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May 25, 1954.

Dear Woody,

The enclosed copy is for your information. I dislike very much the way my trip proposal was handled in the Washington office, and in view of my previous discussions with Mr. Strauss about international liaison with respect to the radioisotopes program, I felt very strongly that he should know about this situation. Your office and ORO certainly handled the proposal expeditiously, and I understand gave it your support. I am not at this late date trying to obtain a change in the travel orders. I have already had to make other plans, and ask for other support for portions of the trip. I did however want Mr. Strauss to know what happened.

Paul

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FOLDER Security & Intelligence Visits to Foreign Countries

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Oak Ridge, Tennessee
May 25, 1954

Mr. Lewis Strauss
Chairman
U.S. Atomic Energy Commission
Washington 25, D.C.

Dear Mr. Strauss:

We appreciated your attending the recent meeting of our Advisory Committee on Isotope Distribution and giving your personal thoughts on matters of interest to the Committee. Dr. Hull, Committee Chairman, will soon write you summarizing the Committee's considerations. I was particularly interested in your comments concerning international distribution of radioisotopes. Knowing you had favored distribution for medical purposes, I was glad you made the record clear on this point.

The reason for this personal letter is that certain matters cause me still to be concerned about our program of international distribution of radioisotopes. Of direct concern was denial by the General Manager's office of a trip that I propose to make for the AEC to the Sixth International Cancer Congress at Sao Paulo, Brazil, this July, including visits to major radioisotope using laboratories and hospitals at selected stopovers going to and from the Congress. Enclosed is copy of the itinerary as proposed.

The supporting considerations for the proposed trip are extensive and are therefore appended.

Although the number of stopovers may be large, each is brief and to an authorized recipient of radioisotopes (with 2 exceptions). Because of the minor exceptions and extra length of the trip I offered to support two weeks expenses on leave and not use further annual leave during the year. The transportation expenses are almost the same with or without the proposed stopovers. All of these radioisotope users could thus be visited for little greater investment than just a few.

The proposal was approved by OBO in February but action was held up for 3 months in Washington. The deadline passed for abstracts and essential arrangements. It became frustrating and embarrassing. Preliminary commitments could not be avoided.

Not until May did I learn the trip was disapproved. You can imagine my shock at such lack of appreciation of the values of our international distribution program and liaison with Latin American users, particularly in the medical field. Also it showed lack of consideration of the director of a major Commission program. Naturally I protested strongly. The "buck was passed" from office to office as has often happened in relation to our program because our operations overlap the interests of at least 5 Washington Divisions (Research, Biology and Medicine, Reactor Development, Production and Office of Special Projects).

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Now after much discussion I am promised AEC support of air transportation expenses but only 14 days per diem. My travel orders will however arrive very late for the many final arrangements. Also it is late to seek other financial support. I lose over $500/yr. in U.S. travel expenses for the AEC, and dislike losing more. I believe firmly in the value of the trip to the isotopes program and the AEC and will thus go ahead with it, partly at my own expense and acceptance of assistance from inviting groups.

See ltr June 11, 54

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I call this to your personal attention not because I believe you are responsible for this action, but because I am concerned about the cautious and almost negative attitude at places in the staff on international cooperation with respect to such unclassified materials as isotopes. Precedents for international cooperation in isotope utilization are already well established here as well as in Canada and Europe. Further, such cooperation is in keeping with the aims emphasized by President Eisenhower. Also Milton Eisenhower has called attention to the need for better relations with Latin America.

I regret that Washington staff action was so slow, so reluctant and so unappreciative. I would appreciate your own views on (1) the extent to which the AEC and the Isotopes Division can now cooperate with other nations in the peaceful uses of unclassified radioisotopes, particularly in research and medicine; (2) the value to the AEC and the U.S. of running an isotopes program that is highly respected both here and abroad.

Sincerely yours,

Paul C. Aebersold

Enclosures:
1. Itinerary
2. Supporting considerations

cc: Mr. Tammaro w/ encls.

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Itinerary of Proposed Trip (as of memo of February 17,1954)
Paul C. Aebersold

To San Juan	July 11 (1/2 day per diem)*
San Juan lectures and visits	" 12-14 (on leave)
To Caracas	" 15 (1/4 day per diem)*
Caracas lectures and visits	" 15-17 (on leave)
To Rio de Janeiro	" 18
Rio lectures and visits	" 19-21
To Sao Paulo and Congress	" 22
Cancer Congress, Sao Paulo visits	" 22-29
To Montevideo (UNESCO)	" 30
Montevideo & UNESCO visits	" 31, Aug. 1
To Buenos Aires	Aug. 2
Buenos Aires lectures and visits	" 3-4
To Mendoza	" 5
Mendoza lectures and visit	" 6
To Santiago	" 7
Santiago lectures and visits	" 8-9
To Lima	" 10
Lima lectures and visits	" 11-12
To Guayaquil	" 13 (1/4 day per diem)*
Guayaquil lectures	" 14-15 (on leave)
To Panama	" 16 (1/4 day per diem)*
Panama lectures	" 17-18 (on leave)
To Havana	" 18 (1/4 day per diem)*
Havana lectures	" 19-20 (on leave)
To Knoxville	" 21 (1/2 day per diem)*
per diem days	26
work days	20

*Per diem and official travel status only for air travel time.

1063298

SUPPORTING CONSIDERATIONS FOR TRIP TO 6TH INTERNATIONAL CANCER CONGRESS, SAO PAULO, BRAZIL, AND VISITS TO MAJOR LATIN AMERICAN RADIOISOTOPE USERS.

(1) The trip would provide the Isotopes Division with (a) first hand information on problems of obtaining and using isotopes in Latin American countries, (b) an appreciation of the quality of work being performed and new developments in techniques or application.

(2) It would also assist Latin American radioisotope users by providing latest U.S. information on availability, procurement, techniques, measurement and application. It would help these and other Latin American professional groups appreciate the U.S.A.E.C.'s program in developing peacetime applications of atomic energy.

(3) The Isotopes Division has received numerous invitations for visits from Latin American isotope users or Latin Americans trained in isotopes at Oak Ridge. Also as a member of Colegio Interamericano de Radiologia, as well as major U.S. radiological societies, and also as a member of American Association for Cancer Research and other groups interested in cancer, I have received invitations to address radiology and cancer societies in major cities of the itinerary. Attached is a list of groups from which I have invitations to visit and lecture. Invitations have come from President or Secretary of the societies, and some have been extended under official auspices of the Minister of Health or Education.

(4) Presentation of lectures before the Congress and the other societies would be appropriate as is attested by my nearly 20 years in radiology and cancer research. Copy of professional qualifications is attached.

(5) As Director of Isotopes Division I have taken keen personal interest in developing an international program for distribution of unclassified radiomaterials and related information that would be a credit to the AEC, one well thought of by professional and lay people both here and abroad. Now that Europe has several reactors our international distribution has been directed mostly toward Latin American countries and in keeping with our good neighbor policy I had assumed that we should give understanding attention to Latin American requests, particularly from medical groups.

(6) It is appropriate that I present the invited paper "Progress Against Cancer with Isotopes" at the Cancer Congress (abstract attached) inasmuch as I was personally invited by the President of the Congress, it was approved by the United States National Committee for the Cancer Congress, and is a subject I have followed closely. Also at this same Congress held in 1947 in St. Louis the U.S. international distribution of radioisotopes was first announced and widely acclaimed. Now seven years later a review of progress before the same Congress is timely.

(7) In summary: (a) It would assist in the understanding administration of isotope distribution to Latin American countries. (b) It would contribute to better U.S. and international understanding of the isotopes program and the AEC's peacetime interests. This should be of direct benefit to the AEC.

Paul C. Aebersold

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INVITATIONS FOR LECTURES OR VISITS ON PROPOSED LATIN AMERICAN TRIP

Paul C. Aebersold

San Juan:	Puerto Rican League Against Cancer; Puerto Rico Medical Association, University of Puerto Rico, Associacion Puerto-rriquena de Radiologia
Caracas:	La Sociedad Anticanceroea, Faculty of Medicine of Venezuela
Rio de Janeiro:	Sociedade Brasileira de Radiologica Medica, Instituto Oswaldo Crus, Universidade do Brasil
Sao Paulo:	Sixth International Cancer Congress, Universidade de Sao Paulo, Sociedade Brasileira de Radioterapia
Montevideo:	Ministerio de Salud Publica, Instituto de Radiologia, Sociedad de Radiologica, Cancerologia y Fisica Medica
Buenos Aires:	University of Buenos Aires, Sub-Secretary of Public Health, Associacion Argentia de Radiologia
Mendoza:	University of Cuyo, Sociedad Argentina de Radiologia, Instituto del Bocio
Cordoba:	Escuela Privado de Radiologia
Santiago:	Sociedad Chilena de Cancerologia, Instituto Nacional del Radium
Lima:	Faculty of Medicine, Sociedad Peruana de Radiologia, Instituto Nacional de Enfermedades Neoplasicas, Instituto de Andean Biologica
Panama:	Sociedad Radiologica Panamena
Havana:	Liga Contra El Cancer, Sociedad de Radiologia y Fisioterapia de Cuba, University of Havana, UNESCO Radioisotope Training Course, Instituto del Radium, Hospital Curie

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Professional Qualifications

of
Paul C. Aebersold
Director, Isotopes Division, USAEC

[redacted]

Research in Nuclear Physics, Radiological Physics and Biophysics, 1932-1942

Research and Administration, Atomic Energy (Manhattan) Project, 1942-1946

Administration, U.S. Atomic Energy Commission, 1947 -

Certified Radiological Physicist, American Board of Radiology

Fellow, American Physical Society

Member, American Association for Advancement of Science

Member, American Association for Cancer Research

Associate Fellow, American College of Radiology

Member, American Radium Society

Member, Radiological Society of North America

Honorary Member, Rocky Mountain Radiological Society

Member, New York Academy of Science

Member, Radiation Research Society

Member , Tennessee Academy of Science

Member, Committee on Nuclear Science, National Research Council

Member, Subcommittee on Safe Handling of Radioisotopes, National Committee on Radiation Protection

Secretary, USAEC Advisory Committee on Isotope Distribution

Member, Advisory Committee on Radioactive Isotopes, Council on Pharmacy and Chemistry, American Medical Association

Member, Committee on Use of Radioisotopes in Hospitals, American Hospital Association

Member, Fifth International Congress of Radiology, Chicago, 1937

Member, Sixth International Congress of Radiology, London, 1950

Member, Seventh International Congress of Radiology, Copenhagen, 1953

U.S. Delegate, Fourth Inter-American College of Radiology, Mexico, D.F., 1952

Member, Fourth International Cancer Congress, St. Louis, 1947
" Fifth " " " Paris, 1950
" Sixth " " " Sao Paulo, 1954

PROGRESS AGAINST CANCER WITH RADIOISOTOPES*

by
Paul C. Aebersold, Ph.D.
Director, Isotopes Division
U. S. Atomic Energy Commission

ABSTRACT

The international availability of radioisotopes produced by nuclear reactors was first announced almost 7 years ago at the Fourth meeting of this Congress. It was recognized that this would greatly benefit the study and treatment of cancer. Initially available only from the United States, these radioisotopes soon become available from Great Britain, Canada, and France and later from Norway. Soon they will be available from reactors in many nations. With modern air transportation, physicians anywhere in the world can be supplied with useful radioisotopes. It is appropriate therefore to evaluate the progress made against cancer using radioisotopes and to look at their future potential.

The unique properties of radioisotopes fit them for an important role against cancer. Because of their effectiveness as tracer atoms and also as intracellular radiation sources, radioisotopes find widespread use in research diagnosis, and therapy. The extent of their usefulness is attested by the wide variety of applications in hundreds of medical and research groups in over 30 countries and by the large volume of publications.

Success against cancer with chemical or physical agents must exploit differences between cancerous and normal tissue. An intense search is

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*Paper to be presented at the Sixth International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954.

consequently being conducted with isotopic tracers to find basic differences. Although no single factor has yet been found which distinguishes all cancer cells from all normal ones, potentially useful differences are being brought to light. For example, the substantially faster nucleic acid synthesis in cancer cells may present a vulnerable metabolic pathway which could be blocked by chemical or biochemical agents. Also, such a metabolic difference may present a mechanism for selective and suicidal concentration of an appropriate radioactive metabolite.

In diagnosis, several tests with tracer atoms can be used to reveal the presence and extent of certain types of primary and metastitic lesions. Widespread routine clinical use of such tests, except for the classical example of radioiodine uptake by thyroid or thyroid cancer tissue, awaits clearer understanding of the mechanism of selective absorption.

In therapy, radioisotopes play a cancericidal role by both biochemical and physical placement. No outstanding curative procedures have developed using biochemical placement but much palliative benefit is often obtained and many cancers can be abated for useful periods of months or years. A sufficiently lethal dose to eradicate a cancer is not generally feasible because of radiation damage to nearby tissues or insufficiently high differential uptake. Destruction of specific tissue without serious patient damage requires a concentration of radioactivity in that tissue more than 100 times greater than in most other body tissues. Except for localization of radioiodine in active thyroid tissue, such selective concentration has not been realized.

Physical placement of radioisotopes is accomplished by interstitial or intracavitary injection or by interstitial implants. Radioactive materials or colloids are instilled directly into a cavity or into a balloon placed in the cavity. Colloidal radiogold or colloidal chromium radiophosphate is

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injected into inoperable prostatic carcinomas with a fair record of regressions. Radiogold is instilled routinely into pleural and peritoneal cavities for the control of fluid formation in patients with extensive metastases in these cavities. For implantation, the now available variety of radioisotopes allows the development of more advantageous forms. Cobalt 60 can be used with some advantage over radium while Gold 198 is found better in most respects than radon.

Very intense sources of gamma-ray emitters such as Cobalt 60 have made possible the development of various teletherapy-beam devices. These can be used to treat deep-seated cancer in much the same manner as two million volt x-ray machines, but have advantages in compactness, maneuverability, and cost.

In conclusion: (1) The greatest value of radioisotopes to date in the cancer field has been in research on biochemical details of cancer cells and mechanisms of agents which affect these cells. (2) The potentialities appear very promising for diagnostic tests which depend either on a selective uptake of radiomaterials by cancer tissue or by a systemic change in metabolism of a radiocompound due to the presence of cancer. However, actual diagnostic applications are still quite limited. (3) In therapy, much hope has been placed on obtaining selective biochemical concentration of radiomaterial in cancer tissue, but here also the clinical applications are still quite limited. Greatest progress has been made in developing new ways to obtain advantageous physical placement of radiomaterials by interstitial injection, instillation into cavities, or implantation. Gamma-ray-beam devices have also been developed which produce results similar to million-volt-range x-ray equipment but which have certain advantages in obtaining desirable radiation dosage patterns. (4) Thus, research teams find radioisotopes invaluable and indispensable tools; clinical teams do not find radioisotopes indispensable but frequently advantageous adjuncts to other modalities.

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