Physics. — DEBIJE–SCHERRER *exposures of liquid helium.* By W. H. KEESOM and K. W. TACONIS. (Abstract of Communication N⁰. 252c from the KAMERLINGH ONNES Laboratory at Leiden.)

DEBIJE–SCHERRER exposures on a jet of liquid helium were made.

We found for helium I at 2.5° K as well as for helium II at 1.6° K a liquid diffraction ring with an angle of deviation of 28° (Cu K α rays).

For liquid helium I the diffraction ring corresponds to the formula one of us and DE SMEDT found valid for substances with simple spherical molecules.

For liquid helium II we discussed the diamond lattice hypothesis advanced by F. LONDON and used by FRÖHLICH to explain the behaviour of the specific heat. We did not find this hypothesis in harmony with the results of our X-ray examination. We found, however, another lattice that may serve in a theory as F. LONDON's as well, that probably still better fulfills the requirements connected with a theory such as FRÖHLICH's, and that, moreover, agrees with the X-ray result. This structure, which can be derived from the face-centered cubic lattice by omitting half the number of atoms, belongs (if the atoms are taken as fixed) to a space-group T_d^2, the elementary cell containing 16 atoms with co-ordinates ⅛, ⅛, ⅛. In this structure each atom has six neighbours. We mention further that the holes (places of omitted atoms) are situated in rows, so that they form a sort of channels. These channels may possibly lead to an explanation of the very great thermal conductivity of helium II.