

# The Harvard Crimson

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## Hertz to Use Nuclear Fission in Cure for Cancer

By [Donald G. Vincent](#),

Dr. Saul Hertz, instructor in Medicine in the Medical School, has announced that he has founded an institution, The Radioactive Isotope Research Institute, whose purpose is to apply radioactive fission products to the treatment of the thyroid cancer, goiter, and other malignant growths.

Dr. Hertz is connected with both the Medical School and Beth Israel Hospital as medical associate and research associate. In the past, he has been in charge of the Thyroid Clinic of the Massachusetts General Hospital and Research Associate at the Massachusetts Institute of Technology.

The research conducted by Dr. Hertz and others which led to the Radioactive Isotope Research Institute, was financed by a grant from the John and Mary Markle Fund in New York City and the Milton N. Proctor Fund here. Most of the work was done at the Massachusetts General Hospital and at M.I.T.

### **Wants Central Agency**

Dr. Hertz has long hoped that the government will set up a centralized agency to handle the distribution of radioactive isotopes for use by private enterprises working on approved projects. Now that isotopes are about to be released in greater quantity than ever before, the matter is assuming immediate importance. For although more isotopes are available than previously, the quantity at hand is limited and an efficient organization in the field is necessary.

The new Institute, financed by the establishment of a memorial to the Aaron Daniel and Bertha Hertz family of Cleveland, Ohio, will be the first privately endowed organization to receive regularly a clinical supply of radioactive iodine and radioactive phosphorous, by-products of the uranium piles which produce plutonium for use in atomic bombs. This method of production is relatively cheap, since the only alternative means is cyclotron bombardment which produces such small quantities as to be impractical for the desired scale of operation.

### **Elements Absorbed by Gland**

Chiefly concerned are isotopes of elements which the thyroid, especially in cases of toxic goiter, has the property of absorbing and concentrating at the afflicted portion of the gland. This process enables

the radiation emitted by the radioactive isotopes to destroy harmful growths. Other elements which do not become concentrated in the body as iodine does, may be used in research on body chemistry, since by their effect on a Geiger counter, their progress through the body may be traced--thus they are termed "tracer elements."

The beauty of radio-therapy, lies not only in its more favorable rate of cure over the customary surgery, but in its simplicity.

### **Simple, No Ill Effects**

Few ill effects from this treatment have been noted. When radio-therapy was first used an the correct dosage was not accurately known, a few cases of "radiation sickness" were noted, but this had been encountered before the use of radium treatments and hence was not overly alarming.

Radioactive iodine, which has now been shown to be effective in curing disease, is a by-product of nuclear chain-reacting "piles," used to manufacture the materials for atomic bombs. There are many such piles now in operation, all under Army direction. Up to the present, the Army has been unable to release the radioactive by-products of the piles for medical or research purposes. Any one of the existing piles produces more than enough radioactive iodine in one day's operation to treat every sufferer from Graves' disease in the country. At present, all such radioactive materials are stored in vats.

The patient drinks a glass of water containing the tasteless radioactive iodine. The treatment is not only simple, but should be inexpensive. Even as now produced by cyclotrons, it costs less than a surgical operation.

Dr. Hertz feels that the application of isotope research to the cancer problem will be along "tracer" lines, since it has been demonstrated that the majority of cancerous thyroids do not take up the radioactive iodine in the manner in which do the glands of patients suffering from Gravea' disease.

Dr. Hertz was born in Cleveland and is a graduate of the Harvard Medical School Class of 1929. After an internship and residency in Medicine at Mt. Sinal Hospital in Cleveland, he returned to Boston and has been active in research in thyroid disease since 1931. He has contributed numerous scientific articles in endocrinology and is a member of the Society for Clinical investigation and the Federation of Experimental and Biological Societies. He is also a member of Phi Beta Kappa. He has been on the staff of the Massachusetts General Hospital and was in charge of the Thyroid Clinic until his entry into the Naval service.

### **Stresses Interaction**

In an interview yesterday. Dr. Hertz stressed the production of this new form of treatment as an example of the need for close interaction between technological science and the medical profession for full utilization of these fields. He warned that in a sense, this discovery might tend toward a complacent attitude in regard to pushing forward toward the development of even more fundamental forms of treatment of Grave's disease. However, he emphasized this example in therapeutic application as a beacon in utilizing the tracer methods employing radioactive substances for the analysis of cellular function, growth, metabolism and nutrition in the body and in other organs than

the thyroid. He pointed out that knowledge gained about the thyroid has already led him and others to many stimulating theories in the cancer and enzyme fields.

Radioactive isotopes of phosphorus have been employed in palliative therapy in such conditions as leukemia and polycythemia; but the goiter treatment by means of radioactive iodine he holds, represents a "first" in what he hopes will be a long series of definitive treatment based upon the application of fundamental researches of the nuclear physicists.