ETHNOLOGY—ART

Square Halos Shown on Saints in Medieval Art

SQUARE halos? Certainly. Medieval artists painted the halo back of a saintly head as a square, not a circle of glory, when they wanted to show perfection and holiness.

Square halos are found in paintings as early as 700 A. D. and as late as 1600, Dr. Gerhart B. Ladner of the Institute of Medieval Studies in Toronto has reported to the College Art Association, Chicago. In the fifteenth century geometrical aspects of holiness began to change, as theologians came to regard the square as less perfect than the circle, he explained. Christian saints in Christian art were then given round halos, but Old Testament personalities, supposedly less perfect because they lived before the time of Christ, continued for a time to receive square ones.

Dr. Ladner traces the first recorded use of a square as a holiness symbol to writings of Plato and Aristotle in ancient Greece. Modern praise, calling a man a "square guy," may come from the ancient Greek thought, which likened a good man to a "square without a flaw." Clement of Alexandria described a good Christian as quadrilateral or equal on all sides in his goodness.

Science News Letter, March 8, 1941

GEOLOGY

Copper Ore Bodies Gifts From Earth's Great Depths

COPPER, key metal in both war and peace, is a gift of earth's great depths. Wherever copper ore bodies are found, they are associated with cracks, fissures or other types of major breaks in the earth's crust, states Charles Henry White, San Francisco geologist. (*Economic Geology*, January-February.)

The copper-containing materials seem to have been squeezed up from the interior, more or less like toothpaste from a tube. Only, since the material was at high temperature, chemical reactions took place with the rocks nearer the surface, so that the ore bodies are not the same minerals that started from the greater depths.

Assuming for the earth an originally fluid state, like that of the sun at present, Mr. White pictures a cooling earth as forming a number of concentric layers or zones, with lighter elements toward the outside and the heavier, less active ones at greater depths. The larger part of the earth's endowment of copper, as well as most other metals, would thus be concentrated far beneath the crust.

Despite this fact, however, the copper at or near the surface reaches impressive totals. The reserves of copper in known ore bodies are estimated at about 100,000,000 tons. Copper is present, in low concentrations, throughout practically all parts of the earth's crust; the outer crust is estimated to contain an average of 0.01% copper.

"If that be true," says Mr. White, "the first mile of depth contains 200 trillion tons of the metal, or two million times as much as is known in ore bodies."

Science News Letter, March 8, 1941

ENGINEERING

Glassblower's Creation Tests Insulating Paper

See Front Cover

IN EXTREMES of temperature ranging from 300 degrees below zero Fahrenheit to 250 degrees above, paper for insulating layers in electrical condensers is tested in the glistening device shown on the front cover of this week's SCIENCE NEWS LETTER.

A glassblower in the Westinghouse Research Laboratories worked for two weeks sealing 16 tiny condensers in glass vacuum tubes strong enough to withstand the extreme temperatures which are produced by liquid air and by a burner. Electrical instruments record the efficiency of the various kinds of paper.

Science News Letter, March 8, 1941

INVENTION

Ice for Cold Drinks Made in Tubular Form

ICE for drinks and other uses is now made in tubular form, 1¾ inches in diameter. An automatic machine freezes the water into this form, and cuts it to predetermined lengths. (*Henry Vogt Machine Corp.*)

Science News Letter, March 8, 1941

INVENTION

Now Dripless Faucet Granted a Patent

A DRIPLESS faucet was patented the other day. Intended to be attached to barrels of liquid, it comprises a valve to which is attached a spout that may be raised and used as a handle for turning the faucet on and off. (*Patent 2,230,512, Imperial Brass Mfg. Co.*)

Science News Letter, March 8, 1941

IN SCIEN

GENERAL SCIENCE

Scientific Fraternity To Launch Research Fund

LAUNCHING a new research fund for women in scientific careers, Sigma Delta Epsilon, graduate women's scientific fraternity, will award $1,000 to $1,500 to a selected applicant for the coming year, the fraternity has announced.

Eligible to apply for the new fellowship are women with equivalent of a Ph.D. degree, who need financial assistance for research in mathematical, physical, or biological sciences. The recipient will be chosen on grounds of "evidence of high ability and promise," and will be required to give her entire time to the approved research project.

Applications must be submitted before March 15, 1941, and the award will be announced early in April, the fraternity award committee states. Application blanks may be obtained from Dr. Nina E. Gray, Illinois State Normal University, Normal, Illinois.

Science News Letter, March 8, 1941

PHYSICS

Two Stage Electronoscope Will Increase Magnification

THOUGH the electron microscope, which takes pictures with electrons instead of light, has already been used to make magnifications as high as 25,000 times, a new method of using it may even increase its power.

This method was described to the American Physical Society by Dr. W. V. Houston and Hugh Bradner, of the California Institute of Technology. They use the microscope in two stages.

First, electrons come from a filament similar to an electric lamp. These are focussed by an electrical lens on a thin film which is to be magnified. The electrons passing through are then focussed again by two magnetic lenses, either on a photographic plate, or a screen made of materials which glow with electron bombardment, and thus make the image visible.

Science News Letter, March 8, 1941

CE FIELDS

ENGINEERING

Derricks and Dredges Can Walk To Work

MACHINES such as dredges, pile-drivers, derricks, etc., can walk to work with the aid of a recently patented invention. They walk, at a slow speed, on two large feet that are automatically lifted and lowered. The inventor claims that the device is particularly adapted to moving heavy apparatus over rough, uneven or soft ground. (*Patent 2,230,759, Page Engineering Co.*)

Science News Letter, March 8, 1941

ORNITHOLOGY

Invade Home Life of Bird That Inspired Aviation

INVADING the private home life of the turkey vulture, two scientists have discovered how the bird world cares for infants that will some day be outstanding fliers for human aviators to study.

Scheduled feeding morning and evening is Mrs. Turkey Vulture's routine for her twins, resourceful observers of the Iowa Cooperative Wildlife Research Unit have learned by observing from blinds close to a vulture roost. A blessed event in the T. V. home is always twins.

The Fish and Wildlife Service of the U. S. Department of the Interior, which acted as one of a group of sponsors for the investigation, states that a detailed report, "Turkey Vultures in Central Iowa" has been published by the two observers, Thomas G. Scott and Robert Moorman.

That turkey vulture youngsters are not polite to strangers was revealed to the scientists when they climbed a tree to visit a nest. Irate twins inside hissed and thumped with their feet. Ignoring this tantrum, however, the scientists reported that "the birds were not difficult to handle."

The diet list of the turkey vulture household includes such items as skunks and snakes, the investigators found, examining 15 kinds of food from the gullet of a live bird.

Turkey vultures are late risers—by bird standards—seldom leaving the roost until an hour after sunrise, as the observers timed them.

Pointing out that the turkey vulture grounded seems uncouth and awkward, but is far different once it rises into the air, W. L. McAtee, technical adviser of Fish and Wildlife Service, states:

"The buzzard is not only the model but also the inspiration of the American-invented airplane."

Gliding with wind currents, these birds can soar for miles without beating wings to progress or to gain altitude.

Science News Letter, March 8, 1941

INVENTION

Masks for Surgeons Can Be Made of Paper

MASKS for surgeons, as well as for workers in dusty atmospheres, are made of paper, with a vegetable fiber that is insoluble in live steam, boiling water or common solvents. When soiled they can be washed, or discarded. (*Aldine Paper Co., N. Y. C.*)

Science News Letter, March 8, 1941

CHEMISTRY

Newest of the Vitamins Tested by Germ

A GERM related to the one that turns milk sour has given scientists a simple test for one of the newest of vitamins, pantothenic acid.

Details of the test, which can be used for determining the amount of this vitamin in foods or the abundance or lack of it in a patient, were reported by Dr. F. M. Strong, R. E. Feeney and Ann C. Earle of the University of Wisconsin College of Agriculture to the American Chemical Society.

New knowledge of human requirements of this vitamin may be obtained more quickly now that this test is available.

At present the amount of this vitamin in various foods has been estimated by feeding it to chickens. This requires several chickens and two or three weeks to test each sample of food. The lactic acid germ, however, also needs pantothenic acid and the amount it gets from any particular food can be determined within a day by determining the amount of acid the germ produces.

The new test is said to be extremely sensitive as well as simple, and its speed appears from the report that 10 to 15 samples of food can be tested, or assayed, for pantothenic acid content in a day.

Science News Letter, March 8, 1941

AGRICULTURE

Mango Is Patented Which Will Extend Season

A NEW kind of mango won plant patent 451 for Michael Fascell, of Miami, Fla. Aiming, he says, "to extend the mango season with a good quality mango which would also bear a heavy crop," he crossed two older varieties, the Haden and the Brooks Late.

Result, the patent states, was a new variety which "combines the best qualities of its parents." Mr. Fascell declares that "my aims as to extension of the season were accomplished and in addition a fruit of much superior eating qualities was produced."

Science News Letter, March 8, 1941

GENERAL SCIENCE

Democracy Best for Science Chemical Executive Says

CONTINUATION in America of fundamental research while other countries are forced by the demands of war to concentrate on applications of science assures our scientific leadership in the future, James W. Irwin, assistant to the president of the Monsanto Chemical Company, told members of the American Institute of Chemical Engineers.

History shows, he declared, that all forms of science thrive better in the climate of democracy and free enterprise. This is true, he stated, even though much scientific work is supported by private interests.

America today offers greater opportunity for fundamental scientific research than any other country, Mr. Irwin stated. "In most of our great endowed research organizations, made possible by the profits of private enterprise, and even in many of the laboratories maintained by our large corporations, there is, especially for certain gifted individuals, liberty of investigation amid the most favored surroundings. Scientists working in college and university laboratories are not obliged to kowtow to the desires of government officials. Even in our government itself, all scientific effort is not bent toward making guns, powder, and materials of war with which to achieve power or maintain it. Despite the windings of red tape, fundamental work in the control of disease, the conquest of environment, the very origins of life, goes on apace."

Science News Letter, March 8, 1941