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Dr. Earl R. Miller

X-Ray Trends Speaker's Topic

The fifth in a series of visiting professor programs will be held April 13 at B nalillo County-Indian Hospita.

Heading the program will be Dr. Earl R. Miller, professor of radiology at the University of California Medical Center in San Francisco.

He will explain X-ray movie techniques and comment on movies of the mouth and pharynx in speech and " icuration."

At 6:30 p.m., Dr. Miller will discuss trends in X-ray diagnostic techniques at a dinner lecture at Hoyt's Dinner Bell. All members of the County-Medical Society are invited and reservations are made through the BC-I Administration office.

On April 14 and 15 Dr. Mille will evaluate present and future needs of the X-ray department at the county hospital, a member of the hospital's executive committee said.

Latest Gadget for Doctors' Diagnoses--X-Ray Movies

BY MILTON SILVERMAN
Science Writer, The Chronicle

[illegible] kind of diagnostic weapon [illegible] movies—may revolutionize [illegible] study and treatment of disease. [illegible] already been used to solve [illegible] mystery of how food [illegible] swallowed.

[illegible] been applied to study the [illegible] motions of the bones and [illegible] put to work in de[illegible] new treatments [illegible] patients and for at [illegible] the result of a gun-shot wound, was unable to swallow.

Details of the new procedure were presented here yesterday before the American Laryngological, Rhinological and Otological Society by Drs. John Saunders, Earl Miller and Howard Naffziger of the University of California.

They predicted X-ray movies will also be applied in future investigations of the movements of the heart, lungs, blood vessels and other parts of the body.

In ordinary X-ray examinations, the doctor gets only one or two pictures of his patient. These will reveal something broken, or out of place, or diseased. But these "still pictures" won't show faulty motions.

"That," the UC doctors said, "requires moving pictures."

Under ordinary conditions, it is impossible to get X-ray movies. The amount of X-rays needed to give clear pictures would probably kill the patient.

For this purpose, it was necessary to devise special equipment so that the patient could be given intense X-ray illumination for only a very few seconds.

The three doctors yesterday demonstrated a movie of swallowing made in four seconds. The pictures, shot at the rate of about 120 frames per second, show precisely what happens when a healthy person swallows food or liquid.

They demonstrated similar pictures made of the swallowing motions of a patient who had been shot in the neck, and who had been afflicted with partial throat paralysis. These movies indicated that the paralysis might be corrected by transplanting some neck tendons to form a "sling."

The operation was performed and the patient was able to swallow again.

Future applications of the X-ray movie technique, it was claimed, will depend on the development of equipment which can give brighter pictures without requiring so much exposure to X-rays.

Some experts are attempting to get such pictures by devising better optical lenses.

Others are working on television-like electronic systems which will brighten the picture electrically.

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Gold Medal American Coll. of Radiology 1972

Earl R. Miller

By Alexander R. Margulis

In 1930, a shy graduate student at the University of Wisconsin, who had an M.A. in physics, felt that there was a great need for the application of physics to medicine. He thought that radiology was e logical area where physics should be a plied and went to see Dr. Ernst Pohle, head of the department of radiology at the university.

He was given a list of four articles to read and an appointment to return in 10 days. The young Earl R. Miller read the articles, then went to the bibliography and read each of the articles mentioned, then read the books to which the articles referred. He worked day and ht and saw Dr. Pohle in 10 days. Dr. P ile was busy and asked Earl if he had read the articles. Receiving an affirmative reply, Dr. Pohle gave him a list of a few more and was amazed to learn that every article listed had already been read by the young student.

After going through the list for 5 minutes, he stopped, opened a desk drawer for a key, then motioned for the young man to follow him to a lab two floors away where he told young Earl, "This is your lab and you will be working on physics in radiology."

This prediction was remarkably accurate, as was that of Dr. Ed Chamberlain, who heard about the young man. They chatted for a while on what Earl was doing. On leaving, Dr. Chamberlain said, "You'll have an interesting life, young man. You will spend the first half of your life working yourself out of the laboratory and the second half working yourself right back into it."

Earl R. Miller was born in Milwaukee, Wisc., on Oct. 18, 1907. He received an A.B. and M.A. in Physics from the University of Wisconsin, spent a year at the Rockefeller Institute as an assistant in bio-

(Continued on page 4)

physics, then attended the University of Wisconsin School of Medicine from 1932 to 1936, earning his M.D. in that year.

He spent a year at Yale University with Dr. Hugh Wilson, then came to the University of California in 1940 as an instructor. Over the years he rose in rank from instructor to become the youngest full professor on the University of California, San Francisco campus. During World War II, he was chairman of the department of radiology while Dr. Robert S. Stone was attached to the Manhattan Project.

At the Forefront

Very few people in academic radiology have had the tremendous impact on its development as Earl Miller has had. He was in the forefront, introducing angiocardiography as a clinical method in 1940. He was among the first workers to introduce cine and TV into the daily clinical situation in diagnostic radiology, as well as arterial catheterization and simultaneous recording of physiologic measurements on kinescopic film.

Dr. Miller participated in the early development of almost every diagnostic technical advance. He participated in the early investigations and diagnostic as well as therapeutic applications of radioactive iodine, in the application of discs for video storage and in the development of anisotropic subtraction for edge enhancement. He also developed the concept of tomography obtaining an infinite number of body sections from a limited number of conventional radiographs obtained by moving only the x-ray tube. His work on immediate access to radiographs on the ward through the imaginative use of video discs may relieve the radiologist of man headaches and, seemingly, insurmountable difficulties. Dr. Miller has also performed some very exciting physiologic research in voiding and urinary continence. Another great interest has been his understanding of the mechanisms of speech and developing methods for study of this uniquely human function.

Active Teacher

Dr. Miller is active as a teacher and administrator. He has contributed a great deal in public service to the University of California as well as to American radiology. He has been a member of the American College of Radiology since 1950, and was a member of its Board of Chancellors from 1954 to 1957. He was chairman of the board from 1957 to 1958. He served on the College's Commission on Education from 1957 through 1965, the last five years as its chairman, during which time Dr. Miller led the thrust of the College into the educational sphere.

It is indeed a wonderful tribute to Dr. Miller that he can receive this Gold Medal while still in full swing as a teacher, investigator and public figure in radiology, enjoying his work and being loved and esteemed by his students and co-workers.

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14 Los Angeles Times
Part I—TUESDAY, DEC. 7, 1954

RADIOLOGISTS—Dr. Earl R. Miller, left, and Dr. L. S. Taylor at Radiological Society of North America's five-day meeting which is being held at the Biltmore. Times photo

X-Ray Movies Saving Lives, UC Doctor Says

New Technique Described at 40th Meeting of Radiological Group; 2000 in Attendance

BY WILLIAM S. BARTON

Lives of children and adults are being saved by X-ray motion pictures, sometimes involving television, and similar X-ray techniques which often show critical operations aren't needed.

This was disclosed yesterday at the 40th annual meeting of the Radiological Society of North America. More than 2000 doctors and radiologists from all parts of the country are attending the five-day meeting in the Biltmore.

The magic of the new X-ray movie technique was described by Dr. Earl R. Miller of the University of California Medical School, San Francisco.

Cites Blue Babies

"X-ray movies," he said, "now can be done in several ways, including direct photography of the fluorescent screen with image intensifiers and use of television techniques. They make it possible to study such rapid motions as swallowing and fast motions inside the heart."

Children born with heart trouble of the "blue-baby" type, he indicated, either have been saved from immediate operations or given better and specially designed operations after X-ray movies. Some advantage has been gained by hooking the X-ray motion pictures to television screens.

"When we can get a b[illegible] more light," he said, "it should be possible to make X-ray motion pictures of the brain through the skull, b[illegible] that may take more time. Stanford University is producing an improved type of screen."

K C. Star
Early 1950s

New Way To Treat Cleft Palates

Doctors at the University of California Medical Center here are using a new combination of X-ray motion pictures and electronic sound-analyzing devices to help patients with severe speech defec

The equipment is adding greater certainty to the diagnosis of problems such as physicians decide how to treat them through surgery and speech therapy.

A group of specialists at UC's Cleft Palate Clinic described the new techniques to reporters last eek at a forum sponsored by the American College of Radiology.

Cleft palate is a birth defect in which the soft palate far in the back of the mouth is unable to seal off the nasal passages during speech. This causes voice sounds to move through both the mouth and the nose — with characteristically nasal speech and abnormal pronunciation. Similar speech defects can stem from other causes too.

MOVIES

At the UC clinic patients with speech defects are photographed with X-ray motion picture cameras while they enunciate word sounds. Their sounds are simultaneously tape-recorded and analyzed by machines that show the pattern of sound frequencies on oscilloscopes.

By observing the movements of a patient's palate and throat while the sound pattern for each word is displayed, speech abnormalities can be linked directly with specific anatomical defects.

Trhough a deft combination of X-ray fluoroscopic equipment and televis n image intensifiers, you patients can be photographed for relatively long periods with X-ray exposures that give only a fraction of the radiation dosage incurred in a normal chest X-ray.

THERAPY

After the diagnosis is complete at the UC clinic, patients can be referred to speech therapists for training, to surgeons for corrective operations, or to dental specialists. In any case, speech therapy continues for a long time.

While every patient must be heard subjectively by a skilled examiner in order to diagnose his speech defect, the X-ray movies and electronic analysis of speech sounds add vital objectivity to the study, according to the UC doctors.

Members of the Cleft Palate Clinic who described the diagnostic work last week included Dr. Earl Miller, radiologist; Dr. Egil P. Harris, professor of dentristy; Dr. Lucie I. Lawson, speech therapist and audiologist, and Dr. John Q. Owsley Jr., surgeon.

Summer Classes In Hebrew Open June 8

The third annual Modern Hebrew Summer Institute for adults will start June 8 at the College of Jewish Studies, it was announced yesterday.

Classes on all levels, with emphasis on conversation, will be conducted by the Bureau of Jewish Education at the college, at 639 14th avenue.

Classes will meet twice weekly, with morning sessions from 10 a. m. to 12 noon, and evening sessions from 7:30 to 9:30, according to Rabbi Bernard Ducoff, executive director.

Scholarships

Four $2 0 college scholarships will e awarded yearly to children of Teamsters Union members, beginning in September of 1965, the union's Western Conference announced here yesterday.

IODINE A CANCER HOPE

RADIOLOGIST HAILS SUBSTANCE TO FIGHT MALIGNANT THYROID.

Inoperative Conditio of Gland Best Combated at Present by Radioactive Isotope, Says California Professor.

Los Angeles, March 13.(AP)—Radioactive iodine, "probably more than anything else at this moment," offers hope in combating inoperative cancer of the thyroid gland, says Dr. Earl R. Miller, noted radiologist.

The same isotope, he said, also is effective in the treatment of hyperthyroidism, or goiter, in many cases replacing surgery.

A Radiology Expert.

Miller is professor of radiology at the University of California school of medicine and consultant in radiology for the United States veterans hospital in San Francisco, the United States public health service and the San Francisco public health service.

He addressed a convention of 2,500 doctors, sponsored by the alumni association of the medical school, College of Medical Evangelists, on the use of iodine 131 in diagnosis and treatment of hyperthyroidism. The annual 5-day convention opened Sunday.

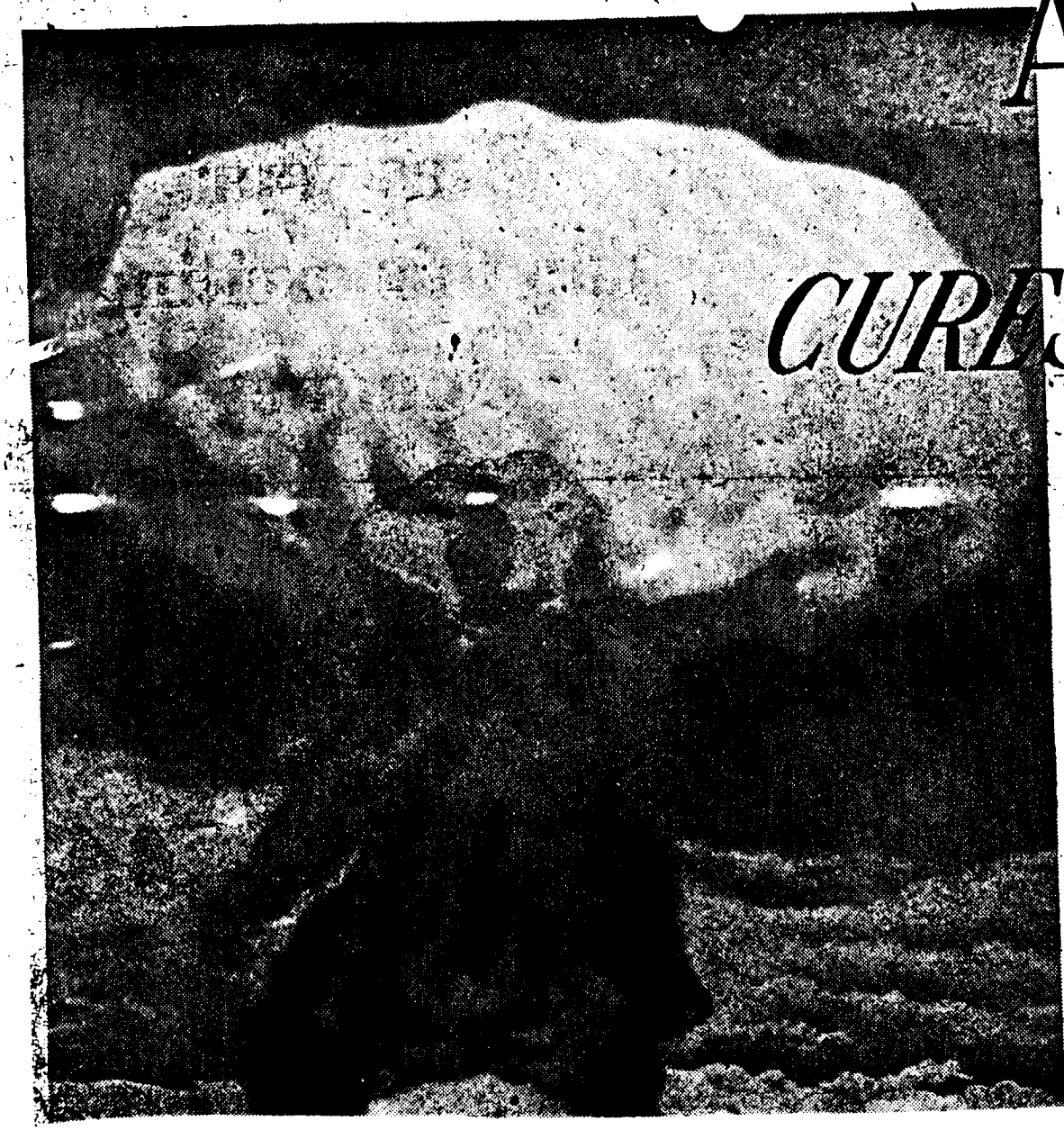
Miller described this use of radioactive iodine in attacking inoperable cancerous tumors in the thyroid area:

Affinity to Thyroid Area.

Most of the normal thyroid gland in the neck is removed by surgery. Radioactive iodine is then administered orally. Iodine has an affinity for thyroid tissue and seeks that area. If the tumerous masses pick up the radioiodine, they become normalized—that is, they cease to be malignant. Furthermore, these normalized masses tend to function as a thyroid. If they don't, thyroid extract can be administered by mouth.

The reason most of the normal thyroid gland is removed in the first place is that, if left in the body, it would take up the radioactive iodine rapidly, since it has an affinity for iodine, and the cancerous tumors would remain virtually unaffected.

Radioactive iodine, Miller said, is easy to take and has a short half-life. This means it loses its radioactivity relatively quickly. Substances with longer radioactive life might injure normal tissue.



ATOMIC World's CURES Diffused

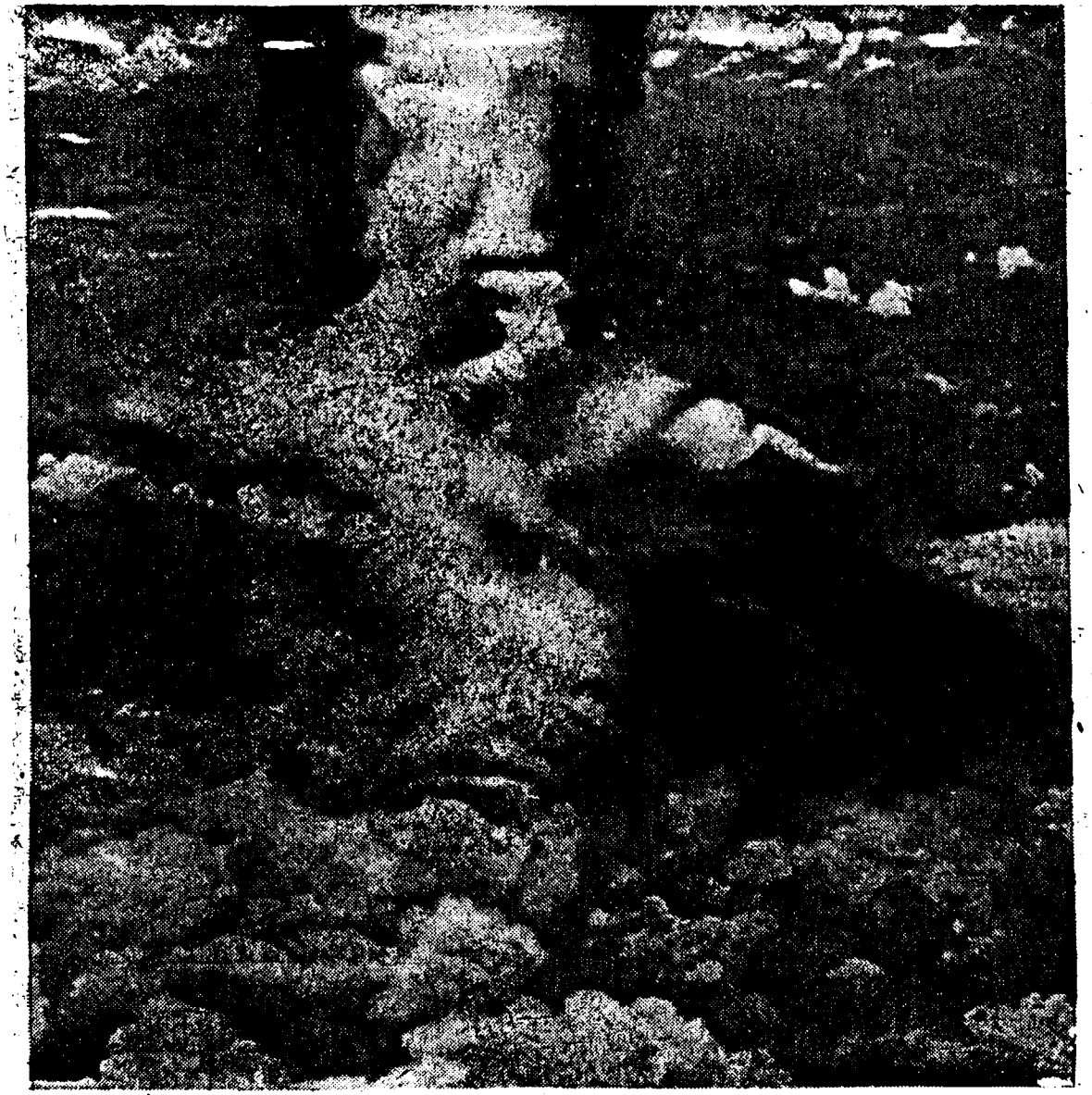
By G. B. Lal

Science Editor, The American Weekly

IN simple medicinal form, atomic energy is on the way to saving more lives than, in the form of bombs, it destroyed at Nagasaki and Hiroshima.

From the uranium stockpile at Oak Ridge, Tenn., radioactive iodine today is being produced in constantly increasing quantity and flown to every part of the nation to meet the demand for treatment of persons suffering from Graves disease, or toxic goiter.

The treatment is used only for "diffuse" goiter, in which the hormone producing tissues of the thyroid gland swell up and become overactive throughout the gland, not for "nodular" goiter in which definite tumors grow in the gland. The nodular disease is treated by surgical removal of the tumorous tissues.



Nagasaki Was Destroyed by the Atom Bomb, but In Its Wake Came Word That the Killer Can Also Cure Disease.

The treatment is being used with good results in a very high percentage of cases —as high as 90 per cent at some clinics.

These cases are, in layman's language, "out-and-out cures;" medically speaking, "remissions."

The medical profession, always wary of the phrase "permanent cure," prefers to refer to them as "very satisfactory."

Symptoms of goiter have vanished in the great number of cases receiving radioactive iodine treatment.

And though the medical profession is constantly on the alert for any later harmful results, keeping apparent cures under observation for years, no harmful results have yet been noted in any case.

In other words, from all the evidence so far established, a properly given small dose of radioactive iodine will very likely dispose of a diffuse goiter, and, if it fails to do so, will cause the patient no harm.

The American Weekly first told in 1946 of the successful use of radioactive iodine in the treatment of goiter and urged that the government's uranium stockpile be made available to medical science for the benefit of mankind.

Very shortly afterward the government acted accordingly.

Up to that time radioactive iodine had been produced in cyclotrons, a slow and extremely expensive process. The first time it was made at the University of California more than 10 years ago in the cyclotron built under an endowment by the estate of

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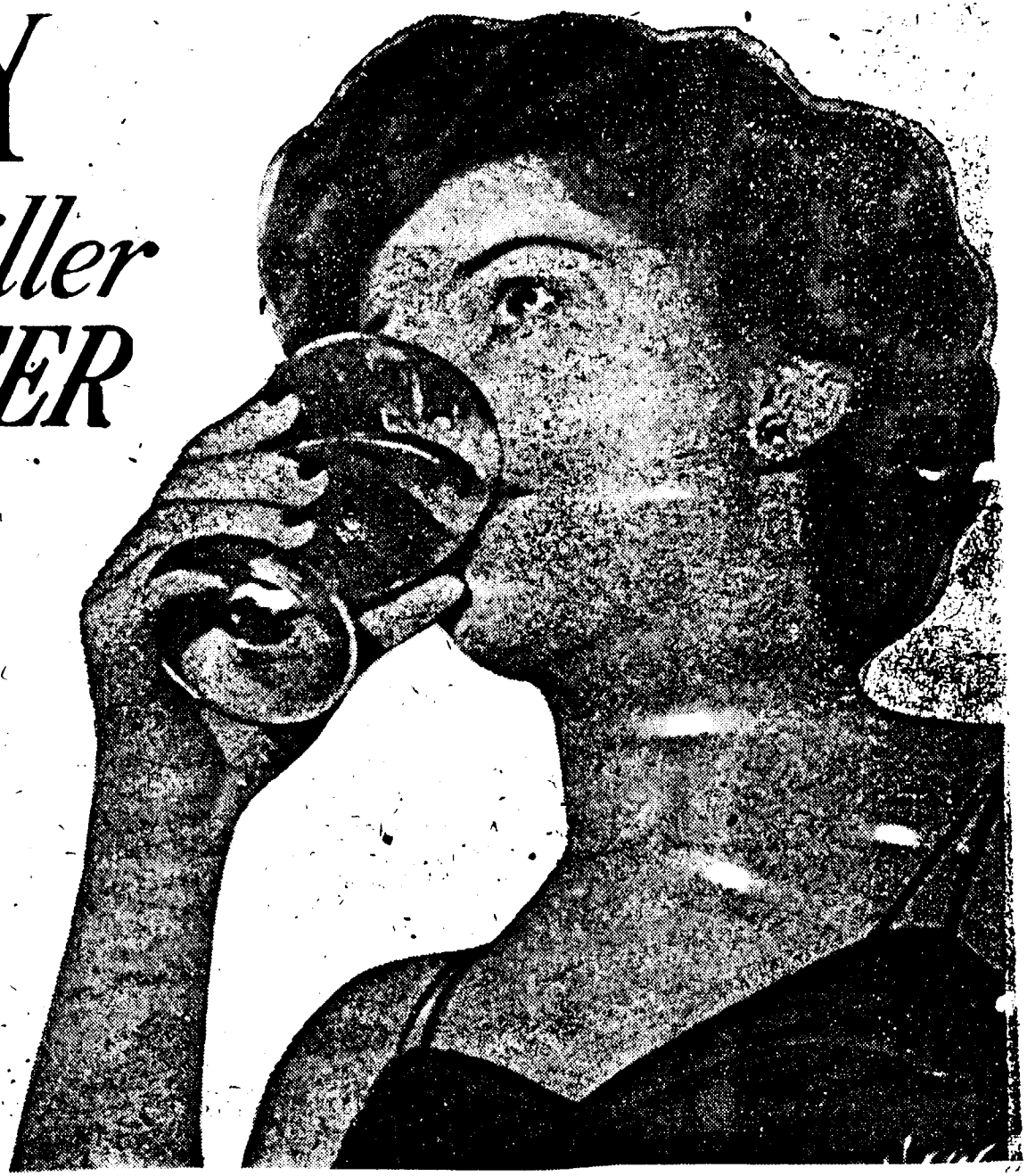
ENERGY
Greatest Killer
Toxic GOITER



the late Mrs. Phoebe Apperson Hearst, mother of William Randolph Hearst. Prof. Ernest O. Lawrence produced the medicine.

Soon afterward it was produced at the Massachusetts Institute of Technology, with a cyclotron under the direction of famed physicist Dr. Robley R. Evans. The cyclotron showed how the atomic pile could serve medicine.

Today's process at Oak Ridge is faster and considerably less expensive, yet the production is hardly sufficient to meet the increasing demand as the treatment becomes more and more widely accepted with mounting indication of apparently complete cure, comparable to best deep X-ray therapy.

Checking back on its own trail, The American Weekly recently contacted Mrs. Anna D. Dane, of Watertown, Mass., whose

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own story of goiter cure by radioactive iodine was published in the issue of June 2, 1946.

"I'm in the best of health—completely cured," was her recent report, attested by her husband, Henry Dane, a Boston merchant.

Mrs. Dane, like most others who undergo the treatment, drank only one small dose of the nearly tasteless radioactive iodine in order to regain her health after she and her family had despaired of her life.

Another check with some of the nation's foremost physicians and clinicians shows that in some 200 cases the radioactive iodine treatment has been successful in between 80 and 90 per cent of all cases and that no harmful results have been noted when the treatment was properly done by experts.

Dr. Sidney Charles Werner, professor of Medicine at the Columbia College of Physicians and Surgeons, and the Presbyterian Hospital in New York; and Dr. Earle M. Chapman, of the Massachusetts General Hospital in Boston, have treated more than 150 cases. At a recent convention of radiologists in Boston their successful results were estimated at nine out of every ten patients.

Other enthusiastic pioneers in this field are Dr. Mayo Hamilton Soley, professor of Medicine at the University of California Medical College in San Francisco; Dr. S. M. Seidlin, of the Medical Physics Research Laboratory of Montefiore Hospital, New York; Dr. L. D. Marinelli of the Memorial Hospital, New York; Dr. J. H. Means of Harvard University Medical School and Massachusetts General Hospital; and Dr. Saul Hertz of the Beth Israel Hospital, Boston, who with Dr. A. Roberts and Dr. Evans, M.I.T. physicist, prepared an extensive report of successful case histories as far back as 1942.

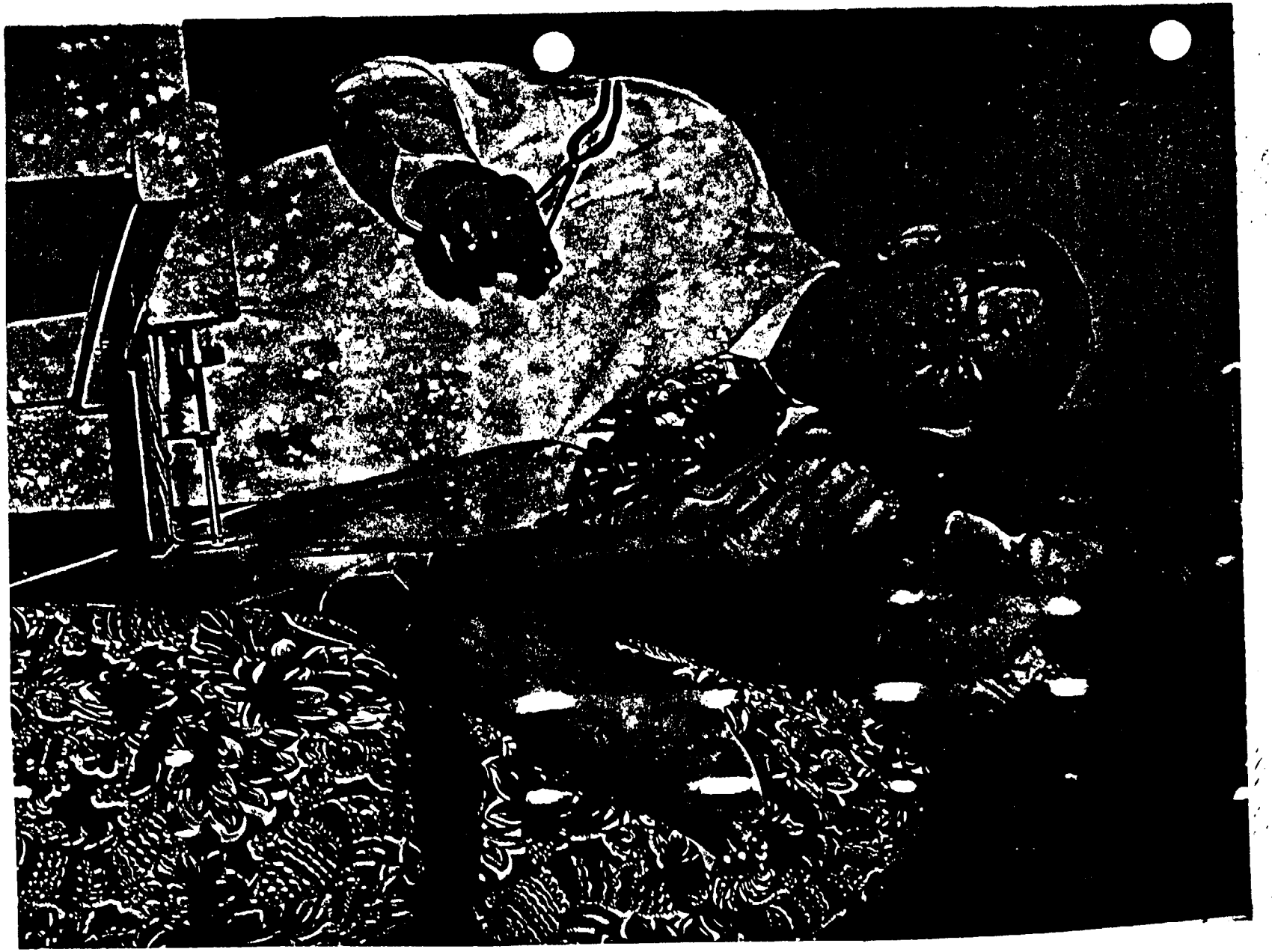
The Atomic Drink—Colorless, Odorless, Tasteless, Like the Purest of Water—Is Science's Newest Disease Killer. The Dose, Usually Small, Invariably Is Diluted With Water.

One of the most recent and most authoritative reports indicating medical science has finally found a simple, harmless remedy for diffuse toxic goiter is made by Prof. Robert S. Stone, physician-radiologist working with Dr. Earl Miller at University of California Medical College. He said:

"Radioactive iodine therapy for Graves disease has given very good and successful results in some 90 per cent of cases. The latest method is to give smaller doses more frequently. This prevents too much reduction in thyroid activity."

In New York, Dr. Irving Somach, noted clinician working with radiologists, declared:

"This is the treatment of choice—perfect for diffuse toxic goiter. It is safe even though it is experimental."



3001300 ER Miller Administering Radiodine to a patient with hyperthyroidism 1942