even qualitatively with any other assumption about the earth's constitution that is consistent with the known cosmic abundance data of the elements (*7, 8*). In particular, the assumption of Ramsey (*9*) that the earth's core consists of silicates seems to be excluded, and still more so the sugestion that the earth's interior contains large amounts of compressed hydrogen.

Fig. 4, finally, shows the quantity $d \ln \rho / d \ln p$, essentially the compressibility, as a function of the pressure. The figure conveys the suggestion that Bullen's values for the earth might have to undergo some slight adjustments to agree better with the curves obtained by joining the experimental data to the high-pressure part of the theoretical data.


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# *News and Notes*

## The International Oxford Conference on Nuclear Physics


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The International Nuclear Physics Conference took place in historic Oxford last September 7–13. Sponsored by the British Ministry of Supply, it was organized—and excellently so—by the British Atomic Energy Research Establishment (AERE). About 200 physicists participated; half of them came from British universities, about 30 from AERE itself, nearly as many from America, and approximately 40 from the European continent. Pontecorvo's name was in the list of participants, but actually he was not present. There was no direct delegation from behind the Iron Curtain.

Most of those who came alone were housed in Brasenose College, Oxford; the couples were pleasantly quartered in the country in a palatial house provided by the Ministry of Supply. A guided tour through the AERE Laboratories at Harwell made a deep impression on many of us. In spite of the very much smaller funds at the disposal of the British counterpart of the U. S. Atomic Energy Commission, and in spite of the shorter history of the British atomic energy program, one sensed the stability of the organization, the permanency of the installation, and the well-settled personal relations within the AERE Laboratories. The scientific and technical accomplishments of the Harwell Laboratory are quite impressive. It was also refreshing to find its director, Sir John Cockcroft, participating in the whole conference.

The principal subjects of the conference were high-energy physics, physics of light nuclei, reactor physics, and theory. Naturally this summary will be only illustrative of the subjects discussed and can cover only a few examples to show the type of results presented. Not even examples will be given of the discussion of experimental techniques and apparatus.

Several new and important results were announced on the high-energy program. Moyer described the experiments (Steinberger and Bishop, Berkeley) which led to the discovery of the neutral $\pi$ meson. The mass of this particle is slightly lower than that of the charged $\pi$ mesons; it is about 265 against 275 electron masses. Evidence was presented that its lifetime is very short: in about $2 \times 10^{-13}$ seconds it disintegrates into two light quanta. Experiments proving the existence of the neutral $\pi$ mesons and their disintegration were presented also by King (Bristol).

New data were presented also on the high-energy proton-proton and proton-neutron scattering, originating in Berkeley, AERE, Rochester, and Harvard. The cross section for a collision between a neutron and a proton is considerably smaller than that for a collision between two protons. The latter cross section seems to depend very little on energy in the high-energy region, and the collision appears to be spherically symmetric. Its absolute value is around $4.5 \times 10^{-27}$ cm$^2$ per unit solid angle. These data were discussed by Pais (Princeton) from the theoretical point of view. He showed that, assuming a spin-orbit type of interaction, it is possible to explain the data in such a way that the interaction is, fundamentally, the same between a proton-neutron and a proton-proton pair. The difference in the actual cross section arises from the Pauli exclusion principle (Case and Pais).

Professor Blackett (Manchester) presented evidence for mesons of about 800 electron masses.

Level schemes for several nuclei, including $Li^7$, $Be^7$, $O^{16}$, $C^{13}$, and $O^{17}$, were presented in the session on light nuclei. Some of these apparently showed remarkable regularities which are not understood. Extensive data were given also on the reactions of the various hy-