

WAR DEPARTMENT

Washington, D.C.

7 August 1945

TO: THE MEN AND WOMEN OF MANHATTAN DISTRICT PROJECT

Today the whole world knows the secret which you have helped us keep for many months. I am pleased to be able to add that the warlords of Japan now know its effects better even than we ourselves. The atomic bomb which you have helped to develop with high devotion to patriotic duty is the most devastating military weapon that any country has ever been able to turn against its enemy. No one of you has worked on the entire project or known the whole story. Each of you has done his own job and kept his own secret, and so today I speak for a grateful nation when I say congratulations and thank you all. I hope you will continue to keep the secrets you have kept so well. The need for security and for continued effort is fully as great now as it ever was. We are proud of every one of you.

(Signed)

ROBERT P. PATTERSON
Under Secretary of War.

SURVEY OF PLUTONIUM IN MATERIALS AT BIKINI ATOLL ON BAKER DAY
PLUS ONE YEAR

J. SCHUBERT, D. P. AMES, AND M. T. WALLING JR

INTRODUCTION

One year after the underwater atom bomb explosion, Test Baker, a survey of the distribution of the alpha emitting plutonium in living and non-living matter was undertaken. The results obtained on the mud samples from the bottom of the lagoon are highly classified and are reported, therefore, in a separate section. These analyses of the mud samples are reported with the general fission product assays of the mud inasmuch as a complete discussion of these results must include the fission products as well.

The biological materials assayed included vegetation on Bikini island and the organs of several varieties of fish. Dr. Donaldson and group have surveyed the distribution of the gross fission product activity in the tissues of a large variety of fish caught in the regions in and around Bikini lagoon. Their samples were mounted on steel plates or discs. The ashing of a weighed amount of wet tissue was done directly on the plate. A number of these mounted samples were loaned to us by Dr. Donaldson. Those on which the residue was small were counted directly while others were assayed by methods to be described. The absorption thicknesses of the samples were probably no higher than 5 mg/cm^2 . The actual weight of ash had not been determined.

COPY OF TELEGRAM

WESTERN UNION

LD675MC (WA746) 124 GOVT

1945 AUG. 15 AM 2 41

UNIVERSITY OF CHICAGO

CHICAGO

OFFICIAL DECLARATION OF CESSATION OF HOSTILITIES WITH JAPAN DOES NOT IN ANY WAY ALTER SECURITY LIMITATIONS ON RELEASE OF INFORMATION ON THE ATOMIC BOMB PROJECT. SECURITY RESTRICTIONS IMPOSED IN MY TELEGRAM OF SIX AUGUST CONTINUE TO APPLY. THE PRESIDENT IN HIS BROADCAST OF NINE AUGUST EMPHASIZED THE NECESSITY IN THE INTEREST OF NATIONAL SAFETY FOR CONTROLLING RELEASE OF INFORMATION ON THIS REVOLUTIONARY DEVELOPMENT. LOOSE TALK AND IDLE SPECULATION BY PERSONS NOW OR FORMERLY CONNECTED WITH THE PROJECT JEOPARDIZE THE SECURITY OF THE NATION AND MUST BE CONTROLLED. I AM AGAIN ASKING YOU PERSONALLY TO CONTINUE YOUR COMPLETE COOPERATION THROUGH MY OFFICE BY YOUR ENTIRE ORGANIZATION AND BY EACH OF YOUR SUBCONTRACTORS IN THE MAINTENANCE OF NATIONAL SECURITY.

GROVES

ORIGINAL
Section 255T
IS(255T)

NAVY DEPARTMENT
BUREAU OF SHIPS
WASHINGTON, D.C.

ORIGINAL

11 July 1947

To: Mr. Jack Schubert.

Subj: Orders to Duty with the U. S. Navy.

Ref: (a) CNO ltr of authorization, Serial 3379P21 dated 10 July 1947.
(b) Regulations Governing Technicians (OPNAV 30 S-A).

1. You have been directed by your employer, University of California, to report to the Chief of the Bureau of Ships for duty with the U. S. Navy. Reference (a) accredits you as a technician sponsored by this Bureau. Reference (b) defines your status and describes your privileges and responsibilities. You have been provided a copy of these regulations and will be governed by them.
2. You will report on or about 1 August 1947 to the Project Officer, Bikini Resurvey Group, on board the U.S.S. CHILTON (APA-38), at Bikini Atoll, for such duty as may be assigned by him or by any Commanding Officer to whom he may order you to report in connection with the Resurvey of Bikini Atoll.
3. You are hereby directed to travel via ATC, NATS and/or commercial air wherever necessary to expedite completion of these duties. For travel by Naval Transport Aircraft, Class Two Air Priority, NATS is hereby certified.
4. Upon completion of this duty and when directed by the Project Officer, Bikini Resurvey Group, you will return to the United States for further assignment, reporting to your employer. You will then return your letter of authorization to this office and report by letter to this Bureau.

E. W. Mills

E. W. MILLS
CHIEF OF BUREAU

CC:
Project Officer, Bikini Resurvey Group
OP-21
255T

MEMORANDUM ENDORSEMENT
Air Transport Squadron TWO
NAS, Alameda, California

Transportation via Naval Air Transport Service

File No. JUL 31 1947 02 37 01
Furnished from this station to NAF, Honolulu

J. Schubert
Air Transport Officer

ARRIVED AT 76 0239 AT 0900 Aug 1
(Station) (Time, Date)

Winchell

*50 Mill St
District Median*

BRP/P16-4

BIKINI RESURVEY PROJECT
U. S. S. CHILTON (APA-38)
c/o Fleet Post Office
San Francisco, California

FIRST ENDORSEMENT on
BuShips Orders, Section 255T,
LS(255T) to **Mr. J. Schubert**,
dtd 11 Jul 47.

4 August 1947

From: Project Officer, Bikini Resurvey Group.
To : **Mr. Jack Schubert.**

Subject: Orders to Duty with the U. S. Navy.

1. You reported aboard for duty as prescribed in your basic orders this date.

C. L. Ingelman
C. L. INGELMAN,
CAPTAIN, U. S. NAVY.

BRP/P16-4

BIKINI RESURVEY PROJECT
U. S. S. CHILTON (APA-38)
c/o Fleet Post Office
San Francisco, California

SECOND ENDORSEMENT on
BuShips Orders, Section 255T,
LS(255T) to **Mr. J. Schubert**,
dtd. 11 Jul 47.

AUG 25 1947

From: Project Officer, Bikini Resurvey Group.
To : **Mr. Jack Schubert.**

1. Your duty with the Bikini Resurvey Group is completed as of this date.

2. Proceed and carry out basic orders.

ARRIVED AT *San Francisco* AT *2005 8/25*
(Station) (Time, Date)

C. L. Ingelman
C. L. INGELMAN,
CAPTAIN, U. S. NAVY.

Ingelman
Signed by ATO

NATS Space Control Center, Honolulu

1. You are tentatively booked as follows:

TRIP	ETD	DAY	DATE
<u>085202</u>	<u>1430</u>	<u>Friday</u>	<u>1 Aug</u>

2. Call NATS TERMINAL, Telephone 42241 or 42243 at 1200, 2½ hours prior to scheduled time of departure in order to verify your departure time. From Honolulu Dial 4711 and ask Operator for 42241 or 42243. Do not call in prior to time specified.
3. When you call in you will be advised of time of pick-up, or, if you are providing your own transportation, your time of reporting in at the NATS TERMINAL. Passengers are required to check in at the terminal one hour before scheduled departure time (Captains, Colonels and above - one-half hour.) NATS bus picks up passengers at BOQ #9 and BOQ #10 and CHA #3 one and one-half hour before scheduled departure time.
4. You will (~~furnish your own transportation to the airport~~ _____).
(be picked up at 1245 .
5. Baggage allowance is 65 pounds for temporary change of duty; 165 pounds for permanent change of duty.
6. Eastbound passengers are subject to Naval Security and Agriculture Department Inspections. Questions relative to censorable material may be answered by telephoning : Pearl Harbor 42175.

NOTE:

Naval Personnel awaiting air transportation are in a duty status, responsible to the Commandant, Fourteenth Naval District, in carrying out instructions, verbal or otherwise, given by the Space Control Center. Failure to comply with such instructions will result in off-loading, and, in the absence of satisfactory explanation, will be made the subject of a report to the command to which the passenger is responsible.

J.B. Cannon
J.B. CANNON

ADDRESS NAVY DEPARTMENT
BUREAU OF SHIPS

NAVY DEPARTMENT
BUREAU OF SHIPS
WASHINGTON 25, D. C.



REFER TO FILE No.

Section 181 (RE)

11 July 1947.

Dear Mr. Schubert,

Attached are your orders authorizing you to accompany the Bikini Resurvey Group and authorizing your air transportation to Bikini.

I hope that you will find it possible to proceed to Bikini prior to 1 August as your early arrival there is considered essential.

R. Revelle

R. Revelle

MR. JACK SCHUBERT
234 NORTH MISSISSIPPI RIVER BLVD.
ST. PAUL (4), MINN.

July 13, 1947

Dr. George Svihla
Box 308
Ogden Dunes
Gary, Indiana

Dear George:

I am going to Bikini within two weeks to spend about a month as a radiochemist for the Scripps Institute of Oceanography. The Navy and the Atomic Energy Commission are of course involved in this resurvey as you probably know.

It would be of interest to obtain some radioautographs. Hence, I would appreciate if you would send me information as to the best manner of preparing the various types of material. Undoubtedly it would be best to prepare them in such a manner that they could be sent to Chicago for the actual radioautograph. At the same time I would like to know what types of autographs might be made on the spot with the ordinary type of photographic film that might be available. In the latter case I would need information as to the preparation of the autograph itself.

The notification of the trip was given to me just a couple of days ago so I haven't had time to make such inquiry. In any event I would like to get all the pertinent and concise information you can send me.

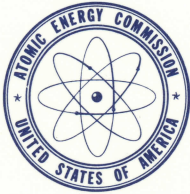
Since you have been to Bikini(?) what advice could you give me regarding clothing and the like.

I hope that you are enjoying your vacation. Up to now we have had good sleeping weather in Minneapolis.

Most of my work at the U has been concerned with C^{14} . Now that we have completed a lot of preliminary work we are ready to sail full speed into the question of various metabolic processes involving C^{14} , P and Ca.

Best regards,

Jack Schubert



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

May 21, 1973

Dr. Jack Schubert
Professor of Radiation Chemistry
Graduate School of Public Health
University of Pittsburgh
Pittsburgh, Pennsylvania 15261

Dear Jack:

Thank you for sending your three reports on radiochemical survey data on Bikini atoll. I found the reports quite interesting since they are the first reports of early survey data that I have seen. The report on Pu was especially interesting since I have seen only very little data on Pu measurements at Bikini and what I have seen was taken long after your measurements.

As far as I know, there is only a very small group of people interested in these measurements at the present time so I imagine it would be difficult for you to justify publishing the results. I will, however, ask around a bit to see just how extensive the interest is and let you know the results.

I envy you a summer at ANL working on pulse radiolysis with Ed and Max. I hope you have success and thanks again for sending the reports.

Sincerely,

Nat Barr/smp

N. F. Barr, Assistant Director
for Measurement & Evaluation
Division of Biomedical and
Environmental Research



ARMY SERVICE FORCES
UNITED STATES ENGINEER OFFICE
MANHATTAN DISTRICT
OAK RIDGE, TENNESSEE

IN REPLY
REFER TO

EIDME

12 September 1945

Mr. Jack Schubert
Metallurgical Laboratory
University of Chicago
Chicago, Illinois

Dear Mr. Schubert:

This office has received a number of inquiries as to whether the official ending of hostilities with Japan makes possible any relaxation in security restrictions on the atomic bomb project. In the interest of national security, no appreciable modification of regulations concerning this project can be made, although slightly more latitude is being given to approval of releases by individuals and organizations within the limits of information already disclosed in official public releases. Security regulations still require the prior approval by this office of any proposed advertising or news release by individuals and organizations connected with the project.

A complete text of the proposed releases should be submitted in writing to the District Engineer, Manhattan Engineer District, P. O. Box E, Oak Ridge, Tennessee, attention Major E. J. Bloch. The District Engineer has established an organization at this locality for the expeditious handling of these requests. Every effort will be made to review requests promptly.

Your cooperation in complying with the above procedure, in the interest of national security, is solicited.

Very truly yours,

K. D. Nichols
K. D. NICHOLS,
Colonel, Corps of Engineers,
District Engineer.

CHEMICALS REMOVE
PLUTONIUM IN BODY

12/15/58W

By SCIENCE SERVICE

LEMONT, Ill.,

-- Two metal-grasping compounds capable of removing highly radioactive plutonium from the body have been found.

They are effective in removing the plutonium even several days after the dangerous metal has entered the body, Dr. Jack Schubert, chemist at Argonne National Laboratory, reported here.

In one experiment, he said, rats were given a single injection of one of the two chemicals, DTPA or BAETA, six days after exposure to plutonium. Within 24 hours the rats excreted more than five percent of the plutonium retained in their bodies. This is about 150 times as much as would normally have been eliminated.

This is the first reported use of BAETA to remove plutonium. However, DTPA has been used to remove cerium, another heavy metal, from the body. Both compounds are chelating agents that trap metal ions to form a stable, water soluble complex that is relatively inert chemically. Neither is poisonous to man.

Co-researchers with Dr. Schubert were Mrs. Joan F. Fried, William M. Westfall and Prof. Emil Heinz Graul, who is on leave from the University of Marburg/Lahn, West Germany.

RESTRICTED

THE UNIVERSITY OF CHICAGO

RESTRICTED

Metallurgical Laboratory

September 14, 1945

To: All Employees
From: Farrington Daniels

Washington headquarters has advised us that recent published statements in papers and magazines are causing speculation which may lead to serious breaches in security in that such articles are often garbled and contain much misinformation.

Personnel having knowledge of the District activities should exert extreme caution in discussing published information or misinformation. Published articles and outside speculation should neither be confirmed nor denied.

In the interest of national security, no appreciable modification of regulations concerning this project can be made, although slightly more latitude is being given to approval of releases by individuals and organizations within the limits of information already disclosed in official public releases. Any proposed news or advertizing release must still be submitted to the District for approval, but prompt attention has been promised. Such releases may be sent through this office.

FD:db

Farrington Daniels

Farrington Daniels, Director
Metallurgical Laboratory

W. M. Branch
W. M. Branch,
Chief Administrative Officer

RESTRICTED

RESTRICTED

SCIENTISTS' COMMITTEE FOR RADIATION INFORMATION

NEW YORK ACADEMY OF SCIENCES
2 EAST 63RD STREET
NEW YORK 21, N. Y.

*original to J.A.
Haifa
3-7-60*

March 2, 1960

Dr. Jack Schubert
Argonne National Laboratory
Lemont, Illinois

Dear Dr. Schubert;

The Committee for Nuclear Information of St. Louis, the Committee on Science in the Promotion of Human Welfare of the American Association for the Advancement of Science, and the Scientists' Committee for Radiation Information of New York are considering convening a meeting to discuss certain problems in connection with public education on radiation and nuclear energy. Specifically, we are interested in helping groups in other communities to develop organizations of scientists for the purpose of disseminating information on radiation and nuclear energy to the public. We are writing to learn if you would be interested in initiating such a group in your own community. If so, we would like to ascertain your interest in this meeting.

The St. Louis and New York committees have been in existence two to three years, during which time they have entered into a variety of public education programs on the nature and hazards of radiation. They have met and worked with diverse community, religious, and educational groups. The public response has been enthusiastic. The Statement of Purposes and summary of activities of the New York Committee are enclosed. The St. Louis Committee has engaged in similar and more comprehensive activities, including the publication of highly valuable summaries of current problems in radiation. Both committees feel that the independent development of similar activities by scientists and physicians elsewhere would be desirable, as would some form of cooperation between various groups.

It is proposed that the meeting include discussion and an exchange of experiences, dealing with such matters as: the purposes of education on radiation, types of activities, needs and responses of community organizations, recruiting of scientists and physicians, and means of self-education for scientific participants. It is hoped that these discussions will stimulate the formation of new committees in different areas and will thus expand this educational program.

It is proposed that the meeting be held in The New York Academy of Sciences, 2 East 63rd Street, New York 21, N.Y., on Saturday and Sunday, April 2nd and 3rd. We are writing to you because we know that you have either already been involved in such a public education program, or have expressed interest in one. At this

point we would like to know: 1) are you interested in the development in your community of a scientific committee to provide information to the public on radiation matters? 2) would you or a representative be interested in participating in the proposed meeting on April 2nd and 3rd? 3) if so, could you finance your own travel? (We hope to have some funds available to help support travel, but this is as yet undecided.) 4) do you have a preferred alternative for the stated date?

We look forward to receiving your early reply and suggestions.

For the Planning Committee:

Jules Hirsch, M.D.
Scientists' Committee for Radiation Information

Jules Hirsch (g)

Barry Commoner, Ph.D.
Committee for Nuclear Information

Barry Commoner (g)

Margaret Mead, Ph.D.

Margaret Mead (g)

HCM/g
Encl.

ARMY SERVICE FORCES
UNITED STATES ENGINEER OFFICE
MANHATTAN DISTRICT
OAK RIDGE, TENNESSEE

IN REPLY
REFER TO

EIDME

Mr. Jack Schubert
Metallurgical Laboratory Group B
University of Chicago
Chicago, Illinois

Reference is made to recent letter from this office placing limitations on the release of information by any individual, group, or organization connected with the atomic bomb project and outlining procedure to be followed in securing clearance for utilization or release of information or data connected with the project.

Recent declaration of cessation of hostilities with Japan does not in any way alter limitations on utilization or release of information and data connected with this undertaking. Official public statements and releases still comprise permissible limits of disclosure of information. The provisions of the Espionage Act still apply.

Loose talk and speculation, particularly by individuals now or formerly connected with the project, jeopardize the future of the nation and must be controlled.

I am requesting your continued compliance and support during the future in the interest of national safety.

Very truly yours,

K. D. Nichols
K. D. NICHOLS,
Colonel, Corps of Engineers,
District Engineer.

Sept. 5, 1961

Dear Friend:

As of September 5 I have resigned from Argonne and have accepted a long-standing invitation to serve as Professor of Chemistry at the University of Buenos Aires. We will arrive in Buenos Aires October 2.

NEW ADDRESS

Dr. Jack Schubert

c/o Universidad de Buenos Aires

Facultad de Ciencias

Exactas y Naturales

Buenos Aires

Argentina

September 1, 1961

Dr. G. T. Seaborg, Chairman
U.S. Atomic Energy Commission
Washington 25, D. C.

and

Dr. G. W. Beadle, Chancellor
University of Chicago
Chicago 37, Illinois

Dear Doctors Seaborg and Beadle:

It is with reluctance that, after nearly 20 years of service beginning with the Metallurgical Laboratory in March, 1942, I am submitting my resignation, effective September 6, from my position as Senior Chemist in the Division of Biological and Medical Research of the Argonne National Laboratory.

My reasons for sending this termination notice to you directly but with copies and a separate note to Argonne's administration will become apparent from the contents of this letter and the attached memoranda.

I have recently been granted a leave of absence without pay so that I could accept a long-standing request to help the University of Buenos Aires with their academic program as described in my attached memo to N. Hilberry of July 6. However, a leave of absence means that one intends to return. Because of developments occurring after I requested a leave of absence, I now realize that I cannot agree to return under the present administrative head of the Argonne National Laboratory, the present Director at Argonne of the Division of Biological and Medical Research, as well as the present administrative heads of the Division of Biology and Medicine of the U.S.A.E.C. The three principal reasons for this decision are outlined below:

1. The attached memo to A. M. Brues, dated June 23, and describing a serious state of affairs in the Division of Biological and Medical Research at Argonne, has never been acknowledged by Dr. Brues, Mr. Hilberry, Dr. Dunham, and the others concerned with the administration of this Division. Actually, the fundamental nature of the criticism in this memo has been made many times in the past by others, both within and without the Division, so that I feel somewhat like the child in the story of the emperor's clothes. However, it has been made further apparent to me in subsequent conversations with Mr. Hilberry and Dr. Dunham (conversations which I initiated after having received no reply after nearly two months) that no action will be taken to rectify or even look into the situation.

September 1, 1961

To: N. Hilberry
Laboratory Director

Division: LDO

From: J. Schubert

Division: BIM

Thank you for your letter of August 29. I appreciate the time and effort you devoted in reply to my letter of July 6.

I applaud many of the sentiments and ideas stated in your letter, and scarcely anyone, including myself, would take issue with the many generalizations regarding the policies of Argonne and the freedom of scientists at Argonne. It is most unfortunate, however, that you disregarded the specific issues and omitted pertinent facts. Consequently, your exposition does not constitute a direct reply to my letter. For these reasons I shall review some of the basic facts which are known to you but not to the readers of your letter.

First, it should be emphasized that I did not, indirectly or directly, make a "...direct challenge of the Laboratory's basic procedures..." as stated by you.

Second, after nearly twenty years association with the Metallurgical laboratory and Argonne I am fully aware of the responsibilities of a Division Director for the work in his division. Consequently, in two earlier memos to Dr. Brues, one dated May 31, and the other, a five page one, dated June 9, I provided him and you, in accordance with established Laboratory procedures, with the information and assurances regarding my research activities here and abroad--as is justifiably and routinely required of every scientist going abroad for an extended period.

Despite my voluntary compliance with these Laboratory and divisional requirements, on June 23 Dr. Brues sent me a memo in which he, in effect, ignored my memos and made unprecedented demands from me which were highly insulting, not only to me but to every scientist at Argonne who has, from his record, demonstrated creativity and productivity. The memo of Dr. Brues reflected similar improper demands written by his assistant, Dr. F. Schlenk, on the same date.



ARMY SERVICE FORCES
UNITED STATES ENGINEER OFFICE
MANHATTAN DISTRICT
OAK RIDGE, TENNESSEE

IN REPLY
REFER TO EIDME

Mr. Jack Schubert
Metallurgical Laboratory
University of Chicago
Chicago, Illinois

Dear Sir:

Official public announcement of the existence and purpose of the Manhattan Engineer District undertaking has been made. Additional releases on District activity will be published from time to time. However, in the interests of National welfare, it is necessary that security be retained over many phases of the project.

While the official announcement entitles you to disclose the fact of your connection with the project, it does not entitle you to reveal the nature of your activities. You are advised that the official public statements and releases comprise permissible limits of disclosure of information at this time. Independent publications, addresses or advertising by individuals or groups cannot be released without prior clearance.

It is the desire of the War Department to make available information which can be released without jeopardizing the security of vital phases of the project. For this purpose, a control group has been established for the clearance of all requests for release or utilization of information relating to the project. Requests for clearance should be addressed to either Major General L. R. Groves, P. O. Box 2610, Washington, D.C., or The District Engineer, Manhattan Engineer District, P. O. Box E, Oak Ridge, Tennessee.

Requests must be in writing and accompanied by the full text of the proposed release including exhibits and illustrations, all in triplicate. The present security classification of data included in proposed releases will be retained, and all documents will be handled in accordance with such classification.

Your cooperation in complying with the modified security policy is necessary. Your attention is invited to Espionage Act 50, U.S.C., 31 and 32, covering unauthorized disclosures of information, and to the fact that even information classified as low as RESTRICTED falls within the scope of this act.

I wish to express appreciation for your contribution to the success of the project, and I am confident that the United States can depend upon your whole-hearted compliance and support during this period into which we are now entering.

Very truly yours,

K. D. Nichols
K. D. NICHOLS,
Colonel, Corps of Engineers,
District Engineer.

BIOGRAPHY - DR. JACK SCHUBERT

DATE AND PLACE OF BIRTH: September 14, 1917; Chicago, Illinois.

EDUCATION: Bachelor of Science, University of Chicago, 1940;
Doctor of Philosophy (Chemistry), University of
Chicago, 1944.

WORK HISTORY: Analytical Chemist, Burgess Battery Co., Freeport,
Illinois, and Charlestown Ordnance Works, Charlestown, Indiana, 1940-1942;
Research Chemist, Metallurgical Laboratories, University of Chicago,
Chicago, Illinois, 1942-1943; Clinton Laboratories, Oak Ridge, Tennessee,
1945-1947; Assistant Professor of Physiological Chemistry, University of
Minnesota, 1947-1948; Radiochemist, Bikini Resurvey Expedition, Summer,
1947; Lecturer (part-time) in Chemistry, University of Chicago,
1951-1955; Senior Chemist, Argonne National Laboratory, 1948-

PROFESSIONAL ACTIVITIES: Chairman, Gordon Research Conference on
Ion Exchange, 1954; United States Delegate to the First International
Conference on the Peaceful Uses of Atomic Energy, Geneva, 1955; Senior
Postdoctoral Fellow, National Science Foundation, Spent at Federated
Polytechnic Institute, Zurich, Switzerland, 1956-1957; Robert Gnehm
Memorial Lecturer, Zurich, 1957; Visiting Professor, University of
Frankfurt, 1959-1960; Member, Board of Editors, Journal of Chromatography,
and Atompraxis; Co-editor, "Ion Exchange Technology" (1956); Co-author,
"Radiation - What It Is and How It Affects You" (1957); Author and
co-author of over 100 scientific publications and patents. Research activities
include: Methods of removing radioactive elements from the body; treatment
of metal poisoning; bioassay procedures for determination of human
radioactive contamination; fallout hazards; theory and applications of
ion exchange; surface chemistry; processing of fission products; chemical
and biological aspects of chelation; mechanisms of the radiobiological
actions of ionizing radiation; mechanism of metal ion activation of
enzymes.

BIOGRAPHICAL INFORMATION ON JACK SCHUBERT

Date and Place of Birth: September 14, 1917, Chicago, Illinois

Education: B.S., University of Chicago, 1940 - Major in Chemistry and Mathematics;
Minor in Biochemistry
Ph.D., University of Chicago, 1944 - Physical (Surface) Chemistry;
Post Ph.D. laboratory courses in biology - anatomy, physiology,
embryology, biochemistry

Foreign Languages: (Fluent) - German and Spanish; (Fair) - French and Italian

Positions Held:

Professor of Radiation Chemistry, Graduate School of Public Health, University of Pittsburgh, 1965-present; Consultant in Radiation and Radiochemistry, Argentine Atomic Energy Commission, 1963-1964; Visiting Professor of Chemistry, University of Buenos Aires, 1961-1963; Senior Chemist, Division of Biological and Medical Research, Argonne National Laboratory, 1948-1961; Assistant Professor of Physiological Chemistry, University of Minnesota, 1947-1948; Research Chemist, Manhattan Project (Chicago, Oak Ridge) 1942-1947; Lecturer in Chemistry, University of Chicago, 1951-1955.

Special Appointments:

Chairman, Gordon Research Conference on Ion Exchange, 1954; Delegate from the United States to the First International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1955; Senior Postdoctoral Fellow, National Science Foundation, at the Federal Polytechnic Institute, Department of Inorganic Chemistry headed by G. Schwarzenbach, Zurich, 1956-1957; Robert Gnehm Memorial Lecturer, Zurich, 1957; Guest Lecturer, Department of Inorganic and Medical Chemistry, University of Bern, Switzerland, 1957; Exchange Professor, University of Frankfurt and the Max Planck Institut fur Biophysik, Frankfurt/M, 1959-1960; Consultant in Science and Engineering for Argentina and Chile, The Ford Foundation, 1961-1963; Member of the Editorial Board of the Journal of Chromatography and Atompraxis, Fellow, AAAS, and New York Academy of Sciences.

Fields of Research:

Chemical: Surface chemistry; Ion exchange, Micro and semi-micro analysis; Stability constants of complex ions; Radiocolloids and chemistry of fission products; Separation processes; Radiation chemistry; Catalytic decomposition of peroxides by metal chelates.

Biological: Radiobiological mechanisms; Chelation in biology and medicine; Radioelement metabolism and removal; Permissible levels of radiation; Trace metal biochemistry; Toxicology and biochemistry of beryllium; Medium effects in radiobiology; Oxygen-carrying proteins; Applications of log-normal distributions.

Courses Taught:

Radiochemistry, Physical Chemistry, Radiobiology, Health Physics, Principles of Ion Exchange, Coordination Chemistry, Chelation in Biology and Medicine

Accomplishments:

Pioneered in the development of ion exchange processes for the separation of plutonium and fission products from irradiated uranium; developed new methods based on ion exchange and enzymatic techniques for the measurement of the stability constants of complex ions and chelates; role of radiocolloids in the radiochemical behavior of fission products and in metabolic processes; established the chemical principles and calculations involved in the removal of radioelements from animals by means of chelating agents; introduced the concept and use of colloidal metal carrier compounds, such as zirconium citrate for modifying radioelement metabolism; developed the first successful antidote for experimental beryllium poisoning by the use of the lake-forming dye--aurintricarboxylic acid; produced the first experimental evidence for the exchange of atmospheric carbon dioxide with carbonates; role of chelation in biology and medicine; mechanism of radiation effects on the oxygenation reaction in hemocyanin; mechanism of action of cyanide in radioprotection.

Publications:

Articles: Author or co-author of more than 100 scientific publications.

Books:

- (1) "Ion Exchange Technology" (Co-editor with F. C. Nachod), Academic Press, New York, 1956;
- (2) "Radiation: What It Is and How It Affects You" (Co-author, R. E. Lapp), Viking Press, New York, 1957;
- (3) "Copper and Peroxides in Radiobiology and Medicine," Charles C. Thomas, Publisher, Springfield, 1964;
- (4) "Principles and Practice of Chelation in Biology and Medicine," Appleton-Century-Crofts, New York, in preparation.

Patents: Holder of seven patents in the field of radiochemistry derived from Manhattan Project activities.