CHEMISTRY

Terramycin Structure

Two-year research reveals that molecule consists of carbon, hydrogen, nitrogen and oxygen atoms with four rings of six carbon atoms each fused into a bar.

➤ THE CHEMICAL structure of terramycin, one of the "Big Five" antibiotic drugs, has now been worked out. This chemical feat was achieved by scientists in the laboratories of Chas. Pfizer and Co., Brooklyn, where the drug was discovered, and Dr. Robert B. Woodward of Harvard, co-discoverer of the synthesis of quinine and of an important step in the synthesis of cortisone.

Hope of synthesizing terramycin, however, is considered slim because of its complex molecular structure, said to be one of the most complex ever found in nature and unique among known antibiotics.

But even if we must continue to depend on mold fermentation processes for the supply of this healing drug, chemists may, now that its structure is known, be able to change it a little and thus produce new medicines. Knowledge of its chemical structure may also help explain the mechanism of antibiotic action and the way in which molds build up antibiotics.

Besides Dr. Woodward of Harvard, seven Pfizer scientists took part in the two-year research leading to discovery of terramycin's chemical structure, announced in the *Journal, American Chemical Society* (July 20). The seven are: Drs. K. J. Brunings, F. A. Hochstein, C. R. Stephens, L. H. Conover, Abraham Bavley, Richard Pasternack and Peter P. Regna.

The terramycin molecule, they found, consists of carbon, hydrogen, nitrogen and oxygen atoms. Its high oxygen and nitrogen content is considered responsible for its getting along well with fluids and tissues of the living body. In body fluids it apparently acts like a tiny magnet with positive and negative poles that enable it to combine with various kinds of chemicals much as body protein substances do.

In the basic skeleton of the terramycin molecule are four rings of six carbon atoms each, fused into a bar pattern.

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ASTRONOMY

Coronagraph Mounts Done

➤ TWIN MECHANICAL mounts for the two largest, most powerful and most accurate instruments ever devised to produce man-made eclipses of the sun have just been completed at the Westinghouse Electric plant at Sunnyvale, Calif.

The key to a coronagraph is a disk in its optical system that blacks out the sun's face, which is 500,000 times brighter than the much hotter corona, revealing its halo-like corona and fiery atmosphere. The accuracy with which the coronagraph is aimed at the sun is equivalent to striking a rolling penny 13½ miles away with a rifle bullet.

Successful completion of trials in the plant, with electronic gadgets doubling for the missing giant lens and sun, signals installation soon of completed coronagraphs atop Fremont Pass near Climax, Colo., in the Rockies and on Sacramento Peak near High Rolls, N. M. The instruments were designed by Harvard and University of Colorado scientists.

At these two high points, 600 miles apart and well above the dust and haze found at lower altitudes, astronomers will add newly-designed optical systems and other instruments to the electrically and mechanically controlled equipment assembled at Sunnyvale.

The two big eyes, designed to be aimed directly at the sun, will be used for basic solar research which will contribute to:

1. More accurate predictions of short-wave radio reception.

2. Better understanding of our own stratosphere and ionosphere.

3. Possibly, improved long-range weather forecasting.

4. Greater knowledge about the sun, what it is composed of and how its light varies.

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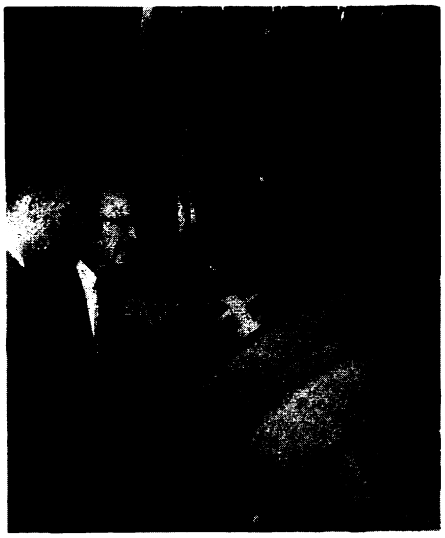

CORONAGRAPH MOUNT — The polar axis shaft for one of two new coronagraph mounts is here being inspected by Dr. John S. Evans, superintendent of Harvard's Sacramento Peak Station. Demonstrating the new mount is S. Dale Phillips, engineer in charge of production of the mounts.

SEISMOLOGY

California Shocks Likely to Continue

➤ CALIFORNIA RESIDENTS within 10 or 20 miles of Tehachapi, scene of the recent devastating earthquake, may as well settle down to "ride out" aftershocks for the next two months, the U. S. Coast and Geodetic Survey reported.

Such aftershocks are expected until the stresses set up within the earth by the original quake become adjusted. Many aftershocks will go unnoticed by residents, but will record themselves on seismograph records.

One of the window-breaking aftershocks that rumbled through Bakersfield, Calif., on July 29, was recorded by instruments in Pasadena as having the largest force since the original California quake July 21.

The first strong shock, striking the town at 12:04 a.m. PDT, showed a force of 6.5. That was merely one point lower than the original quake that registered at 7.5, the U. S. Coast and Geodetic Survey reported. A second shock following within the hour produced a seismograph reading of 5.7.

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PHOTOGRAPHY

How to Make Good Lightning Photographs

See Front Cover

➤ THE PHOTOGRAPH of lightning on the cover of this week's SCIENCE NEWS LETTER was taken by the Science Service staff photographer, Fremont Davis, on the night of July 22, 1952.

If you would like to take such a picture during the next night thunderstorm, set your camera up on a firm tripod and focus on infinity. Use the widest opening (the one on the cover was taken at 4.5) and a fast film.

Watch the lightning flashes for a while to see in what region of the sky they are most frequent and to get an idea of the frequency of the flashes. Then open your shutter when you think it about time for a large stroke and close it as soon as one flash has occurred.

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