MEDICINE

Doctor Urges Care in Use Of Isotopes as Medicine

➤ RADIOACTIVE ISOTOPES, by-products of the atomic reactors producing materials for the A-bombs, when used in treatment of cancer and for other purposes, impose a great responsibility on physicians.

Few conventional medicines, said Dr. Albert H. Holland, Jr., medical director of the Armour Laboratories, Chicago, have the power to produce drastic changes in the body several years after they are administered. This is the case with the radioactive materials given to cancer patients to kill the malignant cells of tumors.

Dr. Holland spoke before the American Association for the Advancement of Science meeting in Philadelphia.

"There is much that remains to be learned concerning the ultimate biologic effects of radiation," Dr. Holland pointed out. "Not only do we not understand the complex biochemical changes occurring during the acute phase of radiation damage, but we also have a very limited fund of knowledge concerning genetic effects of total body radiation."

It is important, said Dr. Holland, that an accurate diagnosis be made. Doctors just cannot try out radioisotopes to see if they will do any good the way other less drastic medicines are sometimes used. Further, the patient should almost always be told that radiation is to be used.

The physician must know and understand radioisotopes as diagnostic and therapeutic tools of proven value, he urged. There are some 500 radioactive isotopes representing more than 92 elements, many of which are now available commercially from the Atomic Energy Commission. Each has its own characteristics, which the physician must know and understand.

Science News Letter, January 12, 1952

PHYSICS

Power Generated From Atomic Breeder Heat

➤ SMALL AMOUNTS of electric power have been produced from heat energy releasd in the operation of the experimental breeder reactor, recently completed at the National Reactor Testing Station in Idaho.

In a trial run on Dec. 21 and 22, electrical power of more than 100 kilowatts was generated and used to operate the pumps and other reactor equipment and to provide light and electrical facilities for the building that houses it.

The heat energy generated was removed from the reactor by a liquid metal at a temperature high enough to generate steam to drive the turbine.

This new reactor was designed and is being operated by the Argonne National Laboratory, Lemont, Ill.—the reactor research center run for the AEC by the University of Chicago. The tests were supervised by Laboratory Director Walter H. Zinn and H. V. Lichtenberger, the Laboratory project engineer for the experimental breeder reactor.

The principal function of the breeder reactor is the long range goal of converting nonfissionable material into fissionable material more rapidly than nuclear fuel is consumed.

Power generation is being carried out to get data on handling liquid metals.

Science News Letter, January 12, 1952

GENERAL SCIENCE

Eight Ways to Insure Supply of Scientists

➤ WE HAVE enough scientists and engineers for either war or peace, provided we follow an eight-point program to use them in the most efficient way possible and to keep new ones coming.

On the other hand, the Russians greatly encourage the growth of the number of scientists and engineers by making them a sort of controlled "elite" of the Soviet Union.

Thus the two policies of East and West concerning what some consider to be the most precious resource of any nation in a life-and-death-struggle — scientific brains — were described at the meeting of the American Association for the Advancement of Science in Philadelphia.

"Our resources of scientists and engineers," said J. F. Hilliard, director of the Defense Manpower Administration, "are potentially capable of meeting the requirements of peaceful developments, or of war, if that should be thrust upon us."

However, he said, we must do eight things to realize that potential. These are: to determine how much and what kind of research is necessary, for employers to make the maximum conservation and use of scientists and engineers, to plan more efficiently the use of individuals and research teams, to divide the available scientists and engineers more efficiently between armed forces and civilian employers, to give them better pay and working conditions, to use the scientists and engineers of allied nations, to encourage men and women of exceptional scientific talents, and to insure a continuous flow of potential scientists to the colleges.

Soviet methods are in contrast to this proposed program for Americans. New scientists and engineers are attracted by larger pay, greater privileges and prestige, according to David Rodnick of the Economic Cooperative Administration. However, all students are carefully indoctrinated in Communist philosophy and the research they carry out must be of interest to some department of the government. Engineering sciences are considered safe in Russia, as long as the engineers increase production and remain politically reliable.

Science News Letter, January 12, 1952

IN SCIEN

MEDICINE

Radioactive Gold Double Benefit to Cancer Victims

➤ CANCER PATIENTS get double benefits from radioactive gold. It slows down the growth of the cancer cells themselves. It also slows down the secretory activity of normal cells lining body cavities.

When cancer has spread from its original location to some body cavity, excess fluid is produced by normal lining cells of the cavity, Dr. Shields Warren of the Atomic Energy Commission explained to the American Association for the Advancemnt of Science meeting in Philadelphia. This may be a very troublesome symptom. Radioactive gold relieves it.

The radioactive gold is used as a colloid and either injected into the cancer mass or into one of the body cavities.

Radioactive gold, radioactive cobalt, radioactve phosphorus and radioactive iodine and the four radioactive isotopes show most promise as medicines, Dr. Warren indicated. As a whole, he said, the radioactive isotopes have "proved disappointing" in cancer treatment, though they are useful for diagnosis and for giving new information about processes in the body including cancer.

Science News Letter, January 12, 1952

PSYCHOLOGY

Parents Satisfied to Have Boy or Girl Babies

➤ THE IDEA that American parents prefer a son to a daughter is probably a myth. The most common type of sex preference among both mothers and fathers is for one child of each sex, a survey conducted by Drs. Jeanne E. Clare and Clyde V. Kiser, of the Milbank Memorial Fund, indicates.

Most couples are satisfied with the sex of the children they have, whether they are sons or daughters. Those who have one child state the sex of that child as the sex they prefer.

About a third of the 693 couples who had children of only one sex, however, indicated that they had planned the birth of the last child because they wanted a child of the other sex. Thus parents of a large family of all boys or all girls may keep on having babies in the hope of having one of the other sex.

And of the 591 couples who already had at least one son and one daughter, nearly half of both husbands and wives gave this as a reason for not adding further to the size of their families.

Science News Letter, January 12, 1952

CE FIELDS

ASTRONOMY

Minor Planets Have Violent Collisions Very Infrequently

➤ SEVERAL MILLION tons of matter are pulverized into dust each year by collisions between minor planets, Dr. Stefan L. Piotrowski of the University of Krakow, Poland, reported to the American Astronomical Society meeting in Cleveland.

The average minor planet, making its way between the paths of the big planets Mars and Jupiter, can be expected to bump head-on into another asteroid and crush into dust both itself and the other about once in a billion years, Dr. Piotrowski calculates. But if the planet has a greatly elongated orbit or if its path crosses that of most of the other asteroids, its chances of a catastrophic collision are tripled.

The time that is likely to elapse between two minor collisions, when one asteroid hits another off-center or just grazes it, is measured in hundreds of millions of years, Dr. Piotrowski reported.

The average speed at which one asteroid will bump into another is estimated to be rather low, only three miles per second.

Cosmic debris from collisions of this type is believed to produce the dust that slowly spirals into the sun to form what we see as the zodiacal light. This faint wedge-shaped band of light, visible on both sides of the sun, is most easily seen in northern latitudes on spring evenings after sunset and autumn mornings just before sunrise.

Science News Letter, January 12, 1952

BIOCHEMISTRY

Cholesterol Protects Arteries from Damage

➤ DISCOVERY THAT cholesterol protects arteries from damage was announced by Dr. Russell L. Holman of Louisiana State University School of Medicine at the meeting in Philadelphia of the American Association for the Advancement of Science.

Cholesterol is the fat-like substance which for the past several years has been blamed for damaging artery walls. Many patients have been put on diets low or lacking in cholesterol in the hope of stopping such damage and thus preventing development of high blood pressure and heart trouble.

Dr. Holman's findings were made on dogs which ate a high fat diet for eight weeks or longer. Following this, the animals' kidneys were made to function below normal. The dogs developed artery damage closely resembling two artery diseases in humans, rheumatic arteritis and periarteritis nodosa.

"Too much" of something in the diet and "too little" of something from the kidney are what cause the artery trouble, in Dr. Holman's opinion.

He believes that the primary injury to the artery walls is produced by peroxidation of certain unsaturated fatty acids. Normally, he says, this is prevented by fat soluble anti-oxidants acting with one or more substances secreted by the kidneys.

Adding cholesterol to the diet gave the "unanticipated" result of preventing the artery damage induced by the high fat diet and kidney insufficiency.

This points, Dr. Holman said, "to a primarily protective influence of cholesterol, possibly detoxification of toxic fat acids by esterification."

The artery damage produced in the dogs was dissociated from the effects of age, sex, hypersensitivity, high blood pressure, too much cholesterol in the blood and infection.

Science News Letter, January 12, 1952

ASTRONOMY

Over a Hundred Stars Are 6,000 Times as Hot as Sun

➤ OVER A hundred stars each at least 6,000 times as hot as our sun have recently been spotted in the Northern Cross region.

The majority of these tremendously hot and extremely blue stars in the constellation of Cygnus the swan are quite faint. At first it was thought they might be much farther away than the 135 or so such stars already known, Dr. J. J. Nassau of Warner and Swasey Observatory of Case Institute of Technology and Daniel L. Harris III of Yerkes Observatory of the University of Chicago reported to members of the American Astronomical Society meeting in Cleveland. Now they are thought to be about the same distance as the bright ones.

The brightness and color of these stars indicate that the light from these stars is dimmed and its color reddened as it travels through a dense cloud of interstellar dust, Dr. Nassau stated. These stars are probably so far away that their light which we see started toward the earth 5,000 years ago.

One of these stars would have been 300 times brighter had its light not passed through the dust cloud. For a star of its temperature, the light is redder than that of any other star known, the astronomers reported.

Some 4,600 additional red giant stars at least a hundred times as bright as our sun were reported by Dr. Nassau and Victor Blanco of the Warner and Swasey Observatory, and Dr. W. W. Morgan of Yerkes Observatory. These stars are relatively cool, their surface temperature being half that of our sun.

Some 360 still rarer stars known as carbon stars were detected by these astronomers. Their atmospheres contain cynogen, a compound of carbon and nitrogen.

Science News Letter, January 12, 1952

METEOROLOGY

Water Vital for New Power May Freeze

➤ A RETURN of the acute power shortage in the Pacific Northwest was seen if the Weather Bureau's forecast for the period ending Jan. 30 is borne out.

The forecast calls for temperatures averaging below seasonal normals west of the Continental Divide and in the northern plains, with greatest departures from normal in the Pacific Northwest. Temperatures averaging below freezing are expected in the mountains surrounding the Columbia river basin. The waters that fell during the last few weeks may well freeze, and thus be unavailable for power production.

Aluminum plants vital to the defense effort depend on this power.

In the South and Southeast warmer than usual weather for January is indicated with prevailing mild weather along the Gulf coast and in the southeastern states. Elsewhere in the nation, temperatures will be about normal for January.

There will be more snow and rain than usual during January in most places, the Weather Bureau says. From the central plains northeastward, much of this precipitation will be in the form of sleet and freezing rain. The Pacific Northwest and the southern states from Texas eastward, however, will not receive as much snow or rain as usual during January.

Science News Letter, January 12, 1952

PSYCHOLOGY

Radio's Child Wonders Outstanding as Adults

➤ CHILD RADIO geniuses do not fizzle out when they grow up. They are as outstanding as adults as they were as children.

Prof. Paul Witty of Northwestern University told the American Association for the Advancement of Science meeting in Philadelphia about his follow-up of boys and girls who appeared three or more times on radio and TV child quiz programs.

The 10 girls and four boys already in full-time occupations average $5,000 a year. One makes $20,000. Those with higher salaries include an actress, concert musician, organic chemist and reporter and rewrite man. One boy got his Ph.D. at 22 and is doing research in Copenhagen.

The young geniuses are all healthy and they enjoy life. They read a wide selection of novels, they play chess, go to concerts and the theater, play music, dance, golf, swim, ride, hike and travel.

They feel that schools did not help them much in achieving success.

Many said their teachers had been burdened with large classes and did not stimulate their gifted pupils. They saw both advantages and disadvantages in putting gifted pupils in special classes, but on the whole thought it would be a good thing.

Science News Letter, January 12, 1952