

MEDICINE

Don't Risk Whooping Cough To Avoid Polio

► **DON'T RISK** such serious diseases as diphtheria, whooping cough and tetanus, or lockjaw, in the hope of avoiding the much smaller danger of poliomyelitis.

Follow your doctor's advice as to whether and when you and the children should have "shots" for protection against diphtheria, whooping cough and tetanus and antibiotic drugs for treatment of various diseases.

The protective inoculations can be given in the summer if there is no polio in the community and even if there is a polio epidemic, they should be given if there is immediate danger from diphtheria, whooping cough or tetanus.

This, in effect, is the advice to parents and other lay persons contained in a statement published in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (May 10).

The statement is intended to clear up the confusion over the relationship between inoculations, or "shots," for prevention of diphtheria, whooping cough and tetanus, and poliomyelitis, also called infantile paralysis.

It has been accepted by the U. S. Public Health Service after unanimous endorsement by a conference of 41 poliomyelitis investigators, epidemiologists, pediatricians, allergists and health officers. The National Foundation for Infantile Paralysis helped plan and participated in the conference.

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MEDICINE

Two Chemicals Gang Up On TB Germs in Body

► **TWO CHEMICALS** have been discovered in blood serum and body tissues which together have a poisonous effect on tuberculosis germs.

One of them is spermine, a chemical first discovered three centuries ago as "small, glittering lenticular crystals" which formed in the fluid around human spermatozoa, or male germ cells. It has since been found in various organs of animals and has also been synthesized.

The other chemical is a protein of unknown identity found in certain samples of blood serum, serum fractions and water extracts of certain organs. It has the characteristics of an alpha globulin.

Discovery of the anti-tuberculosis germ activity of spermine was made by Drs. James G. Hirsch and Rene J. Dubos of the Rockefeller Institute for Medical Research, New York. At the meeting of the American Society for Clinical Investigation in Atlantic City, Dr. Hirsch reported that spermine does not suppress growth of tuberculosis germs unless the second, unidentified protein is

also present. Very small amounts of the second chemical in conjunction with spermine produce a poisonous effect on the TB germs.

The two chemicals are not seen at present as a remedy for tuberculosis. The Rockefeller scientists studied them as part of a fundamental attack on the disease through study of what happens to the TB germs when they get into the body.

Conventional processes by which the body resists disease germs are probably not the only factors that stop multiplication of TB germs in the body. They do not, for example, multiply in the central part of the cheesy spots that TB germs form in the body. But white blood cells and scavenger cells of the body that usually deal with invading germs could hardly reach them in such locations.

The spermine and protein chemicals reported may account for some of the non-conventional resistance factors of the body.

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MEDICINE

U. S. Has "Bad Head" For Alcohol Consumption

► **THE UNITED STATES** has "a bad head for alcohol." So have Sweden, Norway and Finland. Italy has a good head for alcohol and France and England have "normal" heads for alcohol.

So reports Dr. H. Pullar-Strecker, superintendent of Wyke House private mental hospital at Isleworth, England. He bases his statements about nations having good or bad heads for alcohol on comparison of figures for alcohol consumption with figures for pathological alcoholism.

In the United States, "alcohol consumption undershoots the incidence of pathological alcoholism," Dr. Pullar-Strecker finds.

In other words, we have a high percentage of alcoholics in comparison with the amount of alcohol we drink.

Alcoholism is much more prevalent in men than women, the ratio being about one woman alcoholic to seven men in the United States and England. Less opportunity for women to get drunk and greater social censure when they do are among the reasons. But, Dr. Pullar-Strecker says, the wear and tear of modern life affects women as much as men.

"All said and done, women have as much cause or more to seek escape in alcohol," he states. "However, they don't, or not to the same extent.

"Possibly the physiological make-up of woman plays a part here, or more probably her psychological make-up. She may have less need to fly to alcohol since she is the stronger sex."

Dr. Pullar-Strecker's findings, reported to the World Health Organization, will reach fellow physicians through the medical journal, *LANCET* (March 15), published in London.

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IN SCIEN

PHYSICS

A-Bombs "Dirty" Radiocarbon Age Tests

► **ATOMIC BOMB** explosions in Nevada are interfering with the time clock of Dr. W. F. Libby, University of Chicago physicist. His time clock is a method of measuring the age of anything that lived up to 25,000 years ago by the strength of the radioactive carbon contained in the ancient materials.

But the atom bomb explosions have been getting the radioactive carbon in his specimens "dirty," he told the American Physical Society meeting in Washington. The blasts have thrown enough radioactive "dirt" into the air so that some of it settles on the wood samples he collected from old Egyptian tombs for his experiments.

The "hot" dust boosts the overall radioactivity of samples and makes them appear younger than they are.

Small traces of radioactive carbon of atomic weight 14 are in the air at all times. It is believed to be formed when nitrogen atoms are bombarded by cosmic rays at high altitudes. Ordinary carbon has an atomic weight of 12.

The radioactive carbon is taken into living things just as ordinary carbon is. But like all radioactive elements, it disintegrates at a fixed rate. By measuring the radioactivity left in the sample, Dr. Libby has been able to date the specimen.

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MEDICINE

TB Germs Resistant To Heralded New Drug

► **TUBERCULOSIS GERMS** develop resistance to the new drug, isonicotinic acid hydrazide, even more easily than they do to streptomycin, Drs. W. Szybalski and V. Bryson of the Long Island Biological Association Laboratory at Cold Spring Harbor find.

A related drug, with the trade name Marsilid, is about 400 times less effective at stopping TB germs, but the germs do not seem to develop as much resistance to it.

There is no cross resistance between TB germ strains resistant to isonicotinic acid hydrazide and those resistant to streptomycin.

The scientists made their findings in test tube experiments with the germs that cause tuberculosis in frogs.

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CE FIELDS

INVENTION

Anti-TB Chemical Compound Patented

► A PATENT for medicines and a veterinary feed containing the new anti-tuberculosis chemical, isonicotinic acid hydrazide, has been issued by the U. S. Patent Office to Dr. Herman Herbert Fox of Passaic, N. J., and assigned by him to Hoffmann-La Roche Inc., of Nutley, N. J.

The patent is a "use" patent for compounds containing isonicotinic acid hydrazide as the active ingredient. The hydrazide chemical itself was made some 40 years ago and is not patentable.

Both Hoffmann-La Roche and E. R. Squibb and Sons had developed the active chemical, independently and simultaneously, as a possible antituberculosis drug. Promising results in trials on human patients with drugs from both firms were announced in February of this year. La Roche calls its preparation by the trade name, Rimifon, and Squibb calls its preparation Nydravid.

The application for the patent issued to Dr. Fox was first filed on March 17, 1951, three months before trials on patients were started. The patent application was refiled on March 7 of this year.

Although the "use" patent for the medicine has now been granted, it has not yet been released for general distribution by the U. S. Food and Drug Administration.

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MEDICINE

New Drug Helps Stop Severe Epilepsy Attacks

► GOOD RESULTS with a new drug for treatment of epilepsy are reported by Dr. R. Handley, director of the David Lewis Epileptic Colony at Warford, Cheshire, England, and Dr. A. S. R. Stewart of the medical department of Imperial Chemical (Pharmaceuticals) Ltd.

The drug is closely related to the sleeping medicine, phenobarbital, but is of a chemical type not previously used in humans. Chemical name for this white, crystalline, practically tasteless substance is 5-phenyl-5-ethyl-hexahydropyrimidine-4:6-dione. The manufacturers have given it the trade name, Mysoline.

Trial of the drug was made on 40 patients of both sexes between the ages of 16 and 60. All of them had the grand mal type of epilepsy. They had been getting

various other anticonvulsion drugs for many years but still were having major convulsive attacks oftener than once a month and in one case about four a day.

With the new drug, 12 of the 40 patients were completely free from attacks of all kinds. All the others except one patient were improved. The one was significantly worse.

In many patients who still had attacks, the convulsions were often much less severe and recovery was quicker. The patients said they were able to resume work more quickly and that the "hangover" time was less. Those whose attacks came only at night were able to do a full day's work.

The hypnotic effect of some other epilepsy drugs was lacking. Patients felt fit, mentally alert, were better able to perform small tasks and had a new interest in pastimes such as dancing.

The new drug is not yet freely available. Details of the trials with it are reported to the medical journal LANCET (April 12).

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BIOLOGY

Microbes Producing Wonder Drugs Put in Cornerstone

► MICROBES THAT produce wonderful cures for disease have the place of honor in the cornerstone of the new Institute of Microbiology of Rutgers University, New Brunswick, N. J., built with the several millions of dollars of royalty received from streptomycin manufacture.

Four cultures of the actinomycetes which produce the antibiotics isolated by Dr. Selman A. Waksman have been quick-dried from a frozen state so that they will last for many decades in the future preserved in the cornerstone.

Samples of the antibiotics produced, copies of the classic papers announcing the isolation of streptomycin and neomycin and the first use of streptomycin in tuberculosis treatment, and Dr. Waksman's address as first director are also in the entombed cache.

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PHYSICS

Microtron Built as Miniature Atom Smasher

► NOW VERY small "atom smashers" are being built and put to work. Dr. H. F. Kaiser of the Naval Research Laboratory described to the American Physical Society meeting in Washington a microtron, a miniature electron cyclotron. It operates in the same frequency band as three centimeter radio waves. Its principle was proposed theoretically and then was applied in Canada to a somewhat larger instrument.

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PHYSICS

Simplest Atom Possible Atomic Energy Source

► A NEW source of intense atomic energy may come out of experiments being carried on by Dr. Martin Deutsch of the Massachusetts Institute of Technology, Cambridge.

He described some of those experiments to a meeting of the American Physical Society in Washington. The source is positronium, a short-lived stuff made of the simplest atom yet discovered.

Dr. Deutsch described methods of experimentally determining the existence of positronium by measuring its amount of gamma ray output. He also described a method of measuring the difference in electro-magnetic force between two forms of positronium.

Positronium is matter which lasts only one ten-millionth of a second in its longer-lived form, one ten-billionth of a second in its other form. It is made by getting a positron, a positively charged particle of matter found in cosmic rays, to connect with a negatively-charged electron. Thus, in structure, it is somewhat similar to hydrogen which has a negatively charged electron spinning around its positively charged nucleus, or proton.

Dr. Deutsch is credited with being the first to "see" or experimentally determine the existence of positronium. Its existence was theoretically deduced in 1937.

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AERONAUTICS

Hunter-Killer Flying Boat Is Anti-Submarine Weapon

► ENEMY SUBMARINES prowling off the American coast will have difficulty in avoiding detection and destruction with a new "hunter-killer" anti-submarine seaplane patrol bomber, the first one of which is now undergoing service tests at the Naval Air Test Center, Patuxent River, Md.

This new potent anti-submarine weapon is the Martin P5M-1 Marlin, developed and built by the Glenn L. Martin Company of Baltimore in cooperation with the Navy Bureau of Aeronautics and the National Advisory Committee for Aeronautics.

It is the first aircraft ever designed and built especially for anti-submarine warfare. It not only carries the most modern radar and other detection equipment but also a plentiful supply of deadly depth charges, torpedoes and rockets. When it locates an enemy submarine, either on or under the water, it can immediately go into action.

This new Marlin seaplane has two pilot-controlled fins in the hull near the stern. Opening under water, these "hydroflaps" act as a rudder and can turn the P5M a little over one wing span. Opened together, they act as a brake. Hull length of the P5M is 90 feet.

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