

to the efforts and kindness of Count Constantini, and the hearty cooperation of Dr. Amedeo Maiuri of the Naples Museum, officials of the University of Pennsylvania Museum announce.

Minturno itself is a highly interesting site, and dates from pre-Roman times when it was known as Minturnae. It lies about forty miles northwest of Naples on the Mediterranean Sea. Formerly it was the ancient city of Aurunci and in 314 B. C. it was one of three towns to make war against Rome.

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## METALLURGY

## Flash Welding Joins Metal Amid Shower of Sparks

See Front Cover

**A** BRILLIANT shower of sparks for a few seconds, and two pieces of steel have become one, with a union as strong as the original metal itself.

The picture on the front cover from the Pittsfield, Mass., works of the General Electric Company illustrates a recent adaptation of electric welding to industry. It is joining together the sides of the open seam of a cylindrical casing for a small transformer. As the edges to be welded slowly near each other and as the minute projections come into contact first in one place and then in another, there is a spectacular flashing and a huge shower of sparks is thrown high into the air. The edges of metal redden and become plastic with heat.

The two edges of metal join; good contact is made; and a huge current, from 100,000 to 200,000 amperes, rushes through the new joint. It is quickly shut off. In but six seconds the adjoining edges of a rolled sheet have become as the sheet itself. No metal other than that of the steel plate has been used.

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## MEDICINE

# Six Generations of Poliomyelitis Virus Grown Outside Body

## Successful Laboratory Cultivation Expected to be Valuable in Learning to Control Disease

**T**HE ORGANISM causing infantile paralysis has been successfully grown outside of the human body at the Mt. Zion Hospital, San Francisco, Dr. Frederick Eberson, director of clinical laboratories and research at the hospital and assistant clinical professor of medicine at the University of California, has just announced. The significance of this announcement lies in the fact that the virus or germ of infantile paralysis has never before been successfully cultivated outside the body and investigations leading to control of the disease have been consequently hampered.

The studies at the Mt. Zion laboratories have been made during the past year with a special culture medium prepared from brain tissue. It is on this medium that the virus has been grown.

Numerous attempts to grow this virus have been made previously, and several apparent successes have been reported. Scientists generally, however, have not been satisfied that cultivation of the virus has actually been accomplished in any of these cases.

How the germ was successfully grown is described in detail in a special communication to Science Service by Dr. Eberson. Because the germ prefers to attack nervous system tissue, brain, which is part of the nervous system, was used. Tissue from sheep and human brains was used, and in such material

six generations of the virus have been grown up to the present time.

Success with brain tissue in cultivating the germ of another disease which attacks the nervous system led to experiments with the same culture media for infantile paralysis virus.

"The original virus was diluted a million or more times, which excluded the mechanical carrying over of the virus itself and proved the actual growth of the living culture," Dr. Eberson said.

Virus from the spinal cord of a monkey afflicted with infantile paralysis provided the original material for the research. After from eight to ten days of growth on the special medium of brain tissue, tiny minute organisms could be seen when a bit of the culture was put on a slide, stained and viewed through a microscope.

### Controls Negative

This material was transplanted to new culture media and a new generation of the virus grew up. This has been continued for six generations so far.

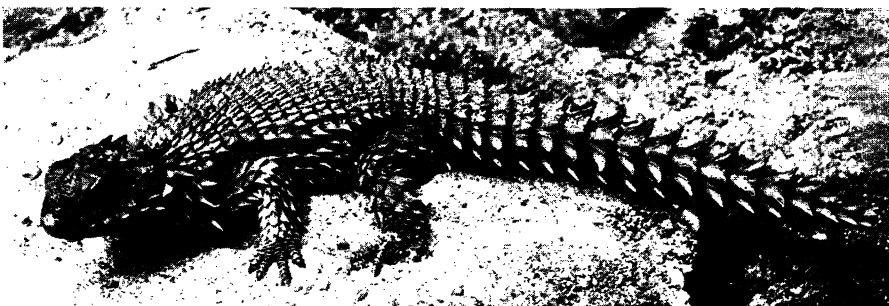
"Controls with the culture media alone were always negative," Dr. Eberson said. "The original virus filtrate was negative for all organisms. The visible virus cultures failed to grow in all ordinary culture media."

Actual multiplication of the virus can be demonstrated, he reported.

"The organism has three stages of growth. One stage is invisible under the microscope although the culture medium is cloudy. Other stages are seen as larger globular bodies with pale centers and later as clusters of minute ovoid bodies about one-fifth the size of ordinary small cocci. The virus bodies appear to have a surrounding envelope that favors adhesion of the organisms to form peculiar nests of colonies."

Studies of the behavior of this artificially-grown virus in the bodies of monkeys is now being made. Studies on immunization and serum production are also under way, Dr. Eberson reported.

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### IN AN ARMOR OF SPINES

*This African Spike-Tailed Lizard parades on his desert rock. In a barren and hungry land, where everybody is hunting for something to eat, it behooves potential mouthfuls to make themselves just as difficult as possible.*