Physical Sciences and Technology

ACCELERATORS

Austria backs 300 Bev

Austria has become the third country to pledge financial support for Europe's planned 300 billion electron volt accelerator.

Only France and Belgium have previously agreed formally to support this particle accelerator for the fundamental study of matter at the European Organization for Nuclear Research (CERN).

The project will cost 1,776 million Swiss francs—at 1967 prices, CERN hastens to add—and if all goes well the physics program will begin in 1977.

The 13 European nations in CERN are expected to pay 80 percent of the total before the project actually begins.

The members still have to decide on the location. At least nine have been proposed throughout the Continent (SN: 8/5).

MAGNETISM

Nuclear monopoles tracked

Magnetism and electricity are strangely unsymmetrical phenomena. There are particles with unit electric charge, but none so far detected with unit magnetic charge. Magnetism appears to come from the motion of electric charges.

If there are magnetic particles or monopoles, the best place to find them on earth would be in naturally magnetic components of deep-sea sediment.

Dr. Henry H. Kolm of the Massachusetts Institute of Technology National Magnet Lab reports in the October PHYSICS TODAY that, working with ocean sediment dredged from about a mile and a half deep, he has found tracks which seem to be from magnetic monopoles.

The results indicate, however, that the monopoles detected have only a third the magnetic charge predicted in 1931 by P. A. M. Dirac, and only a sixth of Nobelist Julian Schwinger's revised prediction of 1966.

Despite the apparent absurdity of the interpretation, says Dr. Kolm, "it appears to be the only hypothesis capable of explaining all of our observations," as well as explaining why previous searches for monopoles failed.

GEOLOGY

Model predicts geothermal power

Russian geologists have constructed a mathematical model of the distribution of hot subterranean water which predicts how much energy is available from geothermal sources.

Using the model, scientists at the Ukrainian Academy of Sciences estimate that a basin of thermal waters in the Western Crimea has the equivalent energy of 100,000 tons of coal.

The model predicts the movement of subterranean waters through various kinds of rocks, according to Novosti, the official Soviet press agency.

BUILDING TECHNOLOGY

Plastic bricks

A revolutionary new plastic building brick developed by an English inventor, Geoffrey Hern, will go into production in November. The project is a joint effort by Courtaulds, a British synthetic fiber maker, and Guinness Breweries.

Hern said that he expected to be able to produce and sell 20 million bricks in the first year, representing a turnover of between $4 and $6 million.

"We have ordered an output of 500,000 in the first month," he added, "and have already won a contract that will take half of these."

The bricks are a foot long, 4 inches wide, and 4 inches high. Each has an interlocking device, which enables it to be clipped to another brick, like toy units.

Hern claims that if his bricks were employed, a builder could complete a bungalow from start to finish, including all on-site work, within four days.

SYNTHETICS

Soybeans for nylon

A raw material obtained from soybean oil has been used by chemists at the Agriculture Department's Northern Regional Research Laboratory, Peoria, Ill., in the experimental manufacture of Nylon 9.

Nylon 9 is produced in Russia, but not in the United States. It absorbs less moisture than domestic commercial nylons and is used in metal coatings, electric parts and moulded products. A fiber of it weighing 0.0001 pound per inch can support about one pound.

The new process using soybean oil was developed by Richard A. Awl and Drs. William R. Miller, Everett H. Pryde, and William L. Kohlhase.

TELEVISION

Color balance adjuster

One reason color TV sets need frequent adjusting is that the color balance of the broadcast signal shifts. Switching from one camera to another, changing to a new film, or studio, or station, can upset the balance.

Engineers at the Canadian National Research Council have developed an instrument that could go a long way toward eliminating the broadcast color balance problem.

The main cause of trouble, according to Dr. C. L. Sanders of NRC, is that the monitors by which TV directors adjust color balance aren't set to reproduce a uniform color of white on the screen. When the scene shifts from one monitor to another, incorrect adjustments are made.

The new instrument, a color calibrator, allows the broadcasting station to adjust all its monitors to a standard field of light, internationally recognized as standard television white.

Once all monitors have been set to one standard, the problem of color balance is largely eliminated, according to Dr. Sanders. The instrument is to be built by Central Dynamics, Ltd., Montreal.

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