S C I E N C E S E R V I C E

"SEEING" SOUND—Here is a sound spectrogram of the words, "Science Service," that will be the basis of devices for translating sound into visible, easily understood patterns for the deaf. (See SNL, Nov. 17.)

CHEMISTRY

Streptomycin Structure

Synthesis of antibiotic that rivals penicillin as remedy may be the next step. Large scale production of the drug might then be speeded.

➤ THE ACTUAL chemical structure of streptomycin, antibiotic that rivals penicillin as a remedy for infections, has been worked out almost completely by a group of scientists at the research laboratories of Merck and Company. Details of part of the work are reported in *Science* (Nov. 16), by Drs. Norman G. Brink, Frederick A. Kuehl, Jr., and Karl Folkers.

With this knowledge of the chemistry of streptomycin it may be possible to synthesize and manufacture the drug. In that case patients and their physicians would not be dependent as at present on the amounts of material that can be obtained by the tedious process of growing the soil organism, Streptomyces, and extracting the chemical from it.

Development and manufacture of a master chemical for germ-fighting that could replace streptomycin, penicillin and other antibiotics, or of a series of such chemicals, each designed for overcoming a particular group of disease germs, is another possible result of the discovery of how one such substance is put together chemically in nature. Hope for this is less solid than for the synthesis of streptomycin, difficult as that undoubtedly will be. The germ-stopping activity of antibiotics may depend on the entire chemical structure of the various substances, not on any part of it, and may be lost when the original structure is altered.

Streptomycin itself, the Merck researchers find, breaks up into two portions to which they give the "convenient trivial names" of streptidine and streptobiosamine. Together they are made up of 21 carbon atoms, 37 or 39 hydrogen atoms (the scientists are still uncertain of two hydrogen atoms), seven nitrogen atoms and 12 oxygen atoms. Streptomycin has the "general constitution of a hydroxylated base (streptidine) attached through a glycosidic linkage to a nitrogen-containing disaccharide-like molecule."

Science News Letter, November 24, 1945

AERONAUTICS

General Arnold Gives New Words for New Age

➤ MOTORJET, turboprop, turbofan, turbojet, ramjet, pulsojet. These words "carry more meaning for Americans than any other six words I know," says General H. H. Arnold in his third report as commander of the Army Air Forces.

No one can understand the language of aeronautics, much less the language of the future, if he does not know the meaning of words such as these. They will be a part of every-day life. The coming of the jet-propulsion age assures this.

These six strange sounds describe six distinct methods of utilizing atmospheric oxygen for propulsion. Only two of the words have probably been heard before by the American public. The "pulsojet" or intermittent jet idea is incorporated in buzz bombs. The V-1, prized weapon of the Germans, made this word known. Planes like the P-80, the P-59 and the new British Gloster Meteor jet plane that now claims the world speed mark, all owe their power to the "turbojet," gas turbine and jet combination.

In the future you will see "motorjet" planes with enclosed propellers instead of exterior ones.

"Turboprop" planes will have gas turbine engines plus these propellers. The usual reciprocating engines will be replaced not only in these, but in planes using the "turbofan" plan, which employs a gas turbine plus a ducted fan. The "ramjet" principle is most suitable for super-high speeds. There will be no mechanical compression as of old, but a continuous jet with compression by aero-dynamic ram.

It may be all technical now. "Gasoline" was an unknown word not too long ago. Some of these sounds may get so common that babies will be saying "ramjet" along with "dada."

Science News Letter, November 24, 1945

PUBLIC HEALTH

Fewer Health Complaints Among Industrial Workers

➤ INDUSTRIAL workers have decidedly fewer health complaints, now that the war is over. They have less nervous indigestion, insomnia, cumulative fatigue and nervous exhaustion. Blood pressure readings are lower in employees over 45 years old.

These findings, from a survey begun last April and planned to continue into next year and to include several hundred plants of all sizes involving over 1,000,000 workers, were reported by Dr. C. O. Sappington of Chicago at the meeting of the Industrial Hygiene Foundation in Pittsburgh.

"Shorter hours of work and relief from pressure of production and the general anxiety generated because of the possibility of being called into the armed forces" are the reasons Dr. Sappington gives for the improvement in industrial workers' health.

"On the other hand," he stated, "in some quarters there has been an increase in the incidence of occupational disease in plants which have had no such experience during the years of the war emergency. This may be due to the laying off of professional personnel and termination of employment of others."

Referring to current labor problems, he said:

"One element in sustaining and maintaining an adequate industrial health service is the opportunity to maintain production at a high level. This interdependence is apparently overlooked in the battle for shorter working hours and more pay."

Science News Letter, November 24, 1945