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SECURITY CLASSIFICATION (If any)

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FILE NO.	SUBJECT
CMLRE-CWD	Quarterly Historical Report

TO	FROM	DATE	COMMENT NO. 1
Ch/P&E Office RECOM	Actg Asst/TCW RECOM	12 July 1955 21114/abc	

Attached is the Quarterly Historical Report of Major Events and Problems in the Toxic CW Division for the period 1 April 1955 thru 30 June 1955.

Robert L. Fox

ROBERT L. FOX
Actg Asst for TCW

1 Incl
Historical Report
w/3 incls (dup)

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QUARTERLY HISTORICAL REPORT OF MAJOR EVENTS AND PROBLEMS

TOXIC CW DIVISION

1 April 1955 thru 30 June 1955

I. Administration

A. thru D. - None

II. Fiscal

To be reported by Comptroller

III. Personnel

A. Changes in key personnel:

1. Special Order No. 21, dtd 2 May 55, assigned Major Jacob I Miller, 01036299, CmlC USAR, to the TCW Division for short tour of Active Duty for Training in compliance with Letter Order #4-40-0, Hqs. Md. Mil. Dist., effective 19 Apr 55.

2. Mrs. Margaret Reagan, GS-3, assigned to TCW Division on 25 Apr 55.

3. Special Order No. 25, dtd 16 May 55, assigned 1st Lt. George L. Campbell, Jr., 0987095, CmlC-USAR, to the TCW Division for short tour of Active Duty for Training in compliance with Letter Order #4-80-0, Hqs. Md. Mil. Dist., effective 28 Apr 55.

4. Special Order No. 23, dtd 10 May 55, assigned 2d Lt. Norman W. Todd, 01873822, MOS 2167, to CmlC Munitions Branch, TCW Division.

5. Special Order No. 108, dtd 23 May 55, relieves Lt. Col. Rex E. Selk, 0389173 CmlC, as Chief, Agents Branch, TCW Division RECOM, and reassigns him to CmlC Medical Laboratories, effective 27 May 55.

6. Mrs. Margaret Williamson, GS-3, terminated 31 May 55.

7. Special Order No. 33, dtd 29 Jun 55, relieved Colonel Wilmer G. Wilson, 0224770, CmlC, as Chief, Munitions Branch, TCW Division, and appointed him as Assistant to the Chief, TCW Division.

8. Special Order No. 33, dtd 29 Jun 55, appointed Dr. Ray Treichler Chief, Agents Branch, TCW Division.

9. Special Order No. 33, dtd 29 Jun 55, appointed Mr. William J. Wiseman, Jr. Chief, Munitions Branch, TCW Divisi[redacted]

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III. Personnel (continued) UNCLASSIFIED CONFIDENTIAL

B. Personnel strength

1. Total military personnel:

Actual		Authorized
		Asst for TCW Office
1 Colonel	(MOS 2025)	1 Colonel
1 Lt.	(MOS 2167)	
1 Lt.	(MOS 7318)	
1 Lt.	(MOS 2167)	Toxic CW Division
1 Pvt.	(MOS 1393)	1 Colonel
		1 Lt. Colonel
		2 Majors

2. Total civilian personnel:

Actual		Authorized	
Asst for TCW Office		Asst for TCW Office	
1 GS-15	(A)	1	(A)
1 GS-5	(D)	1	(D)
Toxic CW Division		Toxic CW Division	
3 GS-14	(A)	3	(A)
1 GS-13	(B)	1	(B)
1 GS-5	(D)	4	(D)
2 GS-4	(D)		
1 GS-3	(D)		

IV. Plans (See attached reports)

V. Operations (See attached reports)

VI. General (See attached reports)

W. G. Wilson

W. G. WILSON
Col. CmlC
Asst. to the Chief
Toxic CW Division

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3 Incls
1. Qtrly Rpt Agents Br (dup)
2. Qtrly Rpt Detection Br (dup)
3. Qtrly Rpt Munitions Br (dup)
(1 extra to be ret. to CWD-2)

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[redacted]

[redacted]

HEADQUARTERS
CML C RESEARCH & ENGINEERING COMMAND
TCW Division
Agents Branch

[redacted]

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Historical Report Covering Period 1 April - 30 June 1955

V. Operations

A. Toxicological Aspects of CW - Project 4-08-02-016

Two tasks, worked out in consultation with Med Labs, were submitted to Proving Ground Division relative to a proposed program for Second Chemical Weapons Battalion at DPG for FY 56. One task concerned the assessment of performance of a nonvolatile agent (1500 simulant) employed in a persistent role. The second task concerned the assessing of performance of a volatile and nonvolatile agent disseminated as a spray in surprise attack on troops in convoy. Task No. 1 will be undertaken to obtain data not obtained under a joint CRL-Med Labs Test Directive (CRL-3-54). Studies will include transfer of agent from vegetation and terrain to individuals moving through a contaminated area.

TCW Division concurred in Med Labs justification for a new Toxicological Research Building and amplified it with a few comments in support that this be placed in the Military Construction Program. This was in the form of Comment No. 2 on or about 22 April to Engineering Division.

During the absence of Mr. Krackow, Dr. Dill appointed Dr. Summerson as Acting Chief of Toxicology Division. This move was very desirable since it prevented any personnel disturbance within Toxicology Division. Dr. Summerson did a very good job and profited by the experience since it gave him an insight into the operations and difficulties of another division. Mr. Krackow returned from his visit to Porton, CDEE, about 10 June and has resumed his duties.

A new subproject on Physicochemical Mechanism of Toxicity under Project 4-08-02-016, Toxicological Aspects of CW, was submitted to and approved by the Chemical Corps Technical Committee at the subcommittee meeting held on 14 June 1955.

Canadian UWO-12 (EA1675), 6 - fluorohexylamine, has been tested in Med Labs on rats, guinea pigs and rabbits. It is showing good percutaneous toxicity - .3 mgm/kgm on rabbits to about .5 mgm/kgm on rats and guinea pigs. Tests have shown considerable vesicant activity on rabbits. Toxic symptoms observed are of a convulsive nature and appear to somewhat resemble fluoracetate poisoning in rats. CRL and Med Labs are continuing to investigate the compound and will look further into its penetrating and percutaneous activity alone and with other compounds, and nature of its toxic action. The data are not particularly exciting but are believed worthy of further looking into.

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B. Biochemical Aspects of CW - Project 4-08-02-017

Letter was received on 15 April 1955 from OCCml0 inclosing copies of correspondence between Dr. Frolick and Dr. Major, Merck & Co., giving information as to the availability of serum cholinesterase from Merck. After discussions with personnel at Med Labs, the correspondence was forwarded to them for direct reply to Merck with information copies for this office and OCCml0. Med Labs are interested in finding out what quantity and purity of product may be available.

Med Labs have prepared an outline of the areas by task. They will study on the detection and decontamination of 1500 series compounds in food and water. The various points of study were coordinated with C&RL on 15 April 1955 at a meeting of the Committee on Chemistry of G Agents. Studies will include (1) reactions of 1500 series with no molecular compounds, (2) chemistry of poisoning with 1500 series compounds, (3) water studies on 1500 series compounds including reactions in water, toxicity in water, detection and estimation in water, and decontamination in water, (4) food studies on 1500 series compounds including persistence in food, toxicity by ingestion and penetration through food packaging barriers, and (5) pharmaceutical studies on 1500 series compounds including personnel decontamination. The pharmaceutical studies on decontamination and protection will cover reaction with chlorinating agents in mixed solvents; distribution between water and organic solvents; adsorption; and reaction between peroxides and 1500 series solvents.

Proving Ground Division received Dugway Combinted Test Report of Item A7, Kit, Ointment, Protective, M5A1 - Desert, Cycle 10; of sixty (60) kits inspected seventeen (1&) were found defective. Defects most prevalent were leaky and corroded ointment tubes and leaky atropine tartrate syrettes. Storage data in desert under paulins for twenty-nine (29) months was forwarded to Engineering Agency.

Dr. Dill was advised verbally on the desirability of initiating studies on the mechanism of action on puffer fish toxin and SS. He was told that some of both should be available in the near future and that Dr. Witten would be agreeable to providing material for biochemical studies. Arrangements have been made whereby Dr. Witten will furnish Dr. Summerson sufficient puffer fish toxin for biochemical studies on mechanism of action. A program has been prepared and work will start as soon as the material has been received.

Request was received from Naval Unit, A Cml C, dated 21 June 1955, relative to shipment of one Field Determination Kit for Cholinesterase to Bureau of Medicine & Surgery. This request was returned to Naval Unit without action and will be resubmitted at a later date when testing and military characteristics have been completed.

C. Medical Aspects of CW - Project 4-08-02-018

A draft of TM 8-285 "Treatment of CW Casualties" was reviewed by Med Labs. Recommended changes were forwarded to OCCml0 for transmittal to The Surgeon General. Telephone call was received from OCCml0 on 20 April requesting information on whether the self aid procedure for decontamination of liquid agents in the eye had been considered since the TM 8-285 draft did not reflect December 1954 Med Labs recommendations, namely; to "immediately flush the eyes with water and then, and only if they pain, to apply BAL." OCCml0 was advised that Med Labs had reversed their stand, taken December 1954, and are in agreement with the method as outlined in final draft of TM 8-285. Med Labs forwarded a letter to this Headquarters advising of their change. A 1st Ind dated 13 May was forwarded to OCCml0 concurring in Med Labs position on the procedure of decontamination of the eyes.

D. Physiological Basis of CW - Project 4-08-02-019

A new subproject, 4-08-02-019-04, "Physiological Reactions of Laboratory Animals" was submitted to and approved by the Chemical Corps Technical Committee. Included under this subproject are subtasks on urgent problems, such as V agents. Dr. Wilber has shown a great deal of flexibility and cooperativeness in working on problems with Toxicology Division and Medical Division. This new subproject was set up at the request of Medical Laboratories. FY 56 funds will be reprogrammed to this subproject in August 1955.

E. Health Hazards of Military Chemicals - Project 4-61-14-002

Work is progressing satisfactorily on all tasks for other services being carried out under this project. It is believed that each of the other services will consolidate their fundings. Under this scheme, The Surgeon Generals of the Navy, Army and Air Force will each fund for their respective services.

F. Toxic Chemical Warfare Agents - Project 4-08-03-016

The following compounds have been forwarded to CCTC to be "read for record" as having been selected as Candidate CW Agents:

GF cyclohexyl methylphosphonofluoridate

EA 1508 O, O-Diethyl S-2-diethylaminoethyl phosphorothioate

EA 1511 3-pyridyl 3,3,5-trimethylcyclohexyl methylphosphonate

EA 1517 O-ethyl S-(2-diethylaminoethyl) ethylphosphonothioate

EA 1664 O-ethyl S-(2-diethylaminoethyl) methylphosphonothioate

The symbol V has been assigned to the group of agents typified by 1508, 1511, 1517 and 1664. 1508 - VG 1517 - VE 1511 - VP 1664 - VM

Action has been initiated to downgrade the toxic principle of mussel poisoning (SS) from Secret to Confidential on 15 April 1955. The toxic principle has been determined to fall in the category of suggested compound rather than that of a candidate agent.

As of 10 June 1955 College of Medical Evangelists have completed purification of a quantity of puffer fish toxin and have obtained 400 mg of crystalline material which was sent to Shell Development for use in structural studies. An additional $\frac{1}{3}$ gram quantity is expected to be completed in about two weeks. This will be forwarded to Cml & Rad Labs for use in technical studies as well as providing a sample to Med Labs for mechanism of action studies.

On 14 July 25 grams of EA1517 was turned over to the British Liaison Officer for shipment, through British channels.

The following subprojects were approved by the CCTC.

4-08-03-016-04	V-Agents (U)
4-08-03-016-05	Psychochemical Agents (C) Short Title - MM1605 (U)
4-04-15-029-03	Toxic and Nontoxic CW Aerosols (C)

An SOP on Safety Precautions in the Handling of V-Agents and Care and Treatment of Individuals exposed to V-Agents is being prepared by Med Labs in cooperation with Safety Office. Appropriate security classification will be given to the document and any attachments covering laboratory handling and use.

During the week of 17 June 1955, Dr. Witten and Dr. Summerson spent a day in the Insecticide Division, USDA, Beltsville, Maryland to obtain information on sulfur containing organphosphates related to compounds under intensive investigation in C&RL. The visit was of considerable value in providing C&RL with synthesis and analytical procedures developed and used for this type of compound at Beltsville.

01 - A call was received from OCCml0 advising that they had received word from FECOM that a quantity of puffer fish material was ready for shipment via MATS to Travis Air Force Base, FECOM requested arrangements be made to pick up and transport material without delay upon its arrival at Travis Air Force Base to College of Medical Evangelists. Telephone call from Dr. Witten to Dr. Halstead relative to pickup arrangements disclosed that storage facilities available at College of Medical Evangelists for frozen material were filled. A reefer being supplied Dr. Halstead by QMC has not arrived but is expected daily. Dr. Halstead requested delay in shipment of puffer fish material until facilities for storage are available. Isolation work on puffer fish material is being pushed at maximum rate possible without unduly disturbing the overall program.

G. Classification Action

Letter dated 13 June 1955 was forwarded to CCTC for action at the Subcommittee Meeting on 14 June. It was recommended that action be taken to reclassify GA from "Limited Standard" to "Obsolete Type". It was further recommended that all stocks of GA be destroyed with the exception of fifty (50) tons which are to be preserved in one (1) ton containers for training and research and development purposes.

H. Standard Agents

Colonel Sullivan, OCCml0, on 26 May 1955 requested advise on the estimated cost of a program designed to come up with a workable plan, including procedures and design, for disposal of lewisite. It is contemplated that disposal procedure will permit recovery of arsenic as sodium arsenite or equivalent arsenical. Engineering Agency has submitted a series of chemical procedures (reactions) relative to disposal of lewisite (Ref. 470.6 Lewisite, WRC54-14970). Mr. Morgan, Engineering Division, prepared letter for Col. Hale's signature on or about 2 June 1955.

I. Industrial Liaison

A letter of understanding for use in contacts between Industrial Liaison personnel and industry groups has been prepared by Lt. Mills and signed by General Burns. It outlines the Chemical Corps position with respect to the use of protection afforded to Commercial Discreet information and compounds furnished by industry for our evaluation. Lt. Mills has prepared a revision of RECOM Reg. 135-1, dated 9 August 1954; with revision dated 1 June 1955; "Industrial Liaison for New Agents". This was coordinated with Med Labs and C&RL. Comments and suggestions received from both agencies have been reviewed and incorporated, when deemed advisable, in the revision.

Med Labs has prepared a Med Lab Memo covering the obtaining of therapeutic drugs and related compounds by Med Labs personnel. A draft was reviewed by Lt. Mills and Dr. Treichler at Med Labs. Suggested changes and amendments were incorporated at Med Labs and a final draft submitted to RECOM for concurrence. It was reviewed by RECOM and returned to Med Labs with recommended minor changes.

The Industrial Liaison Personnel are requesting that several Commercial Discreet compounds be given a partial release in order that they may be discussed at the next Tripartite meeting. The compounds per se are of no interest to the Chemical Corps but of interest is the structural relationships in a study being made of the effects of different electronegative groups on toxicity. A few of these releases have been received as of 30 June 1955.

Lt. Mills spent the first two weeks of May on TDY. He visited Ohio State University and conferred with Dr. Loyd Harris on the Industrial Liaison program. He also visited a number of universities to renew contact and solicit new compounds.

A review of Industrial Liaison master files has been completed and two lists have been prepared for use in planning further visits. The lists are composed of the names of companies which have donated compounds with the number of compounds submitted, along with the date of the last visit, (List 1) and companies which have not contributed any information with the dates of their last visit (List 2).

J. Human Volunteers

Advice from Second Army on 8 April 1955 indicated that recruiting program for military volunteers was progressing satisfactorily with every indication that there would be 200 or more prospective candidates. Arrangements were made between Second Army and Medical Labs for a Med Labs orientation and final selection team to visit Second Army Hqs to explain the program and sign up volunteers selected. Although considerable difficulty was experienced in obtaining volunteers due to the impact of summer training requirements, the monthly quota of 20 per month has been met. The first group of volunteers from Ft. Meade arrived on 2 May 1955. The second group on 13 June, 10 volunteers from Ft. Meade and 10 from Columbus General Depot.

It is anticipated that with the close of the summer training activities the overall volunteer supply will improve. In the meantime 2nd Army Headquarters are canvassing Class I & II installations to recruit volunteers.

K. Contract with University of Chicago (Kharasch)

Dr. Harry Blecker visited the post from 2 to 6 May 1955. Dr. Blecker, working with Dr. P. A. S. Smith at the University of Michigan, reviewed classified documents and met with personnel from Med Labs and C&RL. Notes taken by Dr. Blecker will be submitted to Dr. Smith and then in turn to Dr. Kharasch.

Dr. Sidney Weinhouse, Lankenau Res. Hosp. Inst., visited the A Cml C on 17 June, in connection with the Kharasch Program. Dr. Weinhouse is the chief investigator on a subcontract under this program. During his visit here, he conferred with Dr. Summerson. The Cml C Research Program was reviewed and discussed in detail with particular reference to those aspects which pertain to biochemical interests. Dr. Weinhouse was made aware of a number of problem areas and given a briefing to furnish him prospective. He became acquainted with information sources and the means of obtaining information and assistance which will be of value to him in choosing a research problem.

L. Visits and Conferences

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Prof. Ljundgren, Drs. Tammelon and Aberg, Swedish Nationals, visited the Army Chemical Center on 18 - 20 April 1955. A series of conferences were held with Med Labs personnel on topics for which clearance had previously been obtained. On Wednesday, 0800 to 1000 hours, a visit was made to Protective Division, C&RL, at which time cloud travel and protective devices were discussed. It was found that there was not sufficient time to cover topics as they should be covered during the discussions. In view of the foregoing plans were made for the Swedish Nationals to return to the A Cml C on 4 and 5 May. A list of topics for discussion was prepared prior to their departure on 20 April and were taken up again when they returned on 4 May. Discussion was continued with Mr. Hormats, Protective Division, C&RL, and it was indicated that they had a very satisfactory visit and were quite impressed with the canisterless gas mask.

Dr. S. Sherwood, British National, consultant to CDEE, Porton, visited A Cml C on or about 24 June 1955. Dr. Sherwood discussed his consultant work in Porton on studies involving introduction of CW agents into the blood stream of the heart.

On 21 April a conference was held at C&RL under the chairmanship of Mr. Epstein, Med Labs, on protection, detection and decontamination of food and water. Other members of the committee representing the National Research Council were Dr. Newton, Swift & Co; Dr. Baldwin, General Foods; Dr. Dack, University of Chicago; and Dr. Andrews, General Mills. The NRC Committee were looking into the problem of toxicity levels permissible in human food and water for the G agents and any new agents which appear promising. They were also concerned with methods for detection and decontamination of food and water.

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