

PUBLIC HEALTH

U. S. Suffers Radiophobia

"Radiophobia," a fear of radiation from X-rays that is becoming widespread in the United States, is believed to endanger persons who may possibly need X-ray treatment.

MANY AMERICANS are suffering from a new phobia: radiophobia.

It is characterized by a slight pallor that develops at the mention or sight of the words "radiation" or "X-ray," the simple failure to report for prescribed X-ray treatment, and the consumption of valuable professional time in re-explaining the value of radiation in medical care.

This is disclosed in *The New Physician* (Dec. 1959), the journal of the Student American Medical Association, by Dr. Robert G. Zach of Monroe, Wis., and David S. Goodman of Milwaukee.

The phobia, which has also been referred to as "nuclear neurosis," spread in the wake of the National Academy of Sciences' learned summary on the genetic hazards of radiation in June, 1956.

Now, more than three years later, "after strenuous efforts in defense of X-ray, radiophobia is believed by many to be definitely under control, but it is also believed to have been driven into the subconscious, where it still smolders like a peat bog fire," the scientists say.

Radiologists and others have feared that the maltreatment of just one patient by an inexperienced practitioner, if publicized by a careless writer, could bring the fire back to the surface and perhaps usher in an era

of ill-considered legislation. This could also lead to further public anxiety and under-use of a valuable medical tool.

A healthy awareness of the hazards of X-radiation is desirable, however, the scientists point out. Farsighted individuals in and close to the medical profession have seen the scare as a mixed blessing that possibly helped to curb excesses in the use of radiation and make even competent users more aware of the possibilities for reducing exposure to the patient and to themselves.

Among major conclusions that appear to be emerging from the more responsible public writing and speaking following the publication of the report, they say, are these:

1. Efforts to find ways and means to reduce exposures to the patient should be pursued with renewed vigor, and knowledge of them spread as widely as possible.

2. Laymen need to be re-educated to the importance of leaving the question of radiation up to their physicians, who alone can be the judge of its need in any particular case.

3. Fears engendered over exposures to the reproductive glands are not justified by the dosages given in the routine of more common uses of X-ray.

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GEOPHYSICS

Earth Solid to the Core

THE EARTH is solid down to its core, some 1,800 miles below the surface, and consists of a material about as strong as brick, higher structural strength than previously believed.

There are no convection currents slowly churning over large masses of rock as some scientists believe, Dr. John A. O'Keefe of the National Aeronautics and Space Administration reported. He said his conclusion that the earth's mantle had great strength is based on the NASA discovery earlier this year of the earth's slightly pear-like shape and a recent new determination by the Army Map Service of how much the earth is flattened at the poles.

Dr. O'Keefe told the Philosophical Society of Washington meeting in Washington that his original discovery of the earth's pear-like shape, with Ann Eckels and R. Squires, also of NASA, had been checked and confirmed by Yoshida Kozai of Harvard College Observatory. The earth's pear shape is in addition to its bulging equator, and was discovered from comparisons of the theoretical orbit of Vanguard I with its actual orbit.

He reported that the flattening of the

earth at the poles amounted to one part in 298.24 instead of the previously accepted international value of one part in 297.3. This seemingly small change confirms that the earth's structural strength is much greater than once thought.

Mechanical strength equivalent to building brick is required to support the pear-like shape, Dr. O'Keefe said.

Scientists have long known that, technically, the earth is "an oblate spheroid, slightly flattened at the poles." The amount of this flatness is measured in terms of how much shorter the radius of the earth is at the poles than at the equator. The international figure, one over 297.3, means that the polar radius is shorter by about 13 miles than the equatorial radius.

Studies of the orbital flight of Vanguard I showed that the earth's sea level is 50 feet higher in the north polar region than previously thought and 50 feet lower in the south polar region. Accenting the pear shape is the fact that outside the polar areas, sea levels in the Northern Hemisphere are 25 feet lower than thought, and 25 feet higher in the southern Hemisphere.

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SPACE CAPSULE—On top of this mock-up of a space capsule is a tower 17 feet high and weighing 900 pounds, which supports at the top a small but powerful escape rocket to enable the astronaut to escape should anything go wrong during launching. The figure of a man at the right indicates capsule size.

ASTRONAUTICS

Satellite With Telescope Planned for Fall of 1960

THE LAUNCHING of a satellite with a telescope for scanning the heavens is scheduled for the fall of 1960.

The telescope-satellite will weigh about 3,500 pounds, of which the 36-inch telescope assembly will weigh no more than 500 pounds. The satellite is expected to orbit for a year, 500 miles above the earth about once every 100 minutes.

Instruments and telescope for the satellite are being made at the University of Rochester. The satellite's equipment will be designed to record barely measurable amounts of light, at from ten to 100 Angstroms. One Angstrom equals about one two-hundred-and-fifty-millionths of an inch.

The University of Rochester space scientists hope to adapt the Haloid-Xerox, Inc., xerographic process to the telescopic system. What the telescope sees may be recorded on xerographic dry plates, then telemetered back to earth.

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