BIOPHYSICS

Use Rotation for X-Rays

➤ MOST CANCERS in the chest should yield to rotation X-ray treatment, Dr. Edith H. Quimby of New York declared at the meeting of the American Roentgen Ray Society in Los Angeles.

Rotation therapy, as it is called, is "cross-fire technique pushed to the limit," Dr. Quimby said.

In this treatment the patient is rotated about an axis so that the largest possible number of "ports," or entrances, are taken by the X-rays on the way to the cancer.

With this technique, the cancer region can generally be given a uniform dose which is considerably higher than that to any other tissues, so that damage to them by the rays is avoided or kept to a minimum.

The cancer is usually placed at, or close to, the axis of rotation, and the efficiency of the therapy may be described by the ratio between maximum skin dose and axis dose. The smaller this ratio, the more satisfactory is the arrangement, Dr. Quimby said.

She listed two factors which influence the dosage delivered to the cancer lesion, be it in the head, the pelvis or chest. These factors are:

1. Intrinsic, comprising the size and shape of the body section, the size of the cancer mass, and the nature of the tissues traversed, such as muscle, bone, or lung. These factors cannot be modified by the radiologist; they are characteristic of the individual patient.

2. Extrinsic. These are the radiation quality, target-axis distance, and to a certain extent, field size. Within limits these may be modified in the treatment of a particular patient.

In the head, it appears that even with a large field, and the shorter target-axis distance, the skin never receives as much as two-thirds of the axis dose, Dr. Quimby found from her studies. The situation improves with increased distance.

For cancers situated anywhere in the interior of the head, rotation therapy should be a good technique.

In the pelvis, supervoltage (more than a million volts of radiation) has an advantage for large body sections.

Science News Letter, October 6, 1956

PHYSIOLOGY

Body Build Is Clue

➤ BODY BUILD is linked with juvenile delinquency, Prof. Sheldon Glueck and his wife, Dr. Eleanor Glueck, Harvard Law School authorities on criminology and delinquency, report.

The boy with the solid, muscular build is vigorous, assertive and apt to take out his tensions in action, the Gluecks find. He has a high "delinquency potential," so that if home and social life produce tensions and he has no "approved" outlet, he is likely to become delinquent, engaging in anti-social actions.

Football, and lots of it, is an example of an "approved" outlet for tension that might help save such a boy from delinquency.

Physique or body build is not the one and only cause of juvenile delinquency, the Gluecks point out in their latest book, "Physique and Delinquency," published by Harper and Bros. It is one of many broad variables involved.

Of 500 delinquent boys they studied, however, 60% were the solid, well-proportioned, big-boned athletic type scientists call mesomorph. Of 500 non-delinquent boys studied at the same time, only 30% were mesomorphs.

The boys were otherwise matched boy for boy in age, intelligence, race derivation and type of community from which they came.

The softer, rounder endomorph type of boy is less sturdy, less energetic and less dynamic. He is more inhibited and conventional in ideas and behavior. Of the 500 delinquent boys, only 11.8% were endomorphs.

Ectomorphs, making up 14.4% of the 500 delinquents, are linear and fragile. They present "a more sensitive and aesthetic exterior to the world. They are more tense, inhibited and conflict-ridden, bottling up their impulses and their destructive-sadistic trends."

Science News Letter, October 6, 1956

VITAL STATISTICS

New Mexico Has Lowest Heart Death Rate

➤ LOWEST DEATH RATE for coronary heart disease among white males in the nation is found in New Mexico. Highest is in New York.

The findings are from a nationwide survey made by the U. S. Public Health Service for the year 1950.

The New Mexico rate was 191.1 per 100,000 population compared with 393.8 for New York. Also rating high were Rhode Island, 364.3, and Washington, D. C., 344.3. Other states with low death rates were Arkansas, 201.2, and Kentucky, 211.2.

For white females the differences in death rates from coronary heart disease in different areas were even greater—83.4, 87.8, and 89.0 in New Mexico, Arizona and Nebraska, compared with 217.4, 176.6 and 175.6 in New York, New Jersey and Rhode Island.

Possible explanations for the geographic differences include differences in diet, exercise, stress, hereditary factors, and differences in the physical characteristics of populations in various parts of the country.

The survey is reported by Philip E. Enterline, chief statistician of the heart disease control program of the Public Health Service, and Dr. William H. Stewart, assistant director of the Service's National Heart Institute, in *Public Health Reports* (Sept. 20).

Science News Letter, October 6, 1956

SCIENCE NEWS LETTER

VOL. 70 OCTOBER 6, 1956 NO. 14

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283) authorized February 28, 1950. Established in mimeograph form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation, Advertising Representatives: Howland and Howland, Inc 1 E. 54th St., New York 22, ELdorado 5-5666, and 435 N. Michigan Ave., Chicago 11, SUperior 7-6048.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees — Nominated by the American Association for the Advancement of Science: Paul B. Sears, Yale University; Karl Lark-Horovitz, Purdue University; William W. Rubey, U. S. Geological Survey. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; George W. Corner, Rockefeller Institute for Medical Research; Edward U. Condon, Washington University. Nominated by the National Research Council: Leonard Carmichael, Smithsonian Institution; Jerome Hunsaker, Massachusetts Institute of Technology; I. I. Rabi, Columbia University. Nominated by the Journalistic Profession: Michael A. Gorman, Flint Journal; Neil H. Swanson, Garrison, Md.; O. W. Riegel, Washington and Lee University. Nominated by the Scripps Estate: John T. O'Rourke, Washington Daily News; Charles E. Scripps, Cincinnati, Ohio; Edward J. Meeman, Memphis Press-Scimitar.

Officers — President: Leonard Carmichael; Vice President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff — Director: Watson Davis. Writers: Jane Stafford, Marjorie Van de Water, Ann Ewing, Howard Simons, Dorothy Schriver, Helen M. Davis. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Production: Priscilla Howe, Marcia Nelson. Interlingua Division in New York: Alexander Gode, 80 E. 11th St., GRamercy 3-5410.