

## MEDICINE

# Test Detects Cold Virus

This chemical procedure will speed-up studies looking toward drugs or a vaccine to conquer the common cold. Human volunteers are aiding the study.

## See Front Cover

► A DRUG to cure the common cold or a vaccine to prevent it may come faster, thanks to a chemical test developed by two U. S. Public Health Service scientists, Drs. Leon T. Atlas and George A. Hottel of the National Institutes of Health in Bethesda, Md.

The test detects the presence of the common cold virus and tells how much of it is present in a given sample of material. When certain chemicals are added to virus-containing material a pink to brown color develops. A very light pink color means a little virus. A very deep brown means lots of virus. To determine the exact amounts scientists measure the intensity of the color with an instrument called a spectrophotometer. The chemicals used are tryptophane, an amino acid, and perchloric acid. Details of the testing procedure were reported in the journal, *SCIENCE* (Dec. 31).

The speed-up on work toward a cure or preventive for the common cold comes from the fact that with this test scientists can do as many of certain procedures in one routine day as have so far taken two years.

First steps in trying to make a vaccine against a disease are to isolate the germs causing it and grow them outside the body in large quantities. In the case of colds, this can be done by washing out the nose of the cold victim with milk and growing this material on fertile hen's eggs. On the cover of this week's *SCIENCE NEWS LETTER* a fertile egg is shown being inoculated with common cold virus.

But the only way scientists have had so far of knowing whether the cold virus was present in the material from the victim's nose, or had grown on the eggs, was to spray some of it in a healthy person's nose and wait to see whether he got a cold.

And if they wanted to know how much virus is needed to cause a cold, essential for development of a vaccine, they had to spray different dilutions of virus-containing material in different noses and again wait to see whether colds developed.

These tedious, time-consuming procedures will be eliminated by the new test. Human volunteers will still be needed for some phases of cold research. Examples Dr. Atlas gave are recognizing the various agents which may cause colds, studying susceptibility to fresh colds, the length of time a cold lasts, and the effect of drugs, climate and various other factors on attacks of colds and their course.

Tests of aureomycin, new mold remedy,

as a cold cure and of diluted virus as a vaccine are planned.

The chemical test has been successful in detecting and measuring a virus called MR 1. Decoded, this means Minor Respiratory 1. It is the code name given the virus which Dr. Atlas and Dr. Norman Topping of the National Institutes of Health announced just a year ago (*See SNL*, Jan. 24, 1948). Dr. Atlas got it from the nose of a scientist to whom he was giving a physical examination preliminary to a U. S. Public Health Service fellowship.

With the aid of 500 volunteers among

inmates at Lorton Reformatory, District of Columbia penal institution, Drs. Atlas and Topping made sure that this virus definitely causes colds. Because it may not be the only virus that causes colds, or what the scientists term minor respiratory diseases, they have given it the number, "1", to identify it.

Dr. Atlas hopes that the new test will enable him and fellow scientists to isolate and study other viruses that may be causing the minor respiratory diseases now lumped under the name of a cold.

The test might be made specific for each virus, not only of colds but of other diseases such as infantile paralysis, measles and so on. If so, it would speed new knowledge for fighting these diseases. Its potential usefulness in this way comes from the fact that it is based on a chemical difference between infected and non-infected fertile hen's eggs, probably on the chemical composition of viruses in general and not a specific virus.

*Science News Letter*, January 8, 1949

## ASTRONOMY

# 14 Comets Found in 1948

► "THE YEAR 1948 was another record-breaking one for comet seekers," Dr. Fred L. Whipple of Harvard Observatory revealed at the meeting of the American Astronomical Society in New Haven, Conn.

Fourteen comets were spotted during the year. This is as large a number as has ever been found, and only the third time on record when over an even dozen have been spotted in a single year.



*ISOLATING GERMS*—A nasal washing is shown being collected by Dr. Leon T. Atlas of the National Institutes of Health common cold research program. Sterile skim milk is circulated through the nostrils and nasal pharynx of a volunteer who, a few days before, was inoculated with common cold virus.

The 12 new comets discovered (only two 1948 discoveries were the expected periodic return of old comets) are an outstanding record.

"More extensive use of photography in comet-hunting, use of wide-angle telescopes more suitable for this purpose and improved photographic emulsions all helped make this the second consecutive year that 14 of these visitors from space have been found," Dr. Whipple told Science Service.

Comet enthusiasts in the northern hemisphere have been unusually fortunate this year. One brilliant comet, found early in

November, was easily visible with the naked eye throughout most of the United States, and several were visible with binoculars or small telescopes.

Fourteen comets in all were found during this past year. This is as many as those discovered in 1947 when a new, all-time record was set. This year, however, 12 of the comets were new and two marked the expected, periodic return to the vicinity of the sun of more familiar ones; last year only nine of the 14 were new finds and five were periodic returns.

Science News Letter, January 8, 1949

## ASTRONOMY

# Sun's "Hisses" Powerful

► SCIENTISTS receive radio broadcasts from "stations" hundreds of thousands of times more powerful than any broadcasting station here on earth.

Broadcasts from the sun reach the earth as "hisses," "swishes," and grinding noises, which interfere with radio reception at ultra-high frequencies. A broadcasting station of 100 million kilowatts would be needed to make these noises, originating from the sun, heard here on earth, estimates Prof. Jesse L. Greenstein of California Institute of Technology.

This is two million times greater than the most powerful radio station permitted here in the United States by the Federal Communications Commission. No wonder solar static interferes with FM, television and radio.

"The total energy transported in these radio signals is small compared to the energy in light or in cosmic rays," Prof. Greenstein stated at the meeting of the American Astronomical Society in New Haven, Conn. "But when we analyze the observations, we find that the energy is much greater than we might have expected."

A broadcasting station placed as far away as the nearest star would have to use a bil-

lion billion kilowatts to make us hear static such as reaches us from cosmic space, Prof. Greenstein estimates.

The use of radar in probing the heavens marks the first time in astronomy that instruments other than telescopes and other light-sensitive instruments have been used, the Caltech astronomer pointed out.

Intensity maps of the Milky Way show that the cosmic static comes mainly from the central part of the constellation of Sagittarius, the archer, where the center of the Milky Way galaxy is located, and from a small but bright region in the constellation of Cygnus, the swan.

The great distance to the stars weakens the signal so much that the average stars would have to emit 100 billion times as much radio waves as does the sun, if the stars are to account for the observed intensity. Therefore one theory suggests that this cosmic static originates in the outer atmosphere of a few extraordinary stars, which emit a large proportion of their energies as radio waves, of much longer wavelengths than light. Such stars, with strong electric and magnetic fields, might prove to be the rarest and strangest objects in the sky.

Ionized gas between the stars is the source

of this cosmic noise, according to a second theory. Near hot stars, hydrogen gas (the space between the stars contains about 20 hydrogen atoms per cubic inch) is quite hot and electrified, whereas that far from such stars is neutral and cool. The hot regions appear as very faint gaseous nebulae in the Milky Way and could emit nearly enough radio waves to account for the observed intensity, Prof. Greenstein calculates.

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*Infrared ray* measurements, the first ever taken of the sun at an altitude of 35,000 feet, were made by the U. S. Navy recently, using an Air Force bomber.

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