MEDICINE

Average M.D. Nets $11,000

➤ DOCTORS IN 1949 had an average net income before taxes of $11,058.

This figure is from a survey conducted jointly by the Office of Business Economics, U. S. Department of Commerce, and the American Medical Association.

The $11,058 income was for physicians engaged in civilian practice, including salaried as well as independent practitioners, but excluding interns, residents and teachers. About four out of five physicians get most of their medical income from independent practice. Their average income was $11,858 compared with $8,272 for the salaried physicians.

Physicians' incomes have more than doubled since 1929, "but this relative increase was practically identical with that for all earners in the general population over the same period," the survey report states.

About 13% of the independent physicians made less than $3,000, and about 8% made more than $25,000.

Specialists had the biggest net incomes, as most persons would guess. But among the specialists in independent practice, the ones averaging the second highest income were pathologists, a group almost unknown to the layman, whose work consists largely of important behind-the-scenes laboratory examinations for diagnosis.

Highest net income among independent specialist physicians was reported by neurological surgeons. Lowest average income reported by specialists was that for pediatricians. To some extent, the size of the average income depended on the size of the group practicing that specialty.

Physicians' net incomes ranged from a loss of about $5,000 to a net profit of more than $200,000. Almost one out of every 100 reported a loss in 1949, while one out of 15 reported more than $25,000.

Where a doctor practices makes a difference in his income. Highest average incomes were reported in the Far West, lowest in New England. The highest average incomes were found not in large cities but in those of about 350,000 population.

Physicians reach their peak average earnings between the ages of 45 and 50.

The survey figures were obtained from replies to questionnaires sent to 125,000 physicians. Of these 55,000 sent responses and 30,000 replies, unsigned and unidentified, were used for the final analysis.

Science News Letter, August 4, 1951

PHYSICS

Convert into Solid Plastics

➤ CATHODE RAYS, similar to those used in television receivers, are being used experimentally in General Electric laboratories in Schenectady, N. Y., to convert liquid raw materials into solid plastics. The process is not entirely new but it is hoped, with the high-voltage electron beams now available, that it may be put into wider use.

An essential part of the manufacture of plastics, G. E. scientists explain, is a process called polymerization. In this, small groups of atoms are linked together to form long chains. The individual groups can move around freely, so that they form a liquid. The chains make a rigid, solid structure.

Generally, chemical means are used to initiate the polymerization which, when once started, proceeds rapidly in a chain reaction. Such polymerization is being successfully achieved by Dr. John V. Schmitz and Elliott J. Lawton with a beam of electrons with energies of 800,000 volts obtained from a modified million-volt X-ray machine.

The basis of this present work is success obtained 25 years ago by Dr. William D. Coolidge, former director of the G. E. research laboratory, in which he converted castor oil into a solid with X-ray bombardment. Other compounds, such as ethylene, were similarly polymerized.

The joining together of the individual molecular units to form the long chains, or polymers, results from a rearrangement in the electrons in the atoms, Dr. Schmitz stated. Ordinarily they are rearranged by chemical action. The same effect is obtained by firing other electrons, with high speed, at the liquid made of the separate units. These hit a few of the atoms, he continued, either knocking their electrons out, or else sticking and increasing their number. With a small proportion of the atoms thus altered, the reaction starts and proceeds through the volume of liquid exposed to the rays.

Science News Letter, August 4, 1951

MEDICINE

Wiggling Toes Speeds Blood Flow, Isotopes Show

➤ DOCTORS HAVE the evidence of atomic isotopes to support their telling bedridden patients to wiggle their feet to prevent blood from congesting in the legs and to reduce the danger of blood clot formation.

Dr. H. Payling Wright, of University College Hospital, London, reported to the Isotope Techniques Conference in Oxford that he had studied the rate of blood flow through the legs by injecting radioactive salt solution into the veins of the foot. He measured the time it took for the radioactive material to reach a Geiger counter placed at the groin.

He discovered that the normal lying-down blood flow rate of about two inches a second is doubled if the bed is tilted to an angle of 30 degrees with the person's feet above his head, or if the person wiggles his feet back and forth for two minutes. In the case of the wiggling, it is the movement of the leg muscles which speeds up the flow of blood.

These methods can be applied to bedridden patients, in whom the blood flow tends to become sluggish due to immobilization of the leg muscles and loss of muscle tone.

Science News Letter, August 4, 1951

METALLURGY

Titanium Metal Produced by New Lower-Cost Process

➤ STEP BY step, the metal titanium is coming into its own. With new processes for reducing it from its plentiful ores, this structural metal is passing out of the list of the "little-known" into the list of "common" metals to take its place side by side with steel and aluminum.

Titanium as a common metal is passing through stages of production and applications similar to those in the history of aluminum. Both of these metals were long known before they could be produced economically by commercial processes. During World War II, the U. S. Bureau of Mines developed a method of obtaining relatively pure titanium at a reasonable cost but not low enough for general commercial production.

Since then improved processes have been developed by other agencies, both public and private. Among them is the Office of Naval Research, backed by the certainty that this metal and its alloys can serve many useful purposes in naval construction.

After several years of work by Naval Research, it is now announced that a process has been developed by which the metal can be obtained at about one-fifth of present costs. This means titanium at $1 a pound instead of the present $5-a-pound cost. The new process was developed by Horizons, Inc., Cleveland, Ohio. Pilot-plant stages in production have been reached.

Titanium is a light, strong, corrosion-resistant metal. In weight it is between steel and aluminum, being about 70% heavier than the latter. It is a structural metal, as strong as steel. Extensive uses are predicted in airplanes and in ship construction. Its principal uses will probably be in alloys. The Navy has already achieved a titanium-aluminum-chromium alloy which is expected to have extensive applications in jet aircraft.

Science News Letter, August 4, 1951