

MEDICINE

Pituitary Gland Implicated In Search for Cancer Cause

► **POSSIBILITY** that the pituitary gland is involved in the cause of cancer is being explored by Dr. Henry K. Wachtel of the Cancer Research Laboratories at Fordham University.

The pituitary is a small gland located in the head but it has far-reaching effects on body chemistry and functions. Fatty extracts from the pituitary glands of cattle caused cancer in more than one-fourth of a group of 67 white mice injected with the extracts, Dr. Wachtel reports (*Science*, May 3). The cancer-causing power of these extracts, however, is evidently low, Dr. Wachtel states.

The experiments are part of a search for the cause of cancer which many scientists the world over started when it was discovered that chemical substances from coal tar could cause malignant growths.

These cancer-causing chemicals are related to some chemicals normally present in the body, such as hormones produced by glands. One theory of cancer cause has been that something went wrong with the body chemical processes so that cancer-causing chemicals were produced or developed from the harmless ones.

Science News Letter, May 11, 1946

ELECTRONICS

Focusses Radio Waves Into Sharp Beam

► **A NEW METAL** lens, which can focus radio waves into a sharp beam much as a glass lens focusses light, will give impetus to microwave communication, it is expected, and will find its most widespread application in microwave radio relay systems. It is announced by the Bell Telephone Laboratories where it was developed.

The relay systems in which the new lens will be used are designed primarily as adjuncts to the telephone network, but they are expected to be used in transmitting pictures, radio broadcasts and television programs. Aside from its use in such microwave communication systems, the lens is also expected to be of value in the peacetime development of radar as an aid to sea and air navigation.

The necessity for relay stations in microwave communications is due to the fact that these very short waves, unlike longer commercial broadcasting waves,

do not follow the curvature of the earth but shoot off into space. They can be transmitted only as far as there is a clear, unobstructed, straight-line path, at best as far as the horizon. In the new channel between New York and Boston, for example, there will be eight jumps. To obtain this short-range transmission between successive relay stations with peak efficiency and least interference, the wave energy must be focussed into a narrow beam.

This new lens for radio waves bears no resemblance to familiar optical lenses. It is an array of metal plates. These plates are designed to focus the radio waves as effectively as a solid lens might focus them if due regard is given to the fact that the edges of the wavefront is advanced rather than retarded in transit. The plates are built to duplicate the action not only of convex and concave lens but also of other optical devices, such as half and quarter wave plates and prisms.

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ENGINEERING

Two New Solvents Clean Fouled Engines

► **FOULED AUTOMOBILE** engines, crankcases, and lubrication systems can now be better cleaned, it is claimed, without taking them apart, by the use of two improved cleaning solvents announced by the Standard Oil Company of Indiana. One is designed to remove loose crankcase sludge and clean oil screens and passages; the other is to remove varnish, gum and carbon deposits from engine parts, remove combustion chamber deposits, and clean fouled spark plugs.

Both new products have high solvent powers for resins and gums formed by deterioration of motor oil and low volatility with high flash point. They will be known by the trade names Stano-Purge and Stano-Vim. The first is the crankcase cleaner, the second the engine cleaner. Stano-Purge is more than 90% a material chemically related to toluene to which is added a lubricant to prevent injury to the engine during the use of the solvent.

Stano-Vim is a low-viscosity, low volatility fluid with a mothball-like odor. It is not claimed to be the first fluid developed for cleaning engines, but it is claimed that it has unusually high solvent effect on resins and gum. It is not suitable for use in supercharged engines or in engines fed by injection.

Science News Letter, May 11, 1946

IN SCIENCE

GENETICS

Cancer and Hair Color Found Linked in Mice

► **INBORN SUSCEPTIBILITY** and resistance to cancer are linked with hair color, at least in mice, Dr. Leonell C. Strong of Yale University School of Medicine has found.

He crossed black and brown mice and injected the offspring with a cancer-causing coal tar chemical, methylcholanthrene. The results showed that the chromosome that carried the gene determining black hair color also carried the gene determining that the mice would be susceptible to cancer induced by methylcholanthrene.

The genes that determine cancer resistance or susceptibility in mice apparently obey the same laws of Mendelian heredity as the genes that determine hair color and other inherited characteristics, Dr. Strong states. (*Science*, May 3.)

Mice are not men and the findings may not apply at all to cancer in humans. However, they seem to be bringing scientists closer to full knowledge of the genetic or constitutional factors that may be involved in the development of cancer.

Science News Letter, May 11, 1946

ICHTHYOLOGY

Razor Clams Caught By Using Table Salt

► **SALT CAN BE** used to catch razor clams.

By waiting until the sandbar in which they live is mostly out of water, several dozen clams have been caught by merely sprinkling table salt along the bar, Robert Alexander states in *Frontiers*, a magazine of natural history. The clams appear at their holes and push themselves in jerks until their long narrow shells lose balance and fall over. By the time the turned tide has covered the bar with water, the clam-seekers have a well-filled basket.

When the salt seeps down into their holes, the mollusks come out. Some believe the salt irritates them so much they leave their holes to get away from it. But if they should dig down into the sand and escape, no amount of salt will induce them to return to the surface.

Science News Letter, May 11, 1946

CE FIELDS

MEDICINE

Penicillin X May Fail When Swallowed

► PENICILLIN X, an especially powerful penicillin for checking disease germs, may fail to cure a patient if he swallows the drug instead of getting it by hypodermic needle injection.

Tests showing this are reported by Drs. Manson Meads, Edwin M. Ory and Maxwell Finland, of Boston City Hospital and Harvard Medical School. (*Science*, April 26.)

Germs causing gonorrhea, meningitis and blood poisoning were from two to eight times more vulnerable to penicillin X than to penicillin G, the doctors found from test tube experiments comparing commercial lots of penicillin containing more G or more X.

Injections of penicillin X gave a higher level of penicillin activity in the blood than injections of penicillin G. But when the two kinds of penicillins were swallowed, the effect was reversed. The results suggest that penicillin X is not absorbed as well as penicillin G when given by mouth.

Science News Letter, May 11, 1946

NUTRITION

Fight for Bread Is Fight for Vitamins

► GOVERNMENT officials and others fighting to get most of our shortened wheat and flour supply baked into bread instead of cake and pie are fighting to keep us as well nourished as possible.

White bread and rolls, even though faintly gray at present, supply more vitamins, iron and protein than cake and pie.

Slice for slice, a piece of cake or pie might furnish more calories than a piece of bread, because of the extra fat and sugar in the pie or cake. It would furnish less protein, however, because the protein is supplied by the flour and cake is apt to have less flour than bread. If milk and eggs are used in baking cake, the protein content would be increased by the amounts in these ingredients.

The bread and rolls supply more vitamins and iron because under War Food Order No. 1 they must be enriched with extra amounts of iron, and three B vita-

mins, thiamin, riboflavin and niacin. Cake and pie may be enriched if the baker wishes to add these ingredients, but they need not be.

The reason for bread enrichment is to supply the vitamins and iron which many persons would not otherwise get from their daily diet. People with limited money for food, who are most likely to go short on vitamins and iron, are usually heavy bread eaters. They cannot afford much cake or pie so they will not be missing much in vitamins by lack of enrichment of these products.

With flour supplies limited, it is important that most of it go into the most nourishing form of baked products and into one on which very many people depend for the mainstay of their daily diet.

Science News Letter, May 11, 1946

CHEMISTRY

1080, Deadly to Rats, Found Harmless to Fish

► 1080, THE NEW rat-killing chemical so poisonous to rodents that two ten-thousandths of an ounce will kill a full-grown rat, seems to be harmless to fish. Two zoologists, Joseph E. King of the U. S. Fish and Wildlife Service and Prof. William T. Penfound of Tulane University, tried out some solutions of 1080 on fingerling bream and bass, and found that the young fish could swim around indefinitely in water containing as much as 370 parts per million "with no apparent discomfort." (*Science*, April 19.)

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PSYCHOLOGY

Don't Worry If Child Confuses Fact With Fancy

► DON'T BE disturbed if you have a child who confuses fact with fantasy.

Most children do, Martha Wolfenstein of Hunter College told the Eastern Psychological Association meeting at Fordham University in New York.

The psychologist reported that mothers who read stories to their children rarely see any relation between the children's story and real life. But children often relate such stories to the immediate problems in their lives. And the more imaginative the mother, the more productive of fantasy will be the child's mind.

When a mother reads a story to a child, her reactions are sometimes very different from that of the child by her side whose realistic reception of the story might be amazing to the parent.

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ASTRONOMY

Emissions of Sun Cause Magnetic Disturbances

► OCCURRENCE of magnetic disturbances on the earth seem to be correlated with the solar corona and the existence on the sun of regions of intense coronal emission. A two-year study of coronal and magnetic data shows that, on the average, magnetic disturbances occurred when intense emission-regions of the solar corona were situated in the eastern hemisphere of the visible solar disk.

A report on this study was given at the joint meeting of the International Scientific Radio Union and the American Institute of Radio Engineers by A. H. Shapley of the Carnegie Institution of Washington and W. O. Roberts of the Harvard College Observatory, Climax, Colo. The observations were made at the Colorado site. One purpose of the study and report is to show the practical advantages and limitations of the correlation when applied to forecasting short-term disturbances.

"The basic objective of the solar-terrestrial correlation," Mr. Shapley stated, "is to improve techniques of short-term forecasts of the behavior of ionospheric layers for use in radio communications and allied problems. For the successful attainment of this objective the coronal data have definite usefulness."

"There is, however, still considerable uncertainty in the coronal data and in the use that it is so far possible to make of them," Mr. Shapley continued. "It is hoped that further analysis will result in better methods of forecasting through improved knowledge. A study of the effect of latitude-distribution on the nature of the correlation is perhaps the most important of these, inasmuch as the active solar regions encountered during the test period were predominantly in low latitude, belonging to the waning cycle, whereas regions of the new cycle, in high latitude have since become more numerous."

"Probably we can never obtain completely trustworthy forecasts from coronal observations," he stated. "But, since we have derived a correlation that seems to have a higher significance than those derived from other solar phenomena, and since there is some reason to expect that physical conditions of the solar corona can influence those of the ionosphere, the authors believe that investigation of the coronal-magnetic relationship merits further intensive study."

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