

also a great hoard of ivory and gold art.

A real estate deed 3,500 years old, unearthed at ruins of Dura on the Euphrates, added over a 1,000 years to antiquity of that city.

Tepe Gawra, Mesopotamia, "world's oldest city," was revealed as having flute music, art vases, and fine architecture at the very early era of 4000 B. C.

A Babylonian mathematics book of 2000 B. C., which contained many ideas heretofore credited to Greek thinkers, was deciphered.

Excavations at Omar Khayyam's home town, Nishapur, brought to light beautiful objects proving it a great art center of Islam.

An underground ten-acre city with chapels and rooms full of mummified ibises and monkeys was discovered in Egypt.

Hand-marked deer bones in a Japanese cave strengthened Japan's claim to habitation in the Old Stone Age.

ASTRONOMY

Two Super-Novae Seen In 1937—Rare in History

DISCOVERY of two great exploding stars, super-novae the astronomers call them, through use of a relatively small Schmidt telescope operating from Mt. Palomar, Calif., the future home of the great 200-inch reflector, was an outstanding feature of the astronomy of 1937.

These super-novae, only 15 of which had been discovered in all previous history, were each 500,000,000 times the sun's brilliance and they were both extremely distant in the heavens.

Outstanding astronomical developments of the year include:

Most significant of the many astronomical inquiries is the widespread and continued probing into the structure of the universe, both within the galaxy in which we are located, and at the far reaches of the heavens where the sight of the largest telescopes grows dim.

The most extensive metagalactic cloud or star system, more than 50,000 times the Milky Way's size, was discovered.

Sprawling cosmic dust cloud near sky's north pole was discovered obscuring and reddening star light.

Two new interstellar gases, neutral potassium and calcium, were discovered.

A new system was discovered in Milky Way consisting of giant cluster of hundreds of stars which revolves about still larger cluster.

Total solar eclipse of June 8, was observed by expeditions to South Sea desert island, Peruvian Andes, from airplanes and steamer.

Sub-stratosphere airplane photographs of totally eclipsed sun, June 8, showed corona to be uniform, globular, million-mile-thick blanket.

Temperature drop of 1500 degrees Centigrade was observed between sun's surface and its overlying atmosphere.

Sunspots increased in number, bringing magnetic storms and radio fade-outs exceeding any previous sun spot activity since 1871.

Six new comets or asteroids were reported: Whipple comet, Wilk comet, Gale comet, Finsler comet which reached naked eye brilliance and developed two tails, Hubble comet, and Reinmuth object which moved very speedily.

Returns of the following periodic comets



RUBBER-TIRED SHARK

Girdled with an old automobile tire, so snug-fitting that escape was impossible, a large shark was captured by two boys on the Cuban coast near Havana. Its picture has been added to the collection of ichthyological oddities maintained by Dr. E. W. Gudger of the American Museum of Natural History. Dr. Gudger believes that the shark, swimming around a garbage-dumping scow, plunged head-first part-way through the tire, then lashed itself into exhaustion in vain efforts to get free. He thinks that the fairly frequent capture of mackerel and other fish with rubber bands around their bodies represents the same kind of occurrence on a smaller scale.

were observed: Daniel (1909), Grigg-Skjellerup, Schwassman-Wachmann, Encke.

Eros, tiny planet neighbor to earth, was shown to be shaped like a huge brick tumbling end over end in sky, which explains light variations.

Observations of Mars near opposition indicated Martian atmosphere contains less than five per cent the amount of water vapor in the earth's atmosphere.

The temperature of the surface of the planet Venus was estimated by Lowell observers to be 50° C.

The 200-inch telescope's mounting and dome were completed.

BIOLOGICAL SCIENCES

Research Leads to New Knowledge of Early Life

THE PAST year was marked by continued progress in techniques for the manipulation and control of life in its earliest stages. Unfertilized eggs of rabbits were sent into first stages of development when placed in contact with the sperm of rats. Fruit flies, important in genetical research, were artificially fertilized for the first time. Parts of sea-urchin eggs from which the nuclei had been removed were stimulated to divide to as many as 500 new cells by chemical and physical means. First commercial-scale production of chicks by artificial insemination of hens was tried.

Other important events in the life sciences were:

Paramecia, one-celled animals, previously thought to be without sex, were found to be of two kinds.

Catalase, important in the life of cells, was obtained in pure crystalline form.

Heartbeats of insects were recorded with a new mechanism.

Experiments showed that trout, like other animals, can have their breeding period changed by changing the length of time they are exposed to light each day.

Plant cancers, usually caused by germs, were experimentally induced with chemicals.

Rat embryos were grown for several days, in glass vessels containing a circulating nutrient fluid.

Flowers were induced to form fruit without pollination, through spraying with growth-promoting substances.

Water "activated" with X-rays was found to be toxic to plants and animals.

Major outbreaks of grasshoppers and Mormon crickets occurred in the West, and autumn studies of egg deposits indicated probability of similar outbreaks next year.

The white-fringed beetle, a new insect menace, was found in three Southern states and brought under control.

The Migratory Bird Treaty with Mexico was ratified.

A new organization, the Wildlife Society, was formed to promote the protection and restoration of native species.

The first nation-wide bird census was taken by the National Association of Audubon Societies.

A \$615,733 foundation was established at Harvard, for research on faster-growing tree varieties.

Germany entered the whaling industry, with the aim of reducing import of necessary fats.

Study of brains of lower primates showed them to be remarkably symmetrical, contrast-