

MEDICINE

Year's Worst Polio Outbreak May Help Solve Mysteries

► THE little southern town of Wytheville, Va. which has been the scene of the nation's worst polio outbreak this year may help solve some of the mysteries surrounding this feared disease.

No one knows how polio is carried from victim to victim. The unusual prevalence of this disease, 50 times the usual epidemic rate, may give scientists a chance to discover just how it is spread, whether by insects or water or directly from person to person.

Dr. Alexander Steigman, University of Louisville, Ky., professor and consultant to the National Foundation for Infantile Paralysis, has been supervising the collection of insects, blood, water and human wastes in which may be found one of the viruses of infantile paralysis.

The virulence of the disease in Wytheville and the large number of cases may mean that a new type of virus, a fourth sort additional to the now-recognized three types, has attacked this small southern community. Or it may mean merely that the virus causing this outbreak is one to which Wytheville residents have not previously been exposed.

Getting sick with one kind of polio virus does not give protection against infection with another of the polio viruses. That is why people sometimes have a second attack of the disease, and theoretically three attacks are possible.

But it will take weeks of research to discover whether the Wytheville epidemic is going to help solve some of the polio mysteries.

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PSYCHIATRY

No Key for Sister May Mean Marital Troubles

► GIVING the young son his own doorway while requiring his sister to report in early may be paving the way for later marital unhappiness.

This is the suggestion of Dr. Mirra Komarovsky, of Barnard College, Columbia University, based on study of the biographies of 73 girl college students.

The girls who had brothers reported that the boys in the family were given earlier as well as more frequent chances at independence than were the girls.

In the middle class American home, if these families are typical, the boy is permitted to take his first train ride alone at an earlier age. He goes to baseball games or movies unaccompanied younger. He sets off for school alone at an earlier age. He has greater privacy over his phone calls and letters. And he is permitted to go out in the evening without explaining his absence. His sister, on the other hand, must

give a strict account, if not required to get permission for absences from home.

This difference in the home training of boys and girls may make it more difficult for the girl after marriage to be independent of her parents, to make her own decisions, or to face the disapproval of her mother in case of any conflict between her and the girl's husband.

It may be why, when the sea of matrimony gets rough, the wife is inclined to "go home to mother."

Dr. Komarovsky urges further research to find out whether the attachment to parents is greater among women involved in family disputes and divorces.

Details of the study are reported in the *AMERICAN SOCIOLOGICAL REVIEW* (August).

Science News Letter, August 12, 1950

CHEMISTRY

Atomic Glasses Protect Eyes from X-Rays, Neutrons

► NEW glasses that prevent atomic eye damage have been achieved. For protection against X-ray and neutron radiation from atom smashers, atomic reactors and even atomic bombs, the new transparent materials were developed through research directed by Dr. Alexander Silverman, head of the University of Pittsburgh's department of chemistry.

The world's first neutron-absorbing glass contains cadmium borosilicates with fluorides. Transparent protection for the eyes against slow neutrons given by this new glass is equal to a layer of opaque cadmium a third as thick. Goggles of this glass are expected to guard against cataracts caused by accidental exposure to neutron beams which have affected several scientists in past years.

Another new glass has X-ray-absorbing power 50% greater than the best commercial X-ray shielding glass. Tungsten phosphate produces this effect and the new glass does not discolor on exposure to the high energy X-rays or gamma rays.

People generally might wear such glasses if atomic bomb attack is expected, but they would be especially useful for research workers around cyclotrons, betatrons and other atom smashers.

Dr. Silverman also expects both glasses to be used in thick laminated peepholes in the safety barriers in atomic energy plants. Instruments involving gamma and neutron radiations will also use them.

Goggles can be made with composite lenses to protect against both kinds of radiation or single lenses for one kind only.

Associated with Dr. Silverman in the development of the X-ray-absorbing glass were Dr. Joseph J. Rothermel and Dr. Kuan Han Sun. The research team developing the neutron-absorbing glass consisted of Dr. Silverman, Dr. Sun, Laben Melnick and Dr. Hurd W. Safford.

Science News Letter, August 12, 1950



MEDICINE

Male Hormone Relieves Pain of Menstrual Periods

► SUCCESS with a method of using male sex hormone to relieve severe monthly pain in women is reported by Dr. William Filler of Jackson Heights, N.Y., and New York University College of Medicine and Bellevue Hospital, in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (Aug. 5).

Small doses of the hormone chemical, methyltestosterone, were given by mouth three times a day for six days before ovulation. Part of the success of the treatment, Dr. Filler and associates believe, is due to giving the hormone at this time in the monthly cycle, when the egg is discharged from the ovary. This is about half way between the menstrual periods.

The dose given is well below that which might produce masculinization, such as growth of beard.

Almost three-fourths of the patients, 16 out of 22, got complete relief of pain from this treatment. The other six experienced partial relief. The doctors do not now feel concerned as they did originally about the possibility of interfering with the woman's having babies. Three of the patients became pregnant immediately after stopping the treatment, and there is no evidence that the treatment suppresses discharge of the egg from the ovary.

The treatment is for those women whose pain is not due to any organic disorder nor to psychologic conditions, which cannot be relieved by similar measures, and who are incapacitated each month by the pain.

Science News Letter, August 12, 1950

VETERINARY MEDICINE

Golden Drug Helps Turkeys' Sinus Trouble

► SINUS trouble in turkeys, an ailment different from that in humans, is the latest bane to fall before the golden-yellow antibiotic aureomycin.

Dr. J. E. Prier of the College of Veterinary Medicine at the University of Illinois reports in the *JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION* (August) that aureomycin inhibits the agent of infectious sinusitis in turkeys. The agent is believed to be either a virus or another type of germ known as rickettsiae.

Sinus infection in turkey flocks, although not normally fatal, slows the birds' rate of growth and often makes them unfit for market on time.

Science News Letter, August 12, 1950

CE FIELDS

MEDICINE

Sex Hormone Treats Diabetic Children

► GOOD results with sex hormone treatment of children with diabetes were reported by Drs. R. Ramos and C. de Nogales of Barcelona, Spain, at the sixth International Congress of Pediatrics in Zurich, Switzerland.

The children, the Spanish doctors reported, needed less insulin when given sex hormones. They recovered from dehydration, acidosis and signs of faulty fat utilization. Their handling of starches and sugar became more stable.

Object of the sex hormone treatment is to suppress the part of the pituitary gland which produces a hormone formerly called diabetogenic, or diabetes-producing. This hormone is now recognized as ACTH, the anti-arthritis hormone. Production of diabetes is one effect doctors have had to guard against in using this hormone for treating arthritis or other conditions. Although the Spanish doctors are enthusiastic over the results of sex hormone treatment of diabetic children, other doctors want to see the results confirmed by work elsewhere.

Science News Letter, August 12, 1950

DENTISTRY

Radioactive Chemical Aids Tooth Decay Fight

► A RADIOACTIVE chemical is now helping in the fight against tooth decay. Studies with it at the Los Alamos Scientific Laboratory in New Mexico may show whether or not decay can be checked or prevented by substances put on the teeth, such as ammoniated tooth powders and pastes and mouth washes.

The enamel of teeth, the studies show, soaked up the radioactive chemical something like a sponge. This shows that chemicals for checking tooth decay could penetrate the enamel. Other chemicals that may enhance tooth decay also could penetrate the enamel.

The radioactive chemical used in these studies was urea made with radioactive carbon 14. Results are reported by Drs. William Ward Wainwright and Frank A. Lemoine in the JOURNAL OF THE AMERICAN DENTAL ASSOCIATION (August). Urea was used, the scientists explained, because of its potential properties for reducing tooth decay and because of the small size of its molecules. This last makes for greater penetrating power.

The radioactive urea, in water, was spread over the crown surface of 14 human teeth

10 minutes after they were extracted. The degree of penetration was indicated by highly sensitive radioautographs able to record extremely small quantities of the radioactive substance on a special X-ray film.

The scientists found that penetration of the enamel took place rapidly, possibly within 10 minutes. In some of the teeth, the radioactive material, after spreading through the enamel, diffused through the underlying calcified dentin and then entered the pulp of the tooth.

Science News Letter, August 12, 1950

PLANT PATHOLOGY

Diseased Leaves Absorb Radioactive Sulfur

► THE first experimental demonstration that leaves infected with rust and mildew actually absorb the sulfur that combats the infection has been made with the use of radioactive sulfur, by-product of the atomic bomb.

Farmers and gardeners have used sulfur in various forms to fight fungus diseases, but no one has heretofore determined quantitatively that more of the chemical was concentrated in the rusted and mildewed areas of the leaves.

Drs. C. E. Yarwood and Louis Jacobson of the University of California's divisions of plant pathology and plant nutrition exposed diseased plants to radioactive sulfur 35 obtained from the Atomic Energy Commission. This treatment was lethal to rust or powdery mildew on bean and sunflower leaves but did not harm the plant.

Then the treated leaves were put next to an X-ray film for two days and the radioactive sulfur concentrated in the fungus colonies showed up as exposed areas on this radioautograph film.

This selective absorption by the diseased tissues, the California scientists believe, will explain other cases of chemotherapy in plants and animals without assuming that the disease and the host have a different sensitivity to the curing substance.

Science News Letter, August 12, 1950

PLANT PATHOLOGY

Leafhopper Culprit Carries Fruit Virus

► A GREENISH-YELLOW leafhopper, about one-fifth of an inch long, has been tracked down as the culprit carrying a fruit tree virus known as western X disease.

Entomologists of the Department of Agriculture, working with the Washington and Oregon agricultural experiment stations, made the discovery. They identified the insect as one *Colladonus geminatus*.

Western X disease injures peaches up and down the west coast, particularly in sections of Utah and Washington. It also hits cherry trees. Until now, no one knew how the disease was transmitted.

Science News Letter, August 12, 1950

DENTISTRY

Ammoniated Dentifrices May Give Gum Trouble

► A HINT that ammoniated tooth powders and pastes, widely promoted as anti-tooth decay agents, may add to the dental troubles of older persons by causing gum inflammation appears in a report to the JOURNAL OF THE AMERICAN DENTAL ASSOCIATION (August) in Chicago.

The report is from Dr. Maynard K. Hine, dean of Indiana University School of Dentistry at Indianapolis.

One of the well known theories of the cause of tartar is that ammonia is set free in the mouth and that this alkalizes the saliva, allowing calcium to precipitate from it, Dr. Hine points out.

Tartar, or calculus as dentists term it, is not merely an unsightly thing. When it gets under the gums, these hard deposits may cause serious inflammation.

Studies of the use of ammoniated dentifrices have so far not shown an increase in these deposits. But the best and most careful studies, Dr. Hine states, have been made on children who usually show very little tendency to have these deposits.

"The effect of ammonia-producing dentifrices must be carefully watched," he warns.

It would not be "desirable" to reduce tooth decay at the expense of an increase in calculus in older patients where tooth decay is less common than inflammation and disease of the gums.

Science News Letter, August 12, 1950

AERONAUTICS

Tunnel to Tackle Plane Boundary Layer Problem

► ONE of the toughest problems in aviation, that of the so-called boundary layer of air next to the plane's fuselage and wings, is to be studied in a new low-speed wind tunnel now being completed at Cornell University.

More specifically, it is to study the rough air called the turbulent boundary layer which causes drag on the plane and decreases speed. The boundary layer is a thin layer of air between the surface of the plane and the outer volume of air through which the plane is passing. It is apt to "break" toward the trailing edge of the wing, creating the turbulence.

This low-speed wind tunnel will have a rough air layer created by a 125-horsepower motor that will produce air velocities of about 75 miles an hour. The air passage is six feet in diameter, and the entire doughnut-shaped steel structure is some 85 feet long and 20 feet wide.

The problem will require five years to solve, it is expected. It will be under the supervision of Prof. William R. Sears.

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