under consideration. Thus the following order applies within well-defined limits of cathode speed, cathode film pH and current density: zinc, copper, iron, nickel —that is, first zinc, then copper, then iron, then nickel can be plated out.

In conclusion, we strongly recommend the high-speed cathode to all interested in the electrodeposition of those metals and alloys which have to date not been produced from aqueous solutions in solid, adherent, compact and metallic form.

# SCIENTIFIC EVENTS

## ASCENT OF THE RUSSIAN STRATOSPHERE BALLOON

A SPECIAL cable to *The New York Times,* dated from Moscow on June 26, reports that a surprise flight of a Soviet stratosphere balloon on June 26 reached a height of almost ten miles.

The flight, which was entirely for scientific purposes with no attempt to break altitude records, was reported to have been entirely successful.

The balloon was the U. S. S. R. 1-Bis. It took off from the Kuntzevo military airfield on the outskirts of Moscow at 5:25 and landed at 8 A. M. on a collective farm at the village of Trufanoff, near Tula, 115 miles south of Moscow.

The balloon was the one in which Commander Prokofieff ascended 19,000 meters [62,335 feet] in 1933. Although it had the same gas bag—one of 24,000 cubic meters' capacity, the gondola had been largely reconstructed, strengthened and equipped with the latest scientific equipment.

The balloon contained two Wilson cameras for photographing the path of electrons. These had been built by Professor Alexander Verigo, chief physicist of the Department of Radioactivity and Cosmic Rays at the Geophysical Laboratory in Leningrad, who took observations on the flight. The other equipment included ionization cameras with which he observed the secondary emanations produced by cosmic rays in aluminum and lead, a spectrograph to measure the brightness of the skies and thermographs for measuring outside temperatures.

Besides Professor Verigo those aboard were K. I. Zille, a graduate of the Red Army air academy and one of the most experienced Soviet aeronauts, and J. G. Prilutsky, an engineer, also Red Army trained.

The *Times* states that although there was no announcement of the flight until it had been successfully completed, the balloon and crew had been in readiness to ascend for three days. Clouds and unfavorable winds prevented the take-off until June 26.

From beginning to end of the flight the balloon was in radio communication with the ground. The balloon's radio station was called "Luna" and the earth station "Venus." The radio transmitted word that the balloon was ascending at the rate of five meters (16.4 feet) a second, which slackened to three meters as it reached higher altitudes.

## THE HARVARD DREDGING EXPEDITION ALONG THE ATLANTIC COAST

THE dredging expedition undertaken by Harvard University was done on Georges Bank, about 120 miles east of Nantucket Island, Massachusetts, under the direction of Henry C. Stetson, research associate in paleontology, Museum of Comparative Zoology. It will be continued this summer in the Hudson River submarine channel off New York Harbor and in the submarine valleys off the Maryland coast. One of the Maryland coast valleys is the deepest yet found along the Atlantic shore, dropping 9,000 feet below sea level.

Fossils were taken by the expedition from the sides of the Georges Bank valleys, which extend more than a mile below sea level on the edge of the continental shelf. The evidence uncovered is said to confirm the generally supported theory that the deep ocean valleys cutting into the continental shelf were formed by rivers which flowed into the Atlantic before the continental shelf sank below the ocean.

The boat employed by the expedition was the *Atlantis,* of the Woods Hole Oceanographic Institute, an auxiliary steel ketch, 142 feet overall. The dredge used is of the scraper type, of ¾-inch steel plates, with sharp cutting edges.

Eleven successful hauls were made. The middle and upper parts of the valleys between 2,100 and 600 feet were found to be the best areas. Here the walls were either steep enough to prevent the deposition of recent sediment or else the mantle was thin enough to be penetrated. The lower parts of the valleys have gentler grades and the fill of unconsolidated material covers the bed rock so deeply that no rock was found exposed.

In one of these valleys the expedition dredged at a depth of 1,956 to 1,578 feet a coarse sandstone containing fossil mollusks, which Dr. Lloyd W. Stephenson, of the U. S. Geological Survey, has assigned to the Upper Cretaceous period, about 105,000,000 years ago.

From another valley, between 1,968 and 1,740 feet below the sea level, came a greensand, which Dr. Joseph A. Cushman, lecturer on micro-paleontology