



**BEFORE HITLER**

*This is no Nazi emblem. It was unearthed in the floor of a villa destroyed in Greek Olynthus in 348 B.C.*

ARCHAEOLOGY

# N and Z Turned Backward Clue to Swastika "Magic"

**Rotation Symmetry Which Makes Swastika the Same When Turned Upside Down May Account for Popularity**

**T**HE swastika, which Nazi Germany uses as its insignia, turns up in archaeological findings in almost every land. Its oldest appearance, thus far, is on a painted cup from Susa in Mesopotamia, made earlier than 3000 B.C. In Asiatic Turkey, metal workers of 2000 B.C. used the same design in copper standards. In Greek Olynthus, destroyed

348 B.C., the floor of a villa unearthed not long ago revealed a swastika, and in the same room the inscription "Aphrodite kale," meaning love is beautiful. The swastika appears on Buddhist art in India. And in second century China it was a sun symbol. Ancient Hebrews used it, and with Indians in America it has been a popular design.

Why this cross with hooked arms should be one of the oldest designs in the world and one of the most fascinating for mankind is a puzzle. A University of Michigan physicist, Prof. S. A. Goudsmit has offered a psychological clue. He suggests that, when you see an uneducated person's printing of capital N, Z, or S reversed, you have a glimpse into primitive and ancient confusion over "rotation symmetry."

Sorting out the letters of the alphabet, he finds that in eight there is no symmetry at all. In seven, the left half is the mirror image of the right. In four, the lower half mirrors the upper. But three, the significant N, S, and Z, can be rotated over half a circle without changing, and look the same upside down. The remaining four letters combine all the characters mentioned.

Prof. Goudsmit thinks the rotation symmetry of N, S, and Z is probably harder to grasp than the mirror reflection symmetry of a M or an A. This may explain why many ancient magic symbols, which must be made just so, followed rotation symmetry over a half, third, or quarter of a circle. And it may help us to understand why various people independently were attracted by symbols like the swastika.

*Science News Letter, August 12, 1939*

MEDICINE

## Sulfanilamide May Be Dangerous In Syphilis

**S**ECOND case of a patient dying from acute hemolytic anemia resulting from the use of sulfanilamide, new chemical remedy effective in a large variety of diseases, is reported by Dr. Simon Koletsky of Cleveland. (*Journal, American Medical Association, July 22*)

In both this and the previously reported case the patient had syphilis. Dr. Koletsky raises the question as to whether some alteration in the blood-forming mechanism of the body incident to syphilis may be responsible for the fatal outcome.

*Science News Letter, August 12, 1939*

ASTRONOMY

## Return of 1788 Comet Is Believed Discovered

**A** COMET, located in the east just before sunrise on a line between the bright stars Capella and the "twins" Castor and Pollux has been discovered by a French observer, Roger Rigollet. It had a very fast motion (eight times the

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apparent diameter of the moon each day, or four degrees) and is difficult to sight.

Rigollet, however, may not have his name attached to this new comet as is the custom, for Leland Cunningham, Harvard astronomer, reports that a check on the comet's orbit shows it to be virtually identical with one found in 1788 by Caroline Herschel, sister of the great English astronomer, Sir William Herschel, herself a first class astronomer.

Almost every point of the orbit computed by Miss Herschel 141 years ago checks with the orbit of the "new" Rigollet comet. It is possible that the two comets are not the same, Mr. Cunningham reports, but they are definitely of the same family and very probably identical. If the new comet is the same one, this is the first time it has been sighted since its original discovery.

*Science News Letter, August 12, 1939*

## AGRICULTURE

## Poultry Raising Big Business; Norway Hens Are Fed Milk

**R**AISING chickens used to be one of the side lines of farming relegated to the farmer's wife, but nowadays poultry raising is big business.

Speaking at the Seventh World Poultry Congress meeting in Cleveland, Prof. Dr. H. C. L. E. Berger of The Hague, Netherlands, showed that in the United States keeping chickens is a \$1,500,000,000 industry whose product exceeds in value that of cattle raising by some \$200,000,000 yearly and tops the value of the nation's corn crop by \$300,000,000.

From allowing fowls to roost in trees and scratch for their living in the barnyard, modern poultry raising developed into specially fed chickens in modern housing that rivals and even excels many a hovel sheltering some of the people of the United States who are "ill-fed, ill-clothed and ill-housed."

The major problem of the industry, reported by Prof. D. R. Marble of Pennsylvania State College, has been the alarming increase in mortality among laying fowl in the last 10 years which seems to be due to a form of paralysis.

Studies at Penn State show that from 1927 to 1932 mortality increased, among

the flocks, from around 39% to nearly 50% fatalities.

Any breeding prior to 1932, Prof. Marble pointed out, centered around improvements in egg production and the ability of the eggs to hatch. Since that time the increase in mortality has led to intensive efforts to increase viability; or the ability to live healthfully.

Prof. Marble described breeding tests which have lowered mortality to 20% (a 150% improvement over previous 50%) and which, at the same time, have increased egg production.

Breeding experiments at Cornell University agree with the Penn State tests. The three-man research team of Prof. F. B. Hutt, and Drs. J. H. Bruckner and R. K. Cole, took chickens which had a mortality of 64% before selective breeding and cut the rate of death to 41% in some cases.

How scientists are dodging the short grain-growing season of the far north by feeding potatoes and milk was described to the Congress by Ivar Finne of Hvalstad, Norway. The egg production was increased about 7% by the method.

*Science News Letter, August 12, 1939*

## AERONAUTICS

## Million Dollars a Year Asked for New Mail Route

**P**AN AMERICAN Airways will ask the Civil Aeronautics Authority for more than a million dollars a year in mail pay to make up operating losses on its forthcoming route from San Francisco to New Zealand, its application for the right

to fly the airway revealed.

Fortnightly service in a Boeing-type plane similar to its Atlantic and Pacific flying boats will produce income of \$410,388 the first year and \$475,428 the second year, it is estimated. Losses before the mail

has been paid for will total \$1,080,000 and \$1,060,000 respectively. President Roosevelt has already asked Congress to appropriate \$900,000 for mail pay on the route.

Major changes in both the type of airplanes used and the route to be followed within two years are foreshadowed in the application. Failure to make estimates of income and expenses beyond two years is explained by the note, "no estimate is now practical on account of anticipated increases in schedule frequency and changes in the route and equipment."

An average of 12 or 13 passengers a trip is expected, totaling 660 passengers the first year and 708 the second. One of the 41-ton Boeing clippers will leave from San Francisco every other Sunday, returning a week from the following Friday.

A stop at Los Angeles is scheduled for the outward trip at the beginning of the service, with a similar stop planned for the inward trip by the end of the first year of service. The Navy base at San Pedro will be used as the Los Angeles port of call.

Mail loads are expected to total 5,916 pounds the first year and 7,092 pounds the second. Express cargoes will add up to 17,076 pounds and 18,132 pounds respectively.

Only one of the \$672,000 giant planes is needed for the route because of the possibility of interchanging it with similar planes used on the San Francisco-Manila-Hong Kong run which has been flown for nearly four years.

*Science News Letter, August 12, 1939*

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