

News from Abroad

Dannie Heineman Prize

The 1966 Dannie Heineman Prize for Mathematical Physics has been awarded to Academician Nikolay Nikolayevich Bogolyubov of the Soviet Union. The award, endowed by the Heineman Foundation for 'Research, educational, charitable and scientific purposes', is presented annually under the auspices of the American Institute of Physics and the American Physical Society.

Dr. Bogolyubov was born in Gorki in 1908 and was educated at Kiev State University, receiving his doctorate of physico-mathematical science in 1930. Subsequently, he taught at Kiev and Moscow State University and in 1956 became head of the Laboratory of Theoretical Physics at the Joint Institute for Nuclear Research, Dubna, where he is now Director. He was cited 'for several outstanding achievements in bringing the resources of modern mathematics to bear upon fundamental problems in physics and, in particular, for the first rigorous proof of dispersion relations for the non-forward scattering of elementary particles'.

Professor L. van Hove, now Directorate Member for Research at CERN, received the prize in 1962 for 'his contributions to statistical mechanics and to field theory as examples of outstanding publication in the field of mathematical physics'.

200 GeV

Six sites have emerged from the second stage of the selection process for the American proposed 200 GeV accelerator. They are as follows: Ann Arbor, Michigan; Brookhaven; Denver, Colorado; Sierra foothills, California; Madison, Wisconsin; Weston, Chicago. A site at South Barrington, a suburb of Chicago, was also listed, as an alternative to the Weston site, but was withdrawn after local pressure. One of the contentions against having the accelerator at South Barrington was that the influx of scientists would 'disturb the moral fiber of the community'. Four commissioners of the US Atomic Energy Commission will make the final decision which is expected within a few months.

Villigen

The Swiss Parliament has approved the construction of a 500 MeV isochronous cyclotron at Villigen. The site of the new accelerator Laboratory is across the River Aare from the Federal Institute of Reactor Research at Würenlingen, north-west of Zürich.

The project has been under consideration since 1961. It involves a two stage acceleration process — a 70 MeV cyclotron injecting into the 500 MeV machine which uses eight spiral ridge magnets and four accelerating cavities. External proton beams of from 50 to 100 μ A, will be available. The total cost of the accelerator is estimated at about 90 million Swiss francs.

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Construction is scheduled to begin this year and the first beams are planned for 1971 or 1972. Research will cover nucleon-nucleon interactions with emphasis on the use of polarized beams; meson studies with π and μ meson beams; nuclear structure research; radiation damage studies, and also research into the biological use of meson beams.

Cambridge (Mass.)

The Director of the CEA Laboratory, USA, has presented a 'Summary of Research Operations at the Cambridge Electron Accelerator' (CEAL - 1026) covering operations up to the end of 1965.

The Laboratory suffered major set backs during 1965, in particular, the bubble chamber explosion on 5 July, and the number of hours machine time available to 'main users' was reduced to just under 2000. The 1966 schedule hopes to double this figure. The experimental programme included the following topics — electron-proton scattering; photoproduction of electron pairs; photoproduction of mesons; electron-deuteron scattering; photoproduction using a 12 inch hydrogen bubble chamber; photoproduction of mu-pairs; photoproduction of charged pions and K mesons; production of pions by tagged photons; production of polarized photons with a laser; wide gap spark chamber studies; bremsstrahlung studies with a pair spectrometer; positron scattering in hydrogen, and the proton Compton effect.

Among the topics covered by apparatus development, the CEA scientists are considering the possibility of using the existing accelerator ring to store beams for electron-positron colliding beam experiments. They have already successfully tested the ability of the magnet ring to store the electron beam by switching the magnets to d.c. operation. A proposal from Stanford for electron-positron storage rings was recommended by the US Atomic Energy Commission in preference to a CEA proposal to build separate rings at Cambridge.

Argonne

It was announced on 18 April that a team of physicists, mainly from the University of Michigan, have found a new 'resonance', $N^* 3245$, which is the most massive particle to be identified so far. The resonance is one of the excited states of the nucleon and is three and a half times as massive as the proton. It has a lifetime longer than 10^{-22} s which makes the particle unusually stable for a nucleon resonance; this may be due to its high spin value. The $N^* 3245$ has not yet been assigned a position in one of the symmetry groups of elementary particles.

The experiment took place at the 12.5 GeV Zero Gradient Synchrotron (ZGS) at Argonne. It was an experiment using scintillation counters with a π meson beam from the accelerator incident on a liquid hydrogen target.

Brookhaven

A large scale experiment, planned by scientists from the Brookhaven Laboratory, to investigate the solar neutrino flux, is expected to be in operation very soon. The experiment uses as its detector a tank containing 3.8×10^5 litres of perchloroethylene in which the radioisotope argon 37 is produced from chlorine 37 by neutrino interactions. It is located in a mine in South Dakota 1470 m deep. About 5 solar neutrino events per day are expected to be recorded in the detector.



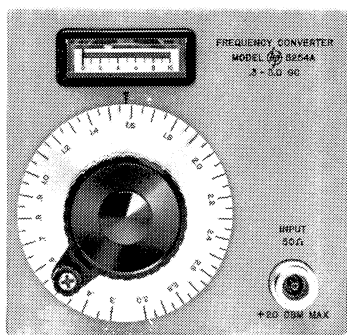
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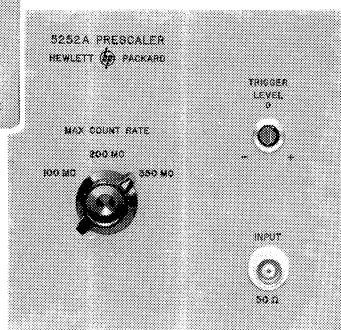


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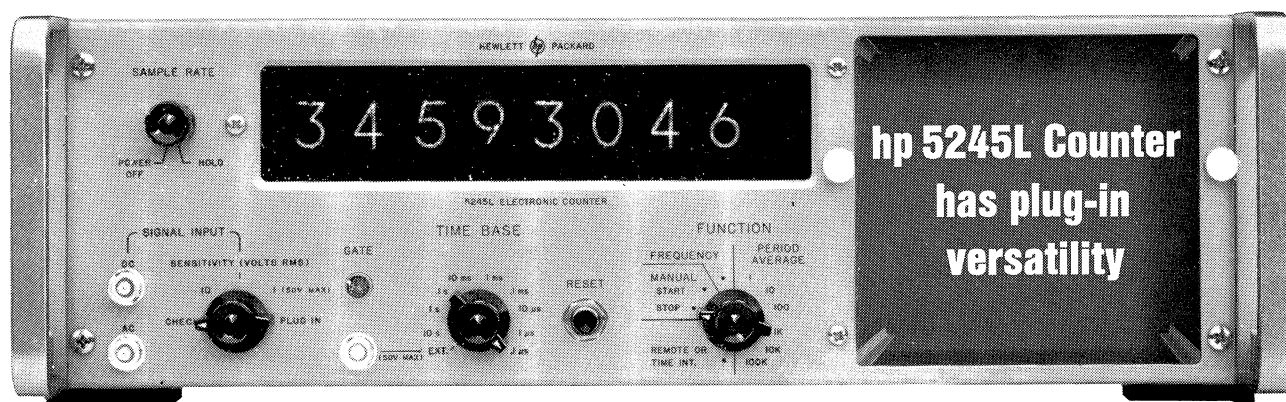
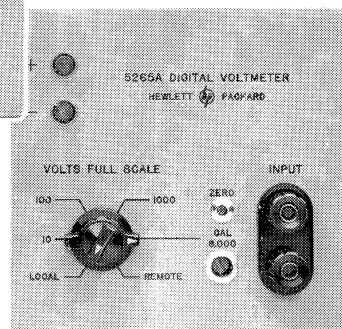
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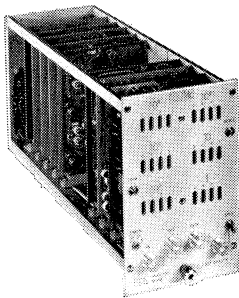
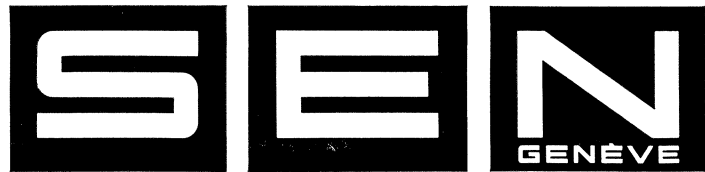
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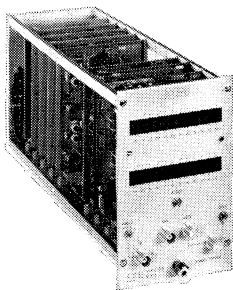
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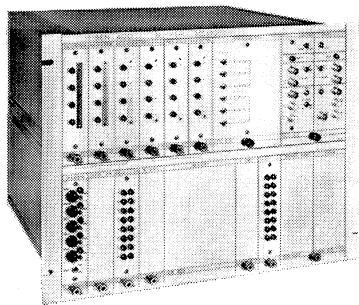
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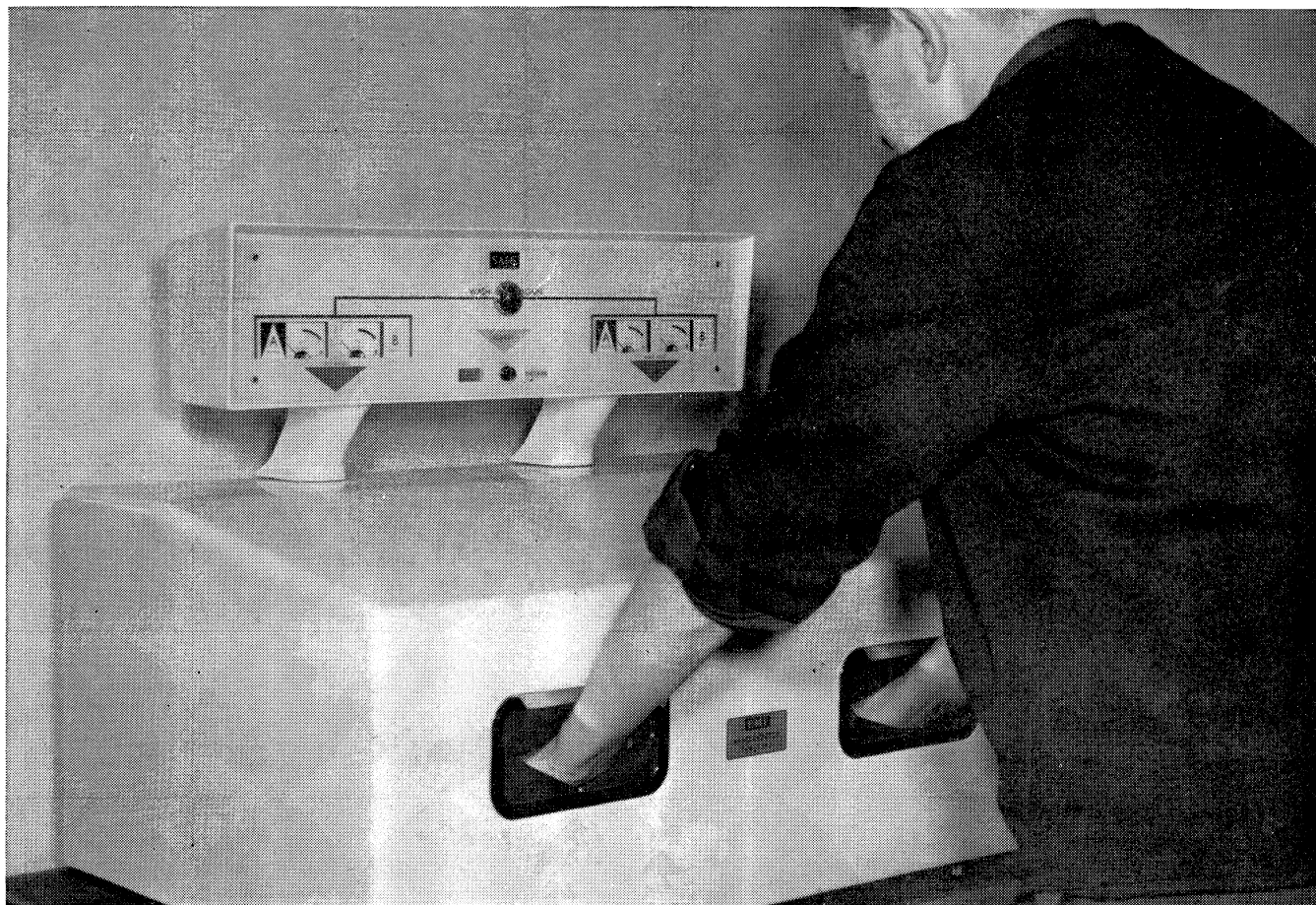
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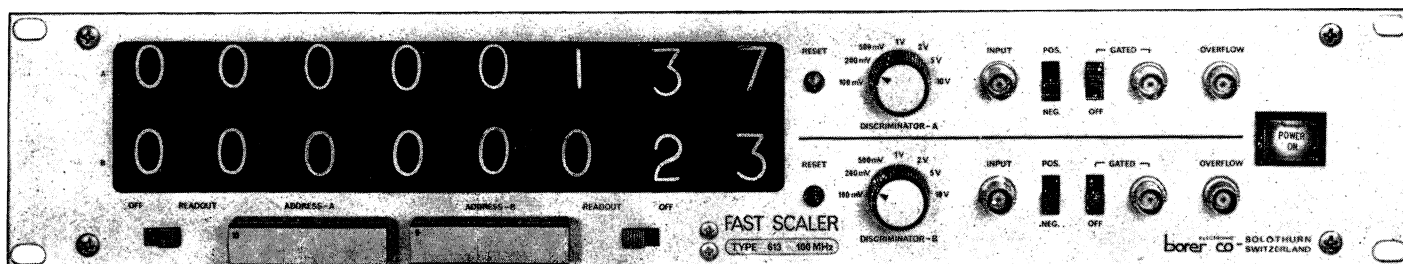
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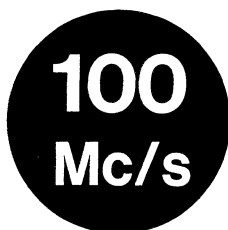
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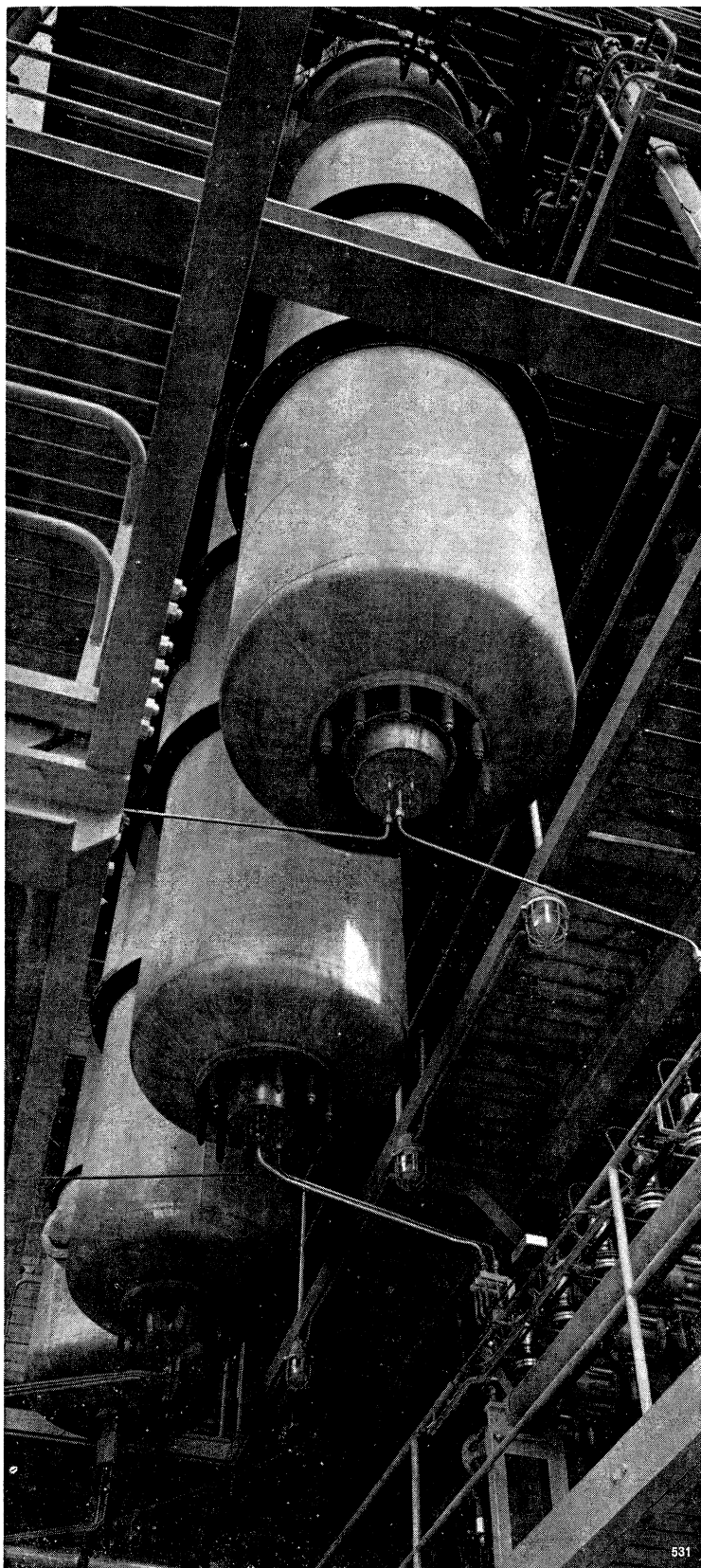
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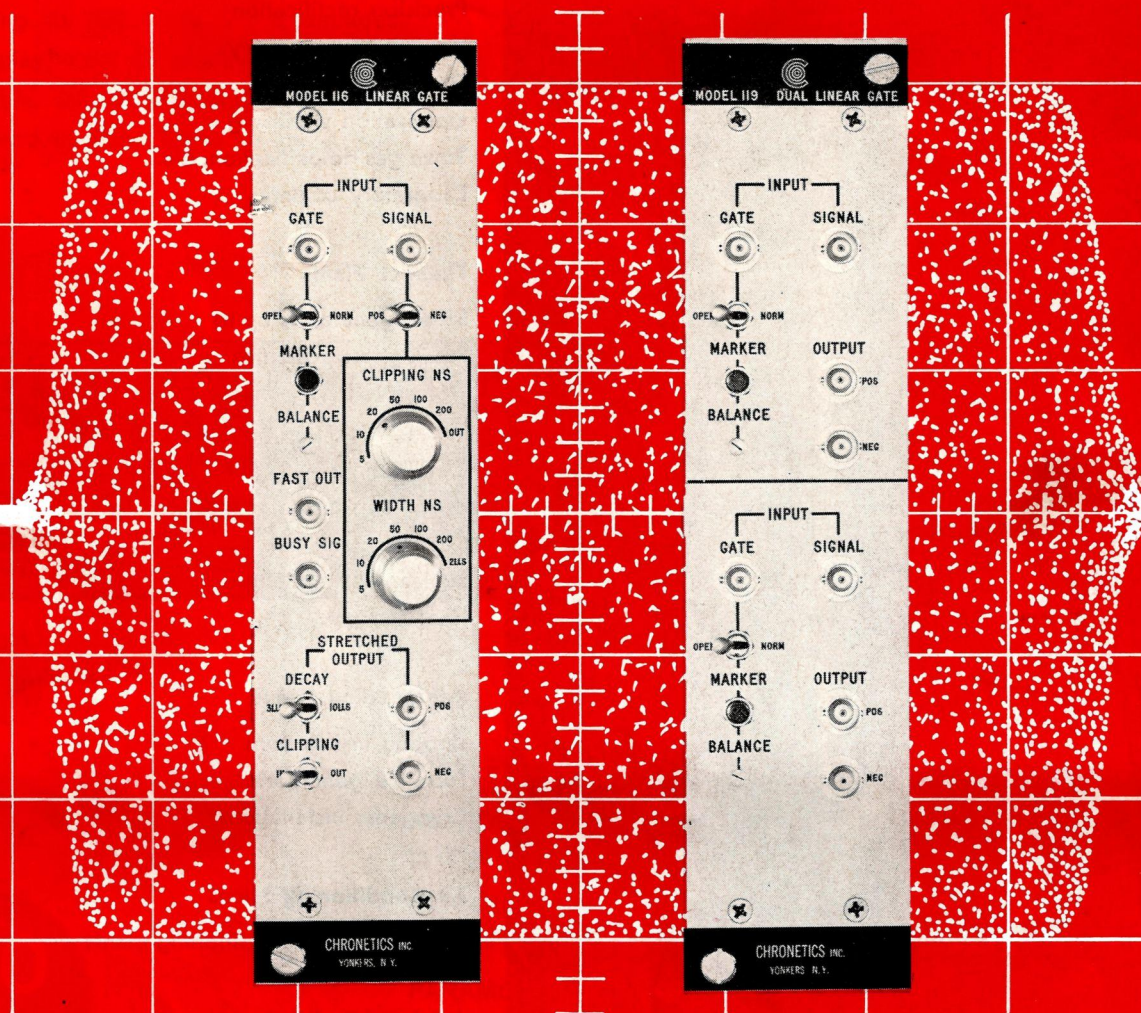
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