

PUBLIC HEALTH

Infantile Paralysis Cases Now Decreasing

► **ENCOURAGING** news from the health front appears in reports on infantile paralysis received at the U. S. Public Health Service.

The total number of cases for the week ending Sept. 11 is 868, a considerable decrease from the previous week's total of 956. The 868 figure includes only 45 of the 48 states. Rhode Island, New Jersey and Missouri, from which reports have not yet been received, reported only 50 cases between them last week, however, so are not expected to bring total up to last week's.

Illinois, with the largest number of cases, reported 189, a slight decrease from the 192 of the previous week. California and Texas, where the epidemic first appeared, continued to report decreases. Cases increased in Massachusetts, New York, Ohio, Michigan, Colorado and Oregon; decreased in Connecticut, Wisconsin, Utah and Kansas.

Science News Letter, September 25, 1943

PHARMAOY

Better Sulfa Ointments Promised by Research

► **SUCCESSFUL** hunt for an all-purpose carrier for sulfa drugs when used in ointment form was reported to the American Pharmaceutical Association meeting in Columbus, Ohio, by Darwin Aldrich and Dr. H. G. Dekay of Purdue University's School of Pharmacy. If test-tube experiments prove out, treatment of a variety of skin infections and wounds may be improved.

Germ-fighting effectiveness of sulfa ointments now used seems to be affected by how the ointments are prepared. Tests showed that ordinary water is apparently a necessary ingredient. This confirms work of other experimenters that the water-holding type of ointment bases make the sulfa drugs most effective.

Taking the work a step further, Mr. Aldrich and Dr. Dekay came up with what appears to be an ointment base that can be universally used with any of the sulfa drugs to assure maximum effectiveness. This involves putting in a glyco monostearate chemical and adjusting the mixture to a slight alkalinity (about hydrogen ion concentration of 8.8).

Did the alkali itself make the oint-

ment almost twice as effective in killing staphylococcus germs in test-tube tests? Experiments showed that the alkali only paved the way for the sulfas to do their job, for a sulfa-free ointment proved to have no action against the germs at all.

Possible objections that alkaline ointments might be irritating do not seem to be borne out by clinical use of the ointments in eye infections.

The studies were promoted by queries from pharmacists who have been up against the problem of supplying physicians with a growing number of sulfa ointments in their most effective form. By bringing together all the factors involved in preparing such medicines, the researchers hope to simplify the pharmacist's work through use of a universal ointment base and benefit the patient as well.

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ENGINEERING

Speedier, Cheaper Service Promised to Teletype Users

► **MANY BUSINESS** offices and perhaps some newspapers using teletypes, the telegraphic typewriters, may have speedier, cheaper service by automatic switching of messages through subcenters. Details were disclosed to the American Institute of Electrical Engineers by F. L. Currie of Western Union Telegraph Co., New York, the company that originated the method.

Teletypes have long been beyond the reach of many offices, and even groups of offices. Individual line wires and equipment connecting with a central office boosted expenses too high.

Now a large group of users can be furnished printing telegraph service to and from a distant central office by sharing a small number of trunk wires which run into a subcenter. Here the messages are automatically switched to the proper individual wire provided for each user.

Such development is possible, Mr. Currie explained, because studies show that only a small percentage of patrons use the lines simultaneously. From such data, the correct number of trunk wires are installed to handle the expected peak volume of business at any one time.

Installations have already been made in some sections of the country, the engineers were told, and benefits include ease of operation, speedier service, saving of line wire expense and, in some instances, reduced operating costs.

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IN SCIEN

CHEMISTRY

Aviation Gasoline Makers Develop New Process

► **ALL REFINERS** of 100-octane aviation gasoline may take advantage of a new method of manufacturing which will speed up the production of this essential high-test fuel for warplanes. This new process was developed by the Universal Oil Products Company in Chicago. This company has announced that it is releasing the new method to any refiner interested as a contribution to the war effort.

The process is a method of converting pentane into isopentane. Both of these compounds are contained in the base stock from which gasoline is made. Isopentane is an essential component of 100-octane gasoline. The amount of it in natural gasoline is not sufficient to make aviation gas, so what is called an isomerizing process is necessary to increase the amount by converting some of the normal pentane in the gasoline into isopentane. The newly discovered process does this efficiently and economically, it is claimed. It is reported to be simple, continuous in operation, and easily controlled.

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NUTRITION-INVENTION

Tasty Nut-like Confections Made From Soy Beans

► **TASTY** nut-like confections are made from the newly-popular soy bean, as well as other grains and seeds, by par-boiling in a sodium bicarbonate solution, then puffing them and removing part of the vegetable oils to make them more digestible. Charles A. Raymond of Marion, Ohio, has obtained patent No. 2,329,080 on the process.

Expansion of the beans is accomplished by soaking them in ammonium bicarbonate solution, heating them, then dipping the beans in hot oil. This causes the beans to expand explosively, breaking down the oil cells and forcing the oil to the surface where it is absorbed into the oil bath. A crunchy product results, the inventor states, which has a brownish, roasted appearance.

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CE FIELDS

LANGUAGE

To Russians Uendel Uilki Lives in Niu lork

► WENDELL WILLKIE in Russian is "Uendel Uilki", and New York is "Niu lork," the late Dr. Ales Hrdlicka of the Smithsonian Institution pointed out (*Science*, Sept. 10). The reason is that the Russians have no "w," its place being taken usually by "v." In English names, however, they use "u" instead of "v." This is perhaps an honor because in the transliteration of German names they use the "v."

"For some unknown reason the Russian, alone among the Slavic and other European languages, has no 'h', though the sound is present in the Ukrainian and other Russian dialects," he stated. Houston, therefore, is "Giustn," Ohio is "Ogio," and Hall is "Gol." "Th" is replaced by "f," so that Thomas becomes "Foma."

These substitutions of letters make Russian difficult to foreigners, and also make it more difficult for Russians to learn other languages. Dr. Hrdlicka suggested that, at least in scientific publications, Russians use foreign names as they are and in italics.

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MILITARY SCIENCE

Japs Using Submarines To Supply Troops

► JAPANESE forces on southwest Pacific islands, their ordinary shipping harried by increasingly powerful Allied air attacks, are receiving supplies by submarine as well as by self-propelled barges, Col. Conrad H. Lanza states (*Field Artillery Journal*, September).

"The Jap submarines used for supply purposes," Col. Lanza says, "are of 400-ton and 1,000-ton sizes. The smaller carries about 40 tons of freight and the larger as much as 400 tons, partly lashed to decks. They carry no armament. This type of vessel is really a submersible barge, and is used close to the front—particularly to supply Jap posts near Salamaua and Lae."

Col. Lanza makes no mention of these cargo-carrying submarines as operating in any other war zone, but disclosure of their existence inevitably

arouses speculation as to whether they may not have had a part in the evacuation of Kiska.

Unarmed, cargo-carrying subs are not quite a new thing under the sea. During the first World War, a large German boat of this type, named the Deutschland, created something of a sensation by popping up in Chesapeake bay and docking at Baltimore, while this country was still neutral. She carried a cargo of drugs and dyestuffs, and returned with a load of rubber. Subsequently it was reported that she had also carried instructions to German agents operating in this country; but these were not part of her official manifest.

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STATISTICS

Average Length of Life Increases for Wage Earners

► THE AVERAGE length of life for American wage-earners increased by nine months during the first year of the war, reaching in 1942 the all-time high of 64.18 years, Metropolitan Life Insurance Company statisticians report on the basis of their industrial policy holders' experience.

Those in the nation who are middle-aged today, the figures further show, will live long enough to take a hand in building the postwar world and to see the many changes likely to come during the next quarter of a century.

"Under present mortality conditions, white men 45 years of age and white women close to 50 still have a quarter of a century of life before them," the statisticians report.

The nine months increase in average length of life of the industrial worker during the first war year was not, of course, the result of the war. This and the gains of preceding years of longevity resulted from "our excellent medical and public health facilities, together with our rising standard of living."

A setback in longevity, the first since 1929, is predicted for the current year. Decrease in the supply of nurses and doctors for civilians, inability of public health services to expand as in the past, unsatisfactory living conditions around many centers of war industry, tightened living conditions for civilians and the mounting losses in the armed forces are expected to show up unfavorably in the mortality and longevity statistics at the close of 1943.

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GENERAL SCIENCE

Wool Fiber Cells Differ Greatly in Structure

► CELLS in the outer layer of wool fibers have been found in National Bureau of Standards research to differ greatly in structure from those in the center. The fibrous structure of the cells of the cortex, which is the inner portion of the fiber, can be resolved into still finer microfibrils. The cuticle, or outside of the fiber, shows little or no internal organization.

This difference between the fibrous structure of the cortex and the formless structure of the cuticle may account for the fact that the two layers behave quite differently when the fiber is immersed in reagents such as dyes or swelling media.

Confirmation that this is the real explanation is found in the fact that the various parts of the wool fiber differ only slightly in chemical composition. So far as is known, both the cuticle and the cortex are largely keratin, a protein made up of long chain-like molecules connected by cross-links.

This discovery, which may be of fundamental importance in interpreting many of the properties of wool fiber, was conducted by Dr. Charles W. Hock and Howard F. McMurdie of the National Bureau of Standards. They used an electron microscope, which resolves details of the order of magnitude of only one six-millionth of an inch.

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POPULATION

2,000,000 Extra Babies Born Within Ten Years

► A DIVIDEND for the United States of 2,000,000 babies in 10 years is announced by statisticians of the Metropolitan Life Insurance Company in New York. In other words, by the end of 1943 according to their calculations, close to 2,000,000 more babies will have been born in this nation since 1933 than would have been born if the 1933 birth rate had prevailed.

The nation's birth rate, they point out, yielded this extra "without the propaganda and pressure which have characterized the intensive campaigns of the Axis countries for more babies.

"The greater fertility," they conclude, "has been the voluntary expression of a free people who have faith in the future of their country."

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