THE EVOLUTION OF THE CURRICULUM OF THE
INDUSTRIAL COLLEGE OF THE ARMED FORCES, 1924-1988:
A SEARCH FOR RIGOR

by

ROBERT GEST III

Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Adult and Continuing Education

APPROVED:

[Signatures of the committee members]

Harold W. Stubblefield, Chairman

[Signature]

Thomas C. Hunt

Marcie Boucouvalas

Ronald L. McKee

Bernard S. Waterman

April, 1990

Blacksburg, Virginia
THE EVOLUTION OF THE CURRICULUM OF THE
INDUSTRIAL COLLEGE OF THE ARMED FORCES, 1924-1988:
A SEARCH FOR RIGOR

by

ROBERT GEST III

Committee Chairman: Harold W. Stubblefield
Adult Education

(ABSTRACT)

This study examined the curriculum evolution process of the
Industrial College of the Armed Forces (ICAF) and its predecessor, the
Army Industrial College (AIC), as it was influenced by a variety of
factors between the years 1924 and 1988. Most of the published
material used for this study was found in the library of the National
Defense University, Fort Lesley J. McNair, Washington, DC.
Additionally, current and past College faculty and staff members were
interviewed.

Six main questions served to guide and focus inquiry for this
study. These questions concerned how the curriculum evolution process
was affected by (1) various influential persons, (2) recommendations of
commissions and boards, (3) social, economic, and political phenomena,
(4) military and civilian faculty, (5) educational philosophy, and (6)
technological advances.
Using the historical method, the study identified five distinct periods in ICAF's curriculum history: 1924-1941, during which AIC's original curriculum sought to forestall a recurrence of industrial mobilization problems; 1943-1964, which saw the emergence of economic mobilization as the overarching curriculum theme; 1964-1975, a time when a strong leader completely restructured the curriculum theme to emphasize management and active learning; 1975-1984, a period when NDU was created as the joint college umbrella, applied behavioral science was introduced, and the curriculum theme returned to mobilization; and 1984-1988, during which the conceptual frameworks of joint and combined warfare and the systems approach guided the continuing search for academic excellence and rigor.

The study found that each of the potential change agents affected the way the curriculum evolved. However, the most influential factor was the occasional person who interpreted the significance of a multiplicity of phenomena in an innovative fashion, and consciously chose to restructure curriculum. Commandant, Lieutenant General August Schomburg and Dean of Faculty and Academics, Colonel Barry M. Landson, were the two most effective individuals in this regard. Consequently, the study concluded that, for the most part, curriculum planning was not an orderly, systematic, and analytical process. Generally, curriculum change was found to be incremental and often based on which subjects received greatest media attention or the relative argumentative forcefulness of proponents.
The search for rigor has not been successful. Prerequisites for a rigorous graduate level institution -- heavy, high quality reading requirements, examinations and grading, demanding instructors, and a substantive research program -- have not been achieved. It was suggested that personnel turbulence, faculty quality, and ICAF's standing in military circles are some of the problems which will have to be addressed if these prerequisites are to be met.
ACKNOWLEDGMENTS

There are many people to whom I owe a debt of gratitude for having assisted me in making this dissertation a reality.

Special thanks are owed to the members of my dissertation committee. Dr. Tom Hunt sparked my original interest in historical research during one of his outstanding courses. It was from him that I acquired the unshakable conviction that historical research was just as credible and utilitarian as quantitative research. Dr. Marcie Boucouvalas encouraged me to think beyond the conventional wisdom and yet kept me firmly anchored with her incisive questions on meaning and understanding. Dr. Ron McKeen was of inestimable assistance as I early on began the difficult task of narrowing the list of possible topics and sharpening my focus. Dr. Bernard S. Waterman, Brigadier General, USA (Ret), lent his invaluable insight and professional military college expertise. He continuously prodded me to work a little faster, and his diligence in reviewing each chapter, with a sharp red pencil, helped me shape both the content and grammar. Dr. Harold W. Stubblefield, my major advisor and dissertation committee chairman, is most responsible for my choosing an historical study of education. His acknowledged expertise, patient but firm guidance, and unflagging support and optimism kept me going when many times I wanted to quit.

In addition to Dr. Hunt, Dr. Jan Nesper also helped in a major way to make me comfortable with qualitative research methodology. I
especially thank him for his easygoing but reassuring approach to planning and executing qualitative research studies.

Although all of the faculty members of the Industrial College of the Armed Forces were willing to help, special thanks go to Drs. Herman O. Stekler and Robert W. Beckstead. Both of these gentlemen volunteered to serve as interviewees and idea discussants, and by regularly inquiring as to the progress I was making, encouraged me to complete this study. I would be remiss if I did not also thank Dr. Barry M. Landson, Colonel, USAF (Ret). He sat as an interviewee and met with me for several additional hours, giving me his unique insights gained from service as an ICAF faculty member, department head, and Dean of Faculty and Academics.

The National Defense University Library Staff was especially helpful. Susan K. Lemke, Tina L. Lavato, and Ansonia V. Hayes often went out of their way to locate materials both within and outside of the NDU Library.

Thanks are also extended to my many friends and fellow Livingstone College alumni who have been so patient with me. Mr. William Worthy, a fellow alumnus, offered to help wherever he could and called me regularly from New York to remind me that success was just around the corner. Perhaps now I can reestablish all the warm friendships which have been on hold for the past few years.

Without Mary Anne Weaver, a true friend, this dissertation could not have been accomplished. She voluntarily typed many versions of the
manuscript as well as the final, did so in her spare time, and refused any remuneration. As a professional secretary, she often made germane and very helpful recommendations on word choice, language usage, and logic. Equally useful were her constant exhortations and chiding because her cryptic comments often kept me going late at night.

Finally, I dedicate this dissertation to my mother, Luvenia Gest, and to the memory of my father, Robert Gest, Sr. Both of them instilled in me a healthy respect for education. My father had no formal education, but he knew how valuable an education was and he never let me forget it.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>v</td>
</tr>
<tr>
<td><strong>Chapter</strong></td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>DESCRIPTION OF THE PROBLEM SITUATION</td>
<td>1</td>
</tr>
<tr>
<td>STATEMENT OF THE PROBLEM</td>
<td>7</td>
</tr>
<tr>
<td>OBJECTIVES OF THE STUDY</td>
<td>11</td>
</tr>
<tr>
<td>SIGNIFICANCE OF THE STUDY</td>
<td>12</td>
</tr>
<tr>
<td>DEFINITION OF TERMS</td>
<td>14</td>
</tr>
<tr>
<td>LIMITATIONS OF THE STUDY</td>
<td>17</td>
</tr>
<tr>
<td>ORGANIZATION OF STUDY</td>
<td>18</td>
</tr>
<tr>
<td>REVIEW OF RELEVANT LITERATURE</td>
<td>20</td>
</tr>
<tr>
<td>Curriculum History in its Broadest Sense</td>
<td>21</td>
</tr>
<tr>
<td>The History of the American Undergraduate Curriculum</td>
<td>26</td>
</tr>
<tr>
<td>The Evolution of Curricula at Senior Professional Military Colleges</td>
<td>35</td>
</tr>
<tr>
<td>Conclusions</td>
<td>44</td>
</tr>
<tr>
<td>RESEARCH METHODOLOGY AND PROCEDURES</td>
<td>46</td>
</tr>
<tr>
<td>Sources of Data</td>
<td>48</td>
</tr>
<tr>
<td>Unpublished materials</td>
<td>48</td>
</tr>
<tr>
<td>Published materials</td>
<td>50</td>
</tr>
<tr>
<td>Persons</td>
<td>50</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Published histories of ICAF</td>
<td>50</td>
</tr>
<tr>
<td>Collection of Data</td>
<td>50</td>
</tr>
<tr>
<td>Treatment of Data</td>
<td>52</td>
</tr>
<tr>
<td>2. ESTABLISHMENT OF THE ARMY INDUSTRIAL</td>
<td></td>
</tr>
<tr>
<td>COLLEGE: 1924-1941</td>
<td>55</td>
</tr>
<tr>
<td>PRE-COLLEGE REMEDIAL EFFORTS</td>
<td>55</td>
</tr>
<tr>
<td>CURRICULUM SUBSTANCE, PROCESS AND INFLUENCES:</td>
<td></td>
</tr>
<tr>
<td>1924-1941</td>
<td>60</td>
</tr>
<tr>
<td>THE INDUSTRIAL COLLEGE IN 1941</td>
<td>74</td>
</tr>
<tr>
<td>3. JOURNEY TOWARD CREDIBILITY: 1943-1964</td>
<td>77</td>
</tr>
<tr>
<td>ECONOMIC MOBILIZATION AS THE CURRICULUM FOCUS</td>
<td>77</td>
</tr>
<tr>
<td>Influence of Echols and Hancock Boards</td>
<td>79</td>
</tr>
<tr>
<td>Economic Mobilization: A Sharper Focus</td>
<td>84</td>
</tr>
<tr>
<td>Impact of Charter Revisions</td>
<td>87</td>
</tr>
<tr>
<td>FROM ECONOMIC MOBILIZATION TO MANAGEMENT</td>
<td>90</td>
</tr>
<tr>
<td>Search for Relevance and Value</td>
<td>90</td>
</tr>
<tr>
<td>The Baxter Board</td>
<td>95</td>
</tr>
<tr>
<td>Charter Revision of 1955</td>
<td>98</td>
</tr>
<tr>
<td>FROM &quot;GENERAL MANAGEMENT&quot; TO MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>DEFENSE RESOURCES</td>
<td>100</td>
</tr>
<tr>
<td>The Board of Advisors: 1957-1961</td>
<td>100</td>
</tr>
<tr>
<td>Rivalry Between ICAF and NWC</td>
<td>101</td>
</tr>
<tr>
<td>Technology and Faculty Initiatives</td>
<td>103</td>
</tr>
</tbody>
</table>
Chapter

The JCS Influence of the 1960s ............. 112

ICAF IN 1964: A BROADENED AND CREDIBLE INSTITUTION ............. 115

4. REVOLUTIONIZING THE CURRICULUM: 1964-1975 ....... 118

THE SCHOMBURG REVOLUTION ............. 121

Immediate Changes: Organization and Curriculum ............. 121

A Radically Revised Academic Program .......... 131

CONSOLIDATION OF REVOLUTIONARY CHANGES .......... 140

GLOBALIZATION OF CURRICULUM EMPHASIS .......... 151

THE METAMORPHOSIS COMPLETE .......... 165

5. NATIONAL DEFENSE UNIVERSITY AND ITS EFFECT ON

ICAF'S CURRICULUM: 1975-1984 ............. 170

FACTORS LEADING TO NDU'S FOUNDING .......... 172

NDU PRESIDENTS AND ICAF ............. 175

Bayne: The Initiator ............. 175

Gard: Schomburg Reincarnated ............. 182

Pustay: Mobilization, Research, and Rigor .... 196

ORWELLIANIZED ICAF: 1984 ............. 209

6. SYSTEMS APPROACH AND JOINT/COMBINED

OPERATIONS: 1984-1988 ............. 212

SYSTEMS APPROACH AS A CONCEPTUAL FRAMEWORK ..... 214
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCO AND DECISIONMAKING: TWIN CONCEPTUAL</td>
<td>222</td>
</tr>
<tr>
<td>FRAMEWORKS</td>
<td>229</td>
</tr>
<tr>
<td>THE PURSUIT OF RIGOR</td>
<td>242</td>
</tr>
<tr>
<td>THE INDUSTRIAL COLLEGE IN 1988</td>
<td></td>
</tr>
<tr>
<td>7. SUMMARY AND CONCLUSIONS</td>
<td>245</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>245</td>
</tr>
<tr>
<td>1924-1941</td>
<td>247</td>
</tr>
<tr>
<td>1943-1964</td>
<td>249</td>
</tr>
<tr>
<td>1964-1975</td>
<td>253</td>
</tr>
<tr>
<td>1975-1984</td>
<td>257</td>
</tr>
<tr>
<td>1984-1988</td>
<td>260</td>
</tr>
<tr>
<td>CONCLUSIONS</td>
<td>262</td>
</tr>
<tr>
<td>Influential persons</td>
<td>262</td>
</tr>
<tr>
<td>Commissions and boards</td>
<td>266</td>
</tr>
<tr>
<td>Educational philosophies</td>
<td>268</td>
</tr>
<tr>
<td>Technology</td>
<td>273</td>
</tr>
<tr>
<td>Faculty</td>
<td>275</td>
</tr>
<tr>
<td>Economic, social, political phenomena</td>
<td>278</td>
</tr>
<tr>
<td>Summary of conclusions</td>
<td>283</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>289</td>
</tr>
</tbody>
</table>
APPENDICES

A. PROFESSIONAL MILITARY EDUCATION
   PROGRAMS OF THE ARMED FORCES ................. 298

B. INTERVIEW PROTOCOL .............................. 301

C. DIRECTORS AND COMMANDANTS OF THE ARMY INDUSTRIAL
   COLLEGE AND THE INDUSTRIAL COLLEGE OF THE
   ARMED FORCES ................................. 304

D. PRESIDENTS OF THE NATIONAL DEFENSE UNIVERSITY .... 307

E. SIGNIFICANT DATES IN CURRICULUM HISTORY ....... 309

VITA ............................................. 318
CHAPTER 1

INTRODUCTION

DESCRIPTION OF THE PROBLEM SITUATION

Throughout the history of man, wars have been fought between nation-states by armed forces. Early in the history of professional armies, it was recognized that specialized training and education were necessary if the army was to have a better-than-even chance at winning. For America, the organization, structure, and education of its professional officer corps was modeled along European lines.

Barnard, in his 1872 book, *Military Systems and Education*, contended that colonial American officers were trained in the military service of the mother country. Barnard listed such German and French officers as Steuben, Kosciusko and L'Enfant, all of whom are familiar to those who have read military history (Barnard, 1872, p. 719). However, Spector (1977) argues in his *Professors of War*, that it was Lieutenant Colonel Emory Upton who brought the European system of military education to the United States. Spector contends that the Army schools derived their inspiration from the example of German military education and their model was the great Berlin Kriegsakademie which had been founded by General Gerhardt von Scharnhorst in 1810 to train officers for high command and general staff work (Spector, 1977,
pp. 15-16). Upton had travelled around the world in 1876, visiting military activities and military schools. His observations, which shaped his view of what American military education should be, were published in 1878 in a tome entitled: The Armies of Asia and Europe: Embracing Official Reports on the Armies of Japan, China, India, Persia, Italy, Russia, Austria, Germany, France and England.

Thus, America's first approach to post-graduate military education -- the Artillery School at Fort Monroe, Virginia which was established in 1867 -- was modeled after European institutions. However, it was not until 1864 that the first senior level military institution was established (Johnson, 1982, p. 21). This school, the Naval War College, has been followed in the intervening years by several senior service colleges, all of which have been established with the general aim of preparing senior officers to win wars by educating them in the knowledges, skills, and attitudes deemed necessary.

However, as changes overtook the nature of environments within which wars were fought, so changed many of the essential elements of knowledge. The technological advances in weaponry and supporting fields, increased awareness of the importance of behavioral factors, enhanced understanding of the bureaucratic nature of organizations, and the growing body of knowledge about how adults learn are some of the environmental factors which have served to direct and re-direct the nature of knowledge deemed necessary -- as well as how that knowledge should best be conveyed. This question of "what shall the schools
teach" -- as well as what should the instructional methodology be -- has been a long-simmering issue for educators at all levels of all types of schools. One way to come to grips with this issue is by investigating matters such as what was taught, how it was taught, and why, i.e., history. The first President of Cornell, Andrew D. White, best captured the notion when he stated, "our knowledge of history must be brought to bear on our time to prevent, if possible, some few of the mistakes in the future from which mankind has suffered in the past" (Rudolph, 1977, p. 125). Additionally, history reveals or illuminates the past by painting a picture of what was valued and in what context. Thus Rudolph's description of curricular history as "American history which carries the burden of revealing the central purposes and driving directions of American society" (Rudolph, 1977, p. 24) provides an additional rationale for studying the curriculum history of senior professional military education. Thus, curriculum histories of senior professional military colleges should do much to reveal and explain the diverse forces which have steered the courses of these institutions.

These forces for curriculum change have interacted in such a manner that curricula of senior professional military education have come under extraordinary scrutiny in recent years. The importance of economic factors as a determinant of the structure, management, and employment of armed forces created the need to emphasize defense economics as a curriculum pillar. Additionally, changing societal attitudes about the nature of man and what motivates him to seek
excellence have argued for curriculum change. Most recently, a perceived inability of the various Services -- Army, Navy, Air Force, Marines -- to engage in joint and combined warfare with a strategic and systematic perspective has resulted in considerable discussion about the "what" and the "how" of senior professional military education. The Grenada incursion of 1983, when various components of the armed forces could not even communicate with each other, was galling to many national security decisionmakers.

In spite of the importance of these issues and the importance of professional military education, very little has been done with respect to studying senior professional military colleges' curriculum history with a view toward structuring present and future curricula. The situation with military colleges differs little from the civilian schools Kliebard and Franklin had in mind when they stated that "curriculum historians need to engage in studies that will explore the curriculum as it actually was incorporated into school settings" (cited in Best, 1983, p. 148). Most histories of military colleges have sought to chronicle the all-inclusive institutional development: programs, procedures, and organizational structure. Thus, for the most part, they have failed to deal specifically with the variety of agents who acted on the curriculum to give it form and substance. There is a need to explore in greater detail, why curriculum changes occurred in senior professional colleges, the contexts within which changes occurred, and the environments which stimulated change.
One such senior professional military college is the Industrial College of the Armed Forces (ICAF), one of the most senior professional military education institutions. It stands, along with the National War College (NWC), at the pinnacle of professional education for officers of America's armed forces. Each service has its own professional military education (PME) system as well, which is comprised of senior, intermediate, and junior-level schools. Appendix A, Professional Military Education Programs of the Armed Forces, lists each of these schools and graphically depicts the sequence usually followed (Shelburne, 1965, p.86).

The Industrial College of the Armed Forces was founded in February, 1924, as the Army Industrial College (AIC). Its origin is rooted in World War I difficulties which were experienced when industries did not produce needed quantities of ordnance, tanks, aircraft, and other materials. After the war, a debate raged about what should or could have been done. Military as well as prominent civilians participated in this debate. Much of the rationale for the National Defense Act of 1920 is grounded in the perceived failures of the nation's industrial mobilization process.

Historical documents indicate that the views of civilian experts such as Bernard Baruch were very influential in the enactment of the National Defense Act of 1920. This Act, which charged the Assistant Secretary of War with assuring adequate provision for the mobilization of material and industrial organization essential to wartime needs, was
followed by several actions which led to the creation of the AIC (Snow, 1925, p. 1470). Even before the AIC was established, the recognition of these types of problems had resulted in some limited training. The purpose of this earlier training was to prepare selected officers so they would be able to develop sound mobilization plans and instruct officers in conducting Army procurement planning and operations. This earlier training had been orchestrated by Colonel Harley B. Ferguson, USA, who was instructed in May, 1921, to set up a series of Procurement Planning Sections. These sections were later combined into a Planning Branch with officers assigned to each major phase of industrial preparedness (Bauer, 1983, p. I-2). This marked the humble beginnings of the Industrial College of the Armed Forces (ICAF), with an original charter contained in War Department General Orders No. 7, February 25, 1924:

**Establishment of the Army Industrial College**

1. A college, to be known as the Army Industrial College, is hereby established for the purpose of training Army officers in the useful knowledge pertaining to the supervision of procurement of all military supplies in time of war and to the assurance of adequate provision for the mobilization of materiel and industrial organization essential to wartime needs (Bauer, 1983, p. I-4).

Today, the Industrial College of the Armed Forces has a somewhat broader mission. It has evolved over the past 64 years from a faculty
of two and a first class of nine students, to a faculty of 51, and an average class size of 220. Along the way it has become the major educational facility for senior officers regarding the larger issues associated with resources management in both peacetime and wartime. Scammell (1946) and Bauer (1983) are the only two substantial histories of ICAF. However, no comprehensive curriculum history per se has been published. Perhaps the closest document is Francis H. Miles’ Report on the Army Industrial College (April 15, 1944), which focused on how the curriculum at ICAF had evolved due to the synergistic impact of change agents such as technology, key influential persons, faculty, students, and economic, social, and political phenomena.

STATEMENT OF THE PROBLEM

Although considerable attention has been lavished on whether ICAF’s curriculum is what it should be, the problem of ascertaining a clear and comprehensive view of what factors have historically combined to shape curriculum construction remains. For the most part, ICAF’s curriculum history has been included in general discussions of the overall development of the College.

Even so, the writings of Miles, Scammell, Falk (1968), and Bauer were thorough enough to serve as the principal sources for an analysis of factors which acted upon ICAF’s curriculum between 1924 and 1983. However, the period between 1964 and 1988 was analyzed by reference to
Bauer's 1983 work, College and University annual reports, reviews of published and unpublished documents, and interviews of influential persons. In addition to 1964 being the year that radical revisions were begun in curriculum content and process, beginning original and substantive research at this point permitted inclusion of data gathering via interviews of influential persons whose recollections served as a useful cross-check against recorded information. Finally, 1964 may be recent enough to blunt possible criticism of findings and interpretations as being based on ancient and irrelevant phenomena.

Therefore, the problem investigated in this study was: How has the curriculum evolution process at the Industrial College of the Armed Forces been influenced during the years 1924 to 1988 by internal and external factors such as influential persons, commissions, boards, associations and councils, social, cultural, economic and political phenomena, faculty, educational philosophies, and technological advances? Internal factors include the faculty and College administrators, various educational philosophies/world views, and curriculum planning committees. External factors refer to technological advances, environmental factors, some influential persons and special boards, commissions, councils, and associations.

In order to answer the broad question posed above, several subordinate questions were framed to serve as a guide to the investigation. These were:
1. Who were the most influential persons in terms of influencing curriculum construction and what roles did they play?
   a. What view did each have of the aims/purposes of ICAF?
   b. Exactly what part did each play in interfacing with the constituencies of ICAF? Did these influentials plead for, adopt from, or ram through innovative ideas?
   c. What major changes were introduced/promoted by the influential persons and with what justification?
   d. Were any of the influentials visionaries and if so, how was that manifested?
   e. Did influential persons affect the direction taken by the curriculum or did they serve more as barometers of the direction the College curriculum was taking anyway?
   f. What conflicts, if any, did these persons have with other persons, institutions, organizations?

2. What curriculum-shaping roles were played by commissions, boards, associations, and councils? When, how, and under what circumstances?

3. What specific phenomena -- social, cultural, economic or political -- influenced curriculum content or process?
   a. How, if at all, did any phenomena make necessary the redefinition of the ICAF curriculum?
b. Has the curriculum mirrored society (or a segment thereof, e.g., military society) or has the reverse been the case?

4. How did members of the faculty influence curriculum change?
   a. What role, if any, did tenure play in terms of curricular rigor?
   b. Were there any specific course contents or instructional methodologies championed by faculty? Resisted by faculty? What was the outcome?

5. What role did differing philosophies of education have on curriculum construction?
   a. Which philosophies of education are identifiable and by which change agents were they promoted?
   b. What, if any, are the definable points at which control of the curriculum shifted from one philosophy to another?

6. What effects have technological advances exerted on curriculum content and process?
   a. How was the curriculum affected by such innovations as action research, simulations, laboratories, applied behavioral science, and case study methodology?
   b. What innovations in audio-visual means of information transference influenced curriculum content or process?
c. How, if at all, has the arrival of computers affected curriculum content and process?

OBJECTIVES OF THE STUDY

The major objective of this study was to ascertain how the curriculum of a senior military college was affected by the interaction among and between competing interests as each "interest" sought to promote its view of what was most important in determining the curricular emphases and ultimate institutional orientation. The curriculum evolution history of ICAP was used as the vehicle to accomplish this purpose. Although "interests" are broadly defined to include environmental factors such as technology and economic and political phenomena, these environmental factors are, of necessity, "interpreted" by the influential persons and agencies who combined to shape the form and substance of the curriculum.

Secondary objectives were (a) to identify the common thread of concern; (b) to identify themes or trends associated with specific periods of curricular history and how they were manifested in programs and procedures; (c) to identify the most significant change agents which affected the curriculum and how such influence was exerted; and (d) to suggest, by inference, some issues future curriculum planners could study to foster a pro-active, relevant, and systematic curriculum change process.
SIGNIFICANCE OF THE STUDY

Curriculum planning is a continuous process which takes place either with or without a clear sense of direction or knowledge of the past. However, if there is no firm appreciation and understanding of the past, curriculum planners risk engaging in unproductive, or worse, destructive activities. Although all institutions of higher learning are important in that they largely determine what knowledge is worth transmitting to future generations as a base for further societal development, senior professional military education institutions are a special case. If senior professional military and civilian Government officials are not properly educated to assess problems creatively and critically and cope successfully with them, there could well be no American society to pass on to future generations.

Therefore, it seems important that present and future curricula be developed with an informed historical awareness of how and why curriculum construction took on its varied forms at different times. Further, this importance transcends the small fraternity of national security professionals who are personally at risk if their own preparation is lacking in the essential elements of knowledge. The American public also has a vital interest in how well its professional military is educated. This interest, recognized by J. Franklin Messenger in his Introduction to Captain Ira L. Reeves' 1974 treatise on Military Education in the United States, has not changed over the
past 74 years. Over seven decades ago, Messenger declared that as individuals we are not so directly dependent upon the army, at least in time of peace, but as a nation we are greatly dependent upon it, and military education is a matter of great public concern (Reeves, 1914, p. 10).

Thus, because of the wide-ranging consequences which could result from an ill-prepared senior national security establishment, the results of this study should be useful in a number of ways. First, the study should add to the body of knowledge on curriculum history and planning as developed and practiced by senior professional military education institutions of the United States. This study of one senior professional military education institution's curricular evolutionary process could assist future researchers in grappling with curriculum history at other military education institutions. Additionally, the findings and conclusions of this study should prove useful in answering constituents who periodically question whether senior military colleges consider the relevant variables as they develop curricula for America's future senior military officials.

Secondly, the study should add further credence to the theory of competing interests as it relates to curriculum change. In this sense, curriculum history as a process could take its place alongside organizational change and the political process as an additional example of how human beings, by compromise, negotiation, and manipulation, move from one developmental phase to another.
Finally, the study will describe several change agents which have been of prime importance in the ICAF curricula change process. This derivation and analysis should prove helpful to current and future curriculum planners at ICAF as they seek to define the College by what it teaches and how it teaches it. For if it can be shown that curriculum changes which have taken place at ICAF have been influenced by specific variables -- and these variables have been somewhat constant in type over time -- a more pro-active approach can be taken to planning for curriculum change. Long-term plans and programs which take into consideration the several sectors of influence could then be institutionalized. This long-range document, a strategic plan of 15 or so years, could then be published (and updated regularly) so that those most affected by curriculum change can become valued elements of the change process.

DEFINITION OF TERMS

Important terms used in this study are defined as follows. These definitions, which were written for the purposes of this study, should not be confused with the definitions reported in the review of the literature.

CURRICULUM: Nothing less than the statement a college makes about what, out of the totality of man's constantly growing knowledge and experience, is considered useful, appropriate, or relevant to the lives
of educated men and women at a certain point of time (Clark Kerr in

CURRICULUM HISTORY: The scholarly attempt to chronicle,
interpret, and ultimately understand the processes whereby social
groups over time, select, organize, and distribute knowledge and belief
through educational institutions (Kliebard and Franklin, cited in Best,
1983, p. 8).

CONTENT: The subject matter or body of knowledge which comprises
curricular offerings. Examples include program emphasis on
decisionmaking and creative problem-solving.

PROCESS: As used in this study, and at ICAF, the instructional
methodologies used to convey/implement the curriculum content.
Examples include lectures, case studies, and audiotapes.

INDUSTRIAL COLLEGE OF THE ARMED FORCES: One of five senior
Service Colleges which is dedicated to the joint Service study of the
management of resources for national security preparedness and
mobilization planning. The educational program is designed to develop
midcareer functional management and operational personnel into
executives possessing the skills and perceptions required of senior-
level leaders and managers in the Federal national security structure.

NATIONAL DEFENSE UNIVERSITY: The nation's umbrella senior
professional military education institution which is tasked to prepare
selected commissioned officers and civilian officials from the
Department of Defense, Department of State, and other agencies of
Government for command, management, and staff responsibilities in a multinational, intergovernmental, or joint national security setting. The University carries out its responsibilities via three colleges: (a) the Industrial College of the Armed Forces, (b) the National War College, (c) the Armed Forces Staff College. A number of Institutes, Centers, and other elements are also utilized by NDU to carry out its responsibilities.

SENIOR PROFESSIONAL MILITARY EDUCATION: The category of training which prepares military personnel for career advancement and for increasingly demanding responsibilities that require professional knowledge and experience. In this study, the common meaning refers to education programs offered at the five senior Service colleges: (a) the National War College, (b) the Industrial College of the Armed Forces, (c) the Air War College, (d) the Army War College, and (e) the Naval War College.

INFLUENTIAL PERSONS: Individuals who have significantly affected the curriculum content and methodology, whether internal or external to ICAF. This category includes some faculty, students, College and University administrators, industrialists, senior military officers, and legislators.

FACULTY: The teachers/facilitators assigned to the Industrial College of the Armed Forces whose principal responsibility is to facilitate the student learning process by conceptualizing, designing, developing, implementing, and evaluating curriculum content.
STUDENTS: Military officers and civilians enrolled at the Industrial College of the Armed Forces for the ten-month academic year. Current student body is 80% military, 20% civilian; 95% male, 5% female; 36% Army, 34% Navy, 5.6% Marines, 1.7% Coast Guard. Average age: 42. Most military are 0-5 (Lt. Colonel or Navy Commander) with only 20% at the 0-6 level (Colonel or Navy Captain). However, many of the 0-5s will be promoted before they graduate. Most Government civilians are GS-15 or equivalent.

LIMITATIONS OF THE STUDY

This study was not intended to be a comprehensive history of the Industrial College of the Armed Forces, but rather a description and interpretation of the ways in which the curriculum has evolved so that curriculum planners will have an informed basis for future changes. Consequently, such issues as organizational structure, growth, budgetary constraints, and personnel policies were treated only insofar as they seemed to influence curriculum direction significantly.

Secondly, this study sought to analyze only the curriculum of the resident course and thereby largely excluded curricula of the correspondence, extension, and institute programs.

Finally, no effort was made to conduct an examination of the total population of influential persons or documents. Rather, a survey of influential persons and documents -- each period of curriculum history
subjected to review -- was the aim of this study. It was believed unnecessary to unearth every scintilla of data in order to get a sense of what programs, policies, and procedures existed.

ORGANIZATION OF STUDY

Borg and Gall (1983) hold that reports of historical research have no standard format and the organization of the historical research dissertation does not usually follow the chapter outline of other types of educational research dissertations. In discussing possible methods of organization, Borg and Gall explain why neither of two obvious methods might be satisfactory. Chronological organization may "obscure certain themes that have continuity across time periods" and although "thematic continuity [as an organizational construct] could be achieved by having a separate chapter for each aspect of the university's development, lost would be a sense of the institution's unity and overall state of development at particular points in time" (Borg and Gall, 1983, pp. 825-826).

The method of organization suggested by Borg and Gall (1983, p. 826) as a possible solution to this problem was used for this study. This study combined chronological and thematic approaches in that each chapter covered a discrete time period, but the internal organization of the chapters was thematic. It is organized into an introductory chapter, five chapters detailing the history of ICAF's curriculum, and
a concluding chapter which includes a summary and conclusions. The introductory chapter presents a statement of the problem, its background, and its significance. It also advances a series of research questions, defines important terms used in the study, states the objectives of the study, sets forth the organization and methodology of the study, and reviews relevant literature.

The second chapter describes the origin of ICAF in 1924, as well as its earlier abbreviated progenitor -- an apprentice-type of on-the-job training. It details the nature of the early curriculum construction as the Army Industrial College (AIC), the forerunner of ICAF, attempted to achieve its assigned missions during and between great wars. This period, 1924-1941, can best be characterized as years of experimentation. Feeling its way as a unique institution with no precedent.

Chapter three covers the period between 1943 and 1964 (the College was officially inactive between 1941 and 1943). The year 1943 marks the reopening of the College as the second World War approached an end and 1964 represents the year when major changes began to occur. Between these years, ICAF was, for the most part, solidifying its base, establishing its credibility, and carving its niche as a valuable national resource.

Chapters four, five, and six comprise the most extensively researched periods of curriculum evolution. It was during the period 1964 through 1988 that the curriculum was most strenuously subjected to
powerful forces which resulted in significant changes in curriculum direction. Chapters five and six which deal with the period 1975 through 1988, more than any other chapters, vividly illustrate the forces exerted on the curriculum by technology, faculty, boards, commissions and councils, social, political, economic and cultural phenomena, and influential persons.

A final chapter summarizes the findings and makes conclusions about the points raised in the research questions, and by inference suggests some recommended actions for possible use by future curriculum planners. In reaching conclusions, the researcher interjected himself -- interpreting and ascribing meaning to findings. Conclusions and inferred recommendations are directed toward implications for future educational policy and practice.

REVIEW OF RELEVANT LITERATURE

In order to establish a conceptual framework for this study, three kinds of literature were reviewed. First, a search was made to determine what had been written about curriculum history in the most general sense. Questions which guided this research included: (a) What forms has curriculum history taken? (b) How have attempts to introduce new knowledge been met? (c) What are the organizing constructs around which curriculum histories have been built? Next, some of the major works on American curriculum history at the undergraduate level were
examined to discover how higher education's valued knowledge and methodologies had been influenced by various environmental factors. Some of the questions considered during this review were: (a) What are the dimensions of the curriculum and the influences and environments that have shaped it? (b) What insights were gained into the curriculum evolution process? Finally, several published works on curriculum history of senior professional military institutions were reviewed. Of primary concern during these examinations were such issues as: (a) How extensively has curriculum history of senior professional military institutions been analyzed? (b) What kinds of research methodologies were used and what conclusions and implications resulted? (c) What similarities existed in terms of factors of influence brought to bear on the curriculum change process?

Curriculum History in its Broadest Sense

Prior to considering how curriculum history has been treated as a discipline, it would be useful to understand clearly what it is. Kliebard and Franklin define curriculum history as the scholarly attempt to chronicle, interpret, and ultimately understand the processes whereby social groups over time, select, organize, and distribute knowledge and belief through educational institutions. (cited in Best, 1983, p. 138). A content analysis of the foregoing reveals several key words or phrases; scholarly, chronicle, interpret and understand, select, organize and distribute, knowledge and belief,
and educational institutions. Indeed, a history of curriculum could take either of these perspectives, i.e., history of curriculum selection or of institutions most involved in curriculum innovation.

However, Kliebard and Franklin maintain that from about the mid-1960s on, curriculum history has taken at least three forms. The predominant one considers the curriculum as a whole and attempts to interpret why certain curriculum ideas or ways of thinking about the curriculum arise and take hold. The second basic form focuses on the way in which a particular area of curriculum came into being and met with success (or failure) in its attempt to gain a foothold in the curriculum. Finally, there are studies that take as their principal concern the internal changes that may have occurred in a given time within a particular subject (cited in Best, 1983, p. 140).

The predominance of the form which considers the curriculum as a whole is borne out by a consideration of works of curricularists such as Ivor Goodson, Peter Gordon and Dennis Lawton, William H. Schubert, Herbert M. Kliebard, and J. Roby Kidd. Kidd (1979, p. 5), in writing about the history of Canadian adult education, proposed a model of "factors affecting and explaining adult education in Canada." The essence of his framework was that adult education history could be traced by analyzing the interrelationships between time periods, influences and the activities, methods, programs, and organizations which arose during those time periods. Kidd freely admits that there are influences which he does not mention. However, the linkages he
established suggested the question, "What determines how curriculum is shaped over time?"

In an effort to come to grips with this question, several accounts of curriculum history were consulted. Kliebard's (1986) exposition on the struggle for the American curriculum from 1893 to 1958 operationalized Kidd's model. Kliebard, in describing the curriculum ferment of the 1890s, held that the curriculum reflected the results of the exertions of "competing interests." Further, he expanded on his thesis by stating that not only do we not find a monolithic supremacy exercised by one interest group, but we find different interest groups competing for dominance over the curriculum and, at different times, achieving some measure of control depending on local as well as general social conditions. Throughout, Kliebard delineated the main ideological positions of the various interest groups and the way they balanced as well as contradicted one another. He thus came to believe that "the evolution of the modern American curriculum could be interpreted in terms of the interplay among the predominant interest groups that saw in the course of study the vehicle for the expression of their ideas and the accomplishment of their purposes" (Kliebard, 1986, p. xi).

Schubert (1980) provides a chronology of curriculum books that appeared in America from 1900 to 1979. Although not a history book in the technical sense, it is a chronology of curriculum books, by decade, with commentaries. Again, the contextual approach is seen in that each
of Schubert's chapters (a) provides reminders about and reflections on socio-cultural, intellectual, artistic, and scientific developments, and (b) discusses major curriculum movements, trends, books, and authors.

Curriculum histories written elsewhere tend to follow the same general model: exposition directly or by inference of what curriculum history is, why it is needed, and what forms it has taken. Goodson (1987) edited a collection of writings on curriculum from an international perspective. His motivation was: (a) a highly personal belief that we need to develop further our "sense of history" about curriculum so as to develop and deepen our understanding of the curriculum endeavor specifically and schooling in general, and (b) a growing conviction that curriculum histories are now being undertaken by an increasing and impressive body of scholars from varied disciplinary bases and with differing political orientations (Goodson, 1987, p. 1).

This collection of writings sought to test the contention of Williams (1961) who argued that the way education is organized does more than express, consciously and unconsciously, the wider organization of a culture and a society. Williams continued this thought by stating that this mindset permits a view of the organization of education not as simple distribution, but factually as an active shaping to particular social ends. Williams further maintains that the content of education, subject as it is to great historical variation,
expresses consciously and unconsciously, certain basic elements in the
culture and that what is thought of as an "education" is, in fact, a
particular selection of emphases and omissions (Williams, 1961, pp.
145-146). Perhaps one of the works in this collection which best
exemplifies this larger, societal view is expressed by McCulloch who,
in writing about curriculum history in England and New Zealand, holds
that in general we may say that curriculum historians interpret the
curriculum as a social and political construct, and curriculum
processes as inherently historical. Further, this implies that in
order to understand and promote curriculum change the curriculum should
be seen in its wider social, cultural, political, and historical
contexts, and the curriculum is an appropriate topic for historian
inquiry (Goodson, 1987, p. 314).

Gordon and Lawton (1978) had earlier traced the history of
curriculum in Great Britain with the main aims of discussing and
illustrating some of the processes of curriculum change, and detecting
some of the important pressures in society which have reacted on the
curriculum. Their dominant theme, which is seen throughout, is that
curriculum change is the result of complex patterns of interaction
between influential individuals and general processes of social,
political, and economic change. Further, Gordon and Lawton identified
the three major changes they felt had had important influences on the
curriculum: technological, changes in knowledge, and ideological
changes (Gordon and Lawton, 1978, p. 2).
Layton rounds out the international perspective when he writes about cultural contexts and science curriculum changes in England and Wales. Layton's paradigm stresses the social and cultural context of curriculum change, and asserts that cultural context is of over-riding importance, whereas classroom factors are relatively unimportant in determining the outcome of attempts at curriculum innovation (Layton, 1980, p. 106).

The History of the American Undergraduate Curriculum

Since the object of study in this research is an institution of higher learning, it seems appropriate to examine the record in terms of curriculum history at the undergraduate level. Although ICAF is touted by some as a post-graduate school, reading and research requirements plus other administrative aspects of the program more nearly define an undergraduate college. In any case, examination of this record is somewhat difficult because there is a much greater paucity of histories of American undergraduate curricula than of curriculum history in general.

It was recognition of this lack of historical background which led to Hofstadter's and Hardy's 1952 book, *The Development and Scope of Higher Education in the United States*. In researching why higher education institutions experienced difficulty in obtaining needed funds, Hofstadter and Hardy concluded that a major reason was
"widespread ignorance of what higher education is, how it developed and what it tries to do" (Hofstadter and Hardy, 1952, p.1).

Hofstadter wrote about the broad developments of higher education in the context of the environment at given points in higher education's evolution. Hardy, on the other hand, sought to present what it is that higher education tries to accomplish. Thus, Hofstadter's essay, more than that of Hardy's, presents an historical narrative of how colleges and universities developed in America. In so doing, Hofstadter details the long-running trends such as what he terms "the drift toward secularism" (p. 3) and the move from classical, non-utilitarian to practical curricula. Throughout, Hofstadter chronicles the impact exerted on the developmental process of higher education by the social, political, and economic phenomena, as the nation matured. Incisively, Hofstadter ended his essay with an explication of the "weaknesses" of higher education -- as he saw them. Analysis suggests that many of the weaknesses he identified spring from the social, economic, and political philosophies which define America. Therefore, it would appear that many of the problems which have existed for several decades will continue, though perhaps be manifested in different ways.

Hofstadter's and Hardy's historical treatment of higher education, like many others, divides that history into discrete segments and emphasizes the various phenomena which have shaped the history of higher education. However, one interesting departure from this methodological approach is found in American Higher Education: A
Documentary History, edited by Hofstadter and Smith (1961). Hofstadter and Smith observed that while there were published anthologies available for use by students of the history of law, labor, and many other fields, there were none about American higher education. Consequently, they gathered together a number of original documents which seek to trace the history of American higher education. In their words:

We have tried to portray with reasonable consistency the nature and structure of colleges and universities for the first three centuries of their existence; the diffusion of the educational system throughout the country; the problems created by sectarian affiliations; the character and function of presidents and trustees; evolution of curricular controversies and educational ideals; the institutional position and role of the professor and the conditions of professorial life; the development of academic freedom (Hofstadter and Smith, 1961, p. ix).

Thus, included in this comprehensive two volume set are documents -- original published accounts -- which discuss how policies and procedures were conceptualized, debated, and ultimately formulated and implemented. Part Four, "The Quest for an Adequate Educational System," contains many of the oft-cited writings on curricular evolution. It is here that The Yale Report of 1828 is found --
defending passionately the classical curriculum versus the practical curriculum. Part Eight, "The Development of the Elective System" and Part Eleven, "Higher Education for the Twentieth-Century World," are also instructive for one who wishes to gain a fuller understanding of American higher education's curriculum evolution.

Although comprehensive, these volumes should be used with caution by researchers studying the whole of American higher education history. Hofstadter and Smith readily admit that for various reasons, some aspects of the history of higher education were omitted (Preface, p. ix).

DeVane returns to the more customary approach in his 1965 book, *Higher Education in Twentieth Century America*. DeVane discussed higher education from the point of view of its institutions (characteristics, development, teachers, trustees, administrators, and students) and he also reviewed the many subjects studied and taught, and traced their development. In his effort to use history to secure a better understanding of the condition of higher education, DeVane detailed the historical trends and movements as they affected and were affected by higher education -- as manifested in a select number of colleges and universities. Most of the familiar themes of higher education historians are discussed by DeVane: the conflict of the classical curriculum and the elective system; the tendency of higher education in America to lean towards a practical curriculum; and the democratization purpose of education.
DeVane emphasizes and concludes that the requirements of change have been the catalytic forces which have forced curriculum innovations -- as well as structural institutional changes. Speaking of universities, DeVane says that:

Taken as a whole, these institutions in their variety reflect the history of the nation as it has passed through a time of drastic economic, political and social change -- from agricultural and frontier society, cut off from international influences, to a culture based on industry, controlled by scientific and technological ideas and forces, and acutely conscious of its place among the nations (p. 4).

The consistent implication, and one which seems plausible enough, is that a variety of forces serve to push and pull higher education -- as is true of other institutions -- along a constantly changing path of purpose, process, and content. However, DeVane perhaps did not retreat far enough into the historical record when he sought to identify what he saw as the continuing problem in undergraduate education. DeVane held that "beginning with the second decade of this century, the continuing problem in undergraduate education has been to construct a curriculum that would preserve the values of the old studies while including the virtues and content of the new" (DeVane, 1965, p. 6). A review of the history of higher education reveals that this conflict dates back to early colonial days.
Conflict between ideas and ideals as a major catalyst of institutional change is illustrated in Cremin's *American Education: The Colonial Experience, 1607-1783*. Cremin clearly outlines the effect of religious principles as they affected the family, school, and politics. According to Cremin (1970, pp. 220-221), the principal purpose of early colleges was the education of ministers and the college curricula reflected this. Since early colonial education was the subject of this work, the principal college referenced was Harvard. Cremin used the experiences of Henry Dunster, President of Harvard from 1640-1654, as illustrative of some of the problems faced by college administrators as they sought to shape the college's physical structure and curriculum. Most interesting, and reflective of the political problems inherent in a job such as his, "Dunster resigned the presidency in 1654, after a series of sharp encounters with the students, the board of overseers, and the General Court, over the extension of the undergraduate curriculum from three to four years, then over the financial management of the institution, and finally -- and fatally -- over the issue of infant baptism... ." (Cremin, 1970, p. 219). One might be tempted to view Cremin's narrative as uni-dimensional. However, it should be remembered that during these times, religion functioned as an integral part of social stability. In fact, most college graduates, including colonial leaders, were trained as ministers. Therefore, the use of religion as a yardstick and dictionary by which institutions and relationships of all kinds were
measured and defined, makes it logical to portray religious principles and beliefs as a major theme for this exposition of early American education.

Quite differently, in his 1972 book, *American Higher Education: Directions Old and New*, Ben-David approached the history of higher education from a sociological viewpoint. Ben-David "used histories of colleges and universities, biographies, general and specialized histories of education, and historical statistics in his attempt to view American higher education as a social system with a discernible structure and characteristic ways of functioning" (p. xiii). In this manner, Ben-David does not seek to write a history per se but instead uses historical information to divine patterns and relationships which might show why American higher education evolved as it did. Based on this interpretive analysis, Ben-David saw the crisis in higher education as having four major components:

1. Finding alternatives to the politicization of the campus.
2. Achieving a better balance between teaching and research.
3. Renovating general education.
4. Reducing the impact of the "intellectual-Bohemian protelariat" on the campus (p. xiii).

Since Ben-David is a sociologist, one should not be surprised at his conclusions in terms of the causative factors for the "crisis." It seems safe to surmise that a researcher from a different discipline,
say economics, might have analyzed the same factual data but arrived at a quite different set of components.

As nations mature and transit from one developmental stage to another, needs and interests often change from basic survival ones to more humanistic and higher motivations. Therefore, it is not surprising that the principal theme of Church's and Sedlak's (1976) book, *Education in the United States: An Interpretive History*, is the democratizing of America. However, a quite different motivation is manifested when these two writers say that they have "focused their attention on the ways those concerned with educational development in America have defined educational equality and the role of mass education in fulfilling the promise of democracy" (Church and Sedlak, 1976, p. vii).

Although the majority of Church's and Sedlak's book deals with lower schools, the curricula of antebellum academies and colleges are discussed; especially the debate which raged over whether the classical curriculum should be replaced by a practical one. Additionally, the omnipresent influence of religion, both in the purpose ascribed to the college and the nature of the curriculum, are discussed. Thus, by presenting an historical account of the history of education in America, segmented by major themes (which characterized the different periods in that history), Church and Sedlak provided yet another perspective from which America's higher education history could be viewed and interpreted.
Perhaps the most comprehensive treatment of American undergraduate curriculum history is Rudolph's 1977 book, *Curriculum: A History of the American Undergraduate Course of Study since 1636*. Rudolph chose to place the curriculum in a broad setting of time and place and see it as an instrument of many purposes and persons rather than essentially as the reflection of college catalogues, curriculum committees, and faculty debates (Rudolph, 1977, p. xii). Therefore, Rudolph traced the history of American colleges by identifying and discussing persons, trends, and events which influenced the rise and/or fall of certain content and process. The ideas of pioneers who influenced educational philosophy, demographics, the influence of commerce, technology, economic retrenchment plus other factors were woven throughout as both the cause and effect of curriculum practice and procedures. It seems clear that the conflicts and uncertainties described by Rudolph, which characterized the evolving American undergraduate curriculum, were outgrowths of the differential influences exerted by faculty, students, and key individuals as well as societal, cultural, economic, and political phenomena.

Clark Kerr succinctly summarized Rudolph's conceptual framework when he stated that "a college's course of study has been subjected to incessant, often conflicting pressures and tensions from within and without since the founding of Harvard in 1636" (Rudolph, 1977, p. ix).

Although each of the aforementioned historical treatments of American higher education differs in some respect from the other,
virtually all share some similarities. Most speak of the religious orientation and English origin of early American colleges. Likewise, most discuss the bitter conflict caused by the move from the classical curriculum to a more practical one suited to the new nation. Most histories point to certain specific institutions as being key players in the curriculum evolutionary process. Among these institutions were Harvard, Cornell, Yale, Johns Hopkins, and Columbia. Individuals such as Andrew D. White of Cornell, Charles William Eliot of Harvard, Francis Wayland of Brown, Jeremiah Day of Yale, Daniel Coit Gilman of Johns Hopkins and F.A.P. Barnard of Columbia, were also very vocal in early curriculum debates. Other influential factors in the evolutionary development of higher education in America are also very evident in most histories. Examples are reports such as The Yale Report of 1823; the impact of philanthropists such as Cornell, Vanderbilt and Rockefeller; and legislation such as the Morrill Act of 1862. Credibility is thus lent to an effort such as that of this researcher who seeks to understand how a senior military college's curriculum evolved by reference to the various phenomena which acted to shape that curriculum.

The Evolution of Curricula at Senior Professional Military Colleges

Although this report is primarily concerned with curricula evolution as it has developed at senior military colleges of the United States in general, and at the Industrial College in particular, it
might be useful to begin with military education history in the larger sense.

The work most often cited as the seminal ancestor of military education history is Barnard's *Military Systems and Education* (1872). Barnard had published *Military Schools in France and Prussia* (1862) in *The American Journal of Education*. However, when he surveyed the field further, he wrote a more comprehensive volume which treated military education in the United States as well as in the principal states of Europe. Thus, Barnard (1872) began with France's and Russia's "military systems and instruction/schools" and then painstakingly detailed the systems and schools of Austria, Bavaria, Saxony, Holland, Italy, Russia, Sweden, Great Britain, Switzerland, and the United States. According to Barnard (1872), he had written:

A most comprehensive survey of the Institutions and Courses of Instruction, which the chief nations of Europe have matured from their own experience, and the study of each other's improvements, to perfect their officers for every department of military and naval service which the exigencies of modern warfare require, and at the same time, furnishes valuable hints, for the final organization of our entire military establishments, both national and state (p. 8).

Barnard's book included non-commissioned officer schools, cadet academies, technical/special schools, and staff schools. As a
progenitor, perhaps the closest thing to the modern senior military school at that time were the Staff Schools of European countries such as France and Prussia.

The School for Staff Officers in Berlin was also called the Kriegsschule (War School). And the principal factor which argues for such Staff Schools as forebears of modern war colleges is the description given by Barnard "that officers of all arms find at the War School the means for acquiring the knowledge requisite for the higher ranks of the service, for the duties of officers of the staff, and for all other appointments which demand military and scientific studies of a higher and more general character than the common ones" (Barnard, 1872, p. 395).

In addition to detailed explanations of subjects such as how the schools and students were financed, Barnard went into great detail in describing the curricular offerings of the various schools. Throughout, he discussed admission requirements, instructional techniques, student performance standards, demographics of students and faculty, evaluative policies and procedures, follow-on assignments, and the roles of advisory boards and councils. As an example, Barnard (1872, pp. 619-621) explicates some of the curriculum characteristics of the British Staff School circa 1868:

1. College consisted of 30 students; fifteen vacancies competed for annually.
2. Entry requirements included certification of good health and fitness, standing as a regimental officer, and an admission examination.

3. Course was two years in length; each year divided into two terms; February 1 to June 15 and July 15 to December 15.

4. Examinations held at end of every half year.

5. Monthly reports of the application and progress of each student sent for the information of the Council of Military Education.


Other than the undergraduate level pre-commissioning schools such as the U.S. Naval Academy, Virginia Military Institute, and the Military Academy at Norwich, the only U.S. post-commissioning school discussed was the Artillery School at Fort Monroe, Virginia, which was established on April 1, 1868.

The next significant treatment of military education was Reeves' *Military Education in the United States* (1914). In his book, Reeves sought to remedy what he felt was a serious neglect in writings at that time (1914) about things such as military preparedness, national defense, and the many other things necessary to make an educated military man. Thus Reeves' 431-page book, written while he was a Professor of Military Science and Tactics at the University of Vermont, discussed military education in general, West Point as a pre-commissioning academy, military education in civilian institutions, Army service schools, the Army War College, and many other officer and
enlisted professional and specialist-technical schools. Historical sketches, curriculum offerings, organizational structures, service regulations, and applicable legislation are all included in this excellent overview of military education as of 1914. Brief descriptions of military schools of some other countries were also included.

Although Reeves made no reference to the Naval War College which had been established on October 6, 1864, he devoted five pages to the Army War College. In addition to discussing the circumstances of its founding, its purpose (to make a practical application of knowledge already acquired and not to impart academic instruction), student admission standards, and student demographics, Reeves (1914, p. 202) provided a clear depiction of the curriculum. The course of study is laid out as consisting of:

1. Critical study of an approved plan of operations, with a view to its confirmation or modification.

2. Preparation of an original plan and compare and discuss it with the conditions of an approved plan.

3. A war game wherein an actual campaign will be taken, all initial conditions of the campaign being assumed to exist now as they actually did except that the organization, armament, equipment, and tactical methods are those of the present; probable result worked out on the map.
4. Informal lectures and general discussions of current military events and developments.

5. No formal opening or ending of term of instruction.

6. No examinations held or diplomas given at the end of the course.

7. Course is one of applied knowledge on the part of capable and qualified officers.

8. Graduates exempt from examination for promotion for a period of six years.

Over the next several years, there was again a dearth of scholarly writings on military education. It was not until 1957 that the often-quoted modern day classic on military education was published by Masland and Radway, both members of the Department of Government at Dartmouth College. Their book, *Soldiers and Scholars: Military Education and National Policy*, "grew out of their belief that the problem of higher education in the armed forces had been neglected" (Masland and Radway, 1957, p. vii). Parenthetically, it is worth noting here that like Barnard and Reeves before them, Masland and Radway reacted to what they saw as little or no inquiry into what they felt was much deserving of scholarly investigation.

Masland and Radway, who both had considerable experience with civilian and military government agencies, studied military education by interviewing over 300 individuals, visited all institutions described and evaluated, collected, and examined a variety of published
and unpublished documentary materials, theses and manuscripts. Additionally, detailed questionnaires were sent to over 550 officers who were assigned to the Pentagon. Their study, which emphasized the preparation of career officers for positions involving participation in the formulation of national policy, began with an explication of the qualifications felt needed by career professional officers in the modern age. The major portion of the book is devoted to how the military education system has acted in its effort to produce the type officers needed. In so doing, considerable treatment is given to the history of senior military colleges, to include curricular offerings. Throughout, phenomena which influenced the military education system are spelled out. The authors concluded with evaluative comments and personal opinions with respect to what they believed should characterize the senior professional military education system. Thus, for the first time, all of the present day senior military colleges were included in a substantive treatment of military education.

Relatively soon after Soldiers and Scholars' publication, Clark and Sloan wrote Classrooms in the Military: An Account of Education in the Armed Forces of the United States (1964). They "presented the overall pattern of education in the armed forces, reduced detail to outline form, and explained methods and practices by means of examples" (Clark and Sloan, 1964, p. v). Clark's and Sloan's thesis was that the armed forces educational program was one manifestation of a universal trend -- the overflow of education into non-academic channels --
society's response to a technological age. They saw military education as a vast complex, integrated with the entire intellectual life of the nation, and making significant contributions of its own (Clark and Sloan, 1977, p. v).

In Chapter 4 of Classrooms in The Military, Clark and Sloan provided their view of how qualifications of high-ranking officers had changed radically since World War II. The new requirements, forced upon the senior military professional, were depicted as driven by accelerated changes in the degree of sophistication needed in fields such as economics, political science, law, and social sciences. The authors dealt extensively with both the Service War Colleges and the Joint Colleges (NWC and ICAF); discussing both curriculum content variation and instructional procedures. Clark and Sloan were the first military education apologists noted who argued for lifelong education as a necessity for generals or admirals.

Beginning in the mid-1960s, senior military colleges became the subject of reform movements, generated from both without and within. Several persons who had military links began to meet, discuss, and write about the purpose, problems, and prospects for senior military education. Korb (1976) pulled several of these writings together and edited an occasional paper for the International Studies Association. This paper, The System for Educating Military Officers in the U.S., sought to "contribute to the discussion of issues involved in the [military educational] system by providing viewpoints and insights into
various aspects of the educational system..." (Korb, 1976, p. ii).
The 15 writers covered the entire system from pre-commissioning
programs to those for senior officers. However, three dealt with the
instant concern of this study: "The Dilemma of the Senior Service
Colleges -- A Commentary," by Franklin M. Davis, Jr.; "The War
Colleges: Education for What?" by Lyman B. Kirkpatrick; and "The War
Colleges in Perspective," by Frederick H. Hartman. Davis' principal
concerns were: (a) whether students should have identical or tailored
courses, and (b) whether the right students were being sent to the
Colleges. Kirkpatrick raised questions about the mission of War
Colleges, the curricula, and the teaching methods used. Hartman wrote
a commentary on the pieces written by Davis and Kirkpatrick. However,
once again he returned to a now familiar lament when he said:

The scholarly literature on senior professional
military education is sparse. Since Masland and Radway
published Soldiers and Scholars: Military Education
and National Policy in 1957, almost twenty years have
elapsed with little of significance added. And in
professional academic meetings, little has been said
about these problems (cited in Korb, 1976, p. 129).
Lastly, perhaps the most applicable dissertation relevant to this
report which treats military education history is Johnson's (1982)
Development of the National War College and Peer Institutions: A
Comparative Study of the Growth and Interrelationship of U.S. Military
Senior Services Colleges. Although histories have been written of the various senior military colleges, this particular work traces the history of senior military education back to Barnard's seminal work in the field. Therefore, it serves as a very useful reference for one who wishes to review just one volume on the subject, yet get an excellent overview of how military education has developed in the United States.

It seems clear that the history of military education as a scholarly endeavor has been woefully neglected. There have been very few comprehensive works produced. However, if one is to get a continuous view of how senior military education has developed, it will be necessary to research the various histories of the individual colleges and develop one's own integrated and synthesized picture.

Conclusions

Even though there are many historical studies of curricula, few have been published which deal specifically with the various factors influencing curriculum construction at senior professional military colleges. Further, it should be noted that there is no similarly designed study of curriculum as it has evolved at the Industrial College of the Armed Forces. Histories usually have dealt with the total development of the military college. Eisner believes that an understanding of where schools have been and of what social forces affect them at present is extraordinarily useful for interpreting our present state of affairs (Eisner, 1985, p. 2). Therefore, it seems
that there is a need for such an examination of ICAF's curriculum. This does not suggest that a teacher-proof or curriculum planner-proof formula will be found that will enable planners to design the perfect curriculum. However, the ambiguity and constantly changing contexts within which the College operates might be better understood as a result of a study such as this.

The purpose of this study was to discover and interpret which factors were most significant in determining ICAF's curriculum construction as it has evolved to date. Further, although the instant purpose was not to develop a template which could be laid over any other military college for purposes of curriculum analysis, it is highly likely that influences identified in this study could be found to have played instrumental roles in shaping the curricula of other military colleges.

In addition to the foundational work of Kidd, Xliebard, and Rudolph, several other primary and secondary sources were useful to this researcher. Schubert's *Curriculum Books: The First Eighty Years* (1980), provided a decade-by-decade recap of the important curriculum books and the conditions which existed during those times. Again, Schubert's *Curriculum: Perspective, Paradigm and Possibility* (1986) was valuable, especially the chapter which dealt with curriculum history.

Insofar as works dealing with ICAF were concerned, of primary use were the histories written by Scammell, *The History of the ICAF, 1924-
1946 and Bauer, The History of the ICAF, 1924-1983. Additionally, such documents as the Academic Guidance, Annual Reports to the Joint Chiefs of Staff, and Committee/Board/Council Reports were consulted. These were combined with the primary source -- interviews of current and past administrators and faculty -- to gain insight into the specific influences on the ICAF curriculum.

It can be seen from the literature reviewed here that much has been written on the subject of curriculum history. Further, this literature with its diverse approaches and commonalities was used as a conceptual framework to review and analyze curriculum history as it has evolved at ICAF. Much of the following section on Research Methodology and Procedures deals with the framework used for this study.

RESEARCH METHODOLOGY AND PROCEDURES

This research project traced the manner in which the curriculum has evolved at the Industrial College of the Armed Forces as a variety of forces interacted to shape curriculum construction from 1924 to 1988. The historical research method was used. Historical research may be defined as the painstaking search for factual information about the past which must be recorded accurately and honestly and subsequently interpretatively sifted through the researcher's analytic mental processes. The researcher must collect, categorize, analyze, integrate, and synthesize a mass of data and then interpret this
evidence in light of the contexts within which the data emerged. The historical method was by far the most appropriate for this study which sought to develop a consistent and systematic way of analyzing how the aims of ICAF were manifested through the curriculum construction it chose at different periods of institutional history.

The curriculum of the Industrial College was examined from 1924 through 1988. The purpose of such examination was to derive answers to the research questions posed earlier. Two models were used for this purpose.

Kliebard, in describing the curriculum ferment of the 1890s, held that the curriculum reflected the results of the exertions of "competing interests." In Kliebard's words, "at any given time, we do not find a monolithic supremacy exercised by one interest group; rather we find different interest groups competing for dominance over the curriculum and, at different times, achieving some measure of control depending on local as well as general social conditions (Kliebard, 1986, p. 8). Each of these interest groups, then, represents a force for a different selection of knowledge and values from the culture, and hence a kind of lobby for a different curriculum." In this study then, the "selection of curriculum" as well as the methodologies by which the curriculum content was conveyed to the students is to be inferred from and understood by the influences present during specific periods of the history of the College. A companion conceptual framework developed by Kidd (1979) for the study of the historical development of adult
education in Canada was used to trace the various phenomena which have combined to form the curriculum of the College. This model outlined historical development, over specified time periods, in terms of the activities which emerged, within what contexts the activities emerged, and finally, what phenomena exerted significant influence.

These two perspectives of the curriculum change process form the basis for a conceptual framework which was used to analyze the ICAF curriculum. By combining both Kliebard's and Kidd's models and integrating them with the unique ICAF historical development, a more focused way was available for approaching the subject of ICAF's curriculum evolution process, as shown in Table 1.

Sources of Data

There were four major sources of data for this study; each was chosen to illumine the curriculum evolution process at ICAF.

Unpublished materials. The National Defense University's Special Collections/Archives, located at Fort McNair, Washington, DC, contain reports prepared by a variety of commissions, boards, committees, and councils. These bodies often were convened specifically to assess the curriculum and make recommendations for the future. Additional unpublished materials which were of significant value were course material such as syllabi and anthologies. Finally, annual ICAF and NDU reports to the JCS, plus the 1987 Academic Guidance were
TABLE 1.

Conceptual Framework for Curriculum Analysis -- ICAP

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators/Influential Persons</td>
<td>Effect on</td>
<td>CURRICULUM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Philosophies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissions, Boards, Councils, Associations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examples: Accountability, Research, Procurement, Mobilization</td>
<td>MAJOR CURRICULUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
helpful as they detailed not only what was planned for coming years, but why.

**Published materials.** The major sources of published material were NDU and ICAF catalogues which described course offerings as well as instructional methodologies, mission, faculty, and other useful information. Other publications included journal, newspaper, and magazine articles on some aspect of ICAF's curriculum.

**Persons.** Additional primary sources of data were various persons who were instrumental in planning ICAF's curriculum over the past 25 years. These included Commandants (College Presidents), Deans of Faculty and Academics, Associate Deans of Faculty and Academics, and selected faculty members, past and present.

**Published histories of ICAF.** Although several smaller pieces have been written about various aspects of the ICAF's history, only two extensive histories were found. Scammell wrote a comprehensive history of ICAF which covered the period 1924 through 1946. Bauer's work built on Scammell's and covered the entire history of ICAF through 1983.

**Collection of data.**

Two methods were used to collect data for this study. The unpublished and published materials cited above were read and analyzed. Key influential persons such as commandants, deans, directors and department heads, and selected faculty were interviewed. Audiotapes were used to record interviews -- with permission of interviewees.
The design of the written questions and the interview guide followed guidelines suggested by Converse and Presser (1986) in Survey Questions: Handcrafting the Standardized Questionnaire. However, the actual interview was a form of creative interviewing with constant attention to context and was patterned after ideas found in Douglas' Creative Interviewing (1985) and Briggs' Learning How to Ask (1986). An interview guide was designed which sought to ferret out answers to the several research questions. Research on technical aspects of question preparation as well as cautions were largely drawn from Converse and Presser (1986). The interview guide was pilot-tested in order to enhance reliability and validity of responses.

Prior to interviewing College personnel, permission to do so was secured from the Dean of Academics and Faculty. VPI guidelines were followed in order to protect human subjects. Human subjects were told of their right to withdraw from the study at any time, that their identities would be kept confidential if desired, and all risks and benefits were clearly explained at the outset. Finally, each interviewee was offered the opportunity to review his transcribed responses prior to their inclusion in the study.

Sources were cross-checked against each other and discrepancies between them specifically detailed in the study. A copy of the interview guide is appended to the study.
Treatment of Data

After all data were collected, they were arrayed in a matrix format similar to Table 1 of this chapter. This arrangement facilitated identification of curriculum programs, activities, and procedures which were developed, as well as the precipitating factors and meanings which emerged.

Each of the time periods was examined in light of what curriculum construction existed, what factors seemed to promote certain curricula elements and finally, what common theme described a given period of ICAF's history. Thus, the method of analysis was a variant of situation analysis, i.e., developed and determined the major agents of curriculum change by analyzing the various precipitating events (persons, trends, philosophies, etc.), to include the contexts within which these events occurred.

Qualitative or naturalistic inquiry such as this is often negatively compared with experimental inquiry. Therefore, reliability and validity are of special importance in a study such as this. Guba (1978, p. 61) poses the question of how the naturalistic inquirer might persuade a methodologically sophisticated peer about the authenticity of his information, the categories he derives, and the interpretations he draws. Guba then explores the concepts of validity, reliability, and objectivity which he describes as the classic criteria of authenticity.
In discussing internal validity, Guba (1978, p. 62) posits several invalidating factors, two of which were applicable to this researcher: (a) distortions resulting from the researcher's presence at the site, and (b) distortions resulting from the field worker's involvement with his subjects. Thus, establishment of what Guba calls structural corroboration was important in this study.

According to Guba, structural corroboration is a process of gathering data or information and using it to establish links that eventually create a whole that is supported by the bits of evidence that constitute the whole. Evidence is structurally corroborative when pieces of evidence validate each other (Guba, 1978, p. 63). In this regard, there are two useful techniques for establishing structural corroboration, both of which were utilized. The first technique, triangulation, involves combining multiple data sources, research methodologies, and theoretical schemes in an effort to improve the confidence level in the findings and conclusions adduced. The second technique, cross-examination, required an attempt to "shake the web of facts and inferences that have been drawn" from the emerging data (Guba, 1978, p. 64).

Since the major purpose of this study was to describe and interpret, internal validity was the best guarantee of external validity (generalizability) and objectivity. Guba (1978) holds that the naturalistic investigator who triangulates his data sources, cross-checks his testimony, is persistent in his observations and in short,
follows the normal procedures of naturalistic inquiry, has done all he can in the course of the investigation to assure both external validity and objectivity.
CHAPTER 2

ESTABLISHMENT OF THE ARMY INDUSTRIAL COLLEGE: 1924-1941

As the lessons learned from World War I began to emerge in dialogue between military and civilian officials, it became obvious to concerned officials that the just-completed war could have been fought with greater efficiency. The shortcomings of the military-civilian war supply system had created a situation where manpower was sufficient but warfighting supplies and equipment were woefully inadequate. Debates were conducted in and out of public view with the purpose of determining what had gone wrong and how to prevent a recurrence. It was against this backdrop that a congressional investigation documented significant failures of the industrial mobilization process.

PRE-COLLEGE REMEDIAL EFFORTS

As a result of the debates and congressional investigation, the National Defense Act of 1920 contained language which sought to close the loopholes that had contributed to World War I supply failures. Historical documents indicate that the views of civilian experts such as Mr. Bernard M. Baruch were factors in the enactment of the National Defense Act of 1920. Baruch had headed the War Industries Board which directed economic mobilization in World War I. As head of the War
Industries Board, Baruch had urged establishment of a national defense framework that would reflect full recognition of the importance of economic factors in a major war and would provide machinery for effective advance planning (Bauer, 1983, p. I-1). Additionally, he was on record as an advocate for training in the industrial aspects of modern war (Bauer, 1983, p. I-2).

The National Defense Act of 1920 charged the Assistant Secretary of War with the assurance of adequate provision for the mobilization of material and industrial organization essential to wartime needs. The Army War College (AWC) had, prior to the passage of the Act, helped the General Staff in planning industrial mobilization. However, the AWC's lack of knowledge of industrial conditions, complaints from industrial firms, plus the National Defense Act of 1920 argued in favor of a specific school to train officers in industrial mobilization (Scammell, 1946, pp. 19-20). Consequently, Jonathan M. Wainwright, Assistant Secretary of War, instructed his Executive Officer, Colonel Harley B. Ferguson, USA, who was, in a sense, the first Director of the Army Industrial College (AIC), to begin developing the school earlier envisioned by Baruch.

In May, 1921, Ferguson set up a series of Procurement Planning Sections which were later consolidated into a Planning Branch in October, 1921. Officers were assigned to each major phase of industrial preparedness (Bauer, 1983, p. I-2) and were given the records of the Council of National Defense and the War Industries
Board. According to Scammell (1946, p. 21), each of these officers was to work in these records until he knew more about his subject than anyone else. Understudies were appointed to carry on the task, thereby forming, perhaps unwittingly, the first faculty of the yet-to-be Industrial College. According to Bauer (1983, p. I-2 and I-3), these perceived shortcomings of the industrial supply system not only gave rise to the AIC, but also served as the framework for early curriculum offerings.

In reality, the embryonic faculty was also the first real student body and the subjects they studied reflected the concerns of the War Department. One could justifiably conclude that they were self-taught and their instructional methodologies were self-developed staff studies plus extensive reading. Curriculum content areas included (a) raw materials, (b) labor, (c) price controls, (d) priorities, (e) conservation and procurement of end items, (f) natural resources, (g) strategic and other important commodities, and (h) stockpiling of materials related to national security.

However, neither Colonel Dwight F. Davis, Wainwright's successor as Assistant Secretary of War, nor Ferguson, his Executive Officer, was satisfied with the limited scope of this on-the-job type training. Davis thus set out to establish an educational program that would provide training essential to preparing sound mobilization plans and instruct officers in how to conduct Army procurement planning and operations (Bauer, 1983, p. I-3). Ferguson convinced the Secretary of
War, John W. Weeks, that the existing apprentice-type of instruction was inadequate and that a school should be established for instruction in industrial mobilization and military procurement (The ICAF 25th Anniversary, 1949).

In early 1923, Secretary Weeks approved Ferguson's recommendations that a school be established for instruction in industrial mobilization and military procurement. This approval ultimately led to the founding of the Army Industrial College. Davis, who later became Secretary of War, declared that of all his official acts in both capacities, none ranked in importance with the establishment of the Industrial College (Bauer, 1983, p. I-5; Scammell, 1946, p. 3).

The early vision of the AIC by Ferguson envisioned AIC-type courses to be taught at institutions such as Harvard, University of Chicago and Babson Institute (Bauer, 1983, p. I-4). However, Ferguson, realizing that such an institution could not be established overnight, set up a special course in the Army War College as an interim measure. As part of the pre-planning, and to further prepare the way for the new school, eight prospective faculty members, all from the supply branches, were sent to the Harvard Graduate School of Business (Moffett, 1925, p. 44). According to Scammell (1946, p. 25) there were two reasons for doing this. The first was to train supply officers in sound business methods because in time of peace they spend millions and in time of war billions of dollars annually. The second was to learn
teaching and training methods in order to become instructors in Army schools of business administration.

As a consequence of this delay, occasioned by organizational preparation, it was not until February 25, 1924 (four days after the formal opening of the first AIC course), that the AIC was formally established by War Department General Order No. 7. This order gave to the Army Industrial College the mission of "training Army officers in the useful knowledge pertaining to the supervision of procurement of all military supplies in time of war and to the assurance of adequate provision for the mobilization of materiel and industrial organization essential to wartime needs" (Bauer, 1983, p. I-4).

The early form and substance of the College was also materially shaped by advisory boards. In May, 1924, the Assistant Secretary of War (ASW) appointed an advisory board "to make recommendations covering standards of eligibility for officers for duty as faculty or students, scope and methods of instruction, eligibility of students to graduate" and like matters. The ASW was ex officio chairman of this board and the Chiefs of the supply branches were members. Its first meeting was held on May 14, 1924 in the office of the ASW, and on July 15, 1924, the Chairman appointed a committee of three general officers to make recommendations to the board (Scammell, 1946, p. 33). Although copies of the reports of the school faculty were transmitted to members of the board for their comments, Scammell concludes that the board does not appear to have taken as active or decisive a part in the early
development of the College as the Planning Branch, the faculty, and the students.

The original mission statement has undergone several revisions over the life of the College. A wide variety of persons, boards, and commissions, as well as social, economic, and political factors have combined to create minor and major changes in the stated mission of the College. These mission changes have likewise resulted in changes in both the content and process (instructional methodology) of the College's curriculum. The present College is thus a far cry from that envisioned by Baruch as he testified before the 65th Congress.

Scammell (1946, p. 20) quotes Baruch as having said, "I should like to have a little school, or something of the kind, to preserve experience, keep in touch with industry, and maintain an organization, and I would make it as live a thing as I could."

**CURRICULUM SUBSTANCE, PROCESS AND INFLUENCES: 1924-1941**

According to Bauer (1983, p. II-2), the first course at the AIC, four months in duration, opened in the Munitions Building on February 21, 1924, with no predetermined curriculum. However, Moffett (1925, p. 44) gives a slightly different description of this pioneer course. Moffett wrote:
The first class of the Army Industrial College consisted of nine student officers who began their five month course last February. The course embraces the following subjects, which broadly represent those that still are pursued:

1. Mission of the office of the Assistant Secretary of War, the procurement mission of each of the supply branches, and means of accomplishing these missions.
2. Critical study of World War records.
3. Resources of the United States in material, facilities and possibilities.
4. Strategic and critical materials.
5. Principles of planning and management.

Since military preparedness was an urgent concern, Ferguson, plus three part-time faculty, provided the nine students with an instructional plan based on the "case system." Students were assigned specific problems related to industrial mobilization and they had to prepare their own solutions. The influence of the Harvard-trained officers undoubtedly accounts in large measure for the use of the case system for which Harvard is widely known. Scammell (1946, p. 105) reports that the use of problems requiring written solutions was based on the system used by the Harvard Graduate School of Business Administration. Further, the problems were generally of two kinds: (a) individual assignments and (b) committee assignments. Solutions of the
latter were presented before the student body, followed by general discussion.

The second course opened on September 2, 1924, with thirteen students. On the basis of experience with the first course and the ever increasing number of relevant problems in industrial mobilization, Ferguson and his faculty concluded that there were too many problems for each student to be assigned each problem. Therefore, students were assigned problems on a group basis, which inaugurated the committee and subcommittee system. In these committee sessions, free discussion without regard to rank was the practice (The ICAF 25th Anniversary, 1949, p. 7). This practice has also continued and remains a key fixture of the program, albeit one which new students find disconcerting for their first few weeks.

In this second course, a student recommended that the length of the course be extended to a full academic year. The faculty agreed and this was done in 1926, but, according to Scammell, not because of the recommendation but because it had already been decided upon. The same student also recommended that the course consist of two overlapping periods of five months each, the first part to consist of instruction and the second of application. This recommendation was disapproved (Scammell, 1946, pp. 110, 111). However, the faculty did agree with the student's request to have more lectures by civilians on industries, finance, business, trade and on current national and international events (Scammell, 1946, p. 111).
In addition to the case method, a second feature of the instructional process, student critiques, was introduced during the second course. Although this practice has undergone several changes in type, quantity, and quality, student critiques of the curriculum remain an important part of the curriculum revision process.

The third course, which opened in February, 1925, featured more elaborate case problem-related lectures by resident faculty and outside experts. The case problems were in such areas as financing procedures, budgetary controls, and specifications used in procurement processes. Students, the number of whom had by now risen to 25, were assigned to committees and subcommittees to work on the various problems. It was in this third course that a war game was introduced at the end of the course so that the problems previously studied could be brought together, and the students would grasp the importance of industrial mobilization in war planning. It was also during this third course that the need for exercise, recreation, and athletics was taken up, and it was decided to schedule intramural softball and tennis and to arrange facilities for golf (The ICAF 25th Anniversary, 1949, p. 8). According to Scammell (1946, p. 42), Wednesday afternoons were set apart for the half day of exercise prescribed in Army regulations.

Although students were in session daily from 8:45 a.m. to 4:15 p.m., Monday through Friday, and on Saturday mornings, apparently this was still not enough time to get the work done. Scammell records that students took typewriters home on memorandum receipts until the
Secretary of War stopped the practice (Scammell, 1946, p. 43). The only differences 63 years later are that the typewriters have been replaced by minicomputers and the practice is sanctioned.

The fourth course which opened in September, 1926, was the first to be designed for a ten-month period. By now, the student body numbered 35 and more extensive use was made of the committee system and expert lecturers. A central feature of the 1926-1927 program was an emphasis on curriculum planning which provided a foundation on which to develop and refine the instructional program (Bauer, 1983, p. II-4). To develop a broad perspective of the overall problems of industrial mobilization, a series of conferences was coordinated by the College faculty and members of the Harvard Graduate School of Business. It was also during this course that the practice of field trips was begun. Students went on field trips to industrial plants and power stations in the Pittsburgh and Washington, DC areas (The ICAF 25th Anniversary, 1949, p. 8). Scammell (1946, p. 94) says that two war games were held in 1926-1927; an "orientation war game" (to illustrate the organization of the Office of the Assistant Secretary of War and its wartime functions) and toward the end of the course, Problem No. 57, "War Game." The title of the latter varied but a "Procurement War Game" or "War Game" was held every year.

During this fourth course the College began to implement one of the original missions of the College which was to provide a continuing source of information to higher-level policy planners by disseminating
College reports and studies to other government agencies. In 1926, the Director proposed that the Planning Branch examine each student problem solution and follow up to show how suggestions in them were used. This was made a standing practice and led to some of the best early reports being provided to the Assistant Secretary of War as well as other interested War and Navy Department offices (Scammell, 1946, pp. 40-42).

The curriculum for school year 1927-1928 was marked by initial efforts to build a library and the introduction of visual aids. Oral presentations by students continued to be strongly emphasized. A student in the fifth course proposed the use of motion pictures to help break the monotony and another student suggested a "free week" for students to "browse" in the library and read on special topics. Although the faculty agreed to introduce motion pictures, the second suggestion was disregarded by the faculty (Scammell, 1946, p. 110).

Students in these early classes were very candid with suggestions they felt would improve the curriculum. Early in 1927, students recommended more individual and fewer committee problems because committee problems were usually done by one student. The faculty disagreed and held that committee work was better than individual efforts. However, the faculty did agree to decrease the number of committee problems by 50% but allow the same amount of preparation time (Scammell, 1946, p. 109).

Students also regularly asked that assigned problems be stated in more specific terms. The faculty, just as regularly, disagreed, and
used as justification the opinion that if too much specificity was employed, creative and critical thought would be discouraged and the resulting conclusions reached by students would be channeled toward a sort of "school solution" (Scammell, 1946, p. 109).

In school year 1928-1929, the course of study included instruction in the procurement procedures of individual students' own Service branches. According to Bauer (1983, p. II-4), very little attention was placed on industrial preparedness and economic mobilization.

By 1928, the faculty had grown to four full-time and five part-time instructors. The importance accorded graduation from the College is suggested by a practice which was initiated in 1928 (and still exists today). Instructors who completed work equivalent to the work done by regular students were given graduation certificates. It was via this method that Majors Dwight D. Eisenhower, a part-time instructor, and John C.H. Lee, a full-time instructor and future Commandant, became graduates of the AIC (Scammell, 1946, p. 31).

It was also during school year 1928-1929 that the first Army line officers joined the student body (earlier students had been procurement specialists). The Army, like most professions, is populated by ambitious people, many of whom are reluctant to take any career-related action which will take them out of competition for advancement. Therefore, it is not surprising that the Army was not too happy at first with the AIC. Many Army officers felt that (a) the Army did not need another school, (b) assignment to the AIC would retard career
advancement, and (c) graduates would get boring assignments in military procurement or supply, areas with few opportunities for advancement. However, the Army did later come to regard graduation from the College as both a professional and a career asset (Bauer, 1983, p. I-5).

The school year 1929-1930 saw what seems to be the first formally acknowledged instance where the faculty played a major role in determining the direction the College should take. In debating whether emphasis should be placed on instruction in the more routine aspects of procurement and supply management or on the broader context of military procurement, the faculty's view prevailed. That is to say, their view that the AIC should continue to function as a postgraduate school -- as an institution of research -- was chosen as the most appropriate thrust. It was also during this term that the College became very active in actual industrial mobilization planning (The ICAF 25th Anniversary, 1949, p. 10). Questions had arisen over the future direction of the College shortly after the adoption of the standard academic year of 10 months. However, just three years later saw the student suggestion to extend the course to two years decisively rejected.

Although Scammell says that the AIC did not encourage competition among students, he does cite a 1929 reference as reporting the use of "number" grades. According to Scammell (1946):
Students were rated on their writing, presentations, discussions, judgment, personality and other intangible factors. Problem solutions were graded on completeness of analysis, thoroughness and logic in the discussion and soundness of conclusions (80 points), technique, clarity, brevity, originality and style (20 points). Ratings ranged from Superior (90-100) to Inferior (0-45). Grade records were kept confidential and although students were also rated on their presentations to fellow students, the faculty rejected the method of "approved solutions" (p. 106).

Because the faculty felt the students did not have sufficient background in economics and business to handle the case problems, instruction in economics and business fundamentals was introduced in the 1930-1931 course. These portions of the curriculum were taught by graduates of the Harvard School of Business Administration. In the next school year, this initiative was expanded so that students were exposed to the economic factors which affected the military strength of leading nations. This 1931-1932 course also marks the beginning of a program of student and faculty research (The ICAF 25th Anniversary, 1949, p. 10).

During the early 1930s, motion pictures were a key part of the teaching methodology. Scammell reports that during the 1930-1931
school year, "some 33 films were shown on 22 occasions. The story of coal, steel, cement, oil, copper, sugar, and engineering processes passed in review to the enlightenment and interest of the students and guests of the College" (Scammell, 1946, p. 113).

The 1933-1934 school year marked the entry of Navy and Marine officers into the student body and more attention was given in the curriculum to Navy procurement procedures and supply problems. Further, student conferences were expanded with more participation by representatives of government agencies and industry.

In 1934, the question of the research mission of the College was raised. Lieutenant Colonel John C.H. Lee, writing in a study of the mission, purpose, and policies governing the AIC in 1934, stated that the College must provide a center of economic research for the national defense. Although Scammell felt that the College itself grew out of a group in the OASW which was engaged in fundamental research, this was the first of what became a continuous emphasis on a research mission for the College (Scammell, 1946, p. 37). It is generally accepted that in order to accomplish high quality research, faculty members need to have both the time and background experience. According to Scammell, the faculty needed for accomplishing high quality research was not available. In his words, "the faculty was too small and was also reinforced by part-time instructors who could not dedicate the time or effort to do the amount and quality of research necessary for the proper instruction of the students" (Scammell, 1946, p. 37).
The chief distinguishing factor about school year 1935-1936 was the opening of all Army War College lectures to AIC students. Heretofore, AIC students had attended only some lectures (Bauer, 1983, p. II-6). No deficiency of the Industrial College was identified as a cause for its students being sent to Army War College lectures. In the absence of such documentation, this act may be interpreted as one of the first instances where major new subject matter was introduced into the College's curriculum without clear-cut objectives.

The 1936 year was also distinguished by the introduction of a unique instructional technique, Industrial Staff Memoranda. This forerunner of the "point paper" was referred to by Scammell as an "exercise in the preparation of staff studies" (Scammell, 1946, p. 97). The continued emphasis on encouraging independent and critical thought is seen in the procedural rules followed for these papers. Students wrote on specific and often controversial topics; some self-selected and others selected by the Planning Branch. Students were required to present the points in a logical fashion, with telegraphic brevity, and complete with conclusions and recommendations. Pragmatism and necessity resulted in actual and current problems often serving as topic generators (Scammell, 1946, p. 97). Research received another boost in 1936 when the ASW recommended that the staff of the College be increased so that research could be accomplished (Annual Report, 1936, p. 27; Scammell, 1946, p. 37).
Mounting international tensions after 1935 led to increased emphasis on military and industrial preparedness training. Principally for this reason, the 1937-1938 program, although still focused on its traditional mission areas, was more sharply focused to deal specifically with planning for economic mobilization and the military capabilities of European and Asiatic nations.

Another critical issue that arose during the mid-1930s concerned the location of the College. Further evidence of the College's "attempt to find itself" during these early years is manifested by a study on the desirability of relocating out of the Washington, DC area. Scammell (1946, p. 59), reports that because of the College's inadequate space in the Munitions Building, the Executive Officer in the OASW requested such a study in 1937. The study considered alternate locations such as Philadelphia and Harvard. Although there were significant advantages of such a move, curriculum considerations drove the decision to stay in Washington. Some of the advantages of relocation listed in the study were better facilities, quietude, capacity for larger student body, closer contact with industries, and greater independence and prestige. However, the disadvantages were considerable in both number and significance. By remaining in the Washington area, the College would have continued close association with the OASW, the Chiefs of Supply Arms and Services, Bureaus of the Navy, and other government agencies. Additionally, the capital area afforded wider access to a variety of appropriate lecturers as well as
the research facilities of the Library of Congress and the National Archives.

The school year 1938-1939 represents the first effort to provide students with a joint-service education. The College had become concerned over evident deficiencies in the training of many officers in fields relating to procurement. To meet this problem, the faculty planned to present two courses: (a) one for junior officers focused on the interrelationships between the Services in procurement operations, and (b) an advanced course limited to officers with twenty or more years of outstanding service that included command and staff assignments. According to Bauer (1983, p. II-6), this ambitious plan was obviously unattainable at the time.

Tensions continued to mount with Nazi Germany's invading Poland two weeks prior to the start of school year 1939-1940. The curriculum for that year indicates that the U.S. anticipated playing some role in the war in that students worked on revisions of annexes of the War Department's Mobilization Plan. Students also prepared reports emphasizing the estimated effectiveness of the Mobilization Plan for mobilizing the nation's resources in support of a major war. Further, students conducted a series of studies on economic warfare and on the availability of essential war materials. Industrial field trips were also made to plants engaged in the production of military materials. Thus, it seems that the content and the methodologies employed were
very pragmatic; they were preparing for what might become a substantial involvement in the war in Europe (Bauer, 1983, p. II-6).

The likelihood that the U.S. would be drawn into the war focused attention on the importance of procurement and the value of the College's training. There were, however, not nearly enough graduates, and so the first short course (4-1/4 months) was begun on August 12, 1940. Since many military reservists had been called up to strengthen the armed forces, 59 of the 75 members of this first short course were reservists. During this course, students studied the Industrial Mobilization Plan, Revised 1939. And, in order to save time, more use was made of conferences instead of case problems (The ICAF 25th Anniversary, 1949, p. 14). Bauer (1983, p. II-7) describes this as the first sudden change in what was until then a smooth evolutionary process.

The regular program of AIC was closed on December 24, 1941, the day after the fourth short course class had graduated and 17 days after Pearl Harbor. Short courses were shortened to four months, starting with the term that opened on January 2, 1941 in order to speed up production of trained officers (Bauer, 1983, p. II-8). Additionally, the library stayed open. However, not all the branches continued to send personnel to the short courses. For example, Miles (1944, p. 2) points out that the Technical Services were so intensely occupied with their respective procurement and production programs, they could not afford to send officers for training. The short courses were
characterized by their concentration on actual war operational requirements and students worked on real problems (The ICAF 25th Anniversary, 1949, p. 15). A marine officer, Lieutenant Colonel Frank Whitehead, was appointed College director in early 1941, representing one more step toward the development of a truly joint service orientation.

In any case, Scammell (1946, p. 138) reports that by the time the College closed in December, 1941, it had graduated over 1100 students.

THE INDUSTRIAL COLLEGE IN 1941

The initiatives of these first 17 years of the AIC's existence established the need for a school such as this one which could provide trained officers to manage the mobilization of the nation's industrial capacity for future wars. Davis, Weeks, Wainwright and Ferguson, with the vision and help of industrialists such as Baruch, had moved the educational apparatus from a relatively informal arrangement of limited training to one of formal courses in an institutional setting. Further, Colonel Miles, Commandant from August, 1938 to November, 1940, a man of broad educational background and bold far-ranging imagination (Scammell, 1946, p. 121) made sure that the AIC prepared broad-gauged officers, in a graduate school atmosphere, who could perform at the highest levels of industrial mobilization planning and operations.
Throughout the development and implementation of the curriculum, instructional methods and philosophies were used which would produce graduates who were reflective, creative, and strategic thinkers. Lectures, case problems, field trips, and free and frank discussions combined to result in a true graduate school program on military-industrial mobilization.

The Harvard Graduate School of Business Administration had been instrumental in shaping this early curriculum. This early influence and later involvement of Harvard is better understood after reading Scammell who, describing the relationship between ICAF and Harvard, wrote:

In the beginning a nurse to the fledgling Army Industrial College, later the Harvard Graduate School of Business Administration became a companion to it; for the two schools were both engaged in a common enterprise; both trained Army and Navy officers for procurement duties and for planning industrial mobilization... . The Harvard Graduate School of Business Administration planned and prepared to take the place of the Army Industrial College should its doors be closed by war (p. 295).

College programs had been designed so that shortcomings identified in the nation's ability to mobilize the industrial capacity would be
remedied. Additionally, the AIC had regularly revised its curriculum offerings in response to national and international events such as heightened tensions in Europe. As a consequence, increasing numbers of officers were being made available who could better understand and act intelligently on the important task of integrating the economic capabilities of many nations into the national security plans of the United States.

Thus, by the time the College closed in 1941, on the entry of the United States into World War II, it had become the school long hoped for which would provide peacetime training and education in economic mobilization. Further, decisions had been made which would result in the continued existence of the Industrial College as a hedge against revisiting the horrors of inadequate preparation for war. The curriculum would undoubtedly undergo revision in response to changes in the College's internal and external environment. The character of the armed forces and industry, economic trends, differing levels of super power hostility and conflict, technological advances, and changing conditions in the national and international arenas, would all continue to affect the curriculum. However, the identity of the College as a center for the study and research of economic mobilization was firmly established.
CHAPTER 3

JOURNEY TOWARD CREDIBILITY: 1943-1964

As World War II ground on, the College maintained a fairly low profile, conducting short courses which were directly related to the difficulties experienced in prosecuting the war. However, as might be expected, many problems developed in the administration of the massive war production contracts. Military and civilian defense planners realized that even more problems would be encountered when time came to terminate and renegotiate these contracts. It was primarily this expectation which led to the decision that the College should be reopened prior to the cessation of hostilities.

ECONOMIC MOBILIZATION AS THE CURRICULUM FOCUS

The War Department reopened the College on December 28, 1943 via War Department Circular No. 337 (Armstrong, 1945, p. 6) and assigned Colonel Francis H. Miles, Jr., as Commandant (a position he had held previously from August, 1938 to November, 1941). The College opened with the special mission of training officers and federal civilian employees in procedures for terminating and renegotiating war production contracts (Bauer, 1983, p. III-1; Armstrong, 1945, p. 6).
According to Bauer, the instructional methodology used in these first post-World War II courses, involved free and open expression of constructive thought. This freedom of expression was expected to lead to indoctrination through logic rather than any attempt to regiment thought. Typically, the instructor provided an orientation type lecturette on a problem covered by a directive or regulation, followed by student discussion and development of a solution and recommendations. All of this would be followed by a critique (Miles, 1944, p. 8).

Brigadier General Donald Armstrong, USA, became the first general officer Commandant on September 1, 1944. He agreed with military and civilian leaders that because of the perplexing problems of economic mobilization during the war, officers assigned to economic mobilization positions should be trained for that role by a reestablished Industrial College; not the pre-War AIC. Further, that this "new" College should be a joint service institution at the highest level in the military education system.

Although the need to train officers in contract termination and renegotiation was the impetus for curriculum content when the College reopened in 1943, Armstrong's interest transcended this narrow definition of mission. Consequently, he sought and received support of top military and civilian leaders for a permanent joint-service Industrial College which would continue broad mobilization training during peacetime (Mundy, 1958, p. 4). Armstrong had served on the War Planning Board in the Office of the Assistant Secretary of War and had
witnessed what he regarded as complete disregard of that Board when the nation was plunged into World War II. He was determined that in the future more emphasis would be given to industrial preparedness (Bauer, 1983, p. II-2). The strong convictions of Armstrong, together with the recent wartime record, set the stage for a variety of curriculum change agents to alter ICAF's curriculum construction significantly.

Influence of Echols and Hancock Boards

Two War Department boards of officers were appointed to prepare the way for establishing the Industrial College of the Armed Forces. The Board of Officers on the Reopening of the Army Industrial College, named after its president, Major General Oliver P. Echols, convened on November 27, 1943. The Board on Post-War Army-Navy Training in Industrial Mobilization, named after its chairman, John Hancock, convened on June 15, 1945. Both boards drew on their wartime experiences to evaluate the education of officers in the Armed Forces and how well this education had prepared officers for key roles in economic mobilization.

Scammell (1946, p. 36) wrote that the Echols Board grew partially out of concern with the Army Service Forces (ASF) over training officers for duties in connection with the demobilization of industry. A course for such officers had already been started at the Harvard Graduate School of Business Administration. A course had also been established at the Harvard School of Business Administration where certain officers were sent to study current problems. However, before
any of this could be presented to Secretary of War Patterson, Patterson indicated his desire to reopen the Army Industrial College. Patterson, adamant about not going into Harvard, ordered Dean Graham to prepare a study on the reopening of AIC. This study led to the appointment of a board of officers to make recommendations.

According to Bauer (1983, p. III-5), included among the recommendations of the Echols Board were these:

1. A joint Army-Navy Industrial Staff be established which would have training as one of its functions (in economic mobilization and industrial preparedness).

2. Industry Advisory Committees be continued.

3. Ways be developed, through seminars or other vehicles, to draw together the views of all concerned with industrial mobilization as a means of diagnosing and solving the troublesome problems of World War II.

4. The instructional staff be greatly enlarged and a professional research staff of officers and civilians be established.

5. A Permanent Advisory Board to the Commandant, AIC, be established.

6. The first courses to be offered should be in the fields of finance, material management, and contracts.

Some of the recommendations were accepted, and notably more personnel and space were gained. Further, the Department of Research was established on March 7, 1941, which in turn initiated a series of
detailed research projects on significant aspects of the economic side of World War II (Bauer, 1983, p. III-6).

A Research Advisory Council was created to advise the Commandant in administering the department. Four members were connected with industry and one was a prominent economic consultant living in Washington. Before year's end, Armstrong transformed the Council into a Board of Advisors to counsel him with regard to the work of the College as a whole. Additional members were added until they totaled twenty-one. They represented the fields of industry, education, law, and public service (Thirty-first Anniversary, 1955, p. 13). The Board of Advisors had been preceded by a Business Council which had been formed as early as 1926 to advise the Director of the AIC, but somehow it disappeared in the ensuing years (Thirty-first Anniversary, 1949, p. 13). Similarly, a later advisory board of senior military and naval officers and two prominent civilians, was formed in 1944 in connection with the reopening of the College and then dissolved in 1946 (J. Carlton Ward and the Industrial College: 1939-1967, 1967, p. 9).

The purpose of the Hancock Board was to examine matters of common interest relating to a post-war joint educational system in the fields of industrial mobilization, production, and closely-related subjects (U.S. Joint Board on Post-War Army-Navy Training in Industrial Mobilization, June 15, 1945, p. 3).

The Board convened on June 15, 1945, July 26, 1945, and October 26, 1945, and issued its report on February 18, 1946. The Board concluded that previous courses at the AIC had given students
backgrounds of inestimable value, particularly when they were assigned to procurement operations. The Board further concluded that students had received more than a utilitarian education, and in the process, had learned that war is the business of the entire nation. Additionally, students were believed to have received an understanding of the relationship between strategy and the nation's economic resources. The Board also concluded that the AIC had (a) helped break down barriers in procurement operations, (b) instruction had been on target but time constraints prevented adequate treatment of many important subjects, (c) students had not had enough time for significant research, and (d) the college had not developed contacts with industry, labor, and professional and scientific organizations (Bauer, 1983, p. III-9). Based on these findings, the Hancock Board recommended (Bauer, 1983, p. III-10-12) that:

1. The name be changed to the Industrial College of the Armed Forces (ICAF).

2. ICAF should offer a preliminary course to cover basic subjects essential for preparing officers for procurement assignments.

3. The Department of Research be expanded to carry out all essential research.

4. Advisory committees be established with membership from industry, labor, social sciences, and scientific and professional bodies.

5. Preparation and training for economic mobilization was critical.
6. The permanent course of AIC would have to wait until after the War.

With this as a backdrop and the war and the short courses about to end, Armstrong, in answering the question of what was to be the future of the AIC, answered that the mission should be an interim one. He believed that before attempting to plan a permanent course of instruction, industrial mobilization should be studied as it had been conducted in World War II. This rationale was based on Armstrong's belief that it would be some time before the economic system and the nation's armed forces were organized on a permanent basis (U.S. Joint Board on Post-War Army-Navy Training in Industrial Mobilization, June 15, 1945, p. 13).

Therefore, the curriculum content consisted of the accumulated wartime experiences of the faculty and students, who, in committee, conducted seminars with each committee member giving his views. Additionally, Armstrong recommended (and it was adopted) that lectures be given by leaders from industry, labor, government agencies, and the Armed Forces. It was during this first interim course of six months (opened on January 4, 1946) that the AIC became the ICAF, on May 3, 1946 (Bauer, 1983, p. III-12,13). The letter which officially redesignated the AIC as the ICAF is dated April 11, 1946, and was approved by both Secretary of War Robert P. Patterson and Secretary of the Navy James V. Forrestal.
Economic Mobilization: a Sharper Focus

The first regular post-war course which began in September, 1946, constituted a completely new curriculum, designed to cover a ten-month period. According to Bauer (1983, p. III-14), this marked the dawn of a new era for ICAF. The Industrial College had moved into Building Tempo 5 at Fort McNair in August of 1946 which made it a neighbor to the new National War College which occupied the magnificent building vacated by the Army War College. More resources were available than ever before and the larger faculty made it possible to develop a more comprehensive and better curriculum.

This curriculum followed the familiar pattern of problem-solving, committee and subcommittee activities, lecture attendance, and the preparation of reports. Lectures were by those who had been directly involved in economic mobilization and industrial production in World War II. Field trips were also reestablished but on a much larger scale. To provide more effective instruction during the field trips, the student body was broken down into small groups, each being assigned to an individual itinerary and accompanied by selected military and civilian instructors (Twenty-fifth Anniversary, 1949, p. 19). This marks the beginning of the present format used by the Defense Industry Analysis program -- domestic and overseas trips -- in which the students continue to participate as a part of the core curriculum.

This new post-war curriculum's emphasis reflected a shift to a more thorough study of economic mobilization. World War II experience had illustrated the importance of mobilizing the total economy in
support of warfighting. Even so, the curriculum was the object of continuing study and revision in an effort to prepare graduates for anticipated resource management requirements. The Research Branch had as one of its missions to "constantly search for ways to improve the college and keep the curriculum up to date" (Army-Navy-Air Force Journal, November 23, 1957, pp. 1, 20).

Illustrative of the critical analysis performed by the Research Branch is a study written by E.A. Fitzpatrick (1946) which was titled: Manspower and the Economic Mobilization in the Industrial College of the Armed Forces. Between pages 131 and 157, Fitzpatrick discussed a number of mission- and curriculum-related issues which he believed worthy of consideration if ICAF was to survive and prosper.

In the mission-related area, he declared that (a) knowledge of economic mobilization was a primary concern of ICAF, (b) the reorganization of the college into two departments of instruction and research followed the Harvard model, and (c) the college was a training agency; not a planning agency.

Fitzpatrick's curriculum-related conclusions revealed an even greater Harvard bias. He concluded that (a) the case method, as used at Harvard, should be used at ICAF, (b) the instructional spirit and plan presumably followed the Harvard model, and (c) ICAF had lost sight of the individual by emphasizing committee work. Also in this section of his study, Fitzpatrick recommended that the curriculum should be studied throughout the school year rather than during summer months only. In the mid-1980s, Captain Sam Cavallaro (USCG), Chairman of the
Department of Organizational and Personnel Management (OPM), tried to institutionalize this practice in his department. His efforts were only partially successful on the first attempt and later efforts were even less successful. Invariably the faculty members who were charged with curriculum development for the coming school year would be unable to get other faculty members to meet suspense dates for such tasks as selection of anthology material, acquisition of copyright approvals, or commitments from invited guest lecturers. Often, these contributing faculty members would be involved substantially in the execution of the academic phase underway at the same time that the lead faculty member was trying to "study" and develop his department's portion of the curriculum for the coming year.

Three key environmental factors materially influenced the second post-war course (and succeeding courses); the National Security Act of 1947, the recognition of the key roles played by reservists in World War II, and increasing world tensions. These factors led to placing more emphasis on surveys of international trends and conditions (Twenty-fifth Anniversary, 1949, p. 19). Additionally, a Reserve Instruction Branch was established in May, 1947 to present a condensed version (two weeks of five days each) of the College's economic mobilization course to Military Reserve and selected National Guard officers. During the years 1948-1949, the course was presented in 17 cities to over 1100 students.
Impact of Charter Revisions

The year 1948 is a key year in the history of the ICAF and its curriculum and marks the beginning of a series of charter revisions. As a result of agreements reached between the Joint Chiefs of Staff (JCS) and the Secretary of Defense (SECDEF), the August 31, 1948 revision reconstituted ICAF and raised it to the highest educational level in the military establishment as a joint educational institution. ICAF was placed at the same level as the National War College (NWC), but NWC had a political-military orientation while ICAF emphasized the economic and industrial aspects of national security. The specific mission of the reconstituted ICAF affords some insight into the substantial shift in emphasis (Bauer, 1983, p. IV-3-4).

The reconstituted ICAF was expected to prepare selected officers of the Armed Forces for important command, staff, and planning assignments in the National Military Establishment, and to prepare selected civilians for important industrial mobilization planning assignments in any government agency. This was to be accomplished by (a) conducting a course of study in all phases of our national economy and interrelating the economic factors with political, military, and psychological factors; (b) conducting a course of study in all aspects of joint logistics planning and the interrelation of this planning to joint strategic planning and to national policy planning; and (c) conducting a course of study of peacetime and potential wartime governmental organizations and the most effective wartime controls.
This represented a change from a narrow focus on economic mobilization and industrial preparedness to a mission of preparing senior officers for their future senior-level policy responsibilities. The College leadership felt that graduates had to be prepared to participate in joint and combined operations with all armed services components in order to meet the changing requirements of national security.

This 1948 charter revision reflected the strong influence of World War II experiences, especially in terms of emphasizing economic mobilization and related planning functions. In the years that followed, several charter revisions and curriculum changes were made in an effort to be responsive to changing defense educational interests and requirements (Bauer, 1983, p. IV-4).

The April 19, 1949 charter revision authorized the conducting of courses for officers of the National Guard, Reserve Officers of the military services and selected executives of industry, educators, and other prominent civilians. A charter revision in 1955 dropped the differentiation between military and civilian students (Bauer, 1983, p. IV-5). Prior to this revision, military students had been trained for assignments in the Department of Defense while civilians had been trained for mobilization planning assignments in any government agency. The charter revision of July, 1960 specified that ICAF should emphasize the interrelationship of economic and industrial factors in the formulation of national security.
These charter revisions all indicate a trend toward a broader educational program that went far beyond the initial concern over industrial preparedness and economic mobilization. The need to prepare senior federal government officials to manage national defense resources in all forms and interrelationships was taking hold.

The 1962 charter revision is described by Bauer (1983, p. IV-7) as a landmark in the history of ICAF in that it marked the beginning of a new orientation for the College. Deputy Secretary of Defense, Roswell Gilpatrick, recommended to the JCS (who concurred) that ICAF should focus on complex problems of defense logistics involving the management of men, money, and materials. Bauer (1983, p. IV-7) says that this increased emphasis on the study of management resources for national security represented a shift of emphasis rather than a major curriculum revision. However, Bauer (1983, p. IV-7) goes on to say that "this change in emphasis enabled ICAF to win recognition as the capstone of military schools in management and logistics." Indeed, the revised charter opened with the words "[ICAF is to be the] capstone of our military educational system in the management of logistics resources for national security."

During school year 1950-1951, increased emphasis was placed on management and executive skills which appeared to eclipse the traditional emphasis on economic mobilization. Otherwise, the curriculum changes were of relatively minor significance such as new labels for the same subject matter or a reordering of the sequence of units.
FROM ECONOMIC MOBILIZATION TO MANAGEMENT

Search for Relevance and Value

A few years after World War II, the growing intensity of the Cold War and the possibility of mutual destruction via atomic weapons, led the Commandant, Major General R.P. Hollis, USA, to question the feasibility of the traditional approach to economic mobilization. Since the nature of a future war was unclear, the ICAF course needed to take all possibilities into account, including the need for instant readiness. This uncertainty resulted in continuous internal curriculum reviews.

One method by which ICAF assessed its curriculum purpose, content, and instructional methodology was the convening of panels of education experts who met periodically with faculty and students to discuss pre-arranged topics. On October 19-21, 1949, three educational seminars were held where the following topics were discussed: (a) the nature of graduate instruction, (b) evaluation of educational achievement, and (c) graduate research and writing.

Again, on February 24-26, 1954, three seminars were held with the expressed purpose of "assisting faculty members in familiarizing themselves with the views of outstanding educators regarding the nature and method of advanced education and to apply the principles thus enunciated to the needs of the Industrial College" (Analysis of Results of Educational Seminars of February 24-26, 1954, May 4, 1954). The subjects discussed at this series of seminars were philosophy and
objectives of advanced education, the nature of instruction in advanced education, and research and writing.

Finally, from January 28 to January 30, 1959, there were three seminars on advanced education which considered the philosophy and objectives of the nature of instruction, and the place of research and writing in advanced education.

Analysis of their discussions suggests that many of the practices of the present-day ICAF probably grew out of these types of conferences. For example, among the many areas discussed -- and agreed upon by the outside experts and the ICAF faculty -- one finds (a) the importance of reflective and creative thinking, (b) ICAF as both a graduate and a professional school, (c) emphasis on the "adult as a learner," and (d) writing deemed important as a means of clarifying one's thinking.

This emphasis on curriculum relevance was praised by Captain C.M. Boundy, USN (1954):

The Industrial College has won distinction...by recognizing the need for constant review of its program. It has been courageous enough to alter the educational philosophy and curriculum to fit rapidly changing world conditions... . A highly specialized group of professors, industrialists and military officers...keep abreast of the accelerated pace of changes and fits them
into the needs of the college... The college does not attempt to teach anyone how we should mobilize for war or how we should plan for national security. Instead, the intent is to help the student understand all the factors which must be considered before making decisions and which must be involved in any intelligent national security planning (p. 374).

By the late 1950s, the traditional emphasis on economic mobilization had declined and the curriculum had been broadened to give more attention to management in DoD and to a better understanding of other nations (Bauer, 1983, pp. IV-13, 14). This was also congruent with the National Security Act of 1947 and its amendments. This legislation, with its reorientation and reorganization of national defense within a new and broadened concept of national security, led to more attention to the basic role of economic factors in the conduct of war.

ICAF, in structuring its program, had relied on NWC for lectures in international relations, foreign policy, strategy, warfare, and national security. However, problems between the two Colleges in regard to timing, approach, and emphasis led to a major change in the lecture program for 1959-1960. ICAF absorbed these lectures into its own curriculum (as many as 50 lectures). ICAF had been consistently criticized for the large number of lectures presented to the students. Largely because of this criticism, the number of lectures was reduced from 267 in school year 1948-1949 to 184 in school year 1961-1962.
Seminars continued to play a key role in ICAF. Outside experts met with small groups of students to discuss principal topics within various units of the curriculum and students sometimes served as moderators. The standard practice was that student committees would be established for each unit of the curriculum. Students then prepared individual reports or contributed to the group's report.

In addition, each student was usually required to present a 15-20 minute oral report to the assembled student body and faculty. As an example, in school year 1950-1951, each student wrote on five committee problems, prepared four individual reports, and made one oral presentation. To facilitate this process, all students were required to take a course in public speaking, usually ten periods in length (Bauer, 1983, pp. IV-18,19). According to Boundy (1954, p. 317), the rationale for this was ICAF's belief that senior officers needed to be able to express their thoughts clearly and forcefully in writing and orally to both large and small groups.

In school year 1950-1951, three innovations were introduced, two of which have survived to the present time. First, an experiment was conducted which had the students take tests/course examinations. This resulted from concern that the courses should be challenging and also to avoid the image of the College being a "gentleman's school." The stated purpose was to have a means of gauging student progress. However, a much fuller explanation of this experiment was provided by Brigadier General (Dr.) Bernard S. Waterman, USA (Ret), in an interview on July 21, 1989.
According to Waterman, at the end of school year 1950-1951, the Commandant, under pressure from the JCS to demonstrate performance, directed ICAF to develop examinations to show how much the students had learned. Dr. Ben Williams of the Extension Division had a daughter at the University of Chicago who provided an entree into the University of Chicago Central Testing Service. Waterman and Colonel Jack Weaver, USAF, went to Chicago and worked up a plan whereby ICAF would provide the Testing Service with a series of statements which would be as complete a summary of the curriculum content as possible. Based on these statements, the Testing Service would develop a set of three examinations of equal rigor, which would be administered to the students at the beginning, middle, and end of the 1951-1952 school year.

After the faculty developed these statements, they were forwarded to the University of Chicago where the tests were devised. The tests were given as planned and were not used as grading instruments on the students. Waterman recalls that they were "anonymous." According to Waterman, the results appeared to show that the students had not learned anything. However, he suggests that this may have been because at the beginning of the year the students were under stress and eager to do well; while at the end of the year, the test was given on a hot day in a building with no air conditioning. Further, the principal interest of the students at the end of the year was in getting packed up and moved on to their next assignments. They also understood that there would be no individual accountability.
No attempt was ever made to repeat the experiment. In Waterman's words, "the program was quietly deep-sixed." Not so surprising, this issue has come up for debate several times since then and some high-level military officers and congresspersons argued for written testing of students as late as 1988 in the name of "increased rigor."

Second, a new system of faculty associates was initiated in 1950-1951. This program, which paired faculty members with small groups of students, required faculty to serve as advisors and motivators (Bauer, 1983, p. IV-19). That program still exists and currently each faculty member is a PFA (Permanent Faculty Advisor) to five to seven students (advisees).

Third, ICAF, always concerned about the value students placed on their year at the College, had the students participate in three evaluation exercises designed to measure the effectiveness of the course of instruction. Although the content of such an evaluation/survey has changed over the years, students still evaluate each curriculum unit. Indeed, in 1983, selected students evaluated each educational activity such as seminars and lectures.

The Baxter Board

In 1954, the JCS's practice of periodic reviews of the joint Colleges led to the creation of a National War College-Industrial College of the Armed Forces Survey Board (Bauer, 1983, p. IV-19). The board was named after its chairman, Dr. James Phinney Baxter III. This Board, consisting of two prominent civilians and four general or flag
officers, and appointed by the JCS on April 7, 1954, was asked to conduct a survey of the ICAF and the NWC in order to relate and give direction to these Colleges in the system of higher military education. Bauer (1983, p. IV-21) reports that a major concern of this board, the first since 1946, was that the two Colleges did not give sufficient attention to joint and combined operations.

The Board drafted a mission statement for ICAF which reflected that concern. The proposed mission statement provided the following:

The Mission of the Industrial College of the Armed Forces is to conduct a course of study in (a) all phases of our national economy and in the interrelations of the economic factors with political, military and psychological factors; (b) joint logistic planning and the relation of this planning to joint and combined strategic planning and to national policy planning; and (c) peacetime and potential wartime governmental organizations and the most effective wartime controls (Report to the Joint Chiefs of Staff of the National War College and the Industrial College of the Armed Forces Survey Board, January 20, 1955, p. 36).

The Board further considered that the purpose of the course was "to prepare selected officers of the Armed Forces for important command, staff and planning assignments in the DoD and to prepare selected civilians for important economic mobilization planning assignments in any governmental agency" (Report to the Joint Chiefs of
Staff of the National War College and the Industrial College of the Armed Forces Survey Board, January 20, 1955, p. 36).

Among its remaining recommendations was that (a) the National War College and the Industrial College of the Armed Forces continue to operate as separate entities; (b) the National War College and the Industrial College of the Armed Forces continue their efforts to integrate their work and, if practicable, to include some form of joint problem; and (c) a Joint Educational Committee be established on a par with other Joint Chiefs of Staff committees, composed of the Commandants of the three joint colleges, to give continuing study to the major problems of joint and combined education.

The Board also recommended that (a) an advisory board, to include distinguished civilians, be convened triannually, or more often if deemed necessary, to advise the Joint Chiefs of Staff on joint educational matters; (b) each class of the National War College and Industrial College of the Armed Forces include a proportion of graduates of each Service war college; (c) an increased proportion of the student body of the Industrial College of the Armed Forces be composed of line or combat officers who will be eligible for field command; (d) continuous attention be directed to staggering the tours of duty of both military and non-permanent civilian staff and faculty to insure adequate overlap, and thus provide the essential degree of continuity; and (e) the construction of new facilities to house the Industrial College of the Armed Forces at Fort Lesley J. McNair be given high priority (Report to the Joint Chiefs of Staff of the

Charter Revision of 1955

The earlier discussion of the 1955 charter revision dealt mostly with the elimination of differences in curriculum content provided to civilian versus military students. However, this charter revision was heavily influenced by key officials’ recognition that civilian leaders needed to be indoctrinated in the problems of economic mobilization. Consequently, the 1955 charter revision assigned to the ICAF the responsibility to conduct courses for officers of the National Guard, Reserve Officers of the Army, Navy and Air Force, and selected executives of industry, educators, and prominent citizens.

Based on this revision, ICAF developed an extension program to make available a condensed version of the Resident Course to selected military Reserve Officers on two-week active duty for training and to civilian leaders. From this, two programs developed: the National Resources Conferences (NRCs) begun in 1948 and the Correspondence Course launched in 1950. According to the Commandant, Admiral W. M. Hague, USN, the format and location of these innovations were largely determined by the fact that resident facilities were so limited that fewer than 150 students could be accommodated annually on campus (Hague, 1952, p. 1).

In the NRCs, two-week seminars -- condensed versions of the resident course -- were sponsored and conducted by local Chambers of
Commerce in conjunction with the respective Army, Naval, and Air Force districts. As the program grew, seminars were usually conducted in 14-16 cities annually by two lecture teams of six officers each. As an example, in 1956, each conference consisted of 32 illustrated one-hour lectures, four formal panels, selected films, and a visit to a local industrial establishment (Bauer, 1983, p. IV-27). As of June, 1958, 42,873 persons had attended the NRCs and in the same year, the conference lectures were used as the basis of a television series consisting of 75 thirty-minute films approved by the DoD. The programs were recorded at WQED, Pittsburgh, under the sponsorship of the Ford Foundation and were carried by 30 stations of the Educational Television Network in the Fall of 1958 (Bauer, 1983, p. IV-27).

The Correspondence Course, designed for completion in about 15 months, was well-received by military reservists who were granted retirement points for their work. Active duty personnel as well as civic and business leaders also participated. The course was based on a series of textbooks ranging from 22 to 26 in number. Because of the color of their covers, the books came to be known as "The Blue Books." Although these books were originally prepared by in-house faculty, with help from educators in local universities and other specialists, this task was assumed by a Textbook Development Group beginning in early 1961. Faculty members have continued to assist in the development of these books, and in 1988, their task consisted primarily of helping edit for accuracy books prepared by contractors.
FROM "GENERAL MANAGEMENT" TO MANAGEMENT OF DEFENSE RESOURCES

The Board of Advisors: 1957-1961

In addition to the many other persons and institutions influencing ICAF's curriculum, the Board of Advisors was likewise very active between 1957-1961. Some of the curriculum-related matters on which the Board made recommendations were:

1. Proposed overseas trips should be approved.

2. Experts should be called in, as needed, to deliver lectures instead of offering highly-qualified professional educators a year's contract.

3. The JCS should appoint an ad hoc committee to study the requirements of the joint colleges.

4. A civil service supergrade structure should be established that would attract and hold highly-qualified professional educators.

5. ICAF officer graduates should be recognized as having fulfilled, as faculty did, the requirement for joint staff duty prior to promotion to flag or general officer rank.

6. ICAF should maintain its emphasis on the economic aspects of national security and more attention should be given to the international aspects of economic and political factors related to coalition warfare.

An important curriculum-related change was briefed to the Board in 1959. According to Bauer (1983, p. IV-32), Reichley, Director of Instruction, informed the Board that ICAF was no longer required to
submit its curriculum to the JCS for approval. Instead, the curriculum's description would be placed in the College catalogue and the annual reports to the JCS. To some, this arrangement indicates that JCS had "full faith and confidence" in the College's leadership. However, to others, this procedure is further proof that JCS had no deep, continuing, and abiding interest in serving as ICAF's rudder.

Rivalry Between ICAF and NWC

There is a longstanding history of inter-College rivalry which has directly and indirectly influenced ICAF's curriculum. As early as 1951, Fitzpatrick, in criticizing the ICAF program, listed one of the problems faced by the College as "invidious comparisons with the NWC" (Fitzpatrick, 1951, p. 2).

In addition to "competition" in the academic arena, rivalry has been fostered by the athletic program, one of the key curriculum components. Interschool rivalry began in school year 1947-1948 with softball, and by 1960 there were perpetual trophies for golf, bowling, and tennis with the premier trophy, the General Dwight D. Eisenhower Trophy for softball.

For many years, each ICAF seminar section has organized intramural teams which compete against each other. The All-Stars which emerge from this level of competition are designated to face off against the best NWC has to offer. The softball competition is referred to as the "Little World Series" and years after a graduate has matriculated, he or she will ask whether ICAF is still winning the "Little World
Series." This high-spirited, competitive, and often-bruising rivalry was formally codified by the Interschool Athletic Agreement of February 2, 1960 (Bauer, 1983, p. IV-34).

The struggle to achieve parity with NWC has been evident in other ways. For example, the issue of facilities proved to be a major bone of contention dating at least as far back as the 1948 reconstitution of ICAF. Although ICAF had been put on a par with NWC, ICAF occupied a temporary building which was not constructed as an educational facility. The NWC, on the other hand, within seeing distance, was housed in the former Army War College building, a grand edifice of permanent construction.

Hague discussed this state of affairs with President Eisenhower, pointing out that ICAF students could easily develop an inferior feeling vis-a-vis NWC students. He was concerned that the educational mission of ICAF would be jeopardized by destructive and counterproductive competition.

Hague surmised that the continued occupation by ICAF of inadequate temporary facilities would only add to this perception of second-class status, and thereby negatively affect ICAF students' acceptance of the importance of their academic studies. Eisenhower, himself an AIC graduate, agreed that a new building was needed. Final plans for a new building were completed in 1957, groundbreaking ceremonies were held on December 17, 1958, and dedication ceremonies were conducted on September 5, 1960, with Eisenhower as the principal speaker (Bauer, 1983, p. IV-24).
Over the years, the perception of ICAF students that their College was inferior was fueled by NWC students seeming to "lord it over ICAF'ers" in a variety of ways. First, NWC students sometimes indicated that their study of strategy and national security policy formulation was a superior undertaking when compared with the study of resource management. Second, many people had heard of the NWC, but few even knew of ICAF. Third, from all appearances, NWC seemed to be able to draw a larger number of guest lecturers who were the "movers and shakers" in the national and international security management environment.

The perception by ICAF'ers that they were considered inferior to NWC students was grounded in reality on at least one occasion. In 1959, the NWC Commandant recommended to the JCS that NWC be definitely established as the senior educational institution. Fortunately for ICAF, the JCS replied that the two Colleges were of equivalent stature in the defense educational system (Memorandum for Commandant, Subject: Establishment of Joint Colleges Under Single Command, Comments by Director, DED, July 18, 1961).

Technology and Faculty Initiatives

The new College building was completed and formally occupied during the summer of 1960, in time for school opening on August 18, 1960 (Annual Report, FY 1960-1961, p. 1). Also new was the organization of the College which was modified by establishment of a School of Resident Studies, a School of Extension Studies, and an

However, the major problem of ICAF was defined by the Commandant, Lieutenant General George W. Mundy, USAF, as the problem of prestige and standing in the joint educational system because of DoD's recent disapproval of a three-star as Commandant while proposing to leave the NWC with a three-star Commandant. Mundy declared that this would imply that ICAF was subordinate to NWC and would seriously affect ICAF students' motivation, desire to attend ICAF, and ultimately the quality of the educational program.

Mundy suggested to the JCS that if ICAF could not retain its three-star position, then there should be an entirely new and different organizational structure. This reorganization would result in one three-star billet with the incumbent heading a National Security College or Defense Educational Center. Under his command there would be two schools, perhaps a School of Economic-Industrial Studies and a School of Political-Military Studies, each headed by a two-star Commandant (ICAF Annual Report, FY 1960-1961, pp. 2-3). Prophetically, this is almost identical to what ultimately did occur in 1976 with the establishment of the National Defense University, including the rationale of "perceived economies of operation" which were propounded by Mundy in 1961.
Curriculum changes and highlights included the structural realignment of the whole course as a self-contained, consecutive, and coherent program independent of lectures or other support from other institutions. The introductory unit, Foundations, which was lengthened and carefully organized, offered students a comprehensive and intensive survey of basic principles and background knowledge in economics, political science and government, warfare and strategic concepts, and executive skills and techniques.

Two program elements -- Contemporary International Politics in the World Economy and International Field Studies -- introduced in school year 1959-1960, were continued. However, the Field Studies Program was expanded to include visits to four continents and 29 separate countries.

Finally, students participated in a large scale committee project which amounted to an expanded "final problem." Students were required to conduct a comprehensive analysis of the entire national readiness posture and present a broad program of national security which would meet the nation's requirements in either a general-, limited-, or cold-war situation (ICAF Annual Report, FY 1960-1961, pp. II-2, II-3).

Methodology was largely unchanged with continued reliance on lectures (19%), seminars, case discussions, student reports, oral presentations, student committee and discussion groups, and assigned and recommended readings (ICAF Annual Report, FY 1960-1961, p. II-6). This passive mode of learning, which was to be overturned in a few years by the Schomburg Revolution, resulted in 24.4% lectures, 4.3%
seminars, 7.5% discussions, 42.9% study, and 20.9% films, field trips, oral presentations, and administration (ICAF Annual Report, FY 1960-1961, p. II-8).

Following the highly successful inauguration of the International Field Studies Program in the Spring of 1960, the program was expanded to include field trips to 29 countries (ICAF Annual Report, FY 1960-1961, p. 9). Domestic field trips were made to United Nations Headquarters and several industrial and research facilities around the country. These trips were designed to supplement the students' study of the national economy by enabling them to observe at first-hand typical manufacturing plants, transportation facilities, power installations, and research laboratories (ICAF Annual Report, FY 1960-1961, p. II-8).

After extensive negotiations with several local universities, arrangements were concluded with George Washington University (GWU) which linked it and ICAF under a common degree-granting program. The program provided for students to get academic credit for ICAF courses toward a GWU degree, earning 15 credits towards a master's degree in Business Administration, Public Administration, or International Affairs. Credit could also be applied towards either a bachelor's degree or a doctorate in the same fields. The program was opened to currently assigned faculty and students, and alumni who had graduated within the previous five years. All were allotted five years to complete their programs. Fall and Spring semester enrollments for the first classes were 88 and 117, respectively, and in June, 1961, the
first seven graduates received MBAs (ICAF Annual Report, FY 1960-1961, p. II-4).

The Board of Advisors met in February of 1961. The most significant recommendations emanating from this meeting were that: (a) the three-star billet for ICAF's Commandant was vital to the College's continued prestige and effectiveness, (b) efforts should be made to find a more suitable and prestige-inspiring name for the College, and (c) student attendance should be considered as satisfying the requirement of "joint staff duty" for promotion to general or flag rank (ICAF Annual Report, FY 1960-1961, p. 8).

In school year 1961-1962, the major problem of the previous year was remedied when the three-star billet for the Commandant was restored. However, the most significant factor influencing the curriculum was the recognition by DoD and the JCS of ICAF as the capstone military school in management and logistics. As a follow-up of this recognition, ICAF and the Joint Staff worked out a January 1962 charter amendment which reflected this much heavier emphasis on both management and logistics (ICAF Annual Report, FY 1960-1961, pp. 1-2).

Significant curriculum changes included a major reorganization of Unit I, Foundations, which essentially removed the Executive Development section and redistributed it among other appropriate sections of the academic program. However, the resident program continued to follow the general format of the previous year with the same eight units spread over three major subdivisions. There was a title change in Unit II from National Security Objectives, Requirements
and Programs, to National Security Policies, Programs and Budgets. According to the ICAF Annual Report, FY 1960-1961, this change "served to underline an increased emphasis on study of the mechanisms and purposes of the federal and defense budgets" (p. II-2).

Counterinsurgency (COIN), which had been introduced to the curriculum in the previous school year, continued to be strongly emphasized in view of its perceived importance in national security and planning (ICAF Annual Report, FY 1961-1962, p. 3).

Instructional methodologies as well as the research and field study programs were virtually identical to those of the previous school year.

Although the curriculum was fairly stable between 1948 and 1962, the increasingly large size of the student body caused the Commandant to become concerned about the quality of the learning environment. The number of students had risen from 124 in 1951 to 162 in 1962 with plans to go to 180 the following year. However, a more startling statistic results from comparing school year 1948-1949 with that of 1962-1963. In 1948-1949, there had been 112 students and 42 faculty but by 1962-1963, the number of students had climbed to 180 and the faculty had dropped to 38! It should be noted that the new ICAF building which had been occupied in 1960 helped make it possible to enroll more students.

This turn of events led to a rather candid report to the JCS by ICAF Commandant, Admiral Rufus E. Rose, USN. He reported that school year 1962-1963 had gone rather smoothly. However, he took great pains to point out that he was nevertheless concerned about the ever larger
classes with no increase in faculty. Rose advised the JCS that "senior
joint colleges operate on the theory that an intimate and informed
faculty-student relationship, small group discussion and instruction,
and an academic atmosphere...are indispensable to the educational
needs...an educational program that becomes each year a little more
standardized, impersonal and routine, gradually loses its capacity to
stimulate and inspire" (Bauer, 1983, p. IV-9, 10).

Rose admitted that the ratio of students to faculty of 4.74
compared favorably to many of the nation's best universities. However,
he went on to say that ICAF was unique in that it was a "finishing
school" for senior officers and a crowded campus was not suitable for
men who would soon shape policy and make decisions crucial to national
security (ICAF Annual Report, FY 1961-1962, p. 4). In spite of this
impassioned plea for restraint, the growth trend continued. As a
matter of fact, it was in 1949 that officials from civilian agencies
joined the College student body for the first time (Thirty-First

The Board of Advisors met in February, 1962 and after reviewing
College programs and procedures, expressed its satisfaction with
curriculum content and delivery. Additionally, the Board (a) expressed
displeasure about civilian faculty salaries, (b) voiced concern about
recent conflict of interest rulings which they feared might discourage
interest in serving on the Board, and (c) indicated its delight with
the restoration of the three-star billet for the Commandant's position.
The Board also noted with approval that the new charter revision had
not modified or weakened the continuing responsibility of the College to prepare senior officers for important positions of command (ICAFA Annual Report, FY 1961-1962, p. 8).

The change in orientation which was a precipitating factor in the 1962 charter revision was energized by the recognition given to the need for specific education in management of defense resources. This change in emphasis was the first successful attempt to move from the well-defined economic mobilization mission to another equally sharply defined focus. According to Bauer, this new emphasis on instruction in defense management was foreshadowed by the increasingly important role of military leaders as managers (Bauer, 1983, p. IV-18).

Therefore, school year 1962-1963 saw increased attention given to various aspects of management. In addition to lectures and discussion groups on various aspects of management, the class took part in an IBM computer-assisted business management decisionmaking game which simulated the conditions and pressures of competition (Bauer, 1983, p. V-2).

The introduction of simulation as an instructional technique was a carefully considered process. The Systems Development Corporation was engaged in 1963 to analyze the utility and appropriateness of simulation as an educational technique in the ICAF curriculum (Engler and Prevots, 1963). Special attention was given to an experimental use of simulation by one of the student committees which was conducted during the last unit of that academic year. The Engler and Prevots study concluded that simulation was very much in line with ICAF's
philosophy and program of education. However, Engler and Prevots also believed simulation should be considered as complementary to other instructional techniques.

The faculty was very much involved in determining how this "management theme" would be integrated into the curriculum. Bauer (1983, p. V-2) indicates that some of the faculty felt that the curriculum should be restructured so that management would be the dominant theme throughout the course and management subjects receive major attention. Most faculty members, however, believed that management, though important, should not be the dominant theme. This latter group felt that students should receive a broad orientation in national security affairs with emphasis on economic, logistical, scientific, and technological factors (Bauer, 1983, p. V-2).

The faculty also differed on the subject of instructional methodology. While some thought that management techniques should be studied for their own sake, there was a consensus around the idea that management should be studied as a tool to be used in managing defense resources.

In the early to mid-1980s, this same schism developed on the issue of how decisionmaking, the theme of the 1980s, would be treated. The organizational management oriented faculty, by-and-large, felt that decisionmaking should be revisited over and over, throughout the entire academic year. Others felt that decisionmaking was the pet of the organizational management "touchy feelies" and consequently should be propounded only by them, principally in the first and third phases,
Executive Decisionmaking and Manpower Management, respectively. There was general agreement that decisionmaking techniques should be viewed as tools to assist policy-level decisionmakers as opposed to magic instruments capable of making important decisions without benefit of human judgment.

These differences of opinion are reflective of the earlier stated desire to avoid turning the College into a super-trade school or just another business management school. The purpose -- to develop senior leaders who understand how to manage defense resources -- kept the focus on a "graduate" school level versus a training activity.

The JCS Influence of the 1960s

During school year 1962-1963, the JCS took a very direct hand in determining curriculum content. Bauer (1983, p. V-3) reports that the JCS directed the College to "give proper attention to the study of policies, programs and techniques for combating communist-inspired 'wars of liberation' and insurgent movements, emphasizing the economic aspects of the subject." Rather than treat it as a separate and discrete subject, "counterinsurgency" was woven throughout the curriculum. As we shall see in a later chapter, Joint and Combined Operations, the study of which was directed by the JCS in the 1980s, was also largely woven throughout the curriculum and the academic year.

As ICAF's Commandant, Rose reported to the JCS that in school year 1962-1963, management had been treated as a unifying theme in the context of the economic, industrial, scientific, and technological
aspects of national security. Rose further pointed out that ICAF was not a management school \textit{per se}, but rather a school for the study of national resource management (ICAF Annual Report, FY 1962-1963, pp. 2-3). The point Rose was attempting to drive home was that ICAF's students were concerned with problems of senior-level defense management and not those which occupied the time and efforts of private businessmen.

The cooperative degree program again drew substantial numbers who saw this as their opportunity to earn an advanced degree. Ninety-six of ICAF's 180 students enrolled in the Fall semester and 77 continued with the Spring term.

Research by students was also a substantial part of the 1962-1963 curriculum. Students were required to write theses -- substantial research papers. They were given from September to March to produce these papers, abstracts of which were distributed to interested government agencies.

According to the \textit{Annual Report to the JCS}, the only structural changes made to the curriculum consisted of (a) the introduction of a brief background section on science and technology in the Foundations unit and (b) a shift in sequence of course units on economic stabilization under a new title, Economic Policies for National Strength, as Unit III instead of Unit V (ICAF Annual Report, FY 1963-1964, pp. 4-5). The general theme of defense resource management as appropriate for the College curriculum was continued in school year 1963-1964.
Management and counterinsurgency were again woven throughout the curriculum. Counterinsurgency (COIN) had by this time been an integral part of the academic program for two years and consumed 10% of scheduled course time. Consistent with its mission, ICAF's study of COIN emphasized economic, social, and managerial aspects. A notable addition was the introduction of a case study of the Huk Rebellion of the Philippines (ICAF Annual Report, FY 1963-1964, p. 4).

The Board of Advisors met on March 17-18, 1964, and noted with approval efforts made to improve the quality of students sent to ICAF. Additionally, the Board expressed its pleasure with respect to the International Field Studies Program, restated its view that several supergrade positions should be authorized to enhance faculty recruitment, recommended ICAF study be given weight equal to academic degrees from other colleges and universities, and ICAF and NWC should remain separate Colleges. The CWU-ICAF cooperative degree program was now in its fourth year of operation, and because of the substantial numbers of students participating, the Board expressed concern that the cooperative degree program might dilute student efforts on their ICAF program (ICAF Annual Report, FY 1963-1964, pp. 7-8).

In addition to the Board's expressed concern about faculty quality, other steps were taken in 1963-1964 to improve the abilities and qualifications of military faculty members. First, assignment selection criteria were revised to require at least a bachelor's degree plus an SSC diploma. Second, believing that officers assigned faculty duty would be better motivated if they felt an assignment to ICAF's
faculty was career enhancing, Lieutenant General August Schomburg, the new ICAF Commandant, asked the JCS to encourage the Services to assign only officers who were both willing and qualified (ICAF Annual Report, FY 1963-1964, p. II-11).

Throughout the period 1962-1964, Bauer says that the traditional instructional techniques were used. The major methodologies were lectures, seminars, small-group discussions, and student committees (Bauer, 1983, p. V-4).

ICAF IN 1964: A BROADENED AND CREDIBLE INSTITUTION

Thus, by 1964, ICAF had achieved status as a true joint service institution which had moved deliberately from an economic mobilization focus to one of management. Due to the change in the nature of war-making capability ushered in by atomic weapons, space as a potential weapons launch platform, and the exponential increase in the lethality of weapons systems, mobilization was no longer thought of as a discrete event which could be safely embarked upon after hostilities had begun. Senior officers and civilians now had to be prepared in peacetime to be instantly ready. In other words, mobilization of national resources had to be in effect at all times and trained resource managers had to be available and ready to manage existing resources and plan for resources yet-to-be acquired.

This movement to a broader-based management-oriented curriculum and way of thinking had been energized by several factors. First, the
College had been assigned its first General Officer Commandant, Brigadier General Donald Armstrong. He, like Colonel Miles, was a broad thinker who took the "long view" and was determined to avoid past mistakes. Second, the JCS, by appointing several boards and promulgating several charter revisions, had taken an activist role in determining ICAF's curriculum focus, content, and instructional methodologies. Third, the increased diversity of the student body occasioned by the expansion of the student body "eligibles," the elimination of the differences in what was offered to military and civilian students, and increases in class size all combined to create a less parochial and ethnocentric graduate.

From all indications, the turf battles which are so endemic to institutions of higher learning made their first noticeable appearance near the end of this period. Further, the historic rivalry which exists between ICAF and NWC seems to have taken root during this twenty-three year period. And, finally, the student body was growing while the faculty was shrinking. Nevertheless, the winds of change pushed the ICAF faculty and administration inexorably along a path towards an increased acceptance of the needs to: (a) broaden its student base, (b) improve acceptance and approval by its publics, and (c) achieve greater congruity between curriculum purpose and defense needs.

The panels of experts, advisory boards, charter revisions, JCS activism, informed/engaged Commandants, and the changing nature of war-fighting capabilities coalesced in such a fashion that by 1964, ICAF
was a credible instrument for producing military and civilian senior officials who took a broad and strategic view of defense resource management.
CHAPTER 4

REVOLUTIONIZING THE CURRICULUM: 1964-1975

Between 1964 and 1975, the United States experienced one of the most wrenching periods in its history. The Vietnam War spilled over into and influenced the nation's politics, economics, and societal values. As the intensity of the war escalated in the late 1960s, increasingly larger numbers of Americans protested or otherwise expressed disapproval of the United States' involvement. Emotions ran high — assassinations of leading political and civil rights figures, shootings of students at Kent State, large scale disruptions at the Democratic National Convention in Chicago, burnings of cities -- and the country seemed to be on an unending cycle of violence. Civil disobedience occurred simultaneously with militants bent on wreaking change by violent confrontation. Many Americans were heard to ask what was happening to their country because it seemed that the U.S. was being torn asunder by uncontrollable and conflicting forces.

The armed services did not escape the turmoil of this period. The Vietnam experience created a number of problems which required new and innovative solutions. Black Americans were dying in Vietnam in disproportionate numbers. Officers were being maimed and killed by their subordinates. Drug and alcohol abuse reached alarming levels. The draft (conscription) was seen as the chief progenitor of the skewed
force structure which placed so many black Americans in harm's way. Additionally, the draft was simply perceived as unfair and inequitable. Without a doubt, sons of well-connected or wealthy Americans, or young men whose parents could afford to keep them in college, or men who hurriedly fathered children -- all of these could and often did escape the draft.

President Nixon seized the opportunity to cap this well of rising resentment by replacing the draft with an All-Volunteer Force (AVF) in 1973 -- a force which frankly, and by design, appealed to the "economic" or money-driven person. Since this new All-Volunteer military was well-paid, relatively speaking, the numbers of minorities and women increased rapidly. The military now represented a way to achieve economic betterment because the differential which existed between pay levels of the traditional white Anglo-Saxon male and women and minorities did not exist in the armed forces. Soldiers, sailors, and airmen were paid according to the grade or rank they held. The relaxation of quotas on how many women could join the armed services also contributed to the increase in their numbers. Illustrative of the rapid increase of women and blacks are the statistics before and after the advent of the AVF. In 1971, blacks comprised 17% of the Army's enlisted force, but by 1974, the percentage had grown to 21.3%. Comparable statistics for the female component of the Army were 2.1% and 3.9%. By 1983, blacks and women constituted 31.4% and 9.7%, respectively (Bowman, Little and Sicilia, 1986, pp. 75, 83). The
cohesion, esprit de corps, and feeling of belongingness which characterized the pre-Vietnam military had been replaced by an armed force which more and more looked upon the military as a job; not a calling. This changed military force which was marrying younger and composed of large numbers of women and blacks, presented the armed forces with the need to initiate new programs in such areas as day care and racial relationships.

To the above should be added the effect exerted by Secretary of Defense Robert McNamara who served from 1960 to 1968. McNamara was a devotee of quantitative analysis and management and his "whiz kids" oversaw and participated in a major reorientation of the DoD to a management focus. The effects of such forced and false economies as the TFX fighter (same plane for all Services) were felt for many years and served as a source of resentment for many military professionals.

The curriculum of ICAF, always vulnerable to change as a consequence of current conditions and powerful personalities, changed in major ways between 1964 and 1975. The early part of this period, 1964-1967, was a time of revolutionary change. The writings of Stanley L. Falk and Theodore Bauer best capture the essence of what the curriculum was during the period 1964-1967. Falk, who was a member of the faculty, wrote two reports: The Industrial College in Transition, 1964-1965 and The "New" Industrial College, 1965-1967. These reports, published in 1967 and 1968, respectively, present an unusually thorough
description of the quantum changes made in both curriculum and institutional organizational structure.

THE SCHOMBURG REVOLUTION

The central figure directing and guiding these many changes was Lieutenant General August Schomburg, who was appointed Commandant on April 1, 1964. According to Bauer (1983, p. V-5), there were several factors which militated in favor of substantial change. Schomburg, himself a graduate of ICAF, "regarded the organization as excessively complicated...and appeared to isolate the Commandant from the academic operations of the College" (Bauer, 1983, p. V-5). According to Richard Leighton who served in various curriculum development capacities at ICAF between 1959 and 1979, Schomburg came to ICAF with a mandate to "shake up ICAF." This was to be done largely by altering program emphasis from mobilization and general management to executive management of defense resources, plus introducing more rigor by requiring more and better student research and action-oriented learning. The image of ICAF as a "country club" was going to be changed.

Immediate Changes: Organization and Curriculum

A JCS manpower survey was already underway when Schomburg took over. The survey recommended, among other things, that the ICAF should
lose one of its two two-star billets. In response to this JCS-directed action of June 18, 1964, Major General William S. Steele, USAF, assumed duty as Deputy Commandant for the entire college on June 15, 1964. Thus, one deputy commandant for the whole College replaced the previous structure which had afforded two two-star officers who served as Deputy Commandants for the Schools of Resident Studies and Extension Studies. Additionally, on July 15, 1964, Schomburg established three separate schools: the Resident School, the National Security Seminar School, and the Correspondence School. Administrative work was assumed by a new Office of the Secretary who had been functioning as the College's Executive Officer. Another new position, Assistant to the Deputy Commandant, was created for principal duty as Chairman of the Curriculum Committee.

Having made substantial changes in the organizational structure, Schomburg next targeted the curriculum. Acting on his belief that key DoD officials -- one of his principal constituent groups -- should have input to the curriculum change process, "the Commandant and Deputy Commandant held several discussions with several key officials in the Spring and Summer of 1964" (Bauer, 1983, p. V-9). Throughout these discussions, the following points were made repeatedly: (a) ICAF could give top leadership in teaching management within the military service and in developing an integrated management educational system, (b) ICAF's curriculum should give more attention to management so that graduates would be prepared for important DoD positions, and (c) the
course should be made more challenging with more work, more study and research, and less emphasis on lectures.

Not all of the views expressed by these key DoD officials were as sanguine. Bauer relates the views of the USMC Commandant, General Greene (Bauer, 1983, p. V-9). Greene's harsh criticism applied to all senior service schools which he felt (a) had too broad a curriculum, (b) scheduled far too many lectures, (c) did not require enough hard work and education, (d) should require an examination to establish student eligibility, (e) ought to give students written exams during the school year, and (f) should grade students on a sine curve with some in the lower sector being dropped before graduation. This extreme view of what constituted a worthy educational program appeared again in later years.

In any case, based on these discussions, Schomburg asked his Director of Instruction, Dr. Marlin S. Reichley, to study the last half of the 1964-1965 curriculum to see how these diverse views could be accommodated in the College's curriculum. Reichley reported to the Commandant in June, 1964 that the College's direction was in consonance with the guidance it had received in terms of stressing management. Additionally, he reemphasized the view that the College was not to be a management school, but a place where management would be studied within the context of national security, with emphasis on economic and industrial aspects (Bauer, 1983, p. V-10). However, this was only the
first of what were to be many reviews and revisions of the curriculum over the next few years.

School year 1964-1965 opened in a joint convocation with NWC and the convocation speaker was President Lyndon B. Johnson. Most of this year's curriculum effort went into developing brand new programs to be executed in the following school year. However, Schomburg was unwilling to wait that long to institute some of the changes he felt were needed. For this reason, the latter half of the 1964-1965 curriculum incorporated the "new" theme of defense management which grew out of the 1962 charter revision, ushering in the study of defense management problems as the new order of the day.

The academic program was implemented as an eight-unit course of study: Foundations for National Security Studies, Management of National Security Studies Programs and Budgets, Economic Policies for National Strength, Human and Material Resources, National Logistics Management, International Economic Capabilities and Potential, International Field Studies, and National Security Management. This last unit, Unit VIII, was developed in close coordination with top level officials from OSD, the JCS, and the military services. The desire to have students deal with real problems of practical and current concern to DoD was enhanced by the receipt of such high level input. In point of fact, four of the problems students grappled with -- prepositioned military stocks, airlift capability, "gold plating," and turnover in top DoD jobs -- were specifically identified by the

Counterinsurgency (COIN) received about the same amount of emphasis as it had the previous year. However, as a result of White House guidance, a lecture was added on the role of youth movements and youthful leadership in developing countries. Further, a case study on the Huk Rebellion in the Philippines was added to increase student involvement in the study of this important area of national security (ICAF Annual Report, FY 1964-1965, pp. 3-4).

The Schomburg-directed emphasis on defense management as the unifying theme also extended to the field studies program. In the week-long domestic field study program in February, 1965, much more emphasis was placed on defense industry's problems. Students discussed and analyzed industrial management problems. This represented a significant change away from the traditional methodology which consisted mainly of student observations of productive processes (ICAF Annual Report, FY 1964-1965, p. 4). Insofar as the international field studies program was concerned, Schomburg, in his Annual Report to the JCS on College Operations during FY 1964-1965, expressed the belief that the program, as it had been conducted, lacked focus and explicit relevance to the academic course. Students had been observing factories and receiving briefings which left them with impressions of the people, economic conditions, and industrial know-how. However, Schomburg felt that students ought to "purposely seek an increment of
knowledge or wisdom which would fit into a space reserved for it in the mosaic of their total learning experience at the College" (p. 5). Students were therefore given the responsibility of studying foreign and U.S. defense industry abroad and how it related to the security of the United States. During this three-week program of overseas visits to 50 countries in April and May of 1965, senior students were given full responsibility for the execution portion and were completely responsible for the conduct of individual members of their student groups. From all indications, this was done so that the faculty could stay behind and continue developing the planned radically different curriculum for school year 1965-1966.

The cooperative degree program was modified as a result of concerns raised by the Board of Advisors. The Board had expressed its concern during school year 1963-1964 that the cooperative degree program might decrease the time and effort available for students to accompiish ICAF academic requirements. Thus, in the negotiated revision, GWU agreed to award 16 credits for satisfactory completion of the ICAF program instead of nine. The revised program allowed three credits each for the electives program, executive development course, and the scientific decisionmaking course, plus six credits for a thesis. The last eight credits needed by students for the MBA were earned during a summer session after graduation from ICAF. Illustrative of the popularity of the program and the relatively low educational level at that time, the Fall Semester enrollment was 124:
99 ICAF students, 11 faculty, and 14 alumni. Spring enrollment was 119: 95 students, 9 faculty, 9 alumni, 1 NWC student, and 5 ICAF students of the 1965-1966 class.

The research program, like all other aspects of the College, felt Schomburg's hand of reform. During school year 1964-1965, students prepared the traditional thesis under faculty guidance on a subject or problem in defense management. However, Schomburg reported to the JCS that for school year 1965-1966, he planned for each student to do a substantial research project, individual or group, but the project could be in any form (e.g., monograph, article, research report). In addition to deemphasizing form, documentation, and structure, future reports would deal with topics of current concern to DoD or subjects useful to the College's educational program planning and development (ICAF Annual Report, FY 1964-1965, p. 15).

Instructional methodology for the first part of the school year was largely unchanged from the previous year and featured lectures, class and group discussions, field trips, student research reports and oral presentations, and individual study. Two weapons system management cases which were developed by a Harvard University specialist were introduced. However, as previously noted, the last part of the school year was "reformed."

Schomburg felt that ICAF's fundamental defect was that it relied too heavily on passive learning. He therefore secured the services of Professor James E. Howell of Stanford University to conduct a study and
make recommendations. Based on Howell's recommendations which were essentially consistent with the views of Schomburg and most of the faculty, the decision was made to shift to a much more action-oriented learning program. Plans were made to decrease auditorium time by 50% and increase small group activity by 118%. Schomburg reasoned that intensive active learning would increase the likelihood that students would learn how to manage rather than merely learn about management. Therefore, case studies, simulations, role-plays, practical exercises, demonstrations, and structured and unstructured discussions would constitute most of the tremendous increase in small group activity.

Schomburg was aware that students would have to work harder in this new, participative, action-oriented learning environment. In his words, "this expected 40% increase in student work was intended to eliminate the description of the college as a 'gentlemen's course' " (ICAF Annual Report, FY 1964-1965, p. 11). He also understood that the shift from "management and administration" of course work to active interaction with students would result in greater demands on faculty members. Many faculty were shallow in terms of content knowledge as well as inexperienced and unschooled in group dynamics and techniques needed to facilitate small group, action-oriented learning. For these reasons, he advised the JCS that he planned to remedy this problem by continuing accelerated faculty summer training, approving long-range sabbaticals, and encouraging faculty attendance at professional

Schomburg's plan for faculty improvement was consistent with recommendations received from the Board of Advisors which met on April 8-9, 1965. The Board endorsed the planned curriculum changes, but pointed out the need for more and better faculty. It therefore recommended summer seminars for top-level personnel, and summer conferences for Service School Directors. Other recommendations made by the Board included: (a) a modest increase in the size of the civilian component of the student body and (b) that consistent with the College's defense management education mission, perhaps thought should be given to changing the College's name (ICAF Annual Report, FY 1964-1965, p. 18).

As school year 1964-1965 drew to a close, the new Curriculum Committee and Faculty Board finished the curriculum plan for the coming school year. Schomburg, in describing this substantial effort, said that the new program for 1965-1966, with its radical shifts of emphasis, new approaches, and new organization of the material, was the most thoroughgoing and fundamental curriculum revision since the establishment of ICAF as a joint institution 19 years before (ICAF Annual Report, FY 1964-1965, p. 7).

He also made it known that he expected to continue this accelerated curriculum development program and actually publish the coming year's entire curriculum plan in January/February, a full six
months prior to implementation and at the height of the current year's academic delivery schedule. In school year 1987-1988, it was considered exceptional if most of the first month of the next year's academic program could be completed by the end of the current school year. However, in 1987-1988, as it had been for several years, the teaching departments were responsible for curriculum development. Quite the contrary, in 1964-1965, curriculum preparation was done by a Curriculum Committee which had no responsibility for execution and was therefore out of the classroom with "adequate" time to prepare curricula.

Actually, while Reichley was looking at the second half of the curriculum for school year 1964-1965, a parallel review was underway. This review was led by Colonel John B. Morgan, USA, who was both the Assistant to the Deputy Commandant and Chairman of the Curriculum Committee. The principal task given to this group was to refocus the last half of school year 1964-1965 so that more attention was given to management (Bauer, 1983, p. V-11). Thus, the Curriculum Committee was the driving force behind the development of revised curriculum content and methodologies for school year 1964-1965.

Although the Curriculum Committee's work was deemed very successful, the 1965 reorganization placed many curriculum planning duties in the newly-established Office of Academic Plans and Research and shortly thereafter, the Curriculum Committee ceased to exist. Its functions were assumed by an expanded Office of Academic Plans and
Research which reported directly to the Commandant's office. Several sources indicate that Schomburg wanted to "run" the College and this was just one more instance where an organizational change facilitated that plan.

A Radically Revised Academic Program

The curriculum for school year 1965-1966 was the product of extensive review and analysis. Based on experience with the previous year's program and Schomburg's guidance, an effort was made to start fresh, but continue to work from the general theme of management as a central focus.

Since systematic approaches to management were in vogue, probably due in some measure to the influence of Secretary of Defense Robert McNamara, it was no surprise that the Curriculum Committee chose to develop a program that moved logically from the broad to the specific. Thus the core curriculum consisted of four blocks, each built on the preceding block.

Course A, Environmental Factors, was similar to the old Foundations Course, but included a computer-assisted simulation course and a new data processing familiarization course. Course B, Management of National Resources, treated human, natural, and developed resources. It also included a one-week industrial field trip and a one-day visit to selected firms in the Washington, DC area. Course C, Management of National Security, dealt with the national security policy formulation
process, major national policies and programs that contributed to national strength, and national policies and actions for dealing with existing or potential external threats to the United States. This course also featured three case studies of Post-World War II crises. The final course, Course D, Management in the Department of Defense, exposed the students to a detailed study of management, planning, and decisionmaking in OSD and JCS, and management philosophy and policies throughout the DoD (Bauer, 1983, p. V-20).

In addition to the core curriculum there were several other curriculum elements, many of which were new or significantly different from previous years. Supplementing the core were special courses in Scientific Decisionmaking (six weeks), Executive Development (20 sessions), and a brand new electives program. These electives were taught mostly by contract personnel since ICAF faculty did not have the necessary expertise. Scientific Decisionmaking also proved to be quite difficult for the students.

The new elective program is worthy of special mention. Although the clash between the liberal and classical curriculums in the 19th Century had given rise to the university elective system, permitting student concentration in-depth in specialized disciplines and more of a choice about one's educational program, it was not until 1964-1965 that ICAF felt it appropriate to institute graduate-level elective courses. Schomburg, in recognition of the wide diversity of students' backgrounds and their increasing sophistication and educational levels,
thought that electives would be an excellent way to challenge students as well as avoid the counter-productive coverage of subject matter already familiar to students.

Dr. Robert W. Beckstead, a long-time ICAF faculty member, recalls that the faculty was also very interested in having an electives program. Although teaching electives was considered an overload, faculty members saw this as an opportunity to teach in their areas of specialization. Whatever the reason, it is undisputed that students selected to attend ICAF had over the years become better educated and possessed an increasingly wide variety of professional and educational experience.

Although 12 courses were offered -- eight in management and defense areas, one each in science and technology, economic theory, international politics, and applied psychology -- only eight of the 12 attracted enough students to warrant scheduling the course. Public speaking was an optional elective (each student had to take one of the eight offered) and although popular, Contemporary Economic Theory was even more popular. Significantly, the economics course was acceptable, if taken for credit, in the ICAF-GWU Cooperative Degree Program (Falk, 1968, p. 13).

The Cooperative Degree Program, which had been in existence since school year 1960-1961, gave students an opportunity to earn an advanced degree. This was especially important since (a) formal education beyond a baccalaureate degree was increasingly a major factor in an
officer's promotion potential and (b) many officers had never found time, with the press of operational duties, to secure graduate education. In any case, there were differences of opinion whether the ICAF academic program experience would be diluted if students participated in an additional rigorous program. In point of fact, the Board of Advisors, in the Spring of 1964, stated that the workload at ICAF was sufficiently demanding and should not be diluted by encouraging students to do outside work for academic degrees (Bauer, 1983, p. V-17). Schomburg supported this view.

The program allowed ICAF students to apply some of their work at ICAF toward requirements for either a baccalaureate or advanced GWU degree. Students typically took GWU courses in evening sessions during the ICAF academic year. After receiving their ICAF diplomas, students completed GWU degree requirements during a follow-on summer session which ended with a comprehensive examination. A compromise was reached in June, 1965 whereby GWU accepted three ICAF courses as substitutes for previously offered GWU courses, but those three courses -- Executive Development, Scientific Decisionmaking, and Economic Theory -- were taught by GWU faculty. Further, students taking these courses had to pass course examinations and submit a thesis that was acceptable to both ICAF and GWU. Students received three credit hours for each of the three courses mentioned above, seven credits for the remainder of the ICAF core program, and six credit hours for their research project (Bauer, 1983, p. V-22). The remaining eight credit hours were earned
by students at GWU over the eight-week period immediately following graduation from ICAF.

Student travel was also subjected to debate and change during school year 1965-1966. The Commandant questioned whether trips were consistent with ICAF's mission and curriculum. Schomburg's views were codified by the Curriculum Committee which recommended overseas and domestic student travel be undertaken if targeted toward specific research problems. The faculty was also permitted and encouraged to travel for research purposes (either their own research or as guides and advisers to students). Additionally, the Commandant established a new sabbatical leave policy whereby faculty members who had served the College for six years or more could be given a year away from ICAF for study, research, and travel if the intended research was of interest to the College and the individual faculty member (Bauer, 1983, pp. V-18, V-19).

The requirement for a formal thesis was dropped and the new guideline simply required that an appropriate format be used (Falk, 1968, p. 14). The types of issues researched were somewhat different. In addition to emphasizing study of current management-related problems of interest to DoD, many studies were undertaken which dealt with ICAF's curriculum content and methodology.

Falk (1968, p. 19) reports that a number of research projects were undertaken by the Office of Academic Plans and Research which aimed at developing factual data to be used in reevaluating and perhaps revising
the ICAF educational mission and in further improving its academic programs. In this regard, the 1965-1966 student body was polled on their backgrounds and attitudes, specific aspects of the program, and at year's end, in an exhaustive questionnaire, on their detailed reactions to the entire program. Questionnaires were also sent to graduates of the classes of 1961-1965. Those nominated for the 1966-1967 class also received questionnaires about their experiences and views. Finally, questionnaires were prepared to be sent to agencies and individuals for whom ICAF graduates could be expected to work (Falk, 1968, p. 19). This represents the first recorded instance where such a comprehensive effort was made to ascertain both what students thought the academic program should be and also to determine whether graduates were being adequately prepared to the satisfaction of their follow-on supervisors.

Although competition among students had not previously been a part of the ICAF experience, one of the 1965-1966 school year's characteristics did introduce competition. A new student performance evaluation system was introduced. Subjective faculty evaluations were used to select the top 10% of the class, the next 15%, and the top five in each Service. The Navy top five included the highest rated Marine (Falk, 1968, p. 16).

Instructional methodology was largely unchanged from the previous year. Schomburg's favored participative and action-oriented learning process was carried out in small group sessions, case studies, role
playing, seminars, and task group assignments. By way of comparison with school year 1964-1965, lectures in school year 1965-1966 were reduced from 250 to less than 150. And, time spent in small groups increased from about 200 periods in 1964-1965 to nearly 300 in 1965-1966 (Falk, 1968, p. 15). Clearly, the shift from a passive and receptor-mode to an active and involved mode was very much in evidence. This change also affected the faculty which had grown accustomed to a less active role in the learning process. In addition to less time lecturing and arranging lectures, faculty members had to be "brought up to speed" in small group facilitation/seminar leading skills.

The inadequate preparation of faculty members was one of the program aspects that greatly concerned Schomburg. This was also one of the ills he proposed to cure over time with a planned campaign. Thus it was in the Spring of 1966 that the Commandant directed the Office of Academic Plans and Research to develop a long-range plan, the first of which would cover the five-year period from 1966 to 1971. According to Bauer (1983, p. V-22, V-23), key goals of the first-ever ICAF Long Range Plan were: (a) more emphasis on the problem-solving approach where appropriate, (b) an increase in the relative weight of the electives program, (c) greater emphasis on computer-assisted instruction, and (d) a comprehensive research program aimed at finding ways to improve methodologies and course content.

The matter of military faculty quality received special mention. Among the "desired" changes were (a) reduction in level of rank, age,
and years of experience and (b) increases in level of education required (Master's required but doctorate preferred). Both military and civilian faculty members were to be urged to acquire additional education and professional experience. In this last regard, arrangements were made with civilian universities to permit ICAF faculty to enroll in executive development programs on a leave-of-absence basis.

Although these very specific goals were championed by Schomburg, he was alert to the potential criticism that these desired changes might be interpreted as directive and to be sought no matter what. This astuteness was manifested in his report to the JCS in the Summer of 1966. According to Falk (1968, p. 20), Schomburg advised the JCS that "he did not suppose that the College's future growth could be forced into predetermined channels. But he did hope for an orderly, progressive, internally consistent program of development which followed already indicated directions but was flexible."

Although the long-range planning was an internal effort to plan curriculum content and process systematically, there were also external pressures brought to bear on ICAF. The JCS, in August, 1966, appointed a Management Education and Training (MET) Study Group and named Schomburg its chairman. This group tried to identify the management education needs of the Defense establishment and determine which of these needs ICAF could meet (Bauer, 1983, p. V-24). This group's final report, submitted to the JCS on December 31, 1966, recommended only a
slight modification of the ICAF mission -- to expand College functions in applied research, communications, and educational services. In discussing the MET's expectations and study results, Bauer (1983, p. V-24), says that the MET really anticipated that ICAF would play a greater role in management innovations, educational methodology, and in determining defense requirements. Although the JCS took no action on the MET's report, the study did help ICAF better understand the needs and requirements of defense management education. In short, ICAF was accepted as the very effective "capstone" institution for instruction in the management of defense resources (Falk, 1968, pp. 30-31).

In addition to the MET's study, the Board of Advisors also critically reviewed this ambitious program of Schomburg's. During its 1964 and 1965 meetings, the Board expressed concern over the number, grade, and salary of faculty members, whether NWC and ICAF should remain separate institutions, and whether the ICAF-GWU cooperative degree program would dilute student effort in the ICAF program. Shortly after its April 1965 meeting, the Board was reorganized by Schomburg from 11 to 15 persons, including an active duty member. Further, the Commandant began a new policy of rotating one third of its members each year. Lastly, the "balance of disciplines" was changed so that six members came from Business/Defense, three each from Education and undesignated fields, and one each from Science, Labor and Foreign Affairs (Bauer, 1983, p. V-29). This regular rotation probably helped by bringing in new and fresh thoughts each year, but another result had
to be a less informed but more manipulable Board. Interviews indicate that Schomburg clearly intended to be in charge of ICAF's destiny.

In any case, Bauer (1983, p. V-30), holds that although the Board was significantly involved in the problems and issues of the College up through 1967, its involvement was considerably less thereafter.

CONSOLIDATION OF REVOLUTIONARY CHANGES

As a consequence of the extensive curriculum changes and studies of the previous two years, not many changes were made for school year 1966-1967. Schomburg specifically directed that there would be no major innovations but "debugging" was appropriate. Time would also be made available to analyze other areas of the College (Falk, 1968, p. 18).

The principal program changes, though few in number, were substantively significant. The electives program was expanded from 12 in 1965-1966 to 15 offered. However, only nine drew enough interest to justify scheduling. Seven of the nine were taught by outside instructors (Falk, 1968, p. 19). Optional courses were expanded and revised (partially the result of student critiques). Scientific Decisionmaking was offered on two levels of difficulty, and over two-thirds of the class took refresher math to prepare for this rigorous course for which many students arrived ill-prepared. Almost one-half
of the class, recognizing weakness in how to conduct research, took the research methodology course.

The student research program received a boost with the advent of the first issue of *Perspectives in Defense Management* -- an ICAF journal which provided an outlet for some of the better student research reports (Falk, 1968, p. 27).

The field studies program which was divided into a December Industrial Field Trip Program and a Spring Field Studies Program, continued to emphasize practical relevance. The size of student groups increased from 7-8 to a dozen or so and the number of areas visited decreased. The business executives visited preferred to deal with larger groups. These visits culminated in a series of meetings with top DoD officials where students were able to "gain insights into parallels and contrasts between management problems and methods between industry and government" (Falk, 1968, p. 26). For the Spring program, 13 study groups analyzed specific program areas within the DoD for 13 weeks, including a two-week field visit period in the U.S. and overseas. As much as possible, students were assigned to study projects related to their next assignments and they closed out their efforts with both a written report and oral presentation to the class (Falk, 1968, p. 26).

Active involvement of students continued to be the preferred instructional methodology approach. Consequently, the number of lectures and other formal auditorium presentations was reduced.
Although Schomburg's tour of duty ended in June, 1967, school year 1967-1968 was not much different from the previous year. If one sought to discover a distinguishing factor, it most likely would be the increased cooperation between ICAF and NWC. In addition to greater numbers of joint lectures and intelligence briefings, electives were opened to both Colleges. Electives declined in number, domestic and overseas field trips continued with the overseas trips based on specific research areas, and emphasis continued to be placed on active student involvement and problem-solving by use of ten new case studies.

In keeping with the accepted goal of meeting student needs, the elective program received special attention. Students were urged to substitute elective courses for subject areas with which they were already familiar. Additionally, students were given the option of taking an additional elective and prepare three short papers, or develop a major research report or thesis. As in the past, and as would be the case in the future, students, given such an option, chose not to write a major report (Bauer, 1983, pp. VI-4-5).

The core program grew from five to six courses: (a) four weeks of Environment of National Security; (b) four weeks of Basic Resources; (c) eight weeks of Industrial Resources; (d) five weeks of National Security Problems and Policies; (e) four weeks of National Economic Problems and Policies; and (f) fifteen weeks of Management in the DoD. As is obvious, management as the principal theme received nearly twice as much of the students' efforts as the next largest. The established
optional courses became too popular and too populated, and courses such as public speaking and effective reading were replaced with ad hoc workshops. The focus of international field trips changed from providing research for group studies to one where trips supported ICAF's mission as a whole.

Lieutenant General Leighton I. Davis, USAF, who served as Commandant for this one school year acted mostly as a caretaker and made no remarkable changes at the College. According to Waterman, Davis, whose background was Research and Development (R&D), intended to add substantial amounts of "management of R&D" to the curriculum. However, Waterman alleges that Davis decided early in school year 1967-1968 that he did not like being Commandant and therefore retired. He was replaced by Lieutenant General John S. Hardy, USAF, on August 1, 1968.

The curriculum for school year 1969-1970 retained the general structure of the preceding year. It was a broad, problem-oriented core program of six sequential courses in national security management, comprising about 80% of the scheduled classroom hours, supplemented by electives and workshops. The core program consisted of (a) a survey of the current national security environment and examination of major topical issues; (b) a review of human and natural resources in the U.S. and other major geographical areas; (c) an analysis of industrial resources and their management, including a week-long field trip of research in major U.S. industrial complexes; (d) an analysis of major
external threats to U.S. security interests; (e) an examination of U.S. economic problems and policies; and (f) an analysis of policy formulation, management practices, and decisionmaking in the DoD.

This last phase included a two-week field research program overseas where students examined defense, industry, economic, and cultural factors which influenced the vital national security interests of the U.S. The core program also included three computer-assisted simulations in business decisionmaking, world politics, and the weapons acquisition process.

All students were required to prepare a substantial research project. However, plans were laid to change student requirements so that students could choose between a substantial research project and two additional semester-length elective courses, each with a short term paper requirement. This was felt appropriate since increasingly students were found to have done major research projects and the development of research skills was not a College educational objective. Representative of the substantive research projects undertaken was a specialized research project aimed at curriculum improvement. Questionnaires were sent to selected executives asking what kind of knowledge ICAF graduates should have in the whole field of information technology as well as in that of computer-based information systems. Additionally, at the request of the President's Blue Ribbon Defense Panel, 27 students studied the Defense Planning, Programming, Budgeting System in lieu of the standard research project.
Another research innovation was begun -- the ICAF Research Fellows Program. A proposal/request was forwarded to the JCS asking authorization to begin a research fellows program which would permit up to three graduates of each class to stay up to a full additional year to carry out research in some field of national security management.

The College's professional journal, Perspectives in Defense Management, which published many of the better student research efforts, was published three times. The journal included articles by influential personages from several disciplines, to wit, Senator "Scoop" Jackson, Leo Cherne, Peter Drucker, Eli Ginzberg, Leon H. Keyserling, and Ambassador J. Graham Parsons.

There was little change in the electives program which continued to provide a diversified choice of courses intended to allow students to tailor their year's professional education experience. Plans were made to allow three to six electives in the coming year in view of plans mentioned above in regard to the research program.

As in previous years, workshops were conducted in rapid reading, public speaking, research methodology, and mathematics.

The cooperative degree program was reviewed and judged a useful, desirable, and relevant adjunct to the core program. However, the Master of Science Degree in Business Administration was deemed not appropriate, because the students were being educated for defense management and not civilian management careers. Therefore, a new agreement was negotiated which called for a Master of Science in
Administration to be awarded in the future. This program, which would concentrate on administration of national security, would start in school year 1970-1971 and would constitute thirty-six credit hours rather than the thirty which had been the norm.

During this period of ICAF's history, entering students were given the Admissions Test for Graduate Study in Business (ATGSB). Although student scores were favorable -- over a three-year period students had rated higher than the national average for verbal and lower for quantitative -- the purpose for administration was not related to eligibility for admission to the College. Rather, the purposes were to provide input for future curriculum adjustments and to assist students in deciding on whether or not to attempt the cooperative degree program (ICAF Annual Report, FY 1969-1970, p. 8).

Nonetheless, entrance qualifications were a concern and were therefore reexamined. A high correlation was found between a bachelor's degree and high learning achievement at ICAF. This confirmed the College's view that except in unusual cases, all selectees should have at least a bachelor's degree.

Also inaugurated in the Fall of 1969 was a new Interdepartmental Curriculum Committee whose purpose was to restudy the curriculum and propose needed revisions for school year 1970-1971. As a result of this group's work, plans were made to add a seventh course to the core in the last four weeks of the school year. This final course, National Security Management, would consist of the two-week international field
studies program, followed by a week of reports and small group discussions of those studies, and a concluding week of "horizon-stretching" addresses by distinguished visiting speakers.

The problem of staff and faculty turnover loomed large this school year. The College Secretary, Public Affairs Officer, and the Directors of the Resident, Correspondence and Seminar Schools all retired. The Director of Simulation and Computer Directorate was reassigned and joining the faculty and staff were a new State Department Advisor and Dr. Stanley L. Falk. Additionally, later that Summer, the Deputy Commandant retired and the Commandant, Lieutenant General John S. Hardy, was replaced by Vice Admiral John Victor Smith.

The Board of Advisors met twice; October and April. During its April meeting, the Board met informally with small groups of students in order to get first-hand views on the curriculum and College operations.

The Long Range Plan was revised and extended through FY 1974-1975, but still projected basically evolutionary changes over the next several years. In any case, planners saw the need for increased emphasis on problems of ecology and environmental pollution, arguing for new stress on environmental factors.

Instructional methodology remained focused on small group discussions, seminars, cases, individual and group study projects supported by a distinguished speaker program, as well as the aforementioned field research and simulations programs. In an effort
to keep the very important case study program vibrant, the case study series was reviewed, updated, and in some cases, rewritten and condensed.

As the school year ended, the College was alerted to a likely 10% reduction in its 1971 budget. Since the size of the student body was expected to stay the same, such a reduction, combined with inflation, raised concern that a curtailment of essential activities, including international field studies and commercial computer services, might be required.

The curriculum for school year 1970-1971 was largely unchanged from the previous two years. The planned seventh concluding course was added which set aside two weeks for field research in overseas areas to examine defense, industrial, economic, and cultural factors. In the core curriculum, increased attention was given to problems of the social and physical environment, both domestic and overseas. Most of this was included in the second course of the core curriculum, Basic Resources. This growing realization that national security and health of the domestic environment were intimately related led to that being a theme in the entire academic program.

The field studies program was again an integral part of the core curriculum. The one-week trip involved visits to a dozen cities and metropolitan areas where students combined study of industrial and urban management problems. This was especially appropriate in view of the mounting social and environmental issues being faced by civic and
industrial leaders. The two-week international program followed the traditional pattern and included one-day visits to the State Department and Capitol Hill.

Both of the major curriculum changes involved the electives and research programs. The two-elective option was added to the research program and the electives program was nearly doubled in scope. This increase provided greater choice and allowed for the anticipated greater demand for electives. Nineteen elective courses were offered and some short courses were included (Bauer, 1983, P. VI-8). An elective of half-semester length, The Role of Government in Environmental Problems, was added, reflecting the emphasis on the theme of social and physical environmental problems.

In the research program, 139 of 180 students chose to take two additional electives and write two short papers rather than accomplish a major research project. In an effort to reverse this trend, plans were made to have Assistant Secretary of Defense for Manpower Roger Kelly address the next class on major policy issues, arrange visits by Defense officials to informally discuss some issues, and otherwise channel student study and research into specific DoD problems of current concern. A graduate of the class of 1971 was approved to be the first ICAF Research Fellow and his research was in Automatic Data Processing and Management of Information Systems.

Methods of instruction remained essentially the same: small group learning situations, simulations, individual and group study projects,
field studies, individual reading and study, auditorium presentations, seminars, cases, debates, and role plays. There were minor changes in the numbers of particular types of methodologies employed.

Although this was an off-year in the two-year curriculum revision cycle, the College sent questionnaires to the classes of 1966 and 1967. The questionnaires, which covered thirty-eight curricular and eight methodology areas and were designed to permit computer storage of response data, asked how useful had their studies been to them since graduation and which curricular areas should be emphasized or deemphasized in the future. Sixty-two percent responded and most felt that ICAF had met its general mission of preparing them for positions of high trust. Based on this experience, ICAF planned to make similar surveys in the future on a biannual basis.

This school year was the first under the new cooperative degree program agreement. Sixty-two enrolled which marked a continuing decline in popularity for this program. Increasingly, larger numbers of entering students already possessed advanced degrees and in this class, 60% had advanced degrees. GWU increased the number of credit hours earned by ICAF completion and students were allowed to take two additional electives in lieu of writing a thesis.

Closely associated with this improvement in quality for entering military students, steps were taken to improve the quality of entering civilian students. Standards were set which required at least grade GS-15, a lower age range equating to military students whose average
age was 42.3, and greater stress on the need for previous academic experience (at least a bachelor's degree). The first two of these standards were not met. Additionally, selecting agencies were provided a better description of ICAF content and objectives with the anticipation that only those in positions which related to ICAF's curriculum would be chosen for attendance at ICAF.

The Board of Advisors continued its downward spiral in terms of influencing the curriculum. By 1971, the Board was down to six members, and steps were taken to expand the Board's membership in the coming year. Five members attended its meeting on April 16, 1971.

GLOBALIZATION OF CURRICULUM EMPHASIS

Although the curriculum for school year 1971-1972 was basically unchanged, there were some noteworthy marginal changes. The academic year began with a six-day program of lectures and unstructured student discussions which set the stage for the entire year. During this survey program, a wide range of current security-related foreign and domestic issues were covered. Among these issues were civil liberties versus law and order, social impact of technological advance, competition between defense and domestic needs, and the military and American society. These were all current issues facing the nation and the DoD. The Vietnam War was still taking great amounts of the nation's wealth, civil disobedience was rampant in an effort to stop
the war, and the military was increasingly looked upon as the native "ugly American."

The core program again consisted of seven sequential courses in management of national security resources and comprised about 75% of scheduled classroom hours. The dominant theme was national resource management and decisionmaking in government and defense industry, but increased attention was given over to the problems of the social and physical environment, domestic and worldwide. Among the problems and issues were pollution, the energy shortage, changing alignments of international power, and the visible decline of American influence. Because of the President's announcement of his New Economic Policy, the course content of the economic policy portion of the core was adjusted.

The field study program was augmented by a two-and-a-half day visit to United Nations Headquarters in September, a feature that had been absent for several years. Among the briefers whose focus was United Nations economic and social development programs was Ambassador (now President) Bush. The Spring two-week international field trip focused on the problems of industrial and defense management and special aspects of international and defense management and special aspects of international security. Additionally, the one-week Industrial and Urban Field Studies conducted in December involved visits to twelve U.S. major urban centers where students and industry officials discussed industrial and metropolitan management problems.
The three computer-based models were again an integral part of the curriculum. Illustrative of the growing reputation of ICAF as a leader in computer modeling, staff members, upon request, assisted the World Bank's Economic Development Institute in a run of the Management Decisionmaking Exercise and conducted a trial run of the International Relations Exercise for the Army War College. Instructional methodology remained essentially the same with only very minor changes in the numbers of various types of methodologies used. However, there was one auditorium presentation in September which was conducted especially so wives could participate with the students. Wives were also invited to several other unclassified auditorium presentations.

A significantly larger number of students undertook major research projects, compared with the previous year. Although students still had the option to forego the longer and more substantial research project in favor of two short papers plus two additional electives, nearly half of the student body (seventy-seven) wrote full-length papers on defense-related topics. Not only had the major push for substantial research projects been successful, seven out of 77 papers were deemed potentially valuable enough to forward to interested Defense agencies. Further, one study, leading to a design of a course on Computer-Based Information Systems was distributed to other Senior Service Colleges and other DoD educational institutions. Two students from the class of 1972 were assigned to the ICAF Research Fellows Program for the coming year.
Faculty research resulted in three studies which were integrated into the curriculum. One of these, a simple computerized econometric model of the U.S. economy, was developed to help students grasp major interrelationships inherent in economic models, including the governmental fiscal and monetary influences.

*Perspectives in Defense Management* completed its fifth year of publication in the Spring. By now the mailing list had grown to over 21,000 and plans were developed to pare down this number.

Each student was required to select at least one elective of fifteen weeks or two short courses of seven weeks. Thirty-one elective courses were offered and twenty-four were conducted, up by five over the previous year. Increasing emphasis on computer technology and the high priority given by Defense to management of major weapon systems, resulted in two new ADP-related and one new weapon systems acquisition electives. Workshops, as usual, were entirely voluntary and designed to improve student skills in areas such as reading, speaking, writing, research methodology, mathematics, accounting, and ADP concepts.

The number of enrollees for the cooperative degree program dwindled to forty-six, thirty-two military and fourteen civilians.

Quality of students and faculty continued to be a major concern. Of the 180 students who graduated, 109 entered with advanced degrees, including five with doctorates. Only five had no degree whereas ten years prior, 25% entered with no degree. Although students were not graded, a new memorandum was issued which simplified the evaluation
procedure, and required evaluation of all student performance instead of just performance in the core curriculum.

Insofar as the faculty was concerned, the formalized faculty development program resulted in several faculty working as members of offices in other Government agencies and several attending advanced executive development courses. Leaves of absence for such as the above, as well as resident study in a graduate school or for independent research, were allowed for civilian faculty after six years of service.

In a further effort to enhance the professionalism of the faculty, a study was conducted to determine faculty requirements. This study, which identified academic disciplines or fields of special expertise within the curriculum and the number and qualifications required, provided input for the personnel assignment system. This effort was materially aided by Secretary of Defense Laird's February 24, 1972 letter, "Leadership at Service Schools," which confirmed and strengthened the need for schools such as ICAF to get the outstanding faculty needed.

The curriculum planning process received boosts from both the Long Range Plan and the established curriculum planning committee. The annual update of the Long Range Plan recognized potential new power relationships in the world growing out of the rise of Japan, China, and Western Europe as major powers. Additionally, the problem of decreasing foreign and domestic natural resources, especially energy,
was added as a second focus for future curricula. Since this was a planning year on the biannual curriculum development cycle, the Curriculum Committee correlated data from graduating classes of 1966 and 1967 with that of the views of the class of 1971, and used testimony from College faculty and officials. Based on these inputs, the Committee recommended incremental changes involving shortening courses, retitling others, expanding some, plus the long-range development of a new concluding exercise oriented around the Planning, Programming and Budgeting System (PPBS).

The Board of Advisors met on April 13 and 14, 1972. Their discussion made it clear that they were concerned about the implications for higher education as a result of the fundamental changes in values and attitudes occurring in young people at that time.

Between school years 1971-1972 and 1972-1973, former students were surveyed and the results used in designing the 1972-1973 curriculum. The academic program again began with a "stage-setting" program, but time given over to this introduction was increased from one to two weeks. Perhaps the more substantial change and certainly more innovative, however, was the introduction of a "Great Books" reading program. During the first semester, all students read De Tocqueville's Democracy in America and Walter Lippman's The Public Philosophy. For the second semester, students were allowed to make their own selections from a list of about a dozen books (Bauer, 1983, p. VI-9). The core
program again represented about 75% of the scheduled classroom hours. The field studies program continued unchanged.

The first steps were taken in exploring the feasibility of a major new simulation of the PPBS. Although the three traditional computer-assisted simulations were changed modestly, the use of computer technology for administrative and management purposes began. Some of the processes of student classification and assignment were automated; notably the development of a program to separate smokers from nonsmokers in student offices. Also a new system for evaluating student performance was developed. Students were encouraged to use computer resources and portable terminals were provided for students to use at home on weekends.

The number of students electing to engage in the substantial research project continued to grow -- 94 Individual Study Projects versus 77 the previous year. According to the ICAF Annual Report to the JCS, Operations During FY 1973, this improvement was traceable to the intensive advisory effort by faculty plus good matches between faculty expertise and topics (p. B-2). Undoubtedly of significant assistance, too, was the continued support manifested by the JCS which provided over 100 research topics plus a motivational film featuring the Secretary of Defense and the Service Chiefs. Sixteen student papers were judged outstanding and were forwarded to appropriate agencies. The Research Fellows Program was opened to "older" graduates who had to apply and propose a project of current defense management
relevance. The first three Research Fellows completed their projects and three from the class of 1973 were appointed.

Several management-type decisions were made affecting Perspectives in Defense Management. In order to reduce costs and to ensure that the journal was sent only to interested readers, the size was limited to approximately 90 pages and the circulation cut to approximately half of the previous year's 21,000.

A reduced number of electives was conducted -- 27 offered and 24 presented. This decline resulted from the successful efforts to get students interested in defense-oriented research and the introduction of three curriculum tracks which permitted highly qualified students to opt for an advanced track versus enrolling in one of the required elective course offerings. Most of the elective courses were conducted by resident faculty. The workshop program underwent no change.

The daily student critique was evaluated, and based on this review, a new daily critique card was developed to elicit an easier and more meaningful response from students. This became operational on March 5, 1973, and at the same time, the weekly summary and analysis was discontinued in favor of a daily computerized print-out.

Extensive questionnaires were sent to the classes of 1968 and 1969 to get their views on the overall value and specific applicability of the resident course. Based on a 60% response, both classes rated overall value higher than specific applicability. Otherwise, the year was used by individual program and course committees to develop
proposals incorporating certain improvements in the curriculum plan for 1973-1974. These plans were presented to the Faculty Board for approval. The Long Range Plan was revised to cover FY 1974-1978, but reflected only minor planned changes.

The Board of Advisors met on April 13 and were briefed on major events and methodology used to keep the curricula dynamic. After hearing two student presentations on different research methodologies, observing a student case discussion, and meeting informally with small groups of students, the Board expressed its satisfaction with College programs and made no major recommendations.

Two other constituent groups met during the year and discussed ICAF and its programs. The Military Education Coordination Committee (MECC) met on April 5, 1973, at Maxwell Air Force Base, Alabama, to examine subjects such as disparate treatment by the Colleges of recommendations for promotion from O-6 to star rank, the growing interest of Congress in the senior service colleges, and advanced degree programs. Also, on April 9, 1973, a subcommittee of the House Armed Services Committee visited ICAF and received a forty-five minute briefing on the major educational programs of the College. The subcommittee was concerned with the advanced degree program with GWU, service-wide advanced education programs, cost per student of education at the senior military colleges, how costs were computed, and the years of service of officers and civilians subsequent to graduation. Cost per student at ICAF had risen from $12,911 in FY 1967-1968 to $17,480
in FY 1971-1972. No specific action was taken as a result of these deliberations.

In his report to the JCS on operations during school year 1973-1974, Lieutenant General Walter J. Woolwine, USA, who had assumed duty as Commandant in August 1973, noted the presence of twelve returned prisoners of war (POWs) in the student body, the fiftieth anniversary of the College's inception, and the continuing scrutiny of Congress. The ex-POWs were added to the normal enrollment with no increase in faculty.

There were, however, few changes made in the curriculum for school year 1973-1974. The core continued to be seven units of presentations and the dominant theme remained resource management and decisionmaking for national security, with special current emphasis on ecology. Seventy-five percent of the scheduled classroom hours remained in the core program.

One of the foundation courses, Scientific Decisionmaking, had been criticized by students as being too academic and theoretical. In response, the College called in Professor Paul Vatter of Harvard's School of Business to help restructure the course. This modification sought to emphasize practical quantitative analysis problems and the use of case studies with computer support via remote terminals.

At the end of selected core courses, students were required to submit written reports to demonstrate learning achievements, organization and synthesis of thoughts relative to their studies, and
current and future issues. As will be pointed out later, this is exactly what was resurrected in the late 1980s in the name of increased rigor. Although historical documents do not suggest that this was done for "rigor" purposes, Congress was, at that time, questioning the need for senior schools, looking for possible curriculum and mission redundancy, and for ways to evaluate senior school effectiveness.

The three traditional computer simulations were again conducted, with planning continued on the PPBS simulation. Students had access to six portable remote teletype terminals for home use. And, the College continued to be the leader in DoD educational institutions in the use of computer-assisted simulations, receiving many requests for its simulations, computer programs, documentation, and technical assistance.

Once again, research options were revised. In addition to the substantial project, College officials offered a more limited research paper instead of two short papers as before, but with two additional elective courses beyond the one elective required of all students. Ninety-one students engaged in major research compared to 90 the previous year and 97 chose the limited research option with two electives. Of 175 projects, 51 were deemed outstanding and 77 were selected for special distribution. Mirroring the past several years, the overall trend for research papers was toward more technical, computer-oriented subjects. Interest in the Research Fellow Program abated and no appointments were made from the class of 1974. However,
four from the 1973 class labored during the year on computer-oriented and natural and energy resource topics. Two faculty members published significant works: *Politics of Defense Analysis* by Dr. Ralph Sanders and *Bloodiest Victory: Palaus* by Dr. Stanley Falk.

*Perspectives in Defense Management* completed its eighth year of publication with a circulation of 12,000. A readership survey which garnered a 75% response provided some heartening results. All but a few said they read at least several articles in each issue, 40% said they read it from cover-to-cover, 63% said they read the journal for professional improvement, and almost all said they were helped professionally by reading *Perspectives*.

The elective program was essentially unchanged from the previous year. Two of the four offered, but not taught due to insufficient interest, were sophisticated economics courses. Likewise, the workshop program was not revised.

The student critique system was modified by the elimination of the automated response card with which all students had been evaluating each academic event on the daily schedule. It was felt that this was not useful enough in curriculum planning and administration. Students continued to submit written comments on a critique card and detailed written critiques following each course and at year's end. Visiting speakers and panelists were evaluated by the faculty.

The Long Range Plan was updated through FY 1978-1979, and for the first time, incorporated an integrated five year plan with annual
schedules for field visits. It also included a projected five-year schedule of annual student space allotments to non-Defense departments and agencies.

The Board of Advisors met on April 5, 1974, and spent considerable time in direct contact with students. Although students expressed enthusiasm and appreciation for the value of the ICAF experience, they asked for more speakers who would be critical of the Defense Department. The Board raised the issue of Service policies in assigning students to ICAF and expressed its unanimous belief that ICAF was of high quality and was making satisfactory efforts toward self-improvement.

Case studies were used extensively -- 31 total, with 19 in the core program. Half of the case studies were prepared by in-house faculty whereas in earlier years, cases had been bought off-the-shelf or contracted out to other experts. Otherwise, instructional methodologies were essentially unchanged, with slightly more seminars and field trips.

During school year 1974-1975, major organizational changes occurred which affected the way the curriculum content was presented. On July 1, 1974, the Resident School was replaced with four teaching departments: Political and Social Studies, Resources Management Studies, Economic Studies, and National Security Management Studies. Additionally, the Directorate of Simulation and Computer Support was made a department. Title changes were also made for several
administrative positions. The College Deputy Commandant became the Dean of Students, the College Secretary became the Dean of Administration, and the Senior Educational Advisor became the Dean of Academics (Bauer, 1983, p. VI-11). The expectation was that this would facilitate the Commandant's involvement in the conduct of the academic program.

Planning for change in curriculum content was done by the Department of Curriculum Development and Research (CDAR) which was the successor to the Directorate of Academic Plans and Research. Woolwine considered himself to be the Resident Director and wanted presentations made to him rather than continuing the past practice of unit directors presenting to the Resident Director. Allegedly, the Resident Director would take the curriculum prepared by CDAR to unit directors and get their comments, observations, and arguments. Then, when the decisionmaking session occurred -- a briefing to Woolwine by the Resident Director with unit directors present -- the Resident Director would tell Woolwine that "these are the objections but they are without merit for the following reasons." After having this done to them a few times, unit directors stopped discussing the curriculum plan prior to the meeting with the Commandant.

This controversy continued until the arrival of Major General Theodore Antonelli, USA, in July, 1975. Antonelli, uncomfortable with this fractionated and conflict-producing situation, later created the
position of Dean of Faculty and Academics. This new position's incumbent was given responsibility for curriculum development.

The principal change during this school year was the consolidation of the seven core courses into five courses. Forty-three elective courses were offered with a small number opened up by NWC and ICAF to each other's students. Workshops such as that for Automatic Data Processing were moved into the electives program. Continuing a now well-established pattern, students, when offered a choice between a limited or major research project, overwhelmingly chose the former (114 out of 180).

The Board of Advisors did not meet at all during school year 1974-1975. Also during this year, Reichley -- the only civilian to reach super grade status -- retired after thirty-one years service to ICAF.

THE METAMORPHOSIS COMPLETE

The description of the post-Schomburg ICAF as the "new Industrial College" is an apt one. Schomburg literally turned the College around in a number of ways and was the major influence for curriculum change during this period. He made several organizational changes which were designed to place himself in a knowledgeable, informed, and involved position.

Reichley who had essentially run the institution on a day-to-day basis for many years, was declared surplus and replaced by a military
Resident Director. Schomburg felt that ICAF was a military institution, it should be run by military people, and the Commandant should not function primarily as a public relations director. Reichley was thus not a meaningful part of the Schomburg revolution.

Perhaps the most controversial and significant organizational change which affected the curriculum was the creation of the curriculum development and research committee (CDAR) which removed curriculum preparation responsibilities from the unit directors. This committee developed the curriculum, solicited faculty comment, and then presented the proposed curriculum to the Commandant. Consequently, not only did the faculty lose the power of curriculum content control, but they were required to implement a curriculum in which they had very little investment. It is the unanimous opinion of the several interviewees that this was not the best way to develop the curriculum and reportedly, faculty, including very disaffected unit directors, were "mad as hell" for at least five years.

Insofar as curriculum content was concerned, Schomburg saw to it that the mobilization emphasis was supplanted by a new emphasis on management in the DoD. This was probably the right move given the nature of the environment in which the DoD was operating. Having emerged from the Korean War with a large standing army, and being committed to a perceived continuing state of "Cold War," the armed services could no longer afford the luxury of thinking in pre-World War
II terms of mobilizing after hostilities had been all but declared. There was now a need to remain mobilized on a continuing basis.

That being the case, the problem for DoD was how best to manage its resources in this peacetime Cold War environment, and not how to plan for mobilization. This move away from mobilization and management in civilian industry management terms gave recognition to the need to focus on dealing with specific national security problems. This was also the period during which Secretary of Defense McNamara's management philosophy was widely accepted and used within the DoD. Therefore, the field studies program, research program, co-op degree program, indeed all elements of the academic program were refocused to emphasize management and solution of real defense problems.

Instructional methodology philosophy and attendant techniques also changed significantly. Schomburg felt very strongly that if ICAF graduates were going to learn how to manage defense resources as opposed to learning about management, active learning had to replace passive learning. This philosophy required students and faculty to work harder because passive learning activities such as lectures were greatly reduced and action-oriented small group activity was increased.

Pre-Schomburg faculty perception of its role was as discussion guides, not teachers. Students were receptors; not givers and sharers of controversial and hotly-debated ideas. Seminars were mostly sessions where material covered in lectures was further discussed. This new approach required more faculty work, content knowledge, and
classroom facilitation ability. To his credit, Schomburg took several actions designed to enhance professional development of faculty members.

Rigor, as a desirable objective, was very much a part of Schomburg's overall plan. According to Leighton, rigor was a key word of that era and he believed that rigor was present in some courses, especially economics. Changes in research programs, field studies, and teaching and learning techniques all suggest that Schomburg's expressed desire to make the program more challenging and demanding was being actualized.

Schomburg left the College in 1967 and only marginal changes were made during the remainder of this period in ICAF's history. There are perhaps a number of reasons why this was so. Perhaps none of the other five Commandants had a clear mandate from higher-ups. Perhaps the "new ICAF" was clearly in step with the changing nature of its internal and external environments and only minor tinkering was necessary. Perhaps the shortness of Commandants' tenures militated against substantial changes. Over the period July, 1967 to July, 1975, only one Commandant served three full school terms.

Even so, as school year 1974-1975 ended, ICAF had attained considerable prestige as a source of senior-level federal government officials who understood the problems of defense management and how to manage defense resources. And, they had arrived at such capability via
the challenging, action-oriented, focused learning experience of Schomburg's revolutionized and management-oriented Industrial College.
CHAPTER 5

NATIONAL DEFENSE UNIVERSITY AND ITS EFFECT
ON ICAF'S CURRICULUM: 1975-1984

With the signing of the peace accords in 1973, the United States began to emerge from the long shadow of the Vietnam War. However, the returning soldier was not accorded a hero's welcome. Many Vietnam veterans returned to find their lives in shambles from drugs, alcohol, post stress syndrome (battle shock/fatigue), and in some cases, wrecked family situations. Added to this was the left over resentment harbored by many Americans for whom the Vietnam War had been unpopular and too costly in both dollars and human suffering.

President Richard Nixon, who had been caught up in the Watergate break-in and cover-up, was forced to resign. Vice President Gerald Ford replaced Nixon, but was defeated by Jimmy Carter in the 1976 elections. Carter had had the misfortune of being perceived as a "gloom and doom" leader, too bogged down in minutiae, and unable to provide a vision for the people. The several Americans held hostage in Iran for 444 days further added to Carter's burden. Carter served only one term and was soundly defeated in 1980 by Ronald Reagan.

Reagan, later referred to as the "Great Communicator" and the "Teflon President," did create among Americans a feeling of pride and optimism. It was "morning again in America." Reagan's policies and
approach to materialism and self-indulgence were instrumental in
fostering what has been described as the "me generation" and the "greed
generation." Doing one's own thing, often in the name of getting all
the "goodies" life could possibly offer was the order of the day.

There were several occasions in the early 1980s when Americans
could rightfully feel good about themselves. The hostages were freed
on January 28, 1981. In 1983, the first woman was named to the Supreme
Court (Sandra Day O'Connor), the first woman went into space (Sally
Ride), the first black woman was selected as Miss America (Vanessa
Williams), and the first woman was nominated for the office of Vice
President by a major political party (Geraldine Ferraro).

However, there were other occasions when horror and high costs
made for a gloomy assessment. Terrorism against Americans by Middle
East factions reached an all-time high. One of the single most
traumatic experiences ever for the armed services occurred on October
23, 1983, when 241 marines were killed in a terrorist explosion in
Beirut. The Cuban Mariel Boatlift deposited thousands of Cubans on the
shores of Florida and created havoc for many months because many of the
refugees were convicted criminals. Japan bought large portions of the
nation's real estate and businesses and helped contribute to
devastating twin deficits for America. Finally, AIDS became a part of
the lexicon in 1982, and by October had killed about 300 Americans.
Seven years later, the number of Americans killed by AIDS had exceeded
68,000.
Although the early Reagan years were noteworthy for the tremendous sums spent to "rearm" America, there were still efforts to contain costs in other than weapons systems areas. The desire to cut costs was the principal factor which ultimately resulted in the creation of the National Defense University.

FACTORS LEADING TO NDU'S FOUNDING

As previously discussed, consolidation of ICAF and NWC had long been under debate. Waterman recalled having recommended such a move in a farewell letter he wrote to the Commandant when he left the ICAF faculty in July, 1953. An ICAF student researcher also reached this conclusion in March, 1974. In his research report, Lieutenant Colonel Church M. Matthews, Jr., USA, had concluded that consolidation of NWC and ICAF to some degree was feasible. However, he surmised that the two would likely remain separate-but-equal until pressured by higher authority to look for mutual areas of interest for economy or other benefits (Matthews, 1974, p. 73).

In addition to a thorough study of the consolidation issue by the JCS, the Committee on Excellence in Education (COEE), chaired by Deputy Secretary of Defense Clements, undertook a comprehensive study of professional education in DoD. The Clements Committee visited the Service Academies, intermediate staff colleges, the Naval and Air Force post-graduate schools, and the five senior defense colleges.
Woolwine was careful to point out in his briefing to the Clements Committee how ICAF had progressed from a narrow and specific focus on mobilization issues to the study of defense resources management. The Commandant also advised the Committee that ICAF should teach concepts and approaches rather than specifics. His concern was that if officers were not educated to manage the tasks inherent in positions throughout the remainder of their careers, but educated in specifics and principally for their next assignment, ICAF would degenerate or devolve into a "super trade school" rather than the needed graduate level executive development institution.

Although the Clements Committee supported consolidation, it did not specifically call for it. Instead, it mandated for the five senior colleges a common core curriculum and that each of the five focus more sharply on its specific mission. The Committee also recommended that (a) elective programs be closely related to the college's primary mission fields, (b) faculty research be upgraded so as to develop expertise in the mission fields, and (c) short, mission-related trips were desirable, but other field trips did not justify continued funding (Bauer, 1983, p. VII-7). The Committee also expressed misgivings about the ICAF-GWU cooperative degree program.

The Clements Committee's recommendations were not too different from those put forth by the heads of the five senior service colleges in November, 1975. Clements, in a June 5, 1975, memorandum, asked the five SSC Commandants to study the curricula at the five institutions,
report their results, and develop research programs tailored to each
College's particular mission. Based on the Report of the Senior
Service College Curriculum Study, ICAF's curriculum underwent far-
reaching changes over the next several years. Among these -- some of
which will be discussed later -- were the (a) elimination of the annual
trip to the United Nations Headquarters, (b) elimination of the
International Relations Exercise, (c) elimination of overseas field
study, (d) introduction of defense industry studies, global resource
studies, and a curriculum-oriented faculty research program, (e)
increase in the number of mission-tailored electives offered, and (f)
restructuring of curriculum focus to emphasize mission-specific topics.

Despite these substantive recommendations, the one recommendation
which most affected ICAF's curriculum was the Clements Committee's call
for a University of National Defense with each college remaining
separate. Waterman (Interview, July 27, 1989) avers that the attempt
to foster a common core curriculum at each SSC failed because there
appeared to be no way to establish a common core that was not properly
a part of the mission-specific curriculum of one or more of the
colleges. Indeed, the field studies program as well as some of the
other curriculum changes quickly returned to their pre-COEE status.
Bayne: The Initiator

Vice Admiral Marmaduke G. Bayne, USN, NWC Commandant, was appointed as President of the National Defense University and charged with the responsibility of developing an implementation plan. His plan was approved by the Clements Committee in early 1976 with a new charter designating ICAF as "the only senior service college in the military education system dedicated to the study of management of resources for national security" (Bauer, 1983, p. VII-11). The mission of ICAF became "to conduct senior level courses of study and 'associated research' in the management of resources in the interest of national security in order to enhance the preparation of selected military officers and senior career civilian officials for positions of high trust in the Federal Government -- essentially an unchanged mission" (Bauer, 1983, p. VII-11).

Thus, school year 1975-1976 was the first to be affected by the Committee on Excellence in Education (COEE). The changes traceable to that group included a major increase in emphasis on what the Committee had identified as "mission-specific" parts of the curriculum -- the broad field of national security resource management and the supporting disciplines of general management, economics, and analytical techniques. The 75% of scheduled classroom hours traditionally devoted
to these areas was increased greatly, reducing to only 16% the treatment of the "environment."

The core curriculum was composed of four broad areas: (a) the "environment," (b) U.S. industry and its global resources context, (c) U.S. economic policy and the world economy, and (d) management of the U.S. defense establishment. Industry and global resources were combined in a fifteen-week unit II with greater emphasis on the defense sector of U.S. industry. Economic policy and the world economy, which was expanded to five weeks, was scheduled in late Winter and thereby benefitted from the President's economic report and submission of the Federal budget to Congress. Management of the U.S. Defense Establishment involved primarily study of management policies and philosophy. Subjects such as the DoD bureaucracy, managing men, money, and material, external influences and institutions affecting DoD activities, and managerial problems in the DoD were discussed and compared with like systems in selected foreign countries.

A principal methodology was the Defense Options Analysis Study Program in which each student group explored a selected defense management problem, identified and analyzed feasible alternative courses of action, and recommended and defended one for adoption (NDU Annual Report, FY 1976-1978, p. A-6).

Two computer-assisted simulations were used in the concluding unit of defense management. In a major departure from tradition, the overseas field studies program was eliminated because the Committee on
Excellence questioned its value. However, a newly developed one in military force design was tested by two groups of students.

The electives and research programs underwent major revision in school year 1975-1976. The individual substantive research project was made optional so that those who wished could take additional electives. Students who chose this route had to take the equivalent, in full semester and half-semester length courses, of at least five-and-a-half full courses. Also the elective courses of ICAF and NWC were opened to both student bodies. Fewer NWC students took ICAF courses than the opposite. Of the fifteen to twenty courses offered, most were designed and conducted by ICAF faculty. As might be expected, only 46 of the 199 students elected the research option. Nineteen papers were distributed to other agencies, nearly as many as the previous year when a substantial paper was required of all students. The ICAF Research Fellows Program came under the auspices of the new NDU Research Directorate and was redesignated the Associate Research Fellows Program. In this new form, applicants from both ICAF and NWC were screened (academic background and career experience) and permitted to waive portions of their elective courses to devote time to their research projects.

_Perspectives in Defense Management_ was discontinued with the advent of the NDU and was replaced by a National Security Affairs Monograph Series designed to publish papers written by University
researchers, faculty members, and students. One such monograph was published in 1976.

Between 25 and 30 students participated in the cooperative degree program, continuing the steady decline due to increasingly larger numbers of students entering with advanced degrees. Each student received nine credit hours for completion of the ICAF core program and nine credit hours for accredited electives and/or an acceptable thesis. The research paper, optional for all students, could be developed into a thesis and meet the requirements for both ICAF and GWU.

The College was now headed by a two-star officer, who reported to the NDU President (three-star). A senior Foreign Service Officer advised on State Department and foreign affairs matters. A military Chief of Staff, who also functioned as the Dean of Students, coordinated academic and administrative programs with staff and faculty, supervised student activities, and served as Acting Commandant in the Commandant's absence. A military administrator headed a small Department of Academic Support. Academic programs were conducted by four academic departments, each headed by a senior military officer. Curriculum planning, development of education policy, program-oriented research, plus other operating and coordinating functions were done by the Department of Curricular Development and Research. Overall coordination and direction of academic programs was vested in the Faculty Board which was comprised of the department heads, State
Department advisor, Chief of Staff, Administrator, and chaired by the Commandant.

Recommendations made by the September 15-16, 1976, joint meeting of the ICAF and NWC advisory boards were to have a substantial effect on ICAF's program direction. Among the recommendations which emerged from this joint session were: (a) the size of the NDU Board should be 16 members or larger; (b) elements of the Board should be oriented to serve the needs of each College; (c) adequately supported research was desirable as a learning experience for faculty and students as a means of bringing the intellectual powers of NDU to bear on subjects of major national importance; (d) there should be more student debates as part of the methodology; (e) distinguished scholars from other institutions should be brought in for short periods of time; and (f) efforts to combine ICAF and NWC or reduce them to training institutions should be opposed.

Potential direct influence on curriculum content also resulted from this joint session. In addition to the above general recommendations, the conferees suggested that the academic program deal with topics such as the shrinking industrial base, fuels and their conservation, technology, political, economic, social and strategic consequences of foreign military sales, and the nuclear proliferation which might result from energy shortages.

School year 1976-1977 saw the reestablishment of the 75%-25% ratio between the core and the "environment" emphasis. The academic program
began with a short introductory unit where a selective examination was done of resource management at the global, national, and defense levels, with a concluding written exercise on national goals and strategies. The time allocated to the unit on Economic Policy and the World Economy was reduced from five to three weeks.

"New" methodological approaches were developed which stressed active student participation and involvement versus passive learning. The Schomburg revolution initiatives had been allowed to atrophy. Also identified as goals were intellectual rigor, especially in analysis and evaluation of information, a problem-solving approach to learning, and development of problem-solving skills. This was to be achieved by use of formal techniques of quantitative analysis, use of real world situations and problems, cases, simulations, and problem exercises. These too were virtually identical in intent to the Schomburg-era revolutionary changes.

The fundamental ideas reading and discussion program which had begun in school year 1972-1973 was required of all students. Three classic works from a list of six authors (DeTocqueville, Machiavelli, Adam Smith, Marx, Clausewitz, and Mahan) were read and discussed in an effort to provide a historical perspective and to balance off the rest of the curriculum of contemporary issues. Thus, the changes made largely reflected the College's decision to study selected subject areas in greater depth and eliminate areas not considered essential to the new methodological approach.
Simulations on weapon system acquisition and force design were again offered, but students could choose between the two. Further, the force design exercise was broadened to culminate in a joint exercise with NWC students so that resource management and strategy formulation could be played. The concluding unit on Defense Management again featured the Defense Options Analysis Study Program, but also included a Final Synthesis which compared U.S. and Soviet capabilities and potential. Field studies were revived after having been eliminated the previous year. However, the "new" program stressed research as a focus and supported both the Defense Options Analysis Studies Program and the Final Synthesis (NDU Annual Report, FY 1976-1978, p. A-6).

Electives and research programs were basically the same as the previous year, although the number selecting a major research project declined markedly. Enrollment in the cooperative degree program held steady with between 25 and 30 participating.

The establishment of NDU led to chartering of a single advisory board for the University in January, 1977. This new board had 18 members, with subcommittees having special cognizance for each of the two colleges. The subcommittees met separately, as needed, to provide counsel to the respective Commandants, and met jointly in plenary sessions to advise the President of NDU. The full Board met on September 15-16, 1976, and the MECC met on November 13, 1976.
Gard: Schomburg Reincarnated

Lieutenant General Robert G. Gard, Jr., became president of NDU on February 1, 1977, and served until July 15, 1981. During his tenure NDU doubled the number of elective courses, improved faculty credentials, established the Office of Dean of Faculty and Academic Programs in both ICAF and NWC, organized the Executive Development Office, and expanded NDU's research programs (NDU 1981-1982 Catalog, p. 8). Available information suggests Gard had an extraordinary amount of influence on ICAF. In addition to having specific interests akin to those of Schomburg, the relative strength and influence of the ICAF Commandants were minimal. Over Gard's tenure, there were three separate ICAF Commandants, each of whom served about one year. Such short tours of duty suggest that these Air Force officers actively sought reassignments.

In school year 1977-1978, the "environment" got still more attention, exceeding its traditional 25% of curriculum time. The formal treatment of the environment expanded to about nine weeks and emphasized controversial issues, use of formal analytical techniques, crisis management (three historical cases), group study and writing requirements. The traditional study of industry as a fundamental element of national strength was virtually excluded. This continued the shift from the study of management principles and techniques as reflected in the business community to a broader examination of management practices in both the private and the public sectors. Field
studies and fundamental reading programs were continued, as was the three-week unit on Economic Policy and World Economy. However, plans were made to eliminate this latter unit in the coming school year.

In addition to the two computer-assisted exercises on weapons system acquisition and force design, a new more complex exercise was used which paralleled the usual one in resource allocation by competing business firms. This M.I.T.-Sloan Management Exercise was deemed highly successful. Additionally, the section on global resource studies included a role-playing computer-assisted simulation of national energy policy formulation. Altogether, ICAF students participated in six computer-assisted simulations over the academic year.

The electives program was oriented more closely to ICAF's mission and the approximately 55 courses focused primarily on public sector management, economics, resource management, and analytical techniques. Students who chose the research option had to take three electives and those choosing the non-research option had the requirement increased to five. Again, the number electing a major research project declined markedly. The cooperative degree program experienced a slight upturn, but the number participating still did not exceed 30.

Although the instructional methodology remained essentially the small group variety, active learning techniques continued to receive great emphasis because Card strongly favored active learning. This active learning concept required a different definition of the ICAF
faculty member. The 1977 NDU Catalog described the faculty member as "more than an instructor -- a guide, catalyst, and resource person who provides information, direction, and stimulus for students to think their own way through their educational tasks and to learn from one another...and, required to be adept in leading and stimulating round table discussions, guiding case study and discussion, organizing and conducting simulation exercises, field studies and group study projects, directing student presentations and individual research projects, developing bibliographies, selecting readings, preparing syllabi, and writing original course material" (p. 41).

Such abilities were not to be found in some faculty members and over the next several years, professional development programs were designed and implemented so that all faculty who could "change" were given the opportunity to do so. As late as the mid-1980s there was at least one faculty member who, it was felt, had never gotten beyond the "administrator" role and was subsequently "encouraged" to retire.

Card felt that greater reliance should be placed on the student's own capacity for self-direction and the College should continue its effort to achieve more rigor and sophistication in analysis techniques (NDU Annual Report, FY 1976-1978, p. A-3). Further, he believed that statistical analysis for decisionmaking purposes was more important for students than mere executive-type review.

One methodological change which was referred to as "imaginative" was that used in the Economic Policy and World Economy Unit. Three-
person teams, in a student-centered activity, examined the economic ramifications and national security implications of various policies for dealing with a selected hypothetical issue (e.g., a concerted effort to balance the Federal budget...). The teams used a macroeconomic computer model of the U.S. to project the effects of given policy decisions on such variables as the Federal budget deficit, and then assessed the national security implications of their proposed solutions. Each team developed three alternative outcomes for its study: a "most likely" or base case, an "optimistic" case, and a "pessimistic" case -- each team member developing one. Each team then made a presentation to its classroom section which was followed by discussion and an instructor critique (NDU Annual Report, FY 1976-1978, p. A-5).

The Department of Curricular Development and Research was disestablished in the Spring of 1978 and the Dean of Faculty and Academics assumed responsibility for development and conduct of academic programs. The Chief of Staff was redesignated as Dean of Students and Administration and assumed responsibility for student affairs and non-academic administration. Under his supervision were a Director of Administrative Services for administrative tasks and a Director of Academic Services. The responsibilities of the latter included faculty development, advanced degree programs, coordination of elective programs, student evaluation, ICAF participation in NDU non-

A new Board of Visitors was established in May, 1978 consisting of an NDU Panel with up to 14 members and the Defense Intelligence School (DIS) Panel with up to eight members. This was done to comply with a DoD push to reduce the number of federal advisory committees. The NDU President served as the executive agent for the JCS in coordinating the advisory functions of the Board. This Board met on November 1-2, 1977 and the MECC met on October 7, 1977 and February 24, 1978.

The statement of objectives contained in NDU Annual Report, FY 1978-1979 outlined a multidisciplinary curriculum with courses in economics, public administration, quantitative methods, manpower and personnel management, industrial mobilization and defense materiel, and systems management (p. A-2). This was a reflection of the JCS's recommendation that increased attention be given to mobilization planning and coalition warfare. This objective, combined with the goal of assisting students to make successful transitions from operational or relatively narrow functional skills to executive-level decisionmaking skills, resulted in only marginal changes in the curriculum.

The first of the four-phase curriculum units, The Management Setting for the Federal Executive, was an eight-week course on the uniqueness of the executive function and was public-sector oriented to establish an understanding of the federal executive's perspective.
Phase II, The Strategic Environment for Decisionmaking, seven weeks in length, looked at the external factors which bore on national security decisionmaking. Concurrently, a Regional Resource Studies Program was conducted, which involved individual and group research of selected world regions having potential resource significance to U.S. strategic interests. Phase III, the National Security Managerial Process, focused on the defense program manager with emphasis on his relationship with external agencies. Further, it explored the triangular relationship of Congress, the defense industrial base/suppliers and the defense manager. This phase included the Defense Industry Analysis, a program of 12 student task forces which analyzed major defense cases, e.g., military tank production.

Phase IV, Management in the DoD, was an in-depth exploration of major DoD management systems, e.g., the Joint Strategic Planning System. It contained a Human Resource Management block which emphasized human resource management in DoD. The Weapon Acquisition Process was also studied and culminated in a Weapon Acquisition Simulation (WAS) where students made decisions on trade-offs between cost, schedule, and technical performance characteristics associated with the development, acquisition, and support of a major weapon system. In this fourth and concluding block, ICAF students participated with NWC in Joint Strategy Resources and Deployment and Employment Exercises. Additionally, in a Defense Management Issue Analysis (DMIA) program, 12 student task forces were assembled in early
December, 1978, and for the remainder of the academic year, studied specific defense management problems such as All-Volunteer Force Management and Surge/Mobilization.

Although ICAF no longer had its own simulations and ADP entity, the new NDU Decision Systems Directorate supported ICAF with both administrative requirements and simulations support. This directorate supported ICAF's six computer-based exercises and offered basic mathematics courses for those students with weak backgrounds in mathematics.

The NDU Policy and Evaluation Committee selected three Associate Fellows from ICAF to undertake special research in lieu of other elective programs (NDU Annual Report, FY 1978-1979, p. C-2). In the basic research program, students had the opportunity to undertake in-depth research, analysis, and writing in defense resource management areas with faculty guidance, assistance, and direction.

As in the previous year, students could choose between a research option and an electives option. Students had full access to NWC electives and enrolled in a diverse elective program of courses. Most electives concentrated on the study of economics, management, human resources, quantitative approaches to decisionmaking, national defense environment, and national defense management studies.

An expansion of possible future offerings of an executive development nature was occasioned by the establishment by Gard of an NDU Executive Development Office (EDO). Its initial charter, which
included career planning and assessment, was later expanded to embrace areas such as stress management, health and fitness, nutrition, and most of the remedial programs such as effective listening and writing.

Symptomatic of continuing interest in improving the educational program was the convening of an NDU Conference on Professional Military Education on May 8, 1979. There were no changes in the Board of Advisors which met on October 12, 1978, or the MECC which met on March 13, 1979.

The same multidisciplinary model was used again during school year 1979-1980. The mission statement reported in NDU Annual Report, FY 1979-1980 explicitly included "to appreciate the problems and capabilities of the industrial base in procuring materiel for defense" (p. A-2). This aspect had been dealt with in school year 1978-1979, but in Phase III, The National Security Managerial Process.

The core program, for the first time, began with an 11-day introductory period devoted to executive assessment and skills development. According to Beckstead, Gard had a special interest in applied behavioral science. Therefore, curriculum planners were directed to include personality measurements, group dynamics and interpersonal skill training. Since there are only ten months in the school year, whenever something new is inserted into the curriculum, something has to be deleted. In this instance, economics appears to have been the loser in the struggle for exposure. The remainder of the
core program consisted of four phases running consecutively with the
four major phases, an electives program, and the research program.

Phase I, The National Security Environment, was a 14-week
examination of political, economic, and social factors in both the
domestic and international spheres. Included in the six modules of
this phase was the Regional Resource Studies Program. Phase II,
Defense Materiel Management, was a ten-week treatment of the systems
acquisition process and the defense industrial base. The Weapons
Acquisition Simulation was the culminating feature of the module on the
acquisition process. Phase III, Defense Manpower Management, took five
weeks to explore human resources for national security, and focused on
objective, quantitative factors of personnel management as well as on
behavioral factors such as motivation, commitment, and dysfunctional
behavior. Phase IV, Mobilization Management, consisted of a nine-week
exploration of mobilization issues, military logistics issues, resource
management systems of DoD and JCS, and concluded with an ICAF/NWC Joint
Strategy and Resource Exercise. This marked the beginning of a renewed
emphasis on mobilization planning and industrial preparedness.

In the DMIA, 17 student task forces addressed key management
issues from October through May. After a full program of study, guest
experts, and field visits -- domestic and overseas -- each student
group reported its findings to the entire student body.

Fifteen students opted for research projects, five of whom were
Associate Research Fellows under NDU's Research Directorate. Each
student was required to take six units of electives; each unit equalling one semester length course. However, students could substitute a research option for one or more elective courses. The number of elective courses for which research effort might be substituted was determined by the scope and extent of the research effort. There were 26 courses offered in the Fall and 36 in the Spring, and students had full access to NWC electives.

Students participated in two major computer-based simulation exercises; Energy and Weapons Acquisition, and other computer-assisted exercises were introduced in specialized elective courses. Additionally, a major revision of the Weapons Acquisition Simulation was initiated. All students again participated in the Joint Strategy and Resources Exercise at year's end with NWC. All students were required to enroll in a 12-session foundation quantitative techniques course, or if not needed, one of the advanced specialized topic courses.

Instructional methodology continued to stress case studies, lectures, student exercises, discussions/seminars, and a number of written and oral reports. The College believed that this active learning mode supported the underlying concept outlined in NDU Annual Report, FY 1979-1980, "managerial effectiveness in the public sector demands a unique capacity to apply rigorous problem-solving techniques in complicated and confused decisionmaking environments, where the
degree of complexity increases markedly as managers move upward in the bureaucratic structure" (p. A-2).

The NDU Panel, as well as the NDU/DIS Board of Visitors, met on November 8, 1979. Listed for the first time as a consultant to and member of the Board was the distinguished adult educator, Dr. Malcolm S. Knowles.

Major General James E. Dalton, USAF, assumed duty as Commandant in July, 1980. Reportedly, Dalton came from the JCS with the specific intent to put the study of mobilization squarely back in the academic program. Further, he was said to have come with the unqualified support of the CJCS, General David Jones, and was sure to return to the JCS after getting his third star.

School year 1980-1981 was mostly a rearrangement and retitling of courses, but five weeks were added to the core program. Three weeks were added to Phase I, The National Security Environment. This 14-week program, as in school year 1979-1980, analyzed the domestic and international environment in which national security policy was formulated and managed. The Strategy and Resources Policy Analysis was conducted in Module B of the Phase's three modules. Phase II, Defense Materiel Management, was four weeks versus the five of the previous year and emphasized how DoD managed the "things" of war, i.e., the major systems acquisition process. Case studies, as well as the Weapons Acquisition Simulation, constituted the principal methodologies.
Phase III, Defense Manpower Management, took nine weeks versus five the previous year, and focused on the decisionmaking process as it pertained to managing human resources. The three modules dealt with the macro-management of manpower, the critical organizational processes which affected human resource management in DoD, and specific contemporary personnel management issues such as drugs, alcohol abuse, women and minorities, and the ethical dimension of leadership.

Defense Industry Analysis, a six-week examination of the defense industrial base, was this year's Phase V, but was in Phase II the previous year. The major effort was a series of student committee analyses of industries such as ships, rail and highway, and machine tools. Phase V, Mobilization Planning and Management, was an eight-week study of mobilization issues, military logistics, and resource management systems. The culminating Joint Strategy and Resource Exercise was designed, as in the previous year, to supplement and reinforce work in earlier phases.

Perhaps the identifying aspect of this year's curriculum was the specific and concerted effort to incorporate mobilization as a major subject of interest in all College research and academic efforts. According to Beckstead, Dalton was the principal force behind this initiative.

A series of actions served to energize this determined push. A Mobilization Catalyst Group was established to integrate mobilization themes throughout the curriculum and develop mobilization themes for
inclusion in future curricula. The College developed a concept for a
Mobilization Simulation Exercise and secured OSD funding for the
project. The plan called for an annual exercise, preferably in
conjunction with the Annual Mobilization Conference, which would
research the capabilities of the industrial base and develop means to
intervene and break up bottlenecks. A Federal Emergency Management
Agency (FEMA) Fellowship Program was established, with the National
Security Council (NSC) and with the support of the military services.
Four military officers from the class of 1981 were assigned to FEMA for
one year to participate in FEMA policy formulation and managerial
activities. Additionally, the planned curriculum for school year 1981-
1982 was reformulated to ensure mobilization was integrated throughout.

Several non-curricular actions were also taken to facilitate the
development of the mobilization theme. Faculty disciplines were
organized into cluster groups for the purpose of developing first-hand
expertise in emergency preparedness planning and management. The first
ICAF Mobilization Conference was conducted in June, 1981 to provide a
forum for free exchange of ideas with the aim of improving mobilization
faculty internship program was set up to provide opportunities for
first-hand experience for members of the faculty clusters. Additions
were made to library collections on mobilization and emergency planning
and management. Senior staff and faculty were assigned to work with
the Mobilization Research Support Group (MSRG) which was established by
the National Security Council (NSC) for the purpose of formalizing ties with senior service colleges. Finally, an Assistant Dean for Mobilization Management was appointed under the Dean of Faculty and Academic Programs, with responsibility for the Mobilization Studies Program and for Phase V.

Foundation quantitative courses increased from 12 to 14, and all students were required to enroll in one of them unless their background argued for their placement in an advanced course. Students participated in three major computer-assisted exercises: Energy, Weapon Acquisition, and Strategy and Resources. The latter two were extensively revised. The Manpower Mobilization Model, which was developed, tested, and documented for inclusion in the school year 1981-1982 curriculum, was planned to analyze a wide array of mobilization policies in different mobilization scenarios.

The research program operated under the same ground rules as the previous year but with eight more electing research projects (23 vs. 15 the previous year). Four of these operated under the auspices of the NDU Research Directorate. The electives program operated essentially as it had the previous year, with slightly fewer electives conducted when Spring terms were compared.

The Board of Visitors and MECC were unchanged. The MECC met on November 18, 1980 and the Board, again had Dr. Samuel P. Huntington, Harvard's Director of International Affairs, and Dr. Malcolm S. Knowles, as members.
Pustay: Mobilization, Research and Rigor

With the arrival of Lieutenant General John S. Pustay as NDU President for school year 1981-1982, several changes were made which affected ICAF. According to Colonel (Dr.) Barry M. Landson, USAF, Dean of Faculty and Academics, Pustay had arrived with a message from the JCS which directed ICAF to change its curriculum thrust back to mobilization and away from the MBA flavor it had acquired. Therefore, the push started by Dalton the previous year gained momentum from yet another activist and involved NDU President.

The re-emphasis on mobilization was not as thorough as it may have been for at least two reasons. Students coming to ICAF were convinced that there was little value to be derived from studying a subject which was not taken seriously within the defense establishment. This was not incorrect because the number of influential national security officials concerned about mobilization was small. Industry was no different. On field trips to a variety of industrial entities, highly-placed executives were asked if they had surge or mobilization plans. All of them said no and proceeded to justify their positions. Invariably their responses included their belief that to prepare beforehand for surge capacity was too costly, and further, plans and necessary actions could begin when and if it became necessary.

Submerged in all this was the latent, and sometimes expressed, view that ICAF was expected to study the stodgy subject of mobilization
while NWC was the glamorous school of national strategy and policy. The second-class appearance did not appeal to ICAF students.

In any case, all activities were refocused to give primary emphasis to mobilization. Intellectual rigor was stressed and the chief means of attainment determined as demanding research on substantive DoD issues. The educational philosophy enunciated by Pustay called for a "commitment to educational excellence in the study and research of national security with increased emphasis on joint and combined military operations. And that study was to emphasize relevance, intellectual rigor, creativity, involvement and improved management of resources" (NDU Annual Report, FY 1981-1982, pp. 3-4). Additionally, Pustay put the students back in uniform. Heretofore, students had been permitted to wear civilian clothes unless a very senior or distinguished person was to be a guest of their respective colleges. However, Pustay felt that students should wear their uniforms to show pride in their individual Services and to emphasize jointness as a key component of professional development (NDU Annual Report, FY 1981-1982, p. 3-4). This action very possibly served to inhibit free and frank discussion.

Insofar as ICAF was concerned, its task continued to be one of joint study of management resources for national security preparedness and mobilization planning. The core program was expanded to six phases, and a new Mobilization Studies Program (MSP) initiated which placed year-long emphasis on mobilization via individual and group
research projects. The stated purpose of the MSP was to "further the intellectual growth of students and faculty and afford opportunities to explore actual critical mobilization issues" (NDU Annual Report, FY 1981-1982, pp. 3-4). Mobilization as a course of study was set once again to bloom into full flower.

Phase I, Public Executive Perspective, was an assessment of career development plans and development of executive skills, especially the sharpening of interpersonal and decisionmaking skills. Phase II, National Preparedness Planning, gave students the opportunity to do in-depth study of mobilization research in contemporary preparedness policy. Phase III, National Resources Policy, required students to develop insight into the policy environment and decisionmaking processes that affected the efficient management of resources at the national level. Three exercises -- Energy Policy, Congressional Representation and Strategy Resource Policy Analysis -- were used to illustrate the complexity and ambiguity of the public policy formulation process.

Phase IV, Manpower Resources Management, dealt with the traditional manpower and organizational issues, but these issues were approached from an analytical perspective under wartime and peacetime conditions. An entirely new simulation was introduced and titled, the Manpower Mobilization Exercise (MME). Phase V, Industrial Resources Management, examined the major weapons acquisition process and the industrial base. In addition to the usual Weapon Acquisition
Simulation (WAS), this block included a Defense Industry Analysis (DIA) program where major defense cases and their industries were examined. Seminars and on-site study were synthesized with group reports and briefings to the assembled student body.

A new curriculum block, Mobilization Planning and Management, constituted Phase VI. This return to the central theme of mobilization planning and management, examined strategic resources management systems by assessing the status of specific managerial issues related to manpower systems, logistic management, weapon system readiness, and the capacity of the industrial base, as those issues affected mobilization planning and management processes. The culminating learning experience was a joint ICAF/NWC Strategy and Resources Exercise which replicated a Presidential Task Force charged with development of a military strategy for the mid-range timeframe, followed by determination of a force posture to support that strategy.

International field trips were reinstated and their length increased from five days to eight days. In addition to a Mobilization Studies Program orientation early in the year, there were specific days throughout the year when students actually conducted their research.

Instructional methodology was not changed materially, but more emphasis was placed on creativity in the learning process. Four elective courses on creativity were developed and offered and these highly successful and intellectually demanding courses approached

The departments received specific names: Resource Policy Analysis, Organizational and Personnel Management, and Materiel and Systems Management. Additionally, two new constituent groups were organized and set in motion. A student council was established which had as its purpose to advise the Commandant on student problems and assist in organizing and coordinating student activities. Also, an NDU Foundation Board of Directors was organized and held its first meeting on July 23, 1983. This foundation, officially chartered in July, 1982 in the District of Columbia, held promise for exerting substantial influence on ICAF's curriculum. It was established for charitable and educational purposes as well as to encourage support and further the educational and professional goals and traditions of the NDU. The NDU Foundation was expected to support educational conferences and lectures, fellowships and professorships, research, writing and academic awards, faculty and student publications, student athletic programs, receptions and end-of-year functions, and faculty enrichment (NDU Catalog, 1982-1983, p. 13).

Curriculum input was also received as a consequence of the recommendations flowing from the Board of Visitors which met on December 1, 1981, and the MECC which met on December 15, 1981, and April 9, 1982. Additionally, a PME Conference was held at NDU on February 4-5, 1982.
The NDU Catalog which greeted students in the class of 1983 set the tone for their course of study. On page 4, the declaration was made that all of NDU's initiatives had been guided by an educational philosophy that embodied a commitment to educational excellence in the study and research of national security, with increased emphasis on joint and combined military operations. Pustay's emphasis on "rigor" reappeared in a description of this commitment. Hence, one finds on page 4 words crafted or blessed by Pustay, "this commitment is being fulfilled through a program of study, research and professional activities that emphasizes relevance, intellectual rigor, creativity, and expanded student involvement in the learning process."

In his annual report to the JCS for school year 1982-1983, Pustay restated the goal for ICAF as one of intellectual rigor and the means of attainment as "demand for excellence" in research. The word "joint" was omitted, but that was most likely an oversight and not intended to mean that jointness was no longer a desirable end.

According to this same report, the core program was strengthened by more emphasis on the strategic military component of mobilization and tailoring of the study of domestic and international factors which impinged on mobilization decisions. These changes reportedly reduced redundancy and complexity, and increased rigor in mobilization management studies. Additionally, manpower resource management instruction was streamlined, with more emphasis given to mobilization aspects of manpower. Industrial Resources Management also received
considerably more emphasis in that industrial preparedness was examined in greater depth and the joint military planning and execution exercise was substantially redesigned (NDU Annual Report, FY 1982-1983, pp. 4-5).

In sum, the core program was reduced from six to five phases and National Preparedness Planning and National Resources Policy were combined into a new Phase II, National Security and Mobilization Management. Manpower Resources Management thus became Phase III, Industrial Resources Management became Phase IV, and Phase V, which had been Mobilization Planning and Management, became the Joint Training and Exercise.

An analysis of the various phases illustrates how "rigor" was sought. Phase I, Public Executive Perspective, was expanded to increase coverage in the art of negotiation, creativity, and ethics. However, each student was now required to write a paper on his/her personal and professional perspectives and goals. The stated purpose of this new and increased writing requirement was to enhance writing skills and cause more intensive application by students. This phase also included the economics block of instruction which had heretofore been covered in the electives program.

In Phase II, National Security and Mobilization Management, the National Energy Policy Exercise was deleted and the scope of the Regional Studies Program was reduced. Phase III, Manpower Management was reduced to 27 days, but students were subjected to more intensive
effort and more emphasis on mobilization aspects of manpower and on ethics. A new writing requirement was introduced, and students wrote papers on what they felt were the most important manpower issues of the 1980s. Phase IV, Industrial Resources Management, was expanded by nine days, with increased emphasis on logistics and the weapons acquisition process. Phase V, Joint Training Exercise, took up 16 days and was joint with NWC. The scenario was revised, documentation consolidated and reduced, pre-exercise training for faculty and students improved, and the war/crisis gaming portion automated.

Microcomputers were introduced to the NDU during this school year 1982-1983. Portable computers were rented and provided to students who took the elective on computer applications. Students also used these microcomputers in their research projects and exercises.

Indicative of the continued interest and emphasis on mobilization, 24 students participated in a national mobilization exercise, Proud Saber/Rex 82B. Also, the second annual Mobilization Conference was held on November 29-30, 1982, and over 250 participants from U.S. and foreign governments, industry, trade associations, universities, and research centers participated.

All students were required to participate in either an MSP or other research relevant to the ICAF curriculum. The number of mobilization-related individual and group projects rose from 31 in school year 1981-1982 to 51 during this school year. Only 11 students participated in the cooperative degree program and this very small
number was attributed to the high cost -- GWU tuition had risen sharply and veteran’s benefits no longer covered most of the cost.

The Board of Visitors met on November 22, 1982, and the MECC met on October 15, 1982, February 24, 1983, and on March 8, 1983. The NDU Foundation Board of Directors, which met on October 22, 1982, February 4, 1983, and June 10, 1983, was by now firmly involved in supporting educational conferences, special lectures, fellowships, and research and writing awards.

In support of continued faculty development and professionalization, a distinguished professorship was established in the name of Mr. J. Carlton Ward, the longtime supporter and Board of Visitors' member. Ward, who was by now 90 years old, attended the installation of the first chairholder, Dr. Ralph Sanders. Additionally, a JCS Chair of Military Studies was established to recognize outstanding performance by military faculty members and Colonel (Dr.) Robert Sigethy, USAF, Dean of Faculty and Academics, was named the first chairholder.

The curriculum change process for school year 1983-1984 can best be described as evolutionary. Other than the more comprehensive integration of microcomputers into the academic program and the movement of instruction on foundational economics and computer usage into the core program from the elective program, changes were mostly incremental.
Phase I, Executive Perspective, was modified to place greater emphasis on the art of negotiation and on creativity in decisionmaking and problem-solving. The phase was also modified so it could be conducted in joint seminars with NWC. Other than the joint end-of-year simulations, this marked the first instance where joint core classes were held. Phase II, National Security and Mobilization, offered a realigned perspective of the Soviet Union and placed greater emphasis on mobilization concepts, models, and principles. An operational flavor was added via an expanded review of the interrelationships of strategy, logistics, and mobilization, and an exercise where students were required to develop the logistics implications of a scenario. Additional time was also built into the Regional Studies Program so that students could share with each other their acquired knowledge of the various regions of the world.

Phase III, Manpower Resources, was slightly reoriented to place greater emphasis on the Total Force Policy and the interdependence of the Active, Reserve, and governmental civilian labor forces. The MMC was also adjusted to reflect this emphasis on the growing realization that the active forces could no longer carry out the warfighting aspect of national security without the immediate and substantial help of both the Reserve Forces and the civilian component.

Phase IV, Materiel and Systems Management, contained a revised and improved systems acquisition exercise (SAFE) which shifted the focus to a higher management level and increased the use of the supporting
computer program. The SAFE exercise was upgraded to be more interactive and reflect current economic and political scenarios. Phase V, Strategy and Resources Exercise, entitled "Prudent Stride," was modified because of previous years' problems. A major part of those problems was remedied by preceding this year's exercise with a week of preparation which included a series of JCS lectures on current regional political-military situations (The NDU Report, 1983-1984, p. 4).

The MSP program required each student to participate in a substantial research project. Papers were prepared by 10 large groups, 13 intermediate groups and 48 small groups or individuals. Six of the papers were chosen for awards. Students still were required to take at least three elective courses per semester and could choose from either ICAF, NWC or NDU elective offerings. ICAF conducted seven semester length and six half-semester length electives in the Fall, followed in the Spring by 13 semester and five half-semester length courses. The field studies program continued largely unchanged, with 12 industry study groups.

Instructional methodologies were essentially the same, except that the traditional College lecture program was supplemented by a new NDU Distinguished Lecture Program (DLP) which featured such personages as the Secretary of State, Secretary of Defense, Chairman-JCS, the four Service Chiefs, and the National Security Advisor to the President.
The NDU Board of Visitors met on November 29, 1983, and was briefed by the NDU President and the three College Commandants. An MECC Working Group and the Intermediate MECC met on two occasions to draft a new PME policy document. These meetings were followed by an NDU-hosted meeting of the MECC and Intermediate MECC principals on January 25, 1984, at which time the new PME policy document was approved for forwarding to the OJCS. The finalized document was later issued by the JCS as guidance for all PME institutions (NDU Annual Report, FY 1983-1984, p. 29).

Several NDU organizational changes affected ICAF's curriculum. A new Institute for National Strategic Studies was chartered in 1984 which linked student research capabilities with those of other University Centers and the Research and Publications Directorate. Lieutenant General Richard Lawrence, USA, who had become NDU president on September 30, 1983, was not satisfied with the fragmentary approach to the development of NDU courses for the two Colleges. To remedy this situation, he created a Directorate of Academic Affairs in March, 1984, to oversee and coordinate development and execution of NDU's portion of ICAF's and NWC's curricula. Additionally, a new Academic Plans and Policy Office plus the established Executive Development and Extension program functions were placed under the supervision of the new Director of Academic Affairs. Illustrative of the circular nature of organizational change, the office of Chief of Staff was reestablished to combine all support functions under a senior officer.
During school year 1983-1984, several ICAF faculty members attended an NDU-sponsored faculty development seminar on "Case Teaching and Development," which was taught by professors from Harvard University, the Kennedy School of Government, and the University of Chicago. A more indirect influence on future ICAF curricula resulted from the establishment of the Office of Public Affairs in March, 1984. This office achieved NDU's first major success in getting national print and broadcast media coverage. However, this was not ICAF's first exposure to the national media because it had been featured in several journals and newspapers early in its history.

The effort to relieve the severe overcrowding of both ICAF and NWC facilities was well underway. NDU had occupied major portions of College facilities which resulted in cramped student offices and less classroom space. A new Academic Operations Center which was expected to remedy this problem was three-fourths designed. Construction was programmed for FY 1986, but as became obvious later, this was not to be.

Perhaps the major innovation in the curriculum for school year 1983-1984 was the full integration of microcomputers into the academic program. The 250 microcomputers which were loaned to NDU by the NDU Foundation enabled both ICAF and NWC to provide computers to a large majority of the students, especially those who took the elective computer awareness and literacy courses.
Between 1975 and 1984, the new National Defense University had a major influence on ICAF and its academic program. Much like Orwell's 
1984, NDU had served as the "big brother," looking over ICAF's shoulder. The three strong University Presidents introduced a number of organizational and curriculum changes. Throughout, the recommendations of the Clements Committee on Excellence in Education and JCS guidance provided overall direction.

Efforts were made to divide College curricula into three separate but related sections: one-third common core with all other senior service colleges, one-third mission-specific, and one-third electives and research. An attempt was made to return to an action-oriented, demanding, and challenging educational program. Additionally, defense management problems again became the focus of attention for students and faculty. However, a balance was sought between current issues and fundamental truths. This aspect of ICAF's educational philosophy was illustrated by the study of classics in military thought such as Mahan's *History of Seapower*, Sun Tzu's *Art of War*, and Machiavelli's *The Prince*.

A most striking modification of curriculum content was the applied behavioral science material inserted by Gard. It was his belief that senior-level officials would be better policy- and decisionmakers if they understood others and themselves in terms of now personalities
differed and how to foster win-win interpersonal relationships. This has been institutionalized over the years in the Department of Organizational and Personnel Management and the Executive Development Office.

It was during this period that computer technology became an integral part of the curriculum. Use of the computer for information management and aid to decisionmaking enabled ICAF graduates to better manage men, money, and material in follow-on assignments.

Mobilization, which had been in and out of the academic program was again made the primary theme -- and with a vengeance. Massive retaliation with nuclear arms had long since been replaced by a limited/conventional conflict notion. Thus, the issue of being prepared to surge the capacity of both DoD and industry was felt to be a necessary part of the educational experience of ICAF graduates. The cost and scarcity of required defense materials made it necessary to deal with issues of where the resource was located, whether it could be gotten, and how much would be needed in addition to the stockpile.

Also reappearing was the search for intellectual rigor by means of research on important defense issues. Research thus was an important aspect of the curriculum during this period as Pustay, himself a Ph.D., vigorously pushed the notion of academic excellence. To further assist in achieving this goal, Pustay created research and concept development centers which were designed to produce high quality papers and monographs on mobilization and strategy.
In summary, the wide-ranging influence exerted on ICAF and its curriculum by the National Defense University was a result of the involved and energetic Presidents, principally Gard and Pustay. Except for Antonelli who was ICAF's Commandant from 1975 to 1978, no Commandant stayed more than two years (most stayed for one year). In spite of this perennial problem of frequent turnover at the top, ICAF, in 1984, was poised to take its next step into a redefined joint and combined warfare world.
CHAPTER 6

SYSTEMS APPROACH AND JOINT/COMBINED OPERATIONS: 1984-1988

The mid-to-late 1980s were characterized by a number of social, political, and economic phenomena which materially affected ICAF's curriculum. The trend toward self-enrichment and fulfillment of superficial material desires continued. Often it seemed as if there was a scandal a day. In addition to defense procurement scandals, there were ethical lapses in money and banking and outright scams ranging from real estate to televangelism. Additionally, the gap between the super-rich and the rest of Americans grew larger and larger. This, along with changes in federal funding support for social welfare programs, resulted in growing numbers of homeless and hungry Americans. In the late 1970s and early 1980s, America had experienced a series of embarrassing military misadventures (Iran hostage rescue mission, Mayaguez, Grenada) which were portrayed as reflective of poor planning and organization of the armed forces. Further, the Cold War, now over 40 years old, showed definite signs of thawing.

Against this backdrop, the House Armed Services Committee (HASC) asked for an objective evaluation of the structure and functions of DoD. Specific reasons for the requested study were that (a) there had been no congressional review since 1958 and (b) knowledgeable persons were expressing concern over organizational and procedural deficiencies
in DoD. More specifically, the HASC cited (a) organizational failures
and deficiencies (poor inter-Service coordination, planning,
preparation and execution in Vietnam, the Iran hostage rescue mission,
and the Grenada intervention); (b) acquisition process deficiencies
(cost overruns, stretched out development and delivery schedules,
unsatisfactory weapons performance); (c) lack of strategic direction
(strategies and long-range policies of DoD did not appear to be well-
formulated and only loosely connected to subsequent resource
allocation); and (d) poor inter-Service coordination (programs of the
individual Services did not appear to be well-integrated around a
common purpose that clearly tied means to goals) (Staff Report to the
Committee on Armed Services, U.S. Senate, 99th Congress, 1st Session,

The study report concluded that because of the imbalance between
Service and Joint interests, the military departments and Services
exercised power and influence completely out of proportion to their
statutorily assigned duties. Naturally, this worked counter to any
attempt to get Services to work together and integrate their efforts
across mission and Service lines. This situation needed correcting but
the report further concluded that such a remediation was not possible
unless the mindset of officers was changed. Since officers are steeped
in the traditions and cultures of their own particular Services, a
concerted, planned, value-driven program would be required to reorient
officers to think in "unified" terms. Such a task was felt to be best
manageable by military education, training, and assignments -- all
aimed at producing officers with a multi-Service perspective and a
commitment to DoD (HASC Staff Report, pp. 8-9).

The recommendations which resulted from this study were
instrumental in leading to the landmark military reform legislation
known as the Defense Reorganization Act of 1986 which levied specific
requirements on the armed services PME system.

During the period 1984-1988 there were several other studies and
commissions which sought to reform the military. And, part of this
reform was directed toward creating a system of professional military
education which would be rigorous and designed to produce joint service
specialists for future senior policy-making responsibilities.

SYSTEMS APPROACH AS A CONCEPTUAL FRAMEWORK

School year 1984-1985 was marked by the introduction of the
"systems" approach to national security decisionmaking at the national
level. This focus of Phase I was intended to carry through the entire
school year, serving as the conceptual framework for the academic year.
However, except for a few instructors in the other departments, this
initiative was the sole possession of the Phase I faculty, primarily
members of the Department of Organizational and Personnel Management.

In revising Phase I, Executive Perspective, material was added to
focus on the interdisciplinary nature of national security issues and
the complexity of the decisionmaking system. Phase II, National Security and Mobilization, was substantially unchanged. Phase III, Manpower Resources Management, was changed a bit to keep abreast of the most current manpower issues. Primary changes focused on updating the MME and taking an increasingly harder look at the expanding role of Reserve and civil service personnel within DoD. For the first time, manpower chiefs from each of the Services were brought in to give their views on current and future manpower issues.

Phase IV, Materiel and Systems Management, continued to emphasize executive-level management of the systems acquisition process, with specific attention devoted to the allocation of scarce resources. The SAFE was improved by incorporating the principle of discounting for out-year costs. Phase V, Joint ICAF/NWC Exercise, was revised and conducted in two parts. The first part, a Strategy and Resources Exercise, focused on strategy formulation and force posture development within fiscal constraints, conducted separately by ICAF and NWC in the first week of December. The second part, the final academic activity of the year, was a Crisis Decision Exercise where mixed seminars of ICAF and NWC students addressed the mobilization and contingency responses to a deteriorating crisis situation (NDU Annual Report, FY 1984-1985, p. 3).

The electives program was the same as the previous year except that computer courses were expanded greatly. Nearly 95% of the students took one or more sessions of a 12-hour block of computer
literacy instruction during Phase I. In addition to two new and very popular electives -- Personal Financial Planning Using Microcomputers and Computer-Aided Decisionmaking for Executives -- an after-duty computer literacy program was offered to families. However, an entirely new elective was under development -- Studies in Joint Operational Art -- with plans to phase it into the core curricula of both colleges over the next three-year period. This program, which was briefed to and approved by the JCS in July, 1985, was expected to increase emphasis on the relevance of military history to issues involved in planning and conducting a theater level campaign (NDU Annual Report, FY 1984-1985, p. 28). According to this same report, there were no significant changes in either the research or field studies programs.

An infusion of new and different views of national security as found in foreign countries was made possible by the initiation of a new International Fellows Program. This NDU program was designed to broaden the academic experience of NDU students as well as a small select group of senior foreign officers by offering the latter an opportunity to attend portions of the ICAF and NWC curricula, and to conduct a traditional research project. A third order benefit was expected to be a cadre of foreign senior officers with an increased understanding of the objectives and considerations guiding U.S. national security policies. This was interpreted by some faculty as a well-orchestrated effort to cultivate friendly foreign governments. In
this 1984-1985 pilot program, six officers participated, representing the countries of Brazil, Egypt, Israel, Korea, Pakistan, and Saudi Arabia.

The NDU Board of Visitors met on November 9, 1984, and July 10, 1985, and the MECC met on July 12, 1984. By its assiduous cultivation of possible public information opportunities, the NDU Public Affairs Office increased by 100% its number of news media queries from worldwide print and broadcast press.

The Defense Reorganization Act of 1986 had a major impact on the College's curriculum, beginning with school year 1985-1986. According to Landson, Title III of the Act shared some of ICAF's responsibility while at the same time directing the CJCS to institute a rigorous program in jointness matters (actually joint operational matters and particularly warfighting). Prophetically, Lawrence had introduced joint and combined operations (JCO) in the ICAF and NWC curricula just prior to the Act of 1986. His previous assignment was as Commandant of the Army War College and JCO had been part of that curriculum.

In any case, the Dougherty Commission, headed by retired Air Force General Russell Dougherty, realized the dilemma faced by ICAF by now being directed along traditional lines and reaffirmed in the legislation (Title I and Title III) while simultaneously being directed in a different direction of joint warfighting by its subordination to NDU. Therefore, the Dougherty Commission singled out ICAF from among all ten senior and intermediate PME schools as one whose original and
continuing mission should be expanded to include that which was of continuing concern to ICAF and the CJCS (Landson, 1987, p. 8). This exception was deemed appropriate even though it created a situation where ICAF's mission did not fit the narrow warfighting congressional definition of "joint matters."

Parenthetically, ICAF had undergone a JCS Manpower Survey in the Spring of 1985. The findings of that survey were that ICAF was at maximum loading and any change of direction to incorporate an additional responsibility must either come at the expense of the traditional curricular responsibilities (mission) or increased resources. The Dougherty Commission clearly recognized that situation in changing the congressional definition to fit ICAF rather than the other way around (Landson, 1987, p. 9).

An entirely new course, Joint and Combined Operations at the Operational Level, was introduced as the first step in a three phase implementation of this new focus on warfighting issues facing the theater commander. Otherwise, the curriculum continued to undergo evolutionary change.

Phase I, Executive Perspective, was modified by the introduction of a case study on U.S. foreign policy in Central America, which was designed to introduce students to the complexity of issues at the national level and illustrate the fuzzy nature of the decisionmaking process. This exercise required students to take various cabinet roles and come to a consensus on major directions for U.S. policy in the
region. Phase II, National Security and Mobilization Management, continued to offer the opportunity to develop insights into the vital domestic and international environments affecting the formulation of national security policy, military strategy, and mobilization concepts.

Phase III, Manpower Resources Management, was modified to reflect the importance of looking outward. Two periods were added to examine Soviet manpower issues and two more were added where students dealt with international manpower issues. In this latter instance, International Fellows briefed their ICAF classmates on the geographical, cultural, and military aspects of their respective countries. The MME, which was augmented with new elements and updated databases, continued to be the synthesizing element of the manpower phase.

Phase IV, Materiel Resources Management, was again a study of defense-related industries as well as the executive-level management of the systems acquisition process. The SAFE simulation served to tie together the important lessons of that phase. A completely new SAFE was in the development testing phase. Phase V, The Future, although once again retitled, continued to be the phase which integrated all the year's learning experiences. The phase consisted of four modules: (a) a series of authoritative speakers and seminar sessions on future issues and mobilization; (b) a Strategy and Resources Exercise; (c) a Joint ICAF/NWC Crisis Decision Exercise; and (d) the annual
Mobilization Conference whose theme was The Role of Mobilization in National Security.

The domestic and international field studies programs, one week and ten days, respectively, were conducted in connection with the Defense Industry Studies Module of Phase IV. Two special travel groups composed of representatives from each of the 12 industry seminars traveled to South Asia and the People's Republic of China.

The MSP program required each student to participate in a substantial research project. Papers were prepared by 8 large groups (over 5), 20 intermediate groups (3-5), and 56 small groups/individuals. A new program of "research seminars" was instituted which were intensive graduate-level seminars on topics of particular importance to ICAF. Thirty-one students participated in four of these seminars on such topics as The World Rubber Industry and Integrating the Civilian Health Care System into Medical Mobilization Planning. Because of the belief that the research program could make a greater impact on problem-solving within the National Security Management structure, stronger emphasis was placed on agency involvement. This involvement consisted mainly of convincing the agencies to submit proposed research topics and serving as points of contact for student researchers.

As in the past, all students were required to take at least three electives per semester or their equivalent. In the Fall semester, 18 semester length and 5 half-semester length electives were offered, and
in the Spring, 16 semester length and 5 half-semester length. The Joint and Combined Operations elective was a major pilot elective. Elective registration was automated due to the increasing number and wide diversity of electives.

Several issues of continuing importance were cited by NDU President, Lieutenant General Bradley C. Hosmer, USAF, in his annual report to the JCS, under the heading, Lessons Learned. Key among those were (a) a need to stabilize faculty and staff assignments; (b) uncertainty on the Navy's part about the value of sending senior naval officers to ICAF even though this was perhaps their best opportunity to gain a Master's degree; (c) a need to continue to integrate each curriculum block into a meaningful whole, especially in regard to JCO and executive skills development; (d) embarking on a needed program of "student feedback" at the end of the year in order to assess the curriculum as a whole; and (e) continuing to find that student learning is improved by supplementing theory with practical exercises and stressing the executive perspective (NDU Annual Report, FY 1985-1986, p. 5).

Although the Board of Visitors met on June 4, 1986, it was the MECC, which met in September, 1985, that appeared to be in a position to exert a more significant influence on future curriculum offerings. In meeting to address, for the JCS, the issues of public affairs instruction, joint planning and operations instruction and the feasibility and alternatives for increasing the assignment of officer
students to the senior service colleges of another Service, the MECC developed several findings and recommendations. Specifically, the MECC found (a) that all colleges had taken significant steps to improve the ability of senior officers to understand and effectively participate in the public affairs process and (b) each college devoted a substantial portion of its core curriculum to joint subject matter. Additionally, the MECC recommended that (a) senior service colleges and intermediate colleges work together to develop a building block approach and to ensure no major redundancies or gaps occurred in the continuing education process and (b) minor changes in increasing the number of officer students attending a senior service college of another Service. The MECC felt that this, with joint faculty representation, would help assure a joint perspective was available to every student (NDU Annual Report, FY 1985-1986, pp. 33-34).

JCO AND DECISIONMAKING: TWIN CONCEPTUAL FRAMEWORKS

In school year 1986-1987, Phase I was retitled from Executive Perspective to Framework for National Security Decisionmaking and integrated a treatment of joint and combined military operations (JCO). Thus, in addition to providing traditional instruction in development of executive skills, this first phase established a conceptual framework via JCO which served as a guide for the remainder of the school year. According to Landson (interview, November 12, 1989), this
1980s concept of jointness differed markedly from that which existed earlier. Landson said, "ICAF's original purpose was not a joint school in the sense that we think of jointness today. Its original purpose as a joint school was to see that people received the same training and understood the common basis for this process of economic conversion. There was no intention in the early days that they should ever talk and work together in the warfighting sense."

Phase II was retitled from National Security and Mobilization Management to International Security and National Power, but otherwise continued to focus on the decisionmaking theme as it pertained to international considerations in their effect on national power.

Phase III's focus remained on national human resources, and problem-solving and decisionmaking skills were the integrating themes. The subject matter was dealt with on three levels of simultaneous study: (a) manpower as an element of force generation; (b) manpower as a case study on complex policy formulation; and (c) manpower as a vehicle of thinking through the long- and short-term policy implications of peacetime decisions on wartime potential application.

In response to student critiques, the MME was shortened. The only noted change of substance in Phase IV, Materiel Resources Management, was the addition of a thirteenth industry studied in the Defense Industry module. The SAFE exercise was used in much the same form as the previous year, but the "new" SAFE simulation was moved from the
developmental testing phase to concept development with plans to examine systems acquisition in a mobilization environment.

Phase V was retitled to Crisis Decision Exercise which was the last module of Phase V in the previous school year. It was again the final block which synthesized the year's studies of decisionmaking under stress, global geopolitical considerations, strategy formulations, mobilization, opportunity costs, sustainability, and force deployment, requirements and constraints (NDU Annual Report, FY 1986-1987, p. 2).

All simulation models were run on NDU microcomputers which provided major cost savings over the commercial computer services previously used. Additionally, the turnaround time for students to get useful responses to the iterations entered into the computers was significantly reduced. The only significant difference in the field studies program from the previous year was that the special trips went to the People's Republic of China (PRC) and the Middle East instead of the PRC and South Asia.

The research program, including the research seminar program, was essentially unchanged. In the continuing effort to involve senior officials of flag rank, 18 agencies submitted 42 relevant "real world" topics for student research consideration. Eight intermediate group and 146 small group/individual papers were prepared. However, the College determined that research groups of more than three were less productive and this led to the recommendation that future groups be no
more than three students each. The electives program was basically the same as the previous year.

Evaluation of SSC programs had by now reached fever pitch. On February 13, 1986, the Undersecretary of Defense for Policy, Fred C. Ikle, asked the highly-respected Professor Eugene V. Rostow to assess the teaching of strategy and foreign policy at the senior war colleges. Rostow, with the help of Dr. John E. Endicott, Director of NDU's Institute of Higher Defense Studies, reviewed SSC curricular materials on these subjects. They also interviewed faculty and students and discussed the issues with retired officers, academics, and others who had taught or studied at one of the senior war colleges.

Rostow's and Endicott's report, The Teaching of Strategy and Foreign Policy at the Senior War Colleges, was published in 1987. Conclusions reached included: (a) first-rate teaching of strategy and foreign policy should be major components of the teaching and research programs; (b) the present level of instruction ranged from adequate to outstanding; (c) strong support from the JCS, DoD, and military services was necessary to achieve excellence; and (d) increases in faculty size and in cost were necessary if the desired quality of faculties and educational programs was to be achieved. Interestingly, Rostow and Endicott also concluded, as had several others in the past, that neither DoD nor JCS took the senior war colleges seriously enough.

Some of the actions deemed worthy of consideration to deal with these conclusions were outlined as follows:
1. Students selected for attendance should be probable candidates for promotion to flag rank, ambassador or equivalent rank.

2. The faculty was impressive but it should be improved, preferably by establishment of a Senior Advisory Council or Board of Regents which would stimulate educational reform achieved by cooperation.

3. More attention should be given to flexible faculty recruitment and tenure arrangements and continuing academic development of faculty.

4. Faculties should be more closely integrated into the national and international academic community and steps taken to assure development of faculties as professional bodies with collegial functions, identity and pride.

5. Commandants and the NDU President should be appointed for at least three years and selection be dominated by educational criteria.

6. The academic dean's position should be strengthened.

7. NDU should convene annual or biannual conferences of teachers of strategy and foreign policy to exchange news and discuss common problems.

8. All schools should give more attention to the study of "grand strategy" as contrasted with operational strategy.

9. More attention should be given to study of small wars and low intensity conflict.
10. Excepting the Naval War College, there were too many student contact hours and the balance should be changed between lectures and individual reading, research, seminars and writing.

11. Case study method was good, but subjects should be studied in depth versus "covering" a subject.

12. For most students, a succession of short and medium size papers was preferable to massive research papers.

13. SSCs should return to examinations and grading so as to raise educational standards. However, there should be no public, competitive process but a normal aspect of evaluation and feedback process.

14. A two-year program should be studied and some especially able students should get a second year to do research.

In January, 1987, the MECC sent recommendations to the CJCS on how each college could strengthen its focus on joint matters and prepare officers for joint duty. The MECC's specific recommendations were that (a) each service must satisfy both the requirements of the Defense Reorganization Act and its Service unique educational requirements; (b) the JCS should approve a common core of curricula focused on joint matters; (c) each college should ensure that a joint perspective was brought to bear on its curriculum to the maximum extent possible; (d) each college should exploit its elective and research programs as much as possible to strengthen the focus on joint matters while working toward a longer term standardized core curriculum for joint matters; (e) each Service should, in general, increase its representation of
both faculty and students at other Service colleges; and (f) the JCS should undertake a systematic effort to determine specific skills, knowledge and attitudes needed by those being assigned to joint duty.

In addition to the MECC report, the Senior Military Schools Review Board (SMSRB) visited ICAF on January 12-14, 1987, and met with the Commandant, Dean of Faculty and Academics, Associate Dean of Faculty and Academics, two department chairpersons and the JCO Course Director. The SMSRB noted in its report that (a) by and large, the right students come to ICAF, (b) joint matter emphasis was extremely limited, (c) officers were being prepared only marginally for joint duty, (d) faculty members should be given increased opportunities for enriched follow-on assignments, and (e) standards for joint specialists were not rigorous (Trip Report of SMSRB, January 12-14, 1987).

However, the SMSRB went beyond assessing the rigor of the joint specialist program and evaluated the rigor of the entire academic program. Characteristics of the program which pertained to rigor were described as follows: (a) evaluation of student performance is made principally through a Primary Faculty Advisor who monitors the written papers and research efforts of designated students; (b) students were counseled on marginal performance; (c) there were no tests, class standings or formal grades; (d) awards were offered for exceptional performance; and (e) faculty members believed that students were challenged properly. In view of these observations, the SMSRB expressed its belief that there appeared to be room for additional
core material and further, student evaluation could be improved by formalizing faculty responsibility for providing documented feedback to students on all phases of their performance. This last observation was especially relevant because some faculty members did a less than adequate job of evaluating student performance while some expended considerable effort to develop meaningful, relevant, and useful student evaluations.

Thus, on April 1, 1987, the Vice Chairman, JCS tasked NDU to develop an educational program and specific standards for better preparing officers for joint duty and subsequent joint specialty nomination.

THE PURSUIT OF RIGOR

Throughout the year, NDU made extensive efforts to determine what rigor and evaluation meant and how it could be improved at NDU. In an NDU Policy Statement, rigor was defined as "academic excellence as measured by student mastery of intellectually challenging objectives and exercises, the existence of high standards of performance with an expectation of hard intellectual work to meet them, and comprehensive evaluation procedures to gauge student performance and progress. The dimensions of such an approach to academic rigor required (a) mature delivery in a postgraduate mode, (b) emphasis on in-depth learning, (c) student accountability for learning, (d) continuity and coherence, and
(e) challenge to student growth" (NDU Policy Statement, No. 2-87, July 7, 1987).

NDU's implementation of this new policy on rigor and evaluation required well-formulated objectives, clear standards of performance, observations by faculty, and detailed feedback to students. ICAF then developed its own detailed program to assure academic rigor. Although similar procedures had been implemented in earlier years, this is the first recorded instance where such detailed and written procedures had been specifically targeted to achieve "rigor."

ICAF's curriculum construction for school year 1987-1988 was materially affected by NDU's effort to comply with directions from higher levels to ensure rigor. Major General Albin G. Wheeler, USA, ICAF Commandant, in briefing Hosmer, December 15, 1987, on why the curriculum changed, cited the needs to improve program integration and balance among subjects, inadequate resources, and outside direction or influence, especially the Defense Reorganization Act of 1986. The nature of the joint programs continued to be affected by tasking from JCS in terms of joint specialty designations.

In responding to the Defense Reorganization Act of 1986 which sought to beef up academic requirements, writing samples were taken to assess each student's ability to synthesize complex issues and reduce them to succinct, clear written analyses. Further, written evaluations were incorporated into each major block of instruction and the electives program was assessed to establish specific standards of
performance and to determine which courses should receive academic credit (NDU Annual Report, FY 1987-1988, Executive Summary, p. 2).

At the end of each major phase of the core program, students were required to write responses to "end-of-phase" questions. Considerable time and effort went into the drafting of these questions. Faculty members were asked to draft questions in their areas of specialization using Bloom's Taxonomy as a general guide. The philosophy was that students should be able to integrate and synthesize curriculum material and be able to apply this understanding to both historical and current national security problems.

After faculty members drafted the questions, a small group from each department selected the best questions and further improved upon them where necessary. The first year of this process was partially successful. Many of the student responses illustrated little more than a superficial understanding of the principles and issues involved. This was essentially a repetition of the 1950s experience with tests. Major problems encountered were in the areas of faculty evaluation of student responses and student reaction to faculty evaluations. Even so, these end-of-phase questions served at least two important purposes.

First, they permitted better evaluation of students. Historically at ICAF, the most outspoken students were the most noticed and thus usually received the higher ratings. The end-of-phase papers enabled the less vocal and non-aggressive student to show his or her mastery of
course content. Second, these written responses partially met the need for increased rigor because they were essentially examinations. Thus, although the end-of-phase responses were marked but not graded, they introduced a greater degree of student accountability.

In further efforts to achieve curriculum relatedness, titles and content were changed in the core curriculum. Although the title of Phase I remained the same, decisionmaking at the national level was approached from four different perspectives: (a) executive leadership skills, (b) economics, (c) national decisionmaking institutions and JCO, and (d) all were centered around the theme of decisionmaking as the framework for the entire curriculum. Virtually all faculty members ultimately accepted this theme and interdisciplinary approach for the academic year.

However, there was some initial resistance to this idea of a unifying theme and interdisciplinary approach as an integrative mechanism to be stressed in all academic courses. Landson averred that there were some faculty who argued that they had specific disciplines and if they attempted to cut across too many lines, they would incur too great a risk. Their fear was that if they spread themselves too thin they would not be able to research, publish, and do other things believed necessary to remain professionally qualified in their narrow areas of specialization. There were other faculty members who were enthusiastic about the effort to achieve coherence in the program and
once the revised curriculum was implemented, the faculty, by and large, was supportive.

Phase II was unchanged except that the Regional Studies Program saw a much increased emphasis on Commander-in-Chiefs' (CINCs) concerns in military, political, diplomatic, economic, and societal influences in the theaters. Selected subregions were offered as pilots. These pilots looked at the subregions through the eyes of the CINC responsible for that region in terms of his emerging role -- that of ensuring that the other side or other factors did not deny the area's economic and societal potential from U.S. and allied forces. According to Landson, this is the role of the CINC as provider where more than likely politics, society, and economics along with transportation dominate the CINC's thoughts instead of warfighting (Landson, 1987, pp. 25-26).

In Phase III, which was renamed Human Resources, emphasis was placed on the need to consider both quantitative and qualitative factors in the human resource decisionmaking process. The concluding activity, the MME, was again shortened. Phase V, Joint Exercises was retitled from CDE and included a Campaign Planning Exercise which drew upon the year-long study of concepts and requirements of planning a joint-combined force employment at the theater level (NDU Annual Report, FY 1987-1988, p. 2).

Although the electives and field studies programs were changed only in regard to numbers and locations, the research program was
changed in major ways. During the mid-1980s, the requirement to prepare a substantial research paper was changed. Lieutenant Colonel Edward Bailey, USAF, came to the faculty from the USAF Academy as a recognized writing expert. He was made Director of Research and immediately set about to improve the stodgy and maligned research program. After several conversations with interested faculty, Bailey prepared a proposal calling for the research effort to be changed to one requiring students to think analytically about a subject, but in a short non-research paper. This concept was approved by the Commandant in school year 1986-1987 and that has largely characterized the research program output since then. There was, however, a significant change to the research requirement for school year 1987-1988. Much to the students' surprise and pleasure, the research requirement was made optional and those opting not to conduct research could substitute electives. As might have been expected, the vast majority of students chose to take additional electives.

The revised program which emphasized joint and combined operations and academic rigor throughout the curriculum, added to faculty requirements in terms of contact hours and size of seminar group. Landson raised an alarm about the increasingly onerous burden placed on the faculty and students. However, he avers that the initial response he received was that the students were military and they could simply work harder. The same response had been provided nearly 25 years earlier during Schomburg's tenure. It should be noted that the
College's faculty was not competent to instruct in joint and combined operations at the outset and this caused some uneven curriculum content delivery.

A single document which essentially captures the changes made in school year 1987-1988 is the Academic Guidance, AY 1987-1988 and 1988-1989, prepared by Landson in 1987. Although academic guidance had been prepared for many years, it was not until this year that a formal document was published in a form available and useful to faculty in general. In his preamble, Landson reiterated what had by now become the accepted -- teaching inquiry or questioning, and "how to think" versus "what to think." The rationale given for this rested in the belief that the questions ICAF graduates wrestle with do not change over time, only the answers change (Landson, 1987, p. 2).

Landson's view of the ICAF thesis formed the basis for school year 1987-1988's curriculum. He stated his beliefs in his Academic Guidance that:

Our nation's wealth is the basis of peaceful well being and, when necessary, military power. Force Generation is the process of converting a nation's wealth, economic and societal, in order to entrust needed military power to constitutional authorities. Military manpower and logistics are the recipients of Force Generation. While the decisions as to the circumstances and
magnitude of Force Generation reside with all the citizenry and their representative institutions, it is the special responsibility of the military as a designated guardian of the nation, to understand and accurately represent the need for military power or what could be called Force Determination. For those of us who would be guardians, our greatest challenge is to understand the uncertainty surrounding Force Deployment in such a manner that we do not compromise by our requests, that which we are sworn to protect, and which serves as a basis for the guardian's role -- our country: its wealth and its trust. That compromise could occur if we either over or under commit the nation's wealth in military terms. To be able to understand and evaluate the Force Determination and Force Generation process and the requirements and limitations pertaining thereto in the larger context is the ICAF thesis. No other institution in these United States has this specific educational responsibility that we have carried since 1924 (p. 5).

Interestingly, Landson said that the original Defense Reorganization Act of 1986 did not provide for force generation, only warfighting. However, his explanation of the need for specific study of force generation as a prelude to force employment was so persuasive, it formed the basis for a successful reclama and served as the model for school year 1987-1988's curriculum (See Figure 1).
Figure 1. Landson's explanation of the need for study of force generation -- The "ICAF Diamond."

Each roman numeral represented a discrete phase of the curriculum. The academic year which started with Phase I, Decisionmaking, was at the center because it was common to all other phases. Here the student was introduced to both the elements which spanned the core curriculum for the entire year and the processes of decisionmaking on which the year focused.

Phase II, International Security and National Power, set the stage for understanding those elements of national power which were considered critical to waging war. Those elements were the military, the economy, and the society. The purpose of this approach was to provide students with the means to evaluate the capability of nations to wage war individually or collectively, based on a nation's ability to convert economic and societal power into military power, i.e., the process of Force Generation.

Phase III, Force Determination, dealt with the relationship of means to ends where force might be employed. The curriculum content was based on two questions: What should be done, and what could be done. This phase thus prepared the student to participate in the requirements process wherein the force needed to wage or deter war was determined.

Phase IV, Force Generation, dealt with the conversion of a nation's economic and societal elements of national power into military means. This phase followed the Force Determination phase so that students would have specific means by which to evaluate the armed
services' manpower and material resource policies. Students were required to study military procurement, civilian production, civilian workers, and military soldiers because they were all inextricably intertwined and must be balanced in both peace and war. This phase also included the domestic and international field studies programs.

The last phase, Phase V, Force Employment, was designed to run concurrently with the other four phases but also included an exercise at year's end which involved both ICAF and NWC students. Of primary interest was the use of force in concert with political objectives, determining the ends to be achieved, and the means to achieve them. Particular emphasis was given to military operations involving joint or combined forces: a single U.S. Service, two or more U.S. Services, or a U.S. force and the force of at least one other country (Landson, 1987, pp. 31-36).

Congress again entered the picture in the form of a House Armed Services Panel chaired by Representative Skelton. This panel focused on implementation of the Defense Reorganization Act of 1986 and the development of military strategists. Of the three specific issues considered, one was to assure that all PME colleges had appropriate "rigor" in their programs. During a year-long inquiry, the Panel gathered testimony from former and current CINCs, civilian educators, former and current Chiefs of Staff, professional military educators and College Commandants. Wheeler testified on May 24, 1988.
One of the senior military leaders heard from was Admiral Stansfield Turner, USN, former President of the Naval War College. Turner was quoted as having said, "Senior Service College curriculums narrow a student's perspective, focusing on a particular skill by cramming as many facts as they can when they should use case studies as a teaching tool to focus on strategy, management and operations. To do this, a curriculum should include small discussion groups and occasional essays on historical case studies, rather than crowded lectures. Student officers should concentrate on the historical; detach them from the things they know" (Hartford Courant, December 10, 1987, p. 1).

The CJCS, Admiral W. J. Crowe, USN, also seemed to define what he saw as the desired outcome of a rigorous program for senior military professionals when he talked about the kinds of broad-gauged and enlightened officers needed. He felt that the senior service school graduates should be skilled military technicians, tested field commanders, open-minded, grounded in the history of their profession and its role in the world, and knowledgeable about the situations and concerns of American friends and allies abroad and about the dynamics of bureaucratic decisionmaking in Washington (Crowe, 1987, pp. 3-9).

One of the most widely read articles on military reform in professional education during this period was the scathing piece written by Williamson Murray, a former instructor at several SSCs. In his article, "Grading the Military," he declared that war colleges,
except the Naval War College, were failing to educate officers by a
demanding intellectual curriculum to think in broader terms than their
busy operations careers had thus far demanded.

Murray indicted ICAF for having no graded exercises, light
reading, and too much time in the classrooms. Murray believed that
ICAF accomplished its mission which was to educate a portion of the
senior military to handle mobilization of industrial and manpower
resources for a massive conventional war. However, Murray complained
that ICAF's graduates were treated as if they finished any other senior
service school and their talents and skills were acquired but not used
properly. Murray's final assessment was that ICAF's graduates were not
narrow-minded program managers, but the institution did nothing to
prepare its students for the larger strategic and political issues in

Interestingly, the views of Murray, Crowe, Turner, Landson, and
others on the importance of history and the "long view" were preceded
by Scammell in the mid-1930s. Scammell (1946, p. 119) wrote that the
"college believes the student should obtain early in his studies a
broad historical basis for reaching sound opinions as to the nature of
the problem involved in the application of the full economic power of
the country in war."
THE INDUSTRIAL COLLEGE IN 1988

Although the interdisciplinary approach was not entirely new, the 1984-1988 interpretation of it was more explicit. This newest iteration viewed the decisionmaking process as an "open system" wherein a variety of factors interacted with varying levels of effectiveness, on the national security decisionmaking apparatus. These various factors were discussed throughout the curricula in an attempt to enhance students' understanding of the "messy" world faced by senior-level policy advisors and makers.

The unifying theme of decisionmaking was approached from the several different directions represented by the disciplines of economics, public administration, and applied behavioral science. Since problems to be faced by ICAF graduates are not just economic ones or political ones, the interdisciplinary approach seemed logical. However, Beckstead says he proposed just this approach in the 1970s, but was soundly defeated. Sanders, though supporting the interdisciplinary approach, strongly believes that it "eats up" the faculty. Certainly it places greater demands on the faculty. Landson wrote in his 1987 Academic Guidance that if help did not come (in the form of more faculty), matrixing would increase, requiring individual faculty to teach in more and different subject areas (p. 40).

What the interdisciplinary approach can cause then is a need for a different kind of faculty. And, until this new breed is fully
ensconced in faculty billets, the academic rigor so valiantly sought will be elusive. Thus, Beckstead, though fervently believing in the appropriateness of this approach, contends that it has not prospered due to lack of faculty expertise and the leaderlessness of virtually all disciplines except economics.

In the earlier days the search for rigor had largely meant that the students would write something. However, in the mid-to-late 1980s, the concept of rigor was clearly defined and specific written policies promulgated toward that end. Much like many past curriculum changes, the impetus for this newest reemphasis on rigor came from the outside. The Defense Reorganization Act of 1986 specifically directed SSCs to develop academically rigorous programs.

The research program underwent a significant change in the late 1980s. With the arrival of Bailey, the longer and often shallow attempts at scholarly research were replaced by short (15-25 page) think-pieces. Bailey was able to convince the Commandant that short pieces would do a more effective job of enhancing students' abilities to articulate a point analytically and present it in a coherent, forceful, and effective manner. In any case, there had never been enough dedicated time available to accomplish effective research. Research days, separated by two weeks, or for that matter any of the schemes attempted, did not permit long enough periods for the type of focused research needed to produce something worthy of being referred to as a research paper.
Between 1984 and 1988, the combined weight of arguments propounded by Congress, active and retired military officers, and committees served to redirect ICAF’s curriculum to one which stressed both rigor and joint and combined warfighting. The last two school years in this period of ICAF’s history were spent refocusing the curriculum to meet the requirements of the Defense Reorganization Act of 1986. ICAF, as the only unique SSC, was able to get the definition of warfighting altered so that it could continue, for the most part, with its traditional mission of preparing senior-level officials for resource management responsibilities. School year 1987-1988 ended on a successful note, having implemented a curriculum that stuck closely to its historical mission of preparing the “providers” within the overall context of a joint and combined operational goal.
CHAPTER 7

SUMMARY AND CONCLUSIONS

SUMMARY

Professional education for military officers has a long and distinguished history. Such military education in the United States began in the 1860s and was patterned after European military schools. Both European and United States' military school curricula were designed to improve their armies' chances of winning wars by educating them in whatever areas were deemed necessary to achieve that objective. Consequently, nations have revised the curricula of their war colleges as the knowledges, skills, and attitudes perceived necessary for victory have changed.

One such "war" college is the Industrial College of the Armed Forces (ICAF), one of the two senior joint military professional education institutions. This institution has seen its curriculum evolve over its 64-year history in a number of ways and for a variety of reasons.

The problem investigated in this study was: How was the curriculum evolution process at the Industrial College of the Armed Forces influenced during the years 1924 to 1988 by internal and external factors such as influential persons, commissions, boards, associations and councils, social, cultural, economic, and political
phenomena, faculty, educational philosophies, and technological advances? Using the historical method, the study traced the ways the ICAF curriculum was changed as a consequence of the several internal and external factors which acted upon the curriculum content and instructional methodology. The study identified five distinct periods in the history of ICAF's curriculum: the 1924-1941 period, during which the original curriculum of ICAF's predecessor, the Army Industrial College (AIC), sought to forestall recurrence of problems of industrial mobilization; the 1943-1964 period, which saw the emergence of economic mobilization as the overarching curriculum theme; the 1964-1975 period, a time when a particularly strong leader completely restructured the curriculum to emphasize active learning and management; the 1975-1984 period, when the creation of NDU as the joint college umbrella organization resulted in a return to mobilization and the introduction of applied behavioral science; and the 1984-1988 period, during which the conceptual frameworks of joint and combined warfare and systems approach guided the continuing search for academic excellence and rigor.

The principal sources of information for this study included histories of ICAF written by Bauer (1983), Scammell (1946), and Falk (1968), proceedings of inquiry boards and commissions, annual reports and catalogs of ICAF and NDU, relevant articles, memoranda and other documents by ICAF staff members. Additionally, a series of interviews was conducted with former faculty and staff members of ICAF. Finally,
one former Dean of Faculty and Academics loaned portions of his personal files.

From 1924 to 1988, the ICAF curriculum evolved from one focused on economic mobilization and industrial preparedness to one designed to prepare senior-level officials for joint warfighting from a resources perspective. In both of these instances, perceived shortcomings of the armed services in warfighting galvanized the curriculum change process. Throughout these six decades, the curriculum focus and instructional methodologies were altered in specific ways as a result of a variety of influential change agents.

1924-1941

The Army Industrial College, predecessor of the Industrial College of the Armed Forces, emerged from the analysis of World War I failures in industrial preparedness. Severe shortages of warfighting material were the subject of considerable debate in both military and civilian circles. As is often the case, this issue resulted in a legislative remedy -- The National Defense Act of 1920.

The Act levied the specific responsibility on the Assistant Secretary of War to assure that for future conflicts the United States would be prepared to meet the needs of an industrial mobilization. Training of a cadre of professionals who would be knowledgeable in preparing mobilization plans, procurement, and management of essential wartime material was deemed a feasible and logical step.
Therefore, after a short period of limited training, a formal school was established in 1924. This school of instruction in military procurement and industrial mobilization, The Army Industrial College, was the predecessor of the present Industrial College of the Armed Forces.

During the early years of the College, 1924-1941, it grew from an enrollment of nine officers in the first class which began on February 21, 1924, to the point where by the time the College closed in 1941, over 1100 students had graduated from a combination of long and short courses. The student body had been steadily enlarged as a consequence of the addition of regular Army line officers, Navy, Marine Corps, and Reservists.

The adoption of the case method from Harvard by a Harvard-trained faculty contributed to an early emphasis on encouraging independent and critical thought on the part of students. Additionally, research as a necessary endeavor for both students and faculty took root during these formative years. Research efforts as well as the core curriculum focused on issues and problems of pressing concern to the nation's defense establishment. Students developed mobilization plans and studied how economic warfare and resource availability would affect the United States' capability to deal with the impending World War II. Hence, the College developed very early a penchant for emphasizing student involvement with real-world problems and crafting of solutions which would be of immediate utility to the armed services.
Many curriculum-related practices were begun which have stood the test of time. Student critiques, war games, field trips, and granting of diplomas to resident faculty who met established requirements were all initiated within the first five years of the College's existence. These actions, when added to the joint education curriculum of school year 1938-1939, the inclusion of students from all Services, and the appointment of a College Director who was not an Army officer, all pointed toward the realization of the joint-post-graduate institution desired.

Although the exigencies of war made it necessary to close the College in December, 1941, it had already become the "little school" envisioned by men such as Baruch. A formal institution of learning had been created which would help guard against a repetition of World War I experiences when attention to economic mobilization and industrial preparedness had been slow in coming.

1943-1964

The period 1943 to 1964 was one of considerable turmoil as the College attempted to establish its identity. The student body grew to number 180 and became increasingly diverse in its composition. The student body of earlier classes was composed of both junior and senior officers. The Annual Report of the AIC, FY 1932-1933 reflected a graduating class of 7 First Lieutenants, 17 Captains/Navy Lieutenants, 23 Majors/Navy Lieutenant Commanders, 4 Lieutenant Colonels/Navy
Commanders, and 1 Navy Captain (pp. 2-3). However, by 1952, students were described as "no shavetails..., they are Colonels or Navy Captains averaging 43 years old and about 20 years in service" (Business Week, 1952, p. 182). Civilians joined the student body in 1949, and in 1955 ICAF was assigned responsibility to conduct courses for educators, prominent civilians, officers of the National Guard, Reservists of the Army, Navy, and Air Force, and selected executives of industry.

ICAF's constant search for its niche in the defense educational establishment is manifested in the several charter revisions which occurred during this period. The College charter was revised in 1948, 1949, 1955, 1960, and 1962. The first of these revisions raised ICAF to the highest level as a joint educational institution and broadened its mission. Each of the other revisions altered some aspect of the curriculum's content or purpose, and collectively, these charter revisions refined and sharpened the image of ICAF.

The curriculum revision process was materially affected by factors other than charter revisions. Environmental phenomena such as the Cold War, the Atomic Age, the outbreak of limited wars of insurgency, and the National Security Act of 1947 all contributed to the perceived need to change curriculum subject matter. The Act of 1947 reorganized the national defense establishment and ushered in a new and broadened concept of national security. One of the results of the Act was the formation of the JCS. The JCS, in recognition of the advent of
insurgencies as potential wars of the future, directed ICAF to include COIN as an issue warranting considerable attention in the curriculum.

The curriculum's instructional methodology was largely of the passive variety. Lectures, seminars, discussions, field trips, and films were the principal techniques employed. Even so, students were encouraged to use creative, critical, and reflective thinking as they grappled with defense problems. From about 1948 forward, there was no doubt among College curriculum planners that graduates should be able to express themselves forcefully and effectively in both writing and speaking. The curriculum content reflected this belief. It is worth noting that as early as school year 1948-1949, efforts were made to reduce the number of lectures in response to criticism that the College was too much of a "country club." This initiative, and the one-time attempt to introduce examinations, indicate that rigor was being sought in these early years in an effort to blunt criticism and be accountable to College constituents.

A number of curriculum-related practices and institutions were begun between 1943 and 1964. The Defense Industry Analysis format, Permanent Faculty Advisors, Correspondence Course, International Field Studies Program, cooperative degree program with GWU, and the introduction of simulation as an instructional technique all began between 1946 and 1963. Although not directly curriculum-related, the matter of "invidious comparisons" with NWC also seemed to blossom
during this period and manifested itself in academics, athletics, and expressed opinions.

Several boards were also appointed between 1943 and 1954 and their recommendations had considerable influence on the structure and operations of the College. The Echols, Hancock, and Baxter Boards made a number of recommendations, several of which were adopted. One of the most significant was the Hancock Board's recommendation that the AIC be renamed the ICAF as a more apt expression of what the College had become. The Board of Advisors was also a product of a Board's recommendation -- the Echols Board. The last major Board of this period, the Baxter Board, was concerned with the lack of attention given to joint and combined operations. The Board's recommendations were consistent with its mission, and in addition to calling for continued separation of ICAF and NWC, recommended a joint educational committee composed of the three College Commandants, and an advisory board, which would include distinguished civilians to advise the JCS on educational matters. The Board of Advisors was also quite active and made numerous substantive recommendations during this period.

Perhaps most indicative of ICAF's uncertainty of its identity can be found in the number of times its mission was changed. For the first 24 years, the mission was unarguably focused on economic mobilization and industrial preparedness. However, with the reconstitution of ICAF in 1948, the mission became one of preparing selected officers for important command, staff, and planning assignments in the national
military establishment, and preparing selected civilians for important industrial mobilization assignments in any government agency. Then, in the late 1950s, there was a shift to emphasis on management in DoD and a better understanding of other nations. Finally, in 1962, there was a further shift to the study of resource management for national security purposes.

Therefore, by 1964 ICAF had become a clearly identifiable institution, shaped by 21 years of rapidly changing forces. Its forward-thinking first General Officer Commandant had been followed by other Commandants who successively refined ICAF's mission. This refinement broadened ICAF's mission and its accompanying curriculum so that federal government officials who graduated would be prepared to function as credible professionals in the field of resource management for national security.

1964-1975

Perhaps the best way to describe what happened to and with ICAF between 1964 and 1975 is to say it underwent a complete change in its instructional methodology. Additionally, the existing focus on management was further revised to a more specific one emphasizing management of defense resources. Most of this radical reorientation was begun and overseen by Lieutenant General August Schomburg who had been appointed Commandant on April 1, 1964.
Schomburg believed that the mode of curriculum delivery was too passive, and he saw to it that an action-oriented methodology permeated every aspect of the curriculum. Role plays, simulations, demonstrations, and exercises were greatly increased, and passive techniques such as lectures and films were significantly decreased. As one example, the Field Studies program changed from student observation of industry to analysis of industrial management problems -- a decidedly pro-active attempt to add to the knowledge base.

Schomburg also presided over the initiation of a non-traditional and controversial process of curriculum planning and development. He took responsibility for curriculum development away from department heads and placed it in the hands of a committee which had no implementation responsibilities. However, the curriculum was also influenced by the views of graduates and their supervisors. Their views were obtained by extensive and comprehensive surveys, beginning in school year 1965-1966. Student critique systems were also changed several times in an effort to get their views on the curriculum in a useful and meaningful format.

The research program was changed several times. Given a choice between additional electives and conducting a substantial research project, students initially chose additional electives. However, after the involvement of top-level DoD, JCS, and Service officials, students returned to research projects in large numbers. These research projects, unlike the earlier thesis-type projects on general topics,
were required to be on current problems of defense management, but could be developed in almost any format. It was also during this period, school year 1969-1970, that the ICAF Research Fellows program began.

The action-oriented, pragmatic, and challenging curriculum Schomburg introduced contributed to several other notable changes. Such a program required a faculty with content expertise and small group facilitation skills. This need was met by a formalized faculty development program and revised assignment qualifications. In response to the growing sophistication of entering students which was reflected in their diverse backgrounds and educational experiences, an electives program was introduced in school year 1965-1966. Further, a "Great Books" reading program, introduced in 1972-1973, challenged students to make the connections between the past, present, and future. Near the end of this period, students were required, after selected core courses, to write reports designed to demonstrate their understanding of course material. This attempt to get students to organize, integrate, and synthesize diverse but usually related material, was later replicated in school years 1987-1988 and 1988-1989, in the name of increased "rigor." So that enterprising students would have an outlet for their best research efforts, a professional journal, Perspectives in Defense Management, was begun in school year 1966-1967.

Schomburg's belief in challenging students led him to send students on the overseas field trip in the Spring of 1965 without
faculty escort/supervision. This action also left faculty free to work out the radical curriculum revisions Schomburg had planned for the next year. Student leaders were responsible for the overseas portion of the program's execution. Available evidence suggests that this is the only instance in the 64-year history of the College that students were sent on such a trip without faculty supervision. Although there is no indication that problems were encountered, there were many instances in later years when the conduct of some students was less than desired. Perhaps, this experience was not a new phenomenon.

The cooperative degree program with GWU also experienced substantial change. It declined in popularity because increasingly larger numbers of students were arriving with advanced degrees already in hand. The degree awarded was also changed from a Master of Science in Business Administration to one in Administration. It was felt that this latter degree was more in line with what ICAF students should be prepared to accomplish for the remainder of their careers.

As this approximately 12-year period of ICAF's history ended, the College had metamorphosed into the capstone professional military institution of national resource management study. Its mission had remained essentially that which grew out of the 1962 charter revision -- the study of defense management problems. However, along the way, topics of current interest such as the health of the domestic environment and decreasing natural resources such as energy, were studied. ICAF had also been jerked out of its passive gentleman's
course orientation into a curriculum distinguished by action-oriented, demanding, and real-world learning experiences.

1975-1984

The strongest influences on the 1975-1984 ICAF curriculum were exerted by the Committee on Excellence in Education (COEE), aka the Clements Committee, and the relatively strong beliefs of two NDU Presidents.

Implementation of the COEE's recommendations required all SSCs to establish a common core curriculum and at the same time, focus more sharply on their specific missions. Additionally, several curriculum components were eliminated because the COEE doubted their utility. In just one school year, 1975-1976, the annual trip to United Nations Headquarters, International Relations Exercise, Perspectives in Defense Management, and overseas field studies were eliminated. However, the most permanent and significant COEE recommendation was its call for the establishment of a University of National Defense.

With the establishment of NDU, the College had to contend with the University's involvement in its curriculum planning and execution. In addition, and as a consequence, ICAF was forced to watch several of its programs supplanted by NDU programs. The College journal and research fellows programs were just two examples of this. According to Waterman, the attempt to foist the "common core" on SSCs failed because there was no core that was common to such diverse institutions. To
quote Waterman, "the COEE understood little about either education or excellence" (Waterman, Interview, July 21, 1989).

The new charter, as mandated by the COEE for ICAF, specified that the College was to be dedicated to the study of management of resources for national security. ICAF achieved this mission-specific requirement of the COEE by defining its mission as the broad field of national security resources management, supported by the disciplines of economics, general management, and analytical techniques. Thus, the College, as it was to do again in the late 1980s when faced with the Defense Reorganization Act of 1986, was able to use its uniqueness to soften the impact of a mandated, narrow, and new definition of mission.

The action-oriented emphasis of Schomburg had declined, but it was reenergized by Gard who became NDU's President in the late 1970s. Under Gard, the trend toward study of management practices in the inextricably intertwined public and private sectors continued. Additionally, rigor, which was largely defined in sophisticated statistical analysis terms, was vigorously pursued, but not achieved.

Documentary evidence suggests that the introduction of applied behavioral science was the most-remembered contribution of Gard. Personality inventories and group dynamics became established components of the curriculum and ultimately resulted in the formation of a Department of Organizational and Personnel Management as a host department. Similarly, the new Executive Development Office's broad
charter required it to deal with the "whole man" -- a holistic view of the type graduate desired.

Beginning about 1979-1980, renewed emphasis was placed on mobilization planning and industrial preparedness. Once again, the curriculum seemed to have come full circle. Giant strides were made to incorporate mobilization into all facets of the curriculum and these efforts were redoubled with the arrival of Pustay.

Pustay also made the search for rigor the equivalent of gospel. However, rigor was deemed attainable through concentrated effort on research and writing on DoD issues. The new Mobilization Studies research program, introduction of a manpower mobilization simulation, and major mobilization-oriented writing requirements in each phase of the curriculum, all indicated the College's return to the central theme of mobilization planning and management.

Thus, the period 1975-1984 began with a push to specified curriculum divisions because of COEE influence, and ended with a return to mobilization and rigor as pushed by NDU Presidents. During these ten years, ICAF could be described as moving toward an appreciation for the personal development of its students, an increasingly focused search for rigor, and a return to its traditional mission of mobilization planning, industrial preparedness, and the nexus between the two.
1984-1988

The years from 1984 through 1988 were distinguished principally by the tremendous efforts of the College to cope with demands of both external and internal change agents. College faculty and staff sought to foster an interdisciplinary approach to curriculum subject matter and use decisionmaking as an integrating theme. Also a variety of Boards and Commissions analyzed ICAF's academic program and made many recommendations, several of which aimed to satisfy requirements of the Defense Reorganization Act of 1986.

An open-systems interdisciplinary approach to national security decisionmaking was introduced in school year 1984-1985. Proponents of this philosophy believed that students needed more logic, coherence, and continuity between the several subject matter-specific curriculum phases. Students had complained for several years of the disjointed nature of the curriculum when viewed as a whole. Consequently, they argued that it was exceedingly difficult to "tie it all together" and make sense of their year's learning experiences.

School year 1985-1986 was significantly affected by the Defense Reorganization Act of 1986. Although a start had already been made on jointness in the curriculum, the Act specifically required that PME institutions establish rigorous programs in jointness -- joint operational matters and particularly joint warfighting. Over the next two years, the Dougherty Commission, Military Education Coordinating Committees, Rostow and Endicott Study, Senior Military Schools Review
Board, Skelton Panel, and the Vice Chairman-JCS, all recommended or directed actions designed to achieve rigor within a joint and combined operations context.

As a consequence, Joint and Combined Operations which had been elective courses in school year 1984-1985, were converted to integral parts of the core curriculum, beginning in 1985-1986. Additionally, substantial efforts were made to achieve the rigor required by the Act. Not only was rigor specifically defined, detailed written guidelines for its achievement were promulgated by both NDU and ICAF. Even so, most of the Boards and Commissions expressed dissatisfaction with the measure of success achieved by the College. ICAF, however, was recognized as unique among SSCs and thereby escaped the very narrow original joint warfighting requirement levied upon it.

Throughout, decisionmaking, rigor, jointness, and the interdisciplinary theme were pursued. Some of the specific curriculum initiatives which could be attributed to this pursuit were: (a) the research seminar program of intensive graduate-level investigation of ICAF-related topics, (b) an increase in writing requirements, and (c) the initiation of end-of-phase questions. Perhaps the most significant internal development was the derivation of the ICAF Diamond by Landson and a few other faculty members. This diamond, the product of considerable research and study, provided a coherent and logical structure to the curriculum with its orderly progression from threat assessment to force employment.
Therefore, these last four years of ICAF’s history saw the College's focus on resource management organized into a coherent, integrated whole, with decisionmaking as the central theme and "joint operational art of war" as a parallel but overarching theme. As school year 1987-1988 ended, the curriculum was still under revision as the College continued to fine-tune its way into what it hoped would be a rigorous academic program for the "providers of warfighting resources." However, the perceived failures in joint and combined warfighting of the 1970s and 1980s made it necessary to keep the jointness objective in equally sharp focus.

CONCLUSIONS

This study focused principally on the ways the curriculum of the industrial College of the Armed Forces has been changed by such internal and external factors as influential persons, commissions, boards, associations and councils, educational philosophies, technology, faculty, and economic, social, and political phenomena. Therefore, it is possible to draw a number of conclusions about the importance of each of these change agents.

Influential persons

Throughout the 64-year period, influential persons seemed to exert the most influence on the curriculum change process. The force of the
individual's personality was more telling than his level of responsibility. Commandants such as Colonel Miles and Lieutenant General Schomburg were responsible for major program changes. Schomburg, who was Commandant from 1964 to 1967, is widely credited as the one person who forced the College into substantially different directions. He is also the one person who insisted on a thorough analysis of the curriculum. ICAF's curriculum was studied at various times in later years as a consequence of Board recommendations or legislative edicts. These have been discussed earlier and include the National Security Act of 1947, the Management, Education and Training Group (1966), Committee on Excellence in Education (1975), Echols Board (1943), Hancock Board (1945), and Defense Reorganization Act of 1986. Even so, the second most thorough analysis of curriculum was done by Dean of Faculty and Academics, Colonel Barry Landson, in the mid-to-late 1980s.

The redirection occasioned by Landson's research, study, and report went a long way in responding to the perennial student complaint of curriculum disjointedness. Without his successful linking of each phase to the others and the several phases to an overarching integrative theme, ICAF's curriculum would have continued to be damned with faint praise.

NDU Presidents Gard and Pustay were also among the movers and shakers insofar as curriculum change was concerned. Gard carefully and deliberately returned ICAF to an action-oriented philosophy and created
an entirely new program emphasis on personal development. Today, the
applied behavioral science discipline is firmly entrenched at the
College.

Although ICAF prides itself on being a "graduate" institution, the
applied behavioral science aspect is more akin to an executive
development program. Hence, students have the best of at least two
worlds. Unlike regular graduate students whose professors are
concerned with purely academic endeavors, the ICAF curriculum, thanks
to Gard's personal interests, embraces the entire life environment of
the student.

On occasion, this rather broad interest has appeared to be
counterproductive to some College officials. In the early 1980s,
students were told to "take time to smell the roses." Translated, this
meant that "quality time" should be spent with the family and one
should reduce the intensity level of his efforts. Unfortunately, this
sometimes resulted in a less-than-fully committed student.

Pustay, the third NDU President, required ICAF to return to its
traditional subject of mobilization and to do so by way of a demanding
(rigorous) program. He defined rigor as essentially a program of
substantive research and subsequently, writing requirements increased
markedly.

Deputy Secretary of Defense Clements, by chairing the COEE, was
very influential in changing ICAF's curriculum. In addition, it was a
COEE recommendation which resulted in the establishment of the NDU
which then assumed considerable supervisory control over ICAF's curriculum content and instructional methodology.

In a word, whenever someone was strong enough, he forced a new subject into the curriculum and an "old" subject fell out. Most often, what fell out was something "owned" by an advocate without enough influence to hold onto his program. Thus, economics gave way when Gard pushed in the applied behavioral sciences. Applied behavioral sciences and its host department, OPM, was later reduced in the late 1980s so that room could be made for the new treatment of joint and combined operations.

Although many changes were wrought by strong persons, these were often reversed or allowed to atrophy upon the departure of the change agent. This should come as no surprise and suggests that in an educational institution such as ICAF where the top-level decisionmakers are military and usually moved often, there will be little or no institutional memory. What this leads to is periodically "re-inventing the wheel." Obvious examples of this "yo-yo" effect are the on-again, off-again programs of research and field studies.

Finally, the record suggests that short-tenure Commandants did little to change the academic program. If the screening and selection process for Commandants is not improved so that future selectees are steady, academically-oriented, and inclined to foster reasoned change, perhaps the constant turnover in this key position is preferable. For it is difficult to determine which is more harmful -- a series of
short-term Commandants who are not interested in learning what ICAF is all about, or a long-term Commandant of limited intellect and understanding who is incapable of distilling the right conclusions from his experience.

**Commissions and boards**

Second only to influential persons contributing to curriculum change at ICAF have been the many appointed Boards and Commissions. These groups were usually asked to study ICAF's structure, operations, and results, and they then made wide-ranging recommendations. The ultimate influence of these entities can be measured by how many and of what type recommendations were adopted.

Purely advisory boards such as the Board of Advisors influenced curriculum only insofar as the influential people chose to pay attention. Often, this was very little. On the other hand, committees such as the COEE made recommendations which had the weight of highly-placed and respected members of the ICAF constituency behind them. The Echols and Hancock Boards, convened in 1943 and 1945, respectively, with the task of evaluating military officer education as a preparatory step to establishing the Industrial College of the Armed Forces. The far-reaching recommendations of these two Boards resulted in more resources, appointment of advisory boards, expansion of research, restatement of economic mobilization as the curriculum focus, and a
name change from the Army Industrial College to the Industrial College of the Armed Forces.

The Baxter Board of 1954 also dealt with all aspects of ICAF. Among its recommendations were calls for more joint ICAF/NWC activities, new facilities for ICAF, staggered tours for faculty and staff, and continued separate operation of the two Colleges. Although the Management, Education and Training Study Group of 1966 did not recommend any major changes, the study enabled ICAF to better understand what it should do to meet defense management education needs. Each of these boards, including the COEE, was comprised of respected, high-ranking military and civilians of the academic community, industry, and the national security establishment.

The name of the institution, its parent, mission, curriculum content, student body composition, faculty qualifications and other meaningful aspects of ICAF were revised as a result of Board and Committee recommendations. However, proposed changes were radically altered in their application to ICAF if well-placed and influential people determined to resist. The most recent example cited was the redefinition of joint warfighting as applied to ICAF. In this instance, the academic dean and Commandant argued successfully for their interpretation of ICAF as unique and warranting relief from some of the strictures placed on other SSCs. Such an outcome suggests that even powerful Boards will often defer when faced with determined
opposition from officials acknowledged to be informed and well-intentioned.

**Educational philosophies**

Evidence adduced indicates that the philosophy of ICAF has for many years embraced some fundamental beliefs. It has been ICAF's position for many years that instruction should be on the graduate level. However, graduate level academic programs most often feature heavy reading requirements, meaningful and substantial research papers, and examinations. A consideration of these minimum prerequisites suggests that ICAF has not really achieved graduate institution status. That is not to say that instruction has not been on the graduate level. Indeed, many electives and some core courses have been taught by highly-qualified professors and exacting requirements have been levied on students. On balance, however, the totality does not support the contention that ICAF is a true graduate institution.

Further support for this contention can be found in a discussion on the philosophy and objectives of advanced education which was conducted as part of a series of educational seminars at ICAF in 1954 (Analysis of Results of Educational Seminars of February 24-26, 1954). Several respected academics, after meeting and dialoguing with ICAF officials, concluded that:

Graduate study is concerned especially with the creative and critical handling of new facts and ideas and with
the exploration of the frontiers of knowledge and thought. Clear and imaginative thinking, free from group pressures toward conformity, developed by reflection, verified by research and clarified through writing, is a major goal of graduate study. Tasks which encourage the student to add new knowledge, to however limited an extent, are preferable to exercises which require only a review and summarization of present knowledge. (p. 7)

ICAF students, for the most part, do not add to the knowledge base nor do they engage in research designed to enhance clear, reflective, and imaginative thinking. Since that was also the case in the 1950s, the aforementioned academics concluded that ICAF's educational program was part graduate and part professional education.

A second tenet which dates back to the early years is the belief that active learning is far superior to passive learning as the mode of instruction. A bevy of Boards, Commandants, and faculty have reiterated this position many times. Schomburg was the first Commandant to insist strongly on action-oriented learning and follow through by systematically replacing passive techniques with student-centered and active methods. Presently, curriculum developers who brief the Commandant and his senior staff are questioned on how many lectures and other passive learning experiences are planned.
Invariably, the incidence of passive modes is required to be equal to or less than the preceding year.

In addition to the expected benefit of more effective learning from action-oriented instruction, this active learning is believed to be more demanding, i.e., more rigorous. ICAF has, like most other PME institutions, been trying to discard the label of "country club" or "gentlemen's course" for many years. During its history, the College has been routinely identified as too easy and failing to hold students accountable. Consequently, examinations, more research and more substantial research, and heavier reading assignments have been attempted in an effort to achieve the rigor demanded by legislation, Boards and Committees, and influential persons. Thus, active learning and rigorous curricula have both been goals of ICAF over the years, but their attainment has been largely unachieved.

Third, the best curriculum is thought by ICAF to be one which combines both basic, fundamental truths and current problems/issues. The College's educational philosophy holds that students ought to know the normative or first principles. The rationale is that if they understand the enduring principles, models, and philosophy underpinning their studies, they will be better able to cope with current and future problems. Landson dealt with this in his Academic Guidance when he wrote, "if we can create a chemistry in the classroom between the contemporary concerns of the student -- really of the government -- and the enduring information or paradigms, we can provide insight not only
in today's problems but those to be encountered in the student's future" (p. 31).

Fourth, the academic program has long been described as needing interrelatedness, interdependence, coherence, and logic so that the learning a graduate takes away can be used for the rest of his career. The multidisciplinary and interdisciplnary curriculum developed in the late 1980s, if vigorously pursued, can expose the student to the same subject from a variety of perspectives and with a number of learning methodologies. Graduates are known to go on to a vast variety of duties and this multi-dimensional educational experience would prepare them to routinely view problems from the discipline bases of economics, politics, sociology, and anthropology.

In any case, long-term use of an interdisciplinary approach will not be easy. ICAF is no different than the higher education institutions about which Rudolph wrote. Rudolph (1977, p. 249) said that "interdepartmental majors and programs, although they ameliorated excessive concentration and supported breadth as a curriculum purpose, struck at the specialization and departmentalization that were the repositories of bureaucratic power." In a later discussion on the same subject, Rudolph (1977, p. 273) continued, "interdisciplinary and team-taught programs often fail because faculty do not want to teach them. When faculty do teach them, they are unable to integrate their disciplines or to work together. Written evaluations are also
unsuccessful, because faculty find them too burdensome, students are not interested in them, and graduate schools dislike them."

Finally, the educational philosophy as practiced has been geared toward producing a liberally-educated graduate. Although these exact words may not have been used, there is good reason for phrasing it this way. Any educational practice proceeds from a theory of education. The College had certain specific ideas about the nature of the student, the type of graduate desired, and what types of learning activities might best achieve its aims.

Early in its history, senior ICAF officials were positive in declaring that reflective and critical thinkers were desired -- graduates who went beyond superficial contact with information. Wheeler, in the mid-to-late 1980s, regularly reminded the College's faculty and students that ICAF graduates must be educated beyond "knowing how" to "knowing that." These articles of faith plus the interdisciplinary and multidisciplinary curricula constitute a virtual description of a large part of what a liberal education seeks.

The liberal philosophy of education holds that the mind should be developed intellectually. Further, adherents to this philosophy believe that education should be directed toward moving the learner beyond the states of knowing and understanding to wisdom. Therefore, within this philosophy, critical and reflective reasoning are prized so that the learner will come to appreciate the importance of adopting a multi-perspectival approach to life's many perplexing situations.
Technology

Broadly defined, technology includes ideas or concepts as much as it does physical things like computers. In this sense, technology has had a marked effect on the College's curriculum. Examples of advances in technology which have affected ICAF include the advent of simulations, moving pictures, applied behavioral science, case study methodology, and videocassette recorders. Each of these affected either curriculum content, instructional techniques, or both.

The computer's utility as an aid to problem-solving and decisionmaking resulted in its adoption in major ways. Basic and advanced computer courses were added to the academic program because this knowledge was deemed necessary for federal government managers. Similarly, the computer was added to the several instructional techniques as an effective way to transfer knowledge. The latter is still very much in evidence, but the increase in student computer literacy has resulted in fewer courses and different, more advanced ones.

The growth in the discipline of applied behavioral science made it possible for the personal and interpersonal aspects of student growth and development to be added to the curriculum. Consequently, a major portion of the student's contact hours were given over to the search for better understanding of self and others, improved communications, and more effective group performance. Had this body of knowledge not attained its level of maturation, the human side of the national
security manager could not have been dealt with in such a comprehensive manner. As with computers, instructional techniques were also affected. Action-oriented learning and critical thinking were materially aided by the improved understanding of how students learned, how groups grew, and how and why teachers taught as they did.

The case study method which was adopted from Harvard early in ICAF's history continues to be a valued teaching method. Although the degree to which the case method has been used has changed from time to time, events have conspired such that this researcher believes it will be an even more widely used technique in the future. The type of educational experience envisioned by recent entities such as the Act of 1986 and the Skelton Panel argue strongly for the case method. However, many faculty members arrive without previous exposure to this methodology. Therefore, faculty professional development programs should include workshops designed to remedy this deficiency. So far, such workshops have been insufficient to convert the inexperienced.

If military officers are to be prepared to think in terms of "grand strategy," the study of past and current national security "cases" is one of the best means by which to achieve this objective. To achieve this objective will require the more highly-qualified faculty recommended by the Skelton Panel -- a faculty which is "historically aware" and academically equipped to develop cases and lead students in gleaning the essence from them.
Videocassette recorders (VCRs) are a relatively new addition to the College's inventory of instructional aids. Essentially, they are a much improved version of the motion picture. VCR technology permits easy capture of learning activities in process and enables students and faculty to polish their speaking abilities more effectively. However, the greatest use of VCRs is as an additional tool for use by faculty members as they seek to convey curriculum content. Tailored, as well as generic videotapes, have enabled faculty to conduct more creative and thought-provoking learning experiences. For these reasons, it is logical to expect that VCRs and improvements thereon will continue to be useful tools at ICAF.

In summary, advances in technology exerted considerable influence on both what was taught and how it was taught.

Faculty

Historically, the faculty has been found inadequate and ill-equipped to facilitate College learning activities. Military faculty came to the faculty as experiential experts and often without the needed academic knowledge base. Given the nature of the typical military officer's career, this has been unavoidable. Few aggressive and ambitious officers place higher priority on doctoral degrees than they do the "right assignments" in their pursuit of the most senior grades in the military hierarchy. Yet, ICAF curriculum planners see a need for discipline-based academic specialists to facilitate the
action-oriented, dynamic, interdisciplinary, and rigorous curriculum. On the other hand, these same planners believe ICAF students need exposure to the real-world views and knowledge possessed by officers coming from operational fields.

If this continues to be the goal -- to have military faculty who fit both criteria -- conscious efforts must be made both to groom and select this type of military faculty member. Such an effort is not likely to succeed until and unless an assignment to a PME faculty is looked upon as career-enhancing. That is not the case and it has rarely been so. The Service cultures do not reward academic faculty and staff assignments and no amount of lip service will change that. Perhaps that is why the Services, some more than others, continue to nominate and assign officers to ICAF's faculty whom they do not consider qualified to come to ICAF as students.

However, the Services, which annually send up to 60 of their presumably very best officers to ICAF, do not seem to realize that they fail to maximize their investment when they provide faculty members who are not fully competent. A well-researched, carefully implemented, and strongly supported system is needed if this situation is to be corrected. Additionally, follow-on results would have to prove, over time, that the attainment of a terminal degree, substantial operational experience, and subsequent assignment to a PME faculty results in higher rank.
Civilian faculty members have been criticized for being resistant to change and oftentimes too timid to demand excellence of students. Evidence suggests that tenure policies have played a major role in this regard. There is no tenure; civilians are hired on a year-to-year basis.

Since their continued job security is so tenuous, many openly admit that they feel the need to stay current in the broad sense of their disciplines. Otherwise, they could find themselves released from ICAF, but virtually unemployable if their continuing professional development has been narrowly pursued in national security areas. The College, with some logic, argues that tenure results in "hardening of the arteries." While it may be true that tenure might result in some professors resting on their laurels, some means must be developed whereby the concerns of both parties can be met. The College cannot afford to create a situation similar to that described by Rudolph. In discussing tenure as a source of curriculum vigor, Rudolph (1977, p. 157) wrote that "while tenure protected the professors in advancing new ideas and unpopular ideas, it also sometimes protected them when the time for both them and their ideas had come and gone."

Excessive faculty turnover has been a perennial problem at ICAF. However, the assignment policies for military officers (three-year assignment), the unattractiveness of faculty assignment as non-career-enhancing, and the uncertainty for civilian professors all contribute to the turnover problem. Continuity or institutional memory is a must
if the College is to grow in a progressive manner. Otherwise, lessons must be regularly re-learned and valuable time and effort wasted every few years.

Participative, student-learning activities require faculty members who are skilled in small group facilitation and who understand how to teach -- especially how to teach adults. However, faculty members most often arrive with no previous training in these areas. It would be simple to suggest that faculty development programs could fill this void. However, that assumes that "quality" time would be available and that faculty would willingly and voluntarily participate. Previous efforts have been only marginally successful. Even so, if the College's expectations are not revised, some workable program or solution will have to be devised so that faculty can more successfully use desired instructional techniques.

Economic, social, political phenomena

Environmental phenomena such as wars, domestic policies and problems, and social movements have also interacted with other change agents to alter ICAF's curriculum. Some of the events included under this rubric are wars or threats of wars, deficits, and energy crises.

Just as wartime experiences were largely responsible for the establishment of ICAF, wars, skirmishes, and perceived and anticipated threats of wars have resulted in curriculum additions and deletions. After World War II, course material was added to prepare graduates to
deal with such after-effects as contract terminations and renegotiations. When massive retaliation with nuclear weapons was replaced by a conventional war expectation, subject matter concerning limited wars, insurgencies, and mobilization for protracted war entered or re-entered the curriculum. Simulated war scenarios similarly showed the need for stronger emphasis on certain mobilization problems.

Since the fundamental purpose of ICAF is to prepare graduates to cope with resource management issues so that peacetime preparation and wartime execution will be effective, one should expect that perceived voids in the nation's ability to defend itself successfully would be the primary subject matter. Even so, there is an air of unreality about the academic program.

Students are prepared to cope with peacetime resource management issues in a logical and rational manner. To its credit, ICAF even indoctrinates its students on the necessity to consider political, economic, and social ramifications of national security problems. However, all too often when students return to the real world of defense planning, they find "business as usual" -- logrolling, counterproductive inter-Service rivalries, and often, rigid bosses locked in outdated time warps. This researcher often heard students complain that their Services would "cut them off at the knees" if they cooperated with other Services' program officers in the interests of the larger national security. One recent graduate confided in 1988 that despite his tremendous education in joint warfighting and
increased understanding of the various problems associated with weapons acquisition, he was not allowed to conduct the nation's business. Instead, he was forced to conduct the Air Force's business.

Because College officials clearly understand the interrelatedness of all elements of national power, the effects of domestic and international social, political, and economic problems are studied as they affect the nation's capacity to survive and prosper. Military force is but one element of national power and it is shaped and directed by other components of power. Hence, the continuing problems of environmental pollution, shortage of energy sources, and domestic unrest are juxtaposed with more contemporary problems such as the economic deficits. Since the perceived seriousness of these subjects changes from time to time, the emphasis on these curriculum issues ebbs and flows.

An illustration of this is found in the 1980s experience with the treatment in the ICAF curriculum of the subject of minorities and women. In the early 1980s when the Vietnam experience and onset of the AVF were still relatively fresh memories, there was virtually no debate on whether students should study the issues of women and minorities in the military. However, by school year 1986-1987, heated debates occurred between faculty members over whether the subject of women and minorities should be dropped from the curriculum.

Although the ultimate decision to change such emphases rests with one or more influential persons, it is the perceived gravity of the
problem which makes it a recurring topic of concern. This study found
that often the most talked about or written about issues were the ones
which were added to the curriculum. And, as previously adduced, the
lesser-discussed or less well-defended subject was forced out to make
room for the addition.

The prestige and reputation of ICAF has also exerted substantial
influence on the curriculum, but in a more subtle way. Although ICAF's
prestige appears greater during peacetime, it still suffers by
comparison with that of the National War College (NWC). The periodic
trials by NWC staff and students to relegate ICAF to a lower status
have been successful. Anecdotal evidence indicates that, given a
choice of senior joint colleges, military officers still prefer NWC.
Whether this is based in fact is largely irrelevant because the
perception is that NWC is the more prestigious of the two and
graduation therefrom is more beneficial to one's career. Knowledge
that the only U.S. President to graduate from a senior military college
was an ICAF graduate does nothing to change this impression.

Officer students have been heard to complain that NWC gets the
more important national figures to come as guest lecturers. NWC
student seminars have usually been smaller and more intimate. In spite
of the "new" ICAF building of 1960, the NWC building is still by far
the grander edifice. NWC students study the allegedly "sexier," more
glamorous subjects of national strategy and policy rather than the
pedestrian subjects of logistics and resource management.
As a result, many ICAF curriculum planners studiously seek important speakers to grace the ICAF lecture platform, and perhaps without enough concern for relevance of the speaker's message. The athletic rivalry often takes on the form of a "holy war" and sometimes the ICAF Commandant takes the ICAF inter-College losses rather personally. ICAF students clamor for admission to NWC elective classes and many ICAF electives virtually duplicate many of the NWC electives. Oftentimes, NWC electives on "grand" strategy and national security policy-making have been considered by ICAF students as more glamorous, interesting, and useful. And, since space restrictions and scheduling difficulties have often prevented ICAF students' enrollment in NWC electives, these "near clones" have been developed. It strains one's credulity to accept as fact that two Colleges, next door to one another, and under the general supervision of a University founded in the interests of economy, cannot reconcile space and scheduling difficulties.

Some headway has been made in recent years to remedy this situation. The last two NDU Presidents and most of the more recent Commandants of the two Colleges have urged students to think in terms of "us" rather than "we" and "they." Students of both Colleges were issued name tags of the same color in the late 1980s and perhaps most important, increased efforts were made to put ICAF and NWC students into more joint learning activities. However, this pervasive mindset will not disappear soon, if ever. Past graduates and probably some
from current classes still refer to NWC as the "House of Lords" and ICAF as the "House of Commons." It will be interesting to see whether this situation persists if the NWC is converted to the National Center for Strategic Studies as recommended by the Skelton Panel.

Summary of conclusions

Based on the foregoing, there are some overall conclusions which can be reached:

1. Historically, until NDU was created in 1976, ICAF was largely left alone to plan, develop, and execute its curriculum. The JCS, although the "owner" of ICAF, did not involve itself in a major way with determining either curriculum content or instructional methodology. Undoubtedly, the JCS had "more important" matters consuming its precious time and efforts.

2. Research programs have not been of the type which added to the knowledge base. Some of the reasons were: (a) not enough time dedicated to research to enable students to accomplish substantial research, (b) constant changes in the aims, structure, and implementation of the program, and (c) lack of desire on the part of operationally-oriented students to engage in in-depth research.

3. The faculty, on the whole, has not been populated with the kind of person qualified to assist students to master an academically rigorous, interdisciplinary, and multidisciplinary educational program. Sending agencies have evinced little concern for quality and competence
in the nomination of military faculty. There have been many
nominations of individuals who were not considered qualified to attend
as students. According to a former Associate Dean, in two specific
cases, the Army provided faculty members who were passed over for
promotion to Colonel near the end of their ICAF assignments, without
having received derogatory performance ratings at ICAF. Further, in
one of these cases, the Army refused to recognize the award of an ICAF
diploma based on the criteria ICAF had established for this award.

4. Planned curriculum change can be and often has been thwarted
by individual faculty members. In many instances, elaborate plans were
made in content and methodology changes, but faculty members often "did
it their way." The inferior quality of many military faculty members
and lack of tenure of civilian faculty resulted in faculty reluctance
to enforce rigor in instructional methodology. Lack of rigorous
criticism of written work is endemic. The effectiveness of the case
method has been reduced because many faculty members were unfamiliar
with and/or unsupportive of the method, and were given inadequate or no
training. This has resulted in uneven content delivery and student
complaints about their educational experiences.

5. The Navy has not valued the ICAF experience to the same extent
as other Services. Operational shipboard assignments have been
regarded as more useful and career-enhancing than higher education.
This has been reflected in many Navy students' attitudes and
performance, as well as in the absence of ICAF graduates among the top
two Navy flag ranks. This has not always been the case. Scammell, an Army Major, wrote a glowing account of 20 years of Army-Navy cooperation in support of ICAF (Scammell, 1947, pp. 295-302). Captain John D. Hayes, USN, lauded the ICAF experience by saying that "the 10-month course brings before the naval officer an entirely new series of problems different from those he is confronted with normally in his professional life...the graduates will bring to the wide variety of sea and shore duties to which they are assigned a broadened viewpoint and a better understanding of their functions in the structure of our military power and national security" (Hayes, 1952, p. 4). However, Hosmer wrote in 1985 that there was still a question as regards the quality of students and that the Navy process seemed uncertain if not obscure (NDU Annual Report, FY 1985-1986, p. 28). No other specific references of this Navy mindset were found, but it is not unusual for negatives to be spoken of only in private. There is an abundance of anecdotal evidence that for the past several years, the Navy has placed little value on ICAF attendance. Naval officers have said as much. A potentially fruitful area for further research would be to find out exactly when the Navy changed its position, and why.

6. Curriculum planning has not been an orderly, systematic, and analytical process except on rare occasions. There has been no system of continuous monitoring of curriculum development to track changes and reasons for them over periods longer than the average 2-3 year tour of military faculty. There is no institutional memory. This is not a new
phenomenon because Armstrong reportedly said in the 1930s that "the curriculum grew up without any definite attempt to provide a logical sequence of subjects studied" (Bauer, 1983, p. III-4). As recently as school year 1983-1984, one of the observations made in the NDU Annual Report was that "curricula had undergone numerous changes in the past few years but changes were often made with little planning or integration in the overall program. This left the faculty unprepared to deal with new material" (NDU Annual Report, FY 1983-1984, p. 5).

7. There has been an inordinate amount of instability in tenure of Commandants, especially those from the Air Force. Between 1967 and 1980, there were eight Commandants, six of whom served two years or less. During this same period, there were five Air Force Commandants, one of whom served two years, two served one to one-and-a-half years, and one served for two months. One possible remedy suggested by Card was that if Commandants cannot be assigned for tours of 3 years or more, retired officers should be recalled for reasonable periods (NDU Annual Report, FY 1980-1981, p. 1). Personnel turbulence, especially in the most senior positions, has a negative effect on the effectiveness of assigned personnel. This is reflected in the nature of and extent to which the curriculum undergoes critical analysis and orderly revision. Often when an influential agent of change left the College, the initiatives he championed followed soon thereafter.
8. Events of contemporary concern often determined curriculum content rather than the published mission statement or pronouncements of charter revisions or advisory boards.

9. In spite of the many surveys conducted, ICAF has failed to determine exactly what it was educating for. Generally speaking, ICAF's mission to prepare government officials for senior policy making and advising positions is understood and accepted by faculty and staff. However, agreement on what this really means is quite elusive. Perhaps the necessity to educate future flag officers and ambassadors for every contingency contributes to the uncertainty about the desired form and substance of the end product.

10. Curriculum change at ICAF has, for the most part, been incremental. There have been few sudden and massive changes. In bureaucracies, especially academic institutions, this is the norm.

11. For many years, the Harvard Graduate School of Business, in one way or another, influenced ICAF's educational philosophy, curriculum content, and instructional methodology.

12. Curriculum change at ICAF has been differentially affected by a variety of factors, but the most influential change agent has been the well-placed and strong-willed individual.

13. Academic rigor, as defined, has not been attained. Pustay's definition which called for excellence in research was not met. Nor was the late 1980s definition -- academic excellence as measured by student mastery of intellectually challenging objectives and exercises,
existence of high standards of performance, and comprehensive evaluation procedures. Rigor is not likely to be obtained until examinations, heavy graduate-level reading, and exacting grading standards -- complete with individual within-class ranking by demanding and highly-qualified instructors -- become institutionalized. An honors program, majors and minors, and a preceptorial system are all worthy of consideration. A preceptorial program emphasizes independent reading, discussion in small groups, and individual conferences with the teachers.

These conclusions contain within them many of the subject matter areas which are in need of further research and study. It is this researcher's hope that future scholars will investigate these and other areas of concern to the ICAF curriculum development process. If so, perhaps this study will provide a starting point and help guide the search for a continuing process of systematic, orderly, and comprehensive curriculum change.
BIBLIOGRAPHY

A. PUBLISHED MATERIALS

Annual Reports of ICAF to Joint Chiefs of Staff. (1960-1975).
Washington, DC: Industrial College of the Armed Forces.

Annual Reports of NDU to Joint Chiefs of Staff. (1976-1988).


Brightest military minds go to economics school. (1952, June 21), Business Week, p. 182.


Upton, E. (1878). *The armies of Asia and Europe: Embracing official reports on the armies of Japan, China, India, Persia, Italy, Russia, Austria, Germany, France and England*. New York: Appleton and Company.


B. UNPUBLISHED MATERIALS


C. INTERVIEWS


Beckstead, Robert W., Faculty Member, Director of Economics Program and Curriculum Committee Member, ICAF, 1973 to present. Washington, DC, June 22, 1989.

Landson, Barry M., Colonel, USA(Ret), Faculty Member, Department Chair and Dean of Academics and Faculty, ICAF, 1981-1988. West Springfield, VA, November 12, 1989.


Morgan, John B., Colonel, USA(Ret), Faculty Member and Chair of Curriculum Committee, ICAF, 1960-1965. Telephone Interview to Tucson, AZ, June 28, 1989.


Sanders, Ralph, Faculty Member, Director of Research and Curriculum Committee Member, ICAF, 1961-1988. Washington, DC, June 23, 1989.

Waterman, Bernard S., Brigadier General, USA(Ret), Faculty Member, Associate Dean of Faculty and Academics and Curriculum Committee Member, ICAF, 1950-1953, 1966-1986. Washington, DC, July 21, 1989.
APPENDICES
APPENDIX A

PROFESSIONAL MILITARY EDUCATION PROGRAMS
OF THE ARMED FORCES
# Professional Military Education Programs of the Armed Services

<table>
<thead>
<tr>
<th>Level</th>
<th>Army</th>
<th>Navy</th>
<th>Marine Corps</th>
<th>Coast Guard</th>
<th>Air Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>(Commissioning programs, i.e. academies, ROTC, OCS, and so on)</td>
<td></td>
<td>Pilot-, Navigator-, and Specialty-Training Programs of Air Training Command</td>
</tr>
<tr>
<td>2</td>
<td>Branch Schools (Orientation Course)</td>
<td>Surface Submarine and Flying Schools</td>
<td>Basic School</td>
<td>Naval Schools</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Branch Schools (Career Course)</td>
<td>Naval Post Graduate School</td>
<td>Junior School</td>
<td>Naval Schools</td>
<td>Air University; Squadron Officer School</td>
</tr>
<tr>
<td>4*</td>
<td>Army Command and General Staff College (Naval War College)</td>
<td>Command and Staff Course (Senior School)</td>
<td>Other Service Command and Staff Schools</td>
<td>Air University; Command and Staff College</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Army War College (Naval Warfare Course (Naval War College))</td>
<td>Naval Warfare Other Service War Colleges</td>
<td>Other Service War Colleges</td>
<td>Air University; Air War College</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>National War College; Industrial College of the Armed Forces</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>7</td>
<td>NATO Defense College</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
</tbody>
</table>

* Between the fourth and fifth level specified numbers of officers attend the Armed Forces Staff College at Norfolk, Va.

**NOTE:** From *Education in the Armed Forces* (p. 86) by J. C. Shelburne and Kenneth J. Graves, 1965, New York: Center for Applied Research in Education.
APPENDIX B

INTERVIEW PROTOCOL
INTERVIEW GUIDE

Thanks for agreeing to this interview which I am conducting in the
data collection phase of my doctoral dissertation research.

My purpose is to try to determine what factors have impacted
curriculum evolution at the Industrial College. And how that took
place. By factors I mean people, events, and so forth.

Is it okay if I use a tape recorder? No names will be used unless
you specifically okay it.

QUESTIONS

My first question is, how long and in what capacity or capacities
have you been associated with ICAF?

What, to your way of thinking, is the purpose or mission of ICAF?

How does the curriculum support that mission?

How has the curriculum changed, in major ways, during your
association with ICAF? And why? Issues involved?

PROBES

In your opinion, which individuals, if any, stand out insofar as
curriculum change and why?

Have boards, commissions, committees and the like been of much
influence? If so, how?
In your experience, how, if at all, have societal phenomena such as wars, economic conditions, political climate and so forth, influenced curriculum direction?

Have technological advances made much impact on the curriculum? (Computers, action research, artificial intelligence, simulations, applied behavioral science, etc.)

How active has the faculty been in affecting the College's curriculum?

Educational philosophies have often determined curriculum content and instructional methodology at colleges and universities. Have you seen any such manifestation at ICAF?

(OTHER PROBES DEVELOPED AS INTERVIEW PROGRESSSED)
APPENDIX C

DIRECTORS AND COMMANDANTS OF THE
ARMY INDUSTRIAL COLLEGE AND THE
INDUSTRIAL COLLEGE OF THE ARMED FORCES
### Directors and Commandants of the Army Industrial College and the Industrial College of the Armed Forces

<table>
<thead>
<tr>
<th>Name</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonel Harley B. Ferguson, CE</td>
<td>25 Feb 24 - 12 Jan 28</td>
</tr>
<tr>
<td>Colonel William B. Wooten, CE</td>
<td>12 Jan 28 - 16 Nov 29</td>
</tr>
<tr>
<td>Colonel Irving J. Carr, SigC</td>
<td>16 Nov 29 - 31 Jul 30</td>
</tr>
<tr>
<td>Colonel William A. McCain, QMC</td>
<td>31 Jul 30 - 6 Jul 34</td>
</tr>
<tr>
<td>Colonel Harry B. Jordan, Ord</td>
<td>6 Jul 34 - 21 Aug 38</td>
</tr>
<tr>
<td>Lieutenant Colonel John E. Lewis, FA</td>
<td>16 Nov 46 - 1 Feb 41</td>
</tr>
<tr>
<td>Colonel Frank Whitehead, USMC</td>
<td>1 Feb 41 - 1 Jan 42</td>
</tr>
<tr>
<td>Colonel Francis H. Miles, Jr., Ord</td>
<td>15 Dec 43 - 1 Sep 44</td>
</tr>
<tr>
<td>Brigadier General Donald Armstrong, Ord</td>
<td>1 Sep 44 - 1 Jul 46</td>
</tr>
<tr>
<td>Brigadier General E.B. McKinley, QMC</td>
<td>1 Jul 46 - 1 Apr 48</td>
</tr>
<tr>
<td>Major General A.W. Vanaman, USAF</td>
<td>1 Apr 48 - 23 May 52</td>
</tr>
<tr>
<td>Rear Admiral W.M. Hague, USN</td>
<td>18 Jun 52 - 20 Jul 55</td>
</tr>
<tr>
<td>Major General R.F. Hollis, USA</td>
<td>20 Jul 55 - 31 Oct 57</td>
</tr>
<tr>
<td>Lieutenant General George W. Mundy, USAF</td>
<td>1 Nov 57 - 1 Jul 61</td>
</tr>
<tr>
<td>Vice Admiral Rufus E. Rose, USN</td>
<td>1 Jul 61 - 31 Mar 64</td>
</tr>
<tr>
<td>Lieutenant General August Schomburg, USA</td>
<td>1 Apr 64 - 30 Jun 67</td>
</tr>
<tr>
<td>Lieutenant General Leighton I. Davis, USAF</td>
<td>1 Jul 67 - 31 Jul 68</td>
</tr>
<tr>
<td>Lieutenant General John S. Hardy, USAF</td>
<td>1 Aug 68 - 31 Jul 70</td>
</tr>
<tr>
<td>Vice Admiral John V. Smith, USN</td>
<td>1 Aug 70 - 31 Jul 73</td>
</tr>
<tr>
<td>Lieutenant General Walter H. Woolwine, USA</td>
<td>1 Aug 73 - 31 May 75</td>
</tr>
<tr>
<td>Officer</td>
<td>Start Date</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Major General Edward A. McGough III, USAF</td>
<td>1 Jun 75</td>
</tr>
<tr>
<td>Major General Theodore Antonelli, USA</td>
<td>Jul 75</td>
</tr>
<tr>
<td>Major General James I. McInerney, Jr., USAF</td>
<td>Jul 78</td>
</tr>
<tr>
<td>Major General John E. Ralph, USAF</td>
<td>Jan 79</td>
</tr>
<tr>
<td>Major General James E. Dalton, USAF</td>
<td>Jul 80</td>
</tr>
<tr>
<td>Rear Admiral Ronald E. Narmi, USN</td>
<td>Jun 81</td>
</tr>
<tr>
<td>Major General Clyde Dean, USMC</td>
<td>Aug 83</td>
</tr>
<tr>
<td>Major General Albin G. Wheeler, USA</td>
<td>Jul 85</td>
</tr>
</tbody>
</table>
APPENDIX D

PRESIDENTS OF THE NATIONAL DEFENSE UNIVERSITY
<table>
<thead>
<tr>
<th>Name</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vice Admiral Marmaduke G. Bayne, USN</td>
<td>21 Jul 75 - 31 Jan 77</td>
</tr>
<tr>
<td>Lieutenant General Robert Gard, USA</td>
<td>1 Feb 77 - 15 Jul 81</td>
</tr>
<tr>
<td>Lieutenant General John S. Pustay, USAF</td>
<td>15 Jul 81 - 30 Sep 83</td>
</tr>
<tr>
<td>Lieutenant General Richard Lawrence, USA</td>
<td>30 Sep 83 - 31 Jul 86</td>
</tr>
<tr>
<td>Lieutenant General Bradley C. Hosmer, USAF</td>
<td>22 Sep 86 - 1 Sep 89</td>
</tr>
</tbody>
</table>
APPENDIX E

SIGNIFICANT DATES IN THE CURRICULUM

EVOLUTION OF

AIC/ICAF
SIGNIFICANT DATES IN THE CURRICULUM

EVOLUTION OF

AIC/ICAF

June 4, 1920  National Defense Act of 1920
October 25, 1921  Planning Branch, OASW
July 26, 1922  Commodity Committees established
February 21, 1924  Army Industrial College opened first course of instruction
February 25, 1924  Army Industrial College formally established under General Order No. 7
First Course, Feb. 1924  Use of Case Problem Method
Second Course, Sep. 1924  Introduction of student committees
                        Student critiques of curriculum began
Third Course, Feb. 1925  Navy and Marine officers joined student body
                        Introduction of wargaming
School Year 1926-1927  First nine-month course
                        Introduction of field trips
School Year 1927-1928  Visual education aids introduced
School Year 1928-1929  Motion pictures introduced
                        Army line officers joined student body
School Year 1930-1931  Naval officers added to faculty
School Year 1931-1932  Start of long-term program of student and faculty research
School Year 1932-1933  Officer placed in charge of library
First woman invited to address College; Mary Beard, wife and collaborator of Charles A. Beard

School Year 1935-1936
Army War College invited ICAF students to its lectures

School Year 1937-1938
Curriculum more sharply focused on planning for economic mobilization and military capabilities of European and Asiatic nations

School Year 1938-1939
First effort to provide joint education
Faculty and students assigned to revise War Department's Mobilization Plan

Early 1941
First Marine Commandant, LtCol Whitehead

January 2, 1941
First of short courses to meet demand for officers trained in procurement and economic mobilization

1941
Board of Advisors established

December 23, 1941
College closed because of World War II

November 27, 1943
Echols Board convened

January 3, 1944
College re-opened; had re-opened on December 28, 1943 with interim courses on contract termination and renegotiation

March 7, 1944
Department of Research established

September 1, 1944
First General Officer Commandant

June 15, 1945
Hancock Board established and recommended:
Advisory committees be established
Name be changed to ICAF

April 26, 1946
AIC redesignated as ICAF

August, 1946
ICAF moved to Ft. McNair

September, 1946
First regular post-war course

School Year 1946-1947
Defense Industry Analysis format began
1947

National Security Act of 1947

September, 1947

First Air Force students

School Year 1947-1948

Start of inter-college athletic rivalry

September 3, 1948

ICAF reconstituted as a joint educational institution under the direction of the JCS (charter revision)

1948

Beginning of National Resources Conferences

School Year 1948-1949

 Civilians from other federal agencies joined the student body

Conscious effort to reduce number of lectures because of criticism

April 31, 1949

Charter revision; authorized expansion of student body to include National Guard, Reservists, and selected industry executives

1950

Beginning of correspondence courses

School Year 1950-1951

Introduction of unit on joint strategic logistic planning

Increased emphasis on management and executive skills

Introduction of examinations; lasted just this one year

Beginning of Permanent Faculty Advisors

School Year 1954-1955

Charter revision; same curriculum for military and civilian students

1954

Baxter Board convened; concerned with lack of attention to joint and combined operations; called for new building, separate NWC and ICAF; joint educational committee of three College Commandants

July 1960

Charter revision; new emphasis; interrelationship of economic and
industrial factors in formulation of national security policy

School Year 1959-1960
Introduction of International Field Studies Program

September 6, 1960
New ICAF building occupied

School Year 1960-1961
Initiation of cooperative degree program with George Washington University

1962
Charter revision; shift of curriculum emphasis to complex problems of defense logistics involving the management of men, money, materials; study of management of resources for national security

School Year 1962-1963
Introduction of simulation as an instructional technique

School Year 1963-1964
Assignment selection criteria for faculty revised to require at least a B.A. and SSC diploma

February, 1965
Field studies changed from observation to analysis of industrial management problems

School Year 1964-1965
Shift to action-oriented learning; case studies, simulations, role plays, demonstrations, exercises
Curriculum planning done by a committee with no responsibility for execution

School Year 1965-1966
Research changed from traditional thesis on problems in defense management to substantial research project, in any form, on topic of current DoD concern
Initiation of electives program
Sabbatical leave policy instituted

Extensive, comprehensive effort to get current and past students and their supervisors to assess appropriateness of ICAF's curriculum
Management, Education and Training Study Group studied ICAF program

School Year 1966-1967
Journal, Perspectives in Defense Management, first issue

School Year 1969-1970
ICAF Research Fellows Program began

School Year 1970-1971
Cooperative degree changed from Master of Science in Business Administration to Master of Science in Administration

Involvement of Assistant Secretary of Defense to persuade students to write research papers versus take additional electives

School Year 1972-1973
Introduction of "Great Books" Reading Program

School Year 1973-1974
Students required to write after selected core courses to demonstrate learning achievement, organization and synthesis of thoughts

July 5, 1975
Clements Committee on Excellence in Education (COEE) made its report

July 21, 1975
Admiral Bayne appointed as first President of NDU

School Year 1975-1976
Annual trip to United Nations Headquarters eliminated

Overseas field study eliminated

Individual substantive research program made optional

ICAF Research Fellows Program replaced by new NDU Associate Research Fellows Program

Perspectives discontinued and replaced by NDU Monograph Series

1976
New charter for ICAF; "only SSC in the military educational system dedicated to
| School Year 1977-1978 | Dean of Faculty and Academics position created and made responsible for curriculum development. |
| School Year 1978-1979 | Executive Development Office established. |
| School Year 1979-1980 | Introduction of Applied Behavioral Sciences by Gard; personality measurements, group dynamics, etc. |
| School Year 1982-1983 | Restatement of goal as intellectual rigor = demand for excellence in research. Writing requirements increased throughout entire educational program. |
Microcomputers introduced to NDU; given to students to use if enrolled in computer elective

School Year 1983-1984

Joint core courses with NWC in Phase I, Executive Perspective

New NDU Distinguished Lecturer Program

School Year 1984-1985

Introduction of systems approach

Introduction of interdisciplinary approach

Introduction of NDU International Fellows Program

School Year 1985-1986

Defense Reorganization Act of 1986

Joint and Combined Operations introduced as an elective

New program of research seminars

Elective registration automated

School Year 1986-1987

Decisionmaking as integrating theme

Dougherty Commission recommendations published

Simulation models run on microcomputers versus contract mainframes

Rostow and Endicott Report published

Research program changed to require short non-research papers

Senior Military Schools Review Board; evaluated rigor of entire program

Rigor defined; colleges directed to develop program for its achievement

School Year 1987-1988

Writing requirements increased; end-of-phase questions introduced -- required students to integrate, synthesize, and
otherwise demonstrate understanding and ability to apply learnings

Major themes -- decisionmaking, jointness, rigor, interdisciplinary approach

Establishment of department to focus on joint and combined warfare

JCO added to core curriculum and human resources subjects reduced

Research requirement made optional

Academic Guidance used to direct curriculum thrust

Skelton Panel reported its conclusions
VITA

Robert Gest III was born on February 5, 1937, in Haines City, Florida. He received a B.A. degree in Sociology from Livingstone College in 1958 and an M.B.A. in Personnel Management and Labor Relations from Syracuse University in 1968. He completed requirements for an Ed.D. in Adult and Continuing Education from Virginia Polytechnic Institute and State University in April, 1990.

Mr. Gest taught for one year at Oakland High School, Haines City, Florida. From 1959 to 1989, he served in the United States Air Force, rising to the rank of Colonel. While in the armed services, he taught as an adjunct professor at the College of Guam and Washington Technical Institute. His last seven years of active service was as Professor of Human Resources at the Industrial College of the Armed Forces, Washington, DC.

Mr. Gest has two children, Robert Gest IV and Roblyn Renee Gest.