

MEDICINE

Avert Invalidism in Man By Glass Button in Belly

➤ A MAN in New York owes his health to a glass button which he carries with him. The glass button occupies a unique position—it is under his skin on the lower right hand side of his abdomen. The man's case is reported by the surgeon who inserted the button, Dr. Jere W. Lord, Jr., of that city in the *Journal of the American Medical Association* (March 13).

The patient had been ill with cirrhosis of the liver. He was emaciated and had an accumulation of fluid in his abdominal cavity. The usual procedure, which failed to help him, calls for puncturing the cavity where the fluid has accumulated and draining it off. The patient may in this way lose several quarts of body fluid which contains protein. This causes a wasting of the body and is hard on the patient.

Dr. Lord combined two techniques with success in operating on this patient. He inserted a glass button which had brought temporary relief in other patients after its introduction by Drs. R. C. Crosby and E. A. Cooney in 1946, and he stripped the muscles of their connective tissues to expose the lymph glands at the suggestion of Dr. Irving S. Wright.

The glass button, which is inserted on the lower right hand side, has a cap on it to prevent the passageway from being blocked by membranous tissue. The fluid drains through this passage into a pocket in the body made by the doctor by removing the connective tissue covering the muscles. This exposes the lymph vessels which absorb the fluid.

Improvement was noted in this patient within three to four weeks, when the fluid in this artificially-made pocket disappeared. Within five and one-half months the patient showed no signs of ascites, or fluid accumulation, and was able to carry on his usual activities.

Science News Letter, March 20, 1948

BIOLOGY

Your Antibodies Have Long-Distance Action

➤ ANTIBODIES, your body's front line defenses against disease germs, have a long-distance action equivalent to your being able to "disintegrate an opponent from a distance of 60 feet," Dr. Alexandre Rothen, Rockefeller Institute for Medical Research scientist, estimates.

An electronic effect, or a "system of extended resonating oscillators," may account for this long-distance action. Enzymes, such as the trypsin in digestive juices which breaks down meat and other proteins, also have this long-distance action. It apparently is a property of protein-like chemicals which consist of extremely large molecules.

Trypsin's long-range action can be shown by coating a glass microscope slide with a protein, covering this with a blanket of jelly and then applying a coating of trypsin. The protein is broken down by the trypsin in spite of the solid layer of jelly between them.

This long-range action of body chemicals observed by biologists seems to contradict the classical chemical conception that molecules must touch before they react.

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ELECTRONICS

Dry Plastic Raindrops Are Used in Radar Study

➤ PLASTIC droplets, instead of raindrops, are being used by Westinghouse scientists to find out why clouds, rain and wet snow frequently block out very short radar waves before they reach their target.

These dry drops, Edward J. Duckett, of Westinghouse Research Laboratories, Pittsburgh, explained, are similar to real rain in size and shape and have the same electrical behavior. They serve as targets for ultra-short waves fired from a special radar set.

When the ultra-short waves less than a half-inch long were put into service they met interference from rain clouds, unlike the earlier radar which used longer waves. Instead of passing through the clouds, they bounced back to the radar receiver, thus obscuring the target. The use of these very short waves is highly desirable because they give a clearer picture on the radar scope than do longer waves.

To make the tests, the scientists would use real rain if they could get the kind they need just when they want it. The results of the work may have some bearing on weather forecasting. The fact that clouds and rain do stop radar of certain wavelengths has already been put to work in locating storm areas.

Science News Letter, March 20, 1948

IN SCIENCE

CHEMISTRY

New Chemical Weapon Against Insects Announced

➤ ANOTHER new chemical weapon against insects has been announced by the Du Pont Company. The latest insecticide is called Marlata. Chemically, it is bis (methoxyphenyl) trichloroethane. First tests indicate that Marlata is not dangerous to animals or plants but is effective against many insects.

Science News Letter, March 20, 1948

GENERAL SCIENCE

Man's Cerebrum Offers Hope for Lasting Peace

➤ MAN'S cerebrum—a part of his brain—is his best bet for lasting peace, a scientist said.

Dr. Ralph W. Gerard, professor of physiology at the University of Chicago, discussed the role of the brain in international affairs as a guest of Watson Davis, director of Science Service, on *Adventures in Science* heard over the Columbia network.

Dr. Gerard described the cerebrum as "that part of the brain lending itself to cooperative, altruistic, unselfish behavior.

"In the great panorama of evolution, the selfish competitive aspect of the brain or of behavior has changed very little, but the newer parts of the brain have steadily increased—the cerebrum—of which man has such a tremendous amount," he declared.

From the standpoint of the brain, the difficulty is that "what man does with his brain can change very much faster than the brain itself can change," Dr. Gerard pointed out.

"The capacity or size of man's brain hasn't increased from historic or prehistoric times on," he pointed out. "On the other hand, the social activities that depend on the brain have changed a great deal in the past 10,000 years.

"But I don't think I'm entirely rash and idealistic in looking forward to a time when the cooperative aspects of behavior will develop to the extent that men will learn to get along with each other, and wars will be a matter of the past," the scientist concluded.

Science News Letter, March 20, 1948

E FIELDS

GENERAL SCIENCE

Two of Three 18-Year-Olds Will Live to Retirement

► THE chances are fully two out of three that a young man now starting his working life at the age of 18 will live to his retirement age of 65. The chances for his father and his boss surviving to their retirement at age 65 are good, too. A 45-year-old man today has 70 in 100 chances of reaching age 65 and the chances for a 55-year-old man are 78 in 100.

These chances for reaching the retirement age of 65, calculated by statisticians of the Metropolitan Life Insurance Co., reflect the marked decline in mortality in the United States since the turn of the century.

In 1900 the young man of 18 had only 51 chances in 100 of surviving to age 65.

Mom's chances of surviving to old age are even better than Dad's. More than three-fourths of the women now under age 65 will live to attain that age. The woman of 45 today has better than 80 in 100 chances of living to 65 years, and the woman aged 55 today has 86 in 100 chances of celebrating her 65th birthday.

Age 65 may spell retirement from the job, but it does not mean the end of life. Men and women today are outliving the Biblical three score years and ten lifespan.

"Currently," the life insurance company's statisticians state, "white men who reach age 65 can expect to live an additional 12½ years, on the average. For white females there remain an average of 14¼ years."

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AGRICULTURE

Activated Charcoal Guards Plants from 2,4-D Harm

► CROP plants can be protected from harm by 2,4-D used for killing weeds by pre-planting treatment with powdered activated charcoal, a three-man team of agricultural scientists has discovered. The treatment is of especial value for crops that are set out as young plants already rooted.

The work was done as a joint research project for the U. S. Department of Agriculture and the Mississippi Agri-

cultural Experiment Station by Drs. H. Fred Arle, O. A. Leonard and V. C. Harris.

2,4-D is frequently sprayed on fields to kill weeds before the crop is planted or set out. However, there may be enough of it left to do serious harm to chemically sensitive crop plants.

In the present experiments sweet-potato sprouts were used. Part of them had their roots dusted with the activated charcoal powder before planting and the rest were left untreated as controls. The latter group suffered very high mortality when set out in the 2,4-D-poisoned soil, while the treated plants, though sustaining some losses, survived much better.

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METALLURGY

99.8% Pure Helium Gas Produced by Government

► THE purest helium ever distributed commercially, within 0.2% of absolutely pure helium, is now available, the U. S. Bureau of Mines disclosed. It will be known as "welding grade helium" because its principal uses will probably be in the so-called shielded-arc welding process.

Helium is the lighter-than-air non-combustible gas used in American balloons and dirigibles, and is produced only in the United States. It is taken from natural gas in northern Texas fields and one field on the Navaho Indian Reservation, Arizona-New Mexico. Production is entirely by the government in plants operated by the Bureau of Mines.

Helium for commercial uses until now has been 98.2% pure instead of the 99.8% new product. The impurities in the 98.2% product are harmless in balloons and dirigibles and have no deleterious effects in the various medical uses developed during the past 25 years.

This high-purity helium is made from the helium previously produced by passing the latter through an additional separation unit containing refrigerated coconut charcoal. This charcoal absorbs most of the impurities, largely nitrogen and hydrogen, but takes up very little helium.

In use in welding, the noncombustible helium forms a shield over the welding arc which keeps the oxygen of the air away from the heated metal to prevent oxidation. With the new high-purity helium, the welding industry will be able to develop new and better techniques, it is expected.

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PHYSICS

New Type Prism Extends Infra-Red Wavelengths

► A NEW instrument for science and industry has given wavelength measurements in a previously unknown range of the invisible infra-red spectrum, the Optical Society of America was told at a meeting in New York.

Measurements of infra-red wavelengths up to 38 microns—a micron is .00003937 inch—were made at the National Bureau of Standards in Washington, Dr. Earle K. Plyler reported. A prism made of thallium bromide and thallium iodide was used for the study.

The thallium bromide iodide prism, called KRS-5, has extended the wavelengths in the infra-red region from approximately 25 microns for potassium bromide prisms and about 15 microns for sodium chloride prisms.

The new prism gives scientists a new tool for studying materials in a range of the infra-red spectrum which they have not been able to explore before. KRS-5 is not now available commercially, but it may find important industrial applications in the future for analyzing materials.

Science News Letter, March 20, 1948

ARCHAEOLOGY

Baking Babylonian Bricks Makes Writing Legible

► BAKING ancient Babylonian bricks in a modern electric furnace makes their ages-old cuneiform inscriptions easy to read—if you can read cuneiform. The technique, developed by Prof. Ferris J. Stephens of Yale University, involves heating the inscribed tablets for a day at a temperature of 1,400 degrees Fahrenheit, letting them cool for two days, then piecing the fragments carefully together and cleaning out each wedge-shaped stroke under a low-power microscope.

Inscriptions on these ancient tablets, some of them dating back as far as 3000 B.C., range all the way from business contracts and records of divorce suits to learned mathematical treatises. Some of the contracts are done in duplicate: after the deal had been duly set down by the scribe on a clay tablet and sealed by the contracting parties, it was wrapped in a clay envelope and the whole thing written again on the outside of this. This made it harder for Babylonian big businessmen to "put something over" on each other.

Science News Letter, March 20, 1948