

M. W. Boyer, General Manager

May 18, 1953

John C. Bugher, M.D., Director, Division of Biology and Medicine

ne K

MONTHLY STATUS AND PROGRESS REPORT, APRIL 1953 -DIVISION OF BIOLOGY AND MEDICINE (269)

SYMBOL: BMA:RON

# BEST COPY AVAILABLE

Transmitted heremith is the Monthly Status and Progress Report for this Division covering the month of April 1953.

Enclosure: Report

CC: J. H. Burchard

O'NEILL:emr

| *********** | rial contains | information | affecting   | the   |
|-------------|---------------|-------------|-------------|-------|
| Horas       |               | ted Sta     | tes within  |       |
|             | f the espron  | <b>.</b>    |             | 5.C., |
| Secs. 793   | and The       |             |             |       |
| of whi      | THE           | w an unaut  | harized per |       |
| 1111        | ed by law.    |             |             |       |

| When     | separated | from   | enclo   | sure,          | handle   | this | document |
|----------|-----------|--------|---------|----------------|----------|------|----------|
| as       | (!:       | Une    | clas    | sifi           | id       |      |          |
| <b>/</b> | (!:       | sort n | יונאפין | 0 <b>7/</b> 98 | nication | )    |          |

| US DOE ARCHIVES        |  |  |  |  |  |  |
|------------------------|--|--|--|--|--|--|
| 326 U.S. ATOMIC ENERGY |  |  |  |  |  |  |
| COMMISSION             |  |  |  |  |  |  |
| •                      |  |  |  |  |  |  |
| RG DOE HISTORIAN DEMI  |  |  |  |  |  |  |
| Collection //32        |  |  |  |  |  |  |
| Box 3363               |  |  |  |  |  |  |
| Folder #23             |  |  |  |  |  |  |

| DOE 5650.2, III-12                                 |                |
|--|----------------|
| CLASSIFICATION CANCELLED<br>BY AUTHORITY OF DOE/OC |                |
| JOSE DIAZ 4-15-81<br>REVIEWED BY DATE              |                |
| Wilbur A. STRAUSER 4-19-81                         |                |
| BY: DICK KOOGLE 6-10-                              | <del>2</del> 7 |
| BY: DICK ROUGE 6 10 1                              | •              |

OF OUR THE WATER TO A MANAGEMENT

|           |             |            |                                  |            | <br>· |
|-----------|-------------|------------|----------------------------------|------------|-------|
| OFFICE ▶  | Adm.        | Director   |                                  |            |       |
| SURNAME > | O'Neill /   | Dr. Bugher |                                  |            |       |
| DATE >    | 5/18/53 001 | 900 57,c   |                                  |            | <br>  |
| Form AEC  | -818        | <i></i>    | U. S. GOVERNMENT PRINTING OFFICE | 16-62781-2 |       |

DOS ARCHIVES

# US DOE ARCHIVES 326 U.S. ATOMIC ENERGY COMMISSION

# OFOUR THE UNIVERSE OF THE PARTY OF THE PARTY

| RG <u>DOE</u>  | HISTORIAN | (DBM) |
|----------------|-----------|-------|
| Collection     | 1/32      |       |
| Box <u>336</u> | 3         |       |
| Folder #       | ÷ 23      |       |

MONTHLY STATUS AND PROGRESS REPORT
Division of Biology and Medicine
MONTH OF APRIL, 1953



nation.

nation.

18, U.S.C.,

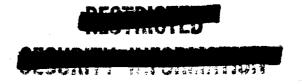
Sees. 793 and

of white advance to an unauthorized is anted by law.

# Research Activities

Total Body Scintillation Counter for Human Subjects.
(UNCLASSIFIED) The Los Alamos Scientific Laboratory has developed a large scintillation counter for recording the total body load of radioactivity. The subject is placed within the cylindrical counter, so that essentially all emmations arising from radioactive disintegrations anywhere in the body are recorded. The instrument is sufficiently sensitive to quantitate the natural level of radioactivity in tissues of persons who have never been exposed to any special radiological hazard. Any appreciable increase in activity above this natural level is therefore easily detected.

Cardiac Effluography with Radioisotopes. (UNCLASSIFIED) At Tulane University, an apparatus has been developed which permits a novel use of radioisotopes in the analysis of the fundamental processes in heart action. The heart of a turtle which has been previously injected with tracer potassium (the chief inorganic ion in the heart muscle) is removed from the animal and connected to a pipeline providing a constant supply of a physiclogical salt solution. As the heart beats, some of its potassium ion, carrying the tracer, is released from the heart muscle cells into the coronary circulation and is carried out by the circulating fluid. The apparatus (the "effluograph") provides a continuous collection of this fluid on a moving paper strip, with sufficient resolution that it is possible to separate as many as 17 samples per second for counting of the radioactivity of the released potessium isotope. This technique has provided the first means of following the release of potassium accompanying a single cardiac contraction. The time-course of the phenomenon is being correlated with that of the electrocardiogram and of the contraction itself in an effort to achieve a better understanding of the basic processes which connect these three aspects of the heart's action. It is hoped in the near future to extend these studies to mammalian hearts and to the behavior of biologically active ions other than potassium. The action of cardiac drugs may also be elucidated by this means.



# TURING IST

Collection \_\_\_\_\_\_\_\_ Box \_ 3363 Folder \_#23 and after removal to tap water. Imprectically high doose are equived to immobilise the larvae completely, but only about 5,000 resutques of x-rays or 10,000 resutques of Gobalt-60 breatlation were sufficient in most instances to prevent maturation to adult forms and reproduction following their subsequent ingestions by rate. (Somewhat higher doese are required to ensure complete sterilisation of the trickines.) Resulustion of adult females which had been subjected as larvae to the Gobalt-60 games by dosages (equivalent to calling these "startlining doese") showed complete disorgandustion of the sexual appearatus. Use of Waste Fission Products for Control of Trichinosis. UNCLASSIFIED) The University of Michigan research group has sen investigating the radiosensitivity of the trichina larva. The larvae were exposed both in infected park or rat muscle, and after reserval to tap water. Impractically high doses are

US DOE ARCHIVES 326 U.S. ATOMIC ENERGY **COMMISSION** 

RG DOE HISTORIAN (DBM)

It is hoped that these stadies may lead to a practical use of waste fiscion products in lossring the infectivity of trichinous pork and so contributing to the control of human trichinosis, an important public health problem.

Decrease of Vital Factor within Bacterial Calls. (UNCLASSIFIED) under an experiment at CRUL a decrease of AIF (adenosinetriphosphate) was noted inside the calls of bacteria which were exposed to 60,000 restrigens of x-irradiation. Experiments show that although synthesis of this vital material continues, changes produced in the call through irradiation parmit leakage of AIF to the arterior. Addition of metabolites like pyravete, succinate, or ginterate to the medium, or a lowering of the temperature, tended to decrease this loss of AIF to the external medium. AIF is necessary for call metabolism, and these secondary effects of irradiation could influence general (UNCLISSIFIED) I University of Erradiated Manualian Calls.

(UNCLISSIFIED) I University of Minnsects research group recently reported promising developments in the use of electron microscopy of ultra-thin tissue sections in recording radiation design. The early work has been on gastric and duedanni macross of mice, fixed rapidly in vivo with camic acid within a minute after termination of very brist and intense x-ray exposures. The micrographs show highly localised design to call structures, apparently resulting from the action of ions released by the radiation; however, much additional work must be done in order to substantiste this finding.

DOS ARCHIVES

- 3 -

## Civil Defense

FCDA-AEC Briefings. (URCLASSIFIED) A classified briefing for Governor Val Peterson, nearly appointed FCDA Administrator, and eight of his top staff was held on April 8. The briefing was conducted by Chairman Dean and followed generally the pattern of previous White House and Cabinet briefings, the purpose being to acquaint Mr. Peterson with AEC programs and developments pertinent to the national civil defense effort.

A reciprocal meeting was arranged by limison offices of both agencies on April 23 at which time the FURA program and objectives were explained to the Commission. Hr. Justice M. Chambers (in Governor Peterson's absence) gave a presentation depicting the possible magnitude and effects of an aboute attack on the U.S. He described the obstacles faced by FURA in attempting to minimise casualties and damage and their proposed program for earrying out their responsibilities in event of attack.

Designation of AEC Representative on Protective Construction.

(UNCLASSIFIED) In response to an invitation by the Administrator, PCDA, to designate an AEC representative to meet with FCDA staff members on the problem of guidance on certain measures of protective construction, Chairman Dean on April 22, 1953 named R.L.Corsbie, Chief, CDLB. Professor H.L.Bossan will be available for consultation pending Mr. Corebie's release from duties with the Test Organisation at MPG.

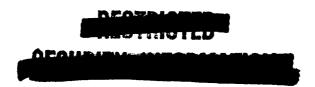
Loans of Radiation Detection Instruments and Radiation Sources. (UNCLASSIFIED) Loans for use in civil defense radialogical training courses were approved during the month, as follows:

Instruments - Texas State Civil Defense agency

CO<sup>60</sup> Sources - Washington State Civil Defense agency - California \* \* \* \*

- Tencas \* \* \* \*

Also, instruments were provided on loan to Frogram 22 of the Civil Effects Group, at the current Nevada test operation. This program is sponsored by the FCDA and includes evaluation of radiological defense survey methods by means of actual field training exercises.



# US DOE ARCHIVES 326 U.S. ATOMIC ENERGY COMMISSION

| RG_   | DOE    | HISTORIAN | (OBM |
|-------|--------|-----------|------|
| Colle | ection | 1/32      |      |
| 3ox   | 33,    | 3         |      |
| old   | er #   | 23        |      |

On March 30-31 and April 1, 1953 the fourth Tripartite Conference on Permissible Doses was hald at Harriman, New York. Denty-one delegates, including five from the United Kingdom and four from Canada, were present. In general, out of this meeting arose a better understanding and agreement between the participating countries them had previously been noted. It was possible to aliminate and of the confusion on standards of measurement which the three countries have been using and to confirm or strongthen standards in current use. It appeared that particles arise of the standards in use in this country are on the samewrathre aids, such as the permissible level for racks concentration in since.

the 1953 Metional English Conference. (Unclassified) In connection at Los Angeles, the Division of Richogy and Medicine sponsored a one-day meeting on industrial bealth problems of special interest in AEC operations. The range of subjects discussed included radiation decimenty, experimental studies of inhalation of radiosolive dusts by eminals, aspects of the industrial medical programs at Hamford and at ORMs, benyllium toxicity, the investment of liquid netal burns, and therapeutics on radiation injury. AEC and contractor personnel ware also wall represented both by attendance and participation in sessions of the American Association of Industrial Physicians and of the American Industrial Hygiens Association. The radiation protection section of the AIRA wated to continue its for one or sure sessions on radiation protection at ment year's Industrial Realth Conference.

Radiation Instrument Catalog. (UNCLASSIFIED) During April, 123 capies of the 3rd Edition of the Radiation Instrument Catalog word distributed to ASC offices, ASC operating contractors, other government agencies, and contributing manufacturers. Invitations to submit information on new products for the first supplement to the Catalog have been sunt to 93 manufacturers of radiation instrument equipment.



DOS ARCHIVES