

CW-5-724

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HEADQUARTERS  
CHEMICAL CORPS RESEARCH AND ENGINEERING COMMAND  
ARMY CHEMICAL CENTER, MARYLAND

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16 Nov 53  
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MEMORANDUM FOR: Chief, Plans and Evaluation Office  
Cml C Research & Engineering Command

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1. The following report of activities of the Research Division for the period 1 April to 6 May 1953 and of the Toxic CW Division from 7 May to 30 Sep 1953 is furnished for your information and assistance in preparing the Historical Report.

2. The routine operations are not covered in this report.

Month of April

a. Policy:

Date

1 Col. Bennett prepared a memo to Chief, Security Branch, R&E Comd, subject, "Security of BW Information" non-concurring in proposed 1st Indorsement, same subject. This is an important indorsement as it sets forth R&E Comd position on the whole BW security policy in regard to publication. Based on this memo Col. Currie returned the 1st Indorsement to the Security Branch for revision.

10 Dr. Josephson, OCCm10, hand carried Comment No. 1, dated 27 March 1953, subject, "Carbamates" to Col. Bennett from the Chief of Ordnance to G-4, who in turn forwarded it to the Chief Chemical Officer for recommendations. This comment recommends that the Chemical Corps be assigned primary responsibility for the application of toxic agents to fragments instead of to the Chief of Ordnance, and that the Chemical Corps coordinate the investigation with the Chief of Ordnance to insure prompt application of promising agents and principles of use to Ordnance anti-personnel. A preliminary conference on this comment was held by Col. Bennett and Dr. Robinson with Dr. Herget, to investigate the implications of accepting this primary responsibility. It appeared that Chemical Corps should accept this responsibility. (Dev Div was to be read into this.)

13 Col. Bennett, Drs. Fox and Harris held a conference with Med Labs (Dr. Herget) and Dev Div (Lt. Col. Ponder and Mr. Andrews) in regard to request of Chief of Ordnance that Chemical Corps assume primary responsibility for application of toxic agents to fragments, indicated in the

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MC. P. 3124(53)

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CBDCOM Historical Office  
Higher Command Room  
File Cabinet # 6 Drawer # 1  
File Name: Historical Reports Jul - Sep 53  
R+E Command

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conference of 10 April. It was agreed that this Corps should concur in the request that the design of the fragments should be under the staff supervision of Dev Div for work on the agents of this Division. A letter to this effect was prepared through the Chief Chemical Officer, who, on 20 April, requested information as to the present scope, for the Bio-Physics Div's program of the impact on it of additional work of this kind.

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15 Res Div prepared a letter to General Bullene, stating R&E recommendations as a proposed Comment 3 to ACofS, G-4, as an answer to Comment 1, dated 27 March 1953, subject, "Carbamates" from Chief of Ordnance to G-4. See letter, CMLRE-R-2, dated 15 April 1953, subject, "Carbamates" to Chief Chemical Officer, to which is attached a proposed Comment 3 to ACofS, G-4. In effect, these comments indicate that the Chemical Corps will be pleased to accept primary responsibility for the development of the most efficient toxic fragments, which may be incorporated into the design of a munition. The Chemical Corps to determine the size and shape of the toxic fragment, and the method of incorporating the toxic agent of choice to assure incapacitation from wounds that would be minor if caused by nontoxic fragments of similar size and shape.

16 Dr. Butler, CRL, and Dr. Corwin, CRL consultant, are impatient because Med Labs have not developed a rapid screening system for psychochemical agents. They proposed to set up an electro-encephalograph at CRL for the rapid screening of candidate agents. Dr. Fox stated his opinion that this is responsibility of Med Labs, which will always be able to do such a task better and faster than CRL. This was discussed with Col. Delmore, who has not approved of the purchase of the instrument; and with Drs. Dill and Marazzi, who say that it would be valueless for the purpose.

20 As a result of a memorandum prepared by Col. Bennett to Chief, Security Branch, dated 1 April 1953, subject, "Security of BW Information," Col. Currie suggested that the Security Officer prepare a new draft of 1st Indorsement to basic letter, dated 9 January 1953. Col. Bennett and Mr. Clayton, Security Branch, reviewed and revised a new draft and also reviewed and revised a memorandum by the Security Officer in connection therewith.

20 Dr. Josephson, R&D Div, OCCm10, requested certain information by telephone in regard to the proposed assignment of primary cognizance to the Chemical Corps for the application of toxic agents to fragments:

a. Present participation by interested agencies in the wound ballistics program in terms of personnel and funds.

b. What is the present effort of the Chemical Corps and of the wound ballistics program in the proposed primary cognizance?

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c. What is the expected effort of the Chemical Corps in the application of toxic agents to fragments, providing the assignment of primary cognizance is given the Chemical Corps?

(See Memorandum for File, 21 April 1953 (Project 4-99-02-001)).

- 21 Col. Bennett reviewed "Big Ben" Report in regard to the Air Force offshore CW-BW testing installation at Mona Island off west shore Puerto Rico. Col. Bennett informed P&E Office that this report, addressed to the Commanding General of ARDC, should be put on the list of friction items (between the Air Force and the Chemical Corps) on which General Bullene should be briefed, inasmuch as this report indicates how the Air Force is definitely getting into the Chemical Corps business.
- 21 Mr. Katz, P&E Office, conferred with Col. Bennett as to possible friction points between USAF and the Chemical Corps, on which General Bullene should be briefed by General Creasy on 23 April. Col. Bennett indicated:
- a. "Big Ben" report, as specified above.
  - b. Remaining points of friction in the USAF, Chemical Corps discussion carried on in the past two weeks in regard to:
    - (1) Use of mustard.
    - (2) Use of CW sprays.
    - (3) Use of BW sprays.
    - (4) M33 munition.
    - (5) E101 munition.
- 21 In the reviewing of document TS 142 (53), Col. Bennett brought to the attention of Col. Currie that the Air Force should be made cognizant of the Mobile Chemical Laboratory in connection with the USAF request placed upon the Wright Air Development Center to design a BW-CW Laboratory in a van.
- 22 Maj. Stubblefield, Messrs. C.E. Miller and S.J. Magram, CRL, conferred with Drs. Fox and Harris concerning the proposed transfer of the flame evaluation - Project 4-09-01-001 - from Edgewood Proving Ground to CRL in connection with dissolution of EPG. They were particularly interested in having the funds transferred to augment the proposed prime contract for flame fuel evaluation. Several subsequent discussions in regard to transfer of money failed to effect a transfer.

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Col. Bennett and Dr. Fox had a conference with Mr. Epstein, Med Labs, in regard to transferring Mr. Epstein's Sanitary Chemistry Branch (Water Purification, Food, Water, and Screening Poison Kits, etc.) from Med Labs to CRL in view of:

a. Responsibility for the various kits (Screening Kit, Poison, Food; Kit, Poison, Water) is in the process of being transferred from The Surgeon General to the Chemical Corps.

b. CRL would welcome the transfer from Med Labs to CRL.

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c. The transfer would consolidate all the detection in one organization, i.e., Protective Div, CRL.

d. There is no opportunity for promotion in the Med Labs setup for personnel of the Sanitary Branch. In view of this, it appears that the personnel now working in Mr. Epstein's branch may possibly leave the Chemical Corps. The only obstacle to this transfer appears to be a possible objection by Col. Wood of the Surgeon General's Office, who may desire that this work be retained in Med Labs, as the major user of the kits will still be the Surgeon General. Dr. Dill may not desire the transfer in order to maintain better relations with the Surgeon General if the Surgeon General objects to the transfer. Dr. Fox was to contact Dr. Dill and Col. Wood to obtain their views. Dr. Summerson was said to concur in the transfer. Mr. Hormats would welcome the move. Mr. Epstein was advised that the move could not be made without the concurrence of Col. Wood, Office of the Surgeon General, who had established the sections. Dr. Eckert had promised Col. Wood that this move would not take place at the time that it was agreed that responsibility for the procurement, storage, and issue of kits for the detection of toxic CW agents in food and water was transferred from the Surgeon General to the Chief Chemical Officer.

22

Col. Bennett attended a conference with Dr. Eckert, Secretary, CCTC, and Mr. Lindwarm, Special Projects Office, in regard to a proposed discussion with Lt. Col. Lane, PT&I Div, OCCmIO, on 23 April in regard to:

a. The use of the collective protection for 60 pigeon lofts specified in Item 3134 of Agenda for SCTC Meeting No. 499. Military characteristics for this loft do not specify collection protection, whereas the loft is to be used in the combat zone and all other handling cases are protected (by pigeon bags) in the combat zone. Col. Bennett desires to talk to Col. Lane as to whether or not PT&I Div. favors collection protection for the loft.

b. PT&I Div. has indicated to the Transportation Corps that the Chemical Corps has no interest in undertaking work for the Transportation Corps in connection with the protection of ports of embarkation, transportation, and other facilities of the Transportation Corps against attack by AW and RW. Special Projects Office and Res Div, this Command, nonconcurred in PT&I Div.'s viewpoint, and the conference with Col. Lane was desired in

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Col. Bennett attended a conference of the various staff divisions and offices of Hq, R&E Comd, initiated by P&E Office, in order to determine a 1.08 million dollar reduction in FY 54 Cml Corps R&D funds. This reduction is the Cml Corps portion of an overall 25 million dollar reduction in R&D funds. The 1.08 million dollar reduction amounts to approximately 2% of the Chemical Corps R&D budget (50.68 million dollars) for FY 54. The reduction was made 2% across the board for the 3 fields - RW, BW, and CW. The recommended reduction in the CW field was as follows:

<u>Project</u>	<u>Technical Objective</u>	<u>Proposed Reduction</u>
4-12-01-006	SR#2	100 M
4-04-06-004	CW-8	70 M
4-80-12-006	CW-4b	75 M
4-61-01-001	CW-5	190 M
4-16-16-010	CW-3	40 M
4-59-12-007	CW-5	100 M

The R&E Comd Comptroller was to report the 1.08 million dollar reduction in terms of technical objectives only.

24

Col. Bennett drafted a series of major points to be considered by General Bullene for possible discussion by General Bullene with G-4 for the better accomplishment of the Chemical Corps mission. (See Memo for Col. W.E.R. Sullivan, dated 24 April 1953 (copy filed in Res Div.)

24

Col. Bennett held a conference with Lt. Col. Cook, Dr. Eokert, and Lt. Col. Lane (PT&I Div., OCCmlO) in regard to a written decision made by PT&I Div. to the Chief, Transportation Corps, that the Chemical Corps did not desire to participate in protective measures or studies for the protection of Transportation Corps equipment, ports of embarkation, etc., against radiological contamination. It was pointed out to Col. Lane that PT&I Div. was in error in making this decision, which involved research and development and that the Chemical Corps (CRL) was willing and able to do this work for the Transportation Corps. This work falls within the primary responsibility assigned the Chemical Corps for research and development in radiological warfare within the Army.

24

Dr. Fox discussed with Lt. Col. Loyd Harris his work in soliciting compounds on a Commercial Secret basis from industry for tests as candidate CW agents. Col. Harris feels that it is unwise to ask the company submitting the compounds if they have any objection to giving to the British and Canadian chemical warfare people toxicity information developed by this Corps on the compounds submitted by the various companies.

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Col. Bennett had a conference with Mr. Hedman, OCSigO, in regard to report, "NonElectronic Dose Rate Indicating Systems," Institute of Industrial Research, Syracuse University, which indicates that the Signal Corps is encroaching upon the responsibility of the Chemical Corps in regard to radiaac instrumentation. It appears that Evans Signal Labs are contemplating making a non-electronic survey meter based on physical changes or chemical reactions activated by nuclear radiation. Mr. Hedman agreed that:

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a. The research contract with the Institute of Industrial Research, Syracuse University, would not be terminated, but that no more contracts of this type (research and development contracts involving physical or chemical reactions which can be used as a basis for a non-electronic survey meter) would be made by the Signal Corps without consultation with the Chemical Corps.

b. Mr. Hedman indicated that Signal Corps budget cuts were in the making and that research and development on the non-electronic survey meter field would be eliminated in view of the fact that a very good lightweight electronic survey meter - the IM-71 - had been developed.

27

Mr. DeRoy, PAE Office, indicated that projects providing for medical research and analytical chemical research at DPG should be cancelled. This was discussed with Mr. Thompson, Prov. Gd. Div., who agreed that provision should be made for incorporating the work of these projects into other projects and that the changes in the project program submitted to the CCTC should so state.

28

Dr. Herget, Med Labs, visited Res Div. and agreed to submit recommendations on a letter suggesting that this Corps have primary cognizance for toxic fragments. He also agreed to submit detailed comments on a request received for the evaluation of HE vs flame. An outline for his presentation to the Development Committee was reviewed, with comments.

28

Conference was held between Col. Bennett and Drs. Fox and Herget in regard to firming up an answer to letter from Res & Dev Div., OCCmlO, requesting more information as to the impact on the wound ballistics program of the Chemical Corps assuming primary cognizance for the application of toxic agents to fragments.

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28 Lt. Col. Limoncelli, Med Labs, stated that all work involving human volunteers was at a standstill at Med Labs, awaiting a policy statement. After conferring with Col. Sullivan, he was told that until the policy statement is received by him, that the Med Labs should continue as they have for the past several years.

30 Col. Currie was appraised of the fact that the policy in regard to use of human volunteers needed further clarification. Col. Currie indicated that he would try to obtain further clarification, and that the future trend in Med Labs contracts involving tests on humans appears to be that the contractor will demand a "no blame" clause in the contract.

b. Operations during period:

1 Col. Sullivan advised a small group from this Headquarters that in the preparation of presentation by the CBR orientation team, a number of points of disagreement with the Air Force had arisen. In view of these disagreements, a conference was held 6 April by Col. Hutchinson, PT&I Div., OCCm10, to discuss the Chemical Corps position with respect to:

- a. The value of mustard (HD).
- b. CW spray.
- c. BW spray.
- d. E101 munition.
- e. M33 munition.

Agencies represented included PT&I Div., R&D Div., OCCm10; Cml Corps Advisory Council; Hq, R&E Comd (P&E Office, Dev Div, Prov. Gd. Div., Res Div, SA/BW, and others); CRL; Bio Labs; Cml Corps Board. The Chemical Corps position on these questions was scheduled for presentation to the Air Force at the Pentagon, starting 5 April, by selected Chemical Corps personnel. The results of this conference were not very clear. A further meeting was held in the OCCm10 on 7 April, attended by Dr. Fox and other R&E Comd personnel to further firm up the Chemical Corps position on these problems. Dr. Fox also attended with Chemical Corps, U.S. Navy, and USAF personnel on 9 and 10 April to discuss the same problems. Since agreement had not been reached on the data involved, decisions on the policies involved were difficult to reach.

1 Dr. Fox met with Dr. Birnbaum and others to review agenda for the Eighth Tripartite Conference.

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1 Dr. Hewitt, Evans Research and Development Corps., was here at the invitation of the Eng Agency, to submit a bid on the design of an HD plant.

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1 Mr. Walton, OCCm10, called concerning request for information on the tactical dosimeter regarding contractual commitments, cost, use of critical materials, complexity of production, scarcity of facilities, and date of final engineering test and availability.

1 A letter was prepared, stating the Res Div comments on the doctrine for the use of the detector kit requested by PT&I Div.

1 A letter was prepared to the AEC, concerning the irradiation of phosphorus for the Canadians who will use it to produce radioactive G compounds.

1 Res Div reviewed Ministry of Supply Report on the Seventh Tripartite Conference on CBR and Flame Warfare.

2 Col. Bennett, Drs. Fox and Robinson held conference with Dr. Herget, Med Labs, in regard to implementation of R&E Comd directive to Med Labs, dated 25 March 1953, subject, "Comparative Personnel Casualty Effects of Incendiary Agents and High Explosives."

2 Col. Bennett, in coordination with Med Labs and Dr. Eckert, prepared letter to Chairman, Armed Services Medical Materiel Standardization Committee, Navy Dept., recommending that the USAF procure 150 of Stock No. 9-803-775 Water Testing Kit, Poisons, M-2, to meet its immediate requirements. Responsibility for this kit will be transferred from SGO to Chemical Corps by CCTC action in May 1953.

2 Personnel of Res Div met with Dr. Herget to discuss the role of the Bio-Physics Div. in evaluation of flame and high explosive. This was later discussed on 15 April with Col. Drennon and Dr. Hollingsworth from CRL, who will submit a tentative report.

2 Progress reports from CRL were reviewed and a few returned for rewrite.

2 Mr. Callahan, Comptroller's Office, notified Res Div that Dr. Berger is turning over FY 1954 funds to the extent of \$157,000 from technical objectives 4b and 4c to be used for 4a work. He was told to put this in Project 4-08-06-015. It is the intention that this should be used to augment the prime contract on organic chemistry, which includes work on candidate detector systems.

3 Aerosol research was discussed with Mr. Huss, Dev Div., who agreed that even that conducted under projects for which that Division has staff responsibility should be supervised by the Res Div.

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3 Dr. Harris met with Lt. Col. Fletcher, USMC, R&D Div., on incendiary problems. Col. Fletcher was taken to CRL to discuss with Col. Drennon and Maj. Stubblefield the incendiary problem, with the view of indicating where funds could be used in the event the Marine Corps wishes to contribute to the incendiary program in FY 1954.

4 Res Div completed final review of FY 1953 technical estimates.

4 Col. Bennett reviewed SCTC Agenda 497 (75 pages) for SCTC meeting 6 April.

6 Dr. Harris attended staff conference at Camp Detrick which concerned the award of contracts in the field of aerosols.

6 2nd Ind. was sent to the Chemical Corps Training Command Liaison Officer, giving the most recent estimates of the percutaneous LD<sub>50</sub> of liquid GB for men and also the incapacitating dose for 50% of men by the same method of application.

7 Mr. Frits, Dev Div, received a call from AFF Board No. 3 (Col. Kelly, President) requesting that we tell them when it would be profitable for their representative to come up to view trials of EARL thickener. Dr. Harris called Dr. Greene, CRL, who stated that Mr. Benjamin of Test Div, CRL, would call Board No. 3 directly.

7 Col. Bennett called Mrs. Whedon, OCSigO, in regard to standardization of Anemometer, ML-433 ( )/PMQ-1. This was in reference to letter received at this Headquarters from OCCm10, requesting that the Chemical Corps member of the SCTC concur in the item providing it complies with AFF recommendations.

6-7 Col. Bennett reviewed Draft No. 2 of SR 705 (about 45 pages) and prepared comments on this draft for P&E Office for forwarding to OCCm10.

7 Dr. Witten, CRL, discussed detector crayons with Dr. Harris. He wanted to have the R&E opinion on whether it was desirable to work on the production of crayons for the detection of all toxic chemical warfare agents. In particular, he had prepared candidate crayons for the detection of:

- (1) CX or PS
- (2) CG
- (3) CK
- (4) AC

which seemed to be stable, sensitive, and simple in operation. The crayon could be used, for example, to make marks on paper, which marks reacted colorimetrically to vapors of the respective gases. He was informed that

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this was precisely what was desired. He also asked the opinion on the desirability of developing arsenical and nitrogen mustard crayons and was informed that these would be similarly useful, but that primarily we are interested, of course, in the G agents. They are working on the G agents but the candidate crayon at the present time is not very satisfactory. He would like to prepare about 100 of each crayon and distribute them to such organizations as the Technical Escort Detachment and Munitions Div., for use in practical situations, to assess their value. He was further informed that this was quite acceptable.

7 Dr. Kramer, Protective Div., CRL, requested Dr. Harris to have certain people who were at MIT during the war traced to ascertain if they were in the Officers Reserve Corps and would be interested in active duty tours to work on detection problems. These people were: C.W. Sauer, P.V. Seydel, one Harrington and one Dugan. These names were turned over to Mr. Cottingham, Personnel Policies Branch, for tracing.

7 Dr. Harris called Mr. Shaw, Eng Agency, concerning extra prints and reproducible copies of all drawings for the E17 alarm, which they wished to obtain from the contractor to CRL (Leeds & Northrup). There was apparently some confusion existing between Eng Agency and CRL concerning the problem, but this was resolved.

8 Conference was held between Drs. Robinson, Harris, Fox, and Silver (Med Labs), on the toxicity of G agents.

8 Col. Bennett and Mr. DeRoy, P&E Office, reviewed the consolidated comments of R&E Comd and Cml Corps Board in regard to SR 433, and prepared final review of comments for forwarding to OCCm10.

8 Col. Bennett and Capt. Connolly, Spec. Projects Office, reviewed and revised draft letter to OCCm10 (AFF and G4), forwarding vital information on development, production, advantages, etc., of the Tactical Dosimeter (Taplin) developed by Chemical Corps under Project 4-12-80-005 in connection with G-4 review of 4-12-80-006 (Tactical Dosimeter) for possible termination in accordance with AFF recommendation.

9 Col. Bennett attended meeting of the CRL Research Contract Evaluation Committee to consider a \$20,000 - 2 year contract with NYU (Dr. Davis) for research studies on halogenated hydrocarbon systems in connection with developing chemical systems for measuring gamma radiation. Contract was approved.

9 Col. Stubbs called regarding particulate washout during rain. AFSWP wanted to know if we had any such data, and if not, would we consent to measure the phenomenon at Dugway Proving Ground. If objection exists to this, would we have any objection to their doing it at Dugway Proving Ground? Dr. Harris called Mr. Calder and Dr. Fox at Camp Detrick, who got in touch with Col. Stubbs directly.

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9 Lt. Col. Rhett Harris, Office of SA/BW, discussed with Dr. Harris the desirability of having a BW-CW smoke generator demonstration in the fall of 1953, in connection with Chemical Corps Special Weapons Battalion mission. It was agreed that this was desirable and further coordination will ensue.

9 Capt. Connolly, Spec. Proj. Office, borrowed Res Div copy of the TRAC Report in order to make a distribution list for dissemination.

10 Col. Bennett monitored a dry run of the presentation to be given by R&E Command at the Development Committee meeting of 15 April. Speakers were Lt. Col. Tegnell, Comptroller, on funding; Mr. Shaw, Eng. Agency, on munitions; and Mr. Lindwarm, Special Projects Office, on radiological decontamination.

10 In the afternoon Dr. Robinson and Col. Bennett had a conference with Dr. Herget, Med Labs, in regard to implementation of the G-4 request (forwarded in letter, this Command, dated 25 March 1953, subject, "Comparative Personnel Casualty Effects of Incendiary Agents and High Explosives") that the Cml Corps determine the comparative personnel casualty effects under varying conditions of flame, white phosphorus, and high explosive agents. Dr. Herget had presented the Med Labs view in the 1st Ind. to above letter, but it was considered by Col. Bennett that this 1st Ind. was unsatisfactory in that Dr. Herget should reassess the capability in terms of facilities and personnel that the Wound Ballistics Div. could furnish directly to the accomplishment of this request.

13 Res Div reviewed possible consolidations of projects for which they are responsible in FY 54 program.

13 Col. Bennett attended a conference of all division chiefs of R&E Comd to complete the final coordination on consolidation of projects for FY 54 program. This meeting lasted from 1000 hours to 1445 hours.

13 Mr. Keyser, Bio Labs, concurred in suggestion of Dr. Fox in combining the three meteorological projects into one. In fact, he said he had suggested this in a letter to R&E Comd, dated 10 April.

13 Information on percutaneous toxicity of GA and GB was given to the P&E Office for their bi-weekly report to the Chief Chemical Officer.

13 Lt. Comdr. Andrews of the Naval Unit requested samples of HD, HM-1 and L for training purposes at the Phila. Navy Yard. Maj. Stubblefield, CRL, was asked to assist.

14 Dr. Fox arranged with Col. Hutchinson for representative of Med Labs and Dr. Robinson to meet in the Chief's Office on 17 April to prepare a reply to a letter from the Surgeon General on supply of therapeutic agents and materials for the treatment of CW casualties during active chemical warfare.

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- 14 Col. Bennett attended a meeting on the CRL Research Contract Evaluation Committee to discuss a \$30,000 contract for the application of chemical systems sensitive to radiation to dosimeters. This contract was limited to two contractors - Tracer Lab and Distillation Products. The contract (one year duration) was approved.
- 14 Mr. Huss, Dev Div, was asked by the Chief's Office for comments on a request from AFF for samples of standard and candidate gasoline thickeners for test at AFF Boards. A delivery schedule was set up by Res Div and relayed through Dev Div to AFF, based on information from Dr. Macy, CRL.
- 14 Mr. Peake, OCCm10, asked for an opinion on Patent Item 409, reviewed by Mr. Hildebrandt, CRL. Dr. Harris checked on the matter and concurred that it should be classified Confidential.
- 14 At the suggestion of Mr. L.T.D. Williams, Porton, England, a question on the nomenclature of organo phosphorus compounds was sent to Dr. Crane of the American Chemical Society. Dr. Macy collaborated in the preparation of the letter.
- 14 Lt. Col. Harris agreed in making Commercial Secret information on curare compounds available to Dr. Hager, a Cml Corps contractor preparing compounds of this type.
- 14 Dr. Stubblefield, OCCm10, was advised concerning the properties of chlorine trifluoride.
- 14 Maj. Carruth relayed an invitation from Hq, USAF, to attend a meeting at the Pentagon on vapors or gases for radar screening. The meeting was scheduled for 17 April. Mr. Bolgiano attended, with Dr. Fox.
- 14 Arrangements were made with Dr. Worthley, RDB, on active duty in R&D Div, OCCm10, for Mr. Bolgiano and Dr. Fox to attend a meeting of the Infra Red Panel, Electronics Committee, RDB, on 23 April.
- 15 Col. Bennett furnished comments (Comment 2) to P&E Office, subject, "Review of Draft of FM 3-9, Staff Chemical Officer."
- 15 Col. Bennett and Dr. Robinson attended technical conference at Med Labs in connection with status of the wound ballistics program, including traumatic shock.
- 15 Dr. Fox and Col. Bennett arranged a conference with CRL (Col. Drennon, Dr. Hollingsworth, and Maj. Stubblefield); Med Labs (Dr. Hergot); and Dev Div. (Mr. Andrews) to further resolve the work requested by G-4 (Comment 2, ACofS, G-4, dated 10 October 1952) of the Chief Chemical Officer, in regard to the comparative personnel casualty effects of incendiary agents and

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16 Drs. Fox, Harris, and Robinson attended the 46th Meeting of Advisory Committee on New CW Agents.

16 Col. Bennett recommended revisions to letters prepared by P&E Office forwarding the consolidated 1952 December report of the RDB to the various operating agencies of the R&E Comd and to General Bullene.

16 Dr. Harris called Mr. Joe Schaffner and Capt. Wells at Materiel Command, who stated that Materiel Command is interested in purchasing several E17 alarms. They consider that the Vitro alarm is no good despite the statements to the contrary which have been received from various quarters. The Safety Officer at Rocky Mountain Arsenal wishes to obtain the order of five (5) E17 alarms for direct comparison with the Vitro alarm. Mr. Schaffner was requested to send us reports they had received from Rocky Mountain Arsenal, which stated the Vitro alarm is "no good" in order that we will be on firm ground in making statements to that effect in the future.

16 Col. Bennett made final review of the Quarterly Reports of the Radiological projects for which Res Div has staff supervision.

16 Arrangements were made with Dr. Herget and Dr. Light of the Bio-Physics Div., to attend a meeting at Aberdeen Proving Ground 29-30 April on aircraft vulnerability.

16 Classification of a Med Labs article was discussed with Mr. Highlander. Agreement was reached.

16 Lt. Col. Franklin, British Liaison Officer, asked for copy of a DPG Scientific Report No. 1. Dr. Summerson, Med Labs, was asked to review the report.

17 Dr. Fox, with Mr. Belgiano, CRL, attended a Top Secret meeting called by Lt. Col. Peck, on USAF requirements. This was to exchange information, some of which related to agents to screen from radar.

17 Col. Bennett reviewed the agenda for SCTC Meeting No. 498 and informed Mr. Stoneburner, Secretary, OCSigO, by telephone, of Cml Corps concurrence.

17 Col. Bennett and Lt. Rogers attended Med Labs seminar involving speaker direct from Korea in connection with traumatic shock operations and studies currently conducted in Korea.

20 Res Div reviewed a proposed draft for the Advanced Course of the Chemical Corps School.

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- 20 Arrangements continue to be made for the visit of representatives of Ralph M. Parsons Co., Stanford Univ., and Bio Labs to Ottawa, to arrange for cloud travel studies in Winnipeg. Lt. Col. Bond has assisted.
- 20 Dr. Fox dictated history from 0800 to 1500 hours.
- 20 Mr. Hendrickson, Facilities Branch, Materiel Command, called to discuss the purchase of the five (5) E17 alarms, and was informed of the previous conversation of 17 April.
- 20 Dr. Harris discussed with Mr. Feazell, Safety Branch, and a Mr. Galaccio of Frankford Arsenal the problem of detecting leaks in storage of GB munitions. He was informed what devices and tests the Cml Corps had available. His opinion was that the problem was capable of rather simple resolution and he left quite satisfied.
- 21 Letter was sent to the Chemical and Biological Coordination Center, identical to the one prepared for the signature of the Chief Chemical Officer, thanking the Center for their offer of additional assistance.
- 21 Dr. L.W. Greene advised that tetra isopropyl ortho titanate mixed with fuel oil did not enhance the screening power of smoke from the pulse jet generator. The titanate had been supplied by DuPont. Dr. Lawson had introduced Dr. Seydel to explain the properties of the material to us. Report to Dr. Lawson was delayed until another experiment could be conducted to determine whether the barium titanate had value as a screening agent. The failure of the material in that experiment too was reported to Dr. Lawson finally on 10 May.
- 21 Col. Bennett reviewed several TS documents.
- 21 Dr. Fox, Col. Bennett, and Dr. Love held a conference to resolve a reply to the Chief Chemical Officer in regard to implementation of an outline furnished by CRL for prosecution of Project 4-08-06-022, "CBR Sampling Devices for Light Aircraft." Col. McKaig of the Chemical Corps Board agreed with the tentative opinions included in the reply to the Chief Chemical Officer.
- 21 Suggested chemicals for radar screening were discussed with Mr. Bolgiano and Dr. Macy. At first Dr. Macy suggested discussing the subject with Dr. Smythe at Princeton. Later it was concluded preferable for the subject to be discussed with personnel of Naval Research Laboratory - Mr. Bolgiano to make the necessary arrangements.
- 21 Maj. Boyd, CRL, was referred to several documents on the cloud travel of agents in cities.

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- 22 Comments were sent to Dr. Birnbaum on the proposed agenda for the Tripartite conference.
- 22 Comments were made on proposal from Bio Labs that they be given primary responsibility for Cml Corps meteorological studies. Concurrence in that proposal would be contrary to previous agreements.
- 22 Col. Cathey is serving as a member of a Board on land mine warfare. He visited this office to discuss possible Cml Corps contributions. Finally, arrangements were made for Mr. Shaw of CRL to accompany him to a meeting at Fort Belvoir on 14 May. Preliminary meetings were attended on 11 May at CRL (by Col. Bennett and Dr. Fox) and at this Headquarters (Mr. Shaw, Col. Bennett, Col. Ponder, and Dr. Fox). Sending a representative to Fort Belvoir with Col. Cathey had been requested by Col. Stubbs of Col. Currie on 11 May.
- 22 Comments were offered on several letters which were prepared for distribution to several Cml Corps officers now overseas.
- 23 Dr. Maurice E. Barker, Professor of Chemical Engineering at the University of Arkansas, conferred with Mr. H.O. Huss, Mr. Andrews, and Dr. Harris concerning possible contractual work on flame thrower and fuel evaluation. Specifically, he suggested the use of newer types of synthetic rubber. He has a working liaison with Phillips Petroleum Co. at Bartlesville, Okla., who have a very large number of research samples of various types of rubber, and who have stated that they could produce the order of 1 million tons per year of any type desired. Dr. Barker submitted samples of gasoline thickened with two different samples of rubber. He was referred to Maj. Stubblefield at CRL to discuss the details, and informed that he should place his name on the list of potential bidders on prime contract on flame fuel evaluation.
- 23 Col. Bennett and Dr. Harris attended CRL Technical Conference on the status and progress of the Protective Division.
- 23 Res Div furnished P&E Office with progress made during the last year in the field of agent detectors.
- 23 Dr. Fox, with Mr. Calder, Camp Detrick, and Maj. Hiatt, PT&I Div., OOCmlO, met with representatives of the QMG (Dr. Meigs and others) to discuss a letter from the Chief Chemical Officer to the QMG, requesting climatological studies. It was agreed that the QMG would start immediately to study travel of weather fronts toward Russia. It was further agreed that the Chief Chemical Officer would write another letter to the QMG, stating the priority to be assigned to the different areas for which climatological studies are desired.

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- 23 Dr. Love, Prot Div., CRL, reported on detector trials with the present G agent test for candidate agents paraoxon and EA 1370, which Dr. Harris had requested him to try. He said the only feasible test at the moment was to take sample of contaminated soil, place it in a can, heat it in boiling water, and then take a sample of the air above the soil in the white dot tube. The addition of sodium hydroxide to the tube would develop a yellow color if either of these agents was present. Dr. Love's opinion was that GF could be detected similarly with the indole test but that none of these three agents could be detected over an average soil without heating.
- 23 Dr. Harris discussed with Dr. Macy the possibility of producing a radar camouflage organic paint. It appears dubious at the present state of knowledge.
- 22-25 Lt. Hamilton was on liaison duty with Signal Corps Eng Lab at Ft. Monmouth, N.J.
- 23 Determination of the non-existence in the U.S. of a small, inexpensive message register type equipment to record wind velocities of a very sensitive type cup anemometer was effected by Lt. Hamilton for Col. Currie, Deputy Commander. This item is available from the United Kingdom and several are being procured for use in the FT&M Div., Camp Detrick.
- 24 Col. Bennett reviewed 1st Ind., "Security of BW Information" for the Security Officer. This has been reviewed and revised twice before by Col. Bennett.
- 24 Col. Bennett reviewed the agenda for SCTC Meeting No. 499.
- 24 Arrangements were made for samples of agents and two gas masks to be given to the Food & Drug Administration on 27 April. Dr. Josephson, OCCMO, also assisted.
- 24 A letter was sent to Dr. L.A. Sweet, Parke-Davis & Co., concerning samples which he had given to Dr. Silver and on which he had received no report. Dr. Summerson had advised that Dr. Jandorf was making the necessary tests.
- 24 Arrangements were made with Dr. Light, Med Labs, to go with Mr. Huss to an aircraft vulnerability study meeting at Aberdeen Proving Ground.
- 24 Dr. Molstad, U. of Pa., Chemical Engineering Dept., visited this Hq and CRL to solicit a contract for basic research on chemical engineering.
- 24 Edgewood Proving Ground was advised by Lt. Hamilton that the Signal Corps enlisted meteorologist currently assigned to the Chemical Corps Tropical Test Team, Fort Amador, Canal Zone, will be returned to his home station, 24 July 1953. EPG was advised that in the event a replacement was necessary, a request should be made through OCSigO as soon as possible.

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- 24 Additional background information, including micro films of meteorological data taken by Signal Corps meteorological teams in Korea, has been forwarded by Lt. Hamilton to Mr. F.X. Webster, Stanford University, Stanford, Calif.
- 24 Mr. D.C. Evans, Asst Director of Technical Services (Land), British Joint Services Mission, Washington, visited this Hq and inquired as to the status of the effort to get more information to the British and Canadians on the results of toxicity determinations made on compounds solicited from industry by Lt. Col. Harris.
- 24 Dr. Longenecker requested Dr. Marquand to invite Dr. Fox to a meeting of the Advisory Council to supply information on quick-acting persistent agents. Unfortunately, the message could not be delivered in time to comply.
- 27 Col. Bennett visited Gravelly Point, Va., and discussed with Lt. Col. Appel, OCCmLO, the relative impact on the wound ballistics program of implementing two directives from the OCCmLO: Letter, OCCmLO, 29 Jan 53, subject, "Projection of Incendiary Agents" and letter, OCCmLO, dated 21 April 1953, subject, "Carbamates."
- 27 Dr. Fox reviewed an article submitted by Med Labs for publication.
- 27 A letter was forwarded to the Chief Chemical Officer, suggesting a reply to an inquiry from the Surgeon General on the use of BAL.
- 27 Lt. Col. Ponder complained that the Eng Agency changed development items after final engineering tests at CRL have proven the item satisfactory. These changes were said to be made without consulting CRL. The items so changed then went directly to user tests in which the items may fail, due to no fault of CRL.
- 27 Information was obtained on the use made of Air Force funds in radar screening agent research. This information, finally obtained, was incorporated in a reply to a letter of inquiry from the Air Force.
- 27 April -  
1 May Dr. Harris attended joint meeting of the Chemical Engineering Division of the Chemical Institute of Canada and the American Institute of Chemical Engineers in Toronto, where he presented a paper on mass transfer to bubbles, and conferred with chemical engineers at the University of Toronto on technical matters.
- 27 Col. Bennett received a call from Mr. Dhein, Corps of Engineers, asking if he could visit Army Chemical Center 1 May in order to discuss gas detection instruments for the underground installation at Fort Ritchie.

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- 27 Subjects for staff studies to be conducted by members of the Advanced Class at the Chemical Corps School were suggested to P&E Office by this Division.
- 27 Reply was made to a request from Ordnance as to the hazards involved in destroying aniline. Lts. Hamilton and Rogers prepared the letter.
- 27 Dr. Summerson advised that he had reviewed Dugway Proving Ground's Scientific Report No. 1, and found that an interesting application is reported of information on red cell cholinesterase observations.
- 27 Col. Bennett attended SCTC Meeting No. 499 in Washington. Item 3134 of this agenda, Loft PG-110( )/MB to house, breed, train, and transport training pigeons in the combat zone, was approved with no provisions made for collective protection of the loft. Col. Bennett brought to the attention of the SCTC that all other pigeon elements had protection and that consideration should be given to collective protection for Loft PG-110( )/MB. The Army Field Forces, however, indicated that they thought collective protection for this loft was not required on account of its size, as the loft was airtight and would maintain the 60 pigeons for a period of two hours when closed up. A paper to this effect will be incorporated into the minutes of the agenda.
- 28 Col. Bennett had a conference with Dr. Herget in regard to a presentation to be made by Dr. Herget on the wound ballistics program to be given before General Bullene at the next Development Committee meeting.
- 28 Med Labs requested permission by letter to give a lypholizing equipment to the Surgeon General for use by Dr. Chanutin. Conversations with Col. John Wood and Lt. Col. Rhet Harris indicated that Dr. Chanutin urgently needs the equipment for 90 days and that Bio Labs has the requirement for apparatus of this type. Consequently, the apparatus was loaned to the Surgeon General for 90 days, at which time it was to be delivered to the Bio Labs.
- 29 Dr. Fox attended a review at Med Labs of the work of the Sanitary Chemistry Branch.
- 29 Dr. Leighton requested by telegram that the Sixth Army be advised of his clearance and requested to cooperate in making available to him information required for study of travel of gas clouds in mountainous terrain. This was coordinated with Mr. Calder, Biological Laboratories. A TRM was sent to the Commanding General, Sixth Army, requesting this assistance. Although a follow-up was subsequently sent, no reply has as yet been received.

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28 Col. Bennett spent the day in preparation for special Court Martial, of which he was President, which was to have been held 0900 hours, 29 April.

29 Col. Bennett and Dr. Fox attended the bi-weekly technical conference at Med Labs, covering progress made in research projects at the Bio-Chemistry Div. Following this, Dr. Fox and Col. Bennett held a short conference with Lt. Col. Limoncelli and Dr. Marazzi and Dr. Silver, Med Labs, listening in in regard to:

(a) Letter, AFF Board No. 3, dated 27 March 1953, subject, "Report of Visit of Capt. Mallory to Army Chemical Center" with 1st Indorsement to AFF Liaison Officer, this Command, requesting comment on the statement that unprotected personnel within the limits of the fire ball of the napalm bomb are approximately 100% immediate casualties. Ammunition carried by personnel will be detonated.

(b) Use of human volunteers. Med Labs indicated that they had stopped all work involving any human volunteers due to proposed lack of clarification of policy on this matter. Med Labs desires further clarification. Res Div were <sup>to</sup> take up this matter with P&E Office and Col. Currie.

29 Maj. Stubblefield and Dr. Macy were contacted for information on the explosive limits of AC and CK. This was needed for reply to a question from General Loucks, forwarded by letter to CRL. Letter was answered by Munitions Div., who amended their reply on advice of this office, that a turnery diagram for the explosive limits AC-CK mixtures had been found by Dr. Macy.

29 Dr. Eric Hewett, Evans Res & Dev Corp., telephoned, requesting clarification of a letter received in reply to a bid submitted. He was referred to the author of the letter - Pfc David McGill.

30 Col. Bennett and Dr. Fox attended Col. Delmore's review of the work of Chemical Div., CRL.

30 Dr. Josephson, OCCm10, advised this Hq of an invitation to send representatives to a conference on 6 May in Washington, D.C., on anti-personnel effectiveness and wounding power of requirements for small arms bullets. Arrangements were made for four people from Med Labs and Dr. Robinson to attend.

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1 A conference was held between Col. Bennett, this Headquarters; Mr. Dhein, Corps of Engineers; Dr. Love, CRL, in connection with installation of Cml Corps gas detection instruments for the underground installation at Ft. Ritchie. This installation is to be ready for operation in another 2-3 months, and whatever instrumentation is to be furnished should be furnished as soon as possible. The most pressing problem is the detection of G agents, and for this purpose it was recommended to Mr. Dhein that the Corps of Engineers furnish sufficient funds to the Chemical Corps to increase the development procurement to be initiated in the near future for the E25. Mr. Dhein indicated that the Corps of Engineers would take this under consideration and give us a decision in the near future. Of all the G agent detection instruments under research and development, the E25 appeared to be the best bet for the Corps of Engineers at this time for installation at Camp Ritchie. The E25 was preferred by Mr. Dhein to the E17 due to its smaller size. Mr. Dhein indicated that in the event Chemical Corps personnel desired to visit the underground installation at Camp Ritchie in connection with detection devices, he would make arrangements for such a trip.

1 Clearances were effected for personnel of Stanford University to visit certain Sixth Army installations and to obtain classified Signal Corps films pertaining to smoke operations in mountainous terrain.

Lt. Hamilton reviewed the Cml Corps test plan for assessment of the Micrometeorological Station AN/PMQ-2, for possible use as a standard Chemical Corps item.

2 Conversations with Drs. Macy and Silver resulted in agreement that summary data on candidate agents to fill the requirement for quick-acting persistent agent would be submitted separately by CRL and Med Labs. These data will be forwarded with a covering letter to Chief Chemical Officer, asking for the action required of such an agent, i.e., is contact hazard only required, or is an agent desired which will exhibit its toxicity for a shorter period by both contact and inhalation.

1 Request from Materiel Command was forwarded to CRL for implementation. This request was for the shipment of 5 lbs. each of GB and CK to the European Command.

3-9 Dugway Proving Ground was visited by Lt. Hamilton. The purpose of the visit was to explore the meteorological instrumentation facilities and meteorological projects currently in progress.

4 Col. Bennett made preparation for a special Court Martial to be held 5 May.

4 The Security Branch conferred with Col. Bennett for advice on BW security.

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4 Dr. Josephson advised that General Bullene is convinced that the mixture mustard and lewisite is not a desirable agent, but wishes GB and its analogs included in cold weather trials.

4 Drs. Robinson and Fox attended a conference at Med Labs to recommend what should be done concerning the fact that Squibb has had rejected 656,000 syrettes due to turbidity of the solution of atropin tartrate contained therein. No agreement was reached (draft of Med Labs opinion is to be submitted to this office for review on 15 May).

4 Mrs. Whedon, OCSigO, stated by telephone that in the middle of February a Lt. Col. had told her that the Cml Corps has no interest in the General Mills contract on balloons. Conference with Lt. Col. Rhett Harris indicated that her source was incorrect. The Cml Corps is very much interested in the results of that contract. Mrs. Whedon was so informed.

4 Mr. J.J. Phillips of Phillips Corp., visited this Command to discuss the use of chromatographic analyzer, and was referred to Dr. Katz, CRL.

4 Mr. McGroarity of Merck & Co. telephoned regarding a fine zinc oxide which we had previously requested samples of for pharmaceutical and smoke evaluation. He estimated the cost at 20 - 25 cents a lb. in production quantities and smaller quantities would cost about as much as ordinary reagents.

5 Dr. Josephson, OCCmlO, indicated by phone that G-3 had sent a Top Secret letter to Army Field Forces, specifying interest in a simplified detector kit. The control number on this document at Office Chief Chemical Officer is No. 44556-T.

5 Mr. L.V. Thomas of Langhurst, Britain, visited this office to discuss tests which we agreed to run in drying octal and napalm in Buflovac vacuum drum dryer which they are considering purchasing for aluminum laurate production in 100 tons per week on a 7-day 24 hour schedule. We have agreed to conduct experimental work with Buflovac in order to evaluate this dryer.

5 Col. Bennett was President of the special Court Martial appointed by par. 1, SO 91, dated 25 April 1953. He tried two cases before this court from 0900 to 1645 hours.

5 Dr. Fox met with Messrs. Keyser and Calder at the Bio Labs. At their request, assistance was given in expediting request for Mr. Bishop, a Contracting Officer, to visit Canada to attend conference with representatives of Ralph M. Parsons Co. and Stanford University. It was recommended that Dr. Leighton's proposal for the study of cloud travel

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in mountain<sup>ous</sup> terrain be approved. His proposal provided for extension of his present contract for 4 months without additional funds. Col. Currie, Vice Commander, concurred. A copy of the proposal was transmitted to General Creasy for possible discussion with General Bullene. Dr. Leighton had asked that Dugway trials involving BW agents incorporate fluorescent particle dispersions to correlate with data from urban trials.

6 Dr. Hewett, Evans Research & Development Corp., visited this office. He was referred to CRL and the Procurement Div.

6 At the request of Maj. Stubblefield, CRL, Dr. Bushy was asked to assist in obtaining a six month's deferment from draft of Dr. Halstead.

6 Mr. Hood, OCCm10, asked assistance in locating a letter in which the Air Force requested additional information on the E101 cluster. The letter was located in Development Division. Some information on the questions asked was given to Maj. Metcalf, who was handling the letter.

6 Mr. Schaeffer, Chemical Corps Board, suggested a revision of the pamphlet inclosed in Kit, Chemical Agent Analyzer, M10A1. This suggestion was transmitted to Mr. Sinclitico, Eng Agency, who said he would make arrangements for this revision to be accomplished.

6 Representative from Research Division attended a meeting of the CRL Research Contract Evaluation Committee in connection with a proposed contract with M.W. Kellogg.

6 Mr. Daniels, Supply Div., OCCm10, requested information as to whether there is a standard kit for use by the Technical Escort Group. He was advised that there was no such formal kit, as far as this office was aware.

6 Col. Bennett, Dr. Fox, and Dr. Harris attended a staff meeting to determine from what projects money should be taken to accomplish a cut in the 1954 budget of 4.6 million dollars.

6 Drs. Robinson and Fox attended a seminar at Med Labs, where an idea was presented of a device to measure concentration of aerosols by virtue of changing dielectric constant with concentration.

7 Dr. Harris called Dr. Josephson regarding the gold chloride test for penetration of fabrics by mustard (H). Dr. Josephson had called in response to an urgent overseas wire. There is a procedure for using this test in the CWS Field Lab Memo, and this was given to Dr. Josephson.

Dr. Harris attended Contract Evaluation Committee Meeting at CRL, wherein a proposed extension was discussed of Kellogg contract on GB. Kellogg has previously patented a process and has put a clause in the contract that the government will not make a claim to this. This is acceptable to Mr. Jarman and seemed unobjectionable to Dr. Harris. Dr. Katz objected to this but it was agreed to leave it for consideration by the Legal people. The object of the extension was to purchase a report on the previous work that Kellogg had done but would mean that we would get very much more for our money that if we had commissioned them to do the work.

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- 7 Col. Bennett reviewed the records of trial for court-martial, and signed the record.
- 7 a. Col. Bennett, Dr. Fox, and other members of his staff attended a meeting called by General Creasy to firm up the reorganization of Hq, R&E Comd, based on the Killian concept. Under the new organization, Special Projects Office, Research Division, and Development Division, are deactivated. The following three divisions are to be activated:

Biological Warfare (BW) Division  
 Toxic Chemical Warfare (CW) Division  
 Radiological Warfare (RW) and Non-Toxic Materiel Division

There are established new positions of Deputy for Biological Warfare (BW) - Col. Moree; Deputy for Toxic Chemical Warfare (CW) - Col. Bennett; Deputy for Radiological Warfare (RW) and Non-Toxic Materiel - Lt. Col. Ponder. (See General Order No. 9, 7 May 53, Hq, R&E Comd).

The assignment of key personnel to the divisions headed by the three deputies was announced at the meeting, but such assignment, with exception of the Deputies, was still open for negotiation.

b. The above three deputies - BW, CW, and RW, conferred with Col. Currie at 1500 hours to finalize the assignment of personnel between the three deputies.

c. Col. Bennett conferred with P&E Office (Mr. Knight) in regard to assignment of projects to the Deputy for CW.

- 8 The Comptroller called a meeting of the three deputies - BW, CW, and RW, to determine project-wise the technical objectives 4.6 million dollar out in FY 54 research and development budget for the Chemical Corps.

- 8 For the TCW representation, Col. Bennett, Drs. Fox and Harris attended a meeting with support from the Eng Div (Col. Gunderson), Prov. Gd. Div. (Capt. Paull).

- 8 Col. Bennett conferred with Capt. Connolly, Office of the Deputy for RW, in regard to a CRL request for establishment of a new project in the dosimetry field - technical dosimeter. Col. Bennett prepared a draft reply to CRL request for review, consideration, and comments by the Deputy for RW.

- 11 Col. Bennett, Drs. Fox and Robinson reviewed with Maj. Wheeler, Med Labs, the Med Labs 1954 budget in connection with the cut imposed on Med Labs by the over-all 4.6 million dollar out in Chemical Corps R&D funds. It appeared that the Med Labs received a larger out than it should have had, due to the fact that the Comptroller had given Med Labs a different and lower figure for its FY 54 budget (by some \$200,000) than had been given the Deputy for TCW in connection with the 4.6 million dollar out. The Comptroller was appraised of this fact, but indicated that no adjustment could be made at this time as the figures had already been forwarded. It was proposed that some adjustment will be made at a later time.

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- 11 Col. Bennett reviewed with Mr. Clayton, Security Branch, the policy on BW security proposed by R&E Command Security Officer for open publication of BW papers.
- 11 Col. Bennett and Dr. Fox conferred with Dr. Hollingsworth, Mr. Fraser, Mr. Wheeler, and Mr. Show, Munitions Div., CRL, to obtain information on the status of Cml Corps land mines and proposed GB and mustard land mines. This information was sought in connection with proposed Cml Corps conference with Corps of Engineers to be held at Fort Belvoir, week of 11 May. As a result of this conference, Mr. Show will accompany Col. Cathey as representatives of the Cml Corps at this conference.
- 11 Col. Bennett reviewed and signed the Historial Report for the Research Division.
- 12 Col. Bennett and Dr. Fox headed a conference held between Prov. Gd. Div. (Lt. Col. Lawhon, Capt. Paull, Maj. Scaff, Mr. Long); CRL (Mr. Farnsworth, Mr. Wheeler, Dr. Hollingsworth); Maj. Goodwin. The conference concerned the desirability of, and the requirements for, certain feasibility tests to be run by the Cml Corps at Dugway Proving Ground in order to determine by 1 July 1953 the utilization of some 114 million dollars of Air Force money in the field of aircraft-borne spray equipment for GB. See Report of Conference written by Dr. Fox, dated 13 May 1953. This was practically an all-day conference.
- 12 Col. Bennett reviewed and signed the final record of a court-martial case tried before the special court martial of which he was the President, appointed by special orders, as stated above.
- \*  
13 Dr. Harris attended a meeting of the Engineering Panel of the Chemical Corps Advisory Council.
- 13 Meteorological Section, OCSigO, was visited on 13 May by Lt. Hamilton to discuss meteorological instrument and personnel requirements of the Chemical Corps at Dugway Proving Ground and Big Delta, Alaska.
- 13 CW Div. concerned itself with final disposition of personnel to the three Deputies and the internal organization of the CW Div.
- 13 Col. Bennett contacted Mr. Ormerod in regard to Signal Corps Mobile Radiological Laboratory being demonstrated at Bolling Field on Armed Forces Day. Col. Bennett informed Mr. Ormerod that the Chemical Corps was demonstrating Signal Corps item which was classified, and that P&E Office should get the concurrence of the Office Chief Signal Officer for the

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exhibiting of this Laboratory. P&E Office was apprised of the fact that the Chemical Corps had on hand the CRL complete CBR laboratory which should have been shown, instead of the Signal Corps laboratory, providing necessary precautions were taken. The end result was that P&E Office obtained verbal concurrence from the OCSigO, and the Signal Corps Mobile Laboratory was shown instead of the CBR laboratory, due to the time limitation.

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13 Dr. Robinson and Col. Bennett attended a talk at Med Labs given by Dr. Bo Holmstead, Pharmacologist for the Swedish National Defense organization at Stockholm. Dr. Holmstead talked on the pharmacology connection with the various agents of the G series. It was indicated that much of the information that is Secret in this country in connection with this subject is unclassified in Sweden.

14 Mr. Wiseman, Munitions Branch, attended a conference, this Headquarters, in regard to supplying the Air Force (WADC) with sufficient information to write a test directive for the 760 lb. GB cluster. This conference set up the required action to obtain aircraft and facility support for a test program for 750 lb. GB cluster. See Memo for Deputy for TCW, dated 18 May 1953, written by Mr. Wiseman.

14 Dr. Harris attended the fifth meeting of the Committee on the Chemistry of G Agents, which was concerned with the editing of the paper on the reaction of catechols with GB. The Committee raised the problem of what mechanism should be used for publishing reports of the Committee, and asked Dr. Harris to explore the possibility of establishing a procedure.

14 Col. Bennett conferred with representatives of the Comptroller in regard to space assignment in Bldg. No. 1 for the TCW Div. Space allotted will be that which was occupied by the now de-activated Res Div, plus Dr. Berger's office, Room 230, of the now de-activated Dev Div.

14 Col. Bennett and Dr. Fox conferred on the cold weather testing program (winter of 1953-54 - Prov. Ground Div.) Dr. Fox will coordinate additions or deletions to the program with CRL and/or to the pertinent agencies.

14 Col. Bennett reviewed assignment of projects to Toxic CW Div. There appears to be conflict between assignments of certain projects to the Deputy for CW, Deputy for BW, and Deputy for RW and Non-Toxic Materiel. This will be coordinated with P&E Office and the other two deputies.

14 TWX was sent to Eglin Air Force Base, indicating 15 tests desired by USAF to start 15 June at Dugway could not be run. This was coordinated with the Prov. Gd. Div.

14 Col. Bennett conferred with Mr. Wiseman as to priority of munition requirements for the Air Force.

\* 12 Mr. Wiseman attended meeting in OCCm10 to discuss complete Air Force guided missile program and to obtain a statement from the Air Force as to their requirements for FY 54 funds.

14 Col. Bennett, Deputy for TCW, Lt. Col. Harris of the BW Div., and Lt. Col. Erickson, Chief, Personnel Policies Office, conferred in regard to possible assignment of Maj. Lane, Reserve Officer, if he were recalled. It was decided to place him on the list, if possible, of the 25 Reserve officers being recalled to extended duty with the R&E Command. Col. Bennett indicated that he could use him either as a stop-gap officer or perhaps on a permanent basis in the CW Div., on account of his background.

14 CW Div. prepared comments (Col. Bennett, Dr. Fox, Dr. Robinson) in regard to Top Secret document on human volunteers. These comments will go to P&E Office, who, in turn, will use them as preparation for reply to the Chief's Office.

15 CW Div (Col. Bennett and branch chiefs of the CW Div) reviewed the complete project program in regard to the proposed assignment of projects to the three deputies. As a result, Col. Bennett indicated that the CW Div. should prepare a reply to the P&E Office, containing the following elements:

(1) Those projects which the Deputy for CW concurs in for assignment to the CW Div.

(2) Those projects assigned to the CW Div. which the Deputy for TCW believes should belong to Lt. Col. Ponder and which Col. Ponder has concurred in.

(3) Those projects assigned to the Deputy for BW which the Deputy for TCW believes should belong to the CW Div.

(4) Those projects assigned to the other two deputies which the Deputy for TCW has a secondary interest.

(5) It should be recommended to the P&E Office that the whole project program should be broken down into three fields - the TCW field, the BW field, and the RW Non-Toxic Materiel field, and that subsequent to this breakdown the projects should be further allocated for supervision to the various divisions of Hq, R&E Comd. This procedure would indicate to each Deputy the projects for which he has responsibility horizontally that are assigned to the Eng Div and the Prov Gd. Div., and at the same time would indicate clearly those assigned to the CW Div. for which he is vertically responsible.

15 Dr. Fox, Chairman, and Dr. Harris, Secretary, held <sup>47th</sup> meeting of Advisory Committee on New CW Agents. Dr. Robinson also attended.

15 Drs. Harris and Fox and Col. Bennett were briefed by Lt. Col. Gunderson, Eng Div., on the status of the production of toxic agents and projects under the staff supervision of Eng Div which are the responsibility for D/TCW.

15 Dr. Eckert suggested to Dr. Harris that the designation of the Kit, Screening, Poisons, and similar medical kits, be changed so that they do not all have the designation of M2, as at present. He suggested M2, M3, and M4. This was agreed to and he will prosecute the necessary papers.



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21-29

Col. Bennett and various members of the TCW Div., notably ~~Mr. Fox~~ and Harris, spent a very considerable amount of their time working on various budget reductions for FY 1954. In working out the budget reductions, a series of conferences were held with representatives of the P&E Office and the Comptroller in order to settle differences of opinion and firm up guidance and ground rules for the reductions. The budget picture started out with a conference and a request from P&E Office that the three deputies revise the budget on the basis of 45 million dollars, taking cuts of 6 million, 8 million, 10 million, and 12 million dollars. These figures were subsequently changed to approximately 6 million, 9 million, and 12 million dollars. After the budget was completely revised, based on the 6 million, 9 million, and 12 million dollar budgets, new guidance from the OCCm10 revised the budget cuts again to approximately 15, 25, and 35% cuts. The budget was again revised on the new basis, subsequent to which new ground rules and new information ~~was~~ obtained from the OCCm10 as to how to revise the budget. The budget was again revised and after it was finalized, a conference was held in General Creasy's office on 27 May, in which the entire budget case was laid before General Creasy, who reviewed it and laid down some new ground rules for revising the budget. On 27 May the budget was again revised, to bring it in line with General Creasy's wishes. A summary of this guidance, plus a summary of the requirements of the OCCm10, in connection with the budget, is given in letter, this Headquarters, dated 27 May 1953, subject, "FY 1954 Res & Dev Program (Revised)." In addition to this guidance, considerable additional guidance was furnished by R&D Div., OCCm10 (Col. Stubbs).

General Creasy desired to maintain the peaks in end item development with sufficient testing at Dugway in order to maintain these peaks. The final budget, based on 15%, 25%, and 35% out, on the basis of 45 million dollars for FY 54, was finalized by the three deputies and submitted to the Comptroller, who consolidated the complete budget on 29 May. The consolidation by the Comptroller had a great many errors requiring review by the three deputies. As a result of this review, the Comptroller revised his consolidation.

The Deputy for TCW prepared a report, by project, showing personnel and spaces which will become surplus under the revised programs, and submitted same to Comptroller, 28 May 1953. The Deputy for TCW also prepared a report, by project, showing construction previously programmed but not required under proposed revisions and submitted to Chief, Eng. Div., 28 May 1953. The Deputy for TCW also prepared and forwarded to Chief, P&E Office, by 27 May 1953, a narrative account, of what each proposed program revision will mean to his area of responsibility.

The Comptroller prepared a report showing all personnel and funds now being used to develop Air Force and Navy weapons. The Deputy for TCW transmitted information for the preparation of his report. Subsequent to the submission of these reports, Col. Bennett briefed Col. Stubbs on the whole toxic CW program, giving him additional information that was not contained in these reports and answering such questions as Col. Stubbs desired in order to prepare him for the defense of the budget at staff level.

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21 Drs. Fox, Robinson, Harris, and Col. Bennett held a conference with Dr. Kondritzer, Med Labs, in regard to the preparation of a reply to the Surgeon General as to Chemical Corps opinion on the feasibility of acceptance of the ampins manufactured by Squibb Co., and rejected by the Surgeon General for turbidity reasons. This reply supports the action of the Surgeon General.

21 Col. Bennett had a conference with Dr. Herget, Med Labs, in regard to a reply to the OCCm10 regarding the impact of the wound ballistics program of the assumption by the Chemical Corps of primary responsibility for the application of toxic agents to fragments. Also discussed for consideration in this reply was the impact on the wound ballistics program of the request put by the Chief Chemical Officer of the R&E Comd for a comparative evaluation of the anti-personnel effects of HE, phosphorus, WP, and flame.

21 a. Col. Bennett, Drs. Fox and Harris attended a conference called by Col. Sullivan, P&E Office, to implement a telephone call received from the OCCm10 directing that a 2 million dollar reduction in FY 54 funds be made in the CW defensive area by technical objective and by project, and that this reduction of 2 million dollars be transferred to the BW field. Conference was attended by the three deputies and supporting personnel. Subsequent to this meeting, the Deputy for TCW and the Deputy for RW and NTM, held a conference to determine how the reduction was to be made. Refer to Disposition Form, signed by the two deputies, forwarding the necessary information in regard to this reduction, to the P&E Office.

b. In the afternoon, about 1530 hours, a further conference was held on the same subject in view of new information from the Office Chief Chemical Officer. The results of this conference only changed the above Disposition Form to the extent that the cut of \$50,000 in SR-5, Project 4-85-09-001 was eliminated. An increase from \$200,000 to \$250,000 was made in reduction in the area of installation support.

21 Information was received from the P&E Office that the over-all Army R&D funds would be cut 25% in FY 54 funds across the board, and that in view of this a conference would be held by the P&E Office to consider a reduction in the over-all R&D Cml Corps FY 54 budget of 6 million dollars, 9 million dollars, and 12 million dollars, and that the three deputies should be prepared to present the proposed cuts 26 May. Col. Sullivan indicated that the ground rules for the cuts would be that:

a. Some competing munitions would be eliminated, if possible.

b. Areas or projects in producing end items for standardization within the next two years would be slated for reduction in funds or possible elimination.

As a result of the above information, Col. Bennett, Dr. Fox, and Lt. Col. Cook met and agreed to get Med Labs and CRL's opinion as to the revised cuts. CRL and Med Labs were notified accordingly and a meeting to resolve the 3 proposed cuts of 6 million, 9 million, and 12 million, was held at 1500 hours, 22 May.

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- 22 Col. Bennett and Dr. Fox attended a technical conference in connection with the status and progress of the program of the Chemical Division, CRL.
- 25 During the week of 25 May Col. Bennett conferred with Dr. Herget, Med Labs, approximately three times in connection with preparation of a reply to the OCCmIO, summarizing the impact on the wound ballistics program of the assumption of primary responsibility by the Chief Chemical Officer of the effect of application of toxic agents to fragments. In this reply was also included the impact on the wound ballistics program of the effect of the implementation of the evaluation required by the OCCmIO of the comparative antipersonnel effect of high explosives, flame, and white phosphorus.
- 25 Mr. Wiseman attended the technical conference on the status and progress of the program of the Munitions Div., CRL.
- 25 Col. Bennett, Drs. Fox, Robinson, and Harris attended the 48th Meeting of Advisory Committee on New CW Agents.
- 26 Lt. M.A. Thompson of WADC arranged to discuss the status of FY 52 and FY 53 Air Force funds on field detection. He was referred to Dr. Love, CRL.
- 29 Dr. Harris attended technical conference on the status and progress of the program of the Plants Div., CRL.
- During the week of 25 May Col. Bennett and Dr. Fox reviewed manuscript of capabilities of toxic chemicals in warfare, written by CRL. This is an important paper requiring considerable time for evaluation.
- 29 Col. Bennett gave Dr. Josephson, R&D Div., OCCmIO, in writing a summary of information on phosgene oxime for transmittal to Col. Stubbs.
- 29 Drs. Fox and Harris attended the Plants Div., CRL orientation at CRL.
- 29 Mr. Katz, P&E Office, Dr. Robinson, Col. Bennett, and Dr. Josephson had a considerable discussion on the directive forwarded by OCCmIO in connection with the use of volunteers. Dr. Josephson presented the latest views of the OCCmIO on this subject.
- Lt. Hamilton visited Dugway Proving Ground for the purpose of exploring the meteorological instrumentation facilities on meteorology projects currently in progress.

In reference to a request from OCSigO concerning future planning for meteorological equipment needs, a list of expendable and nonexpendable meteorological items that the Chemical Corps anticipates a requirement for in FY 54-55 was prepared and coordinated with DPG; FAMR Br., Bio Labs; Test Div., CRL; and Proving Ground Div., R&E Comd.

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Lt. Hamilton reviewed the Chemical Corps test plan for assessment of the micrometeorological station, manned, AN/PMQ-2 for possible use as a standard Chemical Corps item.

Lt. Hamilton arranged for clearances of personnel from Stanford University to visit certain Sixth Army installations and to obtain classified Signal Corps films related to meteorology.

Month of June:

1 Dr. Harris was on active duty at the Cml C Materiel Command.

1 Col. Bennett called a meeting with Lt. Col. Lawhon, Chief, Proving

Ground Div.; Lt. Col. Cook, Asst Deputy for RW & NTM; Lt. Col. Harris, Asst Deputy for BW; Lt. Col. Ball, Eng Div., in regard to the disposition of MCA Project A671-144, Test Grid Structure at Dugway, costing \$400,000 - estimated completion date October 1954. The Deputy for RW & NTM initially indicated the project should be dropped and the Deputy for BW indicated that the project should be dropped. However, Col. Bennett indicated to the representatives of the other two deputies that only the structure representing a fraction of this project should be eliminated, inasmuch as all the other construction in connection therewith would be very beneficial to servicing other Dugway areas and facilities, including new BW areas. All three Deputies agreed on this. Col. Ball indicated he would notify OCCmlO not to cancel out A671-144, and that Col. Ball later would notify OCCmlO in detail as to the portion of the project to be retained.

1 Col. Bennett held a conference with Dr. Robinson, TCW Div, and Dr. Herget, Wound Ballistics, Med Labs, in regard to approval of the final paper to be sent to General Bullene showing the impact of:

a. Application of toxic agents to fragments.

b. The evaluation of the antipersonnel effect of high explosive, flame, white phosphorus. Refer to 1st Ind., this Headquarters, to Chief Chemical Officer, dated 29 May 1953, subject, "Carbamates" (basic letter dated 21 April 1953).

1 Col. Bennett held conference with Comptroller, in which Col. Bennett set up:

a. A mobilization plan for the TCW Div.

b. The persons and grades, both military and civilian, for the authorized personnel strength of the TCW Div.

1 Col. Bennett summarized a short summary of the 85%, 75%, and 65% budget cuts for FY 54.

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2-5

During the period from 1 June to 5 June both Dr. Fox and Dr. Bennett were absent from the office - Dr. Fox in connection with cloud travel studies and Dr. Harris on active duty. During the period from 2 to 4 June, in addition to reviewing, signing, and preparing numerous papers, Col. Bennett did the following major problems:

(1) Prepared a paper (1st Ind., dated 4 June 1953, subject, "Army Requirements for Mustard (HD)" with inclosure thereto (basic letter dated 20 May 1953 from OCCm10) for General Creasy's signature, with Lt. Col. Bacon and Dr. Hollingsworth, to establish the Army position for mustard requirements and to refute the Air Force stand (that the Air Force has no firm requirement for mustard) based on an Air Force study attached to basic letter dated 20 May 1953. This letter requested the R&E Command to analyze the above USAF Study and submit comments for a meeting to be held 11 June 1953 to resolve the differences between the Army and Air Force positions in regard to mustard. The Army position must be fully developed, realistically supported by technical data.

(2) Col. Bennett spent a great deal of time on budget work for Col. Stubbs, OCCm10, for defense of the FY 54 budget. This work was necessary as a result of the defense of the budget against the Junior Review Board and was necessary in order to answer the questions proposed by the Junior Review Board and deemed necessary for the defense of the budget for the Senior Review Board to be accomplished on the following Sunday. Col. Bennett remained at Army Chemical Center on call on Saturday and Sunday to answer any questions on the budget.

4 2nd Indorsement was sent to CRL, inclosing comments of Bureau of Ships on Simplified Form of Kit, Chemical Agent Detector (basic letter 20 May 53). Data and prototype of the Kit, E27R2 were sent to OCCm10, 3 June 53, for transmittal to Bureau of Ships.

5 Col. Bennett reviewed all contract proposals in the TCW field involving \$50,000 or more, for the purpose of recommending continuance or discontinuance of further contract negotiations in consonance with the proposed FY 54 R&D program.

8 Dr. Fox wrote to Mr. Roland Kelly of the R.M. Parsons Co., thanking him for his many courtesies and for doing a fine job on a very important problem.

8 Col. Bennett had a conference with Mr. Dougherty, Comptroller's Office, in regard to job descriptions for personnel of the TCW Div.

8 Col. Bennett and Dr. Fox again studied the TCW budget in view of latest emphasis from the OCCm10. However, this work was postponed to the following day, in view of the fact that this information apparently was not yet firm.

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8 Drs. Fox and Robinson attended 49th Meeting of Advisory Committee on New CW Agents.

8-9

Col. Bennett received a letter from Med Labs (cc of letter to Col. Norman W. Elton, M.D., CO, Cml C Med Labs, dated 29 May 1953, from Col. John R. Wood, Chairman, Medical Res & Dev Bd, Office of the Surgeon General) requesting that Med Labs submit a justification for each authorized medical officer position in the Chemical Corps. The total number of positions was 25, including 3 from the Chemical Corps School and 3 from Pine Bluff Arsenal. Med Labs were informed to submit the justification for all of the medical officers in the Chemical Corps to Col. Wood, with exception of those from the Chemical Corps School and Pine Bluff Arsenal, which would be submitted by the OCCm10. The OCCm10 was so informed by Lt. Col. Erickson, Personnel Policies Office, this Headquarters. The submission of this information to Col. Wood, both for Med Labs and OCCm10, was on 9 June, although the above-referenced letter of 29 May 1953 indicated the submission was to be not later than 5 June. However, Col. Bennett did not get the problem until 8 June.

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8

Col. Bennett and Dr. Fox attended a meeting in the Conference Room, Bldg. 1, initiated by Col. Collins, to review all contract proposals involving \$50,000 or less for Army research and development funds, FY 53, which had not been obligated. The purpose of the review was to recommend continuance or discontinuance of further contract negotiations in consonance with proposed FY 54 research and development program.

9

Col. Bennett had a conference with Miss Bell, Job Analyst, in regard to the various jobs being performed by personnel of TCW Div., in connection with the proposed personnel survey of R&E Hq.

9

Conference was held with Dr. Dill, Col. Elton, Med Labs; Col. Bennett, Drs. Robinson and Fox, TCW Div.; and Col. Sullivan, P&E Office, in regard to committing part of 1.2 million dollars BW fund which materialized through withdrawal of contract for Fort Terry.

9

Col. Bennett and Dr. Fox had a conference with Mr. Dougherty of Comptroller's Office in regard to job descriptions for personnel of the TCW Div.

9

Conference was held with Col. Collins, Procurement Div., in regard to contracts in the field of TCW - which should be continued and those which should be cancelled.

9

On 17 April 53, the R&D Div., OCCm10, requested this Headquarters to furnish information requested by the USAF in an exchange of correspondence with PT&I Div., OCCm10. The Air Force desired information on munitions expenditure estimates in cities for the E101R3 Cluster of GB Bombs. The correspondence was referred to CRL where a study was prepared answering the questions asked. This detailed technical data was furnished OCCm10 for transmittal to USAF on 9 June 53.

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- 10 The contract ~~information in the TCW area~~ was reviewed in order to recommend possible and justifiable contracts for utilization of remaining FY 53 funds resulting from cancellation of other contracts, such as the Fort Terry contract which will release 1.25 million dollars; and, in this connection, Med Labs, CRL, Eng Agency, and DPG's anticipated needs were taken into consideration. ~~CONFIDENTIAL~~
- 10 Col. Bennett met with Cml Corps Advisory Board of the American Chemical Society, including dinner engagement.
- 11 The TCW contract area was again reviewed as it had become apparent that additional FY 53 funds might become available, over and above the 1.25 million available from the cancellation of the Ft. Terry project.
- 11 Col. Bennett attended a dry run for the Development Committee Meeting to be held 17 June. Col. Bennett reviewed the dry run and made comments and suggestions for improving the talks presented.
- 11 "Chemical Corps Policy Relative to Procurement and Manufacture for Agencies Other than the Chemical Corps" was reviewed in connection with letter request, same subject, 28 May 1953, from Chief, Materiel Div., OCCm10, to Commanding General, Cml C Materiel Command. This document was reviewed in discussion with Mr. Mosely, Eng. Div., and in connection with comments submitted thereon by Cml Corps Eng. Agency. Written comments were prepared which were finalized on 16 June 53 and forwarded as a Disposition Form to the Eng. Div.
- 11 Dr. Fox submitted a Report of Conference to the Commanding General, this Headquarters, subject: Study of Cloud Travel in Cities - Contract with the Ralph M. Parsons Co. Dr. Fox witnessed three consecutive tests with fluorescent tracer material in St. Louis.
- 11 Mr. Peake, OCCm10, called Col. Bennett to find out status of submission of the annual questionnaire of the National Opinion of Research Center. This questionnaire is submitted once a year to the Army Comptroller for approval. The status of this questionnaire was determined by Col. Bennett in conference with Dr. Dill and Maj. Wheeler, Med Labs, and forwarded by telephone to Mr. Peake, as follows:
- a. The field work of the NORC has been completed; hence, no further requirement exists for a questionnaire and none will be submitted to the Army Comptroller for approval.
- b. The NORC contract will expire in FY 54 and will not be renewed. The remainder of the contract time will be devoted by NORC to the compilation and evaluation of data collected by the questionnaire method.
- 12&15 Col. Bennett prepared comments on the SOP for Proving Ground Operations, No. 5-1, 25 May 1953. These comments were forwarded on 15 June.
- 8-12 During this week a review was made of the FY 53 Chemical Corps research and development projects assigned by P&E to the three deputies 1 June 53. A final paper was sent to Chief, P&E Office.

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15 4th Indorsement was sent to Chief Chemical Officer, subject, "Individual Decontamination" (basic dated 21 May 53), giving nonconurrence with the procedure for individual decontamination of liquid war gases presented in par. 2, basic letter. This Headquarters suggested adoption of procedure given in par. 1, 3d Indorsement.

15 General Porter called General Creasy inquiring as to whether the Chemical Corps had information on the safety and handling of liquid cyanogen. General Creasy gave this problem to Col. Bennett. Dr. B.L. Harris phoned directly to General Porter's office, giving what information was available.

15 Col. Bennett held a conference with the Deputy for RW and NTM (Col. Ponder, Dr. Berger, Lt. Col. Cook) and Lt. Col. Lawhon, Proving Ground Div., in regard to revising the SOP, on which comments were made, as indicated above.

15 1st Indorsement was sent to Chief Chemical Officer (basic dated 1 June 53), subject, "Kit Ointment Protective M5A1" giving latest data on the stability of Eye Ointment, BAL.

16 Mr. Lawrence Slote, Dr. Charles Schneider, and Dr. William Ingram, New York University, visited this Headquarters to discuss a fluorescent particle technique of study of aerological dissemination.

Lt. Hamilton reviewed a Signal Corps Staff Study on meteorology sent to this Headquarters for review.

Lt. Hamilton reviewed the minutes of the meteorological section of the Seventh Tripartite Conference and ascertained the status of the commitments made by the United States in the field of meteorology.

16 Col. Bennett went to Pentagon and delivered a drawing and suspension lug to Mr. Ludden, Office Chief of Ordnance.

16 Dr. Robinson and Col. Bennett attended a conference in OCCm10 concerning a draft of a paper prepared by G-4 for the implementation of the TS document issued by Secretary of Defense for the implementation of the use of human volunteers by the Army, Navy, and Air Force. After considerable discussion, it was decided that the Cml Corps should concur in the G-4 document as is, with the comment that the provisions of the document should be reviewed within reasonable time after initiation of its implementation. The conferees were as follows:

OCCm10  
Dr. Josephson, R&E Div., Chairman  
Mr. Vogel, Legal Office

R&E Comd  
Col. Bennett  
Dr. Robinson

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16 Dr. Fox wrote 1st Ind., subject "Signal Corps Staff Study on Meteorology" (basic dated 3 June 53) for General Creasy's signature, recommending concurrence with the Sig Corps to provide meteorologists for all field forges units, except Cml Corps smoke generator companies, and artillery who have some capability in this field.

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- 17 Col. Bennett and Mr. Wiseman conferred on the Air Force verbal request that the Cml Corps furnish the Air Force with 25,000 of the M79 bombs and 30,000 of the M78 bombs GB filled for external use on the airplane for overseas commitments. It was decided that recommendation be given the Air Force that the M78 and M79 should be field tested to see if the M78 and M79 would meet the requirements of the Air Force for dive-bombing yet untried, before any arrangements were made to fill these bombs with GB.
- 17 Col. Bennett and Lt. Col. Bacon reviewed PCS-9 in order to prepare a 1st Ind. to a request from PT&I Div., OCCm10, dated 21 May 1953, subject, "Change of Security Classification of Classified Document," requesting that Part 2 of PCS-9 be downgraded from Secret to Confidential and Restricted. A final reply was made in 1st Ind., dated 22 June 1953. The PT&I request was given to Col. Bennett by the Security Officer, R&E Comd.
- 17 Col. Bennett reviewed P&E paper on the responsibilities of the various offices and divisions of this Headquarters. He tentatively non-concurred with the paper inasmuch as the various offices, such as P&E, Comptroller, etc., were not tied in with the responsibilities of the three Deputies, upon which the organization of the Headquarters is now based.
- 17 Conference was held with Col. Collins in regard to a paper forwarded by Mr. Hormats, CRL, for justification of extension of the contract with Southern Research Institute in regard to the G alarm systems.
- 17 Col. Bennett and Mr. Mosely, Eng. Div., conferred in finalizing an R&E reply to letter to Commanding General, Cml C Materiel Command, from Chief, Materiel Div., dated 28 May 1953, subject, "Cml Corps Policy Relative to Procurement and Manufacture for Agencies Other than the Cml Corps."
- 17 Col. Bennett briefed Lt. Col. Lassarini, OCCm10, in regard to the organization and activities of the Deputy for TCW.
- 17 TCW Div. submitted to P&E Office a forecast of items in the TCW field to be released to production in FY 54.
- 18 Col. Bennett attended a conference with representatives from the offices of the three Deputies; Bio Labs (Dr. Fothergill); and Prov. Gd. Div. (Lt. Col. Lawhon) in regard to transfer of responsibility for Cml Corps meteorological field from Camp Detrick to Dugway Proving Ground. The conference was headed up by Col. Currie. No decision was reached at the conference, but the following facts were brought out:

- (1) That Camp Detrick and Dugway both wanted the responsibility.
- (2) Conferences were held in 1951 and 1952, attended by Mr. Calder, Bio Labs; Mr. Milly, CRL; Dr. Perkins, Stanford Univ.; Dr. Nolan, DuPont; Mrs. Whedon, OCSigO; Dr. Walters, Univ. of Rochester; Dugway Proving Ground; and Dr. Fox, at which it was unanimously agreed that primary cognizance

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for, and the bulk of the meteorological research on Chemical Corps meteorology, should be assigned to Dugway Proving Ground. As an interim measure, the responsibility was to be carried out by Bio Labs until such time as Dugway Proving Ground could assume the responsibility.

(3) Dugway Proving Ground was now ready to assume the responsibility and had the requisite personnel to carry out the responsibility.

(4) It was desirable that Mr. Calder of Bio Labs be assigned to Dugway to head up the meteorological work there, but doubt was expressed as to whether he would go to Dugway. In the event the services of Mr. Calder could not be obtained at Dugway Proving Ground, a man of equivalent meteorological stature was desired for the job.

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18 Dr. Robinson, Lt. Col. Furman, and Col. Bennett further discussed the use of human volunteers in meteorological experiments.

17-18 Action was initiated to have a report prepared by Eng Agency showing the current status of the colored smoke program at Pine Bluff. This report was desired by General Creasy and was given to P&E Office, who, in turn, requested the assistance of Col. Bennett, who had previously briefed General Bullene on the same subject. In addition to the information furnished by Eng Agency, Col. Bennett furnished Mr. Ormerod of P&E Office a complete rundown on the briefing given General Bullene on the subject.

19 Dr. Fox attended the technical conference on the progress of the R&D program of the Chemical Division, CRL.

19 Col. Bennett had a conference with Mr. Huss, BW Div., in regard to a supplement to the Stanford contract.

19 CCTC items for the Sub-Committee meeting of the CCTC to be held 22 June were reviewed.

19 Col. Bennett furnished Col. Currie with background information, to supplement the conference of the previous day, in regard to transfer of responsibility for the Chemical Corps meteorological problems from Camp Detrick to Dugway Proving Ground. Based on this, Col. Currie held a conference with General Creasy.

19 Col. Bennett held a conference with Dr. Josephson, OCCm10; Lt. Col. Lawhon, Chief, Prov. Gd. Div., in regard to 53-54 winter program in connection with implementation of a Chemical Corps Board recommendation.

22 Drs. Fox and Harris attended Plants Div., CRL meeting.

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- 22-23 Lt. Hamilton represented TCW Div. on an unclassified aerosol symposium at Army Chemical Center.
- 23 Dr. Berger, Lt. Col. Ponder, and Col. Bennett had a conference in regard to resolving differences of opinion on assignment of certain projects assigned to the RW & NTM Div. that should be assigned to the TCW Div.
- 23 Meeting was held with Dr. Bushy and Lt. Col. Harris, Dr. Harris, and Lt. Col. Bacon in order to answer certain questions in the TCW field required by PT&I Div. for transmittal to the French.
- 24 Col. Bennett, and Drs. Harris and Robinson attended conference with Dr. Eckert, Dr. Berger, and Mr. Huss on the CCTC items for the forthcoming meeting. It was agreed that, in general, projects are to be continued until the item is either dropped or standardized. The projects will be transferred to Eng. Agency at the completion of the Final Engineering Test by the developing agency. In the past, when CRL completed development, the projects were dropped and the items continued under a general project at Eng. Agency. The Field Forces have indicated that this is unacceptable.
- 24 Dr. Harris discussed with Mr. Kalser of the Comptroller's Office the proposed organization of the TCW Div., to include four branches: Plants, Munitions, Protective, and Defense - having three sections in the Munitions and two in each of the Defense and Protective Branches.
- 24 Col. Bennett met with representatives of the other two Deputies and Dr. Eckert to modify and resolve differences of opinion in regard to Report "V" 1954 project program presented at the sub-Committee Meeting of 22 June 1953. This was done by direction of Col. Currie.
- 24 Col. Bennett conferred with Dr. Berger and Col. Currie as to whether responsibility for detection end items in TCW Div should remain with the TCW Div. or be placed in the Defense Materiel Branch of the RW and NTM Div. The actual placing of the projects involved is immaterial to Col. Currie, although he indicated that the Deputy for TCW was directly responsible for detection of toxic CW agents. Based on this, and the fact that the confidence for this type of detection was in the TCW Div., Col. Bennett decided to retain the responsibility in the TCW Div. for prosecution of these detection projects.
- 24 Col. Bennett and Dr. Harris were interviewed by Mr. Katz, P&E Office, in order to finalize estimates for end items which would be ready for production in FY 54.

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24 Col. Bennett and Dr. Harris conferred with representatives of the Comptroller's Office in order to draft a chart and descriptions showing the functioning of the TCW Div.

29 Drs. Fox, Robinson, and Harris attended the 50th Meeting of Advisory Committee on New CW Agents.

30 Dr. Harris completed the write-up on the TCW Div. comments on the Division's responsibilities and duties within RECOM Hq, and forwarded it to the Comptroller. He similarly wrote up job descriptions for the military heads of the Agents, Plants, Defense, and Munitions Branches, Asst Chief of the Munitions Branch, and Asst Deputy for TCW.

30 Dr. Harris discussed with Mr. Morgan, Eng. Div., Mr. Fezell of Safety Branch, and Mr. James of ORG to the effect that 10 miles was a reasonable distance for storage of GB from the corporate limits of towns.

Month of July

1 Job descriptions were written for six additional military spaces allocated to the TCW Division and the descriptions were forwarded to the Comptroller's Office.

2 1st Indorsement was sent to Chief Chemical Officer (basic letter dated 10 June 1953), subject "Combat Helmets", giving information on Doron, Type II, helmets, and nylon helmets.

3 Lt. William T. Padgett, USAF, Headquarters, AMC, visited this Headquarters to discuss BW Surveillance Laboratory. He was informed of the progress of the E-4 Mobile Laboratory and invited to consider the possibility of modifying this laboratory for the BW Surveillance item. It was proposed that, if desired, the work would be done by CRL under cross servicing from the Air Force.

3 A letter was sent to Chief, P&E Office, offering suggestions for training exercises for FY 54. It was suggested that smoke be used to blanket enemy positions and that tear gas be used as a simulant for toxic CW agent, such as GB, with a view to seeing if it would be possible to catch soldiers unmasked and/or to penetrate dugouts. The use of fluorescent tracer aerosols to measure clothing or mask penetrations and the contamination of mountaintops with an RW simulant or HD simulant to deny the area was also suggested.

6 Dr. Fox wrote D/F to P&E Office and Personnel Policies Office, subject, "Training of Civilian Technical Employees", giving mechanisms by which civilian technical personnel of this Headquarters can be instructed.

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6 Drs. Fox, Harris, and Robinson attended the 51st Meeting of  
Advisory Committee on New CW Agents.

6 Drs. Fox and Harris discussed with Dr. Kinney of WADC the Air  
Force interest in detectors and alarms for toxic chemical agents.

7 Drs. Fox and Harris and Mr. Wiseman attended a meeting in P&E  
Office, attended by Col. Finke, Lt. Col. Templeton, and Dr. Kinney  
of the Air Force, on funds required for Air Force projects conducted  
by the Chemical Corps.

8 Mr. W.B. Rose, Assistant Director of the Research and Development  
Department of the Westvaco, Chemical Division, Food Machinery and  
Chemical Corporation, visited this Headquarters to discuss various  
problems with Drs. Fox and Harris. He was informed of our interest  
in new synthetic agents of high mammalian toxicity and indicated an  
interest in accepting a contract for such studies. He further asked  
our help in obtaining a deferment for their laboratory supervisor. Dr.  
Fox, indicated that at the time the man's case was presented to the  
Presidential Review Board he should supply us with all pertinent data  
and we would corroborate the portion of the work the man is conducting  
for the Chemical Corps on the GB program. Mr. Rose also requested our  
help in sending someone to Britain to talk about their work on the  
oxidation of dichloromethyl phosphine. This is in connection with the  
HTM process.

8 Dr. Harris attended a meeting in the office of Dr. Katz, CRL, con-  
cerning the extension of Contract 4024 with Southern Research Institute.

8 Letter was written for General Creasy's signature, to American  
Cyanamid Company, stating that Lt. Col. L.E. Harris, who has represented  
the Chemical Corps to industrial and educational research groups,  
has now returned to civilian life, and that while awaiting a replacement  
for Col. Harris, Dr. R.L. Fox, at this Headquarters, will be responsible  
for the handling of correspondence and information reaching this Head-  
quarters from those whom Col. Harris has contacted.

9 Memo was written to Commanding General, this Headquarters, signed  
by Dr. Fox, subject, "Phosgene Oxime (CK)", attaching a brief resume  
of information requested on synthesis, stability, toxicity and other  
properties of phosgene oxime and on its ability to break the M1 canister.

13 Dr. Harris attended the meeting of the Committee on the Chemistry  
of G Agents and reported that Summary Technical Report No. 1 would be  
published shortly. This report concerned the Schoenemann Reaction.

13 Lt. Hamilton visited Bio Labs, Camp Detrick, to attend a staff  
conference in the field of meteorological research division on the  
current studies of the meteorology projects at Bio Labs.

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\* 11

Dr. Bern Vonnegut of the Arthur D. Little Co., Dr. H.J. aufen Kempe, SCEL, and Capt. J. Dean, QCSigO, visited this office to discuss charged aerosol clouds.

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13

Dr. Cramer of CRL was contacted by Dr. Harris concerning a rewrite of the MIOAL Analyzer Kit Instructions. The instructions for the original MIO Kit are in a Field Lab Memo which has been revised in part for the older G agent test. Engineering Agency has requested a complete revision. Inasmuch as there is a contract in effect for revision of the Kit itself, it was agreed that at the present time a second supplement would be prepared to the Field Lab Memo for the interim period and that a complete new set of operating directions would be prepared concurrent with the development of the improved Kit.

13

Dr. Harris conferred with Mr. Sinclitico and Mr. Lobenstein of Engineering Agency on the disposition of the Mobile Laboratory. Engineering Agency has suggested several minor changes to the Laboratory and indicated that it was ready for User Service Tests by the Chemical Corps Board. Dr. Harris proposed that the Chief's Office be asked to concur in standardization of the Laboratory without such test. It was agreed that the letter stating the Engineering Agency position would be returned to Engineering Agency for consideration of this suggestion.

13

Letter was written to Chief Chemical Officer, subject, "Occupational Hazard at Site A", in which attention was called to complaints made by workers at the plant, consisting of visual disturbances.

14

A distribution list for the new series of reports entitled, "Chemical Corps R&E Command Summary Technical Reports" was drawn up and given informally to Mr. Ormerod of P&E Office.

15

Letters of commendation were written to Dr. Benjamin Witten and Dr. Richard G. Horton, Thru: Med Labs, wherein it was stated that at the last meeting of the Advisory Committee on New CW Agents the committee agreed unanimously that Drs. Witten and Horton should be commended for the manner in which they collected the data on "quick-acting persistent agents."

15

Drs. Fox and Harris discussed informally with Col. Allen the pros and cons of the various philosophies of test requirements for Chemical Corps items, indicating that the TCW Division differed from the previous position of the Proving Ground Division in that the TCW Division believed that fewer tests should be run and that the emphasis should be on obtaining the answers to the problems with a minimum number of tests prior to standardization with storage and munitions expenditures tests being delayed until standardization was accomplished.

16

A letter was prepared requesting CRL to complete a second supplement to the Field Lab Memo on the MIO Chemical Agent Analyzer Kit to bring it up-to-date with the present MIOAL Kit.

16

A draft of the organization manual for CCRPA was reviewed by this office and forwarded to the Comptroller's Office without comment.

16

Dr. Harris attended a meeting in the Office of the Deputy for BW with Major Robert W. Edwards of Camp Detrick, 2nd Lt. Max R. Orlow, Camp Detrick, Dr. A.E. Purcell of AMC, Major Lee of Camp Detrick, Capt. Emery of WADC, and Lt. Col. Rhett Harris of Headquarters. The meeting concerned the interest of the Air Force in BW Surveillance Laboratory, Trailer Mounted. Dr. Harris stated that we could supply a unit with the modifications they would like without any greater delay than getting one of our own type. They would want to remove the RW section from our present Laboratory and put in autoclaves and incubators, to replace the chemical hood with a Blickman hood and that they would need storage space for 1500 Petrie dishes. The Air Force personnel were escorted to CRL to talk to Mr. Treglia, Project Officer on the development of the E-4 Laboratory, and were conducted through the laboratory on a tour of inspection.

16-18

Lt. Hamilton visited Ft. Monmouth on liaison duty within SCEL and during this period contact was made with CO, Signal Corps Aviation Center; and the Chemical Corps requirements of meteorological equipment and personnel support for research and development were discussed.

17

All supervisory and military personnel of the TCW Division attended a meeting in the Conference Room on the new security regulations as set forth in AR 380-5-1.

20

1st Ind. was sent to Engineering Agency, subject, "CWS Field Lab. Memo. 1-2-25, Color Test Methods for the Detection and Identification of C.W. Agents", stating that it was not deemed advisable to rewrite subject memo, and requesting that Eng Agency prepare a second supplement to subject memo.

21

Letter was written to the Federal Civilian Defense Administration, Attn: Col. J.H. Defandorf, inclosing Summary of Surveillance Studies on Hypovials (Abbott).

21

Dr. Harris attended the Plants Division Orientation Meeting at CRL.

21

Lt. Col. Martin, Eng. Div., indicated to this office that the Bio-Physics Laboratory is now out of the MCA Program. He proposed that \$180M could be supplied from R & U funds and asked if this was enough to build a laboratory which would be useful. He was asked to investigate the possibilities of a reclama and to investigate what \$180M would do in the construction of a laboratory. He was informed that the need for the laboratory is as strong as when the request was first made and, in addition, the work of the Bio-Physics group had expanded upon direct request from the Ordnance and the Field Forces. Col. Martin was further asked to check rumors that Chemical Corps people were dissatisfied with the conduct of the work by Mathieson Chemical Company on the investigation of the salt process, particularly with regard to the off-gas handling problem. He stated that he believed that his people think that Mathieson is doing a good job, but may not be investigating the off-gas problem as it is not written into the scope. He will check this problem with a view to having the off-gas handling matter worked on either at Mathieson or at CRL.

- 21 Dr. Josephson of the Office of the Chief called concerning the water solutions of CN for use in training. He was referred to Edgewood Proving Ground Report No. 57 and stated he would check with PT&I to see if they were satisfied with this report as answering their questions.
- 22 Dr. Harris wrote a Memo to the Commanding General suggesting that a small library be set up in RECOM Headquarters for the purpose of keeping on file necessary technical documents to which the staff has recurrent need for reference. This was subsequently denied.
- 23 Dr. Harris attended the Eng. Div. Orientation at CRL.
- 23 1st Ind. was sent to Chief Chemical Officer, subject, "Revision of SR 70-30-1" (basic dated 20 July 1953), concurring in draft.
- 23 Dr. Harris discussed with Dr. Benjamin Witten on the Detector Research. He was informed that a research project already exists - 4-08-06-015, and that it was within the purvue of Col. Delmore to decide which division in CRL would conduct research under this. At the present time this project is assigned to Protective Division. Dr. Witten proposed that a Detector Committee, similar to the New Agents Committee, be set up to direct effort in this field. He thinks this should be initiated on higher than CRL level, and that he would not take the initiative to start it.
- 24 Letter was prepared for signature of Deputy for TCW which was sent to the Chief Chemical Officer, requesting that steps be taken to review the conflicting guidance in the field of detection and to set up a consolidated list of requirements for detectors and alarms. It was learned subsequently that this review of requirements for detection had been given to the Chemical Corps Board for execution.
- 24 Dr. Harris discussed with Mr. Merle Ringenberg the funding situation on the CW Agents pilot plants project for 4-92-03-012. This project is presently funded for \$663M in the category of operating funds and \$250M are needed in order that anything can be done on the HTM Process at CRL.
- 27 Dr. Harris conferred with Mr. Kitchen and Mr. Cochran of Engineering Agency. They reported that Capt. Cooney stated the Corps of Engineers would turn Site A over to the Chemical Corps as of 1 September 1953. It was believed that joint responsibility would be vested in MATCOM and RECOM. The discussion included the problems at Site A. It was concluded that air is needed for the explosion which occurred and a nitrogen blanket has been proposed in case of vacuum failure if the decanter is placed under vacuum. A liquid seal will be placed on the pump. There are no problems involved in Step 2 but Step 3 has shown a toxic hazard. It is proposed to remove the walls from the building in order to ventilate the equipment more adequately and to install forced ventilation in the pits and possibly to repipe the safety valves to stack. It is thought that  $\text{POCl}_3$  leaks from packing may be the source of the hazard. Lt. Taylor of Engineering Agency is going to Site A at the moment to look at the

steam supply and see if it is adequate to handle the jets which Engineering Agency proposes to recommend to replace the vacuum pump in Step 1. Mr. Kitchen reported that the Merck contract for unit plant design for TGH manufacture was signed 30 June. The laboratory has been set up, plans are in shape, and work has started.

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28 Dr. Harris attended a meeting in Dr. Katz's office, CRL, concerning the contract with Battelle Memorial Institute on the stabilization of HD. These people have come up with a discovery that DMHP acts as a very good stabilizer, better than the previously standard stabilizers for mustard. It is proposed to extend this contract if funds become available.

29 On 4 Feb 1953, by letter, the USAF (WADC) requested a study be made of the feasibility of developing a GB Warhead for the 5-Inch HVAR rocket. This study was prepared by CRL and on 29 July 1953, was forwarded to WADC by letter. On the basis of the study made, this Headquarters recommended that a GB warhead be developed for the 2.75" or the 8 cm rocket; that chemical warheads be designed to produce optimum effect on ground impact that near misses rather than by direct hit on target; and stated that work on the 2.75" or 8 cm rocket head would begin upon advice from WADC.

30 Dr. Harris participated in a "conference call" with WADC and Edwards Air Force Base at Muroc, California, on the E101 Test. See Memorandum for the Deputy for Toxic CW on this subject.

30 Comment 2 dated 30 July 1953, was sent to Chief, Eng. Div., signed by Dr. R.L. Fox, subject, "Development Procedure," giving suggested changes to Cml C RECOM Regulation 200-, "Technical Operations - Development Committee."

31 Lt. Hamilton prepared a directive for the Commanding General, this Headquarters, assigning primary responsibility for meteorological research and development in the Chemical Corps to Dugway Proving Ground. Letters were sent to Bio Labs and Dugway Proving Ground, assigning primary responsibility for meteorology.

31 Dr. Harris called Mr. Hood of the Washington Office, regarding the leaking E101 cluster detection problem. Information on this problem is not firm. Work is being conducted at CRL and a surveillance directive is being written by Engineering Agency.

31 Dr. Fox, Lt. Col. Bacon, and Dr. Harris attended the 52nd Meeting of the New Agents Committee.

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Month of August

3 Dr. Fox wrote a Memo to Commanding General, this Headquarters, subject, "Dr. Stevenson's Report of Discovery at A.D. Little, Inc," which refers to a contract the Signal Corps has with A.D. Little. Under this contract an electrostatic technique for tracing aerosols was developed. Suggestion was made that Dr. Vonnegut, who did the work under Signal Corps contract, be invited to come to Army Chemical Center since there are a number of people interested in his discovery.

5 Drs. Robinson and Fox met with Col. Elton, Lt. Col. Limoncelli of Med Labs and Mr. Jones of MATCOM, to discuss the contract with Dr. Holmes of the University of Colorado. RECOM, through Med Labs, has had the only contract with Dr. Holmes, although Dr. Holmes and his group have been contributing materially to the medical program at Rocky Mountain Arsenal, while obtaining information of value to this Command as to the effects of the nerve gases. It was agreed and confirmed by Mr. Jones in conversations with someone at MATCOM, that the contract would be a joint one - \$10,000 being contributed by Med Labs and the balance up to \$25,000 or \$30,000 by Rocky Mountain Arsenal. This was later vetoed by Lt. Col. Steidtmann with rather sharp remarks to Dr. Fox that RECOM was trying to get MATCOM to pay for its research. Lt. Col. Steidtmann probably did not understand all of the aspects of the problem nor the conditions and tasks which were to be paid for jointly. Under the contract, medical personnel would be available to Rocky Mountain Arsenal to examine its employees from the standpoint of blood acetylcholinesterase, psychological effects, and other physiological effects as well as to render medical assistance in event of any accidents. Of course, observations made thereby will be of value to the research program on the effects of these compounds. That is the reason Med Labs felt that it is worth spending \$10,000 to assist in the program. The final results have been that Med Labs have proceeded to let a separate contract from that of MATCOM. Lt. Col. Willmann at a later date assured Dr. Fox that all of the tasks recommended by Med Labs as being the responsibility of MATCOM, which should be contracted for with Dr. Holmes has been contained in a letter of instructions from MATCOM to the Commanding Officer, Rocky Mountain Arsenal, and that the contract would be let.

Drs. Fox and Robinson then attended a Med Labs conference on decontamination of nerve gas on the skin and protection therefrom. The claims of Dr. Cohen of Holland for his decontaminant, consisting of magnesium oxide and calcium oxychloride, were not substantiated by experiments at Med Labs. Indeed, water seemed to be the best decontaminant for GB.

Mr. Hood, OCCm10, telephoned to ask opinion as to the value of mustard for land mines for contaminating bridges, and such things. Physical properties and physiological properties of mustard were very briefly reviewed. The effectiveness and the limitations of mustard for such purposes are well known. It was suggested that it was not the prerogative of R&E Command to establish requirements for this material, its munition, or its use.

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Lt. Kurc and Mr. Reichenback of Wright Field met with personnel of R&E Command, Hq, and CRL, to discuss plans for determining whether or not HD would freeze in spray tanks, E26 or M10, when mounted on the M84 G aircraft flying operationally. Arrangements were made for detailed planning with personnel of Dugway Proving Ground which would provide filling facilities, agent decontamination, personnel equipment, and a safe spray area. No ground evaluation of results is required.

5 Dr. Fox wrote Comment 2 to Chief, P&E Office, subject, "Intelligence Reports," suggesting that the draft of RECOM Regulation #50 be completely rewritten, and offering certain suggestions.

6 Dr. Harris attended a conference at Engineering Agency, under the chairmanship of Mr. Hardenberg, on the Surveillance Criteria for the E101 cluster. The problem was discussed, pro and con, and it was agreed that a test would be arranged with an E17 alarm and an M9A2 Kit to see if GB could be detected in the tail section of the cluster when a known amount was placed in the nose section of the cluster. The surveillance criteria agreed upon as a result of the conference will be written up in report form and circulated by Mr. Hardenberg, who will appreciate comments thereon. Based upon these comments, he will draw up a surveillance criteria to send to Cml C Materiel Command. These will remain tentative for one year and will then be published as an SR.

6 The meeting with the Air Force personnel continued with a review of Chemical Corps' activities with regard to the development of a spray tank. The Air Force were rather critical of our activities. It was agreed that the design study under the contract with the Rheem Co. should continue and plans would be made for the evaluation of the spray tank resulting. It was urged that a program for orderly development of the spray tank should be developed and presented for further discussion. Problems relating to the E101 cluster were also discussed. The advantages and disadvantages of use of M78 and M79 type bombs for GB was also debated.

Col. Elton and Dr. Dill, Lt. Col. Limoncelli, and Maj. Wheeler discussed the proposed reprogramming of 1954 funds with Col. Sullivan and Dr. Fox. Naturally, they protested to having funds taken away from Med Labs program. It was explained that the decision that the Med Labs program should be cut by approximately \$200M in favor of increasing the funds for end item work was ~~not~~ a directive issued by a higher echelon - not this Command.

7 Col. Allen and Dr. Fox discussed the SOP's for test to be conducted by Dugway Proving Ground, and CRL, on the winter test program.

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Transfer of responsibility and funds for the Stanford contract and the Parsons contract in the field of meteorology was discussed with Mr. Keyser. It was understood at that time that these contracts should be shifted to Dugway Proving Ground together with the primary responsibility previously transferred. As of 23 October this still had not been accomplished, primarily due to uncertainties concerning the change in status of responsibility for direction of the BW program.

10

Dr. Fox and Maj. Wheeler reviewed Med Labs project outlines. Preparation of similar outlines for FY 55 and 56 were discussed with Lt. Col. Furman and Mr. DeRoy.

Mr. Shaw, Engineering Agency, recommended that production of the E101R3 clusters at Rocky Mountain Arsenal be stopped pending changes in design, based upon corrections indicated at trials at Sandia Air Base. Mr. Wiseman and Dr. Fox concurred in this recommendation which was communicated to Lt. Col. Steidtmann of MATCOM.

Information was received that Mathieson Chemical Company were recommending that CRL take over the pilot plant work on Step IV of the salt process. This has been accepted by CRL who will continue with the studies.

11

Dr. Harris called Dr. W.B. Rankin of FSAFDA, Division Field Operations, concerning the classification of kits for food and water testing. He was informed that the classification of the kits is Restricted but of the chemistry is Secret.

11

Drs. Fox and Harris attended the 53rd Meeting of the Advisory Committee on New CW Agents.\*(See additional information at bottom of this page.)

11

One of many discussions with Lt. Col. Furman and Dr. Robinson occurred on the subject of the restrictions imposed by the Secretary of Defense on the use of human volunteers for experimental work by this Corps. Arrangements were made by Lt. Col. Furman for Med Labs and Bio Labs to forward to the Chief Chemical Officer applications for permission to use human volunteers in certain limited experiments, and in accordance with the restrictions placed by the Secretary of Defense.

All interested concurred in a letter inviting Dr. Loyd Harris to serve as a consultant to this Corps during the latter part of August and the first weeks of September, to continue his activities and assist on problems on soliciting information on toxic materials discovered in nongovernmental research laboratories.

\* Dr. Wills summarized opinions on work to date and Dr. Horton presented information concerning mixtures of other materials and G agents. There are a number of compounds that increase the percutaneous toxicity up to 15-fold, when mixed with equal proportions with GB. None of these mixtures are as good as GF. It was agreed that that work should continue. Dr. Witten reviewed the progress under the contract with Shell Development Corp.

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Because of the fine cooperation given by Mrs. Whedon and Capt. Dean of Office of the Chief Signal Officer, and of representatives of the Signal Corps Experimental Laboratories, a meeting was held with Dr. aufm Kampe of those Laboratories and Dr. Vonnegut of Arthur D. Little Co. who has a contract with the Signal Corps Laboratories. Under this contract, Arthur D. Little is investigating methods of clearing fog using electrically charged aerosols. The research is very interesting. Reports will be given to this Corps. No immediate applications of the research to Chemical Corps problems were apparent as of this time.

9-19

Dr. Robinson visited, with Col. Elton, Med Labs, Dugway Proving Ground Rocky Mountain Arsenal, University of Utah Medical School and University of Colorado Medical School. Both of these institutions have contracts with Cml C Medical Laboratories, and in each place the contractor was visited and his problems in relation to the contract were discussed. At Dugway Proving Ground and Rocky Mountain Arsenal the medical officers assigned to these installations from Med Labs were visited and their problems discussed. Visits were also made to the medical facilities at both these posts.

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Col. Donald D. Bodé was assigned as Deputy, Toxic CW Div.

A conference was called by Mr. M.J. Wiseman to review the early drop tests of the E101R3 Cluster being conducted by the Air Force at Edwards AFB, Cal. Preliminary reports indicated unsatisfactory functioning of the munition; hence, the conference was called to discuss the type of malfunction encountered and to decide on a course of action to remedy the difficulties. It was felt that (1) the E8 Cartridge might contain more explosive than was required to expel the bundle from the cluster and that such overcharge might damage the rear bank of bombs; and (2) the possibility of improper assembly also was considered. It was decided that there would be declustering of production clusters and examination of component bombs; two inert clusters would be assembled at A Cml C and dropped; also two production clusters of the same type as those dropped at Edwards would be dropped at A Cml C, and that two inert clusters would be assembled by CRL for dropping at Muroc.

13

Discussions with Mr. Huss, Col. Tegnell, Mr. Calder, Lt. Col. Lawhon, and Dr. Fox were held on the meteorological program. Arrangements were made for reprogramming to provide additional funds for extension of the Parsons contract - not an extension, but to augment funds that had been depleted, to permit the contract to run its scheduled length of time. In later conversations it was agreed that this contract should be terminated about 1 November, at a cost of an additional \$100M instead of the \$240M which would have been required to continue the work through the winter 1953-54.

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17 Conference was called at the request of the USAF to review the status of all components of the 750-lb. Cluster of GB Bombs and outline the proposed approach to complete the end item. It was decided that work should proceed as rapidly as possible on the dual approach to obtain a 750-lb. GB Cluster; both approaches should be far enough along by February 1954 that they can be evaluated in order to select the single accepted munition; and another meeting will be called in December 1953 to again review the problem.

17 Dr. Harris attended the Plants Division Meeting at CRL.

18 Mr. Huss and Dr. Fox recommended there be no construction of a new meteorological building at Bio Labs. Instead, funds should be transferred for a similar building at Dugway Proving Ground.

Mr. Jarman, CRL, recommended that all information on CK be declassified, with the possible exception of estimated toxicity to humans. Dr. Fox concurred and suggested a letter be forwarded by Mr. Jarman through channels with this suggestion.

Lt. Col. Lane, PT&I Div., telephoned to Dr. Fox to discuss a letter from this Headquarters in which it was suggested that the requirements and military characteristics for detection devices be reviewed, possibly by the Chemical Corps Board. It was understood from this conversation that this would be done.

Information was obtained by Dr. Harris that the design of the unit plant for the production of GB by the salt process, being carried out by Mathieson Chemical Co., would be completed by June 1954, that the pilot plant study of the oxidation process in connection with HTM would be completed by June 1954, and that a unit plant design for it could be completed by June 1955. The chlorination work in connection with the HTM process should be completed through plant design by June 1955.

General Creasy asked Dr. Fox to arrange for a Dr. Tarsey of Titanium Metals Corp., to obtain any information we have on the poisoning of titanium by phosgene during the preparation of metallic titanium. This was discussed with Col. Bode, Lt. Col. Martin, Mr. Morgan, this Hq., and Mr. Jarman, CRL.

With the assistance of Mr. Garono, Mr. Kitchen, Col. Martin, Dr. Harris, a letter was prepared in reply to the recommendation of Ad Hoc Advisory Committee on GB Process Production Studies.

Col. Delmore protested the request to assist in the preparation of the 1955 and 1956 project program. However, he finally agreed to submit outlines for projects of the Chemical Division and Protective Division, CRL, pertaining to agents and detection, for the 1955 program.

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18 Mr. Briod called from OCCm10 and asked for suggestions which might be used in solving a sewage problem, at some unidentified town.

The properties of Chemical Corps smokes were reviewed.

19 Dr. Harris attended the meeting of Eng. Div., CRL.

Mr. Treglia, CRL, met with Col. Bodé to answer some of his questions regarding recommendations for standardization of the Mobile Laboratory.

Mr. Banks, CIA, visited this Headquarters and CRL. It was arranged by General Creasy for Mr. Banks to talk with personnel of this Headquarters and CRL, based upon his Top Secret clearance and an established need-to-know. Mr. Banks stated that CIA had prepared a review on organo-phosphorus compounds and would like to have assistance in discussing any changes that might be necessary. He also stated that they had prepared a paper on anti-cholinesterase materials which would be ready by the middle of September for presentation at the Tripartite Conference if that was desired. He asked for information as to the interests of this Command in new agents. Mr. Banks offered to translate documents that appeared to be of assistance to this Command. He also reported that the CIA had prepared a summary paper of Russian work on aerosols. Mr. Banks was given information as to the types of compounds which this Corps is studying as candidate chemical warfare agents.

20 Preparation of a letter was initiated requesting guidance as to whether or not persistent agents required by the Chemical Corps should have a vapor pressure sufficient to constitute a hazard by inhalation or have practically no vapor pressure to give maximum persistence with effectiveness limited to skin contact with the liquid or solid agent.

A reply to a letter from Col. Stubbs directing that the emphasis be maintained on shellfish poison was discussed with Col. Moree by Dr. Fox. Both concur in the wisdom of the directive.

Mr. Wiseman briefed personnel of this office on the conference of 17 August (mentioned above) where the advantages and disadvantages of a 750-lb. bomb containing GB were outlined.

Mr. Newton, Department of Agriculture Liaison Officer, to Bio Labs, visited this Headquarters and recommended a Dr. DeMere, who he said was not completely satisfied with the prospects of working for a contractor and not as a civil servant. Arrangements were made for him to visit Army Chemical Center. At the suggestion of General Bullene, Dr. DeMere was ultimately transferred to Med Labs.

Based upon the advice of Mr. Wiseman and Lt. Col. Martin, clearance was given to the continuance of two patent applications as described by Chairmen of the appointed committees.

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21 The classification of a patent item as reviewed by Dr. Magram, Chairman of the committee, was discussed with him and Mr. Andrews.

Mr. Huss and Dr. Fox reviewed funds for meteorology and shellfish poison research at Bio Labs.

The development of a land mine was discussed by Dr. Fox with Mr. Wiseman.

Dr. Love, Protective Div., CRL, stated that the prototype of an automatic alarm, E25, being developed by Leeds & Northrup should be delivered to Army Chemical Center by 1 November.

24 General Creasy, Dr. Birnbaum, and Dr. Fox were at Dugway Proving Ground during the week of 24 August to meet with Dr. Kharasch of the University of Chicago and some young organic chemists, assistant professors at various universities, to plan a program to supplement current work on search for new toxic chemical warfare agents.

24 Letter was prepared for General Creasy's signature, to Dr. Earl Stevenson, President, Arthur D. Little Inc., thanking him for permitting Dr. Vonnegut to visit Army Chemical Center on 11 August. Letter was also written to Chief Signal Officer, Thru: Chief Signal Officer, indlesing Report of Conference with Dr. Vonnegut.

26 Dr. Harris attended the Protective Div. Orientation Meeting at CRL.

31 Planning was initiated for justification of funds to supplement the research and development funds of this Command by 12 million dollars. This occupied most of 31 August and 1 and 2 September.

Month of September

3 Reply was made by Col. Bode and Mr. Wiseman to a letter from General Bullene, directing development of munitions to improve the nonpersistent character of munitions for dispersing GB.

Mr. Kelly of the Parsons Co. telephoned to say that Mr. Levitt and Mr. Hawlings wished to be employed by the Chemical Corps. He was advised that letters of application should be sent to this Headquarters.

Col. Johnson, President of the Chemical Corps Board, telephoned and asked that Dr. King be invited to attend discussions on agents at the Tripartite Conference. Dr. Kinney of Wright Field similarly telephoned an invitation to the Tripartite meeting. He was told that Maj. Penn, USAF Hq., had told Dr. Fox that he would be the only Air Force representative at that meeting.

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3 Dr. Loyd Harris and Dr. Fox cooperated with Dr. Birnbaum in getting information on the solicitation of information from industry on the subject of new chemical warfare agents.

6 Letters were forwarded to the Bureau of Medicine and Surgery, Department of the Navy; Chief Chemical Officer, Chief of Engineers, the Director of Research and Development, the Aeromedical and Human Resources Division of the Air Force, inviting them to a conference on Tolerance Limits of CW Agents in Water and the Components Required in a Kit for Detection of CW Agents in Water. This conference was set up as a result of a letter from the Canadian Technical Representative, requesting that consideration be given to revising the limits so that Canadian, British, and U.S. requirements would be the same.

8 Col. Bode held a meeting of the members of the TCW Div., requesting that a chart be kept up-to-date showing tasks and funds. Attendance at Tripartite Conference was reviewed. Military characteristics on automatic gas alarms required by the Navy, Air Force, and Army Field Forces were discussed. These M/C's were forwarded to CRL for comment and return to the Chief Chemical Officer for consideration in the review under way on military characteristics of detection devices.

Dr. Loyd Harris prepared many letters to the companies he had visited, asking permission to release from the Commercial Secret status suggestions that had been made by those companies.

General Creasy asked that Wyandotte Chemical Company be invited to send representatives to this Headquarters on 24 and 25 September, if they so desired.

9 A letter was received from Lt. Col. Miller, the representative for CW in the Military Attaché Office in the U.K., that 12 samples of the British Vapor Detector Kit were en route to R&E Command for evaluation prior to the Tripartite Conference. These kits did not arrive until after the Tripartite Conference and were forwarded to CRL for evaluation.

Representatives of Eng. Div. and TCW Div. conferred on problems relating to E101 cluster and E54 bomb.

Clearance was given to the comments and recommendations on patent item, after discussing this item with Col. Martin of Eng Div., Hq.

Mr. Cort, OCCm10, telephoned to Dr. Fox and discussed the simplified detector kit being developed for the Navy.

Dr. Josephson, OCCm10, gave information on the status of the attempt to pay the Fish and Wildlife Service for assistance given during FY 1953.

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9 Maj. White, USAF, on duty in the Bio Div., this Hq, protested the Air Force requirements for reporting on Cross-Servicing Orders. He thinks that they are too detailed but Mr. Wiseman and Dr. Fox think the Air Force is justified in asking for the information as they have done.

A letter was prepared to Col. Hulsey, CO of the Cml C Research Procurement Agency, concerning the classification of contracts in which human volunteers are used.

9 Col. Bode and Dr. Harris conferred at the Chemical Corps Board with Col. Johnson and Col. McKaig, advising them of the intention of RECOM to request the Chief's Office to approve standardization of the E4 Mobile Chemical Laboratory without Board tests. It appeared in the course of the discussion that the Board wishes to use this item as a springboard to evaluate the concepts of use of the Mobile Laboratory which are objected to by them. They did not raise the question as to whether the E4 met the approved military characteristics.

9 A 3rd Indorsement was forwarded to the Chief Chemical Officer stating comments of this Command on the Air Force request for information on the time and funds required to develop a BW surveillance laboratory, starting with the accumulated experience acquired during the development of the E4 Mobile Chemical Laboratory. They were informed that the course of action will require 18 months and \$75,000.00, of which approximately 10 months and \$50,000.00 would be required for the procurement of the E4 Lab.

10 Dr. Fox discussed with Dr. Dill the speech given by Dr. LaBelle of Med Labs as reported by the Chemical Engineering News, and other publications. It appeared that Dr. LaBelle had been misquoted and arrangements were made for the correction of the published reports.

11 Col. Sullivan was given information for use at the next Development Committee conference by Col. Bode, Mr. Wiseman, Drs. Harris and Fox. Current program FY 54 was reviewed based upon \$31 million budget. Medical Laboratories achievements:

- (1) Time vs dosage.
- (2) Enhancement of GB by various additives.

(3) The combined ~~use~~ of atropine and artificial respiration were emphasized. The ~~importance~~ of respiratory support and guidance

The problem of persistency vs nonpersistency and guidance needed in this area was also brought up.

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11 Arrangements were made for Dr. Loyd Harris and Dr. Fox to meet with Dr. Johnson, Westvaco Chemical Co., in New York City, on Friday, 25 September.

11 Col. Elton recommended that Dr. Craig be permitted to spend seven months in England at Porton, starting approximately 1 January 1954. A letter was prepared for General Creasy's signature to Mr. Childs of England. The letter was held and discussed with Mr. Childs prior to sending it.

Col. Elton was asked to withdraw his trip report to Rocky Mountain Arsenal, due to:

a. The fact that he now recommends there be two contracts with University of Colorado instead of one, and

b. That information he had received on the number of leakers among E-54 bomb had misled him.

There was a discussion with Dr. Harris on speech for General Creasy for the opening of the Tripartite conference. This portion of the speech pertains to toxic chemical warfare agents.

Dr. Birnbaum and Col. Bond were given information pertaining to attendance by non-Chemical Corps personnel to the Agents meeting of the Tripartite conference.

Dr. Dill requested extension of one week for submission of programs for 1955-56. This extension was granted by Mr. Bishop and Mr. DeRoy, P&E Office.

Discussion with Capt. Coutts, Comptroller's Office, clarified reported non-obligation of 1953 funds for the toxic aerosol program to pay for Fish and Wildlife Service assistance. This obligation had been attempted toward the end of the year but restrictions placed by the Secretary of Defense prevented it.

Data on achievements by Med Labs given to Col. Sullivan were obtained from Dr. Silver.

Col. Allen described a trip to Dugway Proving Ground and stated that VT fuzes vs nonpersistence problem was being expedited. He also stated that he was going to visit Wright Field. It was suggested that Mr. Wiseman accompany him. In this connection it was planned that General Franklin from Eglin Field would be visiting General Creasy on the 15th. It was also learned that there is to be a meeting in Washington, OCCm10, on Cross-Servicing Orders from the Air Force. These three items seem to conflict somewhat. It would be desirable for Mr. Wiseman to attend all three. The former was selected.

Mr. Morgan stated that he approved the project briefs prepared by Plants Div., CRL, for FY 54.

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- 11 In May 1953, the USAF (WADC) requested this Headquarters to prepare a study on proposed development of a 750-lb. Toxic Bomb. On 11 Sep 53, the study on this subject, prepared by CRL, was transmitted to WADC, pointing out to them that this was a laboratory study only and did not present requirements of the entire program.
- 11 A letter was prepared for the signature of the Commanding General proposing to the Chief's Office that the E4 Laboratory be standardized without Board tests. This was presented to General Creasy, who requested that the conference with the Board of 9 September be written up as a Memo for Record and coordinated with the Board and then appended to the proposed letter.
- 11 Action was taken on the problem of standardization of the E17 alarm. A basic letter from this Headquarters had requested the Chief's Office to render a decision on the standardization of the E17 alarm in view of the eminence of development of the E25. This was routed through the Chemical Corps Board who recommended that the E17 not be standardized, that desired units be bought only as items of special equipment and that development be continued, and suggested guidance for the development of future alarms. The 2nd Indorsement (Office of the Chief Chemical Officer) approves Board recommendations and requested our comments on letter from the AFFAF and Navy who commented on the development of gas alarms. The reply from this Headquarters gave comments on the user's letters. By separate action the comments of the users were sent to CRL as guidance and Eng. Agency was informed of the proposed action on the E17 and instructed to take the necessary steps to keep the drawings and specifications in reserve against a potential request that they be procured as items of special equipment.
- 14 Dr. Fox attended a meeting to plan for the Tripartite Conference.
- General Creasy discussed with Col. Bode and Dr. Fox the problem of the massive vs. the cluster bombs for GB. General Creasy asked that a letter be sent to the Chief Chemical Officer, Attn: Col. Bacon, asking ORG study this problem. This was done.
- 15 Dr. Harris attended a conference at Med Labs to discuss the military characteristics and requirements for kits for use in testing of water contaminated with CW agents.
- 15 CRL was informed by letter to initiate work on the reactivated Project 4-08-05-003, Mechanical Irritant Gas Dispenser, in accordance with CCTC Items 2698 and 2717. This project was reactivated upon receipt of a requirement from the Military Police Corps for an irritant gas dispenser for use in quelling civil disturbances.

Lt. Col. Andino, from AFF Board No. 3, discussed with Dr. Fox his - Col. Andino's - ideas that a set of detector papers should be developed which would detect classes of toxic CW agents. Col. Andino was told that this is a good idea that has been considered in CRL since 1945, at least, and that means were now at hand which indicated it might be possible to develop such a set of papers. This work is continuing.

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Dr. Josephson telephoned to Dr. Fox and Dr. Robinson, saying he had a letter from G-4 which wanted to know how much money should be put upon the mechanism of action studies on insecticides and rodenticides and asked whether the Chemical Corps was interested in continuing to have the responsibility for studies of that type. Memo was sent to Dr. Josephson, stating that a total of \$125M was required for this subject, and after receiving such funds this Command would be glad to continue these studies in this field.

Dr. Macy telephoned to Dr. Fox to say that at the meeting of the American Chemical Society a former student of Dr. Kharasch - a Dr. Bengalesdorf-reported on compounds of the organo phosphorus type containing vinyl group which he claimed to have prepared.

15

A letter was forwarded from this Headquarters with respect to the feasibility of the M3 pulse jet generator as a means for dispersing GB.

Mr. Yarger and Mr. Lindstrom and Col. Blen of the Corps of Engineers visited the Office of the Deputy for TCW and requested cooperation in testing Corps of Engineers new equipment for purifying water. This Headquarters concurred in cooperation and suggested that a letter be sent from the Corps of Engineers to the Chief Chemical Officer requesting such assistance.

Dr. Fox conferred with Maj. Mills of the Technical Escort Detachment to determine whether or not that Detachment could transmit samples of toxic agents to be used in testing the equipment at AP Hill and whether or not a man could be supplied to be made Decontamination Officer during those experiments. Maj. Mills very kindly offered to cooperate and suggested a letter be sent to Materiel Command requesting the cooperation of Technical Escort Detachment.

Mr. Bank<sup>s</sup>, CIA, called and asked permission for Dr. Francis Perry to attend the Tripartite Conference on Agents with Mr. Banks. Dr. Fox agreed. Apparently, permission was refused by G-2 of the Army, for neither of them attended the meeting. Mr. Banks offered to get any additional information we might want from some French person visiting this country who was concerned in the preparation of certain carbamates. Drs. Macy and Summerson said they had all the information they needed on this subject; that personnel of this Command had been in touch with that person.

Mr. Benjamin, CRL, visited TCW Division to discuss a field trial of a mustard mixture, which trial had been directed by General Bullene. There was some possibility that primary responsibility for this trial should be transferred to Med Labs since the use of human volunteers assessing the effectiveness of mixture had been requested by General Bullene. However, because most testing facilities and equipment are under the control of Test Division, CRL, primary responsibility was left with Mr. Benjamin as had been indicated in letter from this Headquarters to CO, CRL.

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Dr. Summerson had been invited to be consultant to the National Institute of Health. This Headquarters concurred in his serving in that capacity but his services should be limited to not more than one day per month. He was also advised that he could only draw one salary from the government and receive not more than his expenses for his consultive services.

Drs. Harris and Fox attended a "dry run" by Dr. Ringenberg, in which he presented the material which he intended to outline to the Tripartite Conference meeting on Agents.

Col. Elton and Dr. Fox discussed a letter which had been transmitted to this Headquarters asking for information on first aid for GB poisoning. Maj. Watts of PT&I had spent a whole day at Med Labs and it was thought that he had been completely informed on the subject. His visit seemed to have been a waste of time, for this Command was asked to repeat all the information and in writing. This was done, and Col. Elton's letter was reviewed with Dr. Columbine from England. Some changes were suggested by Dr. Columbine.

Dr. Hales from the University of Utah visited this Headquarters. He is a consultant to Dugway Proving Ground on meteorology and had been employed full-time at Dugway Proving Ground during the summer. He is a very capable person of the caliber of Mr. Calder.

Staff responsibility for research and development on meteorology was recommended by Col. Bode for transfer from TCW Division to the Proving Ground Division.

16

Comment No. 2 was submitted to P&E Office, written by Col. Bode, subject, "Review of Draft of FM 3-9" inclosing detailed comments.

17

Col. Bode and Dr. Fox attended a meeting of the Development Committee in the OCCmIO. During this meeting General Bullene asked for information on progress of research to develop better methods of treatment of nerve gas poisoning. Dr. Robinson coordinated the preparation of a report on this subject. Col. Elton's letter on first aid in the event of GB poisoning was discussed with personnel of PT&I Div. by Col. Bode and Dr. Fox.

Col. Bode and Dr. Fox attended a meeting in the afternoon at which Col. Willmann presented the plans for Site A and Site B.

17

Memorandum written by Dr. Fox was sent to Commanding Officer, Rocky Mountain Arsenal, Denver, Colorado, subject: Compatibility of GB with WP or CG, - stating that no tests have been run on subject mixtures per se, and giving certain conclusions which can be drawn from properties of these agents.

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23 Col. Bodé and Dr. Harris visited the Chemical Corps Board to discuss with Col. Johnson and Mr. Schaeffer the problems involved in Board tests and standardization of the E4 Laboratory. The previous proposed letter had not been sent to the Chief Chemical Officer in view of the fact that it was believed possible that the Board would change their position. However, they reiterate the previous position that approximately one year would be required for the Board tests. Col. Johnson initialed the draft of the conference report of 9 September.

23 Dr. Harris attended the dry run of the Protective portion of the Tripartite meeting at CRL.

25 Dr. Josephson, OCCm10, called to inform this office that transfer of funds for Fish and Wild Life Service could be accomplished without approval of Staff due to a change in regulations.

Mr. Hilsenrod of Proving Ground Division and Dr. Harris conferred on the test requirements for the E7 Gas Identification Set, Detonation. He was informed that the position of the Toxic CW Division was that the Board would be supplied with as many kits as they needed to conduct User Service Tests, and that if there were any left over, these could be used by the Proving Ground Div. for surveillance test program.

Dr. Fox attended a meeting in New York City, at New York University, where the Committee, appointed by the Assistant Secretary of Defense for Research and Development, under the Chairmanship of Dr. Houghton, MIT. Dr. Horowitz of New York University was the other principal delegate. These men reviewed the meteorological research and development program in the Army, Navy, and Air Force. Dr. Fox summarized this Corps' efforts in meteorology. Dr. Houghton privately suggested to Dr. Fox that either this Corps should spend more time on basic and theoretical studies on meteorology pertinent to its Chemical Corps problems or should request the Air Force, which has a very competent staff at Cambridge Field Station and which has been doing a similar type of studies to take on this program for us. Dr. Fox stated that, based upon statements by Lt. Col. Stone, Dugway Proving Ground, that substantial effort would be placed on this type of meteorological research - an effort totalling about 30% of Dugway's meteorological program.

28 A request was received from CRL for an additional \$25M for administration of the UOP contract. They were given approval to spend this money from present funds and informed that the additional augmentation of \$150,000.00 requested in the \$3,000,000.00 reprogramming of unexpended FY 53 funds would cover this expenditure.

28 Col. Bodé held a meeting of the staff of Toxic CW Division. He stated that General Bullene had advised this Command that no more research and development would be conducted at this time on a large rocket called the "Area" Rocket. Likewise, no efforts would be placed by this Command on the use of balloons to transmit toxic materials to enemy targets.

28. TCW Div. was informed that trouble was being experienced at Rocky Mountain Arsenal in that the E17 Alarm does not work. CRL personnel are being held in readiness to proceed at once to Rocky Mountain Arsenal at the go-ahead signal from Engineering Agency. Dr. Harris conferred with Mr. Garono of Engineering Agency, who then called CRL to ask that Mr. Smith of Protective Division be sent to Rocky Mountain Arsenal. Mr. Garono stated that Engineering Agency had predicted this trouble. Rocky Mt. Arsenal leak tester was in bad shape, being set at only 1/30th theoretical accuracy but they filled bombs without regard to this fact. These bombs were put in boxes to be clustered subsequently. It was estimated that 1-2% of the bombs had body leakers and something more than 2% were overall leakers. These are now being clustered and Rocky Mountain is experiencing casualties among these personnel. Mr. Garono stated further that the whole instrument maintenance program at Rocky Mountain Arsenal is in poor shape due to lack of personnel. Mr. Garono agreed to call Col. Willmann, MATCOM, at once and clear the way for Mr. Smith and Eng. Agency electronics personnel to proceed to Rocky Mountain on 29 September.

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28. In the morning the first meeting of the Eighth Tripartite Conference was held. This was attended by Col. Bodé and Dr. Fox.

In the afternoon the Tripartite Committee on Agents met under the chairmanship of Dr. Fox. Dr. Harris was in attendance. Drs. Macy, Summerson, and Mr. Ringenberg were assistant Chairmen representing research on the chemistry of new agents, on bio-chemistry, and on production, respectively. Outstanding was Dr. Perrin's (U.K) announcement that a new series of compounds, e.g., T2274, T2290, etc., appeared to have as high toxicity percutaneously as they have by injection. This increases the percutaneous toxicity approximately 100 times over any other compounds which have been examined so far. These are preliminary results. Samples of these compounds will be sent to this country by Dr. Perrin. Indeed, T2274 arrived on 23 October. This will be studied from many aspects. Compounds of a similar type will be prepared in this country for additional work, and confirmation of the British report. This announcement confirmed the opinion of others that work on the organo-phosphorus compounds must continue. This is especially true in view of General Bullene's statement that it is desired to have persistent G agent that can be disseminated in persistent form for contamination of terrain, materiel, etc. It is estimated that a drop of Compound T2290, 2 mm<sup>3</sup>, will kill a man. The compounds have practically no vapor pressure limiting their usefulness to contamination of terrain, materiel, or use as aerosols for inhalation or contamination of personnel. The compounds are not detected by the Schoenemann type reaction. Hence, new methods of detection must be developed, although the LOPAIR method possibly will work satisfactorily if and when developed. Canada agreed to accept prime responsibility for research on blue-green algae. The British were lukewarm toward the report by the United States on psychochemical agents. They still wish to be shown. Canada will continue to study N containing compounds. Dr. Perrin urged the U.S. to continue work on mixtures of other substances of the G agents. Dr. Macy, in describing the work of the U.S., mentioned perfluoroisobutylene, a compound which may be very toxic; impure material was about three times as toxic as phosgene.

Another highlight of the Agents Tripartite conference was the discussion by Sir Rudolph Peters and Dr. Rubens, who urged basic research on enzyme systems within the body in hopes to find a system which could be inactivated by very small quantities of the chemical compound which might be tailored to penetrate easily to that site. Dr. Summerson agreed with this concept. He also recommended that all countries should study the energetics of the reaction of organo-phosphorus compounds with the enzyme systems within the body. It was pointed out that if a means could be found for getting the G agents to the site of their lethal action the quantities required to kill a man would be reduced by 1,000-fold.

At the Agents Tripartite meeting it was learned that Mr. Topley, a representative of Albright-Wilson, the firm in the United Kingdom, who are designing a plant for GB, based on the ASP process, was in this country. Arrangements were made by Dr. Ferrin for two people from Westvaco Co. - Chemical Corps contractor - and personnel of CRL to meet Mr. Topley at Niagara Falls. Mr. Topley did not have with him the detailed information desired, but promised to give it to CRL personnel or contractor personnel if they could meet him at the offices of his company in England. This information is believed to be of sufficient importance to justify the expense of the trip, which was promptly arranged. It was rather surprising to us that Canada, who has stated they have no stated requirement for G agents, is planning to build a pilot plant in Ottawa to work further on the APC process for making GB. Drs. Ferrin and Arnell expressed surprise at the lack of concern of people at this Command, with the danger from accident on explosion at the Bldg. 87 plant. This was mentioned to Mr. Feasell, Safety Officer.

In the course of the Agents Tripartite meeting, the Air Force requirements were stated by Major Penn. They require a nonpersistent agent for which 10,000 lbs. of agent-weapon combination will cover one square mile area with an LCT<sup>50</sup> in 30 seconds, regardless of protection. They require a persistent agent for which 5,000 lbs. of a weapon-agent combination will cover one square mile with a casualty-producing dose for exposure of one-half hour regardless of protection - such contamination to last for six hours.

This Tripartite Conference on Agents continued through the morning of 29 September.

In the afternoon of 29 September Dr. Fox attended a meeting of the Committee on Medical Aspects of Chemical Warfare.

29

This Headquarters requested CCTC to take necessary action to cancel Cml C Project 4-04-15-025, 76-mm AT Gas Shell, in accordance with 1st Ind from OCCmlO, subj: "Shell, Chemical, 76-mm, T295 (Ord Proj TA1-1302; Cml C Project 4-04-15-025," dated 15 September 1953, such cancellation having been directed by ACofS, G-4.

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Dr. Harris attended a conference in Col. Delmore's office with Col. Delmore, Dr. Green, Mr. Schwanke, and Mr. Ringenberg on the funding program for CW Agent Pilot Plants Project 4-92-03-012. They were informed that the \$150,000.00 augmentation for this project would include \$10M needed for standby of salt apparatus at Mathieson and \$25M extension of the UOP contract for administration and any work required on GF. The \$65M proposed approval for catalytic process for Step 2 DMHP will be funded separately, if possible.

Dr. Fox concurred in the report to the Chief Chemical Officer on the recommendations of the Advisory Council.

Dr. Fox attended the Tripartite conference on Detection.

*Robert L. Fox*

ROBERT L. FOX  
Civ Asst Deputy for TCW

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