

MEDICINE

# Sugar Plays Leading Part in Pneumonia Germ's Activity

Is Part of Capsule Surrounding Organism Which Gives It Power to Enter Human Body and to Cause Disease

**A** NEW understanding of the much-feared pneumonia germ was presented by Dr. Oswald T. Avery of the Hospital of the Rockefeller Institute for Medical Research at the convocation in San Francisco of the American College of Physicians. A complex sugar plays a leading part in the germ's disease-producing activities, it appears from the research Dr. Avery described.

The pneumococcus, or pneumonia germ, is surrounded by an envelope of material known as the cell capsule, he explained. Without this capsule the germ has no power to invade the body or to cause disease and it is easily taken up and destroyed by the phagocytes or scavenger cells of the body, it has been found. This important capsule is probably composed largely of a soluble sugar-like substance which is made by the pneumococcus. Each of the different types of pneumonia germ produces its own specific sugar-like substance, Dr. Avery said.

The sugar of the pneumonia germ is probably not a poison like the poison produced by the diphtheria germ, but it does seem indirectly to hinder recovery from the disease. This is because this sugar tends to bind certain protective substances in the blood and thus to prevent their reaching areas of infection in the body, where they could fight the disease.

## Not Produced in Body

Dr. Avery and associates found that the body does not produce any enzyme which can break down the complex sugar of the pneumonia germ's capsule, but a micro-organism found in peat soil does produce such an enzyme. When this enzyme was injected into mice and rabbits suffering from pneumonia, the animals recovered. Likewise, they found that a preparation of this enzyme protected mice from a million times the number of virulent germs which invariably caused death in the animals which were untreated.

When the enzyme breaks up the com-

plex sugar of the germ's capsule, the unprotected germ is ready prey for the scavenger cells of the body. Thus recovery depends both on the presence of the enzyme and on the body's ability to produce scavenger cells to destroy the unprotected pneumonia germ, Dr. Avery explained.

## Skin Test Developed

He also told how in the course of this research, an important skin test was developed from the sugar of the pneumococcus. When a little of this sugar is injected into the skin of patients recovering from pneumonia, a reddened spot with a wheal in its center appears. The capacity of the skin to react in this way with the germ's sugar is closely connected with recovery from the infection. The results indicate that this skin test may be significant in foretelling the outcome of the disease, and may also be of value in determining the dosage of antipneumococcus serum to be given in treatment.

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# High Blood Pressure May Be Compensatory Reaction

**C**HEER for persons suffering from high blood pressure was given by Dr. Carl J. Wiggers, professor of physiology at Western Reserve University School of Medicine, in an address before the American College of Physicians.

High blood pressure, he said, must be looked upon as a compensatory reaction designed to restore a normal blood supply to the tissues of the body.

"If the physiological conception that hypertension is Nature's agent, assuring an adequate blood supply to the tissues, could gain firmer root in the doctor's mind and through him be re-



**VOLTMETER**

*Though greatly unlike the familiar little boxed instrument, these shimmering metal spheres three feet in diameter accurately measure potential. Three million volts is their limit of accuracy. Artificial lightning jumps the gap between them in the General Electric Company's high voltage laboratory at Pittsfield, Mass.*

layed to his patient, it would do much to remove the feeling of despair and impending doom so common in the layman who learns that his blood pressure is 'high,'" declared Dr. Wiggers.

He said that without doubt the patient with a very high blood pressure is confronted with certain risks, such as rupture of the blood vessels or decompensation of the heart, but he suggested that in attempting to avoid these dangers the physician should consider whether an even greater risk is not incurred through the use of drugs which lower systemic pressures generally.

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