MEDICINE

War Pneumonia Not New

Disease may be 1942 alias for bronchopneumonia of grandpa's time. Virus pneumonias were reported before the war. Pneumonias due to variety of causative agents.

➤ WHEN YOU hear or read stories about "a peculiar wartime pneumonia," don't get frightened or think they signal another disease disaster like the influenza epidemic of the last World War.

"Wartime pneumonia" may be and in many cases probably is an alias for the bronchopneumonia familiar to grandpa and his family doctor. Pneumonia has gotten a lot of new names in the last 10 years, but the sickness is not new, and even the new names are older than the present war.

Until about 10 years ago there were two kinds of pneumonia appearing on hospital records and death certificates: lobar pneumonia and bronchopneumonia. Lobar pneumonia starts suddenly with chill, cough, pain in the chest or side and rusty sputum. It is caused by round micro-organisms called pneumococci. Before the discovery of the sulfa drugs, it was treated with specific antiserum, a special serum for each type of pneumococcus.

In bronchopneumonia the sickness did not always come on suddenly with chill, pain, cough and rusty sputum. It generally started more gradually, like a cold or bronchitis, which got worse. No typical pneumococcus was found to be causing the sickness and antiserum did no good. Doctors used to think bronchopneumonia was due to secondary germ invaders of the lungs, such as streptococci and staphylococci.

Long before this present war started, the diagnosis of bronchopneumonia began disappearing from hospital records, and diagnoses of atypical pneumonia, pneumonitis, virus pneumonia and the like began appearing. French and German doctors nine years ago began reporting these new kinds of pneumonia. As early as 1935 an American Army X-ray specialist reported finding among troops in Honolulu cases of what he called acute influenzal pneumonitis. The words pneumonitis and pneumonia both mean inflammation of the lungs.

The following year came an American report of what seemed to be bronchopneumonia which was claimed to be due to a virus. In the next few years two groups of American scientists each found a different virus in cases of pneumonia.

Viruses are such small germs they cannot be seen even with ordinary high-powered microscopes and can pass through the pores of filters that stop larger germs such as the pneumococci. Closely related to viruses are a group of germs called rickettsia which pass through filters like viruses but which are large enough to be seen under microscopes.

A rickettsia is the cause of a kind of pneumonia discovered in Australia in 1937. The Australians call it "Q" fever and in 1940 cases of "Q" fever were also discovered in the United States.

"Q" fever, like the atypical or virus pneumonias so much discussed these days, is a mild disease that might be called influenza, rather than pneumonia, unless the patient's chest is X-rayed. Patients seldom die of either "Q" fever or the atypical pneumonias reported nowadays. You remember that bronchopneumonia was not very often fatal either except in elderly people.

Medical opinion these days is that some cases of pneumonia may be due to rickettsia, the "Q" fever germ; that some may be due to two other identified viruses; that some may be due to the virus causing psittacosis or parrot fever; and that bacteria such as staphylococci or streptococci and possibly other still unidentified viruses probably cause the rest of the pneumonias that are not pneumococcal pneumonia.

Science News Letter, October 17, 1942

ENGINEERING

Girl Computer Has Made Specialty of Light Curves

➤ CURVES—isocandle and isolux—are the speciality of Miss Ruth Forbes. She is the only woman in the United States computing these lines for the use of electrical engineers.

They are similar to the lines on weather elements; only these lines show

CURVES, isocandle and isolux, are being computed by Miss Ruth Forbes of General Electric. In the background are charts showing the lines which indicate distribution of candle power from a light unit.

the distribution of candle power from a light unit.

Miss Forbes started to work for the General Electric Illuminating Laboratory two years ago. Although she was not a high school graduate, she worked into a job usually done by an electrical engineer.

Out on the testing range, a big, gloomy barn of a place, it is all in the day's work to analyze a huge Army billion-candlepower searchlight, then turn around and measure the light from a cigarette. With a "knack for math," Miss Forbes proceeded to find out how and why.

Now she knows how to make some 800 photometer readings. From these she computes, by slide rule and calculator, the curves showing the light distribution obtained by testing a unit.

Science News Letter, October 17, 1942

CHEMISTRY

Electroplating Surprise

Attempt to produce nickel powder results in coating on only one side of sheet; may have commercial use. Electrochemical Society hears of other advances.

➤ IN ATTEMPTING to produce nickel powder by rapidly electroplating the metal on a copper sheet, Dr. Oliver P. Watts, professor of electrochemistry at the University of Wisconsin, ran upon a strange phenomenon which he reported to the Electrochemical Society meeting in Detroit.

A coating of nickel appeared on the back of the copper but none on the front. This, he said, was contrary to all recorded experience with plating solutions. Furthermore, no nickel powder was produced.

Dr. Watts had tried to utilize that "bugbear" of the plater, the "burned" deposit, by passing a very large current of electricity through a dilute solution of nickel sulphate. This should have done the trick, because too heavy a current produces a crumbly deposit which frequently drops off.

To increase the conductivity of the solution and thereby increase the current, Dr. Watts had added a large amount of sodium sulphate to the solution and also heated it. Such "conducting salts" are frequently used. To his surprise he got only a film of alkali on the front of the plate but a good adhering coat of nickel on the back. Measurements showed that three-quarters of the current had been employed in depositing the alkali and only a quarter in depositing the nickel. The latter part of the current had to pass around the edges of the plate to reach the back. Usually in electroplating the front of an object is more heavily plated than the back.

Other metals and other solutions were tried and it was found that the same thing could be done with cobalt and iron, but not as yet with tin, zinc or copper.

As a possible commercial use of this curious phenomenon, Dr. Watts suggests that the solution might be so regulated as to plate front and back equally, but so far he has been unable to get any happy medium between a thicker coat on the front or none at all on the front.

Science News Letter, October 17, 1942

Better Nickel Plating

Thick and extra hard coatings of nickel can be formed by adding ammonium salts to the plating bath, and properly proportioning the other ingredients, Dr. W. A. Wesley, assistant director, and E. J. Roehl, research chemist, of the Research Laboratory of the International Nickel Company of Bayonne, N. J., told the Electrochemical Society.

Many new problems arising in defense activities, the investigators said, involve surfacing of parts to resist wear and corrosion, and the salvaging of worn and mismachined parts, by the electrodeposition of heavy metal layers. The coatings must be hard, have strength, ductility, machinability, adhere strongly, and have a heat expansion close to that of steel. Furthermore, the deposits must not be in layers such as the old "hard baths" gave, but must be homogeneous.

By researches in the laboratory and on a pilot scale, these two chemists have produced and thoroughly tested new hard baths that give coatings conforming closely to all the desired qualities.

Science News Letter, October 17, 1942

Urge Science "Scrap" Drive

➤ A NEW kind of "scrap" drive to discover, collect and use the "hidden treasure" of scientific discoveries laid aside and forgotten in laboratories, libraries and old reports and records, was urged by Dr. C. F. Burgess, of Chicago, pioneer in electrochemistry, in his address at Chicago accepting the Electrochemical Society's Edward Goodrich Acheson medal and $1,000 prize.

Stressing the great progress being made by technology under the stress of war, Dr. Burgess said:

"The necessarily slow processes of science cannot compare in importance with the urgent, unromantic patriotic duty of all citizens in collecting scrap, not only that which lies on the surface, but more especially the hidden treasures in libraries, old reports and records—discoveries laid aside and forgotten.

"In this search," Dr. Burgess added, "scientists and the vast number of amateur workers can join forces and turn drudgery into romance in discoveries of value."

The electrochemical industry, an infant at the opening of the century, Dr. Burgess said has become such a powerful giant that it has been commandeered as a major agency in war. He predicted that remarkable developments under way will push upward the standards of life when peace arrives.

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Heat Affects Battery

➤ THE AUTOMOBILE storage battery loses its charge on standing three times as rapidly at 100 degrees as at 70 degrees Fahrenheit, but at 32 degrees the loss is vanishingly small. These are results of tests carried out by A. C. Zachlin of the Development Laboratory of the Willard Storage Battery Co., and reported to the Electrochemical Society meeting in Detroit.

Around 70 degrees, the usual automobile battery loses on standing about 1% of its charge per day, Mr. Zachlin said, so that at this rate it would in three months become practically discharged. The moral evidently is, if you have to store your car, store it in a cool place, preferably where the temperature is kept only slightly above freezing.

If the plates of a battery are made of pure lead, Mr. Zachlin pointed out, the loss on standing is reduced to practically