THE THIRD INTERNATIONAL CONFERENCE ON LOW TEMPERATURE PHYSICS AND CHEMISTRY

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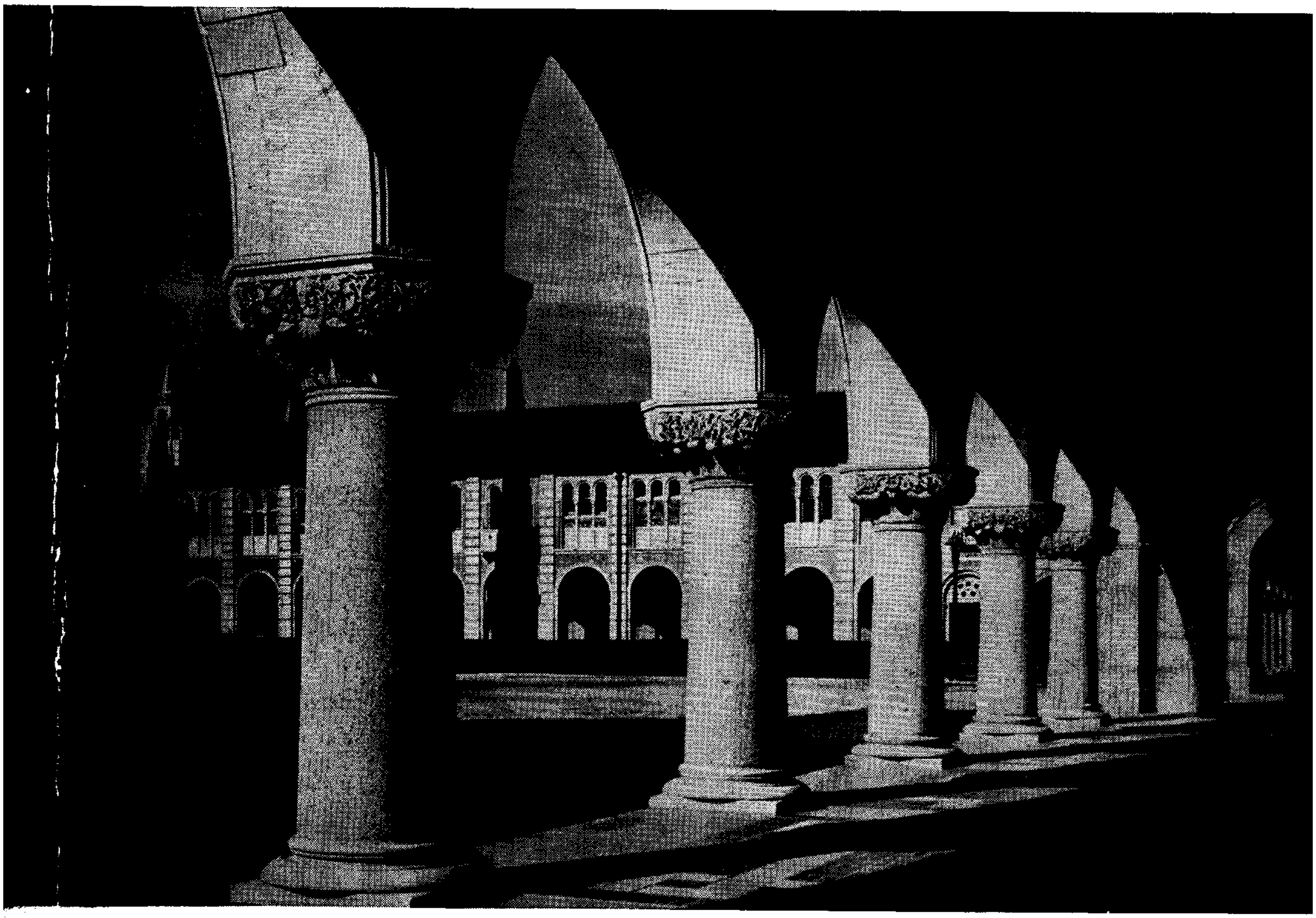

THE RICE INSTITUTE
HOUSTON, TEXAS
DECEMBER 17 - 22 1953

At these temperatures then the field dependence of Hall coefficient is similar to that of resistance rather than to the de Haas van Alphen effect as reported by Gerritsen[1]. These results differ from those of Gerritsen further in that we find the magnitude of the Hall coefficient steadily increasing with purity while Gerritsen found an extremely small coefficient for his best crystals.

+Supported by the National Science Foundation.

[1]A. N. Gerritsen and W. J. de Haas, Physica 7, 802 (1940).

3) J. W. Beams, University of Virginia. 10 minutes
Technique of Spinning High Speed Rotors at Low Temperatures.

In order to maintain a high speed rotor at low temperature it is necessary effectively to thermally insulate the rotor and to prevent the generation of heat in the rotor either in its bearings, on its surface, or by the rotor drive. Two methods are described which meet these requirements.

The first method consists in supporting and spinning the rotor in a concentric Dewar flask arrangement by means of a constrained long small diameter high resistance wire. The wire is driven by an air turbine outside and above the cold chamber.

The second method consists in supporting the rotor by means of an axial magnetic suspension similar to that used previously at room temperature[1]. The support coils are immersed in liquid air surrounding a Dewar flask containing liquid helium. The rotor is freely supported in a glass tube surrounded by the Helium. The glass tube may contain liquid Helium or it may be evacuated. The rotor is driven by a variable speed rotating magnetic field, which gives a minimum of rotor heating.

In both methods the rotors spin around a vertical axis. Special devices for damping their horizontal motion will be described.

* Supported by O.O.R. and Navy Bur. Ord.

1. Beams, Young and Moore, Jour. Appl. Phys. 17, 886 (1946)

4) Warren DeSorbo, General Elictric Research Laboratory,
The Knolls, Schenectady, New York. 10 minutes
The Effect of Lattice Anisotropy on Low Temperature Specific Heat.

The lattice vibration specific heat of monatomic lattices, both isotropic and anisotropic, are compared by a general analysis brought about in terms of the Debye theory. The deviations from the Debye model for the anisotropic lattices are explainable in a qualitative manner by applying Tarrassov's[1] continuum model. The general form of the assumptions used by Tarassov can be substantiated[2,3] by a semi-rigorous atomic model proposed by Krumhansl and Brooks[4] as well as by an approximate model discussed by Stockmayer and Hecht.[5] It is suggested that the Tarassov model, despite its limitations, could be a useful representation of specific heat data for the purpose of general analysis of anisotropic solids as Debye's formula