomplished when there is cooperative planning, and a sincere cooperative effort made by the commander of the units of the respective services.

Chapter 4

Logistics of the Civil War

24

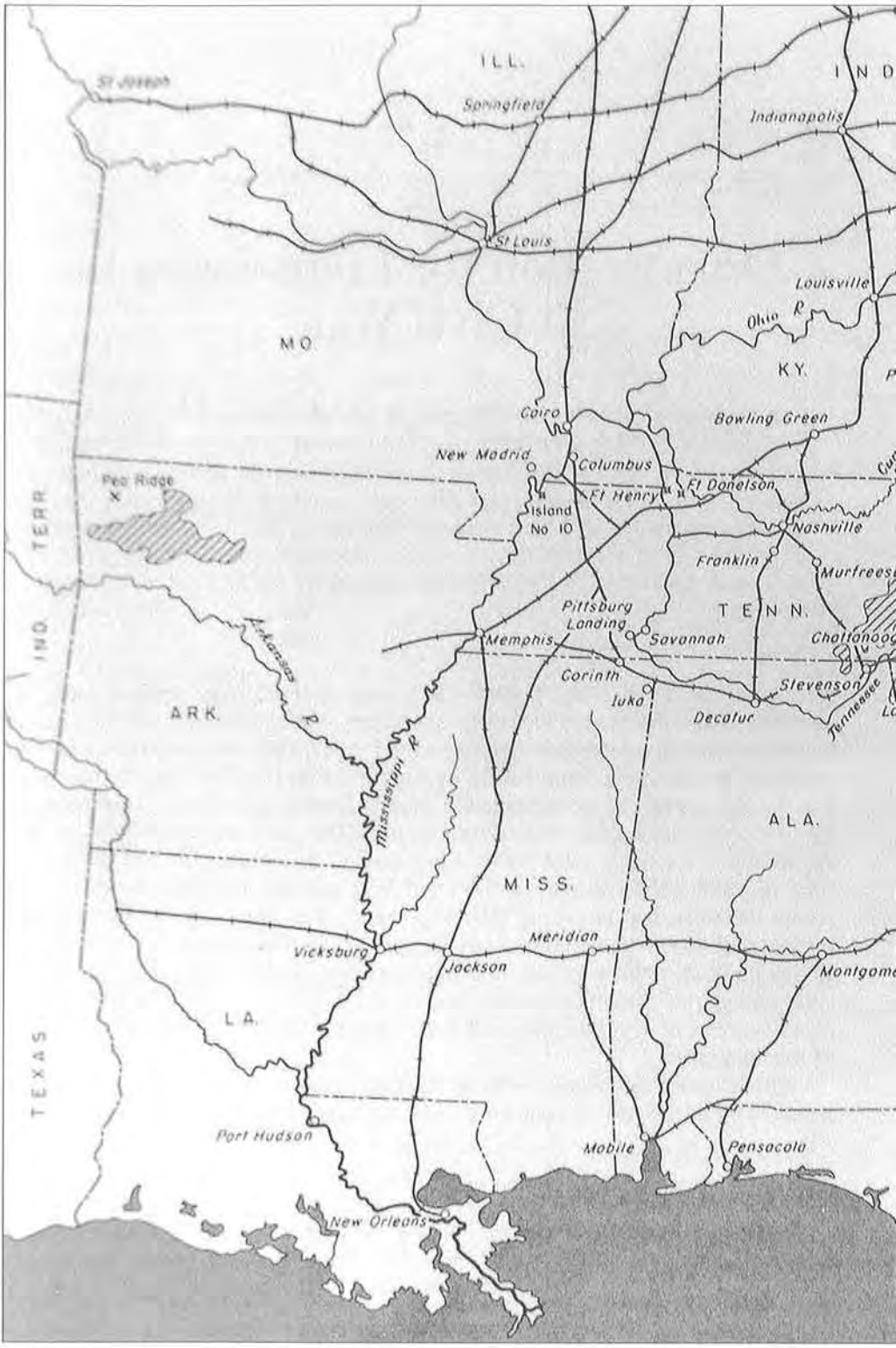
Organization for Logistics in the Civil War

Introduction. In this essay Charles R. Shrader outlines the organization for logistics of both the Union and Confederate Armies in the Civil War, focusing on the support of forces in the field. The variety of logistical support required and provided, logistical force structure and doctrine, and some of the key logisticians of the Civil War are discussed. The essay concludes with an evaluation of the Antietam campaign of 1862 from a logistical point of view and demonstrates the influence of logistics on tactical and strategic decisions.

The American Civil War of 1861–1865 was the first large-scale modern war involving a continent-wide theater of operations. The numbers of men and quantities of materiel involved were unprecedented as were the distances over which the opposing armies moved and had to be supported. In the first four months of the war the Union army alone expanded to twenty-seven times its pre-war strength and by 1865 over one million men were enrolled. The costs were enormous as well; expenditures for the United States Army passed $1 billion per year for the first time in 1864–1865. Moreover, the Civil War saw the increased application of recent technological advances in transportation and communications. Although tactical mobility remained limited to the pace of the foot soldier and the horse, the railroad and steamboat greatly improved strategic mobility. Similarly, battlefield communications remained limited by line of sight and range of sound, but the overall control of armies in the field was improved dramatically by widespread use of the telegraph.

The logistical problems posed by the Civil War at every level were many and varied. The intricacies of national policy, industrial and agricultural procurement

Reproduced with the permission of the U.S. Army War College Foundation from Charles R. Shrader, "Field Logistics in the Civil War," in Jay Luvaas and Harold W. Nelson, eds., *The U.S. Army War College Guide to the Battle of Antietam: The Maryland Campaign of 1862* (Carlisle, Pa.: South Mountain Press, 1987), pp. 255–84.


ILL.
Springfield
Indianapolis
St Louis
Louisville
Ohio R.
MO.
KY.
Cairo
Bowling Green
New Madrid
Columbus
Ft Henry
Ft Donelson
Island No 10
Nashville
Franklin
Pea Ridge
IND. TERR.
Pittsburg Landing
TENN.
Memphis
Savannah
Corinth
Iuka
Stevenson
Decatur
Arkansas R.
Mississippi R.
ARK.
ALA.
MISS.
Meridian
Vicksburg
Jackson
LA.
TEXAS
Port Hudson
Mobile
Pensacola
New Orleans


Pittsburg
Harrisburg
Carliste
Philadelphia
PA
Gettysburg
N.J.
Cumberland
Baltimore
OHIO
Winchester
WASHINGTON
DEL.
W. VA.
(1863)
MD.
Staunton
Fredericksburg
RICHMOND
VA.
Petersburg
Norfolk
Cumberland
Gap
Danville
Knoxville
Ft Clark
Ft Hatteras
N. C.
Wilmington
S. C.
Cape Fear
Savannah R.
Augusta
Charleston
Ft Moultrie
Ft Sumter
Macon
Savannah
GA.
Jacksonville
FLA.
THE CIVIL WAR
AREA OF OPERATIONS
HIGH GROUND ABOVE 1500 FEET
100
0
100
MILES

and distribution, and the detailed mobilization activities of the opposing governments as well as medical service have been discussed thoroughly elsewhere and need not detain us here. Less well-known are the details of how Civil War armies were actually supplied in the field and how the efficiency of such support, or the lack of it, influenced the outcome of battles, campaigns, and even the war itself. These are the details which we shall examine here.

Organization for Logistics

Civil War armies on both sides were forced to create or expand logistical stucture and to develop new procedures as well as the trained personnel needed to support widespread military operations of tremendous scale. For the North the problems were primarily ones of expansion and coordination. The South, of course, had to build an army and its necessary supporting sturctures from scratch. In general, the Confederates adopted the basic institutions of the pre-war United States Army and recast them in a Southern mold. In both cases the developments of efficient logistical support structures for the armies in the field required time as well as tremendous effort and expense. Confusion, failure, and waste preceded the emergence of lean and effective logistical organizations, and for the army of the Condederate States the overall lack of resources almost precluded the achievement entirely.

On 1 January 1861, the Regular Army of the United States consisted of 1,108 officers and 15,259 men organized into 19 regiments: 10 infantry, 4 artillery, 2 dragoon, 2 cavalry, and one of mounted riflemen. This army in the field was distributed in six geographical departments: East, West, Texas, New Mexico, Utah, and Pacific. The military department was the basic organizational unit for administrative and logistical purposes, and the commander of each department controlled his own logistical support with no intervening level between the departmental headquarters and the supply bureaus in Washington. During the war the number of departments increased, the boundaries changed, and it was not unusual to group several geographical departments under a military "division" headquarters.

In 1861 the highest level of the Army hierarchy, was occupied by President Abraham Lincoln, the Commander-in-Chief. Secretary of War Simon Cameron, who was to be replaced in January 1862 by Edwin M. Stanton, reported directly to the President and was responsible for the administration of the Army. There also existed an extra-legal General-in-Chief, Winfield Scott, who presumed to direct the field operations of the Army from his headquarters in New York City. The aged Scott was eventually replaced in turn by Generals George B. McClellan, Henry C. Halleck, and Ulysses S. Grant.

Reporting directly to the Secretary of War and responsible for various aspects of the Army's administration were the bureau chiefs or heads of staff departments: the Adjutant General, the Inspector General, the Paymaster General, the Judge Advocate General, the Chief of Engineers, and the Chief of Topographical Engineers. After the commencement of the war a Provost Mashal General was added. The logistical support of the Army was entrusted to the heads of the four

"supply" departments: the Quartermaster General, responsible for clothing and equipment, forage, animals, transportation, and housing; the Commissary General of Subsistence, responsible for rations; the Chief of Ordnance, responsible for weapons, ammunition, and miscellaneous related equipment including accoutrements; and the Surgeon General, responsible for medical supplies and for evacuation, treatment, and hospitalization of the wounded.

The division of authority and responsibility among the Secretary of War, the Assistant Secretaries of War, and the General-in-Chief was never clearly spelled-out, and the supply departments functioned independently and without effective central coordination throughout the Civil War. President Lincoln and Secretary of War Stanton did set up an Army Board, headed by retired Major General Ethan Allen Hitchcock, to coordinate military policy and provide military advice. However, the Army Board achieved little in the way of coordinated planning, and there was only the vaguest correlation of strategy and logistics until General Ulysses S. Grant assumed command of all Union armies in March 1864.

Both the passage of time and the new, strenuous, and urgent demands of the Civil War brought new men to the fore in the supply departments. Quartermaster General Thomas Sidney Jesup died in June 1860 after 48 years at his post. The next senior man in the department had been on duty since 1819 and was passed over in favor of Lieutenant Colonel Joseph E. Johnston. However, Johnston resigned in April 1861 and went on to become one of the senior Confederate generals. Major Ebenezer S. Sibley then served as Acting Quartermaster General until the appointment in May 1861 of Brigadier General Montgomery C. Meigs who served as Quartermaster General for the remainder of the war.

The other bureaus also changed heads at the beginning of the war and several times during its course. The aged Commissary General of Subsistence, Colonel George Gibson, died in September 1861. He was replaced by Colonel, later Brigadier General, Joseph P. Taylor who served until his death in June 1864. Taylor was followed by Brigadier General Amos B. Eaton. In the Ordnance Department Brigadier General James W. Ripley replaced ten-year veteran Colonel Henry K. Craig as Chief of Ordnance in April 1861. Ripley was replaced by Brigadier General George D. Ramsay in September 1863, and Ramsay was replaced in turn by Brigadier General Alexander B. Dyer in September 1864. The Surgeon General, Colonel Thomas Lawson, had held his position for 25 years before his death in May 1861. He was succeeded for eleven months by Colonel Clement A. Finley who was replaced in April 1862 by Brigadier General William A. Hammond. Hammond was courtmartialled on a minor charge and dismissed from the Army in August 1864, being succeeded for the last months of the war by Brigadier General Joseph K. Barnes.

The Confederate army developed a similar bureau system with a Quartermaster General, Commissary General of Subsistence, Chief of Ordnance, and Surgeon General responsible for the main logistical functions. The Confederates added a Chief, Niter and Mining Bureau, to oversee the production of raw materials needed for munitions. The lack of central coordination and political infighting was worse among Confederate leaders than with their Northern

counterparts. President Jefferson Davis, a succession of Secretaries of War, the supply department chiefs, and commanders in the field were seldom in accord on even the most basic issues. Their lack of cooperation and effective planning as well as often faulty execution was all the more serious in view of the precarious logistical situation of the South.

The Confederate supply departments had to be created from whole cloth and suffered throughout the war from a serious lack of experienced personnel. At the top the bureau chiefs were, in general, as capable and energetic as their Union counterparts. In some cases they had served in logistical positions in the pre-war United States Army. Colonel Abraham C. Myers, for example, was serving as Chief Quartermaster of the Southern Department at the time of his resignation from the United States Army in January 1861: two months later he became Quartermaster General of the Confederate States Army. Myers was replaced in August 1863 by Colonel Alexander R. Lawton. The eccentric Lucius Bellinger Northrup resigned his cavalry commission in the United States Army in January 1861 and was named Acting Commissary General of Subsistence for the Confederate States Army in March 1861. Colonel Josiah Gorgas, who had served in the United States Army Ordnance Department, was named Chief of the Bureau of Ordnance in April 1861 and was perhaps the most effective of the Confederate bureau chiefs, serving for the duration of the war. Major Isaac St. John was named Chief of the Niter and Mining Bureau upon its creation in April 1861 and served in that position until he was called upon to relieve Colonel Northrup as Commissary General in February 1865. The Confederate Surgeon General was Samuel P. Moore.

The supply departments of both armies remained seriously undermanned throughout the war, both at their headquarters and in the field. Field operations came to absorb the greatest numbers of available personnel. Before the war the supply departments had very few officers and noncommissioned officers in the field with troop units. The officers of the various supply departments were to be found almost exclusively in staff positions in Washington, at the permanent depots, or at the headquarters of the several geographical departments into which the Army was organized. The rank of these men was relatively low. Until 1864 most quartermaster, ordnance, and subsistence depots were commanded by captains who, despite their modest rank and meagre pay, had tremendous resources of men, money, and material under their control. There were a few exceptions, notably Colonel Daniel H. Rucker at the Washington Quartermaster Depot and Colonel George D. Ramsay at the Washington Arsenal.

The allocation of logistical personnel in troop units of the Union army varied depending upon the type, level, and size of the unit and whether it was a Regular Army or Volunteer organization. Infantry companies consisted of 82–100 men at full strength and were not authorized any logistical personnel, except that after 6 September 1862 Volunteer units were authorized a wagoner. Cavalry companies or troops ranged from 79–105 men and were authorized, in the Regular Army, two farriers, one saddler, one wagoner, and a company quartermaster sergeant. Volunteer units added a commissary sergeant and two teamsters. Artillery batter-

ies, both Regular and Volunteer, had 80–156 men and were authorized 2–6 artificers, a wagoner, and a battery quartermaster sergeant.

Infantry and cavalry units of the Regular Army were sometimes organized into battalions of four to eight companies. Infantry battalions were authorized a lieutenant as battalion quartermaster and commissary, a quartermaster sergeant, a commissary sergeant, and a hospital steward. Cavalry battalions were authorized the same personnel plus a saddler sergeant and a veterinary sergeant. Volunteer units did not follow the battalion organization and many Regular units dropped it as well.

Regular Army infantry regiments had ten companies and were authorized a lieutenant as regimental quartermaster/commissary. Volunteer infantry regiments were authorized a lieutenant as regimental quartermaster/commissary, a quartermaster sergeant, a commissary sergeant, a hospital steward, a surgeon, and two assistant surgeons. Regular and Volunteer cavalry regiments were authorized the same logistical personnel as their infantry counterparts, except that in Volunteer cavalry regiments one assistant surgeon was replaced by an additional hospital steward and there were added another lieutenant as regimental commissary, a saddler sergeant, and a chief farrier or blacksmith. Artillery regiments seldom operated as a unit, but each Regular and Volunteer artillery regiment of 8–12 batteries was authorized a lieutenant as regimental quartermaster/commissary, a quartermaster sergeant, a commissary sergeant, and a hospital steward. Most regiments were also authorized an ordnance sergeant who performed minor repairs on weapons and issued ammunition. In addition, units of regimental size and larger almost always had a line officer on the staff of the commander who served as the unit ordnance officer.

Above regimental level no distinction was made as to Regular or Volunteer units and the allocation of support personnel was the same for both infantry and cavalry units. After 11 July 1862 brigades were authorized a captain as assistant quartermaster and another captain as assistant commissary of subsistence. From the beginning of the war each division normally had a quartermaster, commissary, and ordnance officer as members of the commander's staff. However, it was not until 4 July 1864 that divisions were legally authorized a quartermaster in the temporary grade of major, and division commissaries of subsistence in the temporary grade of major were not authorized until 3 March 1865. The Militia Act of 17 July 1862 empowered the President to organize army corps and authorized one lieutenant colonel as Chief Quartermaster and another as Chief Commissary of Subsistence. At Army level a Chief Quartermaster was authorized in the temporary grade of colonel and after 3 March 1865 a Chief Commissary of Subsistence in the temporary grade of colonel was also authorized. In the absence of legal authorization the necessary functions were frequently performed by an officer detailed as aide-de-camp on the staff of the commanding general.

Most unit logistical work was accomplished at regimental level. The regimental quartermaster was normally a line lieutenant nominated by the regimental commander. His duties included submitting requisitions for all quartermaster supplies

and transport; accounting for all regimental quartermaster property including tentage, camp equipment, extra clothing, wagons, forage, and animals; issuing supplies; and managing the regimental trains. The regimental commissary, also an officer detailed from the line, requisitioned, accounted for, and issued rations. The regimental ordnance officer requisitioned arms, ammunition, and other ordnance stores, accounted for such items, and issued them to the troops. He also managed the movement of the unit ammunition train.

In theory, logistical staff positions at headquarters above regimental level were filled by a fully qualified officer of the supply department concerned. However, experienced manpower was perpetually in short supply and many authorized positions were filled by officers and noncommissioned officers drawn from line units or simply left vacant, the duties being performed by someone in addition to their own. Such was frequently the case in the Confederate army which had little time to build a cadre of professional logistical personnel. In both armies inexperience and ignorance of logistical principles and departmental procedures on the part of newly assigned quartermasters, commissaries, and ordnance officers generally reduced their effectiveness.

Although logistical staff officers were authorized, no provision was made in either army for soldiers to actually carry out the work. Specialized Quartermaster, Subsistence, or Ordnance units did not exist. There were some soldiers trained for quartermaster, commissary, ordnance, veterinary, and medical tasks as well as some signalmen and a few battalions of engineers, but for the most part both armies were forced to rely on hired civilians or line soldiers temporarily detached from their regiments to perform essential support duties. The urgent need for reliable support personnel usually overrode objections that the effectiveness of combat units was seriously diminished by the assignment of soldiers to other duties, and many line soldiers were so utilized.

The problem of finding sufficient men, either military or civilian, to perform necessary logistical tasks became acute as the Civil War armies expanded. One source of reliable service personnel for the Union Army was found in the large number of Negro "contrabands" (freed or runaway slaves) created in contested areas. Employed for 40–50 cents and one ration per day, they relieved soldiers and unreliable civilians from duties as teamsters, laborers, hostlers, ambulance drivers, and construction workers and often performed such duties better. However, there were never enough such workers. Of course, the Confederate armies made extensive use of Negro labor in various capacities without the necessity of payment to the individual. Requisitions upon slave owners for laborers was often necessary, but was considered onerous and decreased the amount of labor available for agricultural and other important purposes.

The obvious solution to the problem of finding adequate numbers of reliable support workers without drawing down combat units was to enlist and train men in units organized specifically to perform logistical missions. Just such a corps had been recommended by Assistant Quartermaster General Trueman Cross during the Mexican War. The dynamic of modern warfare was leading inevitably in that direction, and the Civil War did see the formation of some such special units. The

most successful of these units was the Railroad Construction Corps created in the Union Army under the direction of Brigadier General Hermann Haupt.

The Soldier's Load

The usual load for the Union soldier in the field was about 45 pounds, including a rifle-musket and bayonet weighing 14 lbs. and 60 rounds of ammunition (40 rounds in the regulation cartridge boxes and another 20 rounds in pockets or knapsack) weighing 6 lbs. Three to eight days of "marching" or "short" rations weighing 4–12 lbs. were carried in the haversack or knapsack. In addition, each soldier generally carried a canteen (4 lbs.), a blanket or overcoat (5 lbs.), and a shelter half (1.5 lbs.). Some soldiers also carried a rubberized poncho or ground sheet. Mess gear (knife, fork, spoon, cup, plate, and sometimes a small skillet), extra clothing. and a few personal items such as a razor, mirror, "housewife" (sewing kit), letters, notebook and pencil, Bible, and miscellaneous items were carried in the knapsack. The loaded knapsack usually weighed more than 20 lbs. and was habitually discarded when going into action. The Confederate soldier was usually less well-equipped and carried what little he had in the characteristic blanket roll slung over the shoulder. Veterans in both armies soon learned what items they could do without and carried only the bare minimum.

American soldiers on both sides were notorious for their lack of supply discipline. Every Civil War theater of operations was littered with discarded blankets, overcoats, knapsacks, and other equipment jettisoned by the troops on long marches, hot summer days, or before going into battle. Losses of knapsacks and other non-essential equipment were found after some battles to be as high as 50 per cent. Such profligacy early in the war provoked Brigadier General Irvin McDowell to comment: "I believe a French army of half the size of ours could be supplied with what we waste."

Arms and Ammunition

The supply of weapons, ammunition, and related equipment was a logistical problem of considerable magnitude for both sides in the Civil War. Arms and ammunition were produced in government arsenals, contracted from domestic producers, and imported from abroad. There were eventually 28 government arsenals, foundries, and armories in the North, producing weapons and ammunition. Between 1861 and 1866 Federal arsenals produced 7,892 pieces of artillery and some four million stand of small arms. Federal artillery fired some five million rounds during the course of the war, about four rounds per gun per day.

The Confederate ordnance establishment expanded quickly and eventually over 20 depots, laboratories, factories, armories, and arsenals supplied Confederate needs. However, only two factories produced heavy ordnance: the Etowah works near Atlanta and the Tredegar Iron Works in Richmond. Due to a lack of domestic production facilities the Confederates relied heavily on imports and on the capture of arms and ammunition from Union forces. At the beginning

of the war the Confederates seized from Federal arsenals in the South about 159,000 small arms of all types, 429 cannon, and some 4.5 million rounds of small arms ammunition as well as the gun-making machinery of the Federal arsenal at Harper's Ferry. Confederate armaments production was significantly less than that of the Union over the course of the war and Confederate leaders faced a constant struggle to meet the voracious demand for ammunition which amounted to some 36 million rounds of small arms ammunition and 300,000 rounds of field artillery ammunition per year.

Ammunition was shipped from arsenals and factories to ordnance depots and from there to railheads and advanced depots near the forces in the field. From advanced depots issues were made on the "supply point" distribution system. Unit ordnance officers requisitioned ammunition, loaded it on unit ordnance trains, and transported it to forward positions. When an artillery battery or infantry regiment needed ammunition, the commander ordered the ammunition wagons (sometimes pack-mules) to come up from the trains area as near as available cover and concealment would permit and the men then carried the ammunition forward to the guns or distributed cartridges to the infantry. Artillery units out of ammunition or with guns destroyed were usually pulled off the line to replenish the caissons and receive replacement weapons from the artillery reserve park. A ready supply of small arms ammunition usually accompanied the unit baggage train. Brigade and division ordnance trains marched under the direction of the unit ordnance officer who was expected to know the kind and caliber of ammunition in each wagon of his train so that there would be no delay in issues. Reserve ammunition was transported in the corps trains.

There was no universal standard for the amount of ammunition carried in the unit ordnance trains. Each commander prescribed the allowances he saw fit, and the quantities varied from campaign to campaign or even from battle to battle. The most common "basic load" for the infantry of the Union army in 1862 was 200 rounds per man. The soldier carried 40 rounds in his cartridge boxes and another 20 in his pockets and knapsack. The brigade or division ordnance train carried about 40 rounds per man and the corps ordnance train carried another 100. Cavalrymen usually carried 40 rounds for the carbine and 20 rounds of pistol ammunition.

For artillery the "basic load" varied with the type of gun. The standard ammunition chest for the 12-pounder held 32 rounds; that for the 3-inch ordnance rifle and the 10-pounder Parrott held 50. Each gun was accompanied by two limbers and a caisson. One ammunition chest was mounted on each limber and two chests were mounted on the caisson. Thus, there were four chests per gun, making 128 rounds for each 12-pounder or 200 rounds for each 3-inch ordnance rifle or 10-pounder Parrott. In 1862 the ordnance trains usually carried a supply of artillery ammunition equal to that carried in the ammunition chests of all the batteries. Thus, the "basic load" for the 12-pounder was 256 rounds and for the 3-inch ordnance rifle and 10-pounder Parrott 400 rounds. There was a standard proportion of each type of artillery ammunition (solid shot, shell, spherical case/shrapnel, or canister) to be carried, but in practice it varied according to the type of action anticipated or the whim of the commander, canister being generally favored in many cases.

Subsistence

The supply of subsistence for the Union army presented few major problems beyond those associated with greatly increased requirements and wide-spread military operations. For the Confederacy, however, despite adequate agricultural production, subsistence for the armies in the field remained a major problem throughout the war, primarily because of financial, manpower, and transportation deficiencies rather than any absolute lack of supplies.

United States troops were generally well-fed. The official 1861 Army ration [per para 1191, Revised United States Army Regulations of 1861] included:

20 oz. of salt or fresh beef or 12 oz. of pork or bacon
18 oz. of flour or 20 oz. of corn meal
1.6 oz. of rice or .64 oz. of beans or 1.5 oz. of dried potatoes
1.6 oz. of green coffee or .24 oz. of tea
2.4 oz. of sugar
.54 oz. of salt
.32 gill of vinegar

Peas, hominy, or fresh potatoes could be substituted, and bread, either soft or hard, was provided when possible in lieu of flour. Desiccated compressed potatoes or desiccated compressed mixed vegetables could be substituted for the beans, peas, rice, hominy, or fresh potatoes at fixed rates. In 1862 the ration scale was increased slightly and more dried vegetables were authorized. For planning purposes the weight of one ration was calculated as 3 lbs.

The normal "short" or "marching" ration for the Union army consisted of 1 lb. of hard bread (the famous "hardtack"), 3/4 lbs. of salt pork or 1/4 lbs. of fresh meat, 1 oz. of coffee, 3 oz. of sugar, and salt. Soldiers on the march were issued from 3–8 days "marching" rations which were carried by the men in haversacks and knapsacks or on the unit baggage trains.

Although satisfactory as to bulk, the army ration did not provide an entirely adequate diet by today's nutritional standards. It was woefully deficient in anti-scorbutics, particularly fresh fruits and vegetables, and to prevent scurvy Union troops were sometimes issued small quantities of onions, dried apples or peaches, pickles, or sauerkraut. Canned and dehydrated foods had been introduced in 1857, but "desecrated vegetables and consecrated milk" found little acceptance, the desiccated vegetables being as often smoked as eaten. Army rations were supplemented by foraging, packages (even barrels!) from home, and purchases from sutlers' stores.

The Confederate ration was basically the same as the Union ration, but with slightly more sugar and less meat, coffee, vinegar and salt. Molasses was issued when available. However, the official ration was almost never issued in full, and for the Army of Northern Virginia the meat portion was usually issued at half or three-quarters scale and coffee was seldom available unless captured from Union stores or exchanged "through the lines" for tobacco or sugar. Confederate soldiers were often compelled to live off the land, and during the Maryland campaign of 1862 they subsisted largely on green corn and apples.

Commissary purchases were made on the market by low-bid contract in the major cities and producing areas by the officers in charge of subsistence depots. Flour and some other commodities were provided closer to the troops when possible. Cattle were contracted for delivery at specified points, and major beef depots were maintained at Washington (on the grounds of the then unfinished Washington Monument), Alexandria (VA), and Louisville. Depot commissaries received in bulk and repacked for shipment to the field. The Subsistence Department developed a highly effective system of base, advanced, and temporary depots, and cattle were moved "on the hoof" in the immediate rear of the active armies.

Unit commissary officers requisitioned rations based on unit strength reports. Ration items were picked up by the unit trains at the nearest railhead or subsistence depot and delivered to forward locations where they were issued to the troops. Cattle were slaughtered by butchers at brigade level and issued on the day before expected consumption. There were no trained cooks assigned to units. Soldiers took care of their own cooking in small "mess" groups or suffered the culinary efforts, of their fellow soldiers detailed to mess duty on a company basis. Improper preparation of the ration was a major contributory factor in disease and discomfort among soldiers, and the lack of clean, potable water was often a greater problem than spoiled or improperly prepared food.

Clothing and Camp Equipment

Due to the rapid expansion at the beginning of the war both armies experienced great difficulties in obtaining adequate supplies of serviceable clothing and equipment. The Union army quickly brought the problem under control, but Confederate quartermasters continued to have difficulty throughout the war in providing sufficient clothing and other material, due primarily to a lack of domestic production and raw materials and the effectiveness of the Union blockade.

The standard annual issue of clothing for United States troops included: 2 caps, 1 hat, 2 dress coats, 3 pairs of trousers, 3 flannel shirts, 3 pairs of flannel drawers, 4 pairs of stockings, and 4 pairs of bootees. An overcoat was issued every fifth year and a blanket every third year. Artillerymen and cavalrymen were issued jackets instead of coats and boots instead of bootees. The annual clothing allowance amounted to $42.

Officially, the Confederate soldier was equally well-clothed. The standard issue of clothing on an annual basis for the Regular soldier of the Confederate States Army included: 2 blue flannel shirts, 8 pairs of gray flannel trousers, 6 red flannel undershirts, 8 pairs of cotton drawers, 6 pairs of woolen stockings, 4 pairs of boots, 2 blankets, 2 leather stocks, and 2 caps. The total cost of the Confederate clothing issue was $26.95. Volunteers supplying their own uniforms received an allowance of $21.00. In practice, the Confederate Quartermaster General was seldom able to supply the required items and Confederate soldiers wore whatever came to hand, the home-dyed "butternut" jacket and trousers being characteristic items.

Shoes were an especially important item. Confederate soldiers were frequently without them and it was not unknown for Union soldiers to suffer from want of adequate footgear. The severe straggling in the Army of Northern Virginia during the Maryland campaign of 1862 can be attributed in part to the lack of shoes. Between 12 September and 25 October 1862 Union quartermasters issued over 100,000 pairs of shoes and boots to soldiers of the Army of the Potomac.

For the first three years of the war the quartermaster purchasing system for the Union Army was decentralized. Depot quartermasters purchased by low-bid contract or, in emergencies, by "open market purchase" for the areas/armies for which they were responsible. In July 1864 a more centralized purchasing system was initiated and all contracts had to be forwarded to the Quartermaster General's office in Washington for approval. Payments were then made only at the direction of the division chief in Washington after receipt of an inspector's certificate. In an emergency, the chief quartermaster of an army or detached unit could procure supplies directly. From time to time both the Union and Confederate armies found it necessary to requisition supplies from citizens. Both armies did so reluctantly and carefully, paying in cash or vouchers for all goods taken. The Confederate quartermasters and commissaries were more frequently reduced to this expedient due to a lack of adequate supplies and the inadequacies of the Confederate railroads.

Both the Union and Confederate Quartermaster's Departments operated a number of depots located in major cities. Schuykill Arsenal in Philadelphia was the chief depot and manufacturing center for United States Army clothing. Other major quartermaster depots for the Union Army were located in Boston, New York, Baltimore, Washington, Cincinnati, Louisville, St. Louis, Chicago, New Orleans, and San Francisco. The Confederate Quartermaster General's Department was reorganized in the spring of 1863 with 11 purchasing districts (generally drawn along state lines) and a number of depots located near the areas of operations. Major Confederate quartermaster depots were located at Richmond, Staunton, Raleigh, Atlanta, Columbus (GA), Huntsville, Montgomery, Jackson (MS), Little Rock, Alexandria (LA), and San Antonio. Advanced and temporary quartermaster depots were established as needed to support active operations.

Clothing and other supplies were manufactured in-house or delivered in bulk to the major quartermaster depots, then reshipped to units in the field based on requisitions received from unit quartermasters. In some cases items were shipped direct from the factory to the field. Unit quartermasters received supplies at advanced depots or railheads, moved them to the units, and issued them. Company commanders were held responsible for the condition of their men's clothing and accoutrements and unit quartermasters were accountable for the unit's tentage and other camp equipment.

Tents were a major item of camp equippage for both sides but were often dispensed with during active operations in the field. No textile was in shorter supply during the Civil War than the canvas duck needed for tents, and tentage required large amounts of transportation. Frequently it was found necessary to issue strict

limitations of the tentage permitted to be carried on active operations. The pre-war Sibley tent, patterned on the Indian tepee of the Western plains, held 20 men. Two wagons were required to haul a company's allocation of such tentage. Early in the war the Union army introduced the so-called shelter half, or *tente d'Abri*, used by the French army. This became famous as the "pup tent", so-called because witty soldiers lay in the tent, stuck their heads out, and barked like dogs. The shelter half carried by the individual soldier was extremely versatile and could be used as a sleeping bag or as a lean-to. When buttoned with others it could form a two-man tent or larger structure. The shelter half still in use in the United States Army today is of the same basic pattern.

Horses and Mules

The supply of draft and riding animals was a responsibility of the Quartermaster General's Department in both armies. Horses and mules were the primary motive power for transport in the field and were used up on a grand scale. Between 1 September and 15 October 1862, the Army of the Potomac alone was issued over 10,000 horses. The leaner Confederate army as a whole consumed an average of 20,000 draft and artillery horses per year, only 5,000 of which were lost on active service, the remainder being lost through disease, starvation, abandonment, or sale. Once deprived of the major breeding areas in Tennessee, Kentucky, and Texas the Confederate army used up animals faster than they could be replaced by natural increase. Consequently, the Confederates were forced early on to exercise some central control over animal procurement and distribution. This function was performed by Major A.H. Cole, Inspector General of Field Transportation in the office of the Confederate Quartermaster General.

For the Union army there was no centralized procurement of animals at the beginning of the war and middlemen and brokers added to the cost with criminal collusion and deception. However, by the end of the war an efficient system for purchase, inspection, and distribution of horses and mules had evolved. Colonel Daniel H. Rucker, commander of the Washington Quartermaster Depot, developed a system of having cavalry officers purchase small lots of riding horses direct from owners in the stockraising areas for shipment to remount depots. On 28 July 1863, the Cavalry Bureau was created and made responsible for organizing and equipping cavalry forces and for providing remounts. Colonel James A. Ekin was made Chief Quartermaster of the Cavalry Bureau. The remount depot at Gisboro' in the District of Columbia was the principal eastern remount depot. It was supplemented by depots at Greenville (VA), Harrisburg, and Wilmington (DE). St. Louis and Nashville served the Union armies in the western theaters, the Nashville depot alone handling some 500 animal purchases per day in the first nine months of 1864.

Forage

Given the number of animals required by Civil War armies for riding and draft purposes, the quantities of forage required were enormous. Each horse required

daily 14 lbs. of hay and 12 lbs. of grain (oats, corn or barley). Each mule required 14 lbs. of hay and 9 lbs. of grain. No other commodity was so bulky or so difficult to transport.

Forage requirements represented a major portion of all transportation requirements. Pope's Army of Virginia in the summer of 1862 required 25,000 forage rations per day, 150 tons or over 18 railroad car loads of grain alone. In the winter of 1861–1862 the Army of the Potomac, then encamped around Washington and including some 15,000 horses and mules, had an extraordinary daily forage requirement of nearly 400 tons. In the winter of 1863–1864 the same Union army consumed some 37,000 bushels of grain and 1,050 tons of hay daily. The requirement for the entire United States Army at that time was some 2.5 million bushels of grain and 50,000 tons of hay per month.

The Confederate army had proportionate requirements, but suffered chronic shortages in the field due to a defective distribution system aggravated by frequent refusal of the Southern railroads to ship bulky forage. The two main Confederate field armies (the Army of Tennessee and the Army of Northern Virginia) required over 5,300 bushels of grain daily, the equivalent of 21 railroad carloads. The Army of Northern Virginia experienced particularly acute forage shortages in northern Virginia as early as May 1862, and such shortages had a direct effect on operations, weakening the animals and reducing the already strained transportation resources of Lee's army.

Transportation

The size and consequent daily resupply requirements of the field armies in the Civil War imposed enormous demands for transportation. For example, the Army of the Potomac on 1 October 1862 was composed of 127,818 men, 22,493 horses, and 10,392 mules plus 321 guns of mixed types. Some simple calculations using the standard planning factors give the Army of the Potomac's daily resupply requirement as 191.7 tons of rations, 411.9 tons of forage, and 63.9 tons of small arms ammunition, a total of 667.5 tons. Assuming that forage and rations for five days and full ammunition loads were carried, the trains would have included 290.6 tons of artillery ammunition, 894.7 tons of small arms ammunition, 958.6 tons of rations, and 2,059.6 tons of forage, for a total in the trains of 4,203.5 tons, or the equivalent of 3,503 wagon loads at 2,400 lbs. per wagon. Of course, these figures do not include the transportation required for necessary replacement weapons, clothing, camp equipment, or medical supplies. Nor do they include the wagons necessary for the movement of troop, officer, and headquarters baggage and tentage, forage for officers' horses, or sutler's stores. Of course, the total requirement was not uploaded all at one time, nor could it be; Chief Quartermaster Ingalls reported only 3,219 wagons and 315 ambulances on hand as of 1 October. In any event it is clear that a Civil War army, whether on the move or stationary, required an enormous amount of transport to maintain itself, and the support of multiple armies in the field on both sides during the Civil War was a gigantic undertaking involving all modes of transportation.

1. Water Transport

Both ocean and river transport were used extensively by both sides during the war. Union control of the Mississippi River and its tributaries as well as Eastern and Gulf coastal waters naturally limited the free use of water transport by the Confederates, but this relatively cheap and efficient means was employed whenever possible. The Quartermaster General's Department of both armies was responsible for obtaining and controlling waterborne transport. In the case of the Union army this function was partially vested in 1861–1862 in a General Agent of the War Department (later Assistant Secretary of War), John Tucker.

The Union army was able to move large numbers of men, animals, and supplies by sea. The most spectacular water movement of the Union army was the transportation by sea of the Army of the Potomac from Washington to Fort Monroe at the beginning of the Peninsula Campaign in March 1862. The move dwarfed anything done before and was not equalled during the war. With only a little over 5 weeks for planning and preparation General Agent Tucker, assisted by officers of the Quartermaster's Department, obtained some 400 vessels (113 steamers, 188 schooners, and 88 barges) and moved an army of 121,500 men, 14,592 animals, 44 batteries of artillery, and associated wagons, ammunition, and other equipment from Perryville (MD), Alexandria, and Washington to Fort Monroe with the loss of only eight mules and nine barges, the cargoes of which were saved. The embarkation began at Alexandria on 17 March and the movement was completed by 6 April. The army was subsequently resupplied by sea from Alexandria, Washington, Annapolis, New York, and Baltimore.

Steamboats and barges operating on major rivers were also important, especially in the western theater. The ordinary Ohio River steamer, carrying both passengers and freight, could lift 500 tons. Thus, one steamer could support 70,000 men and 20,000 animals for one day. In the East the older canal systems also played a role. The Chesapeake and Ohio Canal, for example, was used to support the Army of the Potomac in the fall of 1862 after Antietam.

2. Wagon Transport

The equipment and organization of wagon trains in both armies were the result of long experience on the western plains. Throughout the war commanders on both sides fought a constant battle to keep down the size of their wagon trains, particularly the regimental and headquarters baggage trains, and thereby improve the tactical mobility of their forces. In fact the size of trains, in the Union army at least, did decrease with each subsequent campaign. However, as General Halleck observed in November 1862: "Once accustomed to a certain amount of transport, an army is unwillng to do without the luxuries which it supplies in the field," and adherence to the limitations prescribed was frequently lax.

The standard 6-mule Army wagon in good condition could haul 4,000 lbs. on good roads in the best season of the year. However, such conditions were seldom found. The Army of the Potomac on the Peninsula seldom found it possible to

exceed 2,000 lbs. per wagon. The usual wagon load was about 2,400 lbs. including forage for the team. Lack of sufficient draft animals sometimes occasioned the use of 4-horse or 4-mule teams which could haul only about 1,800 lbs. The Confederates commonly used the smaller teams due to the scarcity of suitable draft animals. Ambulances, 2-horse wagons, spring wagons, and other conveyances were sometimes used as well. The standard Army wagon cost $125 and with six horses or mules at roughly $125 each the total cost came to about $900. Maintenance, including forage for the team, cost about $3 per day. By contrast, a railroad car cost $500, carried eight tons, and had relatively little upkeep.

Mules were preferred over horses as draft animals due to their lower cost, better endurance, and smaller forage requirement. American mule breeding was world famous, and British General Sir Evelyn Wood later recommended both the American mule and the American Wilson wagon for use in South Africa. The Union army used pack trains only to a limited extent in the main theaters during the Civil War. Pack-mules were tested by the Union army in the spring of 1863, particularly for ammunition trains, but the results were unsatisfactory. It was found that while a 6-mule team and wagon could haul 25 boxes of ammunition and forage for the team, six mules could pack only 12 boxes plus forage. The packmules could carry only 200–250 lbs. each, required more experienced handlers, and wore out quickly. However, for much of the war each corps in the Army of the Potomac carried 200 packsaddles (the *aparejo*) in the train and wagon mules were used, if necessary.

The rate of march of wagon trains varied from 12–24 miles per day depending on road conditions. Since ideal conditions were seldom found, the maximum of 24 miles per day was seldom achieved. The trains of the Army of the Potomac took over 24 hours to move the three miles from Malvern Hill to Harrison's Landing in the mud and rain of 2–3 July 1862. Each 6-mule team and wagon occupied a space of roughly 12 yards, thus a column of 800 wagons occupied road space of about 6–8 miles at normal interval in single column at an easy gait. A pack train of 25 mules took up about 75 yards at close interval.

Although there was no standard authorization for supply trains in 1862, both the Union Army of the Potomac and the Confederate Army of Northern Virginia issued orders restricting the allowance for baggage trains. General Order No. 153, Headquarters, Army of the Potomac, issued on 10 August 1862 while the army was still at Harrison's Landing, limited baggage trains to:

4 wagons for each corps headquarters
3 wagons for each division or brigade headquarters
6 wagons for each full regiment of infantry
3 wagons for each squadron of cavalry or battery of artillery

The allowances were to be reduced to correspond with the actual number of men present for duty and excess wagons were to be turned in. Officers' baggage was limited to blankets, a small valise or carpetbag, and a reasonable mess kit. The order also prescribed that the regimental and battery wagons were to be used to carry forage, cooking utensils, hospital stores, small rations, and officers' bag-

gage. One wagon per regiment was reserved exclusively for hospital stores and one wagon for grain for officers' horses. [*O.R.* XI, part 3, pp. 365–366]

Shortly after the battle of Antietam General Lee restated the allowances which he personally had fixed for the Army of Northern Virginia:

> 3 4-horse wagons for each division headquarters
> 2 4-horse wagons for each brigade headquarters
> 1 4-horse wagon for each regimental headquarters
> 1 4-horse wagon for each regiment's medical stores
> 1 4-horse wagon for each regiment's ammunition
> 1 4-horse wagon for every 100 men per regiment for baggage, camp equipment, rations, etc. [O.R. XIX, part 2, p. 641]

Other commanders at other times and places prescribed similar allowances.

While the size of supply trains, as distinct from unit baggage trains, varied according to the size of the force supported and the situation, there was a constant effort to keep the total number of wagons and teams as low as possible. Success was often measured by comparison with Napoleon's ideal ratio of 12.5 wagons per 1,000 men. General Grant generally allowed only 19 wagons for every 1,000 men on the march. General Sherman was noted for travelling light and moving fast, but he left Atlanta in November 1864 on the famous "March to the Sea" with 40 wagons for every 1,000 men of his command. The supposedly sluggish Army of the Potomac under General McClellan generally did better. At Harrison's Landing in July 1862 there were 26 wagons for every 1,000 men; at Antietam in September, 29 per 1,000; and at Warrenton in early November only 25 per 1,000.

The Confederates generally operated with a lower ratio of wagons to men, out of necessity rather than choice. Stonewall Jackson in the Shenandoah Valley in the spring of 1862 had only 7 wagons per 1,000 men. His opponents were not nearly so efficient; at the end of May 1862 Major General Nathaniel P. Banks reported 500 wagons for a force of only 5,500 men, a ratio of a whopping 91 wagons for every 1,000 men. Of course, Banks was no Napoleon either!

As the war went on the organization and operation of wagon trains became systematized and fairly efficient. Unit quartermasters were responsible for the unit baggage trains, which generally moved right behind the unit on the march with the unit's ready reserve of small arms ammunition marching first for ready access. The unit of organization for the supply trains of subsistence, ordnance, and forage was by division. The division quartermaster controlled the division's general supply trains and the division ordnance officer controlled the ammunition train. Division trains were sometimes grouped and moved by corps. During movements of the general supply trains the usual order of march was for the wagons containing small arms ammunition to come first followed by the wagons containing artillery ammunition, subsistence, and forage in that order. Sutlers' wagons brought up the rear. The wagons of the division and corps supply trains were also used to move supplies from advanced depots and railheads to smaller temporary dumps or train areas in the immediate proximity of the troops. During active operations the trains were guarded by cavalry or reserve infantry units detailed for that purpose.

By way of example, Confederate Major General D.H. Hill's division supply train (for about 5,800 men) immediately after Antietam consisted of 52 wagons: 22 for ammunition, 20 for subsistence, and 10 for forage. Hill also had a small baggage train of two wagons for each brigade headquarters and 6 wagons per regiment. In contrast, the supply train of the Union XII Corps (two divisions; 13,450 men) at Chancellorsville in April 1863 consisted of 192 wagons: 49 for small arms ammunition, 20 for artillery ammunition, and the remaining 123 for rations, forage, and general supplies. In addition there was a baggage train of 155 wagons.

Brigadier General Rufus Ingalls, Chief Quartermaster of the Army of the Potomac, and later of all the Federal armies operating against Richmond, was perhaps the most competent field quartermaster of the war on either side. Taking charge of the bloated and confused trains of the Army of the Potomac on the Peninsula, he streamlined and organized them into an efficient and effective logistical tool. He eventually developed a system for marking each wagon in unit baggage trains with the corps badge, division color, and number of the brigade to which it belonged. He also caused general supply wagons to be marked to indicate their contents, whether infantry or artillery ammunition, grain or hay, or one of the various types of ration items. As soon as a wagon was unloaded, it was sent back to the nearest depot for another load of the same commodity. General Grant praised the efficiency of the quartermaster corps of the Army of the Potomac in 1864, and Ingalls was the officer primarily responsible. In September 1863, Ingalls explained some of the principles by which he operated:

> In a forward movement our trains are never in the way of the troops; on the contrary each corps has its train which follows it on the march, and which forms its indispensable, movable magazine of supplies. Wagon trains should never be permitted to approach within the range of the battlefields. They should be parked in safe and convenient places out of risk, and well guarded. Troops should go forward to battle lightly loaded, and without wagons except for extra ammunition. If they are successful, the trains can be brought up very quickly; if defeated, they will find an unobstructed road, and will get back to their wagons soon enough. [Annual Report, Brigadier General Rufus Ingalls, Chief Quartermaster, Army of the Potomac, for the Fiscal Year ending 30 June, 1863]

3. Railroad Transport

In August 1861 General McClellan wrote to President Lincoln that, ". . . the construction of railroads has introduced a new and very important element into war. . ." The Civil War was indeed the first major conflict in which the railroad played a significant part, and an efficient railroad system proved a decisive advantage for the North. Even with a relatively large system to maintain the North successfully overcame the problems of properly coordinating and maintaining its rail

lines even in areas of active operations, although congestion in forward areas, detention of cars, and interference by field commanders with train movements decreased effectiveness.

The coordination and maintenance of a far more limited rail system was never successfully achieved by the South. Of 30,000 miles of railroad in the United States in 1860, only 9,000 lay in the future Confederacy and most of that ran North-South, feeding the Gulf and the Ohio River. There were no through connections between Virginia and the Deep South, the political and financial conditions of railroad construction in the South having dictated short, independent lines of varying gauge and broken at the cities. The South also possessed few railroad construction and repair resources. Nor were the existing facilities and resources used to their maximum extent. Confederate leaders were never able to summon the political courage needed to impose centralized control of the independent, and often recalcitrant, railroad owners. Inadequate railroads and the lack of means to improve them were important factors in the defeat of the Confederacy.

By contrast, on 31 January 1862 the President of the United States was authorized by law to take possession of and to operate any railroad as needed for the conduct of the war. Although President Lincoln formally took possession of all railroads in the United States on 25 May 1862, the Federal government never exercised its control option except in the conquered areas of the South, although Secretary of War Stanton did direct Brigadier General Hermann Haupt to seize and operate the inefficient Cumberland Valley Railroad in September 1862. Furthermore, on 11 February 1862 President Lincoln had appointed Colonel Daniel C. McCallum to head the Military Rail Road Service under the Quartermaster General, thereby centralizing the supervision and management of military rail operations.

To keep the Military Rail Road Service in operation in the face of active Confederate regular and guerilla forces a Railroad Construction Corps was formed and placed under the skilled direction of the noted railroad builder Hermann Haupt. Originally composed of only 300 soldiers, the Corps later grew to a mixed force of over 10,000 soldiers and civilians organized into standard units under military command and discipline. It was used to rebuild or repair track and bridges damaged by combat operations or guerilla action and eventually built or repaired some 1,769 miles of military railroad as well as wharves and other facilities at depots and along the lines of communication.

In early October 1863 the Orange and Alexandria Railroad was thoroughly destroyed by the rebels from Manassas Junction almost to Brandy Station, a distance of 22 miles. Haupt and his men repaired the line, including a 625 foot bridge over the Rappahannock River, in only 19 working hours. Their most spectacular achievement, however, occurred during Sherman's advance to Atlanta. The Etowah Bridge over the Etowah and Chattahoochie Rivers between Chattanooga and Atlanta—625 feet long and 75 feet high—was rebuilt by 600 men of the Railroad Construction Corps in only six days. The organization's fame was justly deserved and prompted the often repeated declaration of Confederates that "'ol Sherman carries a spare railroad runnel along with him."

Despite their success both the Military Rail Road Service and the Railroad Construction Corps were disbanded promptly at the end of the war. While not "pure" corps of enlisted combat service support specialists, both were in many respects the forerunners of the specialized men and units which the rapidly changing nature of war would require in the future.

Good management and a good system of repair permitted spectacularly successful railroad movements by the Union army. The usefulness of the railroad for emergency resupply was amply demonstrated during the Maryland Campaign of 1862, and the Union victory at Gettysburg in 1863 can be ascribed in part to the effective use of the railroads for bringing up men and supplies. The most dramatic Union rail movement occurred in the autumn of 1863 with the shift of the XI and XII Corps under Major General Joseph Hooker from the Army of the Potomac in Virginia to the Army of the Cumberland near Chattanooga. The move began on the afternoon of 25 September 1863 with trains routed from Washington via Jeffersonville (IN), Louisville, Nashville, and Chattanooga. They began to arrive on the evening of 30 September at Bridgeport, Alabama. Some 23,300 men, 10 batteries of artillery, 100 cars of baggage, and the associated animals and other equipment covered 1,192 miles in eleven and one-half days.

A Few Remarks on the Maryland Campaign of 1862

In many respects the Maryland campaign of 1862 is an ideal operation to examine from a logistical point of view. The campaign had logistical objectives and its outcome was in large part determined by the logistical strengths and weaknesses of the opposing sides. Conducted soon after the strenuous Peninsula campaign and the defeat of the Union army at Second Manassas, the Maryland campaign exhibits the logistical system of the Union army in the process of gelling and that of the Confederate army before it became unglued. Both sides faced serious specific problems of supply and transport. In addition, from the Union point of view at least, every possible mode of transportation was involved. Unfortunately, only a few highlights can be mentioned here.

When the Confederate Army of Northern Virginia crossed into Maryland in early September 1862 at least two of Lee's objectives were logistical in nature: to obtain supplies from a "liberated" Maryland and to cut the main east-west railway lines in Maryland and Pennsylvania thereby dividing the North. But Lee recognized that his army was in poor shape for such an undertaking. To President Jefferson Davis on 3 September he wrote: "The Army is not properly equipped for an invasion of an enemy's territory. It lacks much of the material of war, is feeble in transport, the animals being much reduced, and the men are poorly provided with clothing, and, in thousands of instances, are destitute of shoes." [*O.R.* XIX, part 2, pp. 590–591]

The Confederate logistical problem was made more serious by the distance from the proposed area of operations to the base in Richmond. Under even ideal conditions Confederate railroads were scarcely to be relied on, and at the time of the climactic battle at Sharpsburg Lee's army had only one railhead on the Virginia

Central at Staunton, 150 miles away. Advanced depots were established at Winchester and Staunton, but limited wagon transport made it imperative that Lee's men live off the country, particularly at the beginning of the campaign.

Arms and ammunition were of particular concern and the capture of Harper's Ferry on 15 September was a windfall for the Confederates. Nearly 12,000 stand of small arms, 73 pieces of artillery, 200 wagons, and large quantities of horses, mules, rations, ammunition, and other supplies fell into Confederate hands, too late, however, to influence the battle at Sharpsburg on 17 September. In any event Lee's ordnance officer, Lieutenant Colonel E. P. Alexander, managed to ensure that sufficient supplies of ammunition were available, even with the loss of Longstreet's trains to Union cavalrymen on the Hagerstown Pike on the night of 14 September.

Lee's hopes of obtaining significant supplies in Maryland were disappointed, and the day of battle found many Confederate soldiers exhausted from the marching and suffering from lack of food. Many did not make it to the battlefield at all, the want of shoes contributing to an enormous number of stragglers which, according to Major General D.H. Hill, reduced Lee's effective force to less than 30,000 men. Hill also noted:

> It is true that hunger and exhaustion had nearly unfitted these brave men for battle. Our wagons had been sent off across the river on Sunday, and for three days the men had been sustaining life on green corn and such cattle as they could kill in the fields. In charging through an apple orchard [Piper's] at the Yankees, with the immediate prospect of death before them, I noticed men eagerly devouring apples. [O.R. XIX, part 1, p. 1025]

Despite their poor condition the Confederate veterans of the Army of Northern Virginia acquitted themselves with honor.

On 17 September the main Confederate supply route crossed the Potomac near Sharpsburg by way of Blackford's (Boteler's) Ford. The Confederate trains were positioned during the battle in and around the western edge of the town of Sharpsburg, some being retained on the western bank of the Potomac. On the night of 18 September the entire Army of Northern Virginia with all its equipment recrossed the Potomac and moved slowly up the Shenandoah Valley toward the advanced depot at Winchester, looking to fight again another day.

At the beginning of October Lee broke up the depot of Winchester and moved his base still farther up the Valley to Staunton. Despite the best efforts of the Confederate quartermasters the army ended the campaign as it had begun, poorly clad and without shoes. On 7 November Lee wrote to Secretary of War George W. Randolph: "It has been snowing all day, and I fear that our men, with insufficient clothing, blankets, and shoes, will suffer much, and our ranks be proportionately diminished." [*O.R.* XIX, part 2, p. 702] Such was perpetually the case with the supply of the Confederate armies in the field.

The Army of the Potomac had a definite logistical advantage as it began the pursuit of Lee in early September. Although significant quantities of supplies and

transport were lost at Second Manassas and Harper's Ferry, the reserves of the Union Army were plentiful and the means existed to move them to where they were needed. From the Union point of view the area of operations was also well-served by transportation lines. The wagon haul from Washington to the Antietam was less than 100 miles over generally excellent roads. The Baltimore and Ohio Railroad served both Frederick and, after its recapture, Harper's Ferry, while the less efficient Cumberland Valley line terminated at Hagerstown. Thus, relatively good rail connections to both north and south were available no farther than 10–20 miles from the battlefield of Antietam. In addition, the Chesapeake and Ohio Canal was navigable as far up as Poolesville.

On 7 September McClellan established his camp at Rockville, Maryland, 14 miles from Washington. Union regiments and batteries mauled at Second Manassas or recently arrived from the Peninsula pushed through Washington during the first days of September without, as Colonel Daniel H. Rucker, commander of the Washington Quartermaster Depot, later wrote:

> . . . waiting for the supplies so urgently required, merely stopping while *in transitu* to draw such articles as were absolutely indispensable, and to turn in the almost worthless material with which they were encumbered. All were in haste, and for a few days the offices of the depot were thronged with division, brigade, and regimental quartermasters, each anxious that his particular wants should be first supplied and insisting upon the extreme urgency of the necessities of that portion of the army for which he was to provide, apparently forgetting that all shared the same ill-fortune. [O.R. LI, part 1, p. 1096]

At Rockville the troops were reorganized and re-equipped while McClellan tried to determine Lee's movements and intentions. Although all of the unit baggage trains had not yet arrived from the Peninsula, Lieutenant Colonel Rufus Ingalls, Chief Quartermaster of the Army of the Potomac, did a masterful job of organizing the available transport and found sufficient wagons and teams to supply the Army's needs.

On 11 September the Army of the Potomac moved north from Rockville on a course via Frederick which brought it to the battlefield of South Mountain on 14 September. Having driven the Confederates back across the Antietam Creek, McClellan failed to press Lee's forces on 15 September and wasted the following day probing for the enemy through a heavy fog and reorganizing his forces. His ordnance officer, First Lieutenant Francis J. Shunk, spent the day of 16 September redistributing and hurrying up ammunition. The next day, 17 September 1862, saw the bloodiest day in American military history as McClellan's army crossed Antietam Creek and attempted to dislodge Lee's forces from their defensive positions on the high ground before Sharpsburg. Unlike their Conferate counterparts, the Union soldiers arrived on the battlefield of Antietam well-fed and well-equipped, and they too fought with distinction.

The Union long-range guns in position near the Pry House did good work suppressing the fire of Confederate batteries and supporting the attacks of Union forces,

the 20-pounder Parrott batteries using up their available ammunition. In a singular demonstration of the value of the railroad as a means of supporting an army in the field 2,500 rounds of 20-pounder Parrott ammunition were rushed by special four-car train from the Washington Arsenal to Hagerstown in less than 18 hours, arriving shortly after noon on 18 September. Subsequently, the railroads were the primary method by which supplies were moved to the Army of the Potomac from Washington, Alexandria, Baltimore, New York, and other northern cities.

During the battle the Union supply trains were staged on the Boonsboro Pike near Keedysville and were protected by Fitz-John Porter's V Corps. They remained there for some time afterward. Advanced quartermaster and subsistence depots were established four miles south of Frederick on the east bank of the Monocacy River until the railroad bridge there was repaired on 22 September, then were moved into Frederick itself. Advanced depots were also opened at Hagerstown, at Harper's Ferry after its recapture and also, late in the campaign, at Berlin, Maryland. No advanced ordnance depot was established, all ammunition for the Army of the Potomac being supplied direct from the Washington Arsenal by wagon or by rail to railheads at Frederick, Hagerstown, and Harper's Ferry.

In the six weeks after the battle of Antietam McClellan, despite his advantage in men and materiel and the orders, pleas, and prayers of Abraham Lincoln, failed to aggressively pursue the Army of Northern Virginia. The Union army sat idle near Sharpsburg reporting a totally unexpected shortage of clothing, shoes, and camp equippage and a serious lack of serviceable horses brought on by overwork and an unexplained disease. Only rations, under the control of Chief Commissary Colonel Henry F. Clarke, appear to have been plentiful. When prodded to move forward, General McClellan replied, with some justification, that he was not in a position to do so until his forces were better equipped. When the Army of the Potomac finally was ordered to cross the Potomac in pursuit of Lee on 6 October, Chief Quartermaster Ingalls reported that the:

> . . . army was wholly deficient in cavalry and a large part of our troops were in want of shoes, blankets, and other indispensable articles of clothing, notwithstanding all the efforts that had been made since the battle of Antietam, and even prior to that date, to refit the Army with clothing as well as horses. [O.R. XIX, part 1, p. 74]

The supply departments in Washington and the quartermasters and commissaries with the army in the field worked together feverishly to supply McClellan's wants. Between 12 September and 25 October Union quartermasters issued to soldiers of the Army of the Potomac over 100,000 pairs of shoes and boots as well as some 93,000 pairs of trousers, 120,000 pairs of stockings, 97,700 pairs of drawers, 10,000 blankets, and 33,100 shelter halves. Between 1 September and 15 October more than 10,000 horses were issued, Quartermaster General Meigs balked at only one item. On 20 October he telegraphed Ingalls: "Horse-covers are not an article of supply under the regulations, and I doubt very much the propriety of encumbering our already overloaded cavalry with one thousand heavy horse-covers to a regiment." [*O.R.* XIX, part 2, P. 504]

Except in the case of horses and mules, the problem was not so much insufficient supply as it was congestion on the railroads, especially the inefficient Cumberland Valley line to Hagerstown. Brigadier General Hermann Haupt was directed by the Secretary of War on 18 September to do what he could to facilitate the movement of military supplies over the available lines. For the next month the energetic Haupt coordinated with quartermasters and railroad officials, personally directed traffic and the unloading of cars, and generally succeeded in bringing order out of the chaos created by massive and urgent rail movements.

By the time the Army of the Potomac began its move south into Virginia in early November the lessons learned by commanders and staff officers were at last beginning to pay off. The shift of the Army's line of communication to the Manassas Gap and Orange and Alexandria Railroads south of Washington proceeded rapidly and without the confusion which had marked the beginning of the campaign in Maryland. The relief of General McClellan by Major General Ambrose E. Burnside on 7 November brought the Maryland campaign of 1862 to an end. Unlike the Army of Northern Virginia, the Army of the Potomac ended the campaign in much better shape logistically than it had begun it. Effective procedures and experienced logistical leaders had evolved and henceforth the support of the Army of the Potomac would only continue to improve. The confusion attendant with all active operations would, of course, never be entirely eliminated, but Ingalls, Clarke, Shunk, and the other logisticians would never again be daunted by the magnitude and complexity of their task, if indeed they ever had been.

McClellan's failure to pursue the Army of Northern Virginia aggressively after Antietam and to destroy it once and for all has been a much debated topic. McClellan was no doubt a hesitant and overcautious commander, but the degree to which his caution was induced by real constraints of logistics, as opposed to exaggerated fears of the strength and ability of his opponent, has never been accurately measured. It is obvious that the Army of the Potomac faced serious problems of supply in the month after Antietam. The want of clothing and equipment occasioned by overloaded rail lines, coupled with a serious lack of serviceable horses, was certainly good reason for postponing an all-out advance. But in the last analysis these relatively minor problems may not have been sufficient reasons for failing to pursue the Confederates, who, after all, were suffering from crippling defects in both supply and transportation. In any event McClellan should have recognized that his relatively superior logistical situation gave him an advantage which his opponent simply did not enjoy—an advantage which might even have decided any further engagements between the Union and Confederate forces in northern Virginia in the fall of 1862 in favor of the Union cause.

Conclusion

Superior Union army logistics, or rather defective Confederate logistics, came close to deciding the contest at Antietam. The irascible Confederate Major General D.H. Hill opined that the battle of Sharpsburg would have been a glorious victory

for the South but for three causes: 1. the separation of Confederate forces; 2. the bad handling of Confederate artillery; and 3:

> "the enormous straggling. The battle was fought with less than 30,000 men. Had all our stragglers been up, McClellan's army would have been completely crushed or annihilated. Doubtless the want of shoes, the want of food, and physical exhaustion had kept many brave men from being with the army; but thousands of thieving poltroons had kept away from sheer cowardice." [O.R. XIX, part 1, P. 1026]

In short, the outcome of the Maryland campaign of 1862 turned in large part on the strengths and weaknesses of the logistical system supporting each of the opponents. For the Army of Northern Virginia the major defect was an inadequate quantity of food, clothing, and other equipment compounded by scarce and inefficient transport. On the other hand, the Army of the Potomac did not face an actual want of supplies, and such difficulties as existed during the campaign can be attributed primarily to problems of managing the transportation of enormous amounts of supplies by railroad. But perhaps the real advantage for the Union army during the Maryland campaign and throughout the war was a corps of energetic and innovative logisticians working to overcome the many and complex problems of supporting a modern army in the field.

While the tactical and strategic lessons of the American Civil War were generally ignored by European military experts, the great development of logistical support for the American armies in the field did attract considerable attention in the late nineteenth century. Many European military commentators recognized the difficulties and achievements of Union and Confederate logisticians. Only more recently have we ourselves come to understand that the supplying of Civil War armies was as great a task as their enlistment and maneuver and that it brought forward men who in their own areas of expertise were the equals of Grant, Sherman, and Lee.

25

Confederate Logistics and Strategy

Introduction. In this brief excerpt from the first chapter of his excellent study of Confederate logistics, historian Richard D. Goff reviews the details of inadequate Confederate logistical arrangements before, during, and after the first Battle of Manassas and notes that the problems of supply and transport encountered by the Confederates in the first Manassas campaign would characterize their logistics for the remainder of the war. Goff also offers the opinion that the Confederate failure to press forward aggressively against inferior Union forces after winning the Battle of Manassas was a function of real and perceived logistical inadequacies. The Confederacy's first, last, and only real chance for victory and independence is often said to have occurred in the aftermath of Manassas and thus the impact of logistics on strategy and the ultimate outcome of the war is stressed.

The Manassas campaign presented an acid test of the Confederate supply system. For one thing, Manassas provided a portent for the future, for it revealed in microcosm many of the supply problems that would continue to plague the Confederate supply effort for years to come. In addition, the supply situation at Manassas affected the prospects of the Confederacy's capturing Washington and thus winning a short war.

By the first of June the War Department and the supply bureaus had set up their offices in Richmond, closer to the scene of impending battle and closer, also, to the multiplying evidences of confusion, inefficiency, and general inadequacy in preparing the volunteers for field operations. Troops had been collecting near Manassas and in the Shenandoah Valley since May, and by June over 30,000 men were encamped, many without sufficient arms, ammunition, and clothes, or regular food supplies.[74] Pungent comments on the condition of the troops abound, but Colonel Edmund Kirby Smith's statement that his men were "so illy provided with everything from arms to clothing that they are scarcely efficient to take the field" suffices.[75] Colonel James Chesnut, the prominent South Carolina politician, bespoke the common conclusion: "The opinion prevails throughout the army that there is great imbecility or shameful neglect in the War Department."[76]

Reproduced with the permission of Duke University Press from Richard D. Goff, *Confederate Supply* (Durham, N.C.: Duke University Press, 1969), pp. 19–23.

In reality the causes for the failure of supplies were not as morbidly romantic as imbecility or shameful neglect. The causes were prosaic—inadequate supplies and inexperienced administrators. The railroad system, which funneled into a single track leading to Manassas, was unable to carry all of the volunteers, their mountains of impedimenta, and their daily food supply; and as a result, food and ammunition piled up at depots all along the way. Meat was weeks in coming from Tennessee, while flour and ammunition piled up at Fredericksburg.[77] At Manassas the military complicated matters by retaining freight cars as storehouses instead of unloading them and putting them back into service.[78] Even if the railroad system had been adequate, the Ordnance Department did not have enough ammunition to pass out more than fifty to seventy rounds per man.[79] Despite the volunteers' anxious determination to look the part of a soldier, the Quartermaster's Department could not supply enough uniforms and boots; and the soldiers who had not been able to procure clothing and boots from home markets or from their state governments had to be content with their own civilian togs and shoes. Tents, blankets, and camp and garrison equipage were unavoidably in short supply. Food rations did not match those called for in the manuals, because vegetables, sugar, coffee, vinegar, and soap could either not be found in the quantities needed or could not be regularly shipped in from across the country. The troops soon had to content themselves with a monotonous diet of corn meal, flour, bacon, and beef.

The melancholy situation of inadequate resources was compounded by administrative inexperience and inefficiency. Most of the field officers and supply officials were new to their tasks and committed many errors, usually errors of omission. In particular, the supply officers in the field were either negligent of or unfamiliar with proper requisitioning procedures and kept the bureau officials in Richmond in ignorance of the nature and quantities of supplies needed by the men. The field quartermasters and commissaries also distributed the available supplies unequally, with the result that some units missed whole days of being fed, while supplies rotted at the depots for lack of proper storage facilities.[80] The quartermasters and commissaries attached to the field units were ostensibly appointed and controlled by their bureau chiefs in Richmond, but they were actually selected by the commanding officers of the units and felt a loyalty and responsibility to their field commanders rather than to the Richmond administrators. At the lower levels, this divided loyalty made little practical difference in comparison with the general inexperience in requisition and distribution; but in the higher echelons it bred trouble. On occasion, Myers and the chief army quartermasters clashed over transportation and storage policy. However, the most serious controversies occurred between Northrop and the chief commissaries of commanding generals P. G. T. Beauregard and Joseph E. Johnston, Captain W. H. Fowle and Colonel R. B. Lee. Both Fowle and Lee were ordered by their commanders to buy locally to feed the men. Northrop, interested in controlling prices, forbade them to buy locally and asked them instead to depend on supplies from Richmond. Northrop was supported by Davis in his endeavors and eventually succeeded in getting both subordinates removed.[81] Before Lee was removed, however, he had the satisfaction of seeing railroad transportation difficulties force Northrop to abandon his idea of

shipping all food from Richmond and to allow the field commissaries to buy supplies in the vicinity.

To complicate matters, Johnston and Northrop clashed over the diet of the men. Regulations called for the issue of bacon three or four times a week, but transportation difficulties delayed shipping the bacon in from Tennessee, where the Subsistence Department was getting the best prices. As a result, the commissaries issued bacon only one or two times a week and the rest of the time supplied the men fresh beef from the herds of cattle gathered in the vicinity of the camps.[82] The "fresh" meat, however, because of delays in slaughtering and in local transportation and field distribution, was often spoiled before it reached the troops. In addition, many of the men did not know how to cook beef properly.[83] Johnston complained about the shortage of bacon, and ex-medic Northrop, ever the theoretician, replied, "The experience of mankind, confirmed by scientific research, proves that a diet of fresh meat exclusively is conducive to health and that an admixture of salt meat is not more so."[84] And so it went, both before and after the battle.

When the men marched out to fight on July 21, according to the military manuals they were already beaten. They had neither the ammunition, clothing, nor diet to be effective. Thus, from the very first battle many soldiers, officers, and supply officials learned to disregard traditions and manuals. On the other hand, too many commanders, dismayed in their very first campaign by supply shortages, became reluctant to fight unless their armies were supplied up to traditional standards. Perhaps this was why Joseph E. Johnston proved to be so cautious during the war. Who should be a better judge of what an army needed to fight and win than the former Quartermaster General of the United States Army?

The Confederates won the battle of Manassas in spite of supply deficiencies, but the unsatisfactory supply situation may have contributed vitally to the failure of the Confederacy to follow up the victory, capture Washington, and win the war. On the evening of the battle, Davis advised immediate pursuit; but the generals, probably impressed by the disarray of their own men, evaded compliance, and a rainstorm during the early hours of the next morning ended the matter for the moment.[85]

There is little evidence of what was proposed or discussed concerning pursuit during the next few days. Apparently Beauregard wished to advance in early August, but Johnston did not wish to make the attempt. If Johnston did veto Beauregard's idea, the state of supplies may well have been a factor; for the shipments of bacon and hard bread had become even more erratic than before the battle, while both the infantry and the artillery were short of wagons and teams.[86]

The glittering temptation of an advance on Washington lingered on into the autumn. In a conference at Fairfax Court House on September 30 and October 1, Davis listened as generals Johnston, Beauregard, and Gustavus Smith unfolded a plan to take the offensive. The plan involved crossing the Potomac while a covering force remained in the original works to distract the enemy. The generals said such an operation called for an increase in the forces at Manassas from the current force of 40,000 men to 60,000. The additional 20,000 would be obtained by with-

drawing regular forces from the west and from other points and allowing reserves to take the places of the temporarily departed troops.[87] Davis objected that he could not, presumably for political reasons, withdraw regular troops from other parts of the Confederacy to reinforce the Manassas army, and he also noted that there were no arms to equip new men above the 2,500 arms in the current army reserves.[88] The generals were unwilling to advance with the 40,000 men they had, and so the troops continued to sit in camp until the following spring.[89] Those military experts who feel that 60,000 men could have captured Washington and who also feel that this was the Confederacy's only opportunity to win can thus blame the supply situation for the downfall of the Confederacy, for even if the President had been willing to transfer regular troops to Virginia, there were no arms available to supply the reserves. The abandonment of the "on to Washington" scheme is the first, and quite possibly the most important, instance of the manner in which supply deficiencies shaped strategy.

Notes

[74] Alfred Roman, *The Military Operations of General Beauregard in the War between the States, 1861 to 1865, Including a Brief Personal Sketch and a Narrative of His Services in the War with Mexico, 1846–8* (2 vols.; New York, 1883), I, 93, 113. Cited hereinafter as Roman, *Beauregard*.

[75] Kirby Smith to Mrs. Kirby Smith, June 2, 1861, Edmund Kirby-Smith Papers, Southern Historical Collection, University of North Carolina.

[76] Chesnut to Mrs. Chesnut, June 22, 1861, Mary Boykin Chesnut, *A Diary from Dixie, As Written by Mary Boykin Chesnut, Wife of James Chesnut, Jr., United States Senator from South Carolina, 1859–1861, and Afterward an Aide to Jefferson Davis and a Brigadier-General in the Confederate Army*, ed. Isabella D. Martin and Myrta Lockett Avary (New York, 1929), pp. 75–76. Cited hereinafter as Chesnut, *Diary from Dixie*.

[77] Northrop to Davis, Aug. 21, 1861, Rowland, *Jefferson Davis*, V, 127–128; Myers to Ashe, July 18, 1861, QMDLS, XIII, 313.

[78] Northrop to Davis, Aug. 21, 1861, Rowland, *Jefferson Davis*, V, 128.

[79] Vandiver, *Confederate Ordnance*, p. 75.

[80] Beauregard to Miles and Chesnut, July 29, 1861, Roman, *Beauregard*, I, 121; Northrop to Davis, July 21, 1861, Rowland, *Jefferson Davis*, V, 124–127.

[81] Roman, *Beauregard*, I, 72; Northrop to Davis, July 21, 1861, Rowland, *Jefferson Davis*, V, 127–128.

[82] Northrop to Davis, Aug. 21, 1861, Rowland, *Jefferson Davis*, V, 124–127.

[83] *Ibid.*

[84] *Ibid.*, p. 126.

[85] Roman, *Beauregard*, I, 114–117.

[86] *Ibid.*, pp. 125–126.

[87] The statements of Johnston, Beauregard, and Smith relating to this conference are found in *OR*–1, V, 884–887. See also Roman, *Beauregard*, I, 137–139, 142–145; Gustavus W. Smith, *Confederate War Papers* (New York, 1884), pp. 14–20, 33–36; Joseph E. Johnston, *Narrative of Military Operations, Directed during the Late War between the States* (New York, 1874), pp. 74–77, cited hereinafter as Johnston, *Narrative of Military Operations*; cf. Jefferson Davis, *The Rise and Fall of the Confederate Government* (2 vols.; London, 1881), I, 449–451.

[88] *Ibid.*

[89] *Ibid.*

26

Quartermaster Operations in the Eastern Theater

Introduction. Brig. Gen. Rufus Ingalls was Chief Quartermaster of the armies commanded by Maj. Gen. U. S. Grant. In his official report for the fiscal year ending 30 June 1864, he outlines the logistical support of the Union armies in the Gettysburg, Wilderness, Chancellorsville, and Petersburg campaigns of 1863–1864. Also included as inclosures are Ingalls' report for the fiscal year ending 30 June 1863, covering the Peninsula, Antietam, and Fredericksburg campaigns; General Grant's Special Order No. 44 of June 28, 1864, prescribing allowances of transportation for his armies; and the responses of General Ingalls to a series of questions on logistical support of Grant's armies. Taken together the pieces in this selection provide an excellent overview of the operations of the Quartermaster Department in support of the Union Army in the Eastern Theater for the major part of the Civil War.

OFFICE OF THE CHIEF QUARTERMASTER,
ARMIES OPERATING AGAINST RICHMOND, VA.,
City Point, Va., August 28, 1864.

GENERAL: In compliance with your General Orders No. 29, of the 6th ultimo, calling for an annual report for the fiscal year ending June 30, 1864, I have the honor to submit the following:

As my last annual report was submitted on the 28th of September, 1863, during your absence in the field, and, so far as I have learned, not made of any par-

---

Reproduced from the annual report of Brig. Gen. Rufus Ingalls, Chief Quartermaster, Armies Operating Against Richmond, for the fiscal year ending June 30, 1864, dated City Point, Virginia, August 28, 1864, with inclosures, in the *Annual Report of the Quartermaster General of the United States Army to the Secretary of War for the Fiscal Year Ending June 30th, 1864* (Washington, D.C.: Government Printing Office, 1864), pp. 31–47. [Also found in *Annual Report of the Secretary of War for the Fiscal Year Ending June 30th, 1864*, House Executive Document no. 83 (Washington, D.C.: Government Printing Office, 1864), pp. 146–67.]

ticular service or reference by the officer acting as Quartermaster General at the time, and as it contains all material information relative to the organization and operations of the quartermaster's department in the army of the Potomac, with some useful statistical facts which will much reduce the length of this report, I herewith enclose a copy, marked 1.

Gettysburg Campaign.

It will be observed, by reference to page 8 of the accompanying report, that I was with the headquarters of the army of the Potomac at Taneytown, Maryland, on the 30th of June, 1863.

On the 1st of July the headquarters remained at that point, while the army was being concentrated at Gettysburg. The 1st and 11th corps opened the great battle of Gettysburg on that day. The wagon trains and all impediments had been assembled at Westminster, on the pike and railroad leading to Baltimore, at a distance of about twenty-five miles in rear of the army. No baggage was allowed in front. Officers and men went forward without tents and with only a short supply of food. A portion only of the ammunition wagons and ambulances were brought up to the immediate rear of our lines. This arrangement, which is always made in the army on the eve of battle and marches in presence of the enemy, enables experienced and active officers to supply their commands without risking the loss of trains, or obstructing roads over which the columns march. Empty wagons can be sent to the rear and loaded ones or pack trains brought up during the night, or at such times and places as will not interfere with the movements of troops.

On this campaign from the Rappahannock to the James our trains, large as they were, necessarily being over 4,000 heavy wagons, never *delayed* the march of a column, and, excepting small-arm ammunition trains were never *seen* by our troops. The main trains were conducted on roads to our rear and left, without the loss of a wagon.

On the morning of the 2d of July I arrived at Gettysburg, and was present during the battle which resulted so favorably to our arms.

Arrangements were made to issue supplies at Westminster, brought over the "Branch road" from Baltimore, and at Frederick by the Baltimore and Ohio railroad. Telegraphic communication extended from these points to Baltimore, Washington, &c., and our army communicated every third hour with them by means of relays of cavalry couriers. Ample supplies of forage, clothing, and subsistence were received and issued to fill every necessary want, without, in any instance, retarding military movements. All stores thrown forward over these routes, and not issued, were returned to the main depot at Washington, and again forwarded on the Orange and Alexandria railroad after the army had crossed to the south side of the Potomac.

After the retreat of the rebel army from Gettysburg, General Meade, on the 6th of July, ordered the concentration of the army of the Potomac at Middletown on the evening of the 7th. The trains were directed to join their respective corps; all those that were at Westminster to pass through Frederick to enable them to fill up with supplies. The headquarters were in Frederick the night of the 6th.

The army moved from Middletown, on the 9th, to the vicinity of Boonsboro'. The "order of the day" directed that "no trains but ammunition wagons, medical wagons and ambulances should accompany the troops. Supply and baggage wagons were to be parked in the Middletown valley, on the roads taken by their respective corps. No special guards were to be left with the trains. Every man able to do duty was required to be in the ranks."

It was here known to the general commanding that the enemy had not crossed to the south bank, as has been rumored, but was in force and entrenched on the north bank from Williamsport to Shepherdstown. Hence the precautions in regard to the trains and preparations for battle.

On the 10th, 11th, 12th, and 13th the army of the Potomac was engaged in taking up positions in front of the enemy and in making reconnoissances.

During this time the trains remained in Middletown valley. Our headquarters were on the Antietam upon the road from Boonsboro' to Williamsport.

The army was kept supplied with all that was absolutely essential, and nothing more. At our headquarters, for example, we only had a few tent flies, blankets, a few small portable paper cases, and two or three days of cooked food.

On the night of the 13th the rebel army crossed into Virginia. This fact was well established in the mind of the general commanding the army of the Potomac by 12 o'clock on the 14th. He issued orders on that day, moving the army on the 15th as follows: "The 12th and 2d corps to move via Donnsville, Bakersville, Merersville, Sharpsburg, the Antietam Iron Works, and encamp in Pleasant Valley, near Harper's Ferry. The 5th and 1st corps by Williamsport and Boonsboro' road, via Jones's Crossroads; thence to Keedysville by the road between the Sharpsburg pike and the Antietam to Keedysville; thence through Fox's gap to Burketsville, by the road nearest the mountains, (the shortest road,) and thence to Berlin. The 6th and 11th corps, via Funkstown and Boonsboro', through Turner's gap, to Middletown, and thence to Petersville and Berlin. The reserve artillery to move by way of Boonsboro' pike, through Turner's gap, to Middletown, and thence to the vicinity of Berlin by Petersville, to take precedence as far as Middletown, after which to march between the 6th and 11th corps. The trains to join their respective corps at their camps in the vicinity of Harper's Ferry and Berlin. The corps to move in the order named, and the corps in advance to march at early daylight, and to be followed by the next corps when the road is clear. Headquarters to be at Berlin on the night of the 15th."

I have indicated this movement or the 15th *in detail*, in order to exhibit in this report the usual manner of moving a large army, and concentrating it at a particular point.

On the 16th orders were issued to the army to replenish its supplies from the depots which I had established at Berlin, Sandy Hook, and Harper's Ferry, and to be quickly prepared to continue the march with three days' cooked rations in haversacks, three days' hard bread and small rations in regimental wagons, and, in *addition*, two days' salt meat and seven days' hard bread and small rations in the wagons of the supply trains. The army was here supplied with clothing, fresh horses and mules. Our lines of supply were the Chesapeake and Ohio canal and

Baltimore and Ohio railroad. The supplies furnished here were expected to answer until we could reach the Manassas gap road, at Gainesville and White Plains, and the Warrenton branch, at Warrenton.

The 3d and 5th corps having crossed into Piney Run valley, near Lovettsville, the rest of the army followed on the 18th and 19th. The 2d and 12th corps crossed at Harper's Ferry, and the 1st, 6th, and 11th corps, artillery reserve, and headquarters at Berlin, each command followed by its own trains. The rearguard of the cavalry crossed at both points, after the 6th and 12th corps.

It will be seen by reference to page 6 of my last report, that General McClellan made the passage of this river at the same points, with the same army, marching in the same direction, in pursuit of the same enemy, on the last of October and 1st of November the preceding year.

General Meade pursued the same routes, as far as Warrenton, as were taken by the army in November, 1862. Some of his corps deviated somewhat, and made demonstrations at Manassas gap, &c., but not materially different in results from the year before.

I left the army at Berlin, and went to Washington to make arrangements for supplies over the Orange and Alexandria railroad. Having perfected the arrangements, and submitted requisitions, I proceeded by rail to White Plains, on the Manassas Gap railroad, on the evening of the 25th. The campaign ended here, and our army shortly took up a line across the Orange and Alexandria railroad, near the Rappahannock, the right of our infantry resting at the Waterloo crossing, the left at Ellis's ford. Cavalry was on both flanks and in rear. Our line of communications was protected by the department of Washington to the Bull Run bridge, and by the 11th corps from that point to Catlett's.

The headquarters were on the railroad, at Germantown, about three and a half miles south of Warrenton Junction.

The depots were established at Warrenton Junction, Warrenton, and Bealton.

The army remained in this position quietly until near the middle of September.

Orange and Alexandria Railroad.

During Pope's campaign it was thought by many that the Orange and Alexandria railroad could not supply a column of over 40,000 men at Warrenton, and when General McClellan reached that point in November, 1862, it was regarded as unsafe to rely on it for the supply of his army at a point so distant from his base.

The road had been for some time in an unused and bad condition, and I was very doubtful of its capacity to transport the supplies for so large an army. General Burnside, the successor of General McClellan, did not give it a fair trial. He soon moved the army to Falmouth, where it was supplied, as described in the report herewith. It become necessary now, however, to make such arrangements as would sufficiently enlarge the power of this road to carry the necessary quantity of freight. Under the orders of Colonel McCallum, the able superintendent of military railroads, and the immediate charge and direction of Colonel Devereux, the superintendent at Alexandria, the road was soon made one of the most systemati-

cally managed and efficient I have ever seen. By making the proper repairs, and frequent sidings for intermediate telegraph and freight stations, the capacity of the road was greatly increased. From Alexandria to Culpeper is sixty-two miles. In this distance there were at least fourteen stations, with telegraphic communications at each, and sidings for trains to pass each other. This railroad was capable of working sixty engineers and six hundred cars, and could have supplied an army of 300,000 men at Culpeper.

When it is mentioned that the army of the Potomac required daily, of the single item of forage, last winter, over 654 tons of hay and grain, some idea may be given of the immense work performed by this road. It was very successfully guarded by our troops.



Rufus Ingalls

On the retrograde movement of the army from Culpeper to Centreville, near the middle of October, and while it was massed at Centreville, the rebel army destroyed the road from Broad run to the Rappahannock. Colonel McCallum came up promptly with a large construction force and repaired it in a very short time, constructing twenty miles of the road and rebuilding the bridges destroyed in twenty-six days. The army was at no time embarrassed for supplies. While the road was being rebuilt our depots were at Manassas and Gainesville, and the army occupied a line embracing Warrenton, Warrenton Junction, and advanced positions at Bealton, &c.

Culpeper Campaign.

On the 15th of September the army was advanced to Culpeper and vicinity, where it remained until the 11th of October, when the movements of the rebel army induced a rapid march of the army of the Potomac to Centreville, as alluded to above. As this movement was a retrograde one, it became necessary to secure our trains by sending them to the rear in advance of the columns. Therefore all the trains, except the ammunition and ambulances, fell back on the evening and night of the 10th beyond the Rappahannock, and parked on the two roads adjoining the railroad. The army was put in motion on the 11th, the ammunition wagons and ambulances preceding their respective commands. It was found that the enemy was marching on a line to our left nearly parallel with our own, and that the two armies were liable to come in conflict at any moment. Each appeared to be strug-

gling to reach Centreville before the other. Under these circumstances our trains were obliged to pass on roads to our right, and to make night marches to keep well in advance. On the 13th headquarters were at Catlett's. All the trains were concentrated in one grand park at Weaversville, and ordered to make a continuous march night and day, by way of Brentsville, to Maple valley; thence north, by Wolf Run shoals, to Fairfax Station. They were much exposed in making this wide circuit, and were attacked on two or three occasions by guerillas, but succeeded most splendidly in reaching Fairfax as soon as we concentrated at Centreville.

Fairfax Station was now our depot, and our wagons were in the right place. This march was conducted under the immediate supervision of Lieutenant Colonel C. W. Folks, chief quartermaster 6th corps.

The rebel army retreated, not daring to attack our position, and tearing up and destroying the road from Broad run to the Rappahannock, retired behind the latter stream.

The army moved forward again on the 19th of October, and on the 22d occupied positions as follows:

1st corps, at Georgetown; 2d corps, where the Warrenton Branch railroad crosses Turkey run; 3d corps, at Catlett's Station; 5th corps, at New Baltimore; 6th corps, at Warrenton; cavalry corps, on flanks; artillery reserve, near New Baltimore; Headquarters, near Warrenton.

On the 7th of November the army was put in motion again, and on the evening of that day captured the enemy's works on the Rappahannock, forced the passage of that river, pursued the enemy to the Rapidan, and on the 9th took up positions in the vicinity of Culpeper similar to those formerly occupied. Headquarters went into camp near Brandy Station, which was our principal depot on the railroad.

The "Mine Run campaign" came next, and was opened on the 23d of November. The baggage of officers and men was reduced to the minimum marching allowance. All unserviceable and extra property, trunks, &c., were sent to the rear.

The troops were ordered to take eight days' rations on their persons. The supply trains were loaded with ten days' rations of subsistence and forage, and the depots were broken up.

The army crossed the Rapidan in three columns; the right by Jacobs's ford, the centre [*sic*] by Germania, and the left by the Culpeper ford.

Only one-half of the ammunition wngons and ambulances accompanied the troops. All the other trains were assembled at Richardsville, and, as usual, placed under my immediate control. None of the wagons were permitted to cross the Rapidan except by special orders from the general commanding.

While the army remained at Mine run it was supplied as it had been at Chancellorsville, Gettysburg, &c., by bringing up wagons and pack-mules in the night or when the roads were not occupied by troops on the march.

The campaign was not successful. The army fell back on the 1st of December, and the troops went into their old camps on the 2d.

The army was essentially quiet and at rest until the commencement of the "grand campaign" on the 4th of May, 1864. During this interval the army was made comfortable in pleasant and healthy cantonments. Supplies of all kinds were

issued in ample quantities. The troops were recruited, reorganized and throughly disciplined. The means of transportation were also reorganized and reduced to correspond very nearly with the present allowance. (See copy of Lieutenant General Grant's Order, herewith, marked A.) The cavalry and artillery arms were well supplied with horses. Probably no army on the earth ever before was in better condition in every respect than was the army of the Potomac on the 4th of May, 1864.

I have already given many detailed statements showing in what manner the train of this great army have been conducted, under almost every variety of circumstances. You have seen us on the advance, in close pursuit of the enemy, in battle, in retreat, and on flank movements. I have shown what great duties the officers of your department are called upon to perform, and how impossible it is for any army to succeed with a badly organized and inefficient quartermaster's department. I have shown how admirably the quartermasters of these armies have uniformly performed their duties, and to what high degree of accomplisihment they have attained. I have reported to you in minute detail the preparations and equipment for an active campaign—Chancellorsville for instance—what the troops and trains were made to carry. I bare described our lines of supply, the establishment of depots, and the manner of supplying a large army.

Copies of my principal orders and reports are on file in your office. Therefore, I shall only give a general and brief view of the operations of our department for the remainder of the fiscal year.

"The grand campaign" from the Rapidan to the James opened on the 4th of May, 1864, under the immediate presence and supervision of Lieutenant General Grant, commanding armies of the United States. Major General Meade commanded the army of the Potomac. This campaign, for convenience of reference, is divided (by the direction of General Meade) into fire epochs as follows:

1st epoch. The crossing of the Rapidan and the battles of the Wilderness.

2d epoch. The march to Spottsylvania, and the operations in front of that place.

3d epoch. The march to the North Anna, and the operations on that river.

4th epoch. The march across the Pamunkey, including the operations on the Tolopotomy and at Cold Harbor.

5th epoch. The march across the Chickahominy and the James, including the assault on Petersburg, July 30.

The forces that composed the armies on the Rapidan were as follows: the 2d, 5th and 6th corps, the cavalry, and the artillery reserve and engineer brigade constituted the army of the Potomac, under General Meade, and the 9th corps, under General Burnside, making about *one hundred and twenty-five thousand of effective men.*

There were *four thousand three hundred wagons, eight hundred and thirty-five ambulances*, 29,945 artillery, cavalry, ambulance and team horses, 4,046 private horses, 22,528 mules, making an aggregate of 56,499 animals.

It was ordered that the troops should take with them "fifty rounds of ammunition upon the person, three days' full rations in their haversacks, three days' bread and small rations in their knapsacks, and three days' beef on the hoof." The supply trains were loaded with ten days' forage (grain) and ten of subsistence.

One-half of the ammunition, intrenching tools, and ambulance wagons, a few light spring-wagons and pack animals only were allowed to accompany the troops. All other trains were assembled at Richardsville, and placed, as heretofore, under my direction, with a view to crossing the Rapidan by bridges at "Ely's ford" and "Culpeper Mine ford."

The army was put in motion on the 4th. On that day the depots at Brandy Station and other points on the railroad, as far as the Rappahannock, were broken up, and all extra and surplus property, with the depot officers and employés, were sent in to Alexandria. These officers were directed to await orders, and are the same that subsequently took positions and opened our flying depots at Aquia, Belle Plain, Fredericksburg, Port Royal, White House, and City Point, as the army fought its bloody way along and approached within striking distance of these points. So soon as the army made the passage of the Rapidan into the "Wilderness" the trains were immediately crossed at the fords before mentioned and parked near that river. The crossing was hastened in consequence of the movements of the enemy's cavalry on the north side.

The battles of the Wilderness at once threw many thousand wounded upon our department for transportation to the rear. The medical department had no more ambulances than were absolutely necessary on the immediate fields of battle. My first effort was to send the wounded in our empty wagons to Rappahannock Station, to meet cars for which I had telegraphed you; but, after the trains were actually loaded with wounded, and after you had despatched cars, it became necessary to send them into Fredericksburg, on account of the presence of rebel cavalry at Ely's ford.

Communications were quickly opened with Aquia and Belle Plain, and in a few days the navy cleared the river of obstructions to Fredericksburg. Our wounded were at first sent to Belle Plain, and thence by water to the different hospitals. The most severe cases were kept in Fredericksburg some time. In a few days the Aquia railroad was repaired to the north bank at Fredericksburg, and was used to take away many wounded. Vessels ascended the Rappahannock also for the same purpose. The same system of transportation for wounded was pursued throughout the campaign as in the Wilderness. Our empty wagons, as a *rule*, carried most of the wounded from the field hospitals to the depots, and returned laden with forage and subsistence.

During the first epoch—from May 4 to the 13th, inclusive—our trains occupied the plank road from Chancellorsville, via Aldrich's, to Tabernacle church, and to the south at Piney Branch church and Alsop's, changing parks according to movements of our troops or the enemy.

On the evening and night of the 13th the army made its first flank movement to Spottsylvania, and the trains were concentrated on the 14th on the bluffs at Fredericksburg.

During the second epoch—from the 14th to the 20th, inclusive—the trains were parked at Fredericksburg, and our depots remained unchanged. Several trains of wounded were sent in under the direction of myself and the medical director.

The third epoch embraces the interval of time between the 21st and 26th, inclusive. The line of Fredericksburg, Belle Plain, and Aquia was now abandoned, and the depot established at Port Royal.

On the 20th the main trains were assembled near Guinea Station, under the immediate charge of Captain L. H. Pierce, assistant chief quartermaster, army of the Potomac, and were conducted by him, under my daily orders, by Bowling Green to Milford Station, where they arrived on the 22d. On the 23d they were crossed over the Mattapony, and parked in the open ground between the river and Wright's tavern. On the same day our forces reached the North Anna, and commenced to cross at Jericho and other places. The trains remained in park, near Wright's tavern, during the operations on the North Anna. Our wounded were sent to Port Royal, and supplies received from that depot. On the 24th the army was across the North Anna, and there was heavy skirmishing with the enemy, who was in position between the two Annas, at Hanover Junction.

The 9th corps was attached to the army of the Potomac on this day. Headquarters crossed at Jericho ford, and encamped on the southside.

The 4th epoch began on the 27th. The army was put in motion towards Hanover town, and Nelson's and Huntley's ferries, on the Pamunkey river. The trains recrossed the Mattapony, and passed to the rear some distance, and then advanced on the road toward Dunkirk, lower down, and to our left on the Mattapony. The army crossed the Pamunkey on the 28th, and took up position towards Cold Harbor. On the same day I sent a staff officer to White House, distant fifteen miles from Hanover town, to ascertain if Smith had arrived with the 18th corps, and if Captain Pitkin had arrived from Port Royal with his employés and supplies. The officer returned safely at midnight and reported no arrivals. The trains arrived promptly at Hanover town, by way of Dunkirk, crossed the Pamunkey on the 31st, and parked near Mrs. Newton's house.

Captain Pitkin arrived at White House same day, and established the depot. On June 1, the trains were moved to New Castle and Old Church. All empty wagons were sent to White House for supplies.

On the 2d, our troops took up positions in front of the enemy at Cold Harbor. Headquarters were moved to that point, and the trains sent to vicinity of Paysley's mill, on the road to White House.

On the 3d an assault was made on the enemy's intrenchments, but without success.

The railroad from White House to Despatch Station was rebuilt while the army remained here, and was dismantled and the material removed before the 12th, when the fifth epoch commenced.

On the 12th the army began another flank movement, to cross the Chickahominy at Long's and Jones's bridges, over pontoons laid by our engineers, and the James at Fort Powhatan, over another pontoon bridge, and to advance rapidly on Petersburg. The trains were conducted by Tunstall's Station on roads to White House and New Kent, thence by Slatersville, Barhamsville and Diascund, to Cole's ferry, where they crossed the Chickahominy over a pontoon bridge constructed by the engineers, of more than two thousand feet in length. They were

then conducted to Charles City and down the neck to Donthart's, opposite Fort Powhatan, where they crossed the James over the pontoon bridge at that place, commencing at 2 p.m. on the 15th, and closing at 7 a.m. on the 17th. This movement was very complicated, difficult and arduous. It was one of the most important on record; but it was conducted with a skill and vigor by Captain Pierce that crowned it with magnificent success.

On reaching the James and coming in contact with the command of Major General Butler, I was announced on the 16th as chief quartermaster of "armies operating against Richmond," and immediately took post at City Point, which had been indicated the principal depot by Generals Grant and Meade.

After crossing the James over the pontoon bridge, and by the ferries, the troops pressed forward into positions in front of Petersburg.

The trains were placed in parks between the depot and those positions convenient to the railroad.

Improvements were commenced at once to make the depot efficient and ample. Wharves and storehouses were constructed; the railroad to Petersburg was put in working order up to our lines; and supplies were brought to the depot in the required quantities, and issued. A uniform system of supply was put in force in both armies.

Such was the posture of affairs on the 30th of June, 1864.

My money accountability for the fiscal year is correctly stated below:

On hand July 1, 1863	$266,137 00
Received from officers during the year	12,603 49
Received from Treasury Department during the year	1,100,000 00
Received from other sources during the year	146 44
	1,378,886 93
Expended during the year	2,144 09
Transferred to other officers during the year	1,376,742 84
Remaining on hand, June 30, 1864	00 00
	1,378,886 93

According to the report of Mr. E. S. Wentz, chief engineer and superintendent of railroads, 57 miles of railroads have been constructed and repaired, as follows: Twenty miles of the Orange and Alexandria railroad relaid with new track; fifteen miles of the Richmond, Fredericksburg and Potomac railroad repaired; four miles of the Richmond and York River railroad relaid with new track, and thirteen miles repaired. Thirteen miles of the Richmond and York River railroad was afterwards taken up and the iron removed to Alexandria. Five miles of the City Point and Petersburg road was relaid with new track—all making a total as follows:

Of new track laid	29 miles.
" " " repaired	28 "
" " " taken up	13 "

On one railroad large construction parties have been constantly employed making repairs.

It is reported that about 345 miles of telegraph lines have been constructed, though it is difficult to obtain an accurate statement. As a rule, our headquarters have been in telegraphic communication with headquarters of each corps, with our depots and Washington. Constantly changing positions has rendered it necessary to construct an unusual extent of telegraph lines.

I have during the year frequently reported my views as to the best and proper means of transportation for an army. I do not think that the kind and amount now furnished and allowed these armies can be improved upon. The common six-mule wagon has proved to be the most economical and durable for years past of any ever tested. Pack trains should be provided as prescribed in the order herewith, marked A. A special wagon or caisson should be furnished to carry all ammunition, small-arm as well as artillery. I forwarded a sketch of the carriage, with an explanatory letter of General Hunt, with my report of last year. The mules should be hitched to this wagon as they are to the common army wagon, with *one* driver, and not as in the artillery service.

Our troops are undoubtedly loaded down on marches too heavily even for the road not to speak of battle. I have witnessed great loss of knapsacks and articles of clothing on the routes taken by our troops at the commencement of campaigns. In my report of the Chancellorsville campaign I showed you that the loss of knapsacks of those actually engaged was at least twenty-five per cent. I am in favor of putting the lightest possible weight on the soldier, consistent with his wants and the character of the service. I do not think the knapsack should be dispensed with altogether, for it should, ordinarily, form a part of the equipment, but on short campaigns, and on the eve of battle and when near the supply trains, a blanket rolled up and swung over the shoulder, and looped up under the arm, is sufficient without knapsack or overcoat. The soldier can carry three days' cooked food in his harvesack [*sic*]. If necessary he can carry two or three days' bread and some underclothes in his blanket. Our men are generally overloaded, fed and clad, which detracts from their marching capacity, and induces straggling. I do not propose any modification, however, as our commanders understand these matters better than I do, probably; at any rate they know what they want, and have the power to make such changes as they may deem proper.

The reports referred to in paragraphs 2, 3, 5, and 7 of your orders will be furnished you in detail by the officers who have served under me.

I desire to remind you of my profound obligations for the very prompt, cheerful and powerful support you have uniformly extended to me.

My warmest thanks are also due to General Rucker and his depot officers, who have always responded to my requisitions.

To the soldierly and accomplished quartermasters serving with the armies I owe the deepest gratitude. They have performed their laborious and responsible duties, without exception, with unexampled zeal, energy, and intelligence. You have been good enough to cause many of them to be promoted.

In the closing paragraph of my last report I called your attention to the merits of Captains Ferguson and Stoddard then on duty at Alexandria. I am pained to know now that both of us were deceived, and that our confidence was misplaced.

There has been no instance of embezzlement or misappropriation of public moneys or property on the part of any quartermasters serving with these armies during the past fiscal year, so far as I have the means of being informed.

I am, very respectfully, your most obedient servant,

RUFUS INGALLS,
Brigadier General and Chief Quartermaster of Armies operating against Richmond.

Brevet Major General M. C. MEIGS,
Quartermaster General United States Army.

A.

Special orders by Lieutenant General Grant prescribing allowance of transportation and camp and garrison equipage.

[Orders No. 8.]

OFFICE OF CHIEF QUARTERMASTER,
ARMIES OPERATING AGAINST RICHMOND,
City Point, Va., June 29, 1864.

The following "Special Orders," issued by the lieutenant general commanding armies of the United States, are printed for distribution to officers of the quartermaster's department on duty with the "armies operating against Richmond:"

[Special Orders No. 44.]

HEADQUARTERS ARMIES OF THE UNITES STATES,
City Point, Virginia, June 28, 1864.

I. The following orders, prescribing the means of transportation, camp and garrison equipage, for the armies in the field operating against Richmond, are published:

1. For the headquarters of the lieutenant general commanding the armies of the United States in the field, and major generals commanding separate armies, such wagons, light spring-carriages, saddle-horses, and camp equipage as may be deemed necessary from time to time, to be assigned by the chief quartermaster at general headquarters.

2. For the headquarters of an army corps, 2 wagons or 8 pack-mules for baggage, &c., 1 two-horse wagon, 1 two-horse spring-wagon, and 10 extra saddle-horses for contingent wants; two wall tents for the personal use and office of the commanding general; one wall tent for every two officers of his staff.

3. For the headquarters of a division, 1 wagon or 5 pack-mules for baggage, &c., 1 two-horse spring-wagon, 1 two-horse wagon, and 5 extra saddle-horses for contingent wants; one wall tent for the personal use and office of the commanding general; one wall tent for every two officers of his staff.

4. For the headquarters of a brigade, 1 wagon or 5 pack-mules for baggage, 1 two-horse spring-wagon, and 2 extra saddle-horses for contingent wants; one wall tent for the personal use and office of the commanding general; one wall tent for every two officers of his staff.

5. The allowance of wagons and pack-mules to officers detached: to every three company officers, when detached or serving without wagons, 1 pack-mule; to every twelve company officers, when detached, 1 wagon or 4 pack-mules; to every two staff officers, when not attached to any headquarters, 1 pack-mule; to every ten staff officers, when serving similarly, 1 wagon or 4 pack-mules.

6. These wagons and pack-mules will include transportation for all personal baggage, mess chests, cooking utensils, desks, papers, &c. The weight of officers' baggage, specified by army regulations, will be reduced so as to bring it within the foregoing schedule.

All excess of transportation, camp and garrison equipage, now with the army corps, divisions, brigades, regiments, or batteries, over the allowance herein prescribed, will be immediately turned into the quartermaster's department, at the general depot, now at City Point.

7. Commissary stores and forage will be transported in the supply trains. When they are not convenient of access, and when troops act in detachments, the quartermaster's department will assign wagons or pack-mules for that purpose, but the baggage of officers or troops, or camp equipage, will not be carried in the wagons or on the animals so assigned.

8. For each regiment of infantry, cavalry, or battalion of heavy artillery: for baggage, camp equipage, &c., 2 wagons; 3 wall tents for field and staff; 1 shelter tent for every other commissioned officer; 1 shelter tent for every two non-commissioned officers, soldiers, servants, and camp followers.

9. For each battery: for personal baggage, mess chest, cooking utensils, desks, papers, &c., 1 wagon; 2 wall tents for officers; shelter tents, same allowance as for infantry and cavalry regiments.

10. For the artillery and small-arm ammunition train: the number of 12-pounder guns multiplied by 122 and divided by 112; the number of rifled guns multiplied by 50 and divided by 140; the number of 20-pounder guns by 2, and the number of 4½-inch guns multiplied by 2½, will give the number of wagons allowed.

The number of guns in horse batteries, multiplied by 100 and divided by 140, will give the wagons allowed.

For the reserve artillery, ammunition of 20 rounds to each gun in the armies, the number of wagons allowed will be obtained as follows: multiply the number of 12-pounders by 20 and divide by 112, and the number of rifled guns by 20 and divide by 140.

For every 1,000 men present, armed and equipped for duty, of cavalry, infantry, and heavy artillery, for small-arm ammunition, 3 wagons.

For carrying fuzes, powder, and primers, with the reserve artillery ammunition train, 2 wagons.

11. For general supply train: to each 1,000 men, cavalry, infantry, and heavy artillery, for forage, subsistence, &c., 7 wagons, sufficient to carry eight days' sup-

ply; to each cavalry division, exclusively for forage, 50 wagons; to each battery, for its proportion of subsistence, forage, &c , 4 wagons; to each horse battery, for the same purpose, 4 wagons; to every 25 wagons of the artillery ammunition train, 5 wagons additional for the forage of the animals of the ammunition and additional wagons, baggage, camp equipage, and subsistence of wagon-masters and teamsters. Ammunition trains will be loaded exclusively with ammunition, so far as practicable. The baggage of the drivers will be carried in the additional wagons allowed for that purpose.

To each brigade of cavalry, infantry, and artillery, of not less than 1,500 men, for hospital supplies, 3 wagons; for every 1,000 men additional, 1 wagon.

To each army corps, except the cavalry, for intrenching tools, 8 wagons.

To each army corps headquarters, for subsistence, forage, and other stores not provided for herein, 3 wagons.

To each division headquarters, for similar purposes, 2 wagons.

To each brigade headquarters, for similar purposes, 1 wagon.

To each brigade of cavalry, infantry, and artillery, for commissary stores for sale to officers, 1 wagon.

For the ambulance train of each division, 2 wagons; for the ambulance train of an independent command less than a division, batteries excepted, 1 wagon.

To each division of cavalry and infantry, for armorers' tools, parts of muskets, extra arms, and accoutrements, 1 wagon.

It is expected that each ambulance and wagon, except those of the artillery ammunition train, will carry the necessary forage for his own teams.

12. The unit of organization for the supply trains of subsistence, ordnance, and forage will be by division. Division quartermasters will be responsible for them. Brigade quartermasters will be responsible for the brigade baggage trains. Regimental quartermasters will be responsible for the regimental public property and baggage.

Quartermasters will attend in person to the drawing of necessary supplies at depots, and will habitually accompany their trains on marches.

13. If corps, division, or brigade commanders take their guards or escorts from commands already furnished with the full allowance of transportation, a corresponding amount shall he taken by them to headquarters; but if they have not been provided for at all, then a proper number of wagons will be transferred by the depot quartermaster, on the requisition of the chief quartermaster, certified to and approved by the commanding general.

14. As a *rule*, quartermaster and commissary sergeants will not be allowed to ride public horses, nor will citizen or soldier clerks, except on the written order of a corps or other independent commander setting forth the necessity.

15. It has been shown by experience that the advantage of keeping up regularly organized pack-trains is not commensurate with the expense.

Two hundred pack-saddles will be carried in the wagon trains of each corps. Whenever it becomes necessary to pack officers' baggage, provisions, or ammunition for short distances, over rough roads and broken country, pack-trains will be made up temporarily by taking mules from the wagons, not to exceed two to any one wagon.

16. In the armies operating against Richmond, the maximum allowance of forage per day will be, for horses *ten* pounds hay and *fourteen* pounds grain; for mules *ten* pounds hay, and *eleven* pounds grain; and when short forage only can be provided, the allowance will be, for horses *fifteen* pounds, for mules *thirteen.* On a march, however, the forage ration will be only *ten* pounds grain.

17. A report of all property captured from the enemy, or seized for the public service, will be made monthly to the chief of the department at these headquarters, to which it appertains.

By command of Lieutenant General Grant:

T. S. BOWERS,
Assistant Adjutant General.

Chief quartermasters of corps and other independent commands will at once take measures to have these orders complied with, so far as in the power of the quartermaster's department.

RUFUS INGALLS,
Brig. Gen. and Chief Q. M., armies operating against Richmond.

Annual report of Brigadier General Rufus Ingalls, chief quartermaster of the army of the Potomac, for the fiscal year ending June 30, 1863.

HEADQUARTERS ARMY OF THE POTOMAC,
OFFICE OF THE CHIEF QUARTERMASTER
Camp near Culpeper, Va., September 28, 1863.

GENERAL: In compliance with your General Order No. 13, of last July, the 22d, I have the honor to submit the following report on the operations of the quartermaster's department of the army of the Potomac during the fiscal year ending on the 30th June, 1863:

On the first day of the fiscal year I established the great depot on James river, at Harrison's landing, at and around which point General McClellan concentrated his army after the eventful seven days' battles about Richmond. On the 28th of June preceding I had broken up the depot at White House, on the Pamunkey, in execution of orders received from the general commanding and General Van Vliet, then chief quartermaster of the army, and had successfully removed all the transports containing the public supplies—more than five hundred vessels of all descriptions—from the York to James river. I arrived at Haxall's, above City Point, on the left bank of the James, near noon of the 30th of June, and reported in person to General McClellan when he came to the river some two or three hours later in the day, and while the first great fight at Malvern Hill was raging.

The army was destitute of supplies; my arrival was exceedingly fortunate and opportune. Temporary barge wharves were at once constructed at Harrison's landing; the transports were brought alongside, and the subsistence, ordnance, hospital, and quartermaster's departments were prepared for the issue of necessary sup-

plies on the arrival of the troops. We found in the vicinity a few old wharves which contributed greatly to the accommodation of the commissary, ordnance, and hospital departments, but generally we had to rely upon our own resources in the construction of landings or wharves at our various depots.

At the commencement of the movement to the Peninsula I was placed in charge of the assembling of transports, fitting them for the voyages, and embarking the troops. I took post at Alexandria, by order of the War Department, so soon as the blockade of the Potomac was raised, and remained there from the 18th of March until the 3d of April, 1862, up to which time I had personally superintended the embarcation of more than 70,000 men of the army of the Potomac.

It was my duty while on the Peninsula to establish the depots of supply for the army, and to see that all proper stores were provided and issued. This duty was excessively laborious and responsible, especially at Cheeseman's creek, Yorktown, and White House, during the night as well as day. There were few officers of experience in the quartermaster's department at that time with the army, either in the regular or volunteer service. The magnitude of our operations far exceeded what *any* quartermaster had ever before witnessed, or indeed read of. The sites of the depots at Cheeseman's creek and White House were selected by me, and the landings constructed under my immediate superintendence, and sometimes with the assistance of my own hands. I was up to that date almost *alone*, so far as good officers were concerned. Proper measures had been taken by General Van Vliet to have an abundance of forage, clothing, &c., afloat, and in readiness to be issued at the depots. The subsistence department, also, from the first to the present time, has always been well prepared with stores and employés.

In the mean time officers were acquiring the requisite experience, and by the 1st of July the army possessed very many well-trained and efficient quartermasters, so that, at Harrison's landing, for instance, I was relieved of an onerous load of duty by officers whom I had selected on account of their great merit. I made the following assignment at this depot, holding the general superintendence myself, viz:

Captain C. G. Sawtelle, (now lieutenant colonel and chief quartermaster Cavalry bureau,) in special charge of water transportation and other branches; Captain L. H. Pierce, in charge of land transportation; Captain C. B. Wagner and A. Bliss, in charge of clothing; Captain P. P. Pitkin, in charge of employés; and Captain J. B. Winslow, in charge of forage. In twenty-four hours after the establishment of this depot every duty was performed with great punctuality and accuracy. All issues were made on prescribed requisition, and necessary supplies called for.

A record of all arrivals and departures of vessels was kept by the harbormaster. Regular mail and freight boats were put on the route to Fortress Monroe, and vessels were constantly plying between the depot and the principal seaport cities.

I will here remark that I must refer you to the detailed reports of my subordinate officers, who have been in charge of special branches of our department, for information called for under the 2d, 6th, 7th, 8th, 9th, and 10th paragraphs of your order. These reports will serve to remind you of a portion of the stupendous operations of our department during the past fiscal year conducted under your orders.

On the 10th of July, by the voluntary retirement of General Van Vliet, I was announced the chief quartermaster of the army of the Potomac, a position which I have had the honor to hold to the present time, and which has confined me generally to headquarters. My duties since that period have been supervisory and administrative. I have continued to provide for the wants of the army on all its campaigns, and have established the depots and lines of supply in all instances, but have placed suitable officers at the different points to execute the instructions given by me to meet the wishes of the general commanding. You will receive the reports of these officers.

It is due to my predecessor to record my regret at his leaving an army to which he was devotedly attached, and for which he had labored so assiduously and with such great talent.

It must be borne in mind that war on a scale inaugurated by this rebellion was decidedly *new* to us, if not to the civilized world.

Easy as it may seem now, after the lapse of two years, to organize the transportation of a great army, and provide its supplies with the *known* means we now have, there were *few* men at *that* day in the republic who could have accomplished the task sooner than it was. It required the united abilities and exertions of our whole department aided by the loyal producers and manufacturers of the country to meet the public wants; and if there were temporary failures, the department should stand excused, for its labors have been unparalleled and gigantic. Perhaps the failures in our department have been fewer than in *fighting* the troops.

I had no data left me to show what means of transportation and other quartermasters' property were still with the army after its severe battles and change of base. Inspections were immediately made throughout. It was found that there were in the service, about the last of July, 3,100 wagons, 17,000 horses, 8,000 mules, and 350 ambulances. I have no means of knowing the original number. The supply of clothing, camp and garrison equipage, &c., was good. In the river at the depot were bountiful supplies of forage, subsistence, and hospital stores.

The general commanding received orders early in August to evacuate the Peninsula. About the middle of the month one corps was thrown across the Chickahominy near its mouth, over a pontoon bridge of 2,000 feet in length; another command was pushed out towards New Kent Court House over Bottom's bridge; both with a view of protecting our trains, which were now sent forward rapidly in advance of the remainder of the army, by the pontoon bridge. They all passed in safety and proceeded to the point of embarcation at Yorktown, Newport News, and Fortress Monroe. The transports were withdrawn under the direction of Colonel Sawtelle, who was my principal assistant at White House, and whose sagacity, zeal, promptness, and experience qualify him for any position in your department. The headquarters left Harrison's landing on the morning of the 16th of August, and the depot was broken up and abandoned without loss on the evening preceding. The march was a rapid and orderly one. I arrived at Fortress Monroe on the 18th by water from Yorktown. Fitz John Porter's corps, which was the first to cross the Chickahominy on the retreat, had already embarked for Aquia creek to join Burnside and Pope. It was arranged that Heintzelman's corps should

embark at Yorktown; that Keyes's should remain there; that Franklin should embark at Newport News, and Sumner at Fortress Monroe.

Leaving Colonel Sawtelle at the latter point to provide transports, and push forward the troops, cavalry, horses, and artillery, I returned to Yorktown to hasten the embarcation of the third corps.

I finally left Fortress Monroe with General McClellan and staff on the 23d of August, and arrived off Aquia early on the 24th instant, where we remained on the transport sixty hours awaiting orders. I left Aquia on the 26th instant, and arrived at Alexandria on the 27th, where headquarters went into camp near the city.

After the evacuation of Harrison's landing, the troops were pushed forward as rapidly as our means would permit. The officers and men seemed anxious and impatient to reach the scene of conflict in front of Washington, where it was known great battles must be fought, on which mighty national interests were staked.

I *know* the officers of our department used untiring exertions to expedite the embarcation; but it is now apparent that either we did not leave Harrison's landing *soon enough*, or that General Pope did not *fall back* without risking a general engagement, as perhaps he might have done, at least earlier in the campaign, until more forces should arrive. I allude to the matter only in justice to our own department, which has sometimes been accused of tardiness and having inadequate means of transportation on that occasion. Our means were ample and as great as the country could afford. Transports were assembled, as far as possible, from all available sources. It was not to be expected that there should be transports to move 100,000 men, with the artillery, cavalry, and trains, *at once*. It was necessary to perform this service by *successive* voyages of the vessels. It had required more than a month to transport the army from Alexandria to the Peninsula. It could not be brought back in a day. It did absorb three weeks' time to bring all back. Many of the wagon trains and a portion of the cavalry did not arrive until the army had left Washington on the Maryland campaign. Indeed, some did not join until after the battles of South mountain and Antietam.

It is fresh in your memory how Pope's campaign resulted. Disorganized trains and wearied and dispirited troops were crowded in on Washington and Alexandria during the latter days of August.

General McClellan was invested on the 4th of September with the command of the "defences of Washington." At the same time I ordered all quartermasters to draw supplies, to place their commands in marching condition, and to reorganize their trains at once.

These orders were obeyed very promptly. There was probably some 2,500 wagons conducted in by Colonel Fred Myers to Alexandria, which he saved from the recent retreat of General Pope. These, added to what had arrived from the Peninsula and what General Rucker could spare from the Washington depot, made up the trains for the Maryland campaign.

It was soon ascertained that portions of the rebel army had crossed the Potomac, and had entered Maryland above Harper's Ferry. On the 5th and 6th of September our army was put in march towards Frederick city, by Rockville and Urbana.

I left Washington on the 7th instant, and joined headquarters same day at Rockville. We remained there two or three days, while our cavalry and advanced infantry and artillery commands were gaining information of the enemy, and feeling of his position. Meantime General McClellan became possessed of the plans of the rebel general, and the army was pushed on through Frederick to the gorges of South mountain, where the rebels made their first stand of any importance.

The battle of South mountain was fought on the 13th and 14th of September. That victory opened the Cumberland valley. The army followed rapidly, and came up with the entire rebel army in position on the heights of Sharpsburg on the 15th instant.

The battle of Antietam was fought on the 17th, and resulted in favor of our arms, freeing Maryland completely of the enemy, and compelling him to retreat into Virginia.

The army was supplied by our wagon trains exclusively, until we recaptured Frederick. The enemy had burned the railroad bridge over the Monocacy, but a depot was established on the left bank while the bridge was being rebuilt, and supplies of subsistence and forage were brought up over the Baltimore and Ohio railroad; Captain J. C. Crane, assistant quartermaster, was placed in charge. The commands within reach sent wagons to this depot for what they required. Wagon trains here also kept plying between Washington and the army until after it had passed South mountain. A depot was next established at Hagerstown, under Captain George Weeks, assistant quartermaster, and supplies of clothing, subsistence, and forage were brought over the Cumberland valley railroad.

These supplies came mainly from Washington, but forage and clothing were frequently brought direct from New York city, Philadelphia, and Baltimore. After the battle of Antietam, the army was assembled about Harper's Ferry. The canal was now available; with all these sources of transportation we had no embarrassment, save in the extreme slowness, in some instances, with which stores turned over to the railroad for transportation were delivered at their destinations. From this cause we were unfortunately very late in receiving clothing, and much of it arrived at Berlin too late for issue, as the army was already on its march to White Plains, Warrenton, &c.

Generally, however, the railroads did splendid service. I always found the principal officers and agents of the roads extremely obliging, courteous, and energetic.

Our wagon trains had been much increased. About the 1st of November they numbered 3,911 wagons, 8,693 horses 12,483 mules, 907 ambulances, 7,139 artillery horses, and 9,582 cavalry. We had sufficient to haul seven days' supplies for the army, besides its baggage, camp equipage, &c. The army crossed the Potomac over pontoon bridges at Berlin the last of October. I crossed on the 1st of November, and reached Salem, on the Manassas Gap railroad, on the 3d following. Supplies had already been ordered by this road direct from Washington and Alexandria.

On the 9th of November General Burnside assumed command of the army, and soon after he moved it to Falmouth, in front of Fredericksburg. On the 13th I left the army at Warrenton with orders to proceed to Washington and

Alexandria, thence to Aquia Creek, and to take measures for the support of the army by the Aquia and Fredericksburg railroad. On the 16th, in company with Generals Woodbury and Haupt, I went to Aquia and Belle Plain on a reconnoissance. We found the old wharf and entire depot at Aquia a mass of ruins, and interior of the country still in the hands of the enemy. It was decided to create temporary landings at both Aquia and Belle Plain, to land supplies and haul them to the army on its arrival with wagons, while permanent arrangements on a proper scale could be made.

This plan was most successfully executed. I returned to Belle Plain about the 19th and joined headquarters at Falmouth. The depot at Aquia was made as spacious and commodious as any one we have ever had. Large wharves were constructed and storehouses erected to accommodate all departments. I placed Captain T. E. Hall, assistant quartermaster, in charge, with several other officers to assist him. Captain Hall was finally succeeded by Lieutenant Colonels A. Thompson and Painter, assistant quartermasters. Frequent inspections were made by myself and Colonels Sawtelle, Myers, and Painter. General Haupt placed Mr. W. W. Wright at the place as railroad agent. He was an exceeding energetic, gentlemanly, and business-like officer. Stations were established at convenient points along the road for the delivery of supplies—the principal one having been at Falmouth, under Captain L. H. Pierce, assistant quartermaster, now assistant chief quartermaster of this army. His report will show you the immensity of his business during the past year. I regard him as one of the best quartermasters in the service.

The land transportation of the army was reorganized while at Falmouth, and to-day corresponds precisely with the standard prescribed in Orders No. 83—a copy is herewith, marked A.

The rule will be found useful if applied to our other armies. There would be, besides, the advantage of *uniformity*. Our supply trains are calculated for 7 day's subsistence, 3 of salt meat, 6 of short forage, and 100 rounds of small-arm ammunition to be hauled in wagons. By our system, knowing the *number* of *men*, we can at once determine the exact *number* of wagons. The battle of Fredericksburg was fought on the 13th of December, 1862. General Hooker assumed command of the army January 26, 1863.

To show what was our custom on the eve of battles with regard to our trains, I take the liberty to enclose a copy of my report of our arrangements during the Chancellorsville campaign, herewith, marked B. This report and its accompanying papers, now in your office, will give you full and valuable information.

The battle of Chancellorsville and second battle of Fredericksburg were fought from the 2d to the 4th of May, 1863. In a *forward* movement our trains are never in the way of the troops; on the contrary, each corps has its train which follows it on the march, and which forms its indispensable, movable magazine supplies. Wagon trains should *never* be permitted to approach within the range of *battle-fields*. They should be parked in safe and convenient places out of risk, and well guarded. Troops should go forward to battle lightly loaded, and without wagons except for extra ammunition. If they are successful, the trains can be brought up very quickly. If

defeated, they will find an unobstructed road, and will get back to their wagons *soon* enough.

In all our engagements this precaution has been observed. At the battles of Fredericksburg and Chancellorsville wagons were not permitted to cross the river except on special order and for some pressing necessity.

At the great battle of Gettysburg I had the trains of the whole army parked at Westminster, on the Baltimore Branch railroad and pike, at a distance of twenty-five miles from the field, guarded by cavalry and artillery. It would appear that the army of the Cumberland could not have observed this essential rule, since reports show a great loss of trains during the recent conflicts between Chickamauga and Chattanooga.



Hermann Haupt

The experiences of this army by land and water during the past two years give it *some* right to speak with weight on the subject of transportation. On the 14th of June we broke up our headquarters camp near Falmouth, and pursued the route by Dumfries, Fairfax, Leesburg, Edwards's ferry, and Poolesville, to Frederick city, on our second Maryland campaign. The army was in excellent condition; our transportation was perfect and our sources of supply same as in first campaign. The officers of our department were thoroughly trained in their duties. It was almost as easy to manoeuvre the trains as the troops. It is therefore unnecessary to go further into the details of the march.

The rebel army had again invaded Maryland and had even advanced as far as Carlisle and York, in Pennsylvania. The army of the Potomac was again in pursuit of its inveterate foe, and finally met him in pitched battle of three days' fighting, and compelled him again to recross the Potomac.

General Meade, justly the conqueror and hero of Gettysburg, assumed command of the army on the 28th June.

On the last day of the fiscal year, two days later, I was at Taneytown with headquarters of the army.

I have been in the battles of South mountain, Antietam, Fredericksburg, and Chancellorsville, during the year ending June 30, 1863.

While on Peninsula affairs, I omitted to state that white laborers were soon found to give out from sickness and exhaustion at our depots on the Peninsula. While at White House I took effective measures to secure the services of contrabands, drawn mostly from the vicinity. They proved invaluable, though we thus

became incumbered with many women and children. On the evacuation of While House I took away all my colored force, and increased it very considerably while at Harrison's landing by sending for negroes to Williamsburg, Charles City, Norfolk, &c. On the evacuation of the Peninsula I must have taken away 2,500 males. The women and children here provided for near Fortress Monroe. Many of these negroes have other situations now; but we still retain at our depots here some 1,250 ; they are industrious, obedient, and tractable. They are considered *free*, and obtain $20 per month for their services. This narrative covers the chief events of the fiscal year.

On the 30th of June, 1862, I had on deposit with the treasury,	$172,991 47
I received the year ending June 30, 1863	2,509,383 13
Total to be accounted for	2,682,374 60
Amount of disbursements during the year	2,416,237 60
Balance due United States June 30, 1863	266,137 00

Of this balance $265,687[.]51 was deposited in Washington with Treasurer United States, and $449[.]49 in New York city with assistant United States treasurer. Of the $2,416,237[.]60 disbursed during the year, $2,406,285[.]21 transferred to officers of my department for disbursements in corps. The balance, $9,952[.]39, was expended for articles of stationery, &c., purchased, and payment of employés. To the great credit of the quartermaster of this army, I have to report only *one* instance of defalcation and want of integrity. That is the case of Captain John Howland, assistant quartermaster volunteers, who received from me in March last $16,470[.]04 as acting chief quartermaster of the 5th Corps, for distribution to the subordinate officers to pay teamsters. He deserted and carried away with him the whole sum, but was subsequently arrested and brought to Washington by some of the acute and efficient agents of the provost marshal of the War Department. Colonel Baker recovered $10,279 of the sum embezzled, and turned the same over to me. Captain Howland has been brought before a court-martial for this offence. The sentence is not yet promulgated.

There were no outstanding debts *in this army* on the 30th of June, 1863. I do not mean unsettled claims for forage, &c., in Maryland. I left Captain John McHarg, assistant quartermaster, at Frederick with funds to pay all such legitimate accounts. He is still there on this duty.

There will be suggestions for the improvement of our means of transportation, workshops, &c., by some of my experienced subordinate officers. I request you will give the matter your attention. There should be at once, above all other things, a special wagon or caisson for carrying all extra or reserve ammunition. This matter is very important. It should be fur small-arm as well as artillery ammunition.

I have the honor to include herewith a forcible letter on the subject, marked C, to which I invite your attention, from General Hunt, chief of artillery.

I should not close this report without acknowledging the uniform generosity which you have extended to me, and the great support you have invariably given me. I wish also to acknowledge my great obligations to General Rucker, and the officers who have served under him. He has had daily contact and business with,

and on account of, this army, and has, in all instances, fully met our expectations with much courtesy and forbearance. For all that has been accomplished there is credit due many who have labored *together* instead of arraying obstacles. I have not *permitted* myself to have difficulties with any one who exhibited any will or capacity to serve this army.

To the quartermasters of this army I feel much attached and under a weight of indebtedness, especially to those who have had charge of the great depots. I have referred to them in the body of this report; still I would be doing much injustice if I did not mention Captain P. P. Pitkin, assistant quartermaster, who, similar to Captain Pierce, has had charge of great depots, and whose business for the year has been extremely heavy. He is a most meritorious, energetic, and trustworthy officer.

Captain William G. Rankin, 13th infantry, and acting assistant quartermaster, has also served with much credit. He was in charge of land transportation at White House, and acquitted himself with satisfaction.

Lieutenant Colonel Frederick Myers, assistant quartermaster, served with the army from Pope's retreat until after Fredericksburg. He was most of the time my chief assistant. Like Colonel Sawtelle, he is invaluable as a quartermaster and superior business man. I trust these officers will receive the advancement they merit.

The chief quartermasters of the corps are all finely educated gentlemen and highly experienced quartermasters, and there are many quartermasters now serving with divisions and brigades who are well qualified for higher positions.

* * *

I am, general, your most obedient servant,

RUFUS INGALLS,
Chief Quartermaster, Army of the Potomac.

General M. C. MEIGS,
Quartermaster General, Washington, D. C.

OFFICE OF CHIEF QUARTERMASTER,
ARMIES OPERATING AGAINST RICHMOND, VA.,
City Point, Va., September 1, 1864.

GENERAL: I desire to add to my annual report, just rendered, that I have always co-operated to the fullest degree with the medical directors and other medical officers of the army of the Potomac and that of General Butler's. They have very frequently conferred with me as to what assistance I could give them, and I have invariably found them prepared for any emergency, able to meet all demands upon their resources, very moderate and reasonable in their requisitions upon the quartermaster's department, and most officer-like in their communications with me. We were thrown much in contact with each other, said at times when our energies

were heavily taxed, I have never known the medical department wanting in anything that human labor, skill, and perseverance could overcome.

The hospital system in the field is as complete as it would seem possible to make it.

The ambulance trains work admirably, and the sick and wounded are as promptly and carefully taken care of as those in a city or town, and probably much better.

The large field hospital at this place, is well located, and perfectly watered by steam-power, with reservoirs, pipes, &c., and is large enough for all requirements.

The medical department have many transports at their service, for the transportation of the sick and wounded. When these are not sufficient, ordinary vessels are temporarily placed on such duty.

I have the honor to ask that this may be filed with my last report.

I am, very respectfully, your most obedient servant,

RUFUS INGALLS,
Brigadier General, Chief Quartermaster,
Armies operating against Richmond.

Brevet Major General M. C. MEIGS,
Quartermaster General U. S. A., Washington, D. C.

HEADQUARTERS ARMY OF THE POTOMAC,
OFFICE OF CHIEF QUARTERMASTER
Camp near Falmouth, Va., May 29, 1863.

GENERAL: I have the honor to acknowledge the receipt of your communication of the 12th instant, requesting a report of the operations of the quartermaster's department during the late campaign, and answers to certain inquiries.

I have required a report from each of the chief quartermasters of the different corps. They are herewith enclosed, marked from A to H. I beg you will give these reports a close perusal, because they are very full, and contain much valuable information for our department touching the movement of troops in the field. In submitting these papers I shall deem it necessary to give my views very briefly.

A copy of a report prepared by General Pleasonton, now commanding the cavalry corps, showing its present condition, is submitted, marked I. Also a copy of the proceedings of the board detailed to examine how many days' rations, clothing, &c., can be carried by troops on their persons on a march without wagons, herewith, marked K.

I will reply to your questions as follows:

Question 1. "The orders for the outfit and equipment ?"

Answer. It was ordered mainly that each man should carry eight days' short rations of provisions, one change of underclothing, and sixty rounds of ammunition on his person. He was also to carry his blanket or overcoat, his musket and accoutrements. In many instances both blanket and overcoat were carried, but it was not the intention.

Question 2. "The details of the outfit and equipment; the burden carried by each soldier, and its weight," &c.

Answer. The total weight carried by each soldier was forty-five pounds. It consisted of his knapsack, haversack, subsistence, and change of under-clothing; overcoat or blanket, arms and accoutrements, and one piece of shelter tent. Eight days' short rations were carried on the person, stowed as follows: five days' in the knapsack, and three days' in the haversack. Forty rounds of ammunition were carried in the cartridge-boxes, and twenty rounds in the pockets of the man's clothing. The total weight carried by the men, as reported by the different corps quartermasters, varies somewhat. The amount stated by me, however, is the correct figure.

Question 3. "Same as to officers?"

Answer. Each officer was responsible for his own outfit. It was to be carried by himself or servant. In some instances a few pack-animals were used.

Question 4. "What tents were taken with the troops, and how transported?"

Answer. Shelter tents were taken by the troops, each soldier carrying a piece.

Question 5. "What wagons, if any, accompanied the marching columns?"

Answer. No wagons followed the main column over the river at first; some ammunition wagons were brought up, but not necessarily.

Question 6. "What pack-trains?"

Answer. Pack-mules were used to transport reserve ammunition, and to pack up other supplies from the wagon parks.

Question 7. "The details of loading of each wagon and pack-mule?"

Answer. A six-mule wagon will carry 1,400 short rations of provisions, bread, coffee, sugar, salt, and soap, and eight days' rations of short forage for the six mules, or twenty-five boxes small-arm ammunition. A good pack-mule could carry two boxes small-arm ammunition, and six days' oats for himself, or an equivalent in weight of subsistence for men.

Question 8. "The organization of the teams?"

Answer. The teams and pack-trains were distributed to the corps and other commanders on the basis established in my circular of March 10, 1863, herewith, marked L. It was ordered that mules for packing should be drawn from the ammunition and supply trains when necessary, but never more than two from any one team, thus leaving four mules for the wagon. By this arrangement all the wagons could not move forward when required, with moderate loads, while pack-trains were being used.

Question 9. "The actual supply of ammunition and of rations accompanying the marching column?"

Answer. The troops carried eight days' supply of provisions and sixty rounds of ammunition on their persons.

Question 10. "The supplies moved from Falmouth and following in rear of the army?"

Answer. On the wagons and pack-mules there must have been at least six or eight days' more, all loaded and ready for the road. There was a plentiful supply of ammunition.

Question 11. "What did the troops carry through the campaign? Did they throw away overcoats, &c., &c.?"

Answer. The troops carried through the campaign only those things most necessary for their constant use. On the second and third days many abandoned overcoats and blankets, as the weather was warm. Very many abandoned their knapsacks on going into action. The impulse with the soldiers to throw off all impediments, under such circumstances, is almost irresistible. With proper discipline soldiers can be made to take care of their knapsacks and all other property put on their persons. On the late campaign a blanket should have been taken, but no overcoat. Both weigh a man down too heavily, and are not necessary in moderate weather. When men become heated or fatigued they will throw away such articles as are not imperatively needed. On short campaigns, or marches of four or five days without wagons, I would not take a knapsack at all, but would put the rations in the haversacks, and other things in the blanket, well folded and thrown over the right shoulder and looped under the left arm. But if knapsacks containing rations, &c., are worn by troops, *they should be made to fight with them on*; or, if that be deemed unadvisable, great care should be taken, before putting them in action, to have the knapsacks stowed away properly in the rear. On the late campaign the army abandoned in battle about twenty-five per cent. of the whole number; with due precaution these might, of course, have been saved. Along the roads and at camp-grounds I saw many parts of blankets, overcoats, &c., discarded. The accompanying reports will show quite clearly how much clothing was used up and abandoned in the campaign.

The army was perfectly equipped at the commencement in every particular, so far as concerned our department. The issues made immediately after were to supply deficiencies, which arose in the interim. On future marches this army will correct the errors referred to.

Question 12. "Have the men shown ability to carry those supplies without injury to health?"

Answer. The troops exhibited adequate strength to carry all the articles composing their outfit.

Marches were never made earth more cheerfulness, vigor, and regularity. The army could have marched the eight days without embarrassment, so far as supplies were concerned. While at Chancellorsville no difficulty was experienced by our department in bringing forward all treat was required, At no time did I feel that there could be any failure to supply the army on either side of the Rappahannock.

Question 13. "What are the daily marches? A map or itinerary of each brigade's or division's march would be of value."

Answer. A sketch is enclosed, marked M, showing the theatre of the operations. The system of transportation adopted with this army works admirably, and experience and observation have suggested no further change. I am satisfied with it, and I believe this army is. The number of ambulances is now reduced to two to each regiment.

The pack-mule system cannot be relied on for long marches with heavy columns. I shall have few hereafter, and intend to make them auxiliary simply to wagons, for short distances over rough country, where there are few and bad roads.

The new standard of means of transportation for the cavalry is as follows:

Four wagons to each 1,000 men for small-arm ammunition.

One wagon for hospital supplies for each regiment.

One wagon for regimental headquarters.

One wagon and two pack-mules for each company.

I do not consider that this scale can be amended. I desire to state that all the animals belonging to our department are now in splendid condition, except the pack-mules, most of which are in good order as to flesh, but have been galled badly in packing.

I wish to call your attention to General Pleasonton's report, in order that you may perfectly understand why I call for so many cavalry horses. The report explains the case briefly. You will recollect that just before our late cavalry raid there was a review of the whole corps by his excellency the President of the United States. It was admitted on all sides that the corps was then in fine condition. There were present for duty at that time certainly at least 10,000 horses. To-day not more than 5,000 serviceable ones can be mustered in the corps.

There has been no complaint of extraordinary marches or want of forage. What, then, has temporarily destroyed these horses? If we inflicted a proportionate loss on the enemy, he has suffered terribly.

There was too much weight carried on the cavalry horses after leaving the Rappahannock; they were not unsaddled, perhaps, and groomed at intervals, to say nothing of irregular watering and feeding, &c.

I am, very respectfully, your most obedient servant,

RUFUS INGALLS,

Brig. Gen. and Chief Quartermaster, Army of Potomac.

Brigadier General M. C. MEIGS,

Quartermaster General U. S. A., Washington, D. C.

27

Quartermaster Operations in the Western Theater

Introduction. Bvt. Brig. Gen. L. C. Eaton was Maj. Gen. William T. Sherman's Chief Quartermaster. In his official report for the fiscal year ending 30 June 1865, Eaton describes in detail the organization of Sherman's supply lines and accompanying logistical forces during the Atlanta campaign and the subsequent "March to the Sea" and clearly indicates the careful consideration given to matters of logistics by General Sherman himself.

HEADQUARTERS MILITARY DIVISION OF THE MISSISSIPPI,
St. Louis, Missouri, August 18, 1865.

GENERAL: In accordance with General Order No. 39, from your office, current series, I have the honor to make the following annual report for the year ending June 30, 1865:

My report for the year ending June 30, 1864, was mailed to your office October 31, 1864, and A corrected one for the same period was mailed to you May 19, 1865.

July 1, 1864, I was on duty as chief quartermaster of the army of Major General W. T. Sherman and of the army of the Cumberland, which at that time were in front of Kenesaw mountain, Georgia, facing the rebel army of General Johnston. The effective strength of our army in the field was about 100,000 men, with 28,300 horses, 32,600 mules, 5,180 wagons, and 860 ambulances. The enemy occupied a strong position, including Kenesaw and adjoining heights, and covering Marietta, and had maintained it for nearly three weeks, occasionally cutting the

---

Reproduced from the annual report of Bvt. Brig. Gen. L. C. Eaton, Chief Quartermaster, Military Division of the Mississippi, for the fiscal year ending June 30, 1865, dated St. Louis, Missouri, August 18, 1865, in the *Annual Report of the Quartermaster General of the United States Army to the Secretary of War for the Fiscal Year Ending June 30th, 1865* (Washington, D.C.: Government Printing Office, 1865), pp. 548–55. [Also found in *Annual Report of the Secretary of War for the Fiscal Year Ending June 30th, 1865* (Washington, D.C.: Government Printing Office, 1865), pp. 628–35.]

railroad which connected us with Chattanooga by means of small parties of guerillas or cavalry who operated between Dalton and Resaca, and could hide in the mountains and forests of the Chattanooga ridge. General Sherman had left garrisons at Tunnel Hill, Dalton, Resaca, and Kingston, and a division of cavalry at Adairsville, but the first attempts of the rebels at interrupting the road, which occurred in June, were successful. They would displace rails, wait until a train came along, which would be thrown from the track, and then burn it. In one or two cases they buried torpedoes under the rails, which exploded, throwing the locomotive from the track. Later, accidents from the removal of rails was prevented to a great degree by patrols, which went out from the posts regularly to examine the track. The enemy burned a small bridge near Dalton, and by frequent dashes at the road prevented to a great degree the passage of trains for about twenty days. Our dependence during that time was mainly on Resaca.

When the army abandoned the railroad at Kingston May 24, and marched to Dallas, for fifteen days they were on half rations of grain, and three-quarters rations of subsistence, which had been loaded into the wagons at Kingston. During this time I had directed the chief depot quartermaster at Chattanooga, Captain E. L. Hartz, to accumulate at Resaca grain and subsistence. The latter place, around which numerous earthworks had been built by the enemy, was garrisoned pretty strongly to guard these supplies. Above ten days' grain and twenty days' subsistence for the army was collected there, and until breaks in the road were repaired, and the guerillas hunted from the region about Dalton, we lived on the supplies brought from Resaca. By the 30th of June, while we were still in front of the Kenesaw mountain, all the forage had been brought away from Resaca. Alatoona was named as the point where any future accumulation that was possible should be made, and by order of General Sherman earthworks were built to strengthen the position, which was naturally a strong one.

From the 11th to the 19th of June the enemy had been forced back, step by step, till our men reached the base of Kenesaw mountain; but there our utmost efforts could not force them further. Kenesaw consists of two elevations; one about 900, the other about 800, feet high. They are very steep; and on the sides and summit the enemy had signal stations that could look down on us and report our every movement. Their batteries on the heights had a great advantage over ours on the low grounds, and an assault made on their lines on the 27th of June was repulsed with a loss to us of 3,000 men. After this General Sherman directed that the wagon trains should be filled up, as far as possible, at Big Shanty, and all cars and stores not, taken by the wagons be sent back to Alatoona; and while the armies of the Cumberland and the Ohio still continued to press the enemy's lines closely, the army of the Tennessee should march from our extreme left to the extreme right to Ruff's Mills, on Nickajack creek, threatening a crossing of the Chattahoochee river and the railroad. It was only by extraordinary exertions that we brought up to Big Shanty the necessary quantity of supplies in time; but they were brought up. The movement was entirely successful. The march of the army of the Tennessee had hardly commenced before the enemy withdrew from Kenesaw, our men following them closely and occupying Marietta, July 3. By the 6th we had forced them to the Chattahoochee, and partly across it.

The railroad, injured by the destruction of two miles of track and the removal of the frogs at Marietta, was repaired to that place by the 6th, and to Vining's Station a few days later. July 18 our army was all across the Chattahoochee with wagons full, carrying about ten days' supplies. In the hard fought battles that followed, our army repulsed the desperate assaults of the enemy at Peach Tree creek, about Decatur, and west of Atlanta.

Up to August 5 whatever stores were immediately wanted by the army were unloaded at the Chattahoochee river, (the remainder being left at Marietta,) at the point where the railroad bridge had stood before it was burned. Two wagon bridges had been built by our troops over the river, and a pontoon bridge captured from the enemy. August 5 the railroad bridge was completed by the construction corps, and supplies were brought over the river and unloaded on the bank south of it. At that date we had twenty days' subsistence and twelve days' grain up with the army, and the men were well clothed.

During the month of July we had begun to feel some solicitude concerning the quantity of supplies at Nashville. The navigation of the Cumberland and Tennessee rivers was partially suspended on account of low water, and the light boats that could run received very inefficient protection on the Tennessee from the enemy's cavalry by our gunboats, being obliged to wait, collect in fleets, and be conveyed up the river, thus causing a great loss of time. The Louisville railroad was delivering hardly fifty cars of freight, daily, at Nashville, which would furnish the army much less than half its daily consumption of stores of all kinds. The consumption of grain by the army in the field alone was over 600,000 pounds daily, and Colonel Donaldson had barely enough to last until September 1. The quantity of subsistence was sufficient to supply us up to about the 15th of September. July 27 the chief commissary and myself united in a letter to Major General Sherman, representing these facts, and recommending that he issue orders to the construction corps to repair the railroad from Clarksville to Nashville, there being only about thirteen miles of it to put in order, and the Cumberland being navigable to that point (which is below Harpeth shoals) at all seasons. The order was given, and Colonel W. W. Wright sent north to carry it out. Colonel Donaldson reported that enough grain had been received during the season at Nashville to last until October, but that much had been destroyed. The quantity destroyed at the front was not large; in two or three cases railroad trains of forage had been burned by the enemy, but none was lost after it reached the army, and much of the time since leaving Chattanooga our animals had not received full rations. Considerable grain had been ruined by shipping it at Nashville and Chattanooga in platform cars without protection from the rain. It required some severe measures from me at Chattanooga to break up this practice and that of shipping grain already damaged. August 16 I put our animals on half rations of grain. August 24 Colonel Donaldson reported that he was not getting half rations from the Ohio, and that he had not more than six days' full rations on hand. Fortunately about this time the rivers had risen some. General Allen, at Lousiville, reported that he was getting grain from every possible source, and in three days he started from the Ohio for Johnsonville and Nashville 94,000 bushels of oats and corn. On the 27th the crisis was passed.

General Allen telegraphed me that forage was arriving rapidly at Nashville, and that I might feed full rations if they could be brought from that place.

Ever since the first break in the road in June the railroad had had difficulty in transporting enough for our wants. Our necessities had increased so as to require one hundred cars of supplies daily, instead of sixty, as at first. This was caused by the arrival of re-enforcements, (including the 17th corps,) and by the increased demand for clothing, equipage, and means of transportation, which the campaign had worn out. Our increased distance from Chattanooga, (107 miles at Big Shanty, 130 at the Chattahoochee,) of course, made a greater number of cars and engines necessary in order to deliver the same amount of stores daily. My orders were peremptory and frequent to have all cars returned promptly from the front, and from Chattanooga, and from all stations south of it. My officers all along the road reported that all cars were unloaded as soon as they arrived, and if they were not returned immediately the fault did not lie with the Quartermaster's department. It seems to have been supposed by some officers at the rear that cars could be unloaded and returned from the front in the same time that they could at a permanent depot with every facility, and I received a letter from the Quartermaster General urging that cars be promptly returned from the army. As an army advanced the road had to be rebuilt, water tanks to be constructed, and wood cut. The depot had to be established nearer the army, side-tracks to be constructed, and whatever accumulation there was at the last depot had to be brought forward; and orders were frequently given to bring stores from the depot up to our very lines by rail, and to take back the sick and the wounded. The commanding general would sometimes order ten days' subsistence and grain brought up immediately to fill the wagons; in such cases we would have to take some of the cars that were usually kept running between Nashville and Chattanooga. Some trains never returned to the north at all, as they were captured and burned by the enemy; they tore up the track and fired upon trains very frequently. When the length of our line is recollected, and that it ran through an intensely hostile country, it is strange that these interruptions were not still more numerous. When all these things are considered, I think it will not seem singular that some delay occurred in returning cars. There is no doubt but what more cars would have been desirable, and this was a point that I had urged upon Colonels Donaldson and McCallum as far back as January and February, 1864; but I think the most was made of the cars we had.

The difficulty of regulating the road, under the embarrassments detailed above, was great. Though forbidden by order of the Secretary of War, dated Louisville, October 19, 1863, from interfering with the running of trains, yet their movements when near the front were so frequently dependent upon those of the army that I found it necessary to telegraph frequently on this subject, and the commanding general made me the medium of most of his instructions to the superintendents and to the construction corps.

After siege operations of more than a month about Atlanta, during the latter part of July and August, it became evident that our army could not capture the rebel city in that manner. The rebel army was so large that investment was impossible, and the railroad to Macon furnishing them with recruits and supplies, was

guarded strongly against all attack. Under these circumstances the commanding general determined to move upon the enemy's railroad with the main body of his army. All preparations having been completed, on the 26th of August the movement commenced, the 20th corps withdrawing to the Chattahoochee bridge, while the remainder of the army made a detour around the rebel left and arrived at Jonesboro' September 1. After some severe fighting, during which the enemy were evacuating Atlanta, they retreated south. The 20th corps entered Atlanta September 2, and the main army on the 8th. As soon as information reached me, at Jonesboro', that the enemy were out of Atlanta, I ordered my chief depot officer in the field, Captain John Stewart, to bring forward all stores at Marietta and the Chattahoochee bridge to Atlanta. The facilities of this place in the way of railroad depots, side tracks, and storehouses were most complete, it having been the largest depot for the supply of the rebel armies in the west. I was directed to take possession of all buildings and all staple articles, such as cotton, animals, hardware, &c., found in the city or vicinity. All such property was collected, and in accordance with instructions from the commanding general, my depot officers gave receipts for everything, but made no payments, as the loyalty of any of the claimants was at least doubtful, and it was judged best to let the government decide in the future whether any of the captured property should be paid for.

The whole army remained about Atlanta until the 4th of October, at which time the rebel army having made a detour completely around our right, crossing the Chattahoochee below Campbellton, struck the railroad at Big Shanty, and immediately commenced tearing it up and destroying the ties and rails. Our army immediately started north in pursuit, except the 20th corps, which was left to garrison Atlanta. The enemy destroyed the road up to Alatoona, and assaulted that place on the 5th, but were repulsed with severe loss. This saved two thousand cattle and fifteen days' bread for our army, and other stores. The enemy were reported to have very few wagons, and to be carrying with them scarcely anything except ammunition; at any rate, they moved with great rapidity, and marching around Rome, reached Resaca about the 12th. This place they were unable to capture, but destroyed the railroad from Tilton to Tunnel Hill. From this vicinity they retreated into northern Alabama, pursued by General Sherman as far as Gaylesville.

The distance of railroad and telegraph broken was about twenty-three miles, and the work of destruction was most thorough. Until it was repaired the garrison at Atlanta received nothing from the north, until about the 28th October, when some grain was brought around the break in wagons. The garrison in the town and at the Chattahoochee bridge numbered 21,100 men, the number of animals was 9,400. There was stored in the town more than a month's subsistence for the troops, but very little forage; when that was consumed the animals suffered a good deal. Parties were sent out southeast of Atlanta who brought in much forage, but the amount to be procured in this way was not sufficient, for, besides the animals of the 20th corps, there were in Atlanta depot teams and many unserviceable animals that had been turned in from the army. The parties had a long distance to go, (thirty miles,) and the enemy had a force hovering about Atlanta, which made it necessary to have very large guards for the trains. One thousand of the unservice-

able animals were ordered to be driven to Chattanooga, and were started October 12. Only men enough to control the animals accompanied them. They ran great risk of capture, but it was judged better to take that chance than let them starve in Atlanta. October 18, all of them that remained were gathered up and started for Chattanooga in the same manner. None were captured by the enemy.

Returning from a brief leave of absence, I reached Chattanooga October 12, on my way to Atlanta. On the 19th General Sherman telegraphed me from Summerville, Georgia, to go in person to superintend the repair of the railroad, and authorizing me to give all orders in his name that would expedite its completion. I at once went down to the break and ordered the 1st Michigan engineers, 1,800 strong, from Adairsville to Tilton, to assist the railroad corps in getting out ties, and procured forty teams from a cavalry division at Calhoun to haul them to the road. Colonel W. W. Wright, chief of construction, was short of iron, and a partial supply was procured by taking up rails from the West Point road, near Atlanta, and bringing them up on the cars which remained south of the break. The gap between Alatoona and Big Shanty was repaired sooner than the other, and as General Sherman had directed the bringing back to the rear of everything south Chattanooga, except what we could immediately use and carry in our wagons, to lose no time, many sick, wounded, negroes, &c., were carried to Resaca and brought around the break to Tunnel Hill, whence they went to Chattanooga.

They were suffering so for grain at Atlanta that I determined to get some through without waiting for completion of the road; and collecting all the teams that could be spared at Chattanooga, I sent them to haul grain from Tunnel Hill to Tilton, where it was carried to Atlanta by cars.

October 25, I went to General Sherman, at Gaylesville, by way of Rome, for consultation, and was put in possession of his entire plan of the intended campaign to the sea-coast, and then immediately started for Atlanta, which I reached on the 28th. The railroad will completed the same day.

The work now to be performed was to fit out the entire army for the march to the coast, and to carry everything not needed for this purpose back to Chattanooga, and the orders were to accomplish this in the shortest possible time; at the same time the 23d corps were being sent back to Nashville in cars, thus occupying a large part of the transportation. The accumulation of property at Atlanta, Rome, Marietta, and other posts, was surprisingly large for the time we had occupied the country, and the number of sick and wounded, citizens and negroes, to be taken to the rear was large. It is unnecessary to describe all the details gone through in accomplishing this work, but it was the most arduous and difficult duty to perform successfully that I have ever had to do in the same period of time. It was complicated by the army being distributed along the road from Rome to Atlanta, and having to be supplied where it was; while, at the same time, just so much had to be accumulated at Atlanta as it would require when it arrived there. There were stores to be removed to the rear at every post below Ringgold. The army could not leave the railroad from Resaca down, and march to Atlanta, which would much simplify the task of supplying them, because the

enemy's cavalry were ready to pounce upon and break the road as soon as it was uncovered. In addition to this the railroad was not working well. The superintendent at Atlanta was incapacitated by indisposition; his duties had to be performed by subordinates, and I found it necessary to give orders continually to the railroad officers myself. Many little accidents were occurring, causing delays. Every car was needed for public property, but the attempts to get private freight, tobacco, furniture, &c., to the rear upon cars were unceasing, and were aided in numerous cases by railroad employés, making the greatest vigilance necessary to prevent these attempts from being successful. I had two officers detailed especially to keep private property out of the trains.

The work of our department was successfully accomplished by the 11th of November, and the destruction of the railroad from the Etowah down was commenced the same day by our troops. The army had everything it needed, and the wagons were full. Everything of value had been got to the rear. Very little but worthless property was destroyed for want of transportation. A few old wagons and ambulances were burned, and some clothing drawn by an officer of the 15th corps, and not needed by the corps, was given away by him to any one who chose to take it. A few days' delay occurred while the army was marching down the railroad to Atlanta, during which that city was completely destroyed with the exception of its dwellings.

The march to Savannah commenced on the 15th of November.

The strength of the army was 63,680 men, and its transportation consisted of 14,468 horses, 19,410 mules, 2,520 wagons, and 440 ambulances.

The following was ordered as the allowance of transportation for baggage, and on the march:

One wagon to each regiment; one wagon to each battery; two wagons to each brigade headquarters; three wagons to each division headquarters; five wagons to each corps headquarters.

The remainder of the transportation was directed to be distributed as follows: three wagons to each division for hospital purposes; one wagon to every one hundred men, including artillery, for ammunition; and the remaining wagons, 1,296 in number, were used in carrying subsistence, forage, &c.

The army started from Atlanta with four days' grain. The subsistence transported was—

Twenty days' rations of hard bread; five days' rations of salt meat; thirty days' rations of sugar and coffee; five days' rations of soap, rice, and candles; eighty days' rations of salt.

The quantity of salt taken proved unnecessary, as we found it in great abundance in the country we passed through. In addition to the above, 5,476 head of beef cattle were taken.

The first grain received at King's bridge, on the Ogeechee river, arrived there and was issued on the 18th December, 1864. So the animals of the army subsisted on the country twenty-nine days, which makes at least 11,000,000 pounds of grain and 15,000,000 pounds of fodder and hay taken from the country and consumed on the march. This is a low estimate of the forage taken, as the beef cattle

were fed on the whole route as much as they would eat, and the number of horses, mules, and cattle was increasing every day.

After General Hood cut the Chattanooga and Atlanta railroad the animals of the army suffered for want of forage, and a large number of them became very much reduced in flesh, and were quite weak when the march commenced. This accounts for the large number of animals that gave out and were shot on the road. The character of the mules captured was superior, a small-sized or inferior one being seldom met with. On the arrival of the army before Savannah, the condition of the animals was far better than at the commencement of the march. Those that had strength sufficient at the start improved daily, and those that failed and gave out were replaced by better ones than we had in the trains at starting.

The army marched by corps, and on roads as near parallel to each other as could be found. Each corps had its pontoon train, and each division its pioneer force, and with these organizations streams were crossed, roads repaired, and sometimes made, without retarding the movements of troops.

The management of trains differed somewhat in each corps, but I think the best arrangement was where the train of the corps followed immediately after its troops, with a strong rear-guard in the following order:

1st. Corps head quarters baggage wagons.
2d. Division headquarters baggage wagons.
3d. Brigade headquarters baggage wagons.
4th. Regimental headquarters baggae a wagons.
5th. Empty wagons, to be loaded with forage and other supplies taken from the country, and the proper details for loading them.
6th. Ammunition train.
7th. Ambulance train.
8th. General supply train.

As the empty wagons reached points where forage and other supplies could be obtained, a sufficient number were turned out of the road to take all at the designated place, and so on through the day until all the empty wagons were loaded, making it a rule to take the first supplies arrived at, and to leave none on the road until all the wagons were loaded. The empty wagons would be loaded by the time the rear of the general supply train came up to them, and they would fall into their proper places in the rear of their division trains if in time, or in the rear of the general supply train, without retarding the march. This arrangement worked well, and is probably as good as any that could be made. As a general thing the wagons were required to go but a short distance from the line of march to obtain supplies, there being sufficient near by.

The march proceeded most successfully, there being little resistance from the enemy, and an abundance of food for men and animals being found everywhere until we took position before Savannah.

We arrived near Savannah on the 10th of December, and by the capture of Fort McAlister, on the 13th, communication with the sea was opened to us by the Ogeechee river. Supplies in limited quantities were brought up this river until the

21st December, when Savannah itself was occupied, and our vessels at once came up to the city by the south channel of the river.

The operations of your department, under my charge, from that time until General Sherman's army arrived at Washington, are so fully detailed in my report dated July 22, 1865, on file in your office, that a repetition of them here seems quite unnecessary. During the latter part of May General Sherman's army was broken up as an organization, and during the month of June I was ordered to St. Louis as chief quartermaster of the military division of the Mississippi.

Appended hereto is the statement of public moneys, required by General Order No. 39, from your office, current series. My duties as chief quartermaster in the field have been such that the other statements called for in the order are not required from me, having been responsible for no property, paid for no transportation, and furnished none, received no captured property, built no railroads or telegraph lines, and chartered no vessels.

Very respectfully, your obedient servant,

L. C. EASTON,
Brevet Brigadier General, Chief Quartermaster.

Major General M. C. MEIGS,
Quartermaster General U. S. Army. Washington, D. C.

A true copy:

JOHN V. FUREY.
Captain and Assistant Quartermaster.

28

General Hood as Logistician

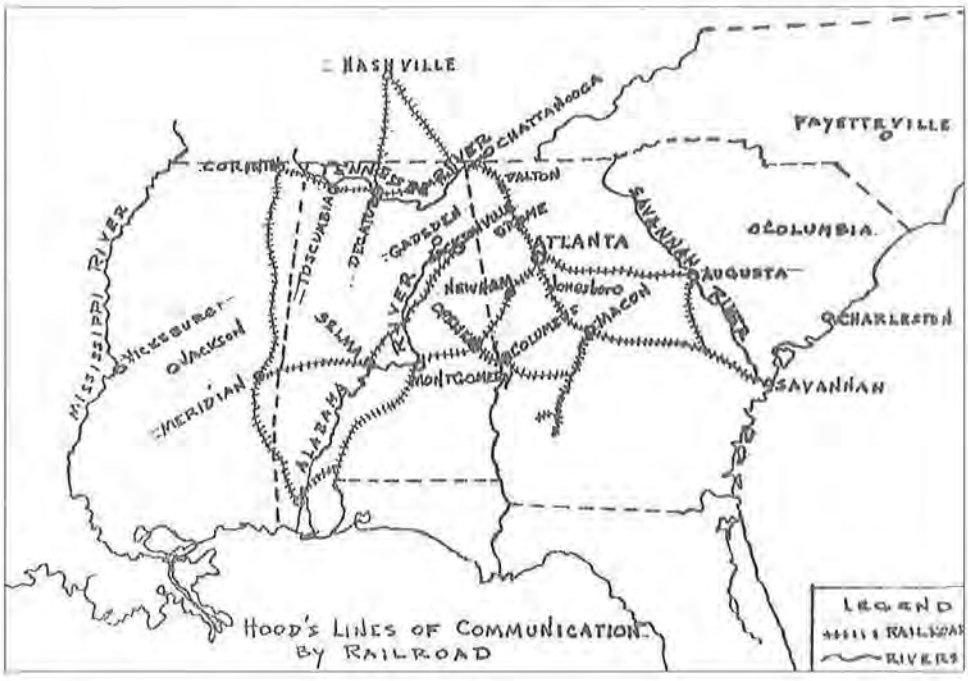
Introduction. Historian Frank Vandiver's description and analysis of Confederate Lt. Gen. John Bell Hood's operations in Georgia, Alabama, and Tennessee in 1864 highlight the consistently inadequate logistical system of the Confederate Army. Vandiver criticizes Hood for abandoning key logistical facilities to Union Maj. Gen. William T. Sherman's forces and concludes that Hood's understanding of the importance of logistics in modern warfare was defective. This article clearly establishes the difference between Hood and his chief opponent, Sherman, in the critical matter of logistics.

General John B. Hood was a fighter. This had been a major consideration influencing his appointment to succeed Joseph E. Johnston in command of the Confederate Army of Tennessee on July 18, 1864. But aside from this attribute, what qualifications did the general have for army command? He was undeniably quick in battle, had shown a grasp of objective in action and certainly could move troops where he wanted them to fight. He had, at the beginning of his independent command good and sufficient confidence in himself and advocated the offensive. But, as time went on certain gaps appeared in his proficiency.

President Davis knew that the choice of Hood was not the most ideal he could have made, but felt that what he lacked in professional finesse he might make up in action. Davis knew, too, that General Lee was unsure of Hood's overall qualifications.[1]

It is not surprising that neither the President nor the commander of the Army of Northern Virginia worried about whether Hood had a keen sense of logistics. Surely this was an obvious requisite of any capable field commander, and need hardly be questioned. Hood was, after all, a graduate of West Point. But no complete analysis of his military capacity can overlook his attention to what Frederick the Great has called "the primary duty of a general"—supply.[2] An examination of efforts to provide ordnance for Hood's Tennessee campaign will serve perhaps to measure him from this standpoint.

Reproduced with the permission of The American Military Institute and *The Journal of Military History* from Frank E. Vandiver, "General Hood as Logistician," *Military Affairs* 16, no. 1 (Spring 1952): 1–11.



The Army of Tennessee was adequately supplied with ordnance when Hood took command. Confederate ordnance officers had pushed efforts to furnish ample ordnance stores from the outset of Johnston's campaign to retard Sherman's advance from Dalton to Atlanta, Georgia, in May, 1864. By April the Ordnance Bureau had been able to issue about 120 rounds of small arms ammunition per man in the ranks, along with adequate artillery ammunition. Even so, the Bureau seemed compelled to apologize for not being able to do better.[3] An apology was out of order—the Bureau had done well.

Supplying such a volume of ammunition had strained resources considerably. Cooperation among all the ordnance establishments alone made the achievement possible. Under a logistical plan set up in March, 1863, the Army of Tennessee was to be supplied by the arsenals, armories and depots nearest to it.[4] This threw the main distribution responsibility upon Atlanta Arsenal and its supporting installations. Columbus Arsenal provided a large portion of the small arms ammunition to Atlanta Arsenal. From here it was, in turn, sent to the army. The production capacity of the cartridge laboratory at Columbus was increased during May and June, so that by June 28, its commanding officer reported a weekly fabrication of from 100,000 to 120,000 bullets. All of these were destined for the Army of Tennessee.[5]

In the emergency created by the summer campaign Atlanta Arsenal received aid from almost all of the ordnance installations in the deep South. From Savannah, for instance, as well as from Macon, came assistance in the form of cartridges.[6] No city contributed more toward supplying the army's needs than

Macon. Here were located the Confederate States Central Laboratories for Ordnance, an arsenal, a cannon foundry and a National Armory.[7] The Ordnance Bureau naturally expected Macon to carry a major portion of the supply load for the Army of Tennessee.

As the army retreated closer toward Atlanta, fear increased concerning the safety of the ordnance plants in Georgia. The loss of Atlanta Arsenal would be a severe blow to the Ordnance Bureau. But, in addition, the presence of Sherman beyond Atlanta meant danger to all deep South installations. Although generally not mentioned probably for security reasons, the retention of Atlanta was almost essential to the Bureau. This should have been obvious to even the most unmilitary onlooker.

With this tactical necessity as a spur, all possible measures were taken to sustain the army backing into Atlanta's entrenchments. In mid-July, after the army had occupied the city's defense lines, the percussion cap factory there was hastily moved to Macon.[8] Colonel Josiah Gorgas, the Confederate Chief of Ordnance, had decided to concentrate his Bureau's resources in Macon to sustain the army now under Hood's charge. Atlanta Arsenal was too exposed to rely on for other than distribution functions. Macon, Columbus, and Augusta arsenals were picked to provide Hood's wants, though the latter arsenal was all but isolated from army by rail. The ammunition laboratory in Atlanta was united with that in Macon and put under the command of Colonel John W. Mallet, the Confederacy's Superintendent of Laboratories. Gorgas directed Mallet to organize the workers of the two laboratories into a single force and rush production—"time is chief consideration."[9]

Macon Armory was sorely taxed to repair arms for Hood, but by July 26 it was able to return 200 arms a day to the army.[10] The Ordnance Bureau encountered many hindrances in keeping up Hood's ordnance supply. Negro labor was an essential part of the working force at all Macon ordnance plants. As the war moved into Georgia it became increasingly difficult to persuade slaveowners to rent their slaves to the various installations close to the theater of war. In late June Mallet and James H. Burton, at Macon Armory, had been forced to seek authority to impress slavelabor in order to keep going.[11]

The little relief this expedient offered was short lived. On July 1, Burton complained to Gorgas that an armed guard had appeared at the armory and laboratories with instructions to impress one-third of the Negro labor for work on fortifications.[12] Unfortunately this was to be the first of several similar interruptions.

Realizing that confusion might result from the changed logistical plan forced by Atlanta's situation, Gorgas sought to keep matters in hand. In an attempt to prevent decentralization from degenerating into chaos, he sent Colonel Moses H. Wright, trusted commander of Atlanta Arsenal, to Macon on August 4 to take charge of supplying Hood's needs. Wright was soon moved to the command of Columbus Arsenal when it became apparent that no confusion would develop.[13]

Hood received all kinds of cooperation from ordnance officers. Arms came to him from Richmond, even though General Lee needed almost all on hand in that city;[14] gunstocks came with difficulty to Macon for him from North

Carolina.[15] Charleston Arsenal, basking in a period of rare quiet, was called upon to supply everything possible.[16] Percussion caps, a basic need, were in urgent demand by late August. Mallet, doing all he could with the combined Atlanta and Macon machinery, asked Gorgas if an additional supply could be brought through the blockade. This despite the fact that a million pistol caps and a million and a quarter musket caps had come through during June and July. Two million were sent to Macon from Richmond.[17]

Apparently unaware of all that was being done to keep his troops supplied with ammunition and ordnance, Hood settled down to the siege of Atlanta. He made his first sally into the realm of ordnance logistics on August 1. On that day he telegraphed Colonel Richard M. Cuyler and Mallet, in Macon: "General Bragg directs that you send me at once all the negroes employed on public buildings at your post." Two days later James H. Burton got substantially the same message.[18]

This maneuver crippled operations at Macon, but Hood had not yet learned his lesson. On August 31—September 1, during General William J. Hardee's desperate action at Jonesboro on the Central railroad, all of the skilled and unskilled workers in the numerous ordnance works at Augusta were sent to reinforce him. Badly as they were needed at Jonesboro, the move was unwise. George W. Rains, commanding the Augusta works, complained that as a consequence "all the works here were stopped for some days. . ." He wrote Colonel James M. Kennard, chief ordnance officer of Hood's Army, that "I think it would be well for the General to give directions that the employees of the *Small Arm Cartridge Laboratory* . . . and Powder Works at this place should be exempted from the local duties, or in other words that they should remain under my control at all times: I think this very important for the public interests."[19]

As Hood's position in Atlanta became obviously insecure, uncertainty gripped ordnance officials. No one had any sound knowledge of what place would be safe. Burton did not wait for instructions; he assumed the Macon machinery would have to be moved and had several flat boats constructed—60 feet long and 14 feet wide—to transport it down the Ocmulgee River to an undetermined point in Georgia. Burton was excited and his action premature. Gorgas calmed him down and later suggested Columbia, South Carolina, as the place to send his machinery, if, indeed, it must be moved at all.[20]

Ordnance Bureau officers at Augusta, Columbus and Macon—indeed everywhere in the south, anticipated bad news from Atlanta. But they could hardly have conceived how bad that news would be. Mallet was the first to realize what had happened, and on September 5 expressed it to Gorgas in stark words: "Gen. Hood has blown up his reserve Ordnance train. Can any cartridges of calibre fifty-four and fifty-eight or rifle shell—three inch, ten pounder Parrott, and two and half inch Blakely—be had from North of Augusta?"[21]

There it was. Atlanta fell on September 2, and with it the arsenal, shops, railroad connection and the reserve ammunition of the Army of Tennessee. The ordnance was destroyed at about two o'clock that morning.

Reports were confused. All seemed to agree that some eighty-one cars and from three to five engines had been blown up, and it was generally assumed that all

of the cars contained ordnance stores.[22] This was not quite true, but the truth was sickening enough. Twenty-eight of the eighty-one cars did contain ordnance supplies. This constituted all of the available reserve, particularly of artillery ammunition.[23]



Josiah Gorgas

The repercussions of Hood's explosive withdrawal from Atlanta were immediately felt in the Ordnance Bureau. Hood could hardly have picked a more inopportune time to retreat, from an ordnance standpoint. Initial provision of his reserve ammunition had required every exertion, and now that Atlanta Arsenal was gone, replacement was doubly difficult.

George Rains at August, unruffled by events, asked ladies in Augusta and nearby communities to volunteer for work in his cartridge factory. With these patriotic assistants, he was able to reach a daily production of 75,000 cartridges during the critical days following the loss of Hood's ordnance.[24] But Rains' enterprise accounted for only one deficiency.

Suddenly, as if at a given signal, all kinds of shortages appeared. Colonel Wright, at Columbus, summed up their general nature in a telegram to his friend Mallet on September 6: "I need beeswax, twine, thread, gum arabic, sulphur, mealed powder, woolen yarn, lead & percussion caps as well as powder."[25] Mallet, whose wary eye surveyed the whole ordnance scene, told Gorgas of an even more serious need a few days later. Rains' supply of lead was running out, he said, and since all the other southern arsenals depended upon him for it a general shortage was in sight.[26]

Once out of Atlanta Hood came face to face with his own supply problems. Concentrating near Lovejoy's Station, on the Central railroad, he thought in terms of grand strategy. On September 6 he voiced an idea to President Davis. He felt that as soon as his army had rested, and after the Federal prisoners at Andersonville, Georgia, had been moved, he should strike Sherman's attenuated line of communications. This might force Sherman to follow him toward Chattanooga and might offer a favorable chance for battle.

Considering the disparity in size of the opposing armies, Hood's strategy was probably sound. To put this plan into effect, Hood realized, he had to shift his position from the Macon railroad and he informed Davis of his intention to draw supplies from the West Point and Montgomery railroad after he had changed his location. Hood described his move:

> Causing the iron to be removed from the several railroads out of Atlanta for distances of forty miles, and directing railroad stock to be restored to the West Point railroad, the movement to the left toward that road began on the 18th of September. Arriving at that road the army took position with the left touching the Chattahoochie River and covering that road, where it remained several days to allow the accumulation of supplies at Blue Mountain and a sufficiency with which to continue the movement.[27]

Hood's chief of staff, Brigadier General Francis A. Shoup, recorded the change in position in his daily journal of the army's movements. He noted that army headquarters were at Palmetto, on the West Point railroad on September 19. On the 20th he observed that Hood's orders concerning the removal of track were being executed:

> The telegraph wire and railroad iron between Lovejoy's and Griffin, on Macon railroad, and the iron above Newnan on West Point railroad, also on the Georgia railroad between Oconee River and Stone Mountain, have been ordered to be taken up at once and saved for future use.[28]

Ensconced at Palmetto, Hood proceeded to demand supplies. On September 20 he suggested to General Bragg that powder mills for his use be established at Cahaba, Alabama, or somewhere else in that state. This suggestion was the first indication that he was aware of any difficulties involved in providing ordnance to his army. Even in this instance he was uninformed, perhaps excusably so. A new powder mill was almost ready to begin operation at Selma, and would produce enough for Hood's needs—if niter production in Alabama was not interrupted by conscription.[29]

Having paid lip service to basic logistics, Hood's attention focused on more obvious matters. Arms were badly needed to refurbish the army and supply returning troops. Where could they be found? Colonel Kennard, possessed of commendable directness, suggested that since the Georgia militia had recently become inactive, their arms be taken for the Army of Tennessee. The Chief of Ordnance, in giving approval to this scheme, pointed out that the militia could soon be resupplied from the stock of arms being repaired at Macon. And he told the harassed Kennard: ["]Every exertion will be made to assist you, but the drain is simultaneous and difficult to meet."[30] Negotiations with Georgia began.

Meantime, Kennard tried other sources which he hoped might provide faster assistance. He queried Colonel Hypolite Oladowski, now commanding Columbus Arsenal, about how many arms could be drawn from there. The answer was discouraging. Oladowski had not a single rifle or musket to send. He thought, though, that Captain W. D. Humphries, at Hood's intermediate base, West Point, could send some 2,000 arms. With authorization for Gorgas another 600 could be had from Columbia Arsenal.[31]

Kennard's anxious search for harness and saddles for artillery horses brought Gorgas to his rescue. The Chief of Ordnance ordered saddles sent him from the arsenal at Mount Vernon, Alabama, along with 1,000 sets of harness from Richmond.[32]

Hood himself telegraphed Gorgas for ammunition. Envisioning the need for a change of base, he asked that future supplies be sent in quantity to Selma. Gorgas telegraphed Kennard immediately, asking what stores he needed and where he wished them sent.[33] Colonel Rains, instructed to aid Kennard, started shipping stores to Selma on September 26—4,000 rounds of fixed ammunition (mostly for 12-pounder Napoleon guns) and 500,000 rounds of .54 and .57 caliber small arms ammunition. He told Kennard that he could probably ship him 350,000 cartridges and 1,200 rounds of artillery ammunition a week. These figures could be raised considerably, given the proper conditions. Rains thought Hood should be told of the interruptions occurring in the operations at Augusta. The forcible removal of bullet moulders and wood agents had to stop, since

> such interruptions are likely to be disastrous. I write you these facts in order that General Hood may see to what interruptions I am liable to continually in preparing supplies, and hence cannot say as to the amount of stores I can send him but presume it will be as above stated.[34]

Finally Hood's negotiations for the Georgia militia rifles produced an answer. General Gustavus W. Smith, commanding the militia would not surrender the arms without authority from Governor Joseph E. Brown. Colonel Cuyler, at Macon, through whom Hood was negotiating, found himself caught between Hood and Smith. He appealed to Brown on September 27, for a release of the arms. Brown said no, as certainly the arsenal commander must have expected. Hood asked that Cuyler seize the arms, stored at Macon Arsenal, and send them to him immediately. Cuyler's position was awkward, to say the least. Faced with an order from a general in the field he was almost duty bound to comply. But apparently he was more forcefully aware than was Hood of the wrath such an action could produce in Milledgeville.

He had to telegraph Kennard on the 28th: "Governor Brown will not give up the arms. I cannot undertake to take them. . ." Later that same day, anguished in his dilemma, Cuyler again telegraphed Kennard: "Governor Brown has refused to give up the arms.—I must have high authority before I conflict with him. If Col. Gorgas my immediate superior, or the President order me, I will take them."

Brown again was told that Hood needed 1,000 of the militia rifles for the defense of Georgia, and the colonel hoped he would reconsider. Again, no. Cuyler gave up, and the matter was headed for court decision on October 1, when General Howell Cobb managed to persuade Brown to release the arms if they were later replaced. But this came a little late, since Hood had already started operations without the rifles.[35]

Gorgas did not wait to hear of the outcome of the Brown-Hood altercation. On September 28 be directed Major John T. Trezevant, at Columbia Arsenal, to send Kennard 1,000 Enfield rifles and 1,500 accoutrements. Captain Humphries, at West Point, told Kennard on the same day that he would ship arms and accoutrements on the 29th, but he had received no ammunition to send forward. The delay was in rail transportation, frequently monopolized by Commissary officials. Ammunition shipments could be made only when cars were released.[36]

Hood had at least one bit of good luck. On September 28, the day he moved his army out of camp at Palmetto, General Robert C. Tyler telegraphed him from West Point: "Have just found four hundred thousand percussion caps shall hold them subject to your order."[37]

Supplying Hood's needs at Palmetto had not been easy. He still used Jonesboro as his main depot, which involved somewhat complicated rail connection with his army.[38] Now that he was moving, he decided, after talking with General Beauregard, commanding the geographical department in which Hood operated, to change his base, as he had anticipated doing. The new base would be Jacksonville, Alabama, the railhead of the Meridian to Blue Mountain road. Ordnance was to be accumulated at Selma Arsenal for shipment to the army. As his plans developed, Jacksonville became progressively less attractive as a base.

Hood's itinerary took him north to Dalton and then southwest to Gadsden, which was reached on October 20. Here a day was consumed in issuing the supplies received from Selma and Jacksonville. These supplies had had to be transported from the railroad at Jacksonville to Gadsden by wagon, a distance of some eighteen to twenty miles.[39]

Having distributed his supplies, Hood appeared ready to cross the Tennessee River at Guntersville, Alabama. At any rate, this is what Beauregard had been led to believe in a conference with Hood at Gadsden on October 21. As a result, Beauregard began logistical preparations to sustain an offensive. Since Sherman's pursuing forces had come within fifteen miles of Gadsden and were thus all too close to Jacksonville, Beauregard made hurried plans to change Hood's base.

Hood himself had attempted to anticipate such a possible shift. As early as October 8 he had requested that the Memphis and Charleston railroad be put in working condition from Corinth to Decatur. He and Beauregard together decided that Tuscumbia would be the best base, and it was so designated. Much trouble was encountered in getting supplies there. From Selma, the main assembly point, supplies went to Meridian, Mississippi, then up to Mobile and Ohio as far as Corinth; were there transferred to the Memphis and Charleston, and sent to Tuscumbia. Despite the fact that these lines ought to have been in working shape, they were not. The Memphis and Charleston was not put in running order until November 21, and Hood, who moved his army to Tuscumbia on October 30, had to wait. His movement from Gadsden to Tuscumbia consumed most of what he had obtained at Gadsden—there was no alternative but to wait for stores.[40]

He was able to accumulate enough supplies by this route before the rail line was repaired, and despite muddy roads, to move across the Tennessee on November 21.

Rations and shoes were Hood's concern at Tuscumbia.[41] His main supplies of ordnance had already been sent to him at Newnan and Jacksonville. Reserves would come from Selma. After he had obtained supplies at Gadsden on October 20–21, the Ordnance Bureau could feel reasonably sure that it had done its best by him.

Hood's campaign was a failure—costly and bloody. His only chance of success lay in a speedy movement into Tennessee. And his fateful delay at Tuscumbia.

allowed the enemy ample time to prepare for his coming. Although want of cavalry and anxiety over Sherman's movements have been adduced as reasons for the delay,[42] Hood's logistical problems certainly loom large as a cause.

What of Hood's part in these logistical problems? Was he a victim of circumstances?

He blundered in August, 1864, by requisitioning the Negroes employed in the Macon ordnance plants. This mistake might well be excused on the grounds of ignorance, but the assignment of skilled ordnance technicians as reinforcements for Hardee at Jonesboro merits no such charity. He had been told of the havoc created in Macon and other ordnance cities by such interruptions.

Confusion might be offered as a reason for the loss of the Army of Tennessee's reserve ordnance at Atlanta. Nevertheless, this is no excuse. Hood, writing long after the event, placed the responsibility on his chief quartermaster.[43] This scapegoat had been provided by a Court of Inquiry appointed to assess blame for the loss of stores at Atlanta. After sifting the evidence, this body, Colonel M. B. McMicken, Hood's chief quartermaster, and Kennard, exonerated Kennard completely. The principal guilt was dumped in McMicken's lap—he failed "to comply with the specific and repeated instructions from the chief of staff . . . had at his disposal sufficient cars and engines to move all trains as ordered, and they were not so moved because proper instructions were not given by him to the railroad agents." The Court slightly censured Shoup for failing to see that his instructions to move the stores, issued on August 30, were carried out. Hood exonerated him in an indorsement to the Court's findings.[44] Hood was not mentioned in the proceedings. He not blameless. Perhaps he was too busy with pressing matters to pay specific attention to the removal of the stores, but this hardly seems a legitimate excuse. Granted he trusted his chief of staff to carry out this operation, still it would not seem unreasonable to expect the army commander to inquire specifically about such an important detail. A recent biographer of Hood observes that the loss of these stores was "another example of the poor staff work in evidence throughout the Atlanta campaign."[45] Agreed, but it must be added that Hood's apparent indifference contributed to this situation. Closer supervision from him would have insured at least a bit more energy in his staff.

Once having committed himself to the Tennessee venture, Hood does not appear to have grasped the overwhelming difficulties involved in supplying his needs for this campaign. The shift of the army from Jonesboro to Palmetto was perhaps tactically correct. Logistically it was awkward. Hood did not change his base immediately; consequently his line of communication ran from Jonesboro to Macon, thence to Columbus, Georgia, and Opelika, Alabama. The West Point and Montgomery railroad ran through the latter town, which connected, in turn, with the Atlanta and West Point at West Point, Georgia. Here was established Hood's intermediate base after the move to Palmetto. Ordinarily this would have been ideal, since the Atlanta and West Point ran through Palmetto. But Hood ordered the track torn up for a distance of forty miles from Atlanta. As a result his railhead was Newnan, fourteen miles southwest of Palmetto. The gap was bridged by wagon trains.[46]

When Hood did change his base he chose Jacksonville, Alabama. This seemed the proper place if he contemplated operating on Sherman's communications as far as Chattanooga, or if he planned a swift thrust across the Tennessee River at Guntersville. Jacksonville, as the head of the Meridian to Blue Mountain line, was the nearest railhead, but it was far from ideal. A decision to rely on this railroad involved the transfer of the depot supplies from Jonesboro, as well as transportation of future supplies from the Georgia arsenals. This would not have been too difficult had the rail connections from Georgia been continuous to Selma. Such was not the case. Selma, which must serve as the new assembly base for the army, was connected to Montgomery by a steamboat on the Alabama River. This gap, of course, necessitated breaking bulk and reshipping—and delay. Montgomery was connected with Georgia by rail well enough, but available rolling stock really was inadequate for rapid transportation, even had there been no break in the route.[47]

Hood came no nearer Jacksonville than Gadsden. The eighteen to twenty miles between towns were bridged again by the army's over-worked wagons. Jacksonville became unprofitable as a base after Hood decided to move west toward Decatur and Tuscumbia. A new base was located at the latter town. This could only be stocked by devious rail connections. The plan was to collect supplies at several places along the Mobile and Ohio railroad in Mississippi and Alabama. They were to be transported to Corinth in north Mississippi, put on the Memphis and Charleston road and sent east to Tuscumbia. Even under the most ideal conditions a poor arrangement, particularly since the arsenals at Selma and Demopolis lay to the east of Meridian, on the Meridian to Blue Mountain, and not on the Mobile and Ohio. Conditions, moreover, were not ideal. Hood had, on October 8, asked that the railroad from Corinth be repaired to Decatur, anticipating his possible needs, and as an alternative route should it become necessary. And though Forrest was able to protect the line as far east as Cherokee Station, its serviceability ended there. A fifteen mile expanse of wrecked track lay between Cherokee Station and Tuscumbia, which was not fully replaced until November 21. "It was thus necessary to transfer all shipments to wagons, which then had to be hauled over a country road, which in clear weather was none too good and which became a quagmire as soon as the rains began."[48]

In fairness to Hood it should be stressed that he had given indication of a need to use the Memphis and Charleston road and cannot be blamed for the repairs not being completed in time.

But Hood is perhaps guilty of an even greater misjudgement. Beauregard conferred with him at Decatur in late October and hoped he would move immediately into Tennessee, not far from there.[49] But he went on to Tuscumbia, pleading that he had not supplies enough to go into Middle Tennessee. These he must accumulate at his base.[50]

This seems indeed a valid reason for delay, but Hood was not thus making his problem easier. Although it is generally considered advantageous for an army to operate close to its base, Hood's position was peculiar in that this was untrue in his situation. The longer he remained at Tuscumbia, the more taxing it was on the Confederate supply bureaus to keep him equipped. His attenuated line of commu-

nications to his sources of supplies was unequal to a prolonged effort, and certainly to a rapid and efficient effort.[51]

An authority on Hood's Tennessee campaign has observed that his delay at Tuscumbia is militarily puzzling; it was "not due so much to lack of supplies, to the absence of Forrest, and to the necessity for repairing the railroad, as it was to anxiety concerning what Sherman would do." Without this anxiety to hold him back, he "would have advanced sooner than he did, at least by the 7th of November."[52] It is equally true that had he been thoroughly conscious of his logistical position there can be scarcely any doubt that he would have advanced sooner. Sherman had returned to Atlanta, and the Jacksonville line of communication would have been relatively safe. Hood might well have risked advancing at some point east of Tuscumbia to relieve the strain on the railroads.

Perhaps politically and tactically Hood's march into Tennessee was the best possible maneuver. But from a supply standpoint it left the heart of the Confederate Ordnance Bureau brutally exposed while imposing unnatural strain on the arteries carrying equipment to the army. The laboratories at Macon suspended operations in the face of Sherman's troops and were evacuated by November 17;[53] by December Columbus Arsenal was closed down,[54] and Savannah was lost, with all its ordnance and stores. Columbia Arsenal was destroyed in February, 1865, and Fayetteville, North Carolina, Arsenal and Armory followed in March. A relatively unopposed Sherman had wrecked the Ordnance Bureau.

From a logistical standpoint the Tennessee campaign was a catastrophe. It would have been infinitely better to keep the Confederate Army between Sherman and the arsenals and close to its supplies. Yet, militarily this appeared impossible.

Hood cannot be censured alone for the decision to invade Tennessee. Others in higher places shared that decision. In carrying out the plan, however, it must be concluded that although determined and reckless in battle, he was, sadly enough, an irresponsible logistician.

Notes

[1] For the background to Hood's appointment see John P. Dyer, *The Gallant Hood* (New York, 1950), 243–44.

[2] Frederick II, *Instructions for his Generals* (Harrisburg, Pa., 1944). (Translated by Brig. Gen. Thomas R. Phillips.)

[3] See Col. Julius A. de Lagnel to Col. Hypolite Oladowski, Richmond, April 4, 1864, in Manuscripts Collection, Series L, Vol. CXI (Mississippi Department of Archives and History). In this letter de Lagnel, assistant to the Confederate Chief of Ordnance, observed to the chief ordnance officer of the Army of Tennessee that ammunition distribution among the army's different corps was unequal. See also de Lagnel to Col. M. H. Wright, Richmond, April 4, 1864, in Personal Service File of J. A. de Lagnel (Adjutant General's Office, National Archives). This letter includes a chart of ammunition distribution in the Army of Tennessee.

[4] Ordnance Circular, Richmond, March 31, 1863, in Mississippi Manuscripts Collection, Series L, Vol. CXI.

[5] De Lagnel to Col. M. H. Wright, Columbus, Ga., June 22, 28, 1864, in Personal Service File of J. A. de Lagnel. De Lagnel to Wright, June 24, *ibid.*, advising of shipment of 190,000 cartridges.

[6] Col. John W. Mallet to Col. Josiah Gorgas (telegram), Macon, July 18, 1864, Confederate Archives (National Archives), Chap. IV, Vol. LII, 15; James H. Burton to Gorgas, Macon, July 26, 1864, *ibid.*, Vol. XXXI, 511.

[7] Frank E. Vandiver (ed.), *The Civil War Diary of General Josiah Gorgas* (University, Ala., 1947), 90, 91.

[8] Mallet to Gorgas, Macon, July 19, 1864, Confederate Archives, Chap. IV, Vol. LII, 16.

[9] Gorgas to Mallet (telegram), Richmond, July 22, 1864, in Personal Service File of John W. Mallett. Mallet was instructed to suspend all other work in favor of ammunition production.

[10] Burton to Gorgas, Macon, July 26, 1864, Confederate Archives, Chap. IV, Vol. XXXI, 511.

[11] Burton to Gorgas, Macon, June 24, 1864, *ibid.*, 460.

[12] Burron to Gorgas, Macon, July 1, 1864, *ibid.*, 471. The Negroes were returned on July 2 by order of Brig. Gen. Marcus J. Wright, commanding the Post of Atlanta. See *ibid.*, 476.

[13] Wright to de Lagnel (telegram), Macon, August 4, 1864, *ibid.*, Vol. CI, 309. For Wright's leaving Macon see "Circular Order," Macon, August 19, 1864, Confederate Archives, Chap. IV, Vol. XXXVII, 60.

[14] Gorgas to Bragg (telegram), Richmond, July 29, 1864, *Official Records*, Ser. I, Vol. LII, Pt. 2, p. 715.

[15] Burton to Gorgas, Macon, August 12, 1864, Confederate Archives, Chap. IV, Vol. XXXI, 528.

[16] Gorgas to Maj. Nathaniel R. Chambliss, Richmond, August 31, 1864, Mississippi Manuscripts Collection, Series L, Vol. CXI.

[17] Mallet to Gorgas (telegram), Macon, August 26, 1864, Confederate Archives, Chap. IV, Vol. LII, 20; Col. W. L. Broun to Mallet (telegram), Richmond, August 26, 1864, *ibid.*, Vol. XXXVII, 97; Maj. J. T. Trezevant to Mallet, Richmond, July 25, 1864, *ibid.*, 53. The last reference is a list of "leading" ordnance stores received at Columbia, S. C., Arsenal from Wilmington, N. C., in June and July, 1864.

[18] Hood to Cuyler and Mallet, *Official Records*, Ser. I, Vol. XXXVIII, Pt. 5, p. 939; Burton to Gorgas, Macon, August 3, 1864, Confederate Archives, Chap. IV, Vol. XXXI, 520.

[19] In Mississippi Manuscripts Collection, Series L, Vol. CXI.

[20] Burton to Gorgas, Macon, August 29, September 5, 10, 1864, Confederate Archives, Chap. IV, Vol. XXIX, 27; 36–37; 41.

[21] Mallet to Gorgas (telegram), Macon, September 5, 1864, in Personal Service File of John W. Mallet. Another, slightly different version, is in Confederate Archives, Chap. IV, Vol. LII, 21.

[22] This idea seemed to grow with time. See Dyer, *The Gallant Hood*, 270. Contemporary reports of the disaster reflected uncertainty by equivocation. The Chief of Ordnance apparently was aware that all the cars did not contain ordnance. See Vandiver (ed.), *The Civil War Diary of General Josiah Gorgas*, 140. The southern press made the distinction also. See Mobile (Ala.) *Advertiser and*

Register, September 21, 1864. General Hood probably contributed to this distortion in his memoirs. He wrote that on the night of September 2 his chief quartermaster "grossly neglected to send off a train of ordnance stores and five engines. . . . This . . . entailed the unnecessary loss of these stores, engines and about eighty cars." See Hood's article, excerpted from his memoirs, in R. U. Johnson and C. C. Buel (eds.), *Battles and Leaders of the Civil War* (4 vols., New York, 1884–1888), Vol. IV, Pt. 1, p. 344.

[23] *Official Records*, Ser. I, Vol. XXXVIII, Pt. 3, p. 992. For a partial list of the stores lost at Atlanta, see *ibid.*, 685–86. Hood's regular ordnance train was under Hardee's care at Jonesboro. See *ibid.*, 701.

[24] See Frank E. Vandiver, *Ploughshares into Swords: Josiah Gorgas and Confederate Ordnance* (Austin, 1952), 216.

[25] In Confederate Archives, Chap. IV, Vol. XXVII, 137.

[26] Mallet to Gorgas (telegram), Macon, September 12, 1864, *ibid.*, Vol. LII, 23. Rains had only enough lead to satisfy Augusta's wants for five weeks. See also Rains to Kennard, Augusta, September 27, 1864, Mississippi Manuscripts Collection, Series L, Vol. CXI.

[27] Hood to Gen. S. Cooper, Richmond, February 15, 1865, *Official Records*, Ser. I, Vol. XXXIX, Pt. 1, p. 801. See also Dyer, *The Gallant Hood*, 271–72.

[28] *Official Records*, Ser. I, Vol. XXXIX, Pt. 1, p. 805. For accounts of Brig. Gen. Edward M. McCook's raid against the Atlanta and West Point railroad, see *ibid.*, Vol. XXXVIII, Pt. 3, pp. 688, 689, 955, 962–63, 972–73.

[29] *Ibid.*, Vol. XXXIX, Pt. 2, pp. 847–48. Also indorsements by Bragg, James A. Seddon, Gorgas, and Col. I. M. St. John.

[30] De Lagnel to Kennard, Richmond, September 21, 1864, Mississippi Manuscripts Collection, Series L, Vol. CXI; Gorgas to Kennard (telegram), Richmond, September 22, 1864, *ibid.*, Series E, Vol. LXIV.

[31] Oladowski to Kennard, Columbus, September 22, 1864, *ibid.*, Series E, Vol. LXIV.

[32] Gorgas to Kennard (telegram), Richmond, September 23, 1864, *ibid.*

[33] Gorgas to Kennard, Richmond, September 26, 1864, *ibid.*

[34] Rains to Kennard, August [a], September 27, 1864, *ibid.*, Series L, Vol. CXI.

[35] Cuyler to Brown (telegrams), Macon, September 27, 28, 1864, Confederate Archives, Chap. IV, Vol. CI, 363, 368; Cuyler to Kennnrd (telegrams), Macon, September 27, 28, 1864, *ibid.*, 364, 365, 366; Cuyler to Gorgas (telegrams), Macon, September 28, October 3, 1864, *ibid.*, 367, 369; Vandiver, *Ploughshares into Swords*, 219–20.

[36] Trezevant to Kennard (telegram), Columbia, September 28, 1864, Mississippi Manuscripts Collection, Series E, Vol. LXIV; Humphries to Kennard, West Point, September 28, 1864, *ibid.*; Cuyler to Humphries (telegram), Macon, September 28, 1864, *ibid.*

[37] In *ibid.*

[38] See *Official Records*, Ser. I, Vol. XXXIX, Pt. 1, pp. 796, 801, 805; *ibid.*, Vol. XLV, Pt. 1, p. 659.

[39] *Ibid.*, Vol. XXXIX, Pt. 1, pp. 802, 807; *ibid.*, Vol. XLV, Pt. 1, p. 659.

[40] *Ibid.*, Vol. XXXIX, Pt. 1, pp 796–97; *ibid.*, Vol. XLV, Pt. 1, p. 651; Thomas R. Hay, *Hood's Tennessee Campaign* (New York, 1929), 59, 60, 61, 62.

[41] Hay, *Hood's Tennessee Campaign*, 61, 62, 64.

[42] *Ibid.*, 65.

[43] See *supra*, note 22.

[44] *Official Records*, Ser. I, Vol. XXXVIII, Pt. 3, p. 992.

[45] Dyer, *The Gallant Hood*, 270.

[46] *Official Records*, Ser. I, Vol. XXXIX, Pt. 1, pp. 801, 805.

[47] *Ibid.*, Ser. IV, Vol. III, 733–34.

[48] *Ibid.*, Ser. I, Vol. XXXIX, Pt. 1, pp. 797, 802; Hay, *Hood's Tennessee Campaign*, 61, 62.

[49] The Decatur crossing of the Tennessee was too well defended and Hood hoped to cross at Lamb's Ferry or Bainbridge—these failing, then at Tuscumbia. *Official Records*, Ser. I, Vol. XLV, Pt. 1, p. 648; Hay, *Hood's Tennessee Campaign*, 61.

[50] Hay, *Hood's Tennessee Campaign*, 61.

[51] Hood's ordnance replacements were being drawn from Georgia as late as mid-November. See Wright to Mallet, Columbus, November 15, 1864, Confederate Archives, Chap. IV, Vol. XXXVIII, 328.

[52] Hay, *Hood's Tennessee Campaign*, 65.

[53] Mallet to Gorgas (telegrams), Macon, November 17, 21, 1864, Confederate Archives, Chap. IV, Vol. LII, 30, 31. Some of the Macon Armory machinery was sent away at the same time. See Burton to Gorgas, December 7, 1864, *ibid.*, Vol. XXIX, 165.

[54] *Official Records*, Ser. I, Vol. XLV, Pt. 2, p. 704.

29

Working on the Railroad

Introduction. The American Civil War was the first major conflict in which railroads played a significant role, and the importance of railroads to the supply of Civil War armies is nowhere as clearly demonstrated as during Maj. Gen. William T. Sherman's campaign from Chattanooga to Atlanta. Army officers Major and Fitch here provide a series of excerpts pertaining to railroad operations and maintenance during the Atlanta campaign, which summarize the principles and procedures of Civil War rail operations and the all-important activities of the Union Army's excellent Rail Road Construction Corps.

Military Railroads

It will be seen that advantage was taken of the movement of troops to send beef cattle, also mules, horses and wagons up the Tennessee to Clifton and thence overland to Decatur. Clifton, it may be mentioned, was at the head of Navigation on the Tennessee. This was done to relieve to some extent the pressure on the railroads. As it was the railroads which played such an important part in the Atlanta Campaign and in fact made it possible, extracts from the report of the General Manager and other officers showing how the military railroads of the Military Division of the Mississippi were organized and operated will now be considered. In order to understand the system in use in 1864, it is considered desirable to quote, first of all, the following order issued in 1862:

> War Department
> Washington City, D. C., February 11, 1862.
>
> Ordered, That D. C. McCallum be, and he is hereby appointed military director and superintendent of railroads in the United States, with authority to enter upon, take possession of, hold, and use all railroads, engines, cars, locomotives, equipments, appendages, appurtenances

---

Reproduced from Duncan K. Major and Roger S. Fitch, eds., *Supply of Sherman's Army During the Atlanta Campaign* (Fort Leavenworth, Kans.: Army Service School Press, 1911), pp. 28–51.

that may be required for the transport of troops, arms, ammunition, and military supplies of the United States, and to do and perform all acts and things that may be necessary and proper to be done for the safe and speedy transport aforesaid.

By order of the President, Commander-in-Chief of the Army and Navy of the United States:

EDWIN M. STANTON,
Secretary of War.

The effect of this order was the organization of a division of Military Railroads in the War Department and which, so far as I can ascertain, was subject to the orders of the Quartermaster General of the Army, altho from the above order it does not appear that there was any connection between the two. However, from later orders and correspondence my assumption would appear to be correct. It was the Quartermaster Department that furnished all the supplies for the construction and operation of the railroads and made all the disbursements of moneys for their maintenance. All employees were carried and paid on the rolls of the Quartermaster Department.

In obedience to orders from the War Department, dated December 19, 1863, Colonel McCallum proceeded to Chattanooga, Tennessee and reported to Brigadier General M. C. Meigs, Quartermaster General, U. S. Army. He assisted in the reconstruction of the railroads under military control in the Military Division of the Mississippi and later submitted a report to the Secretary of War on their condition. The result of this report was the issue of the following order:

(General Orders No. 3)
HEADQUARTERS MILITARY DIVISION OF THE MISSISSIPPI
Nashville, Tenn., February 4, 1864.

By authority of the Secretary of War, Colonel D. C. McCallum, additional aide-de-camp, United States Army, is hereby appointed general manager of all railways in possession of the government, or that may from time to time be taken possession of by military authority in the Departments of the Cumberland, the Ohio, the Tennessee, and of Arkansas, with all the powers and authorities conferred and duties imposed upon and vested in Jno. B. Anderson, as general manager of said railways, by Special Orders of the Secretary of War, of date War Department, Louisville, Kentucky, October 19, 1863, (as modified by paragraph 4, General Orders No. 13, from these headquarters) and will at once enter upon the duties of general manager of railways aforesaid.



David C. McCallum



Montgomery C. Meigs

> Jno. B. Anderson is hereby relieved from duty as general manager of said railways and from all connection with the same, and will turn over to the said Colonel McCallum all property, moneys, contracts and papers of every kind and description belonging to government, or in anywise appertaining to or concerning said railways.
>
> By order of Major General U. S. Grant:
>
> T. S. BOWERS,
> Assistant Adjutant General.

In order to show how Colonel McCallum carried out this order, extracts from the report made by him after the close of the campaign will here be inserted.

> Upon assuming the duties thus imposed, I found most inadequate means to accomplish the purposes for which the railroads had been opened. The main army was at Chattanooga and in its vicinity, and all the supplies for men and food for its animals were received from Nashville, one hundred and fifty-one miles distant, over the Nashville and Chattanooga railroad. This road was necessarily the main line of supply during the subsequent campaigns from Chattanooga towards Atlanta, and from Knoxville towards southwestern Virginia, and was at this time in the worst condition. The track was laid originally on an unballasted, mud road-bed, in a very imperfect manner, with a light V

rail, on wooden stringers which were badly decayed and caused almost daily accidents by spreading apart and letting the engine and cars drop between them. The total length of road in use was as follows:

Nashville to Chattanooga	151 miles
Nashville (south) to Dark's Mill	39 miles
Stevenson to Huntsville	60 miles
Chattanooga to Charleston	42 miles
Total	292 miles

Upon examination it was found there was on the above roads the following rolling stock:

United States Military railroad locomotives that could be made available	47
Locomotives borrowed from Louisville and Nashville railroad	3
Total	50
Disabled and in shop for repairs	11
Total number of locomotives fit for service	39
United States military railroad freight cars	437
Cars borrowed from Louisville and Nashville railroad, about	100
Total	537
Number disabled	137
Number of freight cars in running order	400

My attention was first directed to the most efficient organization of the men employed. Two distinct departments were projected: the "transportation department," embracing the operation and maintenance of all the lines in use, and the "construction corps," for the reconstruction of the railroads which might fall into our hands as the army advanced.

The following orders and instructions were issued to the principal officers in charge of these respective organizations:

(General Orders No. 1.)
OFFICE OF GENERAL MANAGER MILITARY
RAILROADS, U. S.
Nashville, February 10, 1864.

A. Anderson is hereby appointed general superintendent of transportation and maintenance of roads in use, and W. W. Wright, chief engineer

of construction, in the military division of the Mississippi. They will be respected accordingly.

D. C. McCALLUM,
Colonel U. S. A., Gen. Mgr. Mil. R. R., U. S.

Approved:
U. S. GRANT,
Major-General.

OFFICE OF GENERAL MANAGER MILITARY
RAILROADS, U. S.
Nashville, Tenn., February 11, 1864.

Sir: You are hereby appointed general superintendent of transportation on United States military railroads in the military division of the Mississippi.

Your duties will be confined to the management of transportation on all railroads in use in this division together with all necessary repairs to the same. You will have, with the approval of the general manager, full authority to engage the service of all persons for whose acts you are held responsible, and will have full power to dismiss any subordinate when in your judgment the interest of the service will be promoted thereby. You will, also, with the approval of the general manager, have authority to establish rates of compensation of all persons serving under you. You will at an early day present to the general manager, for his approval, a plan of the organization of your department. You will have authority to make requisitions for supplies upon the assistant quartermaster detailed to service on military railroads in the military division of the Mississippi. You have power to make requisitions for men and materials, or both, upon the chief engineer in charge of construction in this division, when in your opinion the emergency calls for such assistance.

As the duties of the general manager will occasionally cause his absence from this military division, you will at such times, and in order to insure prompt action, obey any order emanating from the general-in-chief of this military division, or the generals in command of the departments of the Cumberland, the Ohio, and the Tennessee, in all matters appertaining to the branch of duties in your charge.

D.C. McCALLUM,
Colonel United States Army, Military Director
and General Manager U. S. Railroads.

A. Anderson, Esq.

OFFICE OF GENERAL MANAGER MILITARY
RAILROADS, U. S.
Nashville, Tenn., February 11, 1864.

Sir: You are hereby appointed chief engineer of United States military railroads in the military division of the Mississippi.

Your duties will be confined more especially to the reconstruction and opening of new lines of railroad. For this purpose you will have the entire charge of the construction corps. You will have authority, with the approval of the general manager, to engage all persons for whose acts you are held responsible, and will have full power to dismiss any person employed under you, when in your judgment the interest of the service will be promoted thereby. You will, with the approval of the general manager, have power to establish rates of compensation of your subordinates, and will at an early day report to the general manager for his approval a plan of organization of all the forces in your charge. You will have authority to make requisitions for supplies, tools, etc., upon the assistant quartermaster detailed for special duty in the military division of the Mississippi, and located at Nashville.

It will also be your duty to honor requisitions made upon you for men and materials by the general superintendent of United States military railroads in the military division of the Mississippi, for the purpose of repairs of lines in use; but you will in no case withdraw your forces for said repairs without the consent and approval of the general in command of the department where your forces may be located, or the general-in-chief of this military division.

In order to insure prompt action, you will, in the absence of the general manager, obey the orders of the general-in-chief of this military division, of the generals in command of the departments of the Cumberland, the Ohio, and the Tennessee.

Very respectfully, your obedient servant,

D. C. McCALLUM,
Colonel United States Army, Military Director
and General Manager U. S. Railroads.

W.W. Wright, Esq.

The transportation department embraced the following divisions or sub-departments:

First. Conducting transportation or managing the movements of trains.

Second. Maintenance of roads and structures, or keeping the roadway,

bridges, buildings, and other structures in repair, building new structures, rebuilding old ones when and where necessary.

Third. Maintenance of rolling stock, keeping in order the locomotives and cars, and managing the shop where such work was done.

For conducting transportation "each principal line was operated by a superintendent of transportation," who was held responsible for the movement of all trains and engines over it.

Subordinate to the superintendent were one or more "masters of transportation," according to distance operated, who were constantly moving over the road to see that the employees attended properly to their duties while out with their trains.

At principal stations where locomotives were changed, or kept in reserve, an "engine dispatcher" was stationed to see that the locomotives were in good order for service, that they were property repaired and cleaned when at the station: to supervise and control the engineers and firemen, and to assign the requisite crews to engines.

Maintenance of roads and structures for each line was in charge of a superintendent of repairs, with the necessary supervisors, road-masters, foremen etc.

Maintenance of rolling stock was in charge of the master machinist, who managed repairs of locomotives, and the master of car repairs, under whose charge all repairs to cars were made.

The above officers were independent of each other, and reported directly to the general superintendent.

The maximum force employed at any one time in the transportation department of the military division of the Mississippi was about twelve thousand men.

The following is the organization in detail:

General Superintendent's Office:—General Superintendent, assistant general superintendent, chief clerk.

Officers reporting to general superintendents:—Superintendent N. and C., N. and N. W., and N. and C. lines, superintendent N., D., and S. line, superintendent C. and A., and C. and K. lines; superintendent K. and B. line; engineer and superintendent Mem. and Chr., Miss. Cen., Mobile and O., Memphis and Little Rock lines; agent Louisville City line; chief master of transportation, general agent; engineers of maintenance and repairs; general machinist; master carpenter; superintendent of car repairs; general engine dispatcher; general train dispatcher; general freight agent; general fuel agent; general ticket agent; general car agent; general storekeeper; general lumber and timber inspector; surgeon in charge.

Officers reporting to general superintendents:—Master of transportation; train dispatchers; engine despatchers; superintendent of road repairs; superintendent of repairs, bridges and buildings; station agents; freight agents; fuel agents; car agents.

Officers reporting to general machinists:—Master machinist, Nashville shops; master machinist, Huntsville shops; foreman car repairs, Chattanooga shops: master machinist, Knoxville shops; master machinists, Memphis shops.

Officers reporting to superintendent car repairs:—Master car repairs, Nashville shops; master car repairs, Chattanooga shops; master car repairs, Knoxville shops, foreman car repairs, Johnsonville shops; foreman car repairs, Clarksville shops; foreman car repairs, Huntsville shops; foreman car repairs, Stevenson shops; foreman car repairs, Atlanta shops; foreman car repairs, Memphis shops; foreman car repairs, Little Rock shops.

Officers reporting to general agent:—Station agents; conductors.

Officers reporting to engineer of repairs: Assistants or division engineers; supervisors; road-masters; foreman; sub-foremen; tie inspectors.

The construction corps of the military division of the Mississippi was organized in six divisions, under the general charge of the chief engineer, and at its maximum strength numbered nearly six thousand men.

To give the corps entire mobility, enable it to move independently and perform work at the same time at widely different points, each division was made a complete whole in itself, and equipped with tools, camp equipage, and field transportation, in order that the whole or any part of the same might be moved at once in any direction where ordered, and by any mode of conveyance, by rail, with teams and wagons, or on foot.

The number of divisions was increased or diminished to suit the requirements of military movements.

The following is the organization of one division of the construction corps, United States military railroads, as it existed in the military division of the Mississippi.

Each division was under the command of a division engineer, and was divided into sub-divisions or sections.

Each sub-division was under the immediate command of a supervisor.

The two largest and most important sub-divisions in a division were the track-layers and bridge-builders. A sub-division was composed of gangs, each under a foreman. Gangs were sub-divided into squads, each under a sub-foreman.

A division completely organized was composed of the following named officers and numbers of men:

	NO. OF MEN	
Division engineer	1	
Assistant engineer	1	
Rodman	1	
Clerk	1	
Messengers	2	
		6

Subdivision No. 1

Supervisor of bridge and carpenter work	1	
Clerk and time-keeper	1	
Commissary	1	
Quartermaster	1	
Surgeon	1	
Hospital steward	1	
Foremen (one for each 50 men)	6	
Sub-foremen (one for each 10 men)	30	
Mechanics and laborers	300	
Blacksmith and helper	2	
Cooks	12	
		356

Subdivision No. 2

Supervisor of track	1	
Clerk and time-keeper	1	
Commissary	1	
Quartermaster	1	
Surgeon	1	
Hospital Steward	1	
Foremen (one for each 50 men)	6	
Sub-foremen (one for each 10 men)	30	
Mechanics and laborers	300	
Blacksmith and helper	2	
Cooks	12	
		356

Subdivision No. 3

Supervisor of water stations	1	
Foremen	1	
Mechanics and laborers	12	
Cook	1	
		15

	NO. OF MEN	
Subdivision No. 4		
Supervisor of masonry	1	
Foremen	1	
Masons and helpers	10	
Cook	1	
		13
Subdivision No. 5		
Foreman of ox brigade	1	
Ox drivers	18	
Cook	1	
		20
Train Crew		
Conductors	2	
Brakemen	4	
Locomotive Engineers	2	
Firemen	2	
Cook	1	
		11
Grand total		777

The commissary had charge of drawing, caring for, and issuing rations.

The Quartermaster had charge of issuing tools, camp equipage, etc.

Each foreman was responsible for the tools and other government property issued to his gang.

Each supervisor reported the time made by the men in his subdivision, through his division Engineer, to the chief time-keeper, who was stationed at the headquarters of the chief engineer.

The surgeons were appointed by the chief engineer, and were paid out of a private fund voluntarily contributed by the men for hospital purposes.

Sub-foremen were appointed by the foremen, subject to the approval of the division engineer. Foremen were appointed by the division engineer, subject to the approval of the chief engineer.

Division and assistant engineers were appointed by the chief engineer, subject to the approval of the general manager.

After completing the organization of the working forces, my attention was directed to providing an adequate supply of locomotives and cars, with the necessary shops, tools, and materials to keep them in working order.

In my report of January 19, 1864, I had estimated the rolling stock necessary for the business anticipated on the lines that would probably be operated from Nashville, at two hundred locomotives and three thousand cars, while only forty-seven available locomotives and four hundred and thirty-seven cars there on hand. From the imperative necessity of providing the additional equipment at the earliest possible time, the following order was given by the honorable Secretary of War to the locomotive manufacturers of the country:

WAR DEPARTMENT.

Washington City, March 23, 1864.

Gentleman:–Colonel Daniel C. McCallum, general manager of government railways in the departments of the Cumberland, of the Ohio, and of the Tennessee, has been authorized by this department to procure locomotives without delay for the railways under his charge.

In order to meet the wants of the military departments of the government, you will deliver to his order such engines as he may direct, whether building under orders for other parties or otherwise; the government being accountable to you for the same.

The urgent necessity of the government for the immediate supply of our armies operating in Tennessee, renders the engines indispensable for the equipment of the lines of communication, and, it is hoped that this necessity will be recognized by you as a military necessity, paramount to all other considerations.

By order of the President:

EDWIN M. STANTON,

Secretary of War.

It is but proper to state that the requisitions of this order were met by all in a spirit of zealous patriotism. The manufacturers at once placed all their force at work upon the engines and cars ordered, which were completed and delivered in an unprecedented short time.

Notwithstanding the large additions made to the rolling stock in February, March and April, it was still inadequate to supply the wants of the service, and it was found necessary to use extraordinary measures to increase it.

The guage [sic] of the Tennessee railroads being five feet, and only the roads in Kentucky having a corresponding gauge, they were the only source from which rolling stock could be obtained, and their engines and cars were temporarily impressed into the government service and sent south to Nashville.

The following number of engines and cars were thus obtained and used through May and during part of April and June:

	Engines	Cars
Louisville & Nashville Railroad	17	120
Louisville & Lexington Railroad	2	15
Kentucky Central Railroad	2	60
Total	21	195

The fifteen cars belonging to the Louisville & Lexington railroad and the sixty cars of the Kentucky Central railroad were subsequently purchased by the government.

To maintain the locomotives and cars in good working order, extensive machine and car shops were built at Nashville and Chattanooga.

The shops were supplied with machinery partly seized or purchased in the country, and partly obtained from northern manufacturers.

The shops at Nashville, particularly, were on a large scale, as at times one hundred engines and more than one thousand cars were there at once, it being the main terminal station of five hundred miles of road, running from it east, south and west. Extensive storehouses also were built at Nashville and Chattanooga, and kept supplied with all necessary materials to rebuild and repair track, bridges, buildings, engines or cars, to any reasonable extent.

The general intention was to make these two cities the great centers toward which all operations would converge, where supplies of all kinds could be obtained in case the roads were cut in their rear; where repairs of any kind or to any extent could be made; and in case communication was destroyed between them, operations could be conducted from either with facility in any direction.

The Nashville & Chattanooga railroad, 151 miles, was the great main line over which passed all the supplies for the armies of the Cumberland, the Ohio, and the Tennessee, through the campaigns which terminated with the occupation of Atlanta. Over this single line of railroad the provisions, clothing and camp equipage for the men, forage for animals, arms, ammunition, and ordnance stores, re-enforcements, and all the varied miscellaneous supplies required for a great army engaged in an active campaign, were sent to the front; by it were returned the sick, wounded, disabled, and discharged soldiers, refugees and freedmen, captured prisoners, and materials deemed advisable to send to the rear.

About 115 miles of track were relaid with new iron, cross-ties, and ballast from February, 1864, to the close of the war. Sidings were put in at intervals to be not more than eight miles apart, each capable of holding five to eight long freight trains, and telegraph stations were established at most of them. In all, nineteen miles of new sidings were added to this road and forty-five new water tanks were erected.

During the spring and summer of 1864 a few occasional guerilla raids were made upon it, but they caused little damage to property or detention to transportation. About September 1, 1864, the rebel general Wheeler destroyed seven miles of road between Nashville and Murfreesboro. In December, General Hood destroyed seven and three-fourths miles of track and five hundred and thirty feet of bridges between the same stations. In both cases the road was promptly repaired and trains were running in a few days.

The next railroad in importance for military purposes was the Western & Atlantic, from Chattanooga to Atlanta, 136 miles. It was open to Ringgold, Georgia, 21 miles from Chattanooga, in March, 1864. Early in May the work of reconstruction was commenced south of Ringgold, and kept pace with the movements of Sherman's army. The line was opened through to Atlanta in August, 1864, immediately after the evacuation of the town by the rebel army. In the reconstruction of this road 22½ miles of track and 4,081 lineal feet of bridges were rebuilt.

The most important single structure was Chattahoochee bridge, 780 feet long and 92 feet high, which was completed by the construction corps in four and a half days. While occupied as a military road this was more infested by guerillas than any other during the war. Every device possible to apply was used to throw trains from the track, and, though occasionally successful, the preparations to guard against such attempts were so complete that few of them caused loss of life or more than a few hours detention.

Early in October, 1864, General Hood passed around General Sherman's army and fell upon the railroad at several points in its rear. He destroyed 35½ miles of track and 455 lineal feet of bridges, but in thirteen days after he left it was repaired and trains were running over its entire length.

Thirty-five miles of track and 230 feet of bridges in one stretch, between Tunnel Hill and Resaca were reconstructed in seven and a half days. This was accomplished by working from each end of the break and at the same time working both ways from Dalton, which was reached by trains with material by way of Cleveland after relaying one and a half miles of track.

When General Sherman commenced his march to Savannah, in November, the road between Atlanta and Dalton, 100 miles, was abandoned, the track from Atlanta to Etowah River, 46 miles, was torn up and destroyed, and from Resaca to Dalton, 16 miles, the rails were taken up and carried to Chattanooga.

By order of Major General Thomas the road from Dalton to Atlanta was reconstructed, and between May 10 and July 4, 1865, sixty-six miles of

track were laid, 36 miles repaired, and 3,553 lineal feet of bridges rebuilt.

* * *

General Remarks

With few exceptions, the operations of military railroads have been conducted under orders issued by the Secretary of War, or by army commandants in or out of the field.

It was made the duty of the director and general manager to arrange the military railroad organization upon a basis sufficiently comprehensive to permit the extension of the system indefinitely, to perfect the modus operandi for working the various lines, to determine as to the number of men to be employed in the several departments, and the compensation to be paid therefor, the amount and kind of machinery to be purchased, and the direction as to the distribution of the same.

The following important order of the Secretary of War, the wisdom of which has been so abundantly vindicated by experience, is here inserted as defining in part the position of the military railroad organization, which seems not to have been clearly understood by many in and out of the service:

(Special Order No. 337.)
WAR DEPARTMENT
Adjutant General's Office

Special Orders
No. 337.

Washington, November 10, 1862.

(EXTRACT)

* * *

Commanding officers of troops along the United States military railroads will give all facilities to the officers of the roads and the quartermasters for unloading cars so as to prevent any delay. On arrival at depots, whether in the day or night, the cars will be instantly unloaded; and working parties will always be in readiness for that duty, and sufficient to unload the whole train at once.

Commanding officers will be charged with guarding the tracks, sidings, wood, water-tanks, etc., within their several commands, and will be held responsible for the result.

Any, military officer who shall neglect his duty in this respect will be reported by the quartermasters and officers of the railroad, and his name will be stricken from the rolls of the army. Depots will be estab-

lished at suitable points, under the direction of the commanding general, and properly guarded. No officer, whatever may be his rank, will interfere with the running of the cars as directed by the superintendent of the road. Anyone who so interferes will be dismissed from the service for disobedience of orders.

By order of the Secretary of War:

E. D. TOWNSEND,
Assistant Adjutant General.

The above order was given in consequence of several attempts having been made to operate railroads by army or department commanders, which had, without an exception, proved signal failures, disorganizing in tendency, and destructive of all discipline. The great benefit resulting from this order was more especially exhibited during General Sherman's campaign from Chattanooga to Atlanta, and in this, my last report, I desire to put on record, for the benefit of those who may be called upon to conduct military railroad operations in the future, the following:

Having had a somewhat extensive railroad experience, both before and since the rebellion, I consider this order of the Secretary of War to have been the very foundation of success. Without it the whole railroad system, which has proved an important element in conducting military movements, would have been not only a costly but ludicrous failure. The fact should be understood that the management of railroads is just as much a distinct profession as is that of the art of war, and should be so regarded.

The difficulty of procuring a sufficient force of competent railroad men, both in the construction and transportation departments, was almost insurmountable. Owing to the peculiar nature of the service, and the rapid expansion of railroad system, the supply of railroad operatives in the country has always been limited; many had entered the army in various positions, thus diminishing the actual number in civil life, while the stimulus imported by the war to the business of northern railroads had greatly enhanced the value of the services of those who remained at their posts, thus rendering the home demand for skillful labor far in advance of the supply. When the large number of men necessary to equip these military lines were sought for, it was extremely difficult to induce those who were really valuable to leave secure positions and enter upon a new and untried field of action.

The difference between civil and military railroad service is marked and decided. Not only were the men continually exposed to great danger from the regular forces of the enemy, guerillas, scouting parties, &c., but, owing to the circumstances under which military railroads must be

constructed and operated, what are considered the ordinary risks upon civil railroads are vastly increased on military lines. The hardships, exposure, and perils to which train-men especially were subjected during the movements incident to an active campaign, were much greater than that endured by any other class of civil employes of the government, equalled only by that of the soldier while engaged in a raid into the enemy's country. It was by no means unusual for men to be out with their trains, from five to ten days, without sleep, except what could be snatched upon their engines and cars while the same were standing to be loaded or unloaded, with but scanty food, or perhaps no food at all for days together, while continually occupied in a manner to keep every faculty strained to its utmost. Many incidents during the war, but more especially during the Atlanta campaign, exhibited a fortitude, endurance, and self devotion on the part of these men not exceeded in any branch of the service. All were thoroughly imbued with the fact that upon the success of the railroad operations in forwarding supplies to the front depended in great part the success of our armies; that, although defeat might be the result even if supplies were abundantly furnished, it was evident there could be no advance without; and I hazard nothing in saying, that should failure have taken place, either in keeping the lines in repair or in operating them, General Sherman's campaign, instead of proving, as it did, a great success, would have resulted in disaster and defeat; and the greater the army to supply; the more precarious its position. Since the end of the rebellion I have been informed by railroad officers who were in the service of the enemy during the war, "that they were less surprised at the success of General Sherman, in a military point of view, than they were at the rapidity with which railroad breaks were repaired, and the regularity with which trains were moved to the front"; and it was only when the method of operating was fully explained that it could be comprehended.

In the beginning of the war military roads were experimental and although some light as to their management had been gleaned by the operations of 1862 and 1863, yet so little progress had been made that the attempt to supply the army of General Sherman in the field, construct and reconstruct the railroad in its rear, and keep pace with its march, was regarded by those who had the largest experience, and who had become most familiar with the subject, as the greatest experiment of all. The attempt to furnish an army of one hundred thousand (100,000) men and sixty thousand (60,000) animals with supplies from a base three hundred and sixty (360) miles distant by one line of single-track railroad, located almost the entire distance through the country of an active and most vindictive enemy, is without precedent in the history of warfare, and, to make it successful, required an enormous outlay for labor and a vast consumption of material, together with all the forethought, energy, patience, and watchfulness of which men are capable.

This line, from the fact of its great length, was imperfectly guarded, as troops could not be spared from the front for that purpose. This rendered the railroad service one of great risk and hazard, and at times it was only by the force of military authority that men could be held to serve. As an item showing the real danger attending military railroad operations, it may be stated that during the last six months of the fiscal year ending June 30, 1865, the wrecking train picked up and carried to Nashville sixteen (16) wrecked locomotives and two hundred and ninety-four (294) car loads of car wheels, bridge iron, &c. These wrecks were caused by guerillas and rebel raids.

The Chattanooga & Atlanta, or Western & Atlantic Railroad, extends from Chattanooga to Atlanta, one hundred and thirty-eight miles, with a branch from Kingston to Rome seventeen miles long. The reconstruction and maintenance of this line was, in many respects, the most difficult of any military railroad operations during the war. By it the Confederate army; under General Johnston, made its retreat from Buzzard's Roost to Atlanta, and in falling back from one strong position to another, it did such damage to the road as was supposed would delay or prevent Sherman's pursuit; but in this it was unsuccessful. However great the damage done, it was so speedily repaired that General Sherman soon ceased to fear any delay from this cause, and made his advance movements with perfect confidence that the railroad in his rear would be "all right."

Being, from the nature of the case, entirely ignorant of the obstacles to be encountered at each advance, the construction force was at all times prepared for an emergency, either to build bridges of formidable dimensions, or lay miles of track, or, perhaps, push back to some point on the line and repair damages done by guerillas or raiding parties. These attacks on the line to the rear were of such frequent occurrence, and often of so serious a character, that, to insure speedy repairs, it became necessary to station detachments of the construction corps at various points along the road, and also to collect supplies of construction materials, such as iron rails, chairs, spikes, cross-ties, and bridge timber at points where they would be comparatively safe and easily obtained when required. These precautionary measures proved to be of the utmost importance in keeping the road open.

The detachments stationed along the line were composed of bridge-builders and track-layers, with an ample supply of tools for all kinds of work. Each detachment was under the command of a competent engineer or supervisor, who had orders to move in either direction, within certain limits, as soon as a break occurred, and make the necessary repairs without delay, working day and night when necessary. Under this arrangement small breaks were repaired at once at any point on the

line, even when the telegraph wires were cut, and special orders could not be communicated to the working parties.

When "big breaks" occurred, one or more divisions of the construction corps were moved as rapidly as possible thereto, either from Chattanooga or the front. Construction trains, loaded with the requisite tools and materials, were kept ready at each end of the road to move at a moment's notice.

Guerillas and raiding parties were more or less successful in destroying portions of the track during the whole time we held this line, but the crowning effort was made by the enemy in October, 1864, when Hood, getting to Sherman's rear, threw his whole army on the road, first at Big Shanty, and afterwards north of Resaca, and destroyed, in the aggregate, 35½ miles of track and 455 lineal feet of bridges, killing and capturing a large number of our men.

Fortunately, however, the detachments of the construction corps which escaped were so distributed that, even before Hood had left the road, two strong working parties were at work, one on each end of the break at Big Shanty, and this gap of ten miles was closed and the force ready to move to the great break of 25 miles in length north of Resaca, as soon as the enemy had left it. The destruction by Hood's army of our depot of supplies compelled us to cut nearly all the cross ties required to relay this track, and to send to a distance for rails. The cross-ties were cut near the line of the road, and many of them carried by hand to the track, as the teams to be furnished for hauling them did not get to the work until it was nearly completed. The rails used on the southern end of the break had to be taken up and brought from the railroads south of Atlanta, and those for the northern end were mostly brought from Nashville, nearly 200 miles distant.

Notwithstanding all the disadvantages under which the labor was performed, this 25 miles of track was laid and the trains were running over it in 7½ days from the time the work commenced.

The economy so commendable and essential upon civil railroads was compelled to give way to the lavish expenditure of war, and the question to be answered was not, "How much will it cost?" but rather "Can it be done at all at any cost?"

During February, 1862, I received the following important verbal order from the Secretary of War. "I shall expect you to have on hand at all times the necessary men and materials to enable you to comply promptly with any order given; nor must there be any failure."

The military railroad organization was designed to be a great construction and transportation machine for carrying out the objects of the commanding generals, so far as it was adapted to the purpose, and it was

managed solely with a view to efficiency in that direction. It was the duty of the quartermaster's department to load all material upon the cars, to direct where such material should be taken, and to whom delivered. It then became the province of the railroad department to comply with said order in the shortest practicable time, and to perfect such arrangements as would enable it to keep the lines in repair under any and all circumstances.

As to the duties of the Chief Quartermaster on duty with the Military Division of the Mississippi, I will quote extracts from the report of that officer, Captain F. J. Crilly, A. Q. M., U. S. A.

* * *

It may not be out of place here to state what are the duties of the quartermaster on duty with military railroads. The organization consists of one chief quartermaster stationed at Chattanooga, Tennessee, and one assistant quartermaster stationed at Memphis. Captain S. R. Hamill, assistant quartermaster, is stationed at Nashville and is responsible for all the property on the Nashville & Chattanooga, Nashville & Northwestern, Nashville & Alabama; total number of miles, four hundred and twenty-nine. He has also charge of the general supply store at Nashville, and of the lumber yard, property, saw mills, and means of transportation of the quartermaster's department.

The rolls of the roads above mentioned are made out and certified to by the general superintendent of military railroads, and after being audited and approved by the general manager or chief engineer, in accordance with orders of the War Department, are paid by the chief quartermaster at Nashville.

Captain W. R. Hopkins, assistant quartermaster, is stationed at Chattanooga, Tennessee, and is responsible for all the property on the Chattanooga & Knoxville, Chattanooga & Atlanta, and East Tennessee & Virginia Railroads; total number of miles, three hundred and seventy-eight. Chattanooga being so remote from the auditor's office, and it being impossible for the auditor to visit there monthly, the rolls are made out and certified to by Captain Hopkins; otherwise, no vouchers could be issued to discharged employes unless the general manager or chief superintendent was present.

Stores are purchased and supplied by the quartermaster on requisition of the general superintendent and chief engineer of the roads.

The question of property responsibility has always been the most difficult matter to arrange, owing to the peculiar organization of the military railroad service. In this military division it is organized under the

direction of a general superintendent, who has charge of everything relative to transportation and repairs, and a chief engineer in charge of construction. Each was independent of the other, and the quartermaster independent of both, except so far as filling requisitions for supplies and paying the employees.

The mingling of civil and military officials, without any precedent or regulation to govern anomalous cases that constantly arise, would naturally produce collisions of authority, unless all parties worked with the proper spirit, and yielded questions of rank and precedence to the more important one of emergencies of service. Fortunately this was the case except in one instance, when the bad temper of one official produced so much bad feeling and annoyance that his resignation was promptly accepted by the general manager. It will be seen therefore, that the property, although on the returns of the quartermasters, is all in the hands of officers of the railroad service, who are no ways responsible to him. During the period that Mr. E. L. Wentz was superintendent he completely ignored the authority of the quartermaster, and prohibited any reports being made of the loss or destruction of property. The consequence was that the officer responsible, Captain G. H. Clemens, assistant quartermaster, on being ordered to be relieved, could not find a tithe of the property his papers called for, and was so involved that a board of survey is now in session, convened by order of Major General Thomas, to investigate the cause of his large deficiency, and fix the responsibility.

A system of reports is now instituted by which the quartermaster is kept advised of the condition of property, and affidavits are furnished for all lost or destroyed, which I believe will effect a more prompt rendition of returns than could be previously obtained.

The duty of placing the supplies within reach of the army is performed by the service of the Line of Communications which transports supplies by rail, water or wagon transportation, or a combination of these, from the base to the front.

General Sherman, however, did not have any regularly organized service of the Line of Communications as that term is understood at the present time. There was no General of Communications in supreme command who was responsible to General Sherman for the forwarding of supplies and for the guarding and maintenance of the Communications. General Sherman seems to have superintended this work himself.

Chapter 5

Logistics of the Frontier Army

30

Logistical Support of Operations on the Frontier

Introduction. In this chapter from his comprehensive history of Army logistics, James A. Huston summarizes the relatively static logistical organization for the support of the Army in small garrisons on the western frontier from the Civil War to about 1890. He then describes the logistical support for several of the more important campaigns on the Northern Plains during the Indian Wars era.

Frontier Posts

Army logistics during this period was more of a throwback to pre-Civil War days than a continuation of developments that had marked wartime progress. Logistical problems once again were: to support small detachments scattered over thousands of miles of plains and mountains; to maintain widely separated posts on the frontier; and, now and then, to bring together supplies and forces for a major campaign—major, that is, in terms of the relative size of the Army as a whole and that of garrisons ordinarily maintained in frontier forts, but actually little more than a raid or reconnaissance in force when compared with the great armies and campaigns of the recent war. The basic problems were complicated by the rugged terrain and the nonexistence of communications facilities in some areas. Moreover, troops were being constantly moved to meet a threat first here, then there (one cavalry troop, for instance, changed station, nine times in eleven months), and even for small detachments the single factor of distance in the West imposed logistical difficulties unlike anything encountered in other parts of the country.

After the war a chain of forts, more or less integrated, formed a general line of defense on the frontier from Mexico to Canada. Beyond the frontier additional forts guarded key points farther west. But the extension of the railroads and establishment of permanent settlements altered the pattern of Army posts as the frontier pushed westward. By the time the location of a proposed new line of forts far-

---

Reproduced from James A. Huston, *The Sinews of War: Army Logistics, 1775–1953* (Washington, D.C.: U.S. Army Center of Military History, 1966), pp. 256–69.

ther west was decided upon, the frontier had moved beyond any proposed line, and the new forts were never built.

The southwestern line of defense was made up of an inner chain of forts built immediately after the War with Mexico, and an outer chain built about ten years later. During the few years that both lines were occupied they were to have constituted a co-ordinated, flexible defense system, with infantry garrisoned on the outer line and cavalry kept in support on the inner line. Posts on the outer chain were to be supplied from posts on the second line; then storehouses on the outer chain would supply a force of up to 200 men and horses for a march of 100 or 200 miles into Indian country where an advance base would be established. While one company brought up supplies, one or two others could move farther forward for operations. The system had much to recommend it, but communications and available forces never reached a level that could support really effective operations at great distance across the plains. Postwar improvements included building additional forts to form a new line of defense, linking the posts by telegraph, and joining them with roads.

One of the first postwar forts to be built in Texas was Fort Griffin. Permanent stone structures were planned, but pending their completion temporary wooden houses and huts served the garrison and two buildings were brought in from deserted ranches to become a "prefabricated" commissary building and a hospital. The depot quartermaster at San Antonio brought in steam saw mills, tools, building equipment, and mechanics to hasten construction of the temporary quarters, but it was impossible to erect the number of buildings needed at the time. Six men were crowded into each of the 8- by 14-foot huts. Officers, whose billets were single small huts containing one room and a kitchen, were accused of using soldiers to build comfortable officers' quarters instead of to fight Indians.

In the Northwest one of the more important base posts was Fort Laramie in Wyoming. At this time it was not a fortress of blockhouses and walls but a sprawling collection of all kinds of adobe and wooden structures, including barracks for six companies. Water was easily obtained from the nearby Laramie River, but wood for fuel had to be hauled fifteen miles. The nearest supply depot was almost ninety miles away at Cheyenne, and the vicissitudes of the trail made it advisable to keep six months' supplies on hand.

The line of posts northwest of Fort Laramie included Fort Reno and Fort Phil Kearney on the short-lived Bozeman Trail to the Montana mining country. The post at Fort Phil Kearney extended for 1,600 feet along the Big Piney River; the fort proper was built at the northwest end of the post in an area measuring 800 by 600 feet. Despite repeated Indian raids, construction at Fort Phil Kearney had proceeded during the summer and fall of 1866. Seventy-five to one hundred men cut timber and hauled logs from the woods almost seven miles from the post, while other details operated saw mills and put up the stockade and buildings. By October the forty-two buildings of the fort proper had been erected, stables and corrals were completed, and the stockade and blockhouses were raised.

The purchase of Alaska in 1867 catapulted the nation's frontier to its northwest limit, and the Army's responsibilities as defender of the frontier multiplied as did

its logistics problems. In December 1867 a small force of 250 infantrymen and artillerymen moved into headquarters established at Sitka. The detachment was soon involved in Indian unrest, but its most continuous and arduous battle was against weather and terrain. The problems of transportation increased in the next year when reinforcements arrived at Kodiak Island and Cook Inlet.

Indian Wars

Out on the plains General Sherman, first as commander of the Military Division of the Missouri and later as General of the Army, felt a sense of frustration in attempting to police that vast area with the small resources at his command. Little could be done against Indian hit-and-run raids on scattered frontier settlements or emigrants and travelers on the trails. Attempts to pursue these bands were almost futile. One contemporary observer estimated that from the spring of 1866 to 1868 there were as many skirmishes along the Bozeman Trail, around Forts Reno, Phil Kearney, and C. F. Smith, as there were days in the year. During the last six months of 1867, posts in Texas sent out twenty-six expeditions against the Indians. New Mexico had little protection, and as far as Sherman was concerned it deserved little—he thought the best idea would be to give it all back to the Mexicans. He estimated that a cavalry force of about 2,500 would be needed to police the territory and that food and forage, which would have to be hauled one thousand miles, would cost $1,000 a year for each soldier supported. Sherman's view was that cavalry expeditions would have to be sent out to patrol the principal western routes during the travel season: The small Army, posts, he thought, would serve principally as forage depots for the cavalry expeditions. But on the High Plains, soldiers were kept busy simply gathering hay, cutting fuel, repairing barracks, and doing other tasks in order to defend themselves against the severe winters. Further complications arose from the efforts of civilian traders to prosper at the expense of the Army, controversies with the Department of the Interior about jurisdiction over Indian affairs, and requests for the Army to feed certain of the tribes.

Connor's Powder River Expedition

For his Powder River expedition in 1865, aimed at pacifying hostile tribes in northern Wyoming and northeastern Montana, Brig. Gen. Patrick E. Connor found it necessary to press into service privately owned wagons at Fort Laramie when the needed Army wagons failed to arrive. Trains belonging to two traders and sutlers who planned to accompany the expedition anyway and those belonging to a man who was there to put up a telegraph line were commandeered. All together 200 wagons moved out with Connor's western division on what was to be a three-pronged expedition. Forage and some other items were in short supply and the first leg of the march was to find grassland where the horses and mules could feed. While the command rested at the designated depot camp early in July the teamsters employed by A. C. Leighton, who owned 130 of the 200 wagons, demanded

higher wages. Leighton refused and most of the drivers quit; whereupon General Connor ordered soldiers to take over the wagons. The dissident teamsters built a raft and started to float it down the Laramie River, but an Indian attack a short distance downstream persuaded them to return to their wagons. The expedition moved on at the end of July, leaving behind a thousand sacks of corn forage at the camp for want of transportation. About 170 miles northwest of Laramie the soldiers built Fort Connor (later renamed Fort Reno). After a series of skirmishes with the Arapahoes and the Sioux, but before he was able to deliver his intended knockout blow, Connor received orders to cease operations and return to Laramie. The Fort Laramie post hospital was crowded with patients, and when the post commander learned of the planned departure of Leighton's wagon train for Fort Leavenworth, he put ninety patients—most of them suffering from scurvy—aboard, and issued Spencer rifles and plenty of ammunition to everyone. As it turned out, the sick and wounded soldiers had to fight for their lives when strong Indian attacks struck at the wagons as they moved along the trail between Julesberg and Alkali Station.

Sheridan's Winter Campaign of 1868

Continued Indian raids and unrest after the conclusion of treaties early in 1868 by which the Cheyennes, Arapahoes, Kiowas, and Comanches had agreed to settle peaceably on reservations in the Indian Territory convinced Maj. Gen. Philip H. Sheridan, commanding the Division of the Missouri, that a general uprising was imminent. He concluded that the only way to meet the threat was to launch a winter campaign, striking at the hostile tribes when their ponies would be weak from lack of food, and when cold weather and snow would hamper all efforts to escape. Moving his headquarters from Leavenworth to Fort Hays at the terminus of the Kansas Pacific Railroad, which offered a good site for a supply depot and from which the long preparations for such a campaign could be supervised, Sheridan arranged for supplies, wagon transportation, and guides. He obtained the promise of reinforcements to the extent of five troops of the 5th Cavalry and a Kansas volunteer cavalry regiment to add to the 7th and 10th Cavalry and the 3d, 5th, and part of the 38th Infantry with which he had to garrison the posts and protect the settlements, trails, and railroad working parties in his department, as well as the mobile columns for his expeditionary forces. Sheridan ordered the commander of the military district to assemble the troops designated for the main column and to establish a supply depot about one hundred miles south of Fort Dodge. The depot was established at the confluence of Beaver and Wolf Creeks, and was named Camp Supply.

At the end of October adequate supply reserves for the main columns had been accumulated at Fort Dodge and Fort Lyon, and Sheridan ordered an additional three months' supply of subsistence and forage sent to Fort Gibson for final delivery at Fort Arbuckle. Sheridan arrived at Camp Supply on 21 November to take personal command. The plan called for a co-operating force of 500 men to move up from Fort Bascom, New Mexico, establish a supply depot at Monument Creek,

and operate along the Canadian River; a second column was to move up from the Arkansas to establish a depot on the North Canadian, and operate toward the Antelope Hills; and the main column would strike at the Indian villages on the upper Washita. Cold rains, and then severe blizzards and heavy snows descended on the makeshift camps. Awaiting the delayed arrival of the Kansas Volunteers, Sheridan sent Custer and the 7th Cavalry to launch a preliminary attack on Black Kettle's village of Cheyennes on the Washita.

At dawn on 23 November Custer's troopers moved out though a blinding snow storm. Observation was so restricted that the commander had to "navigate" by compass. Trails had to be broken and bridges improvised for the wagons, and man and beast alike suffered from the freezing wind and the exhausting effort to get through deep snow. To the leaders this kind of weather was welcome, for the purpose of the winter campaign was to take advantage of weather when the Army could move and the Indians could not. Three days of this difficult marching brought the 7th Cavalry to the vicinity of the Cheyenne village. Leaving the wagon train in the rear under the guard of an officer and eighty cavalrymen, the troops moved up to attacking positions. Although the gray morning was cold, the men dropped their overcoats and the haversacks containing their extra rations and left them under the guard of one man from each company. Before Custer's men could jump off, the Indians attacked. Surrounding the cavalry troops momentarily, the Cheyennes made off with the stacked overcoats and haversacks, so that the troopers, were compelled to endure the bitter cold without overcoat or rations. Nevertheless a dawn attack on the Indians was successful. Then a strong Indian counterattack developed, threatening the whole force when ammunition began to run low. Thanks to a regimental quartermaster who brought up an ammunition wagon and drove it through the midst of the attackers, to his own lines, the cavalrymen were able to repulse the Indians and to destroy their village. A detachment of one officer and nineteen men that had been sent on reconnaissance became isolated during the battle and all twenty were massacred. Otherwise casualties were light.

After this success Custer marched back through continuing snow storms to rejoin Sheridan at Camp Supply. By this time the Kansas regiment had arrived, and on 7 December Sheridan moved his whole main column down the Washita valley. Retracing Custer's route, Sheridan was able to launch his main attack on 16 December when word came to him that the tribes had agreed to settle peaceably on their reservations. With the hostile tribes rounded up, Indian attacks gave no further serious troubles in this area. But other hostile Indians remained in the Southwest and the North.

Stanley's Yellowstone Expedition

Steamboats as well as wagons played an important part in the logistical support of Brig. Gen. David S. Stanley's Yellowstone expedition in 1873. Sent westward from Fort Rice and Fort Lincoln (near Bismarck) the expedition was to provide escort for the preliminary surveying party of the Northern Pacific Railroad.

Including the 7th Cavalry under Custer, twenty infantry companies, and a detachment of Indian scouts, the force numbered over 1,500 officers and men. As soon as the expedition left Fort Rice, three steamboats—the *Peninah*, *Far West*, and *Key West*—started up the Missouri River for the Yellowstone River and the mouth of the Glendive Creek where a supply depot was to be established. An infantry escort was taken aboard at Fort Buford. A large wagon train meanwhile accompanied the rest of the troops on their more direct overland march. By the time the column had covered half the distance to Glendive Creek, many of the wagons had been emptied and returned to Fort Lincoln for additional supplies. While heavy rains hindered the wagon train, the boats reached Glendive well ahead of the column, and the men on board at once began building a stockade and unloading supplies. Two boats returned to the lower river, but the *Key West* stayed on to serve as transport and patrol boat for the expedition. When Custer arrived with his advance guard some twelve days later and decided to move the camp and depot several miles upstream, it fell to the *Key West* to transfer the supplies to the new site, known as Stanley's Stockade. It helped ferry the men across the river and then remained on call at the depot until shortly afterward, when it was replaced by a new boat, the *Josephine*, belonging to the same company. When the expedition returned to the supply depot from its long foray to the Big Horn River, the few wounded men who had made the tortuous journey back were evacuated on board the *Josephine* to Fort Lincoln.

Campaigns Against the Sioux, 1876

Disturbed by warlike preparations by the Sioux under Sitting Bull and Crazy Horse, General Sheridan ordered another winter campaign early in 1876. He was to discover that winter on the northern plains could be far more severe even than the blizzards he had experienced farther south in his successful winter operation of 1868. Authority for the campaign did not come from Washington until March. Brig. Gen. George Crook, commanding the Department of the Platte, then sent Col. Joseph J. Reynolds from Fort Fetterman to destroy a village of Cheyenne and Sioux on the Little Powder River, after which a severe blizzard made further campaigning at that time impossible. Later Sheridan directed Crook and Brig. Gen. Alfred H. Terry, commanding the Department of Dakota, to undertake a concerted effort against the Sioux. Leaving Fort Fetterman on 29 May, Crook encountered a large party of well-armed Sioux on 17 June near the headwaters of the Rosebud River, and there fought a desperate battle which prevented his effecting a planned junction with Terry's forces near the Little Big Horn. Meanwhile Terry led his main column, including Custer's 7th Cavalry and parts of the 6th and 17th Infantry, from Fort Lincoln westward to the confluence of the Powder and Yellowstone Rivers. From here Terry sent Maj. Marcus A. Reno and six troops of the 7th Cavalry, with ten days' rations carried on pack mules, to reconnoiter the country south of the Yellowstone from the Tongue to the Powder and Rosebud Rivers. Continuing up the Yellowstone to the mouth of the Rosebud, the main column met another force of twelve companies of infantry and cavalry which had advanced from Fort Ellis, Montana, under Col. John Gibbon.

The steamboat *Far West* was again put in service to transport supplies. At Fort Lincoln it had taken on 200 tons of forage, subsistence, quartermaster's equipment, medical supplies, and small arms ammunition. Picking up an infantry company at Fort Buford again to act as escort, the *Far West* had met Gibbon's force at Stanley's Stockade and had sailed on to the mouth of the Powder River where Terry came up a little later. The *Far West* again had the task of transferring a supply depot, this time from Stanley's Stockade to the mouth of the Powder River.

At the mouth of the Rosebud, Terry ordered Custer and his 600 cavalry to move up that stream until he came to an Indian trail, which Major Reno had reported, and to follow the trail to the camp of the hostile Sioux presumed to be along the Little Big Horn. Here he was to get into position to prevent the escape of the Indians as Terry with the remainder of his force came up the Little Big Horn from the north.

Early on the morning of 22 June the 7th Cavalry drew supplies for fifteen days from the *Far West*—stacked on the bank before sunrise by the boat's thirty deckhands—and the civilian packers loaded the mule trains (mules were drafted for this service from the wagon trains). Extra issue of salt suggested that the troopers might be living on mule or horse meat before they returned. After making about fourteen miles the first day, Custer's men rode hard the next two days, covering over thirty miles a day, until on the 25th they came to the vicinity of the Indian camps. Discovered by Indian scouts, Custer apparently thought that the only thing he could do was attack at once and not await the arrival of Terry and Gibbon. In any case, he divided his command into three battalions, delegating one troop to stay behind as rear guard with the pack train which, with the civilian packers, composed a fourth element of about 130 men. The battalions went their separate ways to locate the Indians. Custer, with the five troops remaining under his direct command, rode to his fateful "last stand."

Meanwhile Terry's force and Gibbon's column continued up opposite sides of the Yellowstone and the Big Horn, and the steamboat *Far West*, going along with reserve supplies, served as headquarters for the commanders and as communications boat between the two columns. With the help of soldiers who dragged the boat over some of the rapids by long cables, the *Far West* pushed its way up the tortuous channel of the Big Horn to the mouth of the Little Big Horn, farther than any steamboat had navigated those streams.

When Terry arrived at the site of the battle, on 27 June, the Indians had withdrawn. Immediately he prepared to have the wounded survivors—members of Major Reno's battalion who had not been with Custer himself—taken to the supply steamer for evacuation. By hand and mule litters fifty-two wounded men were brought over the rough trail to the boat. Comanche, the injured horse of one of Custer's captains, and the sole living thing found on the Custer field two days after the battle, was also taken on board the boat for evacuation. Although it was essential to get the seriously wounded men to a hospital speedily, the *Far West* had to await the return of Gibbon's troops to ferry them to the north bank of the Yellowstone and to issue supplies for their return journey. By the time the *Far West* sailed, fourteen of the wounded were sufficiently recovered to remain at General

Terry's camp. The *Josephine* was on the way with additional supplies for these troops. For its part, the *Far West* set a record for the trip back to Fort Lincoln, averaging over 13 miles an hour for the entire 710-mile journey.

In the inevitable sequel to the disaster on the Little Big Horn, General Sheridan acted swiftly to send every available man to reinforce Terry and Crook for the renewal of their punitive campaign against the Sioux. In the north Terry moved his supply depot from the Powder River to a site opposite the mouth of the Rosebud, and here concentrated his troops and stored the supplies being brought in by steamboats. Reinforcements arrived by boat also, so that by the end of July Terry and Crook each had a force of 2,000 men. They effected a junction on the Rosebud on 10 August, but failed to trap the Indians and for weeks pursued the Sioux across the rough country. One of Crook's companies captured a small village in September. In October, after a band of Sioux had attacked a wagon train bound for the Tongue River, Col. Nelson A. Miles led a force in pursuit and captured a village of 3,000 Indians. Soon afterward some bands came into the agencies and were disarmed. Sitting Bull finally retired to Canada with his group of die-hards; Crazy Horse and his 2,000 followers did not surrender until May.

There were other outbreaks of violence in the next few years. Among the most notable of these conflicts was the war against Chief Joseph's small band of Nez Percés in 1877. When Joseph finally surrendered to Colonel Miles, Sheridan ordered all the Nez Percés to be sent to Fort Lincoln where it would be cheaper to feed them. A fleet of fourteen flatboats was used to transport some 200 wounded braves and women and children from Fort Keogh, while the remaining 240 traveled overland with the 7th Cavalry. The army commissary issued rations of dried pork, brown sugar, hardtack, coffee, rice, beans, flour, and baking powder to each boat. Game shot along the way provided fresh meat. After a cold trip of 600 miles, the boats arrived at Fort Lincoln on 17 November, and the overland column came in a few days later.

Except for a brief outbreak with the Utes in Colorado in September 1879 and some counterraids in the Southwest by General Crook against the Chiricahuas Apaches under such leaders as Geronimo, Indian hostilities appeared to be at an end.

End of Indian Hostilities

During the 1880's Army leaders looked forward confidently to continuing Indian peace. Then in 1890 the Sioux made their final great effort. Growing restive because of further restrictions and broken pledges, and driven to fanaticism by the preaching of a new messiah who promised restoration of their hunting grounds, the Indians threatened a general uprising.

The situation had become so tense by November 1890 that the Commissioner for Indian Affairs called upon the War Department for help. The immediate problem was to protect the extensive settlements surrounding the Sioux reservation in the Bad Lands of South Dakota. For this purpose reinforcements from nearly all parts of the trans-Mississippi West were rushed to the command of Maj. Gen. Nelson A. Miles (now commanding the Department of the Missouri) until his

forces concentrated at the reservation included nearly one-half the infantry and calvary of the entire Army. The only serious conflict to disturb the disarming and peaceful resettlement of the hostile warriors was an unfortunate outbreak on 29 December at Wounded Knee Creek involving the 7th Cavalry and a band of Indians under Big Foot, a conflict that resulted in the death of thirty soldiers and 200 Indians, including men, women, and children.

Logistical efforts, once again handicapped by cold winter weather, followed the same general pattern as in earlier expeditions. One significant development, however, was the first experience in battle of the recently organized Hospital Corps. The medical organization at Pine Ridge Agency, South Dakota, consisted of a division field hospital with two medical officers, two noncommissioned officers, and ten privates of the Hospital Corps. It had facilities, under canvas, for sixty patients. Two ambulances, two surgeons, one hospital steward, and four privates of the Medical Corps accompanied the two battalions of the 7th Calvary. After the battle at Wounded Knee two wounded officers and twenty-nine enlisted men, as well as twenty-eight wounded Indians, were evacuated to the field hospital. In its first test in battle, the Hospital Corps was reported to have met all expectations.

A few other skirmishes with Indians occurred—one as late as September 1898 at Leech Lake, Minnesota—but it may be said that 1891 marked the end of the Indian Wars in the United States.

Summary

In the quarter of a century after the post-Civil War reorganization of the Army, there was little change, actually, in Army logistics. Other than adapting himself to think in terms of smaller forces and greater distances, and sometimes colder weather, a commissary or quartermaster should have had little difficulty in adjusting to the conditions at any time during this period. A supply officer in the West in 1866 would have been quite familiar with his duties and procedures if reassigned to a similar post in 1891.

There was no improvement in the prescribed ration for years. Although a number of officers contended that soldiers eating only the issued ration would be very likely to get scurvy, and urged that fresh vegetables be added to the garrison ration, others insisted that the ration was most generous and that a soldier should "be a man and eat beans," and had their way until vegetables were added in 1890. The best way for a company to avoid scurvy and to maintain troop morale still was to find an ingenious sergeant with a flare for trading what soldiers would not eat for fresh foods that they would eat, and to cultivate company gardens and keep company hogs and cattle. For years, too, the Commissary General of Subsistence had been vainly urging Congressional authorization for the enlistment of a qualified cook for each troop, company, and battery. In the early 1890's, common mess halls replaced company messes at several of the larger posts, but special training for cooks and bakers did not begin until 1905.

Generally, the supply situation in the Army appeared to be quite satisfactory. The Quartermaster's Department had little difficulty in meeting demands either

for supplies or transportation, though some fault was found with the general policy that required purchasing to be done by public advertising for competitive bids. At times this appeared to defeat the very purpose it was meant to serve for on various occasions purchasing officers found that they could often get much better prices by private negotiation than by public advertisement. Actually, public advertisement seemed to result in compelling the government to pay the highest quotable price rather than the lowest acceptable price because public advertisement simply notified other firms of any disposition on the part of one to sell below the price for standardized articles agreed to by the leading dealers.

In 1889 the Army, with a total strength of 25,000 officers and men, occupied some 134 posts scattered across the country, the largest garrison consisting of 700 men. But improved communications made it feasible to follow a policy of concentrating troops at fewer but somewhat larger posts. Even as this post concentration was taking place, the termination of major Indian hostilities brought hasty action to cut back field transportation in the interest of economy. Army trains were broken up in 1895. The Indian wars had served to keep alive to some extent the well-arranged and well-equipped system of field transportation developed during the Civil War; retrenchment threatened its dissolution. Much has been made of personnel limitations on the Army in peacetime, but cuts in transportation and other logistical services can hardly have been less significant.

In the next quarter of a century the change in Army logistics would be more remarkable than had the lack of change in the preceding twenty-five years. It would become clear that the Civil War was just barely the beginning of modern warfare. In many respects the changes in weapons and equipment, transportation, medical service, and general administrative organization for logistical support between 1892 and 1918 would exceed all the changes that had come about in all the years from 1775 to the 1890's. And they would be only the beginning of the big change.

31

Peacetime Logistics in the Frontier Army

Introduction. Professor Edward M. Coffman provides a detailed look at the "working end" of Army logistics in the period between the Civil War and the Spanish-American War by describing the food, clothing, and housing provided the enlisted soldier of the Regular Army on the frontier. Coffman's description sets the scene for changes in Army logistics which were soon to occur as a result of changes in the Army's size, mission, and distribution.

In 1895, Secretary of War Daniel S. Lamont proudly reported, "The Army is better fed, clothed, and housed than ever before . . . ," and that the official policy "zealously pursued" was to promote "the personal comfort of the officers and men." It was a true statement, but most of the improvements had come within the past decade. The increase of interest in soldiers' welfare coincided with the growing realization that a contented man was less apt to desert, and the opportunity to better the soldier's life which the wind-down of the Indian Wars offered resulted in a better ration and more comfortable clothing and quarters. Prior to 1885, soldiers had legitimate complaints similar to those of their predecessors. Indeed, the meat and bread ration, the rough, ill-fitting clothing, and the temporary housing which Wayne's men knew in the 1790s had changed little over the century.

The nation had shown traditionally more concern for wartime citizen soldiers than for peacetime regulars. This apparently surprised many Civil War veterans who enlisted in the army after the war. One wonders how many shared the disillusionment of Harry McConnell, who commented, "Like most volunteer soldiers, I had always imagined that the 'regulars' were better fed, paid, clothed, quartered, and treated very much better generally than 'militia,' but it did not take long to dispel this and many other fond illusions I had cherished."[32]

The daily ration—which Congress in 1861 increased only for the duration of the war by adding to the amount of bread and by providing for potatoes—consist-

---

Reproduced with the permission of Oxford University Press from Edward M. Coffman, *The Old Army: A Portrait of the American Army in Peacetime, 1784–1898* (New York: Oxford University Press, 1986), pp. 340–46.

ed of 20 ounces of beef, 12 of bacon, 18 of soft bread, 2.4 of beans, 2.4 of sugar, .6 of salt, and 1.28 of roasted coffee. The lack of potatoes and of other vegetables was notable, particularly since most European armies issued at least one of those staples. The ration's cost varied regionally as well as yearly. In 1870, the average was 21.53 cents. Four years later it dropped to 16.77 cents, while in 1881 it was 20 cents. In the mid-seventies an army doctor, Glover Perin, concluded after making an extensive study that the "ration is not only deficient in quantity, but that it does not contain the elements necessary to preserve the health of the soldier." William F. Hynes recalled that the pork, hardtack, and coffee which was supposed to sustain him and his comrades on a march in 1866 "could not be made much worse." He did not, however, have to partake of the Seventh Cavalry's Christmas dinner in 1868. One who did gulp down the two hardtacks and the quart of bean soup commented that it was a meal "that a hog would not eat if he were starving."[33]

In 1880, at Fort Clark, Texas, Captain Dewitt C. Poole of the Twenty-second Infantry complained that during the period from February 3 to March 6, when his company of forty-nine men had to march 160 miles and dig a canal, he had to purchase 141 pounds of fresh beef, 450 pounds of flour, nine bushels of sweet potatoes, and five bushels of Irish potatoes to supplement the standard ration. The inadequacy of the ration infuriated his regimental commander, David S. Stanley, a wartime major general and corps commander, who sent Poole's letter up the chain of command with a strong endorsement. "This subject of the insufficiency of the ration...is as old as the army, probably," Stanley wrote. He noted that he and fifty-four other officers had signed a petition on that subject in 1873 which had attracted "not the slightest notice. . . . But the fact is indisputable that working parties and troops in the field are kept in a constant state of hunger. . . ."[34]

The commanding general of the Department of Texas responded by ordering a survey of officers and surgeons, who confirmed Stanley's complaint. The medical director of that department, Dr. Joseph R. Smith, also made a study of the use of company funds and moneys earned by post bakeries. In 1875 the surgeon general had published excerpts from Smith's history of the ration in the same circular which summarized Perin's work. He was an authority who went to the heart of the problem. In order to feed the men properly, the company commander—which often meant the first sergeant—was expected to sell or barter ration components for more palatable food, such as vegetables, and encourage gardening, hunting, and fishing. Yet part of the ration was beyond his jurisdiction. Since 1835, when regulations directed that men be issued eighteen ounces of bread rather than of flour, post bakeries had become "money-making machines" to build up regimental and post funds, for it took less than eighteen ounces of flour to make eighteen ounces of bread. The profit from selling the difference, which amount to a third of the flour ration, went into these funds, which supported education, religious instruction, libraries, gardens, and bands. The company fund consisted of whatever savings the company commander could accumulate from his manipulation of the ration. Dr. Smith found that companies in his survey had purchased items ranging from aprons to beer and candy to a violincello with this money. The result of this complex system was that the ration supported all sorts of activities, while the

soldier was apt to go hungry for lack of enough bread, or of business acumen or honesty on the part of his company commander.[35]

When this report and its mass of supporting evidence reached the man responsible for the ration, the commissary general of subsistence, Robert Macfeely, he flatly refused to change the basic system. "In my opinion no better system than the present could be devised for feeding our troops, none that would be more elastic, more economical, or better suited to our service and the necessities of our soldiers." He did, however, qualify his comment by recommending that the soldier be given more bread by receiving the full weight of the ration in flour, and that all ration savings go to buy food rather than miscellaneous items.[36]

Macfeely and other commissary generals over a period of twenty years beginning in 1876 recommended another reform which they believed would alleviate the problem—namely, the enlistment of permanent cooks. In time both the inspector general and the adjutant general joined in this recommendation. Cooks were detailed for ten days at a time and received no extra compensation for their work. It took no imagination to grasp what an inexperienced, unskilled man could do with the ration. Mansfield Robinson, who worked in the bakery at Fort Bayard in the early nineties, remembered that the cooks in Company E, Twenty-fourth Infantry, were a problem. Sometimes the good ones avoided the detail or, if given the job, drank a lot while on duty. It was hard work and not a respected chore. Earlier, in the Sixth Cavalry, McConnell who was a wise first sergeant, ignored regulations and kept a Hollander who had been a navy cook permanently in the kitchen. In order to keep this man, he assessed the soldiers a few cents each month to give the cook extra pay. He was worth it: "Wonderful were his resources in producing new and unexpected results in our bill of fare . . . puddings and mysterious sauces that . . . seemed worthy of Delmonico. . . ." In 1891 the inspector general was pleased to note that some extra compensation had been authorized recently for cooks, but it was not until seven years later that Congress provided for permanent cooks.[37]

The army effected other reforms in the period from 1889 to 1891. It abolished the post and regimental funds and assumed the expense of tableware and kitchen utensils so that ration savings would go solely for food. It increased the amount of the bread ration and, with congressional authorization, in June 1890 added a pound of vegetables to the soldier's daily fare. These were significant changes. Yet the ration was still not adequate. Nor did the experiment of consolidating the unit messes into a large garrison mess prove to be satisfactory. In 1892, the inspector general discovered that in ten units soldiers still contributed from $.25 to $2.50 out of their pay each month to supplement the issued food.[38]

Theoretically the army was supposed to clothe as well as feed the soldier. The actuality was different. Just as no one expected the men to eat only the food in the ration, it is unlikely that anyone assumed that soldiers would wear unaltered the issue clothing and footwear. The commissary general of subsistence and the quartermaster general, the bureaucrats responsible for these items, evidently thought that the regulations provided enough flexibility to feed and clothe the men properly without changing the basic system. Manipulation of ration savings thus would

hopefully make an adequate diet possible, while the soldier's judicious use of his clothing allowance would result in a proper and comfortable uniform. In effect, they shifted the burden to the men, with the result that soldiers wound up paying out of their own pockets not only for food but also for clothing. Although the soldier could accumulate savings by not drawing all the clothing he needed, he had to pay for tailoring his issued uniforms and for those of better material and fit, as well as for more comfortable shoes and boots. Reginald A. Bradley's experience was typical: "They had 2 or 3 sizes and just threw you out a suit of clothes. . . . As soon as I had money enough I had the tailor make me up a uniform of non-commissioned officer's cloth." By the end of this period, however, the army did give each soldier five dollars to cover tailoring expenses.[39]

A stingy Congress also helped force the soldiers to provide for their own comfort. Understandably, the legislators presumed that the army would use up its Civil War surplus before appropriating funds for new clothing. If the uniforms were ill-fitting or made of shoddy material, that was the soldier's problem. After this supply was exhausted, as the quartermaster general noted in 1880, Congress would not provide enough money to build up a reserve stock, so that thousands of requisitions went unfilled in the waning months of the fiscal year.[40]

In 1872, as the end of the Civil War stocks neared, the War Department authorized a modified uniform which was supposed to be better fitting, and more durable shoes and boots with the lowers attached to the uppers with brass screws rather than sewn with heavy thread. While soldiers continued to complain about the uniforms as, at the worst, uncomfortable, they declared the brass screw footwear a menace to their health. A dozen years or so after the first reports came in, Colonel Richard I. Dodge, an infantry regimental commander, vented his rage in writing. "Many a man is discharged . . . a cripple for life, from having been forced to wear the things called shoes now furnished by the government." A military storekeeper, Captain John F. Rodgers, who made a study of the brass screw shoes and boots in 1883, explained the problem: "The brass screws hurt the feet by protruding through the leather and are also conductors of heat and cold, often causing great suffering and annoyance." The problem would seem to have been obvious; however, when the users first complained, Quartermaster General Montgomery C. Meigs dismissed them in 1875 as being few in number and apparently recipients of a bad lot from the shoe factory. His remedy was to order more thorough inspections of the finished products. As complaints mounted, Meigs again turned his attention to the matter in 1880. In his annual report of that year, he admitted at least that there was a problem; nevertheless, in his view the soldiers' discomfort and inconvenience were of less importance than the durability of the brass screw models. His solution was to distribute metal files throughout the units so that "the difficulty can be remedied by the soldier himself." Since an 1879 General Order had authorized the men to wear civilian shoes and boots, most evidently did that rather than apply Meigs's files to the painful screws. When Captain Rodgers canvassed officers, he found only one who endorsed the brass screw shoes. Others told him that their men wore a wide variety of footwear, with one artillery officer reporting that only one of the twenty-six men in his unit wore the government-issue shoe.

In 1884, two years after Meigs's retirement, the quartermaster department came up with a replacement, but it continued to issue the brass screw shoes and boots for another four years. The new footwear was not only sewn but also there were two kinds, as Rodgers recommended, one for garrison and one for field service. In the late eighties, with a different quartermaster general in charge, Samuel B. Holabird, there were improvements in the uniform as well. An increased range of sizes was introduced to make it more likely for a soldier to get a comfortably fitted uniform, while a lighter-weight uniform made life much more pleasant generally during the summer months in southwestern posts. These changes were additional manifestations of the awakening of army leaders' interest in the well-being of enlisted men.[41]

In addition to food and clothing, the government provided living quarters for the soldiers. These also improved during this period. Until 1881, the only artificial light in the barracks came from the few issue candles, whose miserable flicker only contributed to the cheerlessness of the scene. Even after a change in the ration from candles to oil and lamps, the inspector general officially noted the poor lighting. Although one of the generals of this era once stated, "A soldier's sleep is sacred," the army was slow to take steps to enhance that aspect of soldiers' lives. The quartermasters had begun issuing single iron bunks in the fifties, yet in 1870 the men at more than half of the garrisons still had to try to sleep in the old double wooden bunks. Besides the discomfort and inconvenience of having to sleep as couples, and sometimes in two or even three tiers, there was reason to believe that these "relics of barbarism," as Dr. John Shaw Billings called them, were breeding grounds for vermin and generally unhealthy. By 1875 virtually all soldiers had single iron bunks, but the army still did not issue sheets and pillows; the men had to make do with blankets and mattresses. Bugs remained a problem. In the fall of 1888, Nino Roos wrote from Fort Custer to beg his parents "to send me a little insect powder for the bed bugs are eating me alive here." Three years later, at Fort Niobrara, Hartford Clark expressed amazement that the bedbugs could be so large and so numerous.[42]

After the Civil War, in 1868, the War Department ordered doctors to make semi-annual sanitary reports. These reports were the material which Billings collected and analyzed in his circulars of 1870 and 1875. His particular interest was proper ventilation and air space in the barracks. He noted that the New York Metropolitan Board of Health had prescribed 1,000 cubic feet of air space per individual in a tenement and that the English had set up 600 cubic feet as their standard for barracks. In contrast, the American army had paid little if any attention to the matter. Of 146 posts he surveyed in 1870, he thought only 39 had 600 cubic feet or more air space for each soldier in the barracks. Even the "ideal" barracks designed by a board four years later only had 500 per soldier. As long as the army ignored medical advice and, more to the point, had to maintain its men in casemates and makeshift frontier posts, improvement was unlikely. The result of keeping men in such close, poorly ventilated quarters, as the doctor at Fort Bridger reported in 1874, was obnoxious. The eighty or so soldiers there lived in log barracks. On March 31, when there was a light breeze in the air, the doctor said that

the odor "was quite manifest" in one of the barracks, even with the doors and windows open and after all the men had vacated the premises for half an hour. Part of the problem was the lack of bathing facilities. The army officially encouraged cleanliness but did little to make it possible. In 1875, Dr. Billings urged the quartermaster to provide bathtubs. Within a decade, this was done, but it did not eliminate the problem. One bathtub per company was not that much of an advance, as the post commander at Fort McKinney complained in 1888: "That sixty men, some diseased and some healthy, should be compelled to bathe in the same bath tub, is not only a disgrace to the Government, but an outrage upon the enlisted men." Three years later, the inspector general reported that there had been marked improvement in bathing facilities throughout the army.[43]

Since its inception after the Revolutionary War, the army had failed to provide adequate housing for all of its men. To a certain extent, as Brevet Major General George Crook charged in 1872, when he called the quarters in Arizona "unfit for the occupation of animals," this was the result of "a lack of interest and energy" on the part of officers. But the major causes for this sad state of affairs were the army's mission as a frontier constabulary, which forced it to maintain most of its units in small, temporary outposts, and a penurious yet locally indulgent Congress. While there appeared to be little that the army could do about the latter, the decreased need for small frontier garrisons became apparent almost twenty years before the clash at Wounded Knee. Throughout the seventies and into the eighties, John Pope, the thoughtful commander of the Department of the Missouri, which included a large slice of the frontier, recommended that the army abandon the small forts and concentrate in a few larger posts. The advance of the railroad made this increasingly feasible. In 1870 soldiers occupied 197 stations, of which 88 contained less than a hundred men in their garrisons. Many of these, Sherman pointed out when he echoed Pope's appeal in 1881, were "worse than useless, because they absorb a large fraction of the small Army, which ought to be free for action." The commanding general also included many harbor forts in this category, for "very many of them are now absolutely of no use, present or prospective." He was well aware that politics was more crucial in maintaining these posts than military requirements: "Any attempt to withdraw the garrison . . . is met by local opposition, often impossible to overcome." Prior to the Civil War, complaints had mounted about the miserable living conditions in the casemates of these coastal forts. Nor did Congress provide the money to arm them adequately. Six years after Sherman's report, the commander of the Division of the Atlantic reported that he had troops in twenty-three of these forts but that there were only twenty-six serviceable rifled cannon among them. The Pacific Coast defenses were worse. The forts which were supposed to protect San Francisco did not have a single rifled cannon that could "be fired with safety."[44]

In 1889 a reform-minded secretary of war, Redfield Proctor, joined forces with a brilliant commanding general, John M. Schofield, to take advantage of the obvious decline of the Indians to begin closing down frontier forts at a rapid rate. Two years later, just before he left office, Proctor announced that in that brief period the army had eliminated one-fourth of its posts. The trend continued at a steady

pace. By 1895 there were just 77 stations, with only 7 garrisons under a hundred men. In addition to the monies no longer needed to maintain the now abandoned posts, the army was able to use increased congressional appropriations to build new barracks at old forts and to construct a few new large posts. The amelioration in the soldiers' living conditions was marked. Nevertheless, a few men failed to benefit from the general improvements. In 1892, a troop of cavalry at Camp Eagle Pass lived in a barracks built in 1849 at what was then Fort Duncan. They did as well as they could in a building "with a worn-out patched floor, a leaky roof, no ceiling, and damaged wall." Meanwhile, in Atlantic forts of antebellum vintage, artillerymen lived in the "damp and cold" casemates, where "arms rust . . . leather becomes moldy, and clothing and equipment decay." The surgeon general was unhappy to report in 1897 that men still remained in such dismal and unhealthy quarters at Forts Adams and Warren.[45]

Notes

[32] *WDAR: 1895*, 4; McConnell, *Cavalryman*, 53.

[33] A history of the ration and Perin's study are in Billings, Circular 8, *Hygiene*. The ration components and Perin's quotation are on pp. xxviii and xxvii; foreign armies' rations are on xlii–xliii. Hynes, *Soldier*, 10. Winfield S. Harvey Diary, Dec. 25, 1868, typescript in Edward S. Godfrey Papers, LC.

[34] *WDAR: 1881*, 489–90.

[35] *WDAR: 1880*, 69–70; *1881*, 484–85, 490–510; *1889*, 126. The commissary general of subsistence, in a protest about the use of savings from flour for purposes other than the ration, used the expression "moneymaking machine" in 1873, in a letter quoted on pp. 519–20 in *WDAR: 1881*. *ANJ*, Nov. 1, 1873, 184.

[36] *WDAR: 1881*, 511–12.

[37] The act of July 7, 1898, authorized one cook with the rank and pay of a corporal for each company. This was changed by another act on March 2, 1899, to two cooks with pay of an infantry sergeant. *Military Laws of the United States Army: 1921*, 2 vols. (Washington, D.C., 1921), 2: 1122. *WDAR: 1885*, 109–10; *1887*, 82–83; *1891*, 25; *1895*, 383. Robinson interview. McConnell, *Cavalryman*, 265; Forsyth, *Story*, 98; Billings, Circular 8, *Hygiene*, xxxix.

[38] *WDAR: 1891*, IG report, 25; *1892*, 37, 535; *1895*, 77. Foner, *Soldier*, 87. *U.S. Statutes at Large*, 26: 158.

[39] Bradley interview (Rickey); Forsyth, *Story*, 96; McConnell, *Cavalryman*, 230; Robinson interview; Rickey, *Forty Miles*, 125–26. A detailed description of the clothing cost and allowance is in Rose L. Price, *A Summer on the Rockies* (London, 1898), 264–69.

[40] *WDAR: 1872*, 124; *1880*, 330; Rickey, *Forty Miles*, 122; Foner, *Soldier*, 19; Sidney B. Brinckerhoff, *Boots and Shoes of the Frontier Soldiers, 1865–1893*, Museum Monograph 7, Arizona Historical Society (Tucson, 1976), 2–3.

[41] Other complaints about footwear included rough stiff leather and large seams, as well as ill-proportioned design. Dodge is quoted in Foner, *Soldier*, 20. Foner salutes Holabird for his reforms on 86. Brinckerhoff, *Boots*, 8, 15–23. *WDAR: 1876*, 75; *1880*, 332 (Meigs quotation); *1883*, 484–89 (Rodgers quotation on 485); *1889*, 826. Meigs gave a general report on clothing which included comments on the first complaints about the brass screw models in Billings, Circular 8, *Hygiene*, xlix–liii.

[42] Wesley Merritt was the general who made the remark to Cadet Archibald Campbell in the eighties: Campbell interview, Aug. 8, 1957. Roos to parents, Sept. 3, 1888. Hartford G. Clark Diary, Aug. 8, 1891, typescript, Jefferson National Expansion Memorial, St. Louis, Mo. *WDAR: 1858*, 797; *1871*, 127; *1873*, 121; *1880*, 181; *1882*, 70; *1884*, 83. John S. Billings, Circular 4, *Report on Barracks and Hospitals with Description of Military Posts* (Washington, D.C., 1870 reprinted 1974), xvi, and Circular 8, *Hygiene*, xviii. Foner, *Soldier*, 18, 78.

[43] In 1874, the army changed this to monthly reports. Billings, Circular 4, *Barracks*, v, ix–xvi, and Circular 8, *Hygiene*, v–vi, ix–xvi (quotation on xiii). *WDAR: 1875*, 148–49; *1888*, 730 (second quotation); *1891*, 407.

[44] *WDAR: 1867*, 82–85; *1870*, 66–87; *1872*, 48, 74 (Crook quotation); *1875*, 177; *1876*, 452; *1877*, 64; *1880*, 4–5; *1881*, 35 (Sherman quotations); *1887*, 5, 10 (quotations).

[45] *WDAR: 1890*, 15, 923; *1891*, 3; *1892*, 17, 95, 510 (Eagle Pass quotation); *1893*, 493 (casemate quotations); *1894*, 10, 13; *1895*, 82–89 (the largest garrison was Leavenworth with 830 men); *1897*, 637. Foner, *Soldier*, 84–85.

32

The Need for Enlisted Logistical Specialists

Introduction. Lt. E. F. Ladd, then Regimental Quartermaster of the 9th U.S. Cavalry, takes up a theme first broached by Assistant Quartermaster General Trueman Cross during the Mexican War, the need for a corps of enlisted specialists to replace civilians and men drawn from line units in performing logistical tasks. Ladd's argument reflects the growing sense of professionalism and specialization of function within the Army in the late nineteenth century and presages the creation of the Quartermaster Corps in 1912.

An army is a body of men organized, armed, equipped, disciplined and provided with necessary means of subsistence, transportation and supplies of all kinds.

It is maintained primarily for fighting, but in this stage of civilization, its known fitness therefor is expected to deter the aggressions that would otherwise lead to war, and thus to preserve the peace in which lies the prosperity of a people.

"In peace prepare for war " is a principle followed in one way or another by every nation. With some this preparation consists in the maintenance of large standing armies, made necessary by the close proximity of jealous rivals upon all sides, or by the not unfrequent weakness of the ties that unite the several provinces or states. With this country, neither of the above necessities exists, and it would not seem a wise policy to take any large proportion of the producers among the population and convert them into consumers solely. Our policy of relying upon the Militia, National Guard, or Military Reserve, if not followed to the other extreme, would seem to be far more advisable.

In the last few years, our army has been largely occupied as an aid to the western progress of civilization, but the Indian problem would seem to be nearing its solution, and as we turn our attention from matters of local to those of national importance, many advances will be found advisable if not necessary. We cannot meet the new issues with the weapons which have solved the old.

Reproduced from E. F. Ladd, "A Special Service Corps for the Quartermaster's Department," *Journal of the Military Service Institution of the United States* 14, no. 65 (September 1893): 1008–18.

A standing army, large in proportion to the area of our country, the number of its inhabitants, its wealth or its resources, is neither advisable nor necessary, and it is highly improbable that it ever will be authorized; then all the more reason why our organization and administration should, in every respect, be capable of ready and effective expansion or mobilization.

Any system fostered in time of peace, which is not capable of ready, application in the stirring times of war, is worse than useless; for at the outbreak of war it not only becomes necessary to develop and master new principles and a new system, but also to eradicate the old, all under the most adverse circumstances and at a most trying and critical period.

An army is a great and complex machine, designed to meet certain emergencies; its usefulness will depend upon the ability of each of its many parts to perform properly its individual function.

The generals are the master minds that must so direct the work as to obtain the best results; they are assisted by various staff departments whose duties are clearly defined, and which must ever be ready to meet the demands of the unforeseen.

Among these is the Quartermaster's Department.

My experience has been limited to the small part of its duties which relate to the ordinary routine of camp and garrison.

Among these details of daily occurrence, a few may be noted which will help to illustrate the variety involved in this one branch of army administration.

In garrison, perhaps the most important of these is obtaining and issuing necessary and suitable clothing for the men. This involves combining the estimates of the company and detachment commanders, comparing the result with the record of issues for past quarters, allowing for the needs of recruits, considering the probable amount on hand at the beginning of the period estimated for, and then guessing at the result. All this not only as regards the articles and quantities of each, but also as to various sizes.

To illustrate,—in trousers, taking into consideration the different arms of the service, quality and sizes, one could have 150 pairs without having any two of the same kind and size, and the same, only in a somewhat less degree, with many other articles. And, to meet the needs of the men and requirements of the service, it is not uncommon for a Quartermaster at a post of this size and remoteness to have on hand from twenty to forty thousand dollars worth of clothing alone.

The providing of all furniture needed in the barracks, much as beds, mattresses and pillows, tables, desks, chairs, benches, lamps and dishes for mess rooms, stoves, ranges and cooking utensils and needed repairs for them all, and providing companies with all needed tentage and equipage for field service.

The obtaining and issuing and accounting for fuel, forage and illuminating supplies of all kinds, securing funds and material for needed repairs to public buildings, expending and accounting for same.

Issuing bills of lading for freight, and transportation requests for authorized persons travelling under orders, not knowing whether a straight line is the cheapest route between two points, or the longest way around the cheapest way home, but with the pleasurable conviction that the auditor will tell you if your calculations are wrong.

The duty of keeping in order and readiness for field service everything pertaining to field transportation is very important at frontier posts. This includes mules, wagons and harness, horse and mule shoes and nails, iron, leather, canvas and all spare parts for repairs, necessitating the employment of wagon and stable masters, teamsters, farriers and blacksmiths, and paying all these men, reporting their services, and accounting for the funds.

Then come all the records, reports and returns of public property and the correspondence involved in keeping track of and carrying out the property accountability of the above, as well as many other details that mark the daily routine of the Quartermaster's Department of a post.

The above enumeration is simply to show that there is work connected with the proper administration of affairs in the Quartermaster's Department of a post, and that several men are required to carry it out. At this post there are working under charge of the Post Quartermaster, 38 enlisted men and 7 civilians, whose duties are almost as various as their numbers, and not one of them in the least allied to the profession of arms. Why then should they be expected to be soldiers in the ordinary sense, and be counted as such in the enlisted strength of the army?

The present system is conducive to the following state of affairs: Men detailed on extra duty are largely removed from the immediate control of their company commanders. They usually omit many of their military duties and frequently attempt to evade others, to the detriment of discipline, by conveniently being with the company when wanted by the quartermaster, and vice versa. The men also fail to render the best service to the department in which they are employed, for the carpenter must drop his saw, the painter his brush, to attend drills, inspections and dress parades, or to draw clothing, and instead of the 8 hours prescribed by law and orders, the department does not receive upon an average more than 6 or 7 hours' service each day. Instances are frequent where men have received conflicting orders from sources, both competent, and have thus been placed in a position where one of them must be disregarded, perhaps at the expense of a court-martial.

It is not uncommon for a recruit who may be a good carpenter or painter, to receive more pay per month than his first sergeant who has served perhaps 25 years, a condition of things not calculated to promote contentment or discipline.

And, within the last year, it has been the experience of this post that when the troops were sent into the field, and it became necessary to raise them to effective strength, all soldier teamsters, most of whom had been with their teams two or three years, had to be replaced by civilians, employed with a few hours' notice, who were not efficient and who could take but little interest in their duties, and most of whom were shortly replaced by soldiers, the change being necessary for the interest of the transportation and the service.

What would be the condition of the Quartermaster's Department in case of active operations?

The extra duty men would all be required with their companies, the strength of companies would be increased, the skeleton organizations resurrected, new regiments formed, militia mustered in, and all moved to the front, eager to put in practice the theories of years of study and discipline, while the important work of

clothing, feeding, equipping and transporting supplies would of necessity be largely left to undisciplined and inexperienced men.

The importance of this work is often forcibly presented to us in our ordinary garrison life and duties; the necessity for its intelligent and efficient performance in active military operations can not be overestimated.

To meet emergencies, the line has simply to complete the structure whose foundation and framework are the result of years of labor and discipline, leaving the Quartermaster's Department with nothing but unseasoned material with which to build.

Under the system to be proposed, such a state of affairs would be impossible.

It is therefore claimed that the present system is destructive of discipline, a promoter of dissatisfaction, conducive to work poorly done both as soldier and mechanic or teamster, and is not applicable in time of war. That the good of the service demands that it be abolished, especially because there seems to be a practical and economical remedy.

In an article in the Military Service Institution, Colonel Anderson says that one of the potent causes of dissatisfaction among enlisted men is undoubtedly the extra duty system of carrying on the work of a post. He gives as the reason for this that very often the *other* men, not given extra pay, do the *extra* duty in additional work imposed on each owing to the diminished number of men available for the necessary daily routine of guard, stable duty, kitchen police, general police and various fatigue details, not to mention the frequent exemption of extra duty men from hot, monotonous and wearisome drills which other men are required to stand. That this is not without foundation none acquainted with the practical workings of the system will contend.

The following is taken from the report of the Adjutant-General for 1892.

"The concentration of troops in larger posts reduces somewhat the number withdrawn from military instruction to render service as extra duty men in the several staff departments. The effect of such details cannot be otherwise than harmful to the efficiency of the army, and the duties assigned them can be more economically performed by civilian employés or by detachments of men enlisted and trained for the purpose."

"The Hospital Corps, organized in accordance with the act of March 1, 1887, and the corps of mechanics and laborers authorized to be enlisted at the Military Academy, have more than fulfilled the expectations entertained with regard to them at the time they were established. The result has been to provide an efficient service in both departments, to remove a cause that has been productive of no little annoyance to company commanders and medical officers, and restore to military duty a considerable number of enlisted men."

"I suggest that the system, for it is no longer an experiment, be extended, and that a suitable corps of enlisted men be authorized for and attached to, the Quartermaster's and Subsistence Departments, to replace the force of enlisted men now performing duties which are neither military, nor beneficial to those engaged in them in any military sense."

"The returns show that about 1500 non-commissioned officers and privates are now detailed from their companies and withdrawn from their proper instruc-

tion, and assigned to classes of work which could be done much more economically and efficiently by a corps of specialists enlisted for the purpose. The effect would be to return to the ranks a force equal to two regiments of cavalry or artillery or three regiments of infantry of more average size. The practice here recommended has long been made part of the established military policy of European armies, and has been resorted to by them, in every case, with a view to a more efficient and economical administration. I need only add that the adoption of special service corps has invariably been attended in our service by a considerable increase in efficiency, and a marked reduction of expenditure."

The idea of a service corps is not a new one, but the attention Congress has so often been called to measures purporting to be for the best interests of the service, but which, upon careful examination and analysis, have proved to be so manifestly personal in their operation, that it is not to be wondered that some true and needed reform like the one under consideration, should be passed over unnoticed. But supported, as I believe it to be now, by every officer of experience in both staff and line, from the General of the Army down, it can be but a short time before needed relief will be granted in one form or another.

As to the exact organization of the service corps under consideration, various suggestions have been made, but, whatever be the one adopted, I would make it as simple as possible, consistent with efficiency; and to embrace all men, both civilians and soldiers, now employed in the Quartermaster's Department at posts and depots, except the regimental quartermaster sergeant, and a few men, such as guides and interpreters, chief clerks, draughtsmen, etc., working under regular quartermasters. The regimental quartermaster sergeant should be retained as chief clerk to the regimental quartermaster, being the one man always available and needed to keep track of the papers; the others, for the peculiarly responsible positions which they fill.

As a military organization, necessity would suggest that all men vested with authority should be non-commissioned officers. I would say sergeants, the post quartermaster sergeant to be, *ex officio*, first sergeant of the detachment. All others to be privates, divided into as many classes as necessary, with pay graduated to correspond relatively as nearly as practicable with the value of the various services in civil life. All to be enlisted under the same general regulations as other soldiers, with rations, clothing, continued service pay, etc. The post quartermaster sergeant with rank and pay as at present. The privates, I would divide into 4 classes; the first class to embrace such men as are now employed as forage-masters, clerks, transportation agents, etc., with pay of $45.00 per month. These men ordinarily work under the immediate direction of the quartermaster, and their rating as to pay is not too high. The second class to include the sergeants, except the post quartermaster sergeant, blacksmiths, wheelwrights, engineers, plumbers, etc., with pay of $35.00 per month. The third class to include skilled laborers, such as carpenters, painters, tinners, masons, assistant engineers, etc., with pay of $27.00 per month; and the fourth class to include ordinary day laborers and teamsters, with pay of $20.00 per month, the pay as above to be for first enlistment. All to be suitably uniformed and to have a separate barrack.

I would further recommend that vacancies be filled as practicable by transfer from the line, upon the approval or recommendation of the post quartermaster and commanding officer, of men with over five years of service, or of men of good character, previously employed on similar duties in the Quartermaster's Department. I would also have as one condition of transfer or enlistment, that, in case of incompetency in the duties assigned, the man should be transferred to the line, or to another class, by an order of the War Department based upon the man's own application, approved by the post commander, or upon the recommendation of the post quartermaster and post commander, for satisfactory reasons to be stated. It would not follow that a man found undesirable for some particular work, would not prove an excellent man for some other class, or for company duty.

So far, this change has been advocated solely upon its desirability and for the contentment, discipline and efficiency it will produce both in the line and staff, and the question of cost has not, neither should it, enter into the discussion; but should Congress be asked to afford us the desired relief, it would be one of the first questions to answer, so I will now consider the proposed system solely from a pecuniary standpoint.

For this purpose, I have obtained statistics from twenty-five of the largest posts on the frontier, where the extra-duty system prevails to the greatest extent, these statistics being based upon the expenditure for labor in the Quartermaster's Department for the last fiscal year.

In the computation to follow we will consider a soldier's pay at $13 per month, and that of men in the proposed Quartermaster's Corps as that of their first enlistment, since the continued service pay and allowances of the two systems would be the same, except for civilian employés, for which correction will be made later.

At these twenty-five posts reports show the number of men employed and their monthly compensation to be as follows, assuming the classification proposed above:

Of the 1st class 16 men, pay	$1,288.33
Of the 2d class 113 men, pay	7,441.03
Of the 3d class 130 men, pay	1,430.00
Of the 4th class 541 men, pay	8,080.30
Giving a total number of 800 men with a monthly compensation of	$18,239.66
To which add pay of 671 men who are soldiers at $13 per month or	$8,723.00
Giving a total of	$26,962.66

With the proposed system, the cost of the same number of men, classified as above, would be as follows:

16 men of 1st class, at $45	$720.00
113 men of 2d class at $35	3,955.00
130 men of 3d class, at $27	3,510.00
541 men of 4th class, at $20	10,820.00
A total of	$19,005.00

To this add clothing allowance of $4 per month to the 129 citizens included in the above or	$516.00
Also rations at $6 per month for the 13 men above who now receive over $60 per month or	$78.00
And we have	$19,599.00
A saving each month on this force of 800 men of	$7,363.66

Assuming that that there 2400 men of the above classes so employed in the entire Quartermaster's Department, which figures I should judge to be nearly correct, then at the above rate there would be a total saving each year of $265,091.76. Moreover, if these men could devote their entire attention to the duties assigned them, their number could be materially reduced from the present figures.

That I may be clearly understood, let me state definitely how this saving can be effected, while the efficiency of the line is preserved and that of the Quartermaster's Department increased. It can be done only by reducing the enlisted strength of the line by the number now detailed away to man the Quartermaster's Department. This is practically what results now, for men so detailed are a handicap rather than an assistance to the organization to which they belong. But, to any fair minded man, what is the occasion for reducing the enlisted strength of the line? What is the occasion for this economy? Why not give the needed relief to both line and staff, placing all on the same basis of efficiency as obtains in other countries? Then when mobilization becomes necessary, or even in case of ordinary field service, we shall have independent organizations, each ready, equipped and experienced, to meet any demands made upon it.

The above explanation is deemed necessary as it might seem to some that the absurd argument was advanced, that the army could be increased by a Quartermaster's Corps of 1500 or 2000 men at a reduction in cost of over $200,000, whereas the figures prove simply that the present is an extravagant method of conducting the work of the Quartermaster's Department, and that the work can be done much better and more economically by men enlisted in this special corps. The extra men added to the enlisted strength of the army, would be just this much of an increase to its effective strength, and an advance in the right direction.

In the above discussion, I have assumed a classification which I believe advisable, and rate of pay, which, under the many favorable provisions proposed, I am satisfied is ample to insure good workmen in the various trades. But, upon these minor points there are likely to be varied opinions, and I would gladly give way to those of greater experience.

To solve the problem in detail, I would propose an act of Congress similar to that establishing the Hospital Corps, creating a special service corps for the Quartermaster's Department, the strength of such corps in time of peace not to exceed 60 men for each regiment in the service, to be divided as follows:

For each regiment, not to exceed two quartermaster sergeants as at present, 3 men of the 1st class, 10 men of the 2d class, 15 men of the 3d class, 30 men of the 4th class, provided, that if any class is not filled, the number so lacking may be added to any lower class.

This would give a maximum monthly pay-roll for each regiment of $1558, or for the 40 regiments in the present organization of the army, $62,320.

The report of the Adjutant-General for 1892, quoted above, gives the number of men on extra duty at about 1500. From the report of the Quartermaster-General for the same year, the average monthly extra-duty pay of these men was $17,533.80 and their pay as soldiers, at $13 per month, was $19,550, making their total pay $37,083.80.

Now add the pay of 80 quartermaster sergeants at $34 per month each, or $2720, and we have a total of $39,803.80 as the present monthly cost of soldiers employed in the Quartermaster's Department, all of whom could be embraced in the Special Corps.

The assignment of these men to departments and posts would devolve upon the General of the Army and department commanders, upon the advice of the Quartermaster-General and chief quartermasters. The proposed number of 2400 men would give an allegiance of 4 to each post and 4 to each troop or company in the service, including bands, and leave enough for duty at department headquarters, depots, etc.,—an allotment in every respect liberal, but which would be varied to meet the demands of the service.

These 2400 men would soon become skilled in the duties assigned them, and more or less acquainted, in a general way, with most of the duties of the Quartermaster's Department. Then, in case of active operations, they could fill the more important positions, and the department never feel the lack of a competent and experienced force.

Now take the same report of the Quartermaster-General, omit all civilian employés now receiving $85.00 per month or more,—which includes all clerks, draughtsmen, chief packers, nearly all transportation agents, and some engineers and forage masters, who are men peculiarly adapted to their specific work, 257 in number, whose monthly pay is $28,501.13,—and we have 912 civilian employés left whose monthly pay is $51,696.02 which added to the pay of the soldiers employed as above makes a total of $90,499.82 as the monthly wages of the 2412 men included in this computation, all of whom, I am satisfied, could in a short time be replaced by men equally, if not more competent, enlisted under the assumed conditions, and at a saving of $28,179.80 each month,—more than equal to the pay of the 1500 enlisted men now detailed away from their regular military duties.

In other words, this special service corps of 2400 men could be created under the condition assumed, leaving the strength of the line as at present, and the monthly pay roll of the army, including the 912 civilians, be reduced $8,629.20, a revelation based upon figures, and as surprising to me as it will doubtless be to others,—a result even more favorable than the one deduced from the statistics of a few posts, made before the report of the Quartermaster-General was available.

A slight correction is required here to cover the clothing allowance and rations of the civilian employés, also for the twelve men in excess of the 2400 proposed, but after making all corrections, there will still be a net credit on the side of the proposed system.