

about three-fourths of the young patients, these dangerous germs were completely eradicated. In almost all, the germs were "suppressed" if not completely banished.

Similar doses of the mold chemical, the doctors believe, would prevent the strep germs from getting a foothold in the throats of the children and thus prevent rheumatic fever attacks. The prevention doses would be given when there was an outbreak of strep sore throats in the child's school or family or the community generally.

That this would help is shown by the experience at the Good Samaritan when hemolytic streptococcus infection broke out among the ward patients. Before the use of penicillin, about half the rheumatic fever patients would have had another attack of their disease in such a situation. But in this outbreak everyone was given penicillin. The out-

break was checked abruptly and none of the patients had recurrence of rheumatic fever.

Except for its present high cost, penicillin given by mouth is better than sulfa drugs for preventing rheumatic fever attacks, the Boston doctors believe. Their reasons are that the sulfa drugs are potentially toxic and are less effective against streptococci. Only a few of the children getting penicillin had any toxic reactions, and these were "serum-sickness like" reactions.

Penicillin resistance is not likely to develop with the doses used, the doctors believe.

Encouraging as the results seem, they state that more studies are needed before definite conclusions can be drawn. But they seem enthusiastic about the possibilities of preventing rheumatic fever by penicillin.

Science News Letter, July 3, 1948

#### ASTRONOMY

## Poison Gas in Atmosphere

Methane has been detected in the light from the sun which passes through the atmosphere to the earth's surface by new all-reflecting infrared spectrometer.

► THERE'S lots of the poisonous gas methane in the earth's atmosphere. At least there is enough to register its presence upon light from the sun as it passes through our atmosphere on its way to the earth's surface.

A new system of molecular bands in the spectrum of the earth's atmosphere has been identified as belonging to methane, poisonous "marsh gas," by astronomers of the University of Michigan. These bands were reported at Pasadena, Calif., to the joint meeting of the American Astronomical Society and the Astronomical Society of the Pacific.

The new all-reflecting infrared spectrometer of the University's McMath-Hulbert Observatory was used for the study. This apparatus employs a Cashman lead-sulfide cell, a hundred times more sensitive than the best thermocouple previously used.

Dr. Robert R. McMath, Dr. Orren C. Mohler and Dr. Leo Goldberg stated that they now have completely mapped with this instrument the solar spectrum in the region 8,000 Angstroms, practically infrared and invisible to the naked eye, to 25,000 Angstroms.

The new solar map shows not only a wealth of solar atomic lines of such

elements as hydrogen, iron, magnesium, sodium, silicon, carbon, aluminum, calcium and others, but also numerous well-resolved molecular bands originating in the earth's atmosphere.

Most of these "telluric" band systems come from carbon dioxide and water vapor, as expected. The four new methane bands are at wavelengths 16,600, 22,000, 23,300 and 23,800 Angstroms.

Science News Letter, July 3, 1948

## Star's Magnetic Field

► WE MAY some day learn more about distant stars—what they are and how they continue to exist—because of observations reported at the meeting for the first time by Dr. Horace W. Babcock of Mount Wilson Observatory of the Carnegie Institution of Washington.

Not just a star's temperature and surface gravity, but also its magnetic field, he stated, affect the star's spectrum. It is only by fanning out this starlight into its various parts that we learn which elements make up a distant star, estimate how hot its various layers of atmosphere are and so on.

Dr. Babcock proposed to the joint meeting that fluctuations of a star's mag-

netic field account for hitherto unexplained intensities of certain spectral lines in some white stars. Such changes are also responsible for variations in the spectra of these and other stars, he said.

In stars with high magnetic fields, spectral lines of certain elements may be very much broadened and intensified in appearance, Dr. Babcock found. This discovery complicates matters for astronomers, but adds further to our knowledge of the mechanism whereby stars operate.

Dr. Babcock gave as an example the lines of ionized europium in the star known as HD 125248, where these lines vary enormously in intensity with a regular period of 9.295 days. Corresponding to this, the known polar magnetic field of this star also varies. In synchronism with the changes in the europium line, it reaches a maximum of about 7,800 gauss, the strongest magnetic field known in nature.

At maximum the overall width of this star's europium line at wavelength 4205 Angstroms is about .35 Angstroms, compared to only about .023 Angstroms when there is no magnetic effect.

Science News Letter, July 3, 1948

#### MEDICINE

## Fingernail Polish "Base" Damages Women's Nails

► A NEW medical mystery affecting women particularly was reported by Drs. James H. Mitchell, Douglas A. MacFayden and Bernard Jaffe, of the University of Illinois College of Medicine and Presbyterian Hospital in Chicago, to the American Medical Association.

Use of a "base coat" to make nail polish stay on longer has been causing strange damage to women's nails. The fingernails turn purplish blue, then white, and begin to separate from the fingers. As one physician facetiously put it, "The polish may stay on but the nails come off."

Whether the nails will recover and what causes the condition are unsolved mysteries. The Chicago doctors saw their first case in February this year. They have had reports of several hundred cases from doctors all over the country. The most widely sold brand of base coat has, naturally, caused the greatest number of cases. All brands probably are involved, since the trouble probably comes from a chemical ingredient used in all of them. So far, the ingredient has not been identified.

Science News Letter, July 3, 1948