

as the Office of the Chief Chemical Officer.<sup>112</sup> The Miller Committee had recommended that the Chemical Corps Intelligence Agency report directly to the Chief Chemical Officer. But because of the intimate relationship of intelligence, planning and combat developments, the Burns Committee decided that the Assistant Chief Chemical Officer for Planning and Doctrine should have direct control over the CCIA.<sup>113</sup> Since there was no formal intelligence staff in the OCCmIO after the reorganization, the Chief of the Chemical Corps Intelligence Agency provided the intelligence staff support for the Assistant Chief Chemical Officer for Planning and Doctrine.<sup>114</sup>

#### Problems of Reorganization

(U) At the end of Fiscal Year 1956 the Office of the Assistant Chief Chemical Officer for Planning and Doctrine had been in existence for slightly over six months. During this period it experienced the false starts and the "shaking down" problems which are the lot of any new organization. The main problem was the lack of competent civilian and military personnel.<sup>115</sup>

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<sup>112</sup> Summary of Major Events and Problems, FY 55, pp. 106, 108.

<sup>113</sup> Burns Committee, Organization Plan, AGCmIO P&D, pp. 15, 16.

<sup>114</sup> (1) Interv, Hist Off with Col William Foley, Deputy, AGCmIO P&D, 8 Aug 56.  
(2) On 18 December 1955 the Security Branch of the Plans, Training, and Intelligence Division was discontinued and its functions, records, and equipment were transferred to the Chemical Corps Provost Marshal. At the same time the Intelligence Office, PT&I Division, was also discontinued and its functions, records, and equipment transferred to the CCIA (OCCmIO GO 21, 15 Dec 55).

<sup>115</sup> Foley interv, 8 Aug 56.

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In addition to the need for qualified officers already mentioned, great difficulty was experienced in obtaining certain civilian positions in the higher grades. An opening for a civilian physicist to assist the Nuclear Effects Advisor existed from the beginning. Unfortunately, a man with the proper qualifications -- the vacancy was for a GS-14 -- could fare much better outside government service. Other civilian positions in high echelons of training and planning activities were not filled at the end of FY 1956.

(U) The new Field Requirements Group also experienced difficulty in filling its authorized positions. As of 30 June 1956 only 11 (10 officers and 1 enlisted man) of its 23 (19 and 4) military spaces were filled. Recruitment of civilian personnel moved even more slowly; only six of the twenty spaces were filled by the end of the fiscal year. The recruitment of civilian personnel during FY 56 was hampered by a lack of funds, a condition which was improved in the budget for FY 57. But even with ample funds an energetic recruitment program will be necessary in filling the civilian positions within the Field Requirements Group. Past experience of the Doctrine Division, FRG's antecedent, has pointed to the difficulty of finding civilians for the higher grades.<sup>116</sup>

#### Combat Development Activities

##### TRAC

(S) The concept of TRAC -- Thermal Radiation, Attenuating Cloud, involved the use of a blanket of smoke from mechanical generators to protect

116

Interv, Hist Off with Dr Michael J. Filippi, OACCM10 P&D, 11 Sep 56.

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an area from the thermal effects of an atomic bomb. This smoke, made up of myriads of tiny oil droplets, would disperse and absorb the heat from a bomb in the same manner as droplets of water in a cloud scatter the heat rays of the sun.<sup>117</sup>

(S) TRAC was extensively investigated during FY 1956, as it had been during the past several years, and these studies provoked a wide difference of opinion within the Corps. In general, the Field Requirements Group felt that TRAC was not feasible, while the Research and Development Command and the Chemical Corps Board looked upon it with favor.<sup>118</sup>

(S) One of the chief difficulties in the application of this concept was its tremendous logistical implications. Enormous quantities of fog oil, smoke generators, and men would be required to adequately produce the necessary smoke for the protection of the large areas which were currently contemplated. The conflicting views of TRAC had not been resolved at the end of the fiscal year.<sup>119</sup>

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117

Summary of Major Events and Problems, FY 55, pp. 62 - 64.

118

The views of the various agencies are presented in a series of indorsements to the following letters: (1) Ltr, OCCm10 to CG Gm1C TNGCOM 18 Jan 55, sub: Staff Study on TRAC and (2) Ltr, CGm10 to CG RECOM, 27 Dec 55, sub: Evaluation of TRAC.

119

(1) Quart Hist Rpt, PT&I Div, OCCm10, Oct-Dec 55. (2) Quart Hist Rpt, Combat Developments Div, OACCGm10 P&D, Jan-Mar 56. (3) Interv, Hist Off with Lt Col Joe V. Morey, Nuclear Effects Advisor, Combat Developments Div, OACCGm10 P&D, 16 Aug 56.

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Feasibility Study, Aerial Survey

(S) In July 1955 the Chemical Corps acquired the responsibility for conducting a study to determine the feasibility of using radiac instruments in aircraft for measuring the extent of radiological contamination of an area.<sup>120</sup> Supporting and co-ordinating agencies for this aerial radiological project included the Signal Corps, Transportation Corps, Corps of Engineers, and the Army Aviation School. During fiscal year 1956, \$30,612 was spent on the study, and an additional sum of \$9,800 has been earmarked for its completion in FY 1957.

(S) The Chief Chemical Officer assigned this project to the commanding officer of the Chemical Corps Training Command, who, in turn, assigned it to the Chemical Corps School. A compelling reason for giving this mission to the Training Command was the existence at the School of a training area with Cobalt 60 point sources.

(S) The project was initially delayed because aircraft needed for the tests were being used in Exercise SAGEBRUSH. Later difficulties included an insufficient supply of Cobalt 60 and hazardous flying conditions in the area containing the radioactive sources. An extra 2,700 curries of Cobalt 60 and improved flying conditions -- trees were cleared and an emergency landing strip was built -- overcame these problems.

(S) Although the final report was not expected before October 1956, experienced gained by the end of FY 1956 demonstrated that it was feasible

120

Ltr, C R&D DAGS, to CCmlO, 27 Jul 55, sub: Rapid Radiological Aerial Survey.

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to measure area contamination by means of an aerial survey. The final report will include this finding as well as recommendations pertaining to new instrumentation and to special techniques involved in such aerial surveys.<sup>121</sup>

Combat Development Objectives Guide

(U) A new document, called the Combat Developments Objective Guide was produced during FY 1956 by the Continental Army Command (CONARC). Containing a cross indexed list of all projects directed toward the goals of Combat Developments, this publication will be revised annually, and supplements will be added during the course of a year when necessary. In July 1955 the Plans, Training, and Intelligence Division, OCCmLO, submitted to CONARC a list of projects for inclusion in the guide, formed from basic lists received from the commands, from Fort Detrick, and from the Operations Research Group.

(U) One of the Combat Developments Objectives Guide's sixteen chapters, the twelfth, was devoted to CBR operations. Seven of the fifteen projects in this chapter were scheduled to be accomplished by the Board and eight by the Field Requirements Group. Assignment of projects to the Board and FRG generally corresponded to their main areas of jurisdiction as established during the recent reorganization.<sup>122</sup>

121

(1) Quart Hist Rpt, PT&I Div, OCCmLO, Jul - Sep, Oct - Dec, 55.  
(2) Quart Hist Rpt, Combat Developments Div, OAGCmLO P&D, OCCmLO, Jan - Mar, Apr - Jun 56. (3) Morey interv, 16 Aug 56. (4) 1st Ind, CO CmlC TNGCOM to CCmLO, 1 Aug 56, sub: Aerial Radiological Survey on basic ltr, 13 Jul 56, same subject.

122

(1) Quart Hist Rpt, PT&I Div, OCCmLO, Jul - Sep 55. (2) Interv, Hist Off with Maj Douglas A. Brigden, Combat Developments Div, OAGCmLO P&D, 15 Aug 56.

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Tri-Service CER Conferences

(U) In preparation for the "Service Aspects" portion of the 11th CER Tripartite Conference to be held in October 1956, several preliminary meetings of Navy, Air Force, and Army (Chemical Corps) representatives were called.<sup>123</sup> During the first meeting, in January 1956, the participants developed a mechanism for tri-service co-ordination and for the "Service Aspects" agenda. At a second meeting, held in the following month, agreement was reached on the procedural steps necessary to prepare and co-ordinate the supporting papers which were to be presented for each of the agenda items. It was also decided at this meeting that conferences be continued, with arrangements provided by the Chemical Corps, and that the Chief Chemical Officer appoint the 1956 chairman of the "Service Aspects" agenda.

(C) For a final decision on the matter of agenda it was necessary to call a meeting of representatives of each of the participating nations, and on 11 April 1956 officers from the United Kingdom, Canada, and the United States met and adopted the following eight subjects as the basic topics for discussion at the "Service Aspects" meetings:

- (1) Criteria for and Evaluation of Chemical Weapons Systems for Canalizing and Impeding Enemy Movement on a Large Scale (C)
- (2) Military Worth of CW Agents Against Prepared Positions (U)

123

These tripartite conferences are held annually by the United States, Great Britain, and Canada. This conference has ten agendas or committees, nine of which are technical. The tenth, called "Service Aspects," is non-technical and United States participation falls under the direction of the Assistant Chief Chemical Officer for Planning and Doctrine.

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- (3) Considerations in the Employment of V-Agents (C)
- (4) Operational Aspects of the Employment of Psychochemical Agents (C)
- (5) Concepts of Use of the E-22 Type Generator (U)
- (6) Problems Resulting from Radiological Fall-Out (U)
- (7) Re-evaluation of the Requirements for Toxic Agent Detectors (U)
- (8) Consideration of Collective Protection (U)

(U) On 25 April 1956 a third tri-service conference informally agreed on the agenda revision adopted by the meeting of 11 April 1956. The conference also heard and discussed the initial drafts of papers to be presented at the "Service Aspects" meetings and settled the procedures by which the final papers were to be formally co-ordinated and distributed.<sup>124</sup>

#### Test Rocket Battalion

(S) The Chemical Corps' major field test during FY 1956 consisted of exercises at Dugway Proving Ground, Utah, to determine the adequacy of the 4.5-inch rocket battalion as a conveyor of crash concentrations of chemical agents. This project had been assigned to the Chemical Corps Board on 25 October 1954 when it was asked to determine the capabilities and limitations of a rocket battalion in disseminating toxic agents, and also the logistical and training requirements for such battalions. It was required to formulate a suitable TOE organization and to develop proper tactics and techniques for employing the weapon.

124

(1) Quart Hist Rpts, Combat Developments Div, OACGmlO P&D, Jan - Mar, Apr - Jun 56. (2) Brigden interv, 15 Aug 56.

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(S) The tests were not conducted exactly as originally envisioned. A "battalion" of less than full strength was assembled, despite the fact that Marines from California and Chemical Corps troops from Fort McClellan and Rocky Mountain Arsenal were brought to Dugway Proving Ground to supplement the Second Chemical Weapons Battalion. The tactical part of the exercise was to consist of GB shoots in which approximately 9,000 rounds were to be expended. At the end of FY 1956 these tests were not yet completed, and an analysis of the project and of the GB shoots would have to wait until the next year.<sup>125</sup>

Representation on Joint Task Force SEVEN

(U) The Nuclear Effects Advisor represented the Chief Chemical Officer on Joint Task Force SEVEN for Operation REDWING, held at the Pacific Proving Grounds during the last quarter of FY 1956. It was his responsibility to insure that the inhabitants of Utirik, Wotho, Ujelang, and Rongerik in the Marshall Islands were protected from the dangers of radioactive fallout. During all this activity, including the preliminary surveys held during December 1955, excellent relations were maintained with the islanders and with the United Nations high commissioner of these territories. The mission was successful; there were no casualties.<sup>126</sup>

125

(1) Quart Hist Rpt, Chemical Corps Board, Apr - Jun 56. (2) Chemical Corps Board, Progress Reports, FY 55, FY 56. (3) Foley interv, 8 Aug 56. (4) Quart Hist Rpt, Dugway Proving Ground, Apr - Jun 56.

126

(1) Quart Hist Rpt, Combat Developments Div, OACCM10 P&D, Apr - Jun 56. (2) Morey interv, 16 Aug 56.

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Planning Activities

(U) Effective scheduling of planning activities for FY 1956, particularly war and mobilization plans, was difficult because of inadequate Department of the Army guidance, resulting largely from changes in planning policy and organization at that level. The unscheduled requirements placed upon the Chemical Corps naturally caused workloads to exceed the initial schedules. These workloads, combined with an understrength staff, prevented the Chief's Office from providing the field agencies with adequate guidance in the Planning Program.<sup>127</sup>

War Planning

(S) War planning in the Chemical Corps provided for the proper utilization of chemical troops and materiel in time of war. It was accomplished by the review and preparation of strategical and tactical plans, studies, and policy statements. The Chemical Corps also reviewed and provided support plans for Air Force logistical and operational plans which included the employment of CBR items. Twenty-three war plans had been scheduled for action during FY 1956 but the DA, by letter directives issued throughout the year, raised the total to sixty-nine. The uneasy situation in the Middle East, in addition to the reasons listed above, caused this rash of unscheduled activities. For example, the Corps aided CONARC in contingency plans for the

<sup>127</sup>

(1) Interv, Hist Off with Mr Max Bost, Plans and Training Div, CACCM10 P&D, 16 Aug 56. (2) Quart Rev, Classified Supplement, 4th Quart, FY 56, p. 25.

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employment of an airborne division and an airborne corps in the Middle East. The Department of the Army had recently assigned the responsibility for this type of planning to the Continental Army Command as an experiment, and the latter was forced to call upon the technical service commands for assistance.<sup>128</sup>

#### Mobilization Planning

(C) Tables of Distribution (M / 12) for all Chemical Corps TD activities, revised as of 1 July 1955, were submitted to the Department of the Army in November 1955. The Department of the Army approved a delay in the publication of the Chemical Corps portion of Army Mobilization Plan IV, because of the impending reorganization of the Corps. Later, a change in DA policy caused the cancellation of the publication of the plan. This new policy called for the substitution of mobilization programs for mobilization plans. During the year the Department of the Army had prepared mobilization program documents for each of its primary programs. In FY 1957 the Chemical Corps will be required to prepare these documents for each of its current programs. Mobilization plans as such will no longer exist.

(U) The Chief Chemical Officer, in a June 1956 communication to the Deputy Chief of Staff for Logistics, justified two more reserve general officer mobilization designation positions for the Chemical Corps. These positions were to be (1) Deputy Assistant Chief Chemical Officer for Materiel - Industrial, and (2) Deputy Assistant Chief Chemical Officer for R&D - HW. At the same time the Chief Chemical Officer requested that the

<sup>128</sup>

Host interv, 16 Aug 56.

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(U) The Department of the Army recently transferred the responsibility for the preparation of TOEs from the technical services to the commanding general of CONARC. To help him in this new task, the latter asked the Chemical Corps to provide the following support: (1) draft plans for each chemical TOE, (2) detailed TOEs for certain Chemical Corps units, and (3) review of all CONARC prepared TOEs.

(C) Significant unscheduled activities in the TOE and TA category included the review of the organizations of the tentative 1956 ATFA infantry and armored divisions. In both of these divisions the chemical officer, a major, was part of the G-3 section. Five Chemical Corps enlisted men were assigned to these organizations, an E-6 as the major's assistant, three E-3s assigned to the maintenance battalion, and an E-4 with the supply and transportation battalion. The Chief's Office recommended the inclusion of an assistant division chemical officer as well as the provision for higher grades for these enlisted men. It also called for the high priority development of an optimum ground chemical weapons system and suitable troop units for its use.<sup>133</sup>

(U) Upon the verbal request of DCSLOG the Chemical Corps supplied the commanding general of CONARC reasons for including radiac instruments in the TOEs of units down to and including companies. The latter concurred in this recommendation and suggested that, rather than publish changes to the many TOEs, the Chief Signal Officer pass this information on to all

<sup>133</sup>

See below, pp.

, for a further discussion of the ATFA concept.

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Table 4 - Chemical Units and Their Location as of 30 June 1956

Type	Designation	Station	Type	Designation	Station
Cml Smoke Generator Bn, H & HD	4th	Germany	Cml Depot Co	7th	Germany
	5th	Ft Bragg, N.C.		8th	Ft McClellan, Ala.
	6th	England		9th	Ft Bragg, N.C.
	218th	Ft McClellan, Ala.		61st	Ft Bragg, N.C.
Cml Weapons Bn	2d	DPG, Utah	Cml Depot Co, CZ	66th	Ft McClellan, Ala.
				501st	Ft McClellan, Ala.
Cml Smoke Generator Co	4th	Germany	Cml Maintenance Co	11th	Ft Bragg, N.C.
	44th	Germany		12th	Germany
	45th	England		13th	Ft George G. Meade, Md.
	46th	England		34th	Ft McClellan, Ala.
	51st	Ft McClellan, Ala.		59th	Ft McClellan, Ala.
	62d	Ft McClellan, Ala.		505th	Ft Bragg, N.C.
	68th	Germany			
	69th	Germany			
	74th	Ft McClellan, Ala.		55th	France
	81st	England		111th	Ft McClellan, Ala.
	84th	Ft Bragg, N.C.		317th	Ft McClellan, Ala.
	85th	Ft Bragg, N.C.			
	86th	Ft Bragg, N.C.			
	87th	Ft Benning, Ga.			
98th	England				
Cml Group, Field Army, H & HD	81st	Ft Bragg, N.C.	Cml Service Co	216th	RMA, Colo.
	100th	Ft McClellan, Ala.			
Cml Service Bn, H & HD	1st	Germany	Cml Service Plt	50th	Ft Ord, Calif.
	3d	Ft Bragg, N.C.			
	83d	Ft McClellan, Ala.			
	85th	Ft McClellan, Ala.			
Cml Decontamination Co	21st	Ft McClellan, Ala.	Cml Laboratory Det, Mbl	43d	Japan
	24th	Ft Bragg, N.C.			
	30th	Ft McClellan, Ala.			
Source: The Troop Program of the Army, FY 1956, Appendix I Section VI, as of 30 June 1956			Cml Laboratory	42d	A Cml C, Md.
				53d	Germany

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field commanders. The Chief Chemical Officer has requested this action of the Chief Signal Officer.<sup>134</sup>

(U) The commanding generals of CONARC and of Third Army recommended that the basis of issue of the protective field mask in Table of Allowances No. 20 be changed from one per twenty individuals to one per one. The Chief Chemical Officer concurred in this recommendation but suggested that the matter be referred to DCSLOG for resolution. DCSLOG, after reviewing the case and its logistical implications, authorized revision of TA20 to allow one mask for each soldier undergoing CBR training.<sup>135</sup>

#### Troops

(S) As of 30 June 1956 the Chemical Corps had a total of fifty-seven active units. Fifty-six of these were TOE units and one, the 2d Chemical Weapons Battalion, was organized as an experimental TD field unit. The officers and men in these 57 units numbered 4,763. Most of the twenty-three units assigned to the Chief Chemical Officer were located at the Chemical Corps Training Command, Fort McClellan, Ala. Nearly all of fourteen units assigned to the continental armies were stationed at Fort Bragg, N. C. Overseas, eighteen units served in Europe and two in Japan.<sup>136</sup>

134

Ltr, OCGM10 to CG CONARC, 19 Mar 56, sub: Inclusion of Radiac Instruments in TOE, and indorsements.

135

Documentation of the lengthy correspondence relating to this project can be found in the Quart Hist Rpts, Combat Development Div, OACGM10 P&D, Jan - Mar, Apr - Jun 56.

136

Table 4 gives a complete list of the location and designation of Chemical Corps units.

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Inactivation of SG Units

(S) During the fourth quarter of FY 1956 three chemical smoke generator companies located in the British Isles were inactivated. A chemical smoke generator battalion (headquarters and headquarters detachment) and four more smoke generator companies were scheduled for inactivation during the first half of fiscal year 1957.

(S) The inactivation of these units resulted from an Air Force decision to eliminate the requirements for smoke generator units in airfield protection. Two reasons were given for this decision. First, airfields in an emergency would have to be kept operational at all times. Smoke over these fields would impair visibility and make flying operations extremely hazardous. Secondly, presumed USSR proficiency in "offset" bombing, a technique whereby bombing formations can accurately strike obscured targets, made smoke over an airfield unnecessary. If a target is obscured from observation the bombardier sights on a prominent visible landmark and plots a map course toward the objective. The speed and direction of the wind and other factors which could affect his course are taken into consideration. The result is bombing accuracy despite target concealment.<sup>137</sup>

DEWLINE

(U) In fiscal year 1955 two units, the 66th and 501st Chemical Companies (Depot) (Com2) were reorganized at an increased strength and trained as port

137

Interv, Hist Off with Lt Col Cornelius Schmelzle and Mr Elgar H. Stabler, Plans and Training Div, OACCM10 P&D, 16 Aug 56.

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transportation companies in order to participate in Project 572 -- the logistical support for establishing an early-warning radar net across northern Canada (DEWLINE).<sup>138</sup> During the second quarter of FY 1956 these units returned from Canada. At the direction of the Adjutant General, the Chief Chemical Officer, in November 1955, ordered that the two companies be re-organized, at their previous strength, under their normal TOE.<sup>139</sup>

RFA55

(U) Early in the fiscal year it appeared that the Chemical Corps would be responsible for the basic training of its share of personnel entering the service under the provisions of the Reserve Forces Act of 1955 (RFA55). It was foreseen that the Army would acquire about 100,000 men a year from this source, one percent of which would be assigned to the Corps. Plans to form an appropriate basic training unit at the Training Command became unnecessary when it was decided to give these men basic training before assignment to the technical services. Those earmarked for the Chemical Corps then took the Chemical Entry Course of eight weeks before a final six weeks of unit training.<sup>140</sup> At the end of the fiscal year the number of recruits entering

138

Summary of Major Events and Problems, FY 55, pp. 81 - 82.

139

Ltr, CCmlO to CO CmlC TNGCOM, 7 Nov 55, sub: Reorganization of Certain Chemical Corps Units.

140

Under RFA55, personnel sign up for a period of eight years. Only six months of this is spent on active duty; the soldier fulfilling his remaining term as a member of his local reserve unit. While on active duty the soldier is prepared for his reserve assignment through eight weeks of basic training, eight weeks of advanced training, and six weeks of unit training.

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the Army in general and the Chemical Corps in particular was less than had been planned.<sup>141</sup>

### Training

(U) The Training Command was the only Chemical Corps command which was not reorganized during FY 1956. It had been the intent of the Ad Hoc Committee on the Chemical Corps Mission and Structure to abolish the organization entirely and to redistribute its functions to other Chemical Corps agencies. However, the question of the Training Command's existence coincided with an overall evaluation by the Department of the Army of technical service training and schools. Because of this larger issue, the recommendation to abolish the Chemical Corps Training Command was withdrawn.<sup>142</sup>

### Training at the Chemical Corps School

(U) Despite the uneasiness which was created as a natural result of the indecision about the organization of the training structure within the Corps,<sup>143</sup> considerable progress was made in the training area during FY 1956. One significant advance was achieved through a revitalization of the Chemical

141

(1) Staff Conference Notes, PT&I Div, OCGm10, 29 Aug 55. (2) Interv, Hist Off with Maj Clyde H. Westbrook, Jr., Plans and Training Div, OACCGm10 P&D, 8 Aug 56.

142

See above, pp. 14 - 17, for a more detailed discussion of the technical service training situation.

143

Interv, Hist Off with Col Marvin A. Middlebrooks, CmlC TNGCOM, 26 Jul 56.



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CHEMICAL CORPS SCHOOL

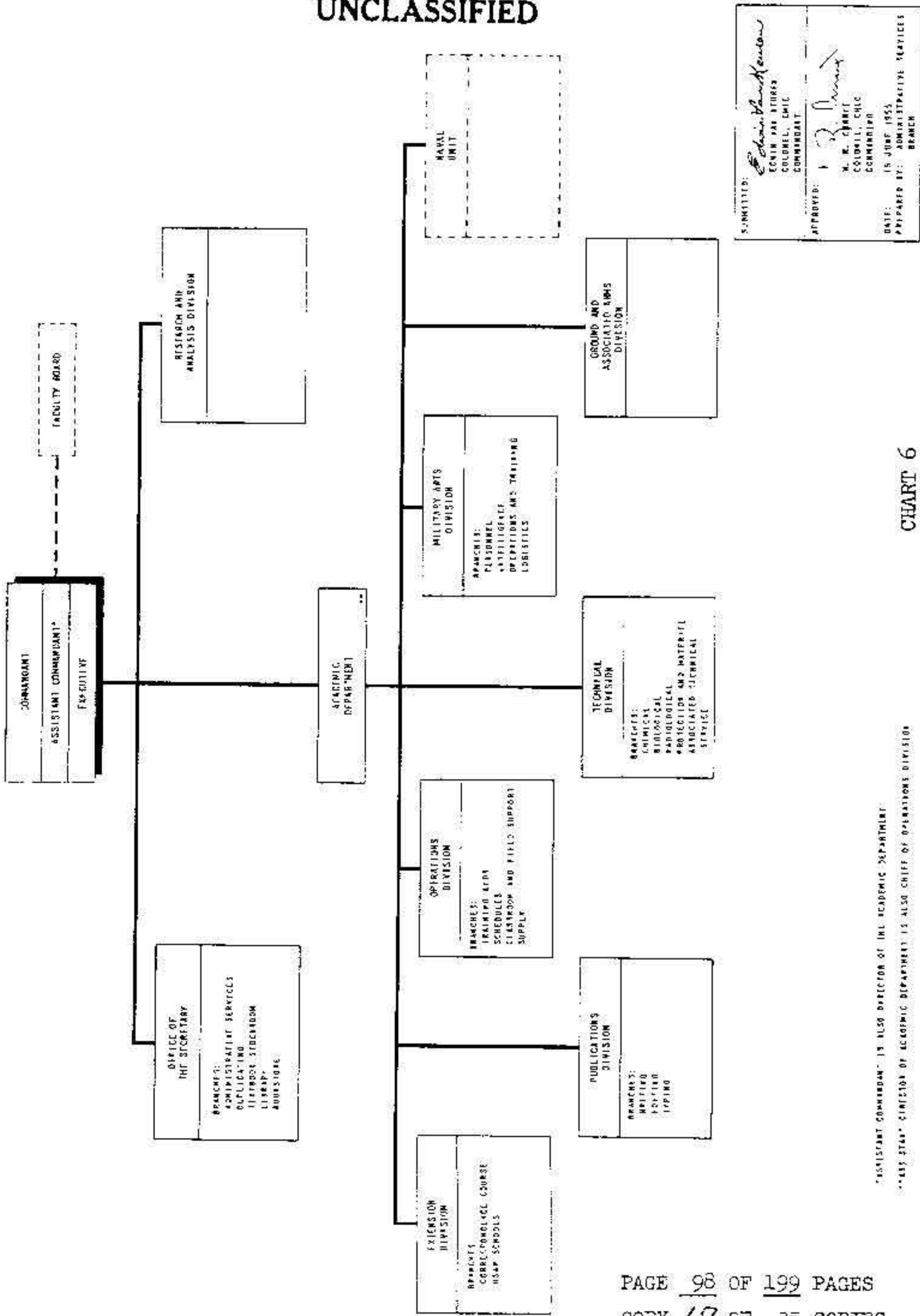


CHART 6

ASSISTANT COMMANDANT IS ALSO DIRECTOR OF THE ACADEMIC DEPARTMENT  
\*\*ASST STAFF\*\* CHIEF OF ACADEMIC DEPARTMENT IS ALSO CHIEF OF OPERATIONS DIVISION

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Corps School's career curricula.<sup>144</sup> The groundwork for these changes had been laid by the Burton Wright curricula evaluation report submitted to the Chemical Corps in August 1955.<sup>145</sup> Wright and his associates, using various techniques including examination and work diaries, found that 40 percent of the material taught in the Chemical Corps School's career courses was valid, that is, was of some use to the student in his subsequent assignments. This compared to a validity of 25 percent in civilian educational institutions. The study showed that regardless of rank, assignment, and MOS, an essential hard core of knowledge is necessary for a Chemical Corps officer to properly discharge his duties. The necessity of a branch school curricula was pointed out. It was also calculated that a young officer required eighteen months of on-the-job service to attain the same amount of knowledge possessed by an officer upon graduating from the 3-month Chemical Officers Basic Course.<sup>146</sup> The report pointed out the degree of coverage a subject should have at the different course levels. For example, "chemical agents" would be introduced in the basic course, stressed in the company course, and reviewed in the advanced course.

144

Chart 6 depicts the Chemical Corps School. There have been no major changes in the School's structure since the date of the chart.

145

The full title of the report was Syllabi Evaluation and Preparation Based on Range of Operational Utility: A Research Report Prepared for the U. S. Army Chemical Corps by Burton Wright and Associates.

146

(1) Wright report. (2) Interv, Hist Off with Col Frank M. Arthur, Career Management Div, OCCm10, 12 Sep 56. (3) Summary of Major Events and Problems, FY 55, pp. 85 - 86.

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(U) The implementation of certain of the Wright recommendations was the first step in providing a blueprint for a long-range educational program for the Chemical Corps officer. Changes to the career course recommended by the Burton Wright report were evaluated and implemented by a conference of Chemical Corps personnel held at the Training Command in October 1955. The conference agreed that few changes in the Basic Course were needed, but that extensive revisions were required in the Company and Advanced Courses. These, they suggested, should be implemented gradually over the next several years. 147

(U) One of the major shortcomings of the school's curricula was its failure to include a course in management. Both the Wright Report and a study independently carried on by the Chemical Corps School pointed to this omission. Neither study specified the desired length of such a course, but as staffed by the Chief's Office, it amounts to 150 hours. It was impossible for the school to develop any subcourse of this length in time for presentation to the Advanced Class starting in the school year of 1955. Consequently, Mr. Joe Lee Jessup, Assistant Dean of George Washington University School of Government, was retained by the Chemical Corps to organize and direct the presentation of a management subcourse.

(U) The resulting subcourse, cut to two weeks, was presented to the 10th Advanced Class in May 1956. The subcourse's major subdivisions were: orientation, national resources, general management, human relations, communication, management development, and management technique. For the most part the presentations were handled by guest lecturers representing the top

147

(1) Quart Hist Rpt, PT&I Div, OCCm10, Oct - Dec 55. (2) Arthur interv, 12 Sep 56.

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management echelons of industry, private educational institutions, and the Chemical Corps. In addition to the students from the advanced class, the subcourse was attended by military and civilian personnel from all Chemical Corps commands and the Office of the Chief Chemical Officer. The Womens Army Corps Center, located at Fort McClellan, was also represented. The presentations were extremely well received.<sup>148</sup>

(U) The Chemical Corps School inaugurated a Chemical Company Officers Course during the academic year of 1956. This was in line with the overall Army school program which called for basic, company, and advanced courses within a branch or service, followed by courses at the Command and General Staff College and the other higher military schools.

(U) The Army school program also called for "associate" courses for each of the three courses within the branch or corps. These are shorter versions of the regular courses and are designed principally for reserve officers. Because of the small size of the Corps it had not been considered necessary or feasible in the past to conduct associate courses at the Chemical Corps School. Plans have been made, however, to conduct an Associate Advanced Chemical Officers Course during the 1957 school year.

(U) Another change was planned in the body of officers courses given at the Chemical Corps School. In the past Allied officers had come to the

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148

(1) Westbrook interv, 8 Aug 56. (2) "Notes on Management," a manual prepared for the management subcourse. (3) Lt Col Charles A. Morgan, Jr., "Executive Development in the Chemical Corps," Armed Forces Chemical Journal, Vol X, No 5, 1956, pp. 16, 17, 34, 36.

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school in small numbers and for reasons of economy had been placed in one of the regular course. Many of these officers, even of field grade, were enrolled in the basic course and thus received large doses of elementary and irrelevant material hardly befitting their rank. It was planned, therefore, to begin a course in July 1956 designed exclusively for Allied officers. This arrangement had one drawback. A large part of the value of having Allied officers attend courses in the United States was in the contacts they made with the officers of the U.S. Army. By intimate association in classes and by visits to the homes of American students, these officers could best learn what we and our country are like. Grouping them in separate classes prevented a good part of this contact.<sup>149</sup>

(U) Last year's changes in enlisted MOS structure and responsibility prompted the elimination in FY 1956 of certain courses taught at the Chemical Corps School. The smoke generator operator, decon equipment operator, chemical staff specialist, and gas mask repair courses were discontinued and replaced by the Chemical Entry Course. This course gave the student a briefer but adequate amount of training in all the skills represented in the eliminated courses. Graduating as a chemical warfare helper (MOS 530.0) the soldier would advance in the MOS family primarily by the experience gained in on-the-job training. The Chemical Corps lost the impregnation equipment operator MOS and the supply specialist MOS, and hence the courses, to the Quartermaster Corps. Because the Ordnance Corps was assigned the responsibility

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149

Interv, Hist Off with Col Carl V. Burke, Commandant, Chemical Corps School, 25 Jul 56. (2) Westbrook interv, 8 Aug 56.

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for the entry training of all parts clerks the Chemical Parts Supply Course was discontinued. Of the eight enlisted MOS courses taught at the school during the previous year only the Chemical Laboratory Course remained.<sup>150</sup>

(U) During FY 1956 the Chemical Corps had fewer students enrolled in its many courses than in any of the preceding four years. The revised scheduled program called for 2,909 students, but actual student input was only 2,289. The average student load was 333, and this too represented a four year low. The ratio of actual to scheduled input was only 78.9 percent. This low performance resulted from (1) the enlisted course changes, (2) the failure of 2I Armies to fill quotas for the CBR Officers Course, and (3) the failure of the Navy to fill its quota for the Navy ABCD and the Navy Munitions Handlers Course.<sup>151</sup>

(U) A continuing problem at the Chemical Corps School for the past several years has been that of personnel. Discrepancies between the number of authorized and actual lieutenant colonels, majors, and lieutenants still existed. In the first two grades mentioned the school had fewer officers than authorized, in the last, it had more.<sup>152</sup> An overstrength in lieutenants meant that much

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<sup>150</sup>

(1) Westbrook interv, 8 Aug 56. (2) Quart Hist Rpts, Chemical Corps School, FY 56. (3) Summary of Major Events and Problems, FY 55 provides the background material on the changes in MOS structure and courses.

<sup>151</sup>

(1) Quart Rev, 4th Quart, FY 56, p. 69. (2) Westbrook interv, 8 Aug 56.

<sup>152</sup>

The figures for the Chemical Corps Schools: lieutenant colonel, authorized - 23, actual - 17; major, authorized - 35, actual - 17; lieutenant, authorized - 29, actual - 57.

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of the teaching at the school was in the hands of these officers who, no matter how capable, lacked the experience necessary to adequately carry out platform work. This situation was particularly evident in the Protection and Materiel Branch of the Technical Division.<sup>153</sup>

#### Non-Resident Training

(U) Activity in the non-resident instruction area at the Chemical Corps School included plans for revising the Extension Course program. As directed by the Continental Army Command,<sup>154</sup> these changes were to be part of an overall plan to place the entire Army educational program on a parallel basis. The extension course and USAR school programs were to compare as nearly as possible to the resident instruction at the Chemical Corps School.

(U) The existing extension course series was set up to help qualify an officer for promotion to the next higher rank. The 10-series was a pre-commissioned course, preparing a person to assume the rank of second lieutenant. The 20-series was for second lieutenants, the 30-series for first lieutenants, and so on up to lieutenant colonels who took the 60-series. This system was to be replaced by a structure made up of basic, company grade, and advanced officer extension courses and a special course, designed primarily for

153

Quart Hist Rpt, Chemical Corps School, Oct - Dec 55, incl, Report of Annual Training Inspection of the Chemical Corps School, 16 Dec 55.

154

Ltr, CONARC to CGMLO, 1 Dec 55, sub: Reorganization of the Army Extension Course Program.

non-Chemical Corps officers, containing material on GER defense.<sup>155</sup>

(U) Improvements were also planned in the USAR school curricula, another non-resident instructional area. Two Chemical Corps career type courses are available under this program, the Associate Chemical Company Officer Course and the Associate Advanced Chemical Officer Course. Each of these courses takes three years to complete. Under current regulation students are admitted to the course only during the first quarter of the first year. CONARC inquired about the desirability of revising the programs of instruction so that a student could begin the course during the first quarter of any of the three yearly phases.<sup>156</sup> The Chemical Corps concurred and recommended that a target date of September 1957 be set for its implementation.<sup>157</sup>

(U) Although CONARC did not answer the indorsement which presented the Chemical Corps' views, the matter was raised again when the Commanding General, First Army, expressed concern with difficulties encountered with the current Chemical Corps USAR school courses. He felt that CONARC's proposal would help eliminate present problems and he recommended that the changes be made in time for the start of the 1956 school year. CONARC then requested the Chemical Corps to reconsider its position on a September 1957 deadline. The

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155

Quart Hist Rpts, Chemical Corps School, Oct - Dec 55, Jan - Mar, Apr - Jun 56. (2) Westbrook interv, 8 Aug 56.

156

Ltr, CONARC to CCmLO, 8 Dec 55, sub: USAR Schools.

157

1st Ind, 25 Jan 56, on ltr, CONARC to CCmLO, 8 Dec 55, sub: USAR Schools.



Chemical Corps School replied that a September 1956 deadline could be met only if the project were assigned first priority. CONARC agreed to this, and the School immediately began the revisions.<sup>158</sup>

(U) During fiscal year 1956 the Chemical Corps learned that its ROTC unit at Ohio State University would be converted to the General Military Science Program at the beginning of the 1956-57 school year.<sup>159</sup> This step was part of a DA policy, backed by the Deputy Chief of Staff for Operations, to encourage the transfer of branch materiel ROTC units to the General Military Science (GMS) program.<sup>159a</sup> Because of this trend the Deputy Chief of Staff for Logistics on 7 May 56 requested the Chemical Corps to provide arguments to support the retention of the branch materiel program. The Corps, noting the existence of a Department of the Army study on the precommissioning training program, recommended that further conversion to GMS be discouraged. Moreover, it cited the fact that potential officers are lost to the Army each

158

(1) Ltr, CG First Army to CONARC and OCCm10, 27 Feb 56, sub: USAR School Program and indorsements thereto. (2) Ltr, CONARC to OCCm10, 17 Apr 56, sub: USAR School Program.

159

(1) The Chemical Corps' remaining ROTC units are located at Massachusetts Institute of Technology, Georgia Tech, Purdue, and Texas A. & M. (2) Quart Hist Rpt, PE&I Div, OCCm10, Oct - Dec 55.

159a

(1) Westbrook interv, 8 Aug 56. (2) During the Annual ROTC Conference held in December 1955 representatives from Third Army Complained that branch materiel ROTC units in the area had surreptitiously encouraged the institution to maintain the branch materiel program (Quart Hist Rpt, OACCm10 for P&D, OCCm10, Jan - Mar 56).

year because the GMS program failed to guarantee to a student a commission in a branch compatible with his interests and educational background.<sup>160</sup>

(J) Apart from the overall question of the continued existence of the ROTC Branch Materiel Program, under CONARC direction, changes were also made in the contents of the ROTC programs of instruction. Although ROTC courses are available through all four years of college, they are optional during the last two years. Currently, the branch materiel courses start during the second year, after one year of general military science courses. It was planned to revise this schedule so as to consolidate all branch materiel subjects in the last two, or optional, years of the four year ROTC course.<sup>161</sup>

(K) Since August 1954 the Chemical Corps School Orientation team has had the responsibility of providing the students of service schools and other selected audiences with information concerning the national policy, the U.S. Armed Forces capabilities, and the operational concepts of CBR warfare.<sup>162</sup> The presentations by which the mission is fulfilled fall into two categories, Type A, a Top Secret series of lectures for audiences at the Command and General Staff College level and higher, and Type B, a Secret presentation for schools below this level. Between 29 September 1954 and 30 March 1956, the

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160

Quart Hist Rpt, OACCM10 P&D, Apr-Jun 56.

161

Westbrook interv, 8 Aug 56.

162

Until June 1954 this service was performed by the Army-Navy Command's Chemical Warfare Orientation Team, headed by Col Fred W. Ludecke (Summary of Major Events and Problems, FY 54, p. 63).

period of the team's last report, nineteen presentations, six of them Type A, have been given to a combined audience of 7,650.<sup>163</sup>

(U) Consideration was given during the year to the establishment of a "Resident High-Level CBR Orientation Course." The purpose of such a course would be to familiarize senior commanders and key staff members with the current capabilities and potentialities of CBR warfare. This course would not compete with the Orientation team presentation, but would complement it. The Chemical Corps Board was given the project of investigating the requirements for such a course.<sup>164</sup>

(U) For an overall appraisal of the efficacy of Army-wide CBR training and the adequacy of CBR training aids, the Chemical Corps in FY 1955 turned to the George Peabody College for Teachers. After an extensive study the College submitted its Report to the Chemical Corps, who in turn proceeded to implement the acceptable recommendations. But by the beginning of FY 1956, the job had not yet been completed. The bulk of the un-implemented recommendations, in the general field of CBR training of the Army, were therefore included in a September 1955 training memorandum published by CONARC. The following points were stressed in the training memo: (1) academic instruction in CBR warfare should be reduced to a minimum, (2) integrated training should be stressed,

163

Hist Rpt, Chemical Corps School Orientation Team, 20 Aug 54 - 30 Mar 56.

164

(1) Quart Hist Rpt, OACCMLO P&D, Apr - Jun 56. (2) Progress Rpt FY 1956, Chemical Corps Board, p. 59. (3) Commanders Conference Notes, 19 Jul 56.

and (3) offensive and defensive CBR situations should be included in command post exercises, field exercises, and maneuvers.<sup>165</sup>

### Publications

(U) There was but a limited number of new training publications issued during FY 1956. One reason for this situation was the difficulty of getting material for manuals in those areas where doctrine had not been completely established.<sup>166</sup> Another reason was the decision taken last year to combine the publications activities of fiscal years 1956 and 1957 into a single program. This action was in part attributed to the necessity for getting a thorough review of the tentative manuals from experienced officers located all over the world.

(U) One training circular, six field manual changes, and one training film were published during the fiscal year. Training Circular 3-1, dated 17 May 56 and entitled Ground Flame Field Expedients, had originally been planned as a Department of Army pamphlet. Four of the manual changes involved FM 3-8, the ready reference handbook in loose leaf form which appeared last year. Because of the nature of the manual frequent changes had been

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165  
(1) CONARC Training Memo # 15, 7 Sep 55, sub: Chemical, Biological and Radiological Warfare. (2) Interv, Hist Off with Maj Clyde H. Westbrook, Jr., Plans and Training Div, OACCmlO P&D, 15 Aug 56.

166  
Interv, Hist Off with Mr Seymour Waxman, Combat Developments Div, OACCmlO P&D, 11 Sep 56.

167  
These changes to FM 3-8 were: C 2, 7 Jul 55; C 3, 19 Aug 55; C 4, 23 Nov 55; and C 5, 28 May 56.

expected.<sup>167</sup> Changes were also published for FM 3-30 and FM 3-25<sup>168</sup> The training film released was TF 3-2196, Employment of Toxic Chemical Agents, which demonstrated the capabilities and limitations of toxic chemical agents and the principles of their employment.<sup>169</sup>

(U) FM 3-6, Employment and Characteristics of Air Chemical Munitions was rescinded during the year. Pertinent information from this manual has been incorporated in other publications.<sup>170</sup>

(U) The responsibility for preparing FM 3-130, entitled Chemical Corps Intelligence, was transferred from the Chemical Corps Training Command to the Chemical Corps Intelligence Agency. Outlines and draft copies of this manual prepared in the past had proved unsatisfactory, largely because of the lack of competence in the field of intelligence in the writing area of the Chemical Corps School. Moreover, the primary source of information necessary for the

167

These changes to FM 3-8 were: C 2, 7 Jul 55; C 3, 19 Aug 55; C 4, 23 Nov 55; and C 5, 28 May 56.

168

FM 3-30, Chemical Processing Company, C 1, 23 May 56; FM 3-25, Chemical Laboratory, C 2, 30 Nov 55.

169

(1) Staff Conference Notes, PT&I, OCCm10, 21 Nov 55. (2) The film and film strip production program for fiscal year 1957 has a 17-page list of films slated for production. Of these only eight films have an "A" priority. The Chemical Corps was the responsible agency for the first four films in the list of eight (incl 1, ltr TAG to C Signal O, 12 Jul 56, sub: Fiscal Year 1957 Film and Film Strip Production Program).

170

Quart Hist Rpt, PT&I Div, OCCm10, Oct - Dec 55.

preparation of this manual existed at the Intelligence Agency.<sup>171</sup>

(U) Two recurring publications of the Chemical Corps were reviewed by the Army Publications Board. One, the Training Information Pamphlet -- TIP -- was approved for continued publication. The other, The CBR Digest, which had been suspended since October 1955 pending review, was disapproved. The material of the type previously published in the CER Digest will appear in training circulars, manuals, technical bulletins, and other Army publications.<sup>172</sup>

#### Logistical and Field Exercises

(U) LOGEX 56, a logistics exercise conducted for the administrative and technical service schools of the Army (with the co-operation of the Navy, Air Force, and State Department), was held at Fort Lee, Va., during the period 29 April - 5 May 1956.<sup>173</sup> Eighty-two Chemical Corps officers participated, including the students of the 10th Advanced Officers Course, the first Company Officers Course, and members of the staff of the Chemical Corps School.

171

(1) Waxman interv, 11 Sep 56. (2) Ltr, CGM10 to CO, CCIA, 27 Oct 55, sub: FM 3-130. (3) Staff Conference Notes, PT&I Div, OCCM10, 31 Oct 55.

172

(1) Ltr, Cml C Field Requirements Group to C Hist Off, 12 Jun 56, sub: CBR Digest. (2) Quart Hist Rpt, OACCM10 P&D, Apr - Jun 56.

173

The section on LOGEX 56 has been based on Report of the Maneuver Director, LOGEX 56, 4 Jun 56.

(U) The ATFA-1 (Atomic Type Field Army) organization was used in the LOGEX 56 play as it had in LOGEX 55. Although this concept involved changes in both the combat and service areas, the logistical exercise naturally featured the service units and support. The Field Army headquarters under ATFA-1 consisted of a regular general staff and a small special staff. The only technical service officers in this special staff were Chemical, Signal, and Engineer, and these have no logistical responsibilities. All logistical functions of the army, excepting those within the divisions, were in the hands of a Field Army Support Command (FASC). Subordinate units, Field Army Support Brigades (FASB) were assigned to each corps of the army. With the exception of a combined G3 - G4 responsibility, the FASC and FASB had a conventional general staff. There was no technical service structure in these headquarters, however, which were organized functionally, e.g. supply service and maintenance service sections. The planners and players of LOGEX 56 had to accept these new concepts without reservation, ignoring their past experience and training with the conventional staff and support procedures.

(U) Chemical play was included in LOGEX 56 for both friendly and aggressor forces. With the exception of mustard, all gases were referred to merely as being persistent or non-persistent toxics. Friendly chemical warfare play was limited to the establishment of supply requirements for chemical munitions. The aggressors, however, attacked installations and command posts with gas and also used persistent toxics to contaminate roads. Altogether more than fifty non-routine chemical problems were played in LOGEX 56.

(U) Based on LOGEX 56 experience the Chemical Corps School recommended that the LOGEX series be continued, that service schools give more instruction in staff procedures, and that large scale chemical and biological attacks by the aggressor be included in future LOGEX's. There were general complaints about the mechanics and organization of the logistical end of the ATFA-1 concept. One Chemical Corps observer felt that the Field Army Support Command and its Brigades were top heavy with headquarters personnel. One speaker at the final critique received great applause when he suggested that future exercises be played according to the current type general and special staff concepts.<sup>174</sup> The maneuver director included this recommendation in his final report.<sup>175</sup>

(U) Actually, the concepts and organization of ATFA-1 had already been subjected to rigorous and extensive testing in SAGEBRUSH, the largest field exercise conducted in the United States since World War II. Chemical Corps units that participated in this exercise, held in Louisiana late in 1955, were trained under ATFA type TOEs.<sup>176</sup>

<sup>174</sup>

Report of Visit, LOGEX 56, Lt Col G. M. Schmelzle, P&T Div, OACCMLO P&D, no date.

<sup>175</sup>

Report of the Maneuver Director, LOGEX 56, p. 21.

<sup>176</sup>

Chemical organizations with U.S. Forces at SAGEBRUSH were: 51st Cml Det, TI; 21st Cml Co, Decen; 1 Plat, 59 Cml Co, Maint; 85th Cml Co, SG, 86th Cml Co, SG; 5th Cml Bn, SG, H&HD. These units assigned to the Aggressor were: 84th Cml Co, SG; 61st Cml Co, Depot; 59th Cml Co, Maint (-1 Plat); 83d Cml Bn, Sv, H&HD; 1 plat, 30th Cml Co, Decen; 18th Cml Det, TI (Interv, Hist Off with Major Westbrook and Capt Robert Bundy, P&T Div, OACCMLO P&D, 15 Aug 56).

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(C) CBR play in Exercise SAGEBRUSH had little effect on the tactical situation because the umpires did not adequately assess chemical casualties. However, appraisals of the structures of chemical unit and staff organizations were possible. Upon examination, both were found wanting. While no fault was found with the ATFA organization for decontamination and chemical maintenance and supply organizations, the Chief CBR Evaluator at SAGEBRUSH recommended that two conventional smoke generator battalions replace the ATFA organization for decontamination and chemical maintenance and supply organizations, the Chief CBR Evaluation at SAGEBRUSH recommended that two conventional smoke generator battalions replace the ATFA battalion in order to increase organizational efficiency and combat capability. He also felt that the chemical officers of division and corps should not have been integrated into the G - 3 section and that the chemical section of the field army staff had been reduced beyond the numbers justified by the elimination of its logistical functions. There were no chemical officers on the staffs of the FASC and FASB, yet they were needed to co-ordinate chemical functions, advise on CBR aspects of area defense and damage control, and provide technical channels for Army and corps chemical officers.<sup>177</sup>

(C) The final report on Exercise SAGEBRUSH concluded that the ATFA-1 Field Army Organization and doctrine were inadequate to meet conditions of atomic warfare. It recommended that FASC and FASB be eliminated from the structure of the field army. The functional organization of support services

177

Report of Army Tests, Exercise SAGEBRUSH, Vol III, Pt Two, F-1 through F-3.

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was considered sound in principle but should be implemented gradually.<sup>178</sup>

Intelligence<sup>179</sup>

(U) In fiscal 1956, the first full year of its existence, the Chemical Corps Intelligence Agency (CCIA) experienced the usual growing pains. Recruitment of intelligence personnel represented the biggest problem. Upon activation in April 1955 the CCIA assumed a far greater work load than had been the lot of its predecessor, and an augmented staff became mandatory. Since academic courses do not prepare persons for intelligence assignments, finding individuals to fill the vacancies was difficult. By July 1955 only eleven of the authorized twenty-two civilian positions had been filled.

(U) There was also a paucity of trained intelligence officers in the Chemical Corps. This problem was general throughout the technical services, and it was hoped that in 1957 collaboration with the other services would produce a program for its solution.

(C) To improve the general education of those involved in intelligence collection visits were scheduled to Fort Detrick and the Army Chemical Center for appropriate people in the Central Intelligence Agency and the Office of the Assistant Chief of Staff, Intelligence. The visits were well received by these personnel and agencies and have evoked their commendations.

178

Rpt of Army Tests, Exercise SAGEBRUSH, Summary, Pt One, 18 Feb 56.

179

This section has been based on (1) Quart Hist Rpts, Chemical Corps Intelligence Agency, FY 56; (2) Interv, Hist Off with Maj Daniel R. Kifner, CCIA, 23 Aug 56; and (3) Quart Rev, 4th Quart, FY 56, p. 139.

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(U) Plans were made for setting up technical intelligence offices at Fort Detrick, Fort McClellan, and the Army Chemical Center. These offices would co-ordinate and guide the intelligence activities at these stations so that full integration of the intelligence effort could be achieved with other areas of the Chemical Corps mission. The Fort Detrick office was scheduled for operation in July 1956.

(U) All deadlines for scheduled and recurring reports for FY 1956 were met, although the shortage of personnel and the pressure of deadlines prevented the full exploitation of all available sources. Among these requirements were National Intelligence Surveys, Intelligence Collection Guides, Intelligence Collection Memoranda, Specific Requests For Information, feature articles for the Department of Army's Intelligence Review and Technical Intelligence Bulletin, and evaluation reports.

(C) The Assistant Chief of Staff, Intelligence, began a program to provide increased guidance for intelligence collectors. This guidance took the form of a series of volumes entitled "Summary of Current Needs" which included detailed listings of the CBR intelligence gaps in various areas of the world and priority ratings for the collection of this information. Nine contributions were completed by the CCIA during FY 1956.

(U) The Intelligence Annex to the "Estimate of the CBR Situation," published on 1 October 1955, underwent a revision in format. A one-page summary was added to each of the three appendixes (chemical, biological, and radiological) of the Annex, which provided the essentials of the total information presented.

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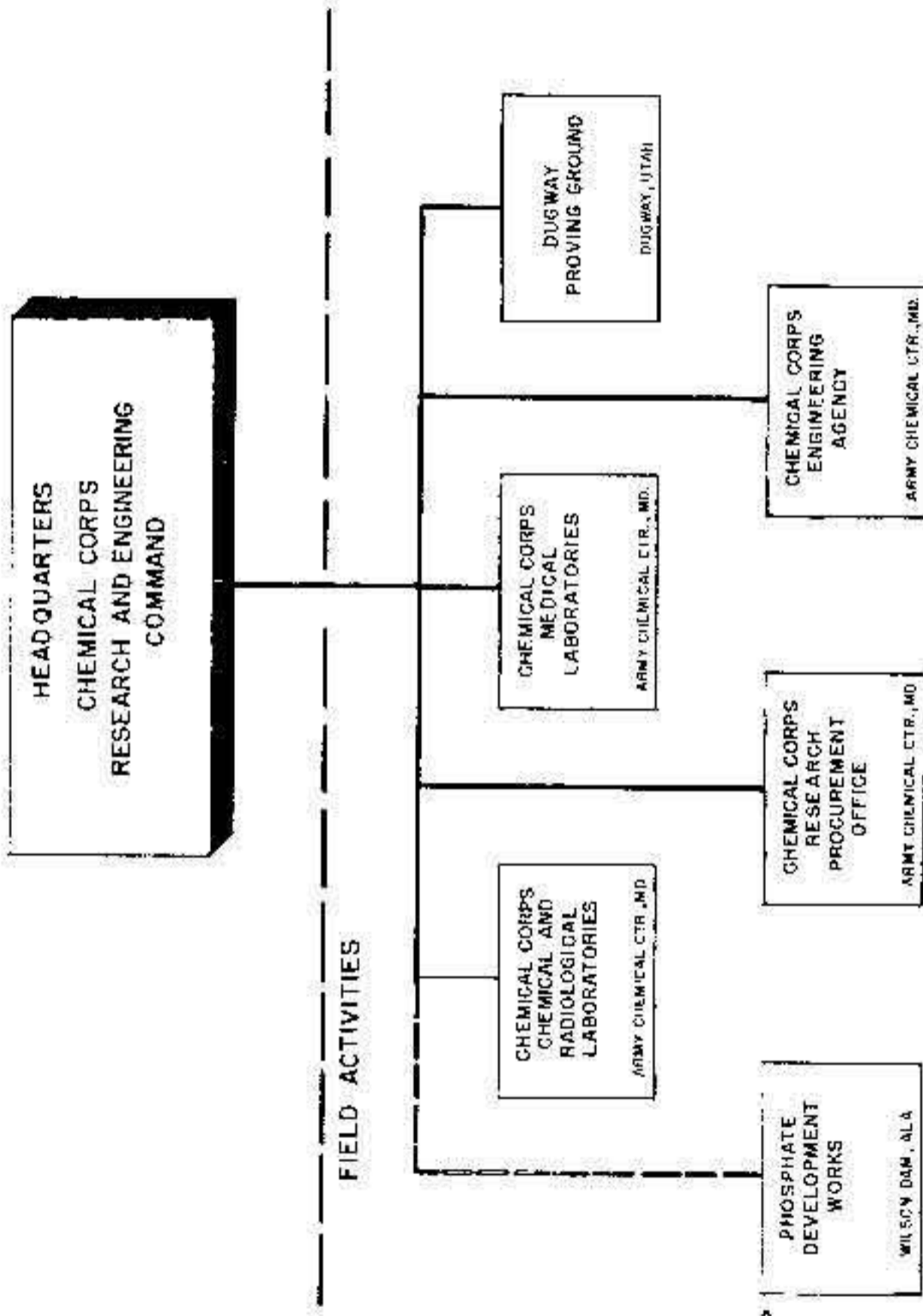
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CHEMICAL CORPS  
CHEMICAL CORPS RESEARCH AND ENGINEERING COMMAND



DATE: 1 JULY 1956  
 PREPARED BY:  
 MANAGEMENT BRANCH  
 CAMP 1 ROLLER OFFICE

TECHNICAL AND OPERATIONAL CONTROL ONLY

CHART 7

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# CHEMICAL CORPS RESEARCH AND DEVELOPMENT COMMAND

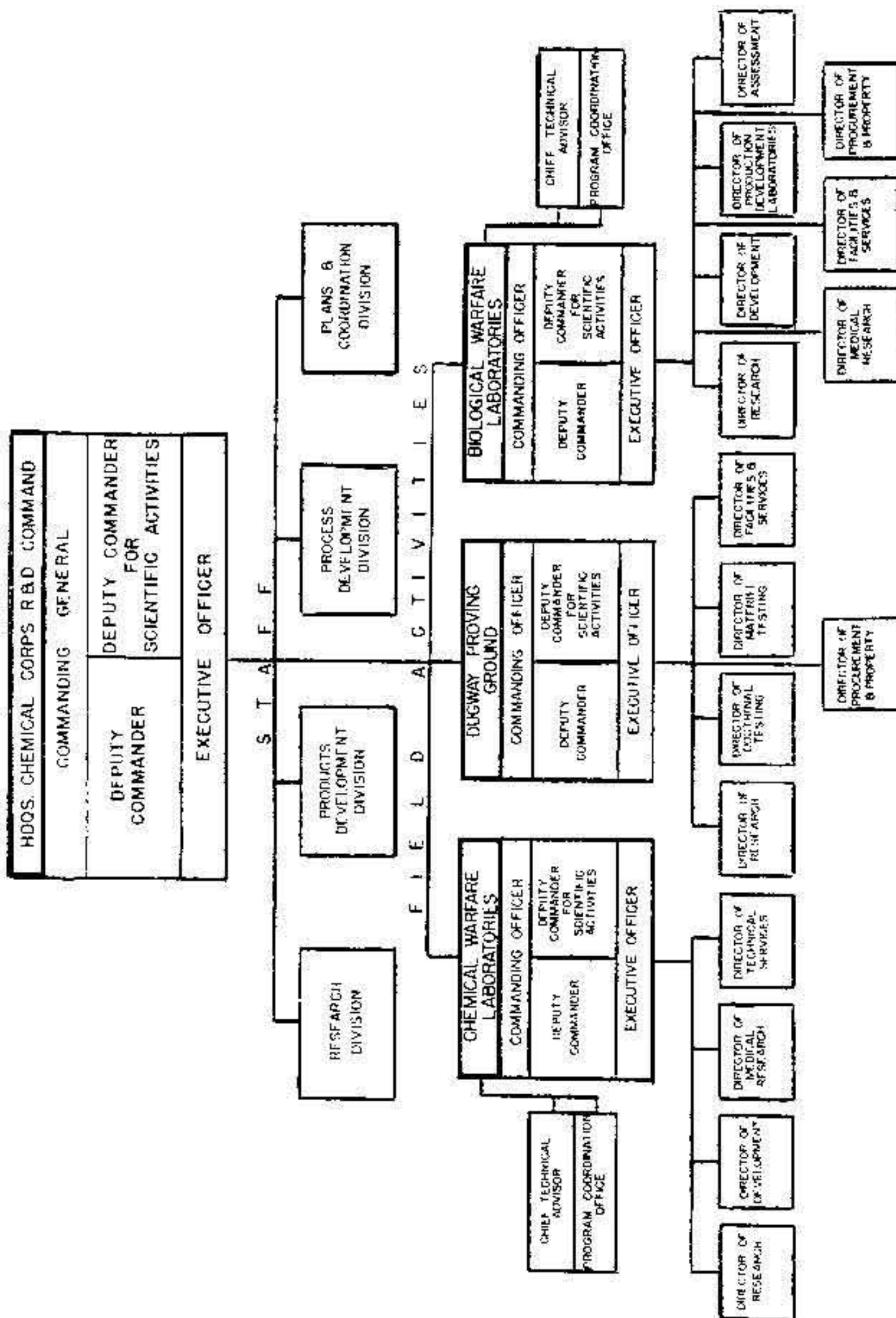
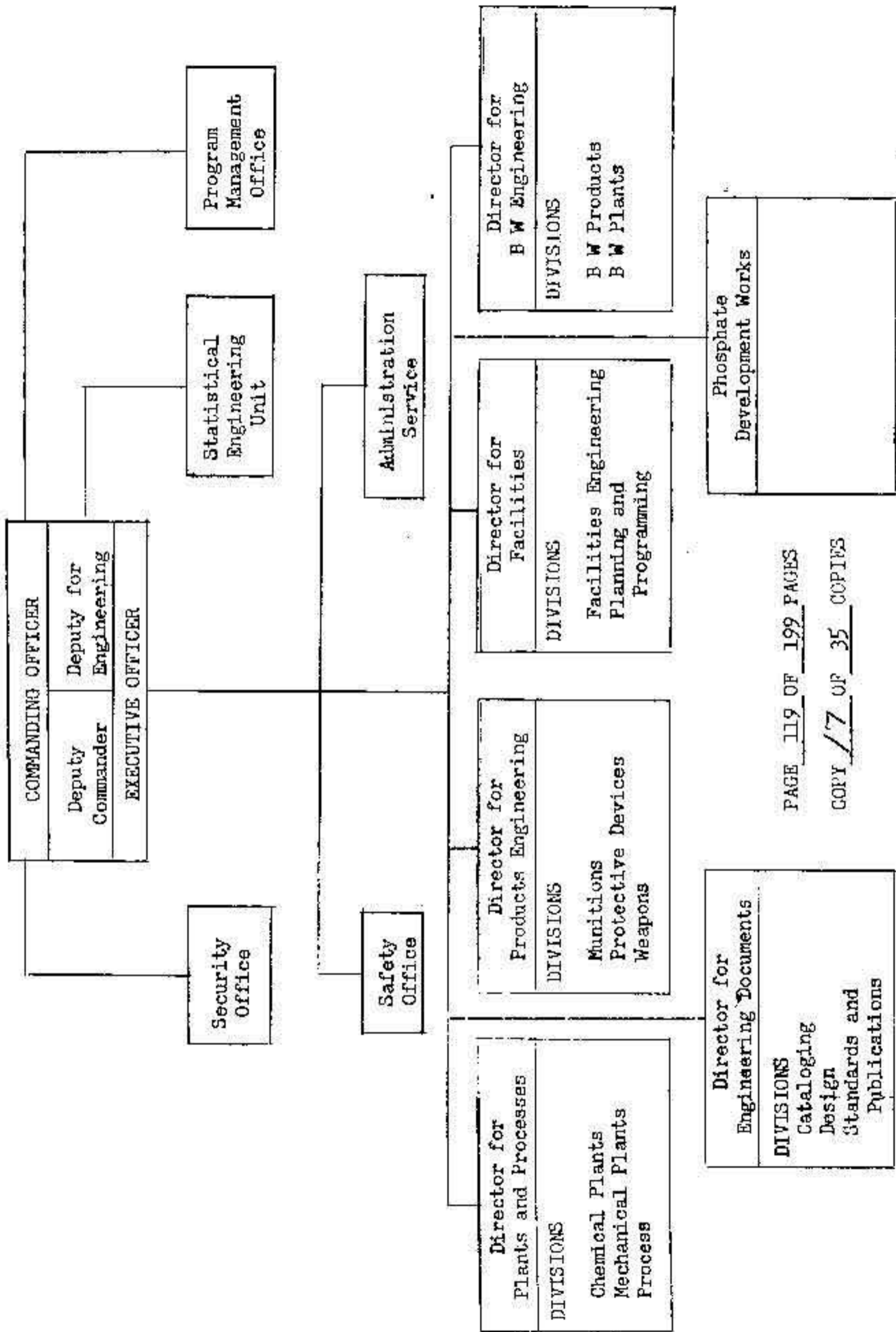


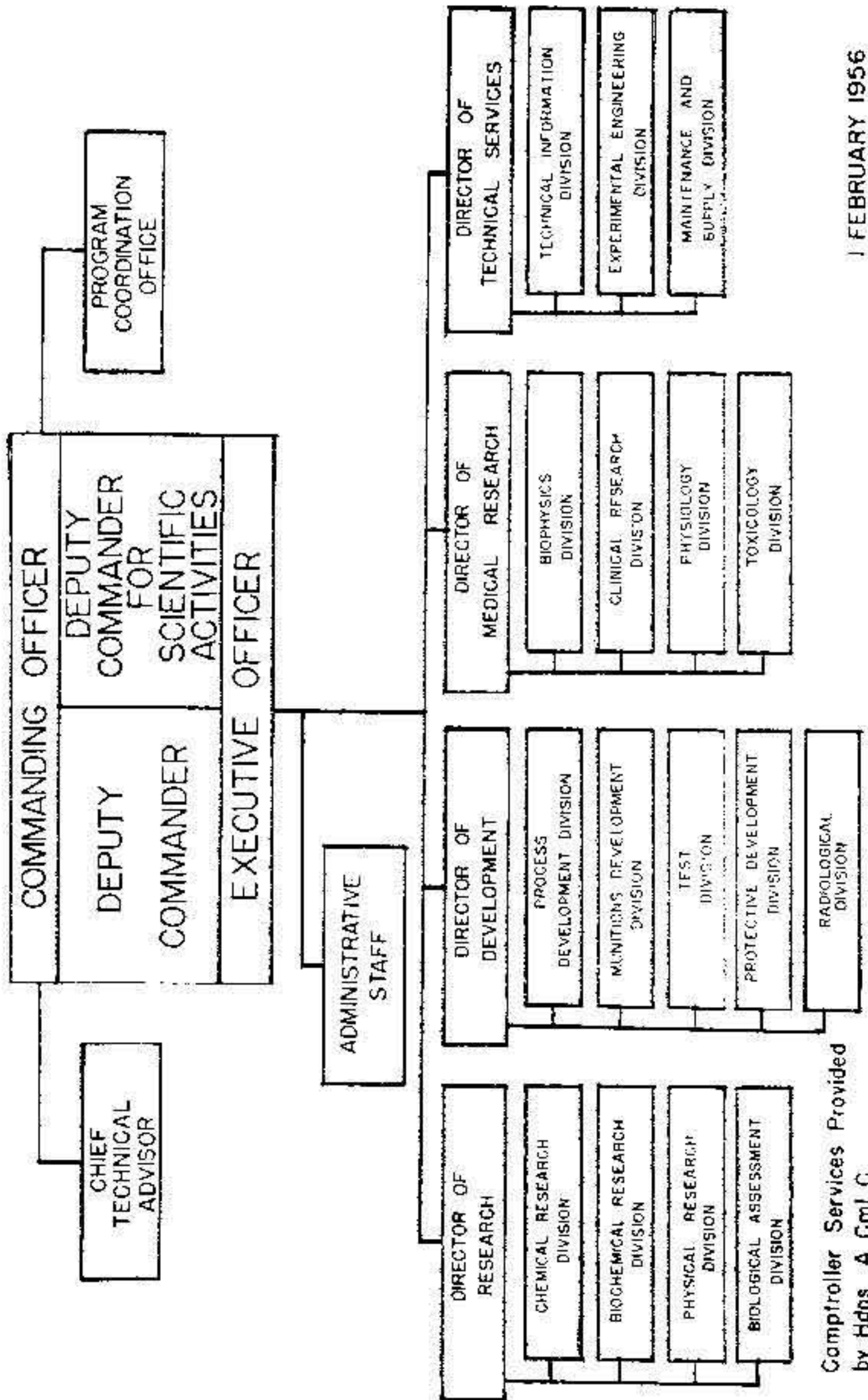
CHART 8

Chart 9 - CHEMICAL CORPS ENGINEERING COMMAND



# CHEMICAL WARFARE LABORATORIES

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1 FEBRUARY 1956

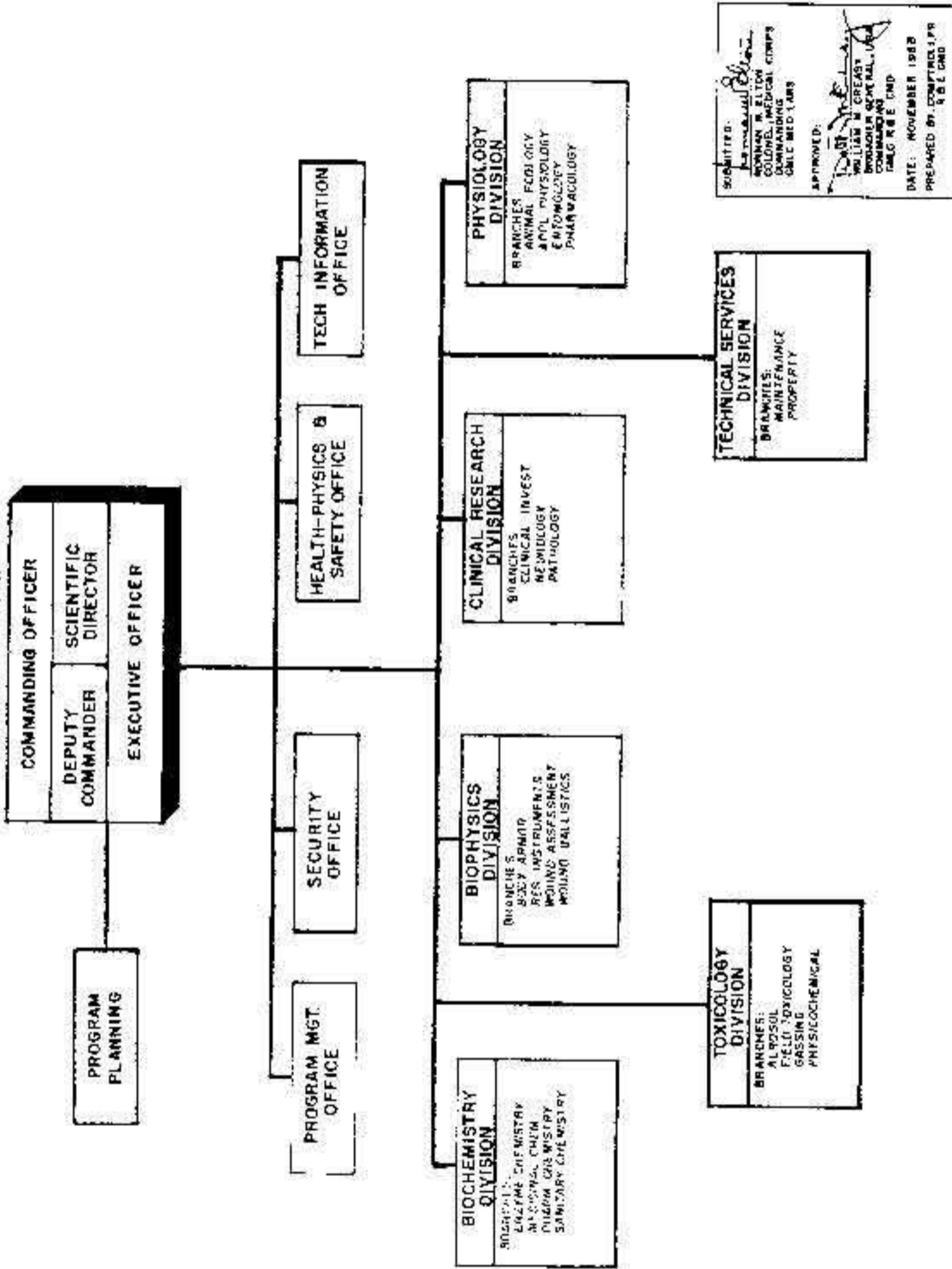
CHART 10

Comptroller Services Provided by Hdqs. A Gml C

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CHEMICAL CORPS RESEARCH AND ENGINEERING COMMAND  
CHEMICAL CORPS MEDICAL LABORATORIES  
ARMY CHEMICAL CENTER, MO.



SUBMITTED:  
*[Signature]*  
 ROYMAN W. ELTON  
 COLONEL, MEDICAL CORPS  
 COMMANDING  
 CHEMICAL MED. LABS.

APPROVED:  
*[Signature]*  
 WILLIAM M. GREASY  
 BRIGADIER GENERAL, USA  
 COMMANDING  
 CMCG R & E CMD

DATE: NOVEMBER 1988  
 PREPARED BY: COMPTROL/PB  
 R B E CMD

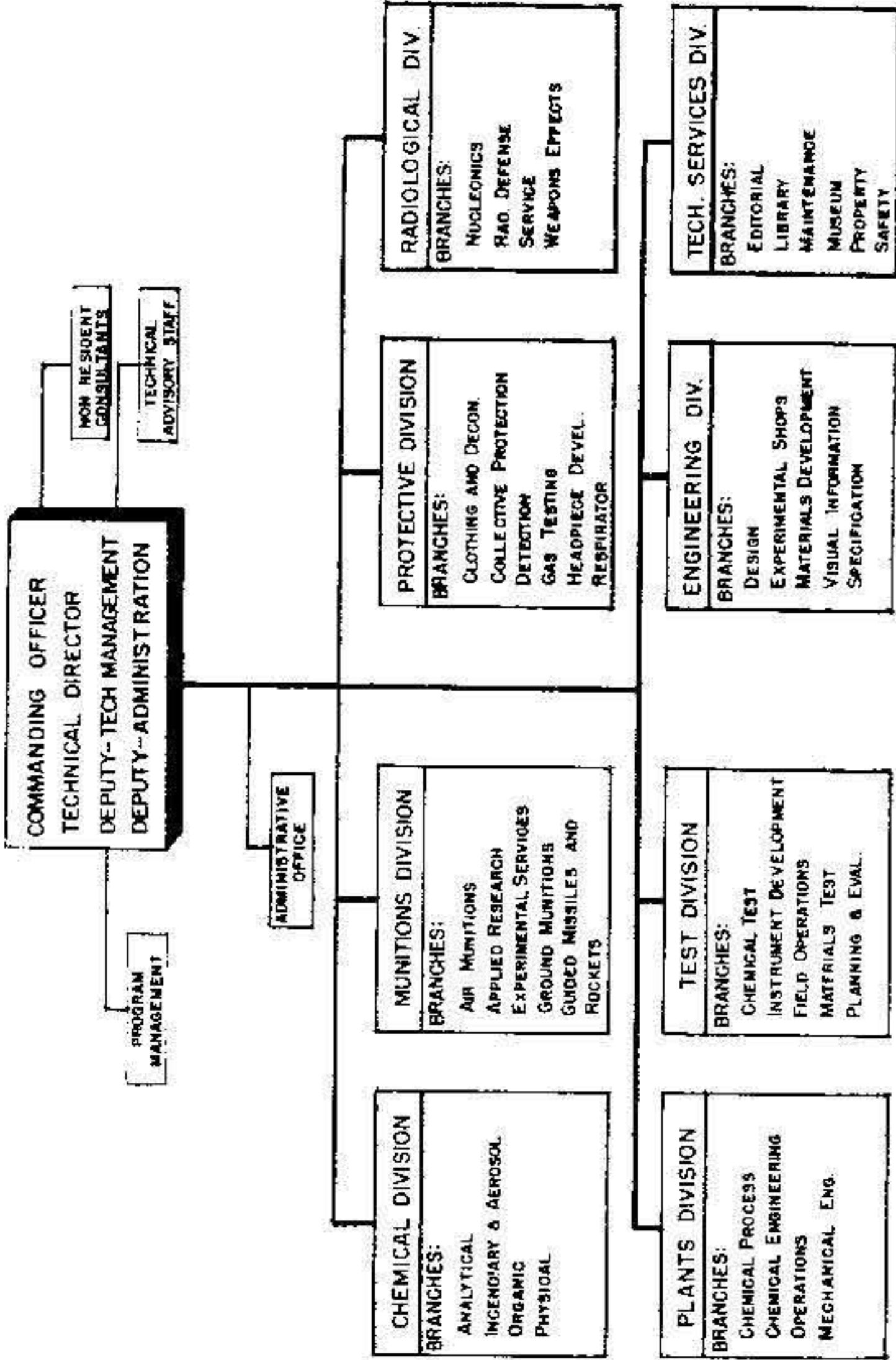
CHART II

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**CHEMICAL CORPS CHEMICAL AND RADIOLOGICAL LABORATORIES**

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SUBMITTED: *Fred J. Delmore*  
FRED J. DELMORE  
COLONEL, CMC  
COMMANDING

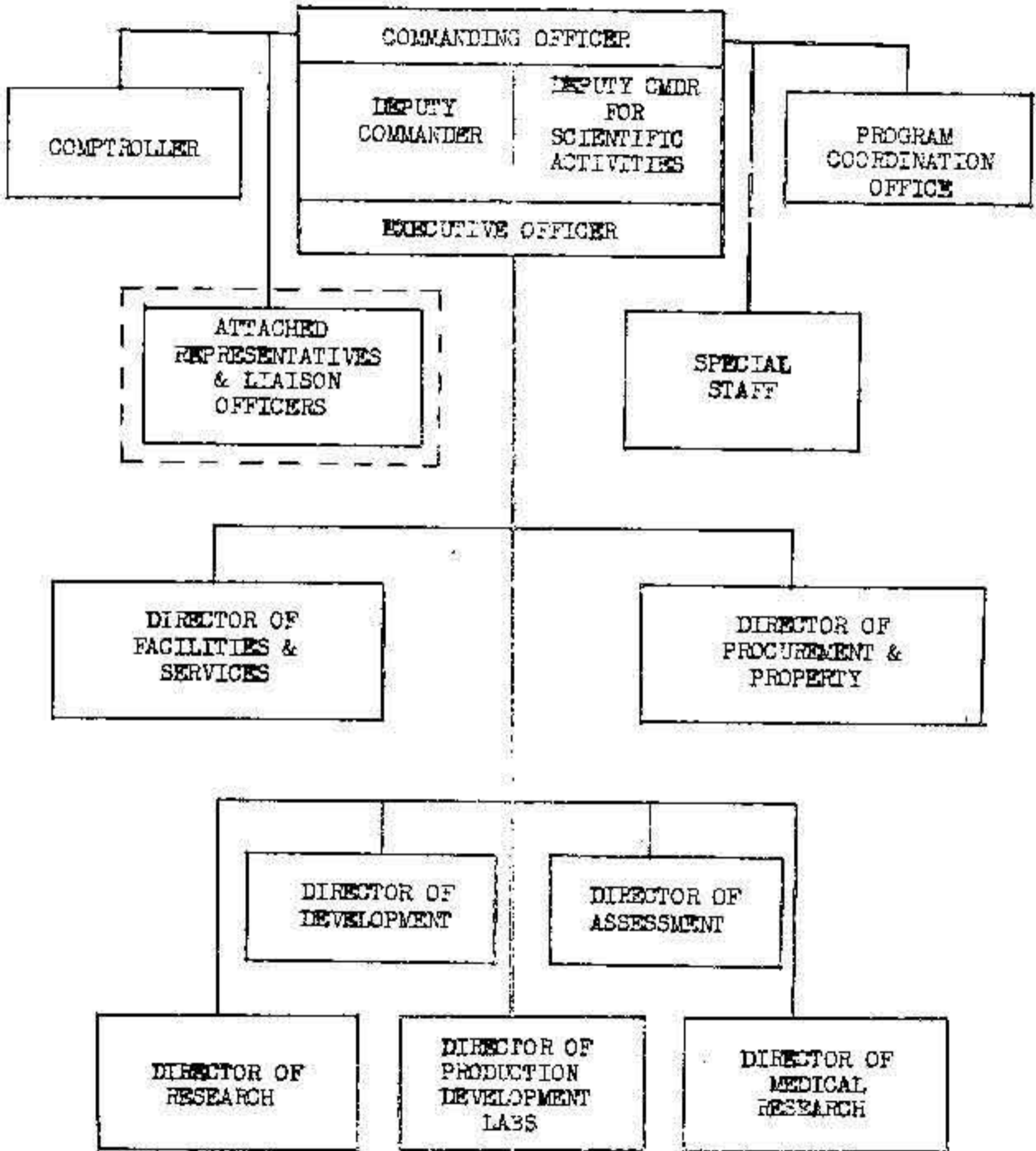
APPROVED: *J.R. Burns*  
J.R. BURNS  
BRIGADIER GENERAL, USA  
COMMANDING

DATE: 1 JULY 1968  
PREPARED BY: PROGRAM MANAGEMENT

CHART 12

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Chart 13 • BIOLOGICAL WARFARE LABORATORIES  
Fort Detrick, Maryland



## RESEARCH, DEVELOPMENT AND ENGINEERING

### Organization and Administration

(U) The major reorganizational changes that took place within the Corps as a result of the recommendations of the Ad Hoc Advisory Committee were within the area of research and development. General Creasy abolished the old Research and Engineering Command (Chart 7) and established a Research and Development Command (Chart 8) and an Engineering Command (Chart 9). The Research and Development Command was given a management type structure, with a small headquarters for guidance and a lateral-type organizational structure at the working levels, rather than the normal military pyramid of command-type structure.<sup>180</sup> The Command, under Brigadier General Jacquard H. Rotnschild, was made up of a headquarters and three agencies: the Chemical Warfare Laboratories at the Army Chemical Center, the Biological Warfare Laboratories at Fort Detrick, and Digway Proving Ground. The Chemical Warfare Laboratories (Chart 10) were formed by the union of the Chemical & Radiological Laboratories (Chart 11) with the Medical Laboratories (Chart 12). The new organization was composed of a command block, beneath which were placed four directorates: Research, Development, Medical Research, and Technical Services. The directors served as operating chiefs and as technical advisers to the top management. Each directorate was composed of several divisions, each division of several branches. The Biological Laboratories were reorganized along the same lines as the CW Laboratories; i.e., a command block and several directorates (Chart 13). When the position

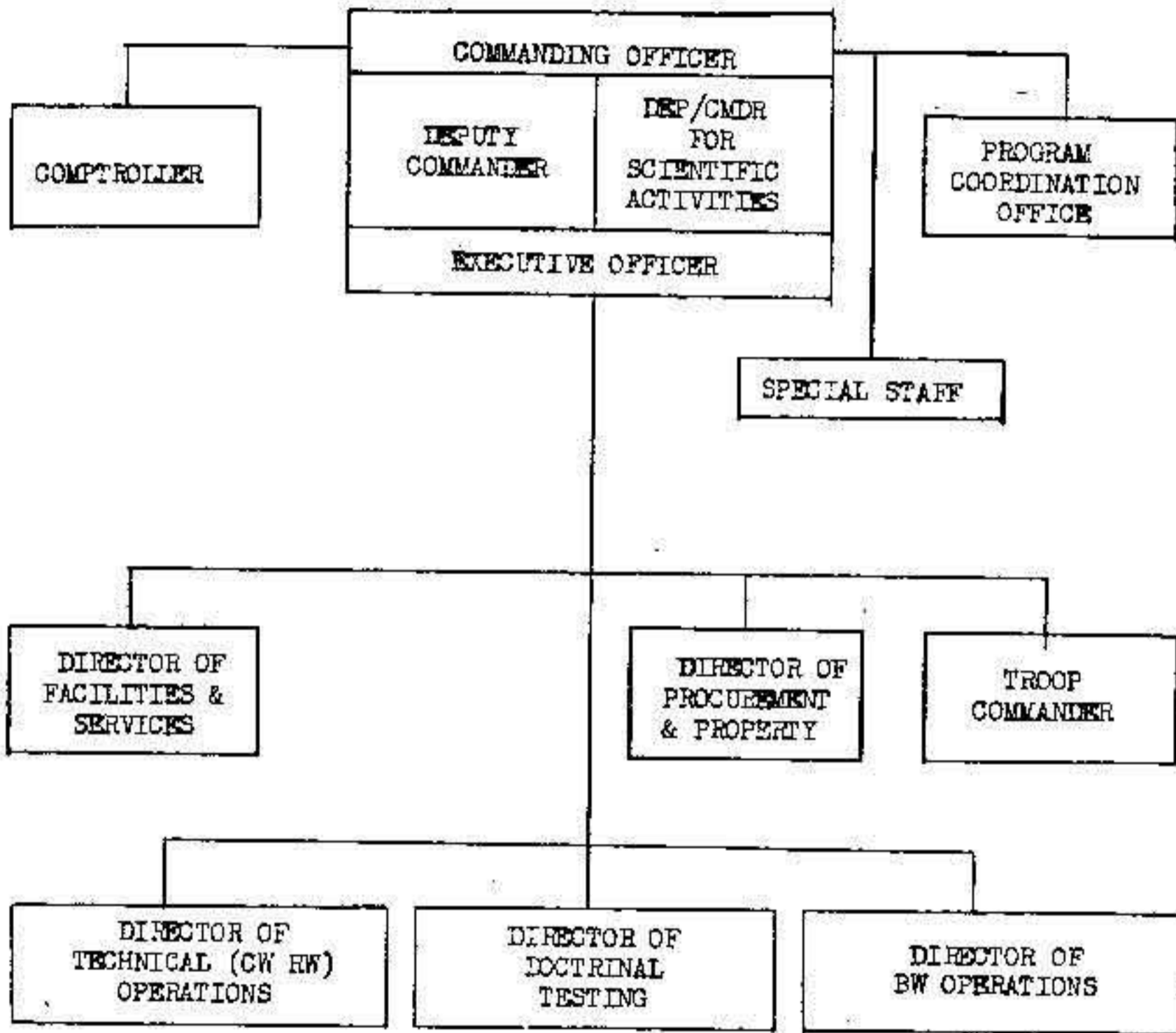
180

Talk by Dr Fer K. Frolich, Deputy Chief Chemical Officer for Scientific Activities before the Armed Forces Chemical Association, 14 Jun 56.

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Chart 14 - DUGWAY PROVING GROUND  
Dugway, Utah



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of Assistant Chief Chemical Officer for Biological Warfare was abolished,<sup>181</sup> the Commanding Officer of the BW Laboratories was made responsible to the Commanding General, Research & Development Command. The organization at Dugway Proving Ground followed the general pattern established for the Chemical and the Biological Laboratories (Chart 14).

(U) The Engineering Command, under Col. William J. Allen, Jr., was organized into a headquarters and five directorates: Biological Warfare Engineering, Engineering Documents, Facilities, Plants and Processes, and Products Engineering (Chart 9). Each directorate in turn was made up of several divisions. The Muscle Shoals Phosphate Development Works at Wilson Dam, Ala., where G-agent intermediates are produced, was placed under the technical direction of the Engineering Command for the remainder of the fiscal year.

(U) The Research and Development Command was given charge of the research and development of an item from inception to completion of final engineering, while the Engineering Command was responsible for seeing that the item was properly designed for mass production. From the inception of a project, the ENCOM engineers worked closely with research and development personnel to insure that the finished item would be sound from an engineering standpoint. After an item went into production the Engineering Command acted as a consultant to the Materiel Command and advised it of any new processes or equipment for producing the item. The same pattern was to be followed in the research, development and production of a chemical agent.

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181

See above, p. 22.

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(C) The research and development program included 41 projects and 135 subprojects in chemical warfare, 1 project and 4 subprojects in radiological warfare, and 25 projects in biological warfare.<sup>182</sup>

(C) The funds obligated for research and development as of 30 June 1956 totalled \$41,953,000 (44 percent of the Corps' actual obligations), a decrease of \$1,897,000 from FY 1955 and the lowest amount since the \$38,709,000 of FY 1952.<sup>183</sup>

(U) The technical activities of the Corps still suffered from a deficiency of professional and scientific personnel, there being 83 unfilled requisitions on 30 June 1956. These 83 vacancies represented 5 percent of the Corps' scientific and professional strength, about the same percentage understrength as the entire army. In an effort to recruit the needed men, the Army received approval from the Civil Service Commission to advance the hiring rates for physical scientists and engineers in grades GS 9 - 11. The increases allowed the salaries offered by the Corps to compete more reasonably with those offered by industry.<sup>184</sup>

(U) The problem of obtaining highly qualified scientific and professional personnel was felt strongly by the Operations Research Group (ORG), located at

182

(1) Cml C Annual Research and Development Report, 31 Dec 55. (2) Cml C Research and Development BW Project Report, 31 Dec 55.

183

(1) Quart Rev, 4th Quart, FY 56. (2) Summary of Major Events and Problems, FY 55, pp. 44 - 46.

184

Quart Rev, 4th Quart, FY 56.

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the Army Chemical Center. The ORG was established in 1951 by the Chief Chemical Officer, Maj. Gen. Anthony C. McAuliffe, to analyze and evaluate problems connected with Chemical Corps operations in areas as authorized or directed, and to provide the Chief Chemical Officer with scientific data, technical evaluations and/or reports. The Group employs statistical methods chiefly in evaluating technical information for the administrative staff. It attempts to solve problems submitted by the Chief Chemical Officer as well as problems which ORG itself generates. At the close of the fiscal year ORG's chief project was the revision of the Corps' source data book, for which the number of personnel was increased by twenty and which is scheduled for completion by 1 July 1957. The original concept in establishing ORG was to staff the organization with civilian scientists on leave of absence from universities. But this plan proved impractical, and the personnel has been drawn from the civil service and the military establishment. Owing to the specialized, highly competitive type of personnel required, the ORG has had considerable difficulty in filling its spaces, and vacancies existed in grades GS 15, 14, and lower.<sup>185</sup>

#### Technical Operations

##### Psychochemical Agents

(S) In the closing months of the previous year, the Corps established a new subproject, 4-08-03-016-05, Psychochemical Agents, in an effort to uncover

185

Interv, Hist Off with Lt Col John A. Bacon, Jr., Dir, Cml C Operations Research Group, 7 Sep 56.

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compounds that would cause temporary mental and/or motor incapacitation of enemy soldiers or civilians. During this fiscal year considerable preliminary work was done. The chairman of the Research and Development Coordinating Committee on Biological and Chemical Warfare, in a memorandum dated 3 June 1955, requested the Technical Advisory Panel on Biological and Chemical Warfare to study the problem of psychochemical agents. The Panel appointed a Study Group to examine the general field. On this Group were: Harold G. Wolff (chairman), Robert W. Hyde, Brig. Gen. S. L. A. Marshall (USAR), Maurice Seevers, Thomas P. Carney, and Lawrence E. Hinkle. The Wolff Committee made recommendations on the project, and on 1 February 1956 Van M. Slin assumed responsibility for the CW Laboratories' clinical research program. On 24 May the Corps received authority to enlist the services of human volunteers for the tests.<sup>186</sup>

(S) A survey of the numerous compounds included within the category of potential psychochemical agents has led to a concentrated study of three prototype groups of compounds: (1) mescaline and related compounds which cause hallucinations, (2) lysergic acids, which produce anxiety and hallucinations, (3) active ingredients of marijuana and related tetrahydrocannabinol derivatives, which cause depression. A major difficulty has been finding compounds that are active in concentrations sufficiently small for military purposes. To date, 45 compounds have been delivered for study, 22 have been studied on

<sup>186</sup>

- (1) Report of the Ad Hoc Study on Psychochemical Agents, 19 Nov 55.  
(2) Summary of Major Events and Problems, FY 55, pp. 48 - 49.

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animals. Compounds screened by animal tests will eventually be evaluated on human volunteers.<sup>187</sup>

### V-Agents

(S) For many years the research and development staff has been seeking toxic agents which would not have to be inhaled, but would enter the body through the skin, thereby by-passing the protective mask. By modifying the electronegative group of the G-agents, chemists prepared such a series of compounds, christened in 1955 the V-agents.<sup>188</sup> The Corps gave top priority to the investigation of these compounds.

(S) During FY 1956 a number of new compounds of the V-agent type were prepared and screened for toxicity. Various approaches to the synthesis of the agents were studied. Candidate agent 1701, designated as VI, was selected for process and pilot plant development and for initial dissemination studies. This compound is representative, from a structural point of view, of the V-agents, and the data obtained will therefore provide basic information in the development of the compound that is finally chosen for standardization.<sup>189</sup>

187

(1) E. Ross Hart, Psychochemical Program, Status Report as of 31 Dec 55, CWLR 2021, 3 May 56. (2) Eleventh Tripartite Conference on Toxicological Warfare, U.S. Discussion Paper, Medical Aspects Agenda.

188

Summary History of Major Events and Problems, FY 55, pp. 46 - 47.

189

(1) Quart Rev, Classified Supplement, 4th Quart, FY 56. (2) Quart Hist Rpt, CW Laboratories, Apr-Jun 56.

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(S) In the development of the V-agents there were a number of technical problems requiring solution. One of the most important of these was the tendency of the compounds to decompose during storage. During the year considerable progress was made studying the factors that cause decomposition. The problem is still under investigation.<sup>190</sup> Efforts were also continued to find a material which would be practical in decontaminating surfaces touched by V-agents. A large number of compounds were tested, and some found to destroy certain agents rapidly.<sup>191</sup>

### G-Agents

(S) Early in the fiscal year a detailed study of the various processes used to produce GB and its intermediates was completed and submitted to the Office of the Chief, the Research and Development Command, and the Materiel Command. This report evaluated in detail the advantages and disadvantages of each process so that higher authority could use the report as a basis for determining any future expansion program.<sup>192</sup>

(S) G-agents are currently being produced by the so-called IMHP (dimethyl hydrogen phosphite) process. Two other processes are feasible, the Salt and the HTM (high temperature methane). The Corps is interested in these two processes because they may prove to be less expensive and more efficient and practical than the present method. During the fiscal year the Chemical

190

Interv, Hist Off with Dr Per K. Frolich, 6 Aug 56.

191

Cml G Annual Research and Development Report, 31 Dec 55.

192

GB Expansion Program (TOP SECRET report).

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Warfare Laboratories, the Engineering Command and a contractor, the Food Machinery and Chemical Corporation, carried on further planning of the unit plant design for the HTM process. The contract consisted of two parts; phase 1 for development of the pilot plant, and phase 2 for the design of a semi-works plant. Considerable work was done by the laboratories and the contractor on phase 1, with engineers from the Engineering Command on hand to familiarize themselves with the operation and thus expedite the later work on phase 2.<sup>193</sup>

(S) The evaluation of the Salt Process was carried out in conjunction with the Olin Mathieson Chemical Corporation. During the first half of 1956 the completion date of the contract was extended, owing to personnel turnover of the contractor, but by the end of the fiscal year the contract was practically completed. The technical work, including the writing and publication of manuals, was completed, leaving only the administrative details to be concluded.<sup>194</sup>

(C) During the year, chemical engineering studies at the Phosphate Development Works led to two improvements, both of which should save considerable amounts of money in the production of GB. First, the heat exchangers

193

(1) Summary of Major Events and Problems, FY 55, pp. 49 - 50. (2) Contract No. DA-8-108-CML-5725, in the amount of \$773,590, with the Food Machinery and Chemical Corporation. (3) Cml C Annual Research and Development Report, 31 Dec 55. (4) Quart Hist Rpt, Cml C Engineering Cmd, Jan-Mar 56; Apr-Jun 56.

194

(1) Contract No. DA 11-021-CML-488, in the amount of \$426,556, with the Olin Mathieson Chemical Corporation. (2) Quart Hist Rpts, Cml C Engineering Cmd, Jan-Mar 56; Apr-Jun 56.

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and condenser coils were replaced by equipment constructed of nickel and special alloys. The saving in maintenance costs amounted to \$100,000. Secondly, the process was modified, resulting in a gain of 5 percent in the yield, and the purity was increased, allowing the elimination of expensive redistillation. At the rates of production that would be carried on under full mobilization, it was estimated that the savings would approach three-quarters of a million dollars annually.<sup>195</sup>

LOPAIR G-agent alarm

(U) It is difficult for humans to detect the presence of G-agents by the senses alone. For this reason the Corps has been endeavoring to develop an automatic device which could sound an alarm when a G-agent was in its vicinity. Such a device could be used to scan the atmosphere continuously in advance of troops, and give warning when G-agents were spotted.

(S) In 1954 the Corps began development of a small, simple alarm commonly called LOPAIR (long-path infrared). The principle behind this device is that the G-agents absorb certain portions of the infrared spectrum. The first prototype, E33, was constructed in co-operation with the Armor Research Foundation and the Farrand Optical Company. It performed satisfactorily, having a range of 300 yards, but it was too heavy (250 pounds) and consumed too much electrical power (250 watts).

(S) To overcome the objections to the E33, a revised model, the E33R1,

195

Cml C Research and Development Command, CW Labs, Outstanding Accomplishments FY 56.

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was produced by the Farrand Company. It was similar to the E33 but made use of a difference, instead of a ratio, system for wave length comparison. The unit weighed only 34 pounds, consumed only 50 watts of power, and had a range of 100 yards. Three to ten seconds were necessary for the unit to respond to the presence of the agent. It did not sound a false alarm when an opaque object blocked the path of radiation.

(S) Following evaluation of the E33 and E33R1, a third instrument, E33R2, was designed. This incorporated the best features of the earlier devices as well as some new ideas. The unit was slightly heavier than the previous model, but consumed less power (30 watts) and had a much longer range (1/4 mile). The alarm was sufficiently sensitive to detect a few ounces of GB exploded thirty to fifty yards upwind under normal conditions. The developers expect that this model will satisfy the military characteristics when it is submitted for the final development tests.<sup>196</sup>

#### One-Shot Portable Flamethrower

(C) In the area of flame warfare the Corps had under development two types of mechanized flame throwers (one for tanks, the other for combat vehicles) and two flame throwers for use by the individual soldier, the portable and the one-shot. These weapons were in different stages of development, ranging from fabrication of the prototype to the final development test. The Corps developed its first one-shot flame thrower in World War II. The weapons were cylindrical

<sup>196</sup>

(1) CWTC item 2868, 29 Jul 54. (2) Cml C Annual Research and Development Report, 31 Dec 56.

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in shape, held from two to three gallons of petroleum fuel, and weighed approximately thirty pounds. The fuel was expelled through and ignited by a nozzle at one end. Two propellant systems were tested, one consisting of a piston which pushed the fuel, the other of a collapsible bag which squeezed the fuel through the nozzle. The propelling force came from compressed carbon dioxide gas or from gas given off by burning cordite. The range extended from twenty yards with unthickened fuel to fifty yards with thickened fuel. By the end of the war the weapon had reached the stage where limited procurement of 1500 was authorized, but the project was dropped upon advice from the AFF before it went any further. In 1953 the Marine Corps and CONARC stated a requirement for the one-shot, and work was resumed under project 4-09-02-018.<sup>197</sup>

(S) The new flame thrower is considerably different than the World War II models. Instead of being cylindrical in shape the tube is bent into the shape of a U. In place of a piston or a collapsible bag is a rubber ball. At one end of the U is the propellant, at the other a nozzle. In operation combustion gas from the propellant forces the rubber ball down one leg of the U, around the bend and up the other leg to the nozzle. The ball pushes the thickened fuel through the nozzle, where it is ignited. The weapon has a capacity of two gallons, a firing time of four seconds, and weighs twenty-five pounds loaded. Ranges of from fifty to seventy-five yards are attained.<sup>198</sup>

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197

(1) Leo Finkelstein, Flame Throwers (monograph in series, History of Research and Development of the CWS in World War II). (2) CWS Rpt of Production, 1 Jan 40 through 31 Dec 45. (3) CWTC item 2626, 5 Mar 53.

198

(1) A full-scale plexiglass model of the weapon is in the briefing room, CW Labs. (2) Cml C Annual Research and Development Report, 31 Dec 55.

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(S) During FY 1956 the Corps negotiated a contract with Aerojet General Corporation for the manufacture of forty K30R1 one-shot flame throwers. Those were to be used by the Corps in final development tests and by the Marine Corps and CONARC in preliminary user tests. The weapon performed satisfactorily in final engineering tests at 0°F, but at a lower temperature of -25°F the rubber ball lost its elasticity. In an effort to find a material that would function perfectly the Munitions Development Division investigated rubber compounds not affected by low temperature.<sup>199</sup>

#### Field Protective Mask

(S) in 1954 CONARC began to test new experimental field masks with the object of choosing a model to replace the standard M9A1 mask. The specimens included the K10, K12, K13, and K73, with the M9A1 present for comparison. The test program emphasized the ability of the mask to protect the wearer against CW and BW agents, as well as its ruggedness, comfort, and wearability. In 1955 the AFF decided that model K13 was most satisfactory. The K13 has no canister, the inhaled air passing through pads of filtering material inside of the snout-like facepiece. It has only one-half the breathing resistance of the M9A1, is lighter and more compact, has a larger field of vision, and provides for speech transmission.

(S) The first schedule for production of the K13 mask called for completion of the final development tests by 31 January 1957. The Corps thereupon

199

(1) Interv, Hist Off with Mr R. L. Ortynsky, Munitions Dev Div, CW Labs, 10 Jul 56. (2) Progress Reports from Aerojet General Corp under contract DA-18-108-CML-5658.

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worked out plans to telescope user test procurement, final development tests, and CONARC user tests. At this rate the Corps hopes to have the mask ready for type classification at the end of calendar year 1957.<sup>200</sup>

(U)(S) During the development of the K13 type mask, the Corps continued to improve the standard M9A1 mask, so as to keep it at maximum effectiveness during the period needed to complete its successor. The Continental Rubber Works, under contract, produced M9A1 faceblanks in three sizes with smooth face-sealing surfaces. Continental also modified the mask to permit insertion of a speech unit-outlet valve and thus improve speech transmission.<sup>201</sup>

#### Radicalogical Warfare Agents

(U)(S) During the year the Research and Development Command completed a study on the probable quantity of radioactive waste material that will be available for conversion into radicalogical warfare agents during the period 1960 - 1980. They found that radioactive waste will be available at industrial atomic energy plants in 1965. Thereafter the supply will increase rapidly. The Corps had been interested in this type of agent, but little effort had gone into this field recently because studies had shown that there was not sufficient radioactive material available to produce RW agents.<sup>202</sup>

200

Quart Rev, Classified Section, 2d Quart, FY 56.

201

(1) Cml C Annual Research and Development Report, 31 Dec 55. (2) Progress reports for Continental Rubber Works under contract DA-18-108-CML-5077.

202

(1) Cml C Research and Development Command, CW Labs, Outstanding Accomplishments FY 56. (2) Project 4-12-10-007-C3, Ground Delivery of RW Agents, (RD).

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Biological Warfare

(S) At Fort Detrick the screening and evaluation of bacteria, fungi, viruses, and rickettsiae produced additional information on *C. immitis*, *M. mallei*, *M. pseudomallei*, *Myco. Tuberculosis*, *R. rickettsiae*, Japanese B encephalitis, and variola. Genetic research led to the detection and isolation of a salt-resistant strain of *Brucella suis* which had much greater aerosol stability than the parent type. The virulence and stability of *Pasteurella pestis* was increased. Research was started to apply large scale tissue culture as a technique in the production of viruses and rickettsiae.<sup>203</sup>

(S) In munition development, four projects were completed during the fiscal year:

(S) (1) Project 4-04-14-020, Amphibious BW Aerosol Generator. This project was started in 1952 by request of the Navy Bureau of Ordnance. The munition was a mine from which the agent was forced out and atomized by pressure from carbon dioxide. It was developed to the point where a series of tests (Operation FOG BOUND) was conducted at Dugway. In July 1955 the Navy terminated the project.<sup>204</sup>

(S) (2) Project 4-04-14-022, 1/2-lb. Biological Bomb. This item was a small antipersonnel bomb (~~B61R4~~) designed for use in a 750-lb. aimable cluster adapter. The agent was atomized from the bomb by a fast-burning

203

(1) Tenth Annual Report, Ft Detrick, 1 Jul 56. (2) Annual Chemical Corps Research and Development BW Project Report, 31 Dec 55. Hereafter cited as CmlC R&D BW Proj Rpt, 1955.

204

(1) Tenth Annual Report, Ft Detrick, pp. 187 - 88. (2) CmlC R&D BW Proj Rpt, 1955, pp. 247 - 52.

powder charge, initiated by an impact fuze.<sup>205</sup> The development was completed, and the bomb was ready for standardization.<sup>206</sup>

(C) (3) Project 4-04-14-023, Biological Bomb for Balloon Delivery.

This bomb consisted of a gondola holding five containers of agent grouped around a heating device. A fuze opened the gondola at a preselected altitude, releasing the agent.<sup>207</sup> All engineering tests were completed, and standardization should follow.<sup>208</sup>

(S) (4) Project 4-04-14-025, BW Mine. This munition was designed to

be laid in river mouths and harbors by means of submarine. It was designed to be fired from a torpedo tube, to sink to the bottom for a specified period up to two hours, and then rise to the surface and expell a cloud of atomized agent. Fort Detrick developed the aerosol generator, while the Naval Ordnance Laboratory produced the mine case. In July 1955, after successful trials, the Navy halted the project.<sup>209</sup>

205

Tenth Annual Report, Ft Detrick, pp. 176 - 79.

206

Ft Detrick Special Report 251, Final Engineering Report, E61R4 and K133R3, Mar 56.

207

Tenth Annual Report, Ft Detrick, pp. 173 - 74.

208

Ft Detrick Special Report 255, Final Engineering Report on the K125, n.d.

209

(1) Tenth Annual Report, Ft Detrick, pp. 186 - 88. (2) Ft Detrick Special Report 237, Moby Dick: Sea-to-Land Travel of Simulated Aerosols generated by the XB - 14 B Mine, Aug 55.

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(C) In addition, Project 4-04-14-026, 750-lb. Biological Bomb, was completed except for publication of the final engineering report; and Project 4-04-14-024, Biological Bomb, Continuous Generator, was cancelled because it did not offer significant advance over the 1/2-lb. Biological Bomb.<sup>210</sup>

(S) In the field of anticrop BW, the Biological Bomb for Balloon Delivery and the 750-lb Biological Bomb (both mentioned above), were completed. The Bomb for Balloon Delivery is one of the munitions being considered for use in the CD-30 project, an Army - Navy - Air Force test group concerned with the problem of completing a weapon system utilizing cereal rusts in munitions. Cereal rusts received the greatest emphasis among anticrop agents, particularly in regard to dissemination and spread.<sup>211</sup>

(C) In FY 1956 Project CD-22, the first attempt to obtain information concerning the vulnerability of military personnel to BW attack, was completed. In tests at Dugway Proving Ground thirty volunteers were exposed to an aerosol containing *Coxiella burnetii*, the cause of Q fever. These tests gave valuable data on the infectivity of this agent, and also corroborated earlier results obtained from the Horton Test Sphere.<sup>212</sup> This project was carried out with

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210

(1) Tenth Annual Report, Ft Detrick, pp. 174 - 75, 185 - 86. (2) CmlC R&D BW Proj Rpt, 1955, pp. 321 - 28, 337 - 44.

211

(1) Tenth Annual Report, Ft Detrick, pp. 196 - 97, 127 - 48. (2) Review and Analysis of Cml C BW Program, 4th Quart, FY 56.

212

Tenth Annual Report, Ft Detrick, pp. 203 - 04.

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assistance from the Medical Department under an agreement between the Chief Chemical Officer and The Surgeon General.<sup>213</sup>

Standardized Items

(C) During the fiscal year the Corps completed the development of, and standardized the following items:

(U) (a) Incendiary, Emergency Document Destroyer, M3 (K12R1). This document destroyer was developed at the request of the Armed Forces Security Agency to insure complete destruction of classified or vital documents to prevent their capture and reconstruction by an enemy.<sup>214</sup>

(U) (b) War Gas Identification Set, Detonation, AN-MLA1 (E7). This set, which replaces the M1 set, broadens the range of gases which can be identified, eliminates the tests for Levinstein mustard and chloropicrin, and adds ampoules for identifying the newer agents (distilled mustard, cyanogen chloride, nitrogen mustard and agents of the G-series).<sup>215</sup>

(C) (c) Winterizing Kit, Protective Mask, M1 (K1LR14). This kit was developed to extend the protective capabilities of the M9A1 Field Protective

<sup>213</sup>

CWTC 3162, 17 May 56.

<sup>214</sup>

CWTC Item 3123, Classification of Incendiary, Emergency Document Destroyer, M3 (K12R1) as a Standard Type, 29 Nov 55.

<sup>215</sup>

CWTC Item 3125, Classification of War Gas Identification Set, Detonation, AN-MLA1 (E7) as a Standard Type and Reclassification of the M1 Set to Limited Standard, 29 Nov 55.

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Mask to operations performed at temperatures down to -65°F. 216

(C) (d) Breathing Apparatus, Compressed Air, M15. This apparatus was developed to meet the requirement of guided missile battalions and related Ordnance research, development and training organizations for respiratory protective equipment. 217

216

CWTC Item 3189, Classification of Winterizing Kit, Protective Mask, M1 (E14,R14) as a Standard Type, 17 May 56.

217

CWTC Item 3192, Classification of Breathing Apparatus, Compressed Air, M15 as a Standard Type & Reclassification of Breathing Apparatus, Oxygen Generating, M13 to Limited Standard, 17 May 56.

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The Chemical Corps Logistics Mission 218

(U) The Ad Hoc Advisory Committee consideration of the Chemical Corps logistics field was not extensive. The Committee's principal recommendation with respect to logistics was that:

...procurement, production, supply and industrial mobilization planning functions of the Chemical Corps be continued as a major organizational unit under the direction of the Materiel Command.<sup>219</sup>

Subsidiary recommendations were made on the organization and responsibilities of the Materiel Command and the Logistics Planning Division, OCCm10. In addition to these recommendations the committee proffered some suggestions of which the most important was:

Certain functions now handled by the Materiel Command, particularly in the field of supply, including some types of depot operations, might be more effectively handled by other branches of the Military. Looking at the Chemical Corps only, as charged, the Committee is not in a position to make specific recommendations in this area, but this possibility should be explored.<sup>220</sup>

Corollary suggestions were made to the effect that logistics training activities could be reduced by consolidation of storage and depot activities with other

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218

(1) The documentation for this section is drawn from the "Osmanski file" prepared by Special Projects Office, Supply Div, CmlC MATCOM. Hereafter cited as "Osmanski file." (2) Further information was obtained by interv, Hist Off with Mr E. H. McDaniel, Logistics Planning Div, OCCm10, 23 Aug 56.

219

Report of the Ad Hoc Advisory Committee on Chemical Corps Mission and Structure, 6 Aug 55, p. 9.

220

Ibid.

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services and that the procurement of commercial chemicals for the entire defense establishment "should not be undertaken except where it would be of specific advantage to the military and would not interfere with the Chemical Corps' primary mission."<sup>221</sup>

(U) General Magruder, Deputy Chief of Staff for Logistics, in his reply to General Creasy's request for authority to implement Ad Hoc Advisory Committee recommendations, specifically reserved the matter of the review of storage and distribution activities to the Logistics Functions Assignment Board.<sup>222</sup> On 1 December 1955, the Office of the Deputy Chief of Staff for Logistics informed the Chief Chemical Officer that an "Ad Hoc Committee for the Reorganization of the Chemical Corps" was being organized. In consideration of supply matters this committee was to act as an adjunct of the Logistics Functions Assignment Board. Col. Frank A. Osmanski, Deputy Chief, Business and Industrial Management Office, Office of the Deputy Chief of Staff for Logistics, was designated Chairman, and Lt. Col. Raymond C. Morris, Chemical Corps Materiel Command, was named Chemical Corps representative.<sup>223</sup> Subsequently, Col. Claude J. Merrill, Deputy Commander, Chemical Corps Materiel Command, and Mr. J. M. Ritchie, Supply and Distribution Division, Office of

<sup>221</sup>

Ibid., pp. 16, 20.

<sup>222</sup>

(1) Memo, DCSLOG for CCmlO, 7 Nov 55, sub: Reorganization of Chemical Corps, See App. B. (2) See above, pp. 21 - 23.

<sup>223</sup>

(1) DF, Mr G. O. Pehrson, Ch, Business and Industrial Management Office, ODCSLOG, to CCmlO, 1 Dec 55, sub: Reorganization of the Chemical Corps. (2) The Business and Industrial Management Office was subsequently redesignated the Office of the Director of Financial Operations with Brig. Gen. Lou G. Van Wagoner as director.

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the Deputy Chief of Staff for Logistics, were added to committee membership.<sup>224</sup>

(U) The Ad Hoc Committee for the Reorganization of the Chemical Corps first met on 21 December 1955 to consider the field and purpose of inquiry, and the procedures to be employed. The members were unable to reach an agreement as to the scope and purpose of investigation. After consultations within their respective agencies, the committee members met again on 22 December. The Chemical Corps representatives believed the Committee mission to be an inquiry into specific phases of the Chemical Corps supply and distribution activity. The Chairman apparently believed that the Chemical Corps mission should be examined in light of the Ad Hoc Advisory Committee emphasis upon research and development to determine if that function should be the sole mission of the Chemical Corps. Mr. Ritchie, under the direction of his chief, Maj. Gen. A. T. McNamara, wished only to consider Chemical Corps supply responsibilities as a whole without regard to the research and development mission. The meeting adjourned with the understanding that Colonel Osmanski would prepare a summary sheet outlining the problem and the objectives, and he would obtain decisions in the areas of disagreement. Pending resolution of these problems, the committee was to proceed with a detailed analysis of items for which logistic responsibility was currently assigned to the Chemical Corps.<sup>225</sup>

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224

Special Projects Office, Supply Div, CmlC MATCOM, "History and Current Status of DCSLOG Osmanski Committee," n.d.

225

Memo, Col G. J. Merrill for Col W. E. R. Sullivan, Deputy CGmlO, 22 Dec 55, sub: Results of Today's Session of the Ad Hoc Committee of the Logistics Functions Assignment Board (Colonel Osmanski's Committee).

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(U) Colonel Osmanski presented a summary sheet on 23 December 1955. He proposed that the Chemical Corps primary mission should be "to engage in necessary research and development in chemical, biological, and radiological warfare." He further proposed that his committee examine Chemical Corps supply responsibilities primarily with respect to their impact upon this stated mission and secondarily with respect to the overall Army supply system. These proposals were restated in formal statements of problem and objective for Colonel Osmanski's committee.<sup>226</sup> The summary sheet was unacceptable to the Chemical Corps representatives and to General McNamara, Director of Supply Operations, ODCSLOG. The Chemical Corps representatives replied by citing the Ad Hoc Advisory Committee at length in demonstration of the Chemical Corps belief that no change in the Chemical Corps basic mission had been recommended or even suggested. General McNamara reiterated Mr. Ritchie's stand on the scope of investigation and stated that the committee objective should be "to determine whether the Chemical Corps should retain supply responsibilities."<sup>227</sup> No resolution of the differing points of view was made, and the Committee continued to work during January on a detailed analysis of the issues raised.

226

Summary Sheet, n.d., sub: Reorganization of the Chemical Corps.

227

(1) Memo, Col C. J. Merrill for Deputy CGM10, 27 Dec 55, sub: Summary Sheet on Reorganization of the Chemical Corps. (2) DF, Maj Gen A. T. McNamara, Director of Supply Operations, ODCSLOG, to Chief, Business and Industrial Management Office, ODCSLOG, 27 Dec 55, sub: Reorganization of the Chemical Corps.

(U) The Chemical Corps mission and responsibilities had been determined, the Chemical Corps representatives pointed out, on the basis of experience gained in two World Wars, under conditions both of gas warfare and the absence of gas warfare. Evidence was cited to demonstrate that this experience had influenced the Congress to establish a Chemical Warfare Service under the National Defense Act of 1920. The establishment was confirmed in 1933, after World War II, and in the Army Organization Act of 1950. The logic of a multiple function mission under current Department of Defense concepts, and particularly under the concept of a single manager system, was also noted. The single manager concept provides unitary management of any category of items through the entire military process from requirements to disposal. A single function mission, it was stated, fails to provide opportunities for adequate career management, for sufficiently broadening personnel experience, and for a great enough variety of assignments to attract the military scientific specialists which the Chemical Corps and the Army needs. A single function mission also renders difficult the communication of necessary information through materiel phases from requirement to development to production to distribution to use. The Chemical Corps representatives took note of the fact that the Corps had been several times commended on the efficiency and economy of its supply operations.<sup>228</sup>

(U) On 16 March 1956 Colonel Osmanski presented to the Chief Chemical Officer a draft staff study and tentative conclusions based upon the problems

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<sup>228</sup>

Osmanski file, passim.

and objectives of his committee as he had set them forth in December. These conclusions embodied the earlier suggestion that the primary mission of the Chemical Corps should be redefined as "to conduct effective research and development in the fields of chemical, biological, and radiological warfare." The conclusions also provided "that responsibility for the receipt, storage, and issue and the maintenance of all other items [except biological agents] of materiel currently assigned to the Chemical Corps should be transferred to other Technical Services."<sup>229</sup> These tentative conclusions and those of a substantially similar version of the study presented on 30 March 1956 were entirely unacceptable to the Chief Chemical Officer. The committee had reached an impasse which could be resolved only by direct communication with the Chief Chemical Officer. On 4 April 1956, in a discussion between Colonel Osmanski and General Creasy, it was agreed that the Ad Hoc Committee for Reorganization of the Chemical Corps (Osmanski Committee) would cover only the supply functions of the Chemical Corps pertaining to the handling of overseas depots stocks forward of major wholesale distributing points.<sup>230</sup> Despite this agreement concerning the activities of the Osmanski Committee, the questions raised by the draft studies remained to be resolved.

(U) On 16 April 1956 Brig. Gen. W. R. Currie, then Acting Chief Chemical Officer, Brig. Gen. Marshall Stubbs, Commanding General, Chemical Corps Materiel Command, and Col. Gilbert P. Gibbons, Chief, Logistics Planning Division, OCCm10, met with Brig. Gen. Lou G. Van Wagoner, Director of Financial

229

"Tentative Conclusions," incl 2 to Memo, Col F. A. Osmanski for Colonel Merrill thru Colonel Sullivan, Deputy Chief Chemical Officer, 16 Mar 56, sub: Chemical Corps Reorganization.

230

Memo, Col C. J. Merrill for Col F. A. Osmanski, 6 Apr 56, sub: Chemical Corps Reorganization.

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Operations, DCSLOG, Mr. G. O. Pehrson, his deputy, and Colonel Osmanski to discuss the entire problem of the studies. General Van Wagoner indicated that he proposed to recommend to General Magruder, Deputy Chief of Staff for Logistics that: (1) the Chemical Corps supply system in so far as non-toxic items are concerned, should go only so far as "base" depots and that Chemical Officers at Posts, Camps and Stations should be eliminated; (2) other services should handle non-toxic items forward of "base" Depots; (3) commercial chemicals, specifically, could be handled by some other Department of the Army agency.<sup>231</sup> Subsequently on 30 April 1956 another version of Colonel Osmanski's 30 March study was prepared and presented.

(U) In June 1956 General Van Wagoner forwarded a final version of the study to General Magruder. General Creasy had reviewed and had not concurred in the study which was as encompassing in scope as the March versions. On the basis of the June study General Van Wagoner recommended that: (1) the Chemical Corps mission remain unchanged; (2) the Chemical Corps be charged with research and development in CBR warfare and associated activities which would include technology, production engineering, development of doctrine, procurement of CBR materials obtained from the chemical industry, manufacture of commercially non-procurable toxic chemical and biological agents, and surveillance of all CBR toxic materials and defensive equipment; (3) the remaining supply functions of the Chemical Corps be assigned to other technical

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<sup>231</sup>

Memo for Record, Col G. P. Gibbons, Chief, Logistics Planning Division, OCCm10, 17 Apr 56, sub: Reorganization of the Chemical Corps.

services. Included in the functions to be reassigned were: (1) research, development and procurement of flame-throwers, smoke generators, compressors, instruments, and handling and decontamination vehicles; (2) storage distribution and maintenance of all materials currently assigned to the Chemical Corps except bulk toxics and research chemicals; (3) surveillance of all transferred materials unless provided for under functions noted above.<sup>232</sup> Informed of these recommendations, the Chief Chemical Officer wrote to General Magruder that "the recommendations themselves and the resulting implications disturb and amaze me."<sup>233</sup> Subsequently General Creasy discussed the matter with General Magruder.<sup>234</sup>

(U) General Magruder informed General Creasy on 13 September 1956: "It is concluded at this time that no basic change in the method of the Chemical Corps Operation is justified..."<sup>235</sup>

232

DF, Brig Gen L. G. Van Wagoner, Dir of Fin Opns, ODCSLOG, to DCSLOG, n.d., sub: Organization and Functions of the Chemical Corps.

233

Memo, Maj Gen W. M. Creasy, CCmlO, for Lt Gen C. B. Magruder, DCSLOG, 27 Jun 56, sub: Staff Study, sub: Organization and Functions of the Chemical Corps.

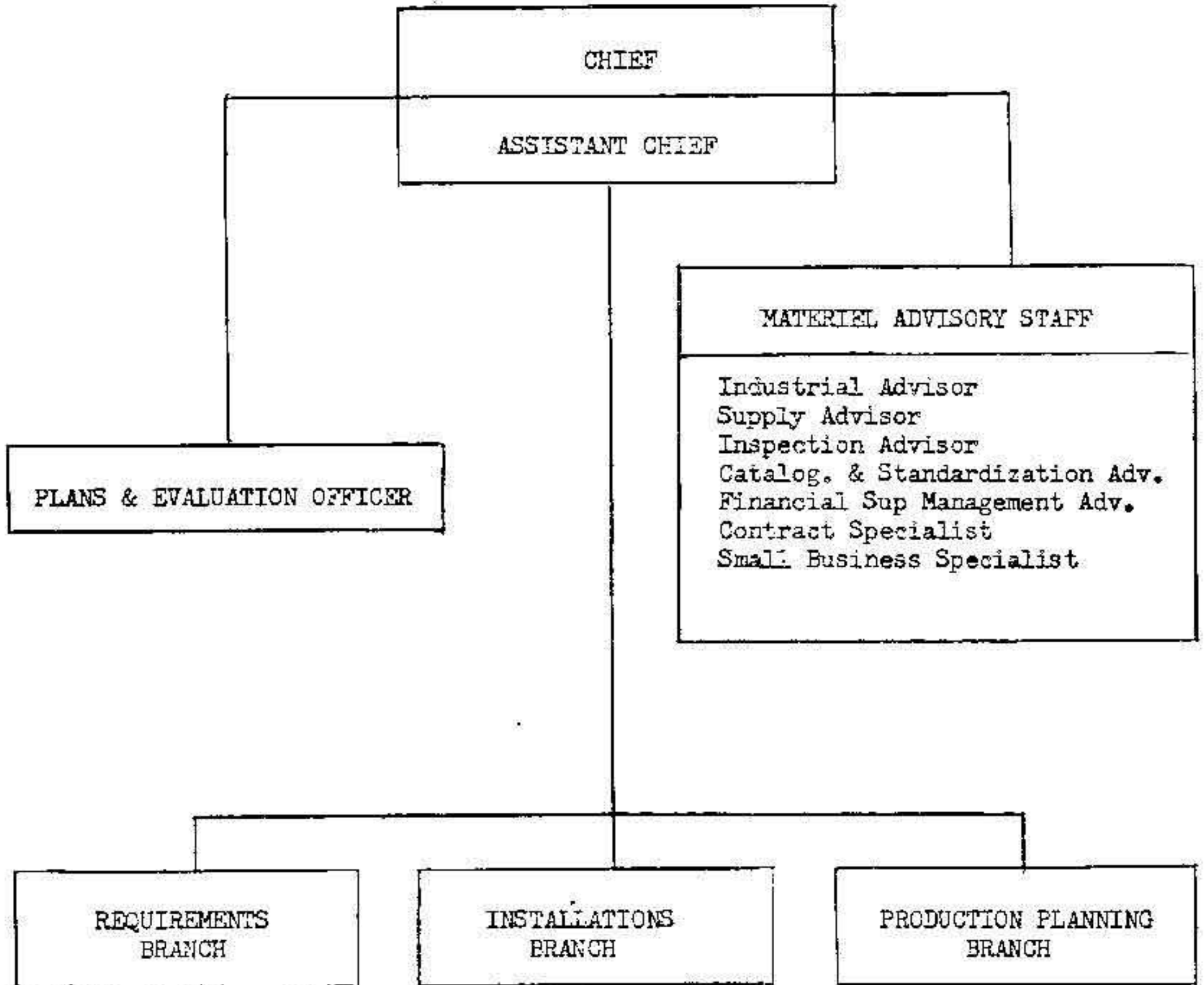
234

McDaniel interv, 23 Aug 56.

235

Memo, Lt Gen C. B. Magruder, DCSLOG, for CCmlO, 13 Sep 56, sub: Miller Committee Comments on Supply Functions of the Chemical Corps.

Chart 15 - LOGISTICS PLANNING DIVISION



### Management and Organization

(U) The Ad Hoc Advisory Committee basic organizational concept requiring the restriction of the immediate Office of the Chief Chemical Officer to a small highly professional staff had a major effect in the field of material management and organization.<sup>236</sup> The Ad Hoc Advisory Committee recommended the replacement of Materiel Division, OCCml0, by a Requirements and Production Planning Office limited to those functions.<sup>237</sup> The Burns Committee implementation of this recommendation included a change of designation to Logistics Planning Division, and the outline of functions for a chief, and assistant chief, a plans and evaluation officer, a materiel advisory staff,<sup>238</sup> a requirements branch, and installations branch, and a production planning branch.<sup>239</sup> The Burns Committee further suggested the transfer of Chemical Corps Programs 7 (Procurement), 8 (Industrial Mobilization Planning), and 9 (Supply, Distribution, and Maintenance), from the directorship of the Chief, Materiel Division, to the Commanding General, Materiel Command. Program 11 (Construction) was transferred to the Commanding Officer, Engineering Command.

236

See above, pp. 11 - 12.

237

Report of the Ad Hoc Advisory Comm., p. 15.

238

Number and type of experts to be on this staff not specified.

239

See Chart 15.

Programs 2 (Materiel) and 3 (Installations) were assigned to the Chief, Logistics Planning Division.<sup>240</sup>

(U) Establishment of the new organization of Logistics Planning Division was not difficult since a similar concept had motivated the reorganization of Materiel Division late in fiscal year 1955.<sup>241</sup> The management advisory staff was assembled with specialists long experienced in the Materiel Division. Some personnel were transferred to the commands from the branches, and an inter-branch adjustment was made to concentrate all personnel dealing with requirements in the requirements branch. This organization was logical and it functioned well within the scope of its new mission.<sup>242</sup>

(U) Difficulties arose not in effecting reorganization but in transfer of functions, particularly those having to do with programming and reporting of program data. Since the Chemical Corps is the only technical service with program directors located in field commands, new methods of communication, reporting, and handling emergency situations had to be devised. In the opinion of Brig. Gen. Marshall Stubbs, Commanding General, Chemical Corps Materiel Command, the transfer of functions would have been an insuperable task without

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<sup>240</sup>

(1) See App. C. (2) See above, pp. 17 - 19.

<sup>241</sup>

Summary of Major Events and Problems, FY 55, pp. 116 - 18.

<sup>242</sup>

(1) Interv, Hist Off with Col G. P. Gibbons, Chief, Logistics Planning Division, OCCm10, 15 Aug 56. (2) Interv, Hist Off with Mr G. R. Mullen, LPD, OCCm10, 24 Aug 56. (3) Interv, Hist Off with Mr G. I. Rhorer, LPD, OCCm10, 23 Aug 56. (4) Interv, Hist Off with Mr F. G. DeAngelis, LPD, OCCm10, 15 Aug 56.



he constant assistance and guidance furnished by Logistics Planning Division to the command. The problems to be solved were those of time, distance (Army Medical Center is sixty miles from OCCm10), physical communication, and communication of ideas. Logistics Planning Division, with a greatly reduced staff, in many cases continued to perform functions which had been reassigned until the command personnel could become acquainted with, trained in, and organized to handle their new responsibilities. The communication of ideas was perhaps the most difficult problem of all. Much of the thinking of higher authority can only be understood by direct contact with that authority. Direct communication in program fields was authorized for command personnel,<sup>243</sup> but in many cases command personnel were not equipped to take advantage of this authority until a training period was completed. Direct communication raised a reporting problem. Since Program 2 is primarily a review and analysis program, direct communication deprives Logistics Planning Division of certain review information. Also, since the custom was firmly established for higher authority to discuss reports and reporting difficulties directly with personnel of OCCm10, the Logistics Planning Division specialists were sometimes put in the embarrassing position of discussing reports upon which they were poorly informed. Solutions to all these problems were being evolved by the end of the fiscal year as responsibilities were clarified, training completed, and organizational elements, both in the commands and the OCCm10, adjusted to their new

<sup>243</sup> CCR 25-8, 23 Apr 56.

CHEMICAL CORPS  
HEADQUARTERS, ARMY CHEMICAL CENTER & CHEMICAL CORPS MATERIEL COMMAND

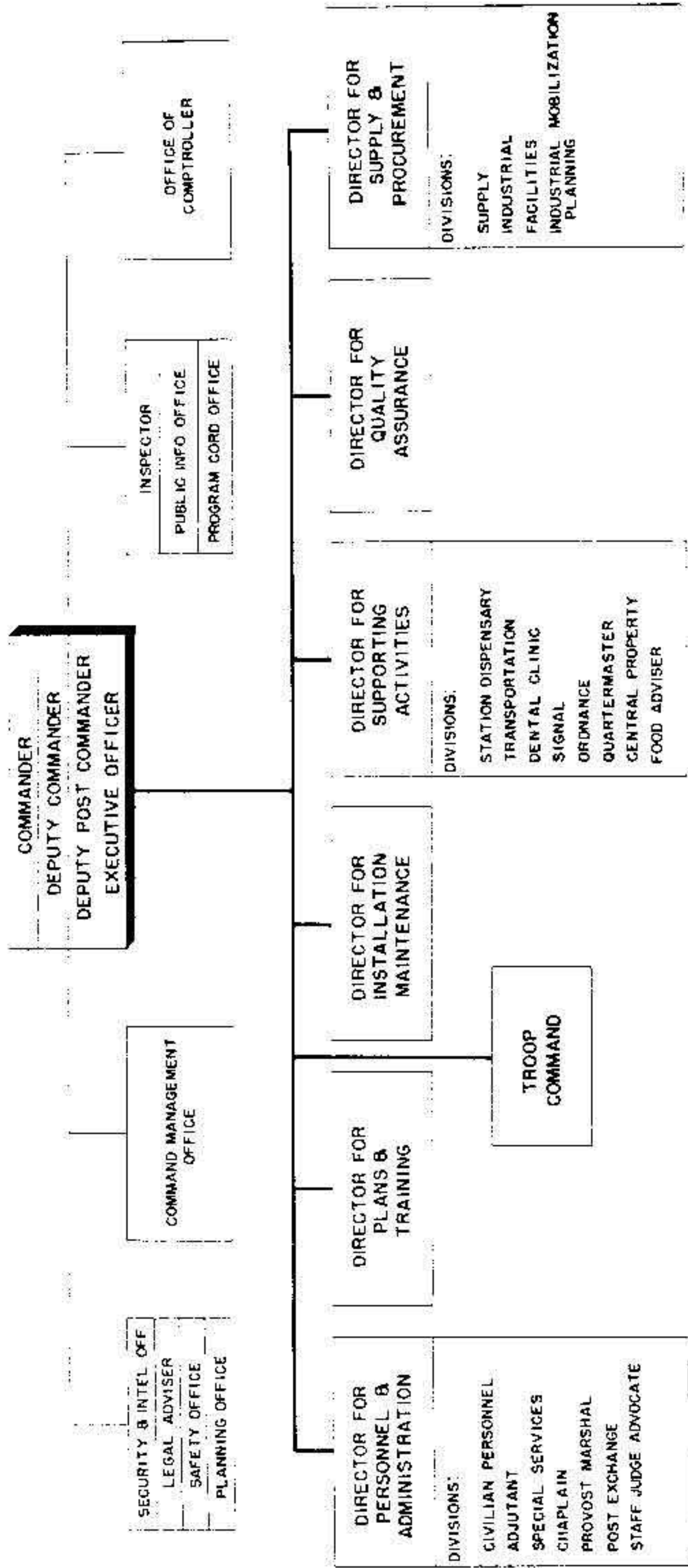


Chart 16

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SUBMITTED: *Franklin*  
MARSHALL STUBBS  
BRIG GEN, USA  
COMMANDING

APPROVED: *William M. Greast*  
WILLIAM M. GREAST  
MAJ GEN, USA  
CHIEF CHEMICAL OFFICER

DATE: 1 JULY 1956

PREPARED BY: OFFICE COMPTROLLER  
MANAGEMENT ENGR BR

status.<sup>244</sup>

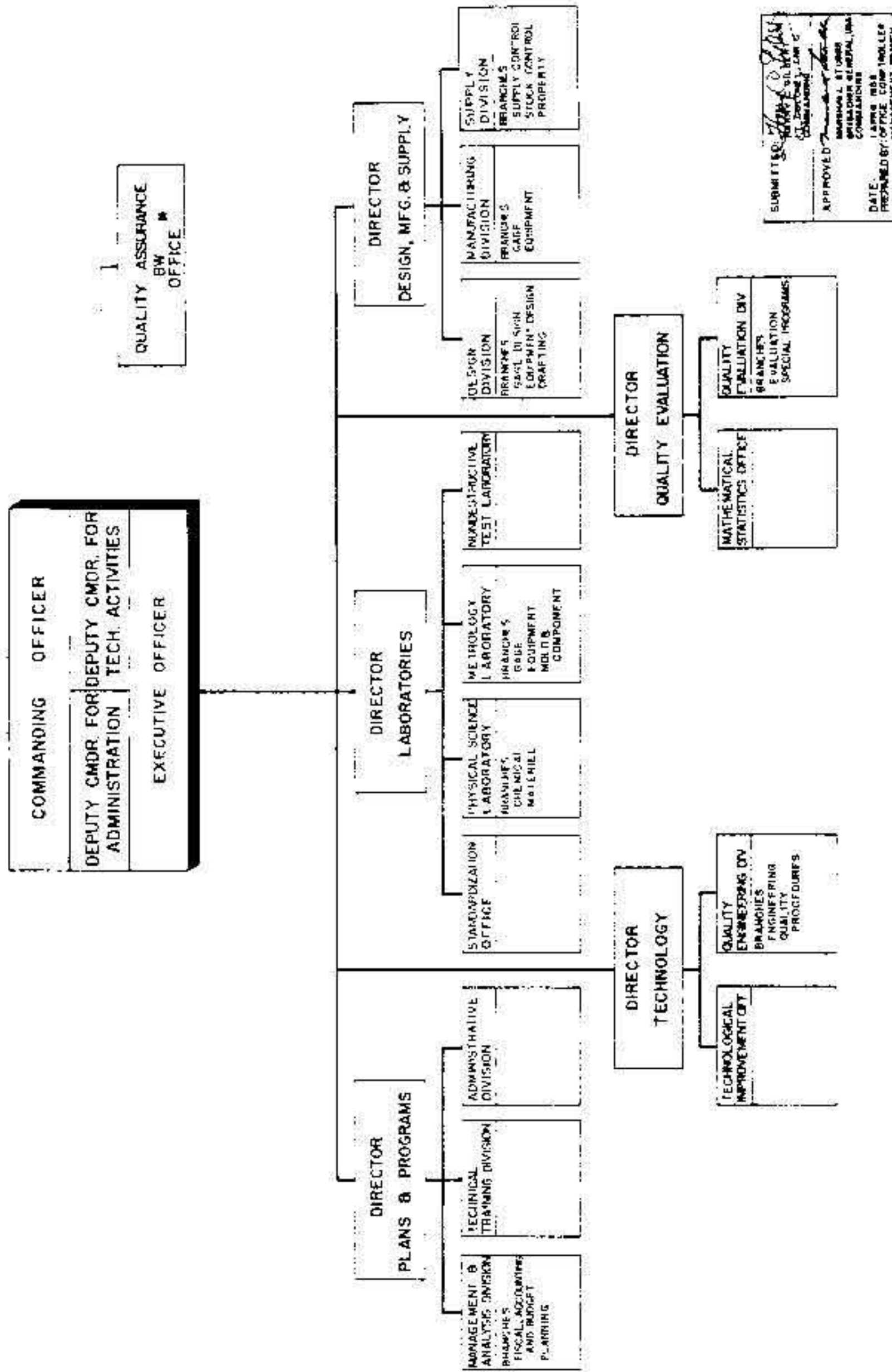
(U) Increased responsibilities brought about a change in organizational concept within Materiel Command Headquarters (Chart 16). Following General Stubbs' suggestion, the Burns Committee recommended the establishment of two principal mission elements within the command headquarters. One of these elements was the Directorate for Supply and Procurement supervising the Supply and Industrial Divisions and the newly created Facilities and Industrial Mobilization Planning Divisions. The other of these elements was the Directorate for Quality Assurance. The Director for Quality Assurance was not assigned to supervision of subsidiary divisions but he was provided with assistants for Plans and Programs, Technology, Quality Evaluation, Laboratories, and Design, Manufacture, and Supply in keeping with the Ad Hoc Advisory Committee recommendation that the Quality Assurance staff be limited to a small policy element. In further implementation of the committee's recommendation, the remainder of Quality Assurance Division was combined with the Chemical Corps Inspection Equipment Agency to form a new Quality Assurance Technical Agency, a Class II activity of the Chief Chemical Officer responsible to the Commanding General, Materiel Command. The Director of Quality Assurance also serves as Commanding Officer, Quality Assurance Technical Agency, and his

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(1) Interv, Hist Off with Brig Gen Marshall Stubbs, CG, CmlC MATCOM, 31 Aug 56. (2) Interv, Hist Off with Mr E. R. McDaniel, LPD, OCCmlO, 23 Aug 56. (3) Gibbons interv, 15 Aug 56. (4) Mullen interv, 24 Aug 56. (5) Rhorer interv, 23 Aug 56. (6) DeAngelis interv, 15 Aug 56. (7) See above pp. 17 - 19.

CHEMICAL CORPS MATERIEL COMMAND

QUALITY ASSURANCE TECHNICAL AGENCY



SUBMITTED: *[Signature]*  
 APPROVED: *[Signature]*  
 DATE: \_\_\_\_\_  
 PREPARED BY: OFFICE COMP/INDLER  
 MANAGER/MSJ/MSJ

\* - LOCATED, FORT DETRICK, MARYLAND

CHART 17

assistants have a dual capacity as directors within their respective agency areas.<sup>245</sup>

(U) General Stubbs envisioned a planning and policy function for the directorates in order to provide for staff work no longer done in OCCm10. The directors were called upon for operational work as necessary, but, under ordinary circumstances, operational work is done at the division level. Since the Director for Quality Assurance serves in dual capacity the question is not whether planning and policy can be separated from operations, but whether the dual roles will permit sufficient attention to be given to each function. General Stubbs felt that, as of the end of the fiscal year, brief experience did not warrant a definite answer, but such experience as was available indicated success in both fields.<sup>246</sup>

(U) Within the Directorate for Supply and Procurement, reorganization required many expected adjustments among the divisions. For example, under the reorganization most Materiel Command engineering functions were transferred to the Engineering Command, leaving a small group of production engineers in Industrial Division, Materiel Command. Procedures for the provision of engineering services to other divisions, particularly Facilities Division and Industrial Mobilization Planning Division, needed to be evolved. By the end

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<sup>245</sup>

(1) Report of the Ad Hoc Advisory Committee, p. 10. (2) "Recommended Plan of Organization, Chemical Corps Materiel Command," Ad Hoc Committee for Implementation of the Miller Report (Burns Committee), 13 Jan 56, pp. 1 - 2, 4, 31 - 42. (3) See Chart 17 (QATA).

<sup>246</sup>

Stubbs interv, 31 Aug 56.

of the fiscal year these procedures and others had been determined, and new divisional relationships were defined in a draft of a new organization and functions manual. The principle problem of the new divisions, Industrial Mobilization Planning, and Facilities, formerly branches of Industrial Division, was the recruiting of additional qualified personnel.<sup>247</sup>

(U) Program-wise, Chemical Corps program direction was being assumed by the command at varying rates of speed. Supply Division experienced little difficulty in assuming all portions of the operating load in connection with Program 9 (Supply, Distribution, and Maintenance) since much of that program had been handled within Materiel Command since the fiscal year 1955 reorganization of Materiel Division, OCCm10, mentioned above. Industrial Mobilization Planning Division proceeded somewhat more slowly with the assumption of duties in connection with Program 8 (Industrial Mobilization Planning) since responsibility for that program had been shared by several agencies and since it was necessary to organize and staff the division. The benefits of consolidating the program under one organizational element were apparent by the end of the fiscal year. Industrial Division had handled many of the operating phases of Program 7 (Procurement) before reorganization, but lines of communication with higher

<sup>247</sup>

(1) Interv, Hist Off with Lt Col Robert D. George and Mr Frank A. Abbruscato, Industrial Div, CmlC MATCOM, 13 Sep 56. (2) Interv, Hist Off with Mr Charles L. Alberding, Facilities Div, CmlC MATCOM, 13 Sep 56. (3) Interv, Hist Off with Maj Charles D. Manes and Mr William J. Hewitt, Industrial Mobilization Planning Div, CmlC MATCOM, 8 Oct 56. (4) See above, pp. 39 - 42, 67.

authority remained to be fully established at the end of the fiscal year. Divisional status assisted Facilities Division in the assumption of responsibilities in Program 10 (Services) and in connection with Program 11 (Construction). Divisional status permitted the ready establishment of channels of communication with higher authority and other services, and it provided for centralization and clarification of responsibility.<sup>248</sup>

(U) Another consideration in the reorganization of the Headquarters, Chemical Corps Materiel Command was that, according to an Ad Hoc Advisory Committee recommendation, Headquarters, Materiel Command, was moved to Army Chemical Center and combined with post headquarters.<sup>249</sup> A great deal of care was taken in this combination to delineate clearly between post functions and command mission functions, since there was a very real danger of subordinating command matters of greater, long-range importance to post problems of lesser importance but more immediate concern. The four directorates for post functions, Personnel and Administration, Plans and Training, Installation Maintenance, and Supporting Activities (Chart 16) were accordingly separated from the mission directorates both physically, and, as far as possible, organizationally. In the process of this separation Materiel Command lost its Adjutant General. The post adjutant could not handle command duties in addition to post duties. The command also lost a greater part of its training

<sup>248</sup>

(1) Interv, Hist Off with Lt Col David W. Dick, Supply Div, Cml C MATCOM, 18 Sep 56. (2) Manes-Hewitt interv, 8 Oct 56. (3) George-Abbruscato interv, 13 Sep 56. (4) Alberding interv, 13 Sep 56.

<sup>249</sup>

Report of the Ad Hoc Advisory Committee, p. 10.

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program since it was only one of the claimants on the post elements supervising military and civilian training, the Directorate for Plans and Training and the Directorate for Personnel and Administration, rather than the sole claimant on its own program. The post training supervisors also provided for Engineering Command, Chemical Warfare Laboratories, and many other post agencies. The combination of headquarters and the realignment of comptroller functions<sup>250</sup> also deprived the command of a comptroller. The Comptroller, Army Chemical Center, provided some command comptroller services, but the post comptroller lacks the personnel and the information to perform as command comptroller. In the brief experience from 1 April until 30 June 1956, the services of a command comptroller were frequently missed, particularly with respect to command budgetary and review and analysis programs. As of the end of the year, a functioning combined headquarters existed, but many problems of combination remained to be solved. Not the least of these problems was the amount of time the commanding general devoted to his post responsibilities, sometimes at the expense of the materiel mission.<sup>251</sup>

(U) The fiscal year's accomplishments in financial management within the materiel area are recounted above.<sup>252</sup> Also mentioned above is the Command

250

See above pp. 49 - 53.

251

Stubbs interv, 31 Aug 56.

252

See above, pp. 53 - 66.