MEDICINE

Quick, Sure Polio Diagnosis Now Possible

➤ WHETHER OR not a sick child has non-paralytic polio can now be diagnosed without guesswork in a matter of days, Dr. Mary O. Godenne and John T. Riordan of Yale University School of Medicine, New Haven, Conn., reported in the *Journal of the American Medical Association* (July 2).

The quick, no-guesswork diagnosis comes from a new method that combines virus isolation and antibody response tests.

Thanks to the Nobel prize-winning tissue culture method of growing polio viruses developed by Dr. John Enders of Boston and his associates, it is no longer necessary to use live monkeys for testing material from patients suspected of having polio. This former live monkey method was expensive and lengthy.

During a six-month period from July to December, 1954, Dr. Godenne used the new tissue culture method on 96 patients at Grace-New Haven Community Hospital. Included were patients with paralytic polio, meningitis for which no cause could be found, non-paralytic polio and encephalitis, a brain inflammation.

Polio virus was isolated in tissue culture in 90% of the paralytic cases, in 32% of the patients with meningitis and non-paralytic polio, and in three of six patients with encephalitis.

"In 60% of the patients from whom a poliomyelitis virus was obtained, the agent isolated from various sources was recognized and typed within seven days of the time of inoculation of the specimen," Dr. Godenne reported. "By two weeks after inoculation these positive results were available in 88%."

Science News Letter, July 16, 1955

ENGINEERING

Tube Tells How Materials Will Act Under Impact

➤ A BRITTLE straw driven into a tree trunk during a tornado shows how differently materials may act under extreme impact. These difficult-to-determine shock properties, important to designers, can now be easily and quickly learned with a new impact tube developed at New York University, New York.

The instrument, called Zeus II after the Greek god Zeus who held thunderbolts in his hand, exposes the test material to a sudden blow from the shock wave of a simulated explosion. An oscilloscope, somewhat like a television screen, records the specimen's impact "fingerprint."

Pressure behind a bursting diaphragm provides the shock wave in the 14-foot-long steel tube. The onrushing pressure slams against the specimen. This constitutes the impact loading. The force of the impact can be varied by changing the length of the dynamic chamber.

Knowledge of the stress-strain response of metals and other materials is essential in the design of structures subject to sudden loads. These include supersonic aircraft, equipment and buildings that may be under bomb blast, the landing gear of aircraft, even automobile parts that are stamped out.

With the new instrument, the effect of impact can be measured over the entire face of the specimen. The New York University scientists have to date studied the response of aluminum, steel, and titanium alloys.

Dr. George Gerard, assistant director of the University's engineering research division, invented the impact tube. The research is sponsored by the Army's Office of Ordnance Research.

Science News Letter, July 16, 1955

MEDICINE

Better Itch Remedies From Chemical Discovery

➤ DISCOVERY of a chemical basis for itching and a forecast of better itch remedies as a result were announced by Drs. Robert P. Arthur and Walter B. Shelley of the University of Pennsylvania.

Heretofore, the body mechanism for itching has been a riddle. Everyone knows simple physical stimuli that cause sensations of pain, touch, heat and cold. No one, however, has "truly characterized" the stimulus for itching, the scientists said. In other words, no one has known what there is about hives, that makes them itch.

Itching, the scientists found, comes from certain enzyme chemicals released in the body. These chemicals either act directly on nerves or, more likely, act indirectly by synthesizing or releasing an active compound from skin cells.

The itch-starting enzymes are ones that break down proteins. They are specifically those that split a central linkage in peptides to break the peptides into amino acids. The scientists found that itch enzymes from animal tissues are trypsin, chymotrypsin and pancreatin. Those from plants are mucunain, papain, bromelin, ficin and fungal proteinase.

Mucunain, they found, is the itch chemical of the plant, cowhage, whose hairs cause unbearable itching. When very small amounts, termed ultra-microquantities, of this enzyme were introduced into the skin, itching started in five seconds and lasted as long as 30 minutes. The itch was at the place the enzyme was put into the skin. There were no hives or other signs, just the sensation, they said in *Nature* (May 21).

Many of the itch remedies used today that the scientists called "quasi-effective," or seemingly effective, such as anti-histaminics, sulfapyridine and arsenicals, may depend for their results on a partial blocking of the proteinases, or itch enzymes.

More study of enzymes and their action, the scientists said, may "point the way to a truly specific means of temporarily blocking the proteases and therewith the pruritus (itching)."

Science News Letter, July 16, 1955

IN SCIEN

PSYCHOLOGY

Boredom Prime Cause Of Disrupted Homes

➤ WOMAN'S BOREDOM with homemaking is the primary cause of disrupted homes, Dr. Jennie I. Rowntree, director of the School of Home Economics, University of Washington, Seattle, charged at the meeting of the American Home Economics Association in Minneapolis.

If there are seven stages in the life of man, as Shakespeare wrote, the modern woman, according to Dr. Rowntree, has at least five.

The five are student, paid worker, homemaker, responsible citizen and worker again.

A woman must constantly anticipate the change from one to another of these stages, or roles, and be prepared to play her part accordingly, Dr. Rowntree pointed out.

The solution to women's home-disrupting boredom with the job of homemaking, Dr. Rowntree advised, is to be found in teaching girls that "housework is love made visible" and that family meal hours should be looked on as occasions, "high spots of the day."

Science News Letter, July 16, 1955

DENTISTRY

Drug Aids Dentistry on Cerebral Palsy Victims

➤ THANKS TO the drug mephenesin, most cerebral palsy patients may now have safer and more comfortable dental care, where before there was hazard to both patient and dentist, Dr. Manuel M. Album, Philadelphia dentist, has found.

In the great majority of 109 cases treated before dental surgery with mephenesin, which chemically is 3-ortho-toloxy-1,2-propanediol, the drug produced feelings of well-being and relaxation, and nervousness diminished or disappeared, Dr. Album said in the *Journal of the American Dental Association* (July).

The drug made the patients more comfortable and the dentist's work easier, he found, and operating time could be extended on patients otherwise difficult to treat.

Only 15 of the 109 cerebral palsy patients showed poor relaxation under mephenesin.

Dental care of cerebral palsy patients has always been difficult, Dr. Album said. These patients usually have poor control over mouth or throat muscles. Often they cannot keep the jaw in position for long, but they can close it with the strength of a vise, making the dentist's work both difficult and hazardous. Swallowing is not easy for cerebral palsy patients.

Science News Letter, July 16, 1955

Science Service, Inc. is collaborating with JSTOR to digitize, preserve, and extend access to *The Science News-Letter.* www.jstor.org

CE FIELDS

BIOCHEMISTRY

Hope Enzymes Can Check Cancer Growth

➤ HOPE THAT it may be possible to control cancer by enzyme chemicals that interfere with vital chemical processes in the cancer cells appears in studies reported by Dr. L. Ledoux of the Chester Beatty Research Institute and the Royal Cancer Hospital, London.

Spontaneous breast cancers in mice, among the most resistant cancers to any drugs, were made to regress, or shrink, by one such enzyme, ribonuclease, Dr. Ledoux reported in *Nature* (July 2).

The check to the cancer growth and its decrease in size was not permanent but lasted for some time after the treatment was stopped. The doses used, Dr. Ledoux points out, were probably not the best that could be found with further study. However, it was not possible to find any toxicity up to fairly high levels of enzyme dosage. The only side effect was loss of hair.

Mice with another kind of cancer which had been transplanted into their bodies were also treated with the enzyme. It checked the growth of this cancer but did not cause any shrinking of the cancer.

The studies are preliminary and far from application to humans, but show that enzymes might some day be the means of controlling cancers even, perhaps, in humans.

Science News Letter, July 16, 1955

INVENTION

Patent Submarine Decoy To Foil Enemy Detection

➤ A SUBMARINE decoy that produces submarine-like sounds to foil detection by the listening enemy has been granted a patent.

The fake miniature submarine can also be used to train sound gear operators in locating the source of underwater noises, without assigning an actual submarine as a target.

The device "may or may not be made self-propelled and thus may simulate a submarine either lying to or underway," according to its inventor, Donald G. Reed of San Diego, Calif. He assigned rights on patent No. 2,710,458 to the Government as represented by the Secretary of the Navy.

The fake submarine is small and compact for easy handling and storage. It can be ejected from torpedo tubes or flare guns while a submarine is underway. The "preferred form" would be self-propelled to increase its similarity to an actual submarine in order to avoid not only detection but possible damage or destruction to the mother submarine during encounters with enemy vessels equipped with sound gear.

The noises the unit produces, resembling those of a submarine, could delude the enemy into concentrating his destructive efforts on the decoy while the ejecting submarine slipped away in another direction.

The sounds are mechanically produced, both in the sonic and supersonic range, simulating "to a high degree" the gear whine characteristics of actual submarines and the thrashing noises made by a submarine's propellers.

Science News Letter, July 16, 1955

INVENTION

Polyethylene Used To Package Sodium

➤ THE RISK in transporting and storing sodium may be solved by the discovery that polyethylene and metallic sodium are mutually inert and non-adhesive.

Ernest R. Corneil of Stamford Centre, Ontario, Canada, found that sodium, encased in polyethylene, can be preserved indefinitely without hazard and without worry about adhesion to the package surface. He was awarded patent No. 2,712,384 and assigned the rights to E. I. du Pont de Nemours and Company of Wilmington, Del.

Science News Letter, July 16, 1955

ENGINEERING

$30 Turns Automobile Into Geiger Counter

➤ WITH ABOUT $30 worth of electronic equipment, an automobile can be turned into a Geiger counter.

Frank C. Strebe of the Atomic Energy Project at the University of California at Los Angeles has assembled such a unit.

The equipment consists of a Geiger-Mueller tube and a few associated components, and can be assembled for approximately $30. An expert technician is required to assemble and install it properly.

Radiation is indicated either by tell-tale clicks on the speaker of the car radio or by the movement of a needle on a dashboard-mounted meter. In normal driving, a motorist would probably listen to the speaker.

In case of atomic warfare, the speaker could be used to receive instructions from civil defense authorities while the meter would warn of radiation.

The unit is designed to detect radiation within a 50-foot radius. Thus it would serve not only to warn occupants of danger but would make a car available for monitoring during atomic emergencies.

In cases of emergency, when a large number of detectors may be needed, there might well be more automobile radios in operation than home radios because the former carry their own power.

Science News Letter, July 16, 1955

NUTRITION

Food Flavor Research To Guide Agriculture

➤ THE FLAVOR that makes a food taste good may be an index to its nourishing quality.

Or, to put it another way, food we enjoy may have in its complex chemical makeup nutrients more suitable to the body's requirements than those in other lots of the same foodstuff that our sense of taste judges poorer in flavor.

Research on flavor in food may lead to new and better methods in plant and animal breeding, as well as in seed selection, insect control and food handling techniques, the Investment Bankers of America meeting in Santa Barbara, Calif., was told by William B. Murphy, president of the Campbell Soup Company.

Flavor of the meat may be improved by genetic study of chickens, and the better flavor characteristics of the improved strain may be found by research to depend on identifiable chemical compounds.

"The identification of these chemicals is a new field," Mr. Murphy stated, "in which little has been done but in which much is now underway. As these flavor components are identified and their nutritional effects become known, we can begin to learn how to develop and control them. When we know what makes the flavor of one chicken better than another, we'll be on our way to developing improved chicken flavors through breeding, through feeding and through better handling of chicken meat to preserve the important good flavors.

"This kind of long-range research may pay off soon, or it may not pay off for years. But we are going to put heavy stress on flavor research because we believe it will have a profound effect on our business."

Science News Letter, July 16, 1955

ICHTHYOLOGY

Apartments Made For Octopuses, Eels

➤ THE JAPANESE are putting up apartment houses for eels and octopuses in the Inland Sea of Japan.

A series of 1,280 hollow concrete blocks, with window-like openings on all sides, are being sunk in the channel between Honshu and Awaji Island in southern Japan to build up fish populations there. The blocks are expected to hinder the current along the bottom and make better feeding and breeding grounds for the bream, perch, bass, sand eels and octopuses that make up the commercial catch in the area.

Nearly $27,000 will be spent on this effort to bring back the fisheries to prewar productivity. The Inland Sea fishing grounds have never fully recovered from wartime over-fishing, the U. S. consul at Kobe said in his report to the U. S. Fish and Wildlife Service.

Science News Letter, July 16, 1955