

At Laholm were also found interesting relics of the Bronze Age, dating back to 1,500 - 1,000 B.C. The finds include a beautiful bronze sword nearly two feet long, and two exquisitely shaped burial urns, of which one was about one foot in diameter. Bronze Age antiquities of great value will probably be unearthed at Sohog, between Trelleborg and Falsterbo, on the most southerly tip of Sweden. Bronze axes were found on this site half a century ago, and excavations begun in earnest have already yielded hundreds of objects. The finds date back to about 1,500 B.C. The prehistoric burial grounds at Sohog are believed to be haunted, and it figures in a great number of ghost stories and weird legends that are a part of the folk lore of this region.

Contrasting with the severe and gloomy character of the preceding ages in the civilization of Sweden is the picturesque and romantic Viking Age. The Viking relics found this summer include ornaments, and coins of silver and gold that testify to the far-flung adventure and commerce of the daring seafarers of the ninth and tenth centuries A.D. Thus at Igeloesa, in Skaane, a farmer recently came across a buried treasure of silver money, 2,037 coins in all. He has just delivered the treasure to the government, and, according to law, has received the value of the silver in weight, or about \$86.00, plus one-eighth for the "antiquity value". Most of these coins are English, dated during the reign of Aethelred II, III, 978 to 916 A.D., and are doubtless part of the tribute money which the Viking raiders of that day exacted from England. The other coins are Irish, German, and Arabic. A lot of Arabic coins of this period have also been found in Ytterenhoerna, in the province of Soedermanland. Between twenty and thirty thousand Arabic coins in all have been found in Sweden and testify to the close commercial relations which the Vikings had with the Near East, as well as with Western Europe.

HOPI INDIANS WORSHIP VENUS, MORNING STAR

Venus, goddess of the ancient Romans, is venerated also by the modern Hopi Indians of the American southwest, though in a guise that would hardly be recognized by her classic votaries. Dr. J. Walter Fewkes, chief of the Bureau of American Ethnology, tells of this interesting cult in his account of the use of idols in Hopi worship, in the forthcoming annual report of the Smithsonian Institution.

She is known to the Indians as Talatumsi, the Elder Sister of the Dawn. Her image, rudely carved of wood, and wrapped in a ceremonial blanket, is enshrined in a hollowed-out boulder with a flat rock, sealed in with clay for a door. This door is removed in November every fourth year, when the idol is taken out and carried to the top of the mesa and rites performed near it. The image is regarded with special reverence, and except for the quadrennial services is kept securely sealed in its shrine.

The image of Talatumsi is only one of the many sacred objects of the Hopi. Unlike the Indians of the eastern United States, who made few images, these natives of the desert make and reverence numerous idols, though they do not regard them as gods but only as images of the gods above the cloud or under the earth. Some of the idols are simple natural objects, like pieces of petrified log or meteoric stones; others are more or less elaborately carved animal or human figures of wood or stone. Many of the stone images are very old, and are held in especial awe.

Dr. Fewkes is of the opinion that the custom of carving was not much developed until after the coming of the Spanish padres. Though the Indians declined to

be converted, they adopted the idea of having statues in their own holy places, in addition to the simpler natural objects they had revered before that time.

Many of the images are used by the shamans, or medicine men, in exorcising disease. One type of idol, called a "heart twister", is used when the trouble is supposed to be located in the heart. Most of the heart twisters are made of stone or wood, deeply carved in a spiral pattern, but there is at least one in use among the Hopi that is made of a fossil sea shell.

FEELING THE PULSE OF A STAR

By Dr. Edwin E. Slosson

By the new method of analyzing the spectrum of a star, it is now possible to trace regular pulsations through its atmosphere. What caused the fluctuations in the intensity and quality of the light from variable stars has long been a puzzle to astronomers.

By comparing the swinging of a candelabrum with his own pulse beats, Galileo discovered that the period of a pendulum is constant, that is, it does not depend upon the distance through which it swings. Quite similarly the gases in the atmosphere of a variable star are swinging back and forth, in and out, all in the same length of time, but not all through the same distance, as the outermost layer in some of the stars moves very little. Moreover, one layer of the atmosphere receives the motion and passes it on to the next from interior to exterior and back again like a perpetual motion machine. The pulsation of the outer layer takes place last, just as the tipping of the last domino of a falling row; but to make the analogy complete someone would have to stand the dominoes on end again and start the motion backward.

The pulse of the giant star, Eta Aquilae, beats once a week and during this period the star changes from the third to the fourth magnitude, which is easily observed with the naked eye. The change of light accompanies the pulsation through the atmosphere, which carries the energy from the storehouse in the interior to the surface boundary for exportation. During the same time the star changes from a bright orange to a golden color with the increase of radiation.

The cause of these changes has been investigated at the Observatory of the University of Michigan by Prof. W. Carl Rufus. By employing a new method of analyzing the rays from this star he has found that the changes of its light are due to alternate compression and expansion of the atmospheric gases.

Compression is a heating process, and the increase of temperature of the radiating surface makes the star shine more brightly. Expansion produces the opposite effect. So with every beat of the pulse of the star these alternating physical processes are revealed in the rate of flow of its energy as seen by the eye and interpreted by the mind of man.

The source of this inexhaustible supply of energy, however, is a problem that has completely baffled the astronomers in spite of their giant telescopes, their ingenious spectroscopes and sensitive photometers. Energy seems to be a final product in the quest for scientific truth or the most primitive star-stuff from which the universe evolved.
