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DEPARTMENT OF DEFENSE
 THE RESEARCH AND DEVELOPMENT BOARD
 COMMITTEE ON MEDICAL SCIENCES
 AND
 COMMITTEE ON ATOMIC ENERGY
 Washington 25, D.C.

File:

JOINT PANEL ON MEDICAL ASPECTS OF ATOMIC WARFARE

Minutes of Second Meeting
 Held on 7 October 1949
 Naval Radiological Defense Laboratory
 San Francisco, California

OSD1.940706.008

MEMBERS AND DEPUTIES PRESENT:

- Dr. Joseph C. Hub, Chairman
- Dr. Robley L. Evans
- Dr. Franklin C. Mclean
- Dr. Robert K. Newell
- Dr. Hymer L. Friedell
- Colonel Elbert DeCoursey, MC, USA
- Lt. Colonel Frank L. Bauer, MC, USA
- Captain H. H. Draeger, MC, USN
- Dr. Sidney Galler, ONR
- Lt. Colonel H. H. Blount, USAF (LC)
- Lt. Colonel J. M. Talbot, USAF (LC)

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ASSOCIATE MEMBERS:

- Dr. John Z. Bowers, AEC
- Dr. D. B. Dill, Army Chemical Center
- Mr. Allen M. Pond, USPHS
- Major Wm. J. Brown, MC, USA, Logistics Br., GSUSA

SECRETARIAT:

- Dr. James E. McCormack
- Dr. Joseph M. Pisani
- Cmdr. Joseph P. Pollard, MC, USN
- Major James B. Nuttall, USAF (LC)

OTHERS:

- Dr. Joseph F. Sadusk, Jr., Consultant
- Dr. Bernard Tannor, Planning Div., RDB
- Cmdr. J. J. Fee, USN
- Dr. W. H. Sullivan, NRDL
- Dr. Paul C. Tompkins, NRDL

See Breakdown file for BAN 8/1

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The Panel convened at 1330, 7 October 1949. Lt. Colonel Frank L. Bauer was welcomed by the Chairman as a new member of the Panel.

The Minutes of the First Meeting were approved.

1. Review of 1950 R&D Program on Medical Aspects of Atomic Warfare.

The Panel devoted the entire day of October 6 and the morning of October 7 to a review of the program and facilities of the Biological Branch of the Naval Radiological Defense Laboratory. The staff of the Biological Branch, NRDL, presented a summary of current investigations in each of the major areas of radiobiological investigation. A brochure of the presentations (Appendix A) was distributed to members.

During the closed meeting of the Panel, it was realized that time would not permit complete review of all remaining service programs as previously scheduled. After discussion,

The Panel:

- A. Deferred completion of the presentation of the Army, Navy and Air Force research programs under primary Panel cognizance until the next meeting.
- B. Endorsed the program of the Biology Branch of the Naval Radiological Defense Laboratory by unanimously passing the following motions:
 - (1) This Panel is pleased with the general program of the Biology Branch of the NRDL as outlined and explained in the accompanying exhibits (Appendix A, SRM 8/1, to members only).

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- (2) This Panel has gained the impression that the research program of this branch is being planned in relation to the practical necessities of atomic warfare, as well as those which are predictable.
- (3) This Panel believes this Branch a logical agency for the expansion of some researches and for undertaking some foreseeable new ones. Therefore, an increase in financial support is advisable.
- (4) This Panel believes that the work of the Naval Radiological Defense Laboratory at Hunters Point will continue to be essential for a number of years, and that it should be housed as soon as may be in quarters more permanent and with increased facilities.

2. Experimentation Involving Human Volunteers.

Dr. Franklin C. McLean, Chairman of a working group appointed to investigate the problem of human experimentation, presented a report of the NLRPA Medical Advisory Committee on the Radiation Tolerance of Military Personnel concerning the use of human beings as experimental subjects.

Mr. Noble D. Evans, member of the working group, presented a protocol of suggested studies on human beings which has also been approved by the NLRPA Committee.

It was noted that the NLRPA Committee, in reaching its conclusions, had spent hours of deliberation, both on content and wording

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of the recommendations. The Panel in reviewing the recommendations took cognizance of the fact that sociological and political implications in human experimentations exist and must be resolved satisfactorily. The Panel further noted that the information sought was critical from a biological point of view. The following reference was cited in relation to the ethics governing human volunteers: "Ethics Governing the Service of Prisoners as Subjects in medical Experiments", page 457, JAMA 136, 1948. After discussion,

The Panel:

- a. Endorsed the report and Recommendations adopted by the NEPA Medical Advisory Committee in regard to human experimentation (Appendix B, BAH 9/1).
- b. Endorsed the protocol of Suggested Studies on Human Beings, presented by the NEPA Medical Advisory Committee, as described by Dr. Evans (Appendix C, BAH 10/1).
- c. Resolved that the matter of human experimentation, in order to find precisely the effects of dosage up to 150r, is so important that it should be given high priority.

3. RDB Calendar, 1950 (RDB 114/6).

The Panel:

Noted RDB 114/6.

4. Other Business.

- a. Discussion of BAH 7/1 was deferred.

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- B. Report of Dr. Evans on activities of the Radiological Instrumentation Panel, AFSMP, (Dr. Failla, Chairman) was deferred until the next meeting.
- C. Captain Draeger presented a review of the Joint AEC-Department of Defense Bio-Medical Program for the next atomic test. (Reference: Log No. 34579).

The program as presented was given consideration in relationship to the over-all requirements and objectives of the research programs under primary cognizance of the panel. It was noted that no provision in existing or planned budgets has been made for fiscal support of the program. The AEC will be able to obtain funds for its portion of the program from a General Research Fund. Some Department of Defense funds will be made available by the AFSMP; however, a deficiency of approximately \$400,000 will remain. It was noted that some possibility exists of obtaining funds by a reallocation of funds among technical objectives which will be necessitated by expected changes in strategic guidance concepts. Such reallocation could be effected at Board level during the semi-annual obligations review. It was noted that the secretariat would explore the possibilities for the obtaining of funds for the program.

Discussion of certain technical aspects of the program, with particular reference to the calculated radiation

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delivery rate during the tests led to a consideration of the possibilities of obtaining all essential information under controlled laboratory conditions. The advantages and unique possibilities of the test program were considered. The disadvantages of the test programs, including the lack of budgeted funds were also considered. Compromise curtailment of portions of the program in view of certain technical and budgetary factors were considered. After discussion,

The Panel:

- (1) Unanimously endorsed in principle the Joint-AEC-Department of Defense Bio-Medical Program for the next atomic bomb test, as presented by Captain Traeger (cf reference above).

D. The problem of literature review in the scientific field of interest of the Panel was discussed. It was noted that a program of literature review, classification, abstracting and cataloging is underway at the NMLL. It was also noted that among other agencies, NEPA has also instituted a technical information program. In view of these considerations,

The Panel:

- (1) appointed a working group to investigate the existing facilities for reviewing the literature of primary interest to the Panel and making it

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more readily available to interested scientific groups; the working group to consist of the following members:

- Colonel Libert DeCoursey, Chairman
- Dr. Sidney Galler
- Dr. John Z. Sowers

E. The possibility of obtaining valuable data during the relief of catastrophes, such as explosions and major conflagrations was discussed. After discussion,

The Panel:

appointed a working group to explore the possibility of the utilization of catastrophes to study problems of mass handling and treatment of casualties through the medium of a small airborne "ready" unit duly constituted to satisfy the necessary requirements; the working group to consist of the following members:

- Lt. Colonel Frank L. Bauer, Chairman
- Mr. Allen W. Pond

F. The next Panel meeting will be held at the Argonne National Laboratory, Chicago, Illinois, on 15 and 16 December 1949.

James E. McCord
JAMES E. MCCORD, M.D.
Executive Director
Committee on Medical Sciences

- Appendices: (A) B.M. 8/1 (Limited distribution Panel members only).
(B) B.M. 9/1
(C) B.M. 10/1

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REPORT AND RECOMMENDATIONS
adopted by NEPA Advisory
Committee, April 3, 1949

BAW 9/1

The use of human beings as experimental subjects has been countenanced in the past when information was needed that could not be obtained in any other way.

The NEPA Medical Advisory Committee on the Radiation Tolerance of Military personnel is attempting to establish what will happen to humans when necessarily exposed at infrequent times to amounts of radiation that are high relative to the dose set up as the maximum permissible daily (or weekly) dose for workers constantly working where radiation exposure is possible.

A review of animal experiments has shown that not only do animals of various species differ in their response to given amounts of radiation, but also that animals of different strains within a given species differ.

It is therefore impossible to predict with sufficient accuracy what will happen to humans.

The exposure of some sick humans to radiation to the total body with therapy as the objective has provided some indication of how sick people respond; but such therapeutic trials have shown also that the response varies greatly with the clinical condition of the patient.

A few accidental exposures, and the mass exposures at Hiroshima and Nagasaki, have provided some information as to how relatively healthy people respond; but the conditions of those exposures are not sufficiently well known.

The information desired is sufficiently important that we believe the use of humans is justified.

It is essential that any such experimentation be carried on in accordance with the principles laid down by the Judicial Council of the A.M.A. in 1946 as follows:

1. The voluntary consent of the person on whom the experiment is to be performed must be obtained.
2. The danger of each experiment must have been previously investigated by animal experimentation.
3. The experiment must be performed under proper medical protection and management.

In view of the above, we the members of NEPA Medical Advisory Committee on the Radiation Tolerance of Military Personnel, hereby recommend that human experimentation be carried out, and advise NEPA to request the Armed Services to arrange for it; and further recommend that the experiments be unclassified.
(Item 2, 10th agenda, C-5 and appendix B, Minutes, 2nd Meeting Bal.)

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Protocol of Experiments
Approved by
NEPA Medical Advisory Committee

BAW 10/1

SUGGESTED STUDIES ON HUMAN BEINGS

1. SINGLE EXPOSURES

- a. 25r
- b. 50r
- c. 75r
- d. 100r
- e. 150r maximum

2. REPEATED EXPOSURES

- a. 25r repeated one after 1 week
- b. 25r repeated after 24 hours
- c. 25r daily for 4 days
- d. 25r weekly for 4 weeks
- e. 50r repeated after 1 week
- f. 50r repeated after 24 hours
- g. Other

3. OBSERVATIONS TO BE MADE

- a. General symptoms: fatigue, nausea, vomiting, euphoria, and blood pressure.
- b. Performance tests, recommended by committee.
- c. blood studies: Comp. Counts, including platelets. Lobation studies, Granules, Coagulation time, and Other.
- d. Bone marrow, including a correlation of these with blood picture.
- e. Sperm counts.
- f. Effects of any anti-radiation drugs.
- g. Eye Fluorescence.
- h. Other.

4. PERIOD OF OBSERVATION

- a. Minimum of 1 year
- b. Aim - lifetime

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[Handwritten signatures and dates]

5. POSSIBLE RADIATIONS DANGER

- a. Genetic: Any amount of radiation causes some genetic effects. 50r probably induces no more genetic changes than occur normally, i.e., double effect.

Appendix C
Minutes, 2nd Mtg. BAW

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Ba. 10/1 continued

- 150r probably induces slightly more genetic changes than occur normally.
- b. Life span shortening: with dose up to 150r, the shortening of the life span will not be detectable.
- c. Blood changes: Acute effects. Below 50r probably not detectable. 50r, 100r - slight, but transient. 150r - slightly more prolonged. Persistent or late effects - 150r or less, probably none. Induction of Leukemia: The chance of induction of leukemia is so small that this danger is negligible.

6. SUBJECTS OF EXPERIMENT (all volunteers)

- a. Prisoners serving life (or 20 year) sentences.
- b. Patients with incurable diseases, but with expectation of several months of freedom from constitutional symptoms.
- c. Scientists who are willing to volunteer for specific doses.
- d. Control groups/each series.

7. AGE AND SEX OF VOLUNTEERS

- a. Individuals below 21 excluded.
- b. Woman below the menopause excluded (except those with incurable cancer).
- c. Men above 21 and women beyond the menopause may have any of the above doses.

8. TYPES OF RADIATION

anything above 1 mm cu filter would be satisfactory. 1000 k v x-rays or x-rays from cobalt. Neutrons-pile exposure preferred.

9. ESTIMATED COST

- a. Full time M.D. at \$12,000 per annum.
- b. Consultant Radiologist at \$6,000 per annum.
- c. Consultant Hematologist
- d. X-ray technician at \$3,000 per annum.
- e. 4 Lab. technicians at \$2,000 per annum.
- f. Work physiologist
- g. 2 lab technicians at \$6,000 total per annum.
- h. Secretary at \$3,000 per annum.
- i. Stenographer at \$2,400 per annum
- j. Statistical consultant at \$7,000 per annum
- k. Consultant physicist per diem at \$1,200 per annum.
- l. Psychiatric consultant at \$7,000 per annum

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BAW 10/1 Continued

200 KV X-ray and installation.....\$20,000

Total Personnel per annum 75,000
plus operating expenses..... 25,000

If new building200,000
or for remodeling and equipping existing
facility..... 75,000

Minimum \$75,000 - \$100,000 or \$300,000.

Estimated Total

A. First year (low) modify existing building. \$225,000

B. First year (new building).....350,000

Ltjor Wm. J. Brown, MC, USA, Inspector of Ordnance

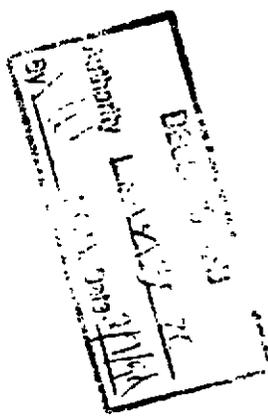
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*See Bookbarn file
for 134M 8/1*



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23 June 44

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