

star, at the end of the handle. Almost overhead in the north is the W-shaped group Cassiopeia, close to her daughter, Andromeda.

During the month the moon is at first quarter on the third, full on the tenth, at last quarter on the 17th and new on the 25th, so that the first ten days or so will have moonlit evenings. On the eighth it will be at "perigee," or nearest the earth, only 225,500 miles away. "Apogee," when it is most distant, will come on the 20th, with 251,550 miles separating us.

Science News Letter, November 2, 1935

CHEMISTRY

Butter Analysis Method Makes Dirt Detection Easy

DIRTY butter is less likely to find its way to American tables in future, thanks to a new analysis method devised by W. S. Greene, microanalyst of the Food and Drug Administration, U. S. Department of Agriculture.

Although most creameries are kept clean as hospitals, an occasional careless or slipshod handling plant will expose butter, or the cream from which it is made to contaminants. And once in, they are impossible to detect by ordinary means; only everlasting vigilance by handlers and inspectors can keep butter dependably clean.

In food inspection laboratories, the method is basically to get rid of all the butter, leaving only the tiny dabs of contaminating substance on a sheet of filter paper. The difficulty of preparing for such inspections in the past has been due to the presence in butter of a certain small percentage of casein, the principal food-substance in cheese, which coated over the dirt particles and made them almost impossible to get out and examine. Chemical treatments efficient in dissolving away this casein coating also dissolved contaminants.

Mr. Greene's contribution consists in the discovery that a simple solution of borax will do the trick. A sample of butter is heated to a boil with a quantity of the borax solution, and the mixture passed through a paper filter under suction. This filter paper is then rinsed with gasoline, to remove any residual grease. This leaves the filter paper entirely clean if the butter is entirely uncontaminated; if there is any dirt in it, it stands out on the white surface and can be picked off for microscopic examination and identification.

Mr. Greene's new method is described in detail in the trade journal *Food Industries*. (Sept. 25).

Science News Letter, November 2, 1935

ARCHAEOLOGY

Announces Altar Find Solving Great Monte Alban Mystery

THE MYSTERY of Monte Alban, buried city in southern Mexico where spectacular treasure was found in 1932, has cracked.

No longer an orphan among cities of ancient America, Monte Alban proves to have a close relative in both Toltec and Mayan Indian civilizations of prehistoric Mexico. Evidence thus clearing up the identity of the long-abandoned city was reported in Washington, D. C. by Dr. Alfonso Caso, Mexican archaeologist. Dr. Caso announced his discoveries before the Pan American Institute of Geography and History, which assembled in Washington a notable group of scientists from American countries.

Dr. Caso found his evidence when he dug under an old altar site in a secret sunken court in Monte Alban ruins. He was following a hunch that the people of this city might have followed Mayan Indian custom of putting things precious to them under altars. The hunch worked and with unexpectedly rich results. He unearthed exquisite male and female figurines of jade, and other sacred green stones carved in style he

recognized perfectly as like that of Toltec Indians. There were bone fragments of an eagle and a tiger buried there, also. As these animals symbolized the sun as a god in ancient Mexico, they perhaps tell in whose honor the altar was set up. Mayan custom of altar cornerstone-like deposits, and Toltec art ideas showed Dr. Caso where the ancients of Monte Alban had their cultural alliances.

Under this rich deposit, proved very old by its link with Toltec Indian civilization, he unearthed cruder pottery offerings from an even earlier time in prehistory.

A big, stone-lined underground passage, discovered under the altar site, is now identified as part of a great sewer system by which the Indians drained the massive earthwork of the city's North Platform. The tunnel, which was five feet high and peak-roofed, ran diagonally under the sunken patio where the altar was. When first detected, the tunnel mystified the archaeologists, who wondered what its purpose could have been.

Science News Letter, November 2, 1935

MEDICINE

High Fever Kills Cancer Cells But is Not a Cure

TWENTY minutes' exposure to a temperature of 111.4 degrees Fahrenheit will destroy all the malignant tissues in the body of a rat that has cancer, Dr. George Walker, of Baltimore, has found. Unfortunately, however, the discovery does not provide a method of curing the cancer, since the rat is unable to survive this high temperature, Dr. Walker reports. (*American Journal of Cancer*, October)

The results of the research might be expressed in the old phrase, "The treatment was successful but the patient died."

But the work has further significance. For one thing, Dr. Walker's research brings out the fact that some methods of inducing artificial fever may be safer

than others. In these days when fever is being induced deliberately to treat disease, notably to treat the mental disease resulting from syphilitic infection, this finding of Dr. Walker's appears to be of importance.

The artificial fever produced by high frequency apparatus, in which the temperature of the body is elevated by passing short radio waves through it, appears more dangerous than the artificial fever produced by the thermostat, Dr. Walker reported. In his work with the rats he used both methods.

Discovery of the effect of high temperatures on cancer cells was made in the course of test-tube experiments with a certain type of breast cancer from which Dr. Walker's colony of rats suf-

ferred. Bits of cancer in a test tube were destroyed when heated to 111.4 degrees Fahrenheit, Dr. Walker found. When he tried raising the temperature of the cancerous animals to the same high point, the tumors were destroyed but the animals were unable to live more than a few hours after the treatment.

When this method failed as a cure for the cancer, Dr. Walker tried raising the temperature of the cancerous rats to the highest point at which they could live. This was 109 degrees Fahrenheit. While thirty minutes of this high temperature did not injure the animals, it had no effect on the cancer and the animals finally died of the disease.

Science News Letter, November 2, 1935

FORESTRY

More Forest Fires But Smaller Area Was Burned

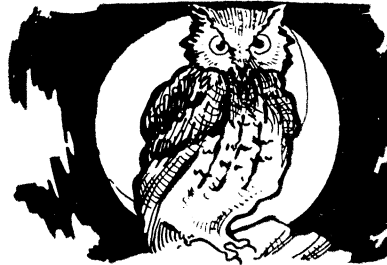
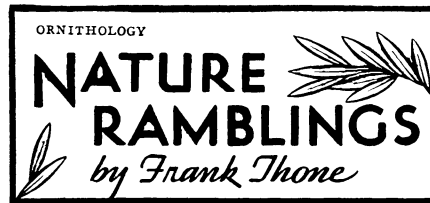
FOREST fires, raging in the Los Angeles region and menacing elsewhere, might have been far worse this fall if the woods had not been full of C.C.C. workers. Latest figures available at the U. S. Forest Service show that forest fires this fall in National Forests, over the country as a whole, have numbered 9,512, as against a preceding five-year average of 7,601—an increase of about twelve per cent. But the total area burned this year has been only 192,040 acres, as against a five-year average of 417,603 acres—a decrease of well over one-half.

Forest Service officials give full credit to the C.C.C. workers for this creditable showing in reduction of loss. In the first place, armies of fire-fighters stand "at the ready" all the time, so that counter-attack against the flames is much more prompt than it used to be. But more basic and permanent has been the work of the C.C.C. in building fire roads, clearing fire breaks, cleaning up accumulations of slash, snags and other forest-fire bait.

A factor in the increase of forest fires, at least in numbers, is the continually growing army of people entering the National Forests, especially recreation-seekers. The number of man-caused fires in the National Forests this season was 5,506 as compared with the five-year average of 4,359 for the 1931-34 period.

Taken by regions, the Forest Service summary of the situation is: Southern California, hazardous; Northeast Atlantic states, medium hazardous; parts of the South, medium to highly hazardous; elsewhere, generally favorable.

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Athena's Companions

OWLS are the subject of folklore and even of religious awe in all places, and have been so at all times; from the cultured Greeks who honored Athena to the Aztec subjects of Montezuma, down to our own owlsh pranks of Hallowe'en time.

In most mythologies, the owl has been the companion of the gods of night or death. Naturally enough, too; most owls fly by night, are preternaturally silent except when they choose to give vent to blood-chilling hoots and quavers, and all of them are birds of prey, who can live only if they kill. Our own association of owls with witches goes back to the old priesthoods of forgotten gods of gloomy North European forests.

Perhaps the most famous of all the owl-favoring deities was Athena, or Minerva as the Latins called her. She was anything but a gloomy goddess, and has for ages been the very pattern of the calm, highly intelligent woman who deliberately chooses spinsterhood that she may be the more free to pursue a career of good works. Yet Athena always had an owl about the premises.

More than that: in the earliest days of her career, long before there was an Athens, Athena apparently *was* an owl herself; or at least a woman with an owl's head. In the ruins of Troy, when they were excavated by the famous German archaeologist Schliemann fifty years ago, there were found no end of vases, urns, and other objects of metal and pottery, in which an owl's head on a woman's body were represented.

It seems to have been a case of one of those deities, common enough in the East, in which admired superior qualities in an animal were linked with a super-human mentality, and a sculptor's effort made to symbolize in a visible, tangible way the combined concept.

But the Greeks, who arose as a culture-group long after their predecessors the Achaeans had destroyed Troy, had no taste for such "therocephalic" gods. They plucked the composite proto-Athena apart, made a superb woman out of the queer Asiatic hybrid, and transformed the grotesque owl-mask into a decently respectable normal bird on her shoulder or at her feet.

Science News Letter, November 2, 1935

BOTANY

Monotropa's Waxed Beauty Feeds on Damp Decay

See Front Cover

INDIAN Pipe, or Monotropa, a flowering plant that feeds saprophytically like a mushroom on dead and decaying plant remains, is a frequent find in moist autumn woods. The clump pictured on the cover of this issue of the SCIENCE NEWS LETTER is described by the photographer, Miss Mary L. Didlake of the Kentucky Agricultural Experiment Station, as "the largest clump I have ever seen, at least 75 separate stems. They were pink, lovely and translucent, only the tips of the bells being white."

Science News Letter, November 2, 1935

GEOGRAPHY

Threatened

● "The night of April 9, at half-past one, we were awakened by severe shocks. We dressed rapidly, and the whole camp was on its feet in a few minutes. At the spot where the day before the cookhouse had stood there was now a gigantic ridge of packed floes. This was moving with a great clatter and thunder, and steadily advancing on the tents. The whole camp was threatened with destruction. The ice-field on which the barrack-hut stood was crushing down on the floe which sheltered the remainder of the camp.

"We left one on duty at each tent ready for emergency evacuation, and the rest of us set to work. We had to help the barrack-hut dwellers, who were on the other side of the creaking and crashing barrier. The barrier was menacing the tents, threatening to crash down on them. The uninhabitable part of the barrack-hut, which had been torn away, was already buried beneath masses of rearing ice. Cases of matches, of which we had ample, fell between the crushing floes, and were ground up and flared up like torches."—Yakov Yakovlevitch Hakkel in *THE VOYAGE OF THE CHELYUSKIN* by Members of the Expedition (*Macmillan*).

Science News Letter, November 2, 1935