what happens at high temperature are still widely held.

The scientist explained that when heat is applied to compounds at ordinary temperatures, the compounds begin to come apart. This leads to the widespread assumption that as things get hotter, the species of molecules get simpler.

"This is not true," Dr. Brewer said, "and in many types of systems one finds quite complex molecules even at very high temperature."

What happens is that as temperatures increase, compounds important at room temperature are converted to new compounds that are usually different. The compounds that predominate at high temperature are unexpected and unpredictable by ordinary chemical rules.

Moreover, compounds are stable at these very high temperatures when they could not even exist at ordinary temperatures.

Science News Letter, August 3, 1957

ENTOMOLOGY

Garden Spider Snares Herself an Insect Dinner

See Front Cover

➤ THE YELLOW-BANDED garden spider shown on the cover of this week's SCIENCE NEWS LETTER has successfully snared herself a fine dinner—perhaps a grasshopper which is a favorite food.

The spider belongs to the subfamily *Argiopinae*, a group of handsome orb web weavers second only to the silk spiders in size. Its technical name is *Argiope aurantia*. The name describes the spider's coloring very appropriately: it is marked with bright yellow or orange spots on a mostly black body.

Large webs, often two feet in diameter, are placed upon shrubs along roadsides, in gardens and around houses.

Science News Letter, August 3, 1957

MEDICINE

Antibiotics Aid Disease

➤ A FATAL FUNGUS disease that usually kills within ten days is apparently increasing due to the widespread use of antibiotics, Dr. C. G. Tedeschi, department of pathology of the Veterans Administration Hospital in Boston, Mass., told SCIENCE SERVICE.

The disease is known as mucormycosis and is caused by a fungus found in moldy bread and other contaminated food. It attacks both animals and man, Dr. Tedeschi said.

The disease is never found existing by itself, but always as a complication of other debilitating conditions such as diabetes, leukemia, severe burns and infections. It gets its start after antibiotic treatment has killed the bacteria that usually compete with the fungus for food.

In healthy individuals the body's defense mechanisms are enough to protect against the fungus. However, when general resistance is extremely low, the fungus invades the blood stream and travels through the entire body, closing off blood vessels and ending quickly in death.

The disease was first reported in the U. S. in 1943, although it had been known in Europe for about 75 years. Now there have been about 12 reported cases in this country, the majority from the South and Midwest. The total number is too small, however, to show any significant geographical or environmental factors.

There is no known drug cure for the disease.

Since 1949 nearly every antibiotic or combination of antibiotics has been tried as a cure, all with no success. Age, sex and race give no clues as to what causes the condition, and children are affected as well as adults. But in every case reported so far there has been a history of a debilitating condition.

Antibiotics cannot be reduced in many of these cases because they are usually necessary to sustain life, but physicians should be aware that their continued use may bring on mucormycosis, the pathologist emphasized.

Fortunately, he said, the disease occurs only rarely and the doctor may have to run the risk of causing its outbreak when he uses antibiotics.

A case of cerebral mucormycosis is reported by Dr. Tedeschi and Dr. J. C. Merriam Jr., also of the VA hospital, in *Neurology* (July).

Science News Letter, August 3, 1957

TEXTILES

Scientists Make Cotton A "Miracle" Fiber

➤ COTTON, at the hands of U. S. Department of Agriculture scientists, is turning out to be as much of a miracle fiber as any coming from the test tube.

Oil simply rolls off the new cottons that have been treated by a "proofing" process at the USDA's research laboratories in New Orleans, La. Scientists there have developed fluorochemical processes that effectively waterproof and oilproof cotton fabrics. Treated fabrics, they report, refuse to soak up moisture. Water drops stay on the surface until they evaporate.

Fully acetylated cotton is another treated cotton that combines the textile's good natural qualities with some desirable synthetic qualities.

FA cotton, as it is called, looks very much like untreated cotton but it is unaffected by acetic acid, acetone, aniline and dioxane, solvents that dissolve some of the synthetic fibers.

It dries faster than untreated cotton and can be ironed with a warm iron. After laundering, pleats may be easily re-pressed or the garment ironed flat and new pleats pressed in.

The cotton, unlike some synthetics, can be dyed a full range of shades and colors.

For industrial uses, such as electrical insulation material, power-transmission belts, conveyor belts, and those requiring exposure to varying conditions of atmospheric moisture, fully acetylated cotton may be the ideal fabric. (See p. 70.)

Experiments have shown that it is very strong with little "give." It is also highly resistant to heat and rot and has good dimensional stability.

The new treated cottons are still in the laboratory stage, with scientists working to perfect their home-grown miracle fiber, but the experimental cottons look promising for home use and industry.

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