

ber and an ionization spectrometer, whose dimensions are about $2 \times 1 \times 5$ meters. Energy loss in the scintillators is measured by an array of phototubes. Whenever the total energy loss exceeds a certain threshold, a picture is taken of the event by stereoscopic cameras that view the scintillators through two perpendicular image intensifiers.

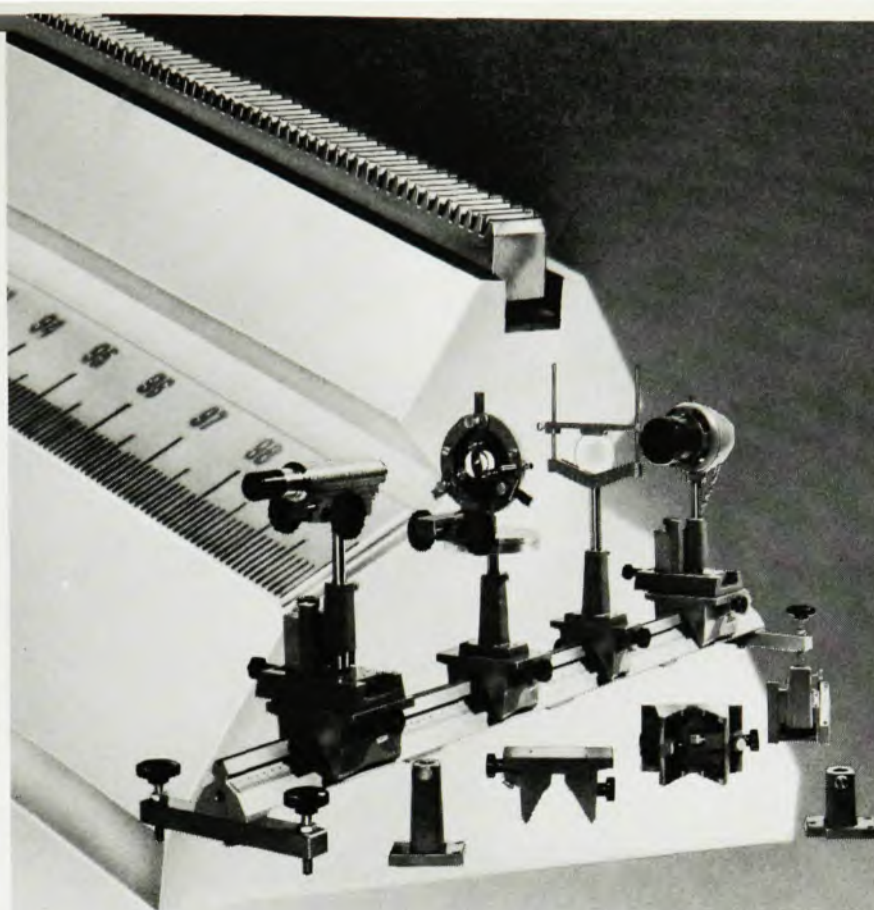
Electromagnetic showers from neutral pion decay gamma rays are initiated in the emulsion chamber and then fully develop in the ionization spectrometer below as the observed cascades. From pictures and phototube signals the direction and energy of each of several simultaneous cascades may be determined.

The emulsions, spectrometer and intensifier will measure not only the number of interactions but also the energy spectrum and multiplicity of pions, one of the principal products of such high-energy reactions.

Huggett and collaborators at the Max Planck Institute in Munich have used a similar apparatus that is, however, much smaller and does not have image intensifiers, in a balloon experiment to measure the cosmic-ray proton spectrum. They find the primary cosmic-ray protons between 40 and 400 GeV have the same intensity as the latest result from the Soviet Proton III satellite. Huggett and his Munich colleagues are now designing a spectrometer to put on a satellite.

NSF Extends Deep-Sea Drilling Project for Another 3 Years

The National Science Foundation has tripled the life of the Deep Sea Drilling Project by adding 36 months and \$22 million to the original plan. So far, the specially designed ship has been able to bore up to 1000 meters into the ocean bottom at 66 sites in water depths up to 6000 meters. The extension provides for 15 more two-month cruises in the Atlantic, Pacific and Indian Oceans and the Mediterranean Sea. Drilling on the first seven legs of the initial contract have produced some evidence that continental drift is still taking place, that the ocean basins are relatively young features of the earth, that the Northwest Pacific is much older than any part of the Atlantic, and that there may be large petroleum deposits under the Gulf of Mexico. □



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