AEC

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

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REMINDER TO EDITORS AND SCIENCE WRITERS

The medical seminar for newsmen, ATOMEDIC '70, featuring up-to-the-minute reports plus informal discussions on such topics as pollution effects on the human respiratory system and the new minature artificial kidney, opens May 20 at AEC's Brookhaven National Laboratory.

The opening session, on medical effects of environmental radiation, will be conducted by Dr. Victor P. Bond, Associate Director of Brookhaven. Each topic, which is described on an enclosed sheet, will be discussed by an outstanding expert in the field.

Advance registration by mail, if possible, is helpful but not essential.

Information on housing and transportation at the Upton, Long Island, facility is enclosed along with program details and a return postcard for registration. Please call AEC's Public Information section at Washington (301-973-3446) or the Brookhaven Public Relations Office (516-924-6262, extension 6435) if you have any questions.

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ATOMEDIC '70

PROGRAM

TUESDAY, MAY 19

1:00 p.m. - Registration Opens - Brookhaven Center

7:00 p.m. - Informal Reception - Brookhaven Center

(Nobel Laureate, Dr. John C. Kendrew, of the Medical Research Council, Laboratory of Molecular Biology, Cambridge, England, is giving a lecture at Brookhaven on the evening of the 19th which Atomedic registrants are invited to attend. His topic will be: "Molecular Approaches to Biology: Achievements and Prospects.")

WEDNESDAY, MAY 20

8:30 a.m. - Registration - Berkner Hall Conference Center

9:00 a.m. - Berkner Hall Conference Center

MEDICAL EFFECTS OF ENVIRONMENTAL RADIATION, A Research Report
Chairman - Dr. Victor P. Bond, Brookhaven National Lab.

Scientists have been concerned about the medical effects of radiation for 70 years. Intensive and systematic research has been conducted on the subject for more than 25 years and a great deal of knowledge has been accumulated. The speakers at this session will discuss some of what has been learned and what still remains to be learned about the medical effects of radiation. The presentation will be divided into three parts:

1. Genetics
Dr. Arthur Bloom, University of Michigan

The best indicator at present of radiation effects on the genetic material of human cells is chromosome damage. In particular, the chromosomes of the lymphocytes of the blood have proven to be remarkably sensitive to dose, dose-rate and other variables of exposure to ionizing radiation. The clinical importance of this radiation-induced damage is not yet clear. However, the biological importance may now be studied by examining clones of chromosomally abnormal cells, with each cell of the clone having the same chromosomal aberration. This new technique is called lymphocyte cloning.

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BREAK

2. Birth Defects
Dr. Robert Brent, Jefferson Medical College, Philadelphia

Dr. Brent will discuss research on the relationship between radiation and the occurrence of birth defects. A detailed summary of his talk is not yet available.

BREAK

3. Cancer
Dr. Arthur C. Upton, State University of New York, Stony Brook

An association between radiation and the production of certain tumors has been firmly established. However, the relationship between incidence of tumors and the radiation dose is not specifically known. It may vary depending upon the tumor involved and the influence of such variables as sex, diet, viruses, chemicals and the distribution of the radiation dose in time and space. Furthermore, although the mechanism of the neoplastic transformation has yet to be defined in detail, a succession of changes seems generally to be required. The evolution of these changes may be influenced by radiation effects on cells elsewhere in the body as well as on the tumor-forming cells themselves.

12:00 Noon - Lunch (individual arrangements)

1:30 p.m. - Berkner Hall Conference Center

THE MINIATURE ARTIFICAL KIDNEY
Finley W. Markley, Argonne National Laboratory

Argonne National Laboratory has developed a small, inexpensive artificial kidney which is now being clinically tested. The new Argonne dialyzer is pumpless, requires low blood volume and will be disposable. It is quite small, 1" x 4" x 12". The materials to make it cost $2.00 and its manufacture can be automated. Mr. Markley will discuss the dialyzer and new work underway on improved membrane supports which will help further reduce cost and size. He will also discuss the possibilities of applying the basic design to membrane oxygenators, heat exchangers and desalinators which are being explored as time and funds permit.

BREAK

1079703

3:15 p.m. - Berkner Hall Conference Center

AN IMMUNOLOGICAL BASIS FOR GLOMERULONEPHRITIS
Dr. Frank J. Dixon, The Scripps Clinic and Research Foundation

It has been suspected for some time that glomerulonephritis, the most common cause of kidney failure in the early decades of life, might be an immunologic disease. Dr. Dixon and his colleagues at the Scripps Clinic have conducted research on animals and man which has proven this to be so. Two mechanisms have been delineated: (1) an individual can form antibodies against his own kidney tissue; (2) other disease processes or infections can lead to immune (antigen-antibody) circulating complexes which may localize in the kidney causing damage. The initiating agents and events of these two forms are beginning to be defined and will be discussed by Dr. Dixon.

6:30 p.m. - Reception and Dinner - Brookhaven Center
Sponsored by Associated Universities, Inc.

THURSDAY, MAY 21

9:00 a.m. - Berkner Hall Conference Center

THE PRODUCTION AND POTENTIAL OF SYNTHETIC POLY (I:C)
Dr. Leonard Hamilton, Brookhaven National Laboratory

Dr. Hamilton has developed a method of producing double-stranded synthetic RNA, and is using the material in different research programs in cooperation with the USDA's Plum Island Animal Disease Laboratory and the Sloan-Kettering Cancer Research Institute. Poly (I:C) has been tested successfully against herpes simplex virus infections in mice and rabbits and against lethal injections of foot-and-mouth disease virus in mice. Toxicity studies are also underway as a prelude to trying Poly (I:C) on man. Dr. Hamilton will discuss the state of this research.

10:00 a.m. - Berkner Hall Conference Center

COMPUTER APPLICATIONS IN NUCLEAR MEDICINE
Dr. David Kuhl, University of Pennsylvania

Dr. Kuhl and his colleagues at the University of Pittsburgh have developed a digital computer-type instrument which they use to process and display information from diagnostic scans.

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COMPUTER APPLICATIONS IN NUCLEAR MEDICINE (continued)

The instrument does not require that the operator, who would probably be a physician, learn complicated computer programming schemes. He can operate it by punching preset buttons on the keyboard to instantly control the parameters and display the information on a screen. The instrument can serve as a central processor and reader for data from several scanners. The use of the basic instrument has led to the design of simpler devices which can be more widely used. For instance, a rectilinear and transfer section brain scanner has evolved which is expected to improve present methods of studying the brain.

BREAK

11:00 a.m. - Berkner Hall Conference Center

NEW PROSPECTS FOR THE SCANNING ELECTRON MICROSCOPE
Dr. Albert Crewe, University of Chicago

One of the most difficult problems in microbiology is determining the structure of very small objects. When it is possible to aggregate such objects into crystals, X-ray techniques can be used to determine structures. In many cases, however, these materials cannot be crystallized, and one must use an electron microscope to look at them directly. Some of Dr. Crewe's work has been to develop a new kind of electron microscope which can reveal these structures in a much clearer way than in the conventional electron microscope. The sensitivity of his instrument is now so great that it appears possible to make visible single atoms of heavy elements. If these atoms can be attached to small biological molecules, science will then have a tool for determining their structure.

12:00 Noon - Lunch (individual arrangements)

1:30 p.m. - Berkner Hall Conference Center

POLLUTION AND THE HUMAN RESPIRATORY SYSTEM
Dr. Paul Morrow, University of Rochester

Man has been breathing polluted air throughout his history. Even among the ancient Greeks, there was concern that the environmental air produced disease. In medieval times, some respiratory diseases became associated with specific occupations, e.g., mining and smelting. It was the mid-20th

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POLLUTION AND THE HUMAN RESPIRATORY SYSTEM (continued)

century however, before direct and definitive studies of airborne contaminants could be undertaken in man; these, by-and-large, were made possible through radioisotopes and radiation technology. Today, not only are there practical investigations of how such materials as sulfur dioxide and particulate matter react with the human respiratory system, but new methods of evaluating previously inaccessible pulmonary functions have been developed through the use of special radioactive gases and aerosols.

BREAK

3:15 p.m. - Berkner Hall Conference Center

HOSPITAL CYCLOTRONS FOR BETTER DIAGNOSTICS
Dr. Paul V. Harper, Argonne Cancer Research Hospital

Dr. Harper will discuss the potential of compact, relatively inexpensive cyclotrons which are now being installed in hospitals to produce radioisotopes which have half lives too short to permit storage or shipping. These isotopes have been generally unavailable for diagnostic use up to now. A cyclotron in the hospital will be able to produce the isotopes as needed, permitting more detailed diagnostic examinations at lower radiation dosages. Perhaps more important, they allow clinicians to perform kinetic studies not possible with normal radioisotopes. In addition to producing isotopes, these small cyclotrons can produce fast neutrons which may have potential for radiation therapy of tumors.

FRIDAY, MAY 22

TOURS OF BROOKHAVEN NATIONAL LABORATORY

(Time by mutual arrangement)

1079706

AEC

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

April 20, 1970

NOTE TO EDITORS AND NEWSMEN AND SCIENCE WRITERS:

We would like to invite you to attend our medical seminar, ATOMEDIC '70, which will be held May 19-21 at the Atomic Energy Commission's Brookhaven National Laboratory. We believe you will find the program interesting, current and newsworthy. It will cover some of the most recent developments in nuclear medicine and nuclear medical research. The speakers have been directly involved in the work they are discussing. In some cases, they are pioneers in their field. You will have the opportunity to talk to them informally and at length during the two days of the seminar.

Because of the high public interest in the subject, ATOMEDIC '70 will open with a special seminar on medical effects of environmental radiation. The session will include experts in the field of genetics, cancer and birth defects as they are related to radiation. It will be chaired by Dr. Victor P. Bond, Associate Director of the Brookhaven National Laboratory.

A fact sheet, a return postcard for registration and housing reservations, and a preliminary program are enclosed. Attendance will be limited to representatives of the news media.

If you have questions, contact the Division of Public Information, USAEC, Washington, D. C. 20545 (301-973-3446) or the Public Relations Office of Brookhaven National Laboratory, Upton, New York 11973 (516-924-6435).

Sincerely,

John A. Harris, Director
Division of Public Information

John R. Totter, Director
Division of Biology & Medicine

Enclosures

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FACT SHEET FOR ATOMEDIC

DATE:	May 19 - Early registration & socializing May 20-21 - Seminar May 22 - Tour of Brookhaven
PLACE:	AEC's Brookhaven National Laboratory, near Upton, Long Island, New York
SPONSORS:	Atomic Energy Commission and its Brookhaven National Laboratory
REGISTRATION:	Return the enclosed card as soon as possible. There is no fee for the conference. Advance registration is requested, but not required.
ACCOMMODATIONS:	Single rooms, without private bath, are available at Brookhaven for $4.25 per night. When your registration card is received, you will be sent details and a reservation form.
TRAVEL:	Brookhaven is 70 miles from New York City, in the center of Long Island. It can be reached by car, by the Long Island Railroad which stops at Patchogue, and by airline into Islip Airport. Rental cars are available at the Islip Airport. Brookhaven cars will meet incoming trains and planes if advance notice is given.

1079708

ATOMEDIC '70

May 19 - 21

A seminar on atomic medical research for science writers and newsmen, sponsored by the Atomic Energy Commission and its Brookhaven National Laboratory, Upton, Long Island, New York

PRELIMINARY PROGRAM

TUESDAY, MAY 19

Registration and Informal socializing

WEDNESDAY, MAY 20

MEDICAL EFFECTS OF ENVIRONMENTAL RADIATION, A Research Report

Genetics - Dr. Arthur Bloom, University of Michigan
Cancer - Dr. Arthur Upton, State University of New York, Stoneybrook
Birth Defects - Dr. Robert Brent, Jefferson Medical College, Philadelphia
Chairman, Dr. Victor Bond, Brookhaven National Laboratory

THE MINIATURE ARTIFICIAL KIDNEY and Possibilities of Applying the Same Techniques to Developing Other Artificial Organs
Finley W. Markley, Argonne National Laboratory

AN IMMUNOLOGICAL BASIS FOR GLOMERULONEPHRITIS
Dr. Frank Dixon, Scripps Clinic

DINNER, sponsored by Associated Universities, Inc.

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HOSPITAL CYCLOTRONS FOR BETTER DIAGNOSTICS
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FRIDAY, MAY 22

Tours of the Brookhaven National Laboratory

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