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A STEREOGRAPHIC NET MOUNTED ON A PHONOGRAPH

M. J. OPPENHEIM, *Department of Geology, Hebrew University, Jerusalem, Israel.*

A highly satisfactory mounting for a stereographic net has been found in an old phonograph turn-table. The inner workings of the phonograph were scrapped, leaving only the governor and brake. Four corks glued around the table serve for pinning down the stationary tracing paper. Lying as it does in its original case, the instrument is kept clean; spare papers may be stored within the lid, while pins are kept neatly in the original needle box. Some details of construction follow:

The net is first glued on to a glass disc, taking care to avoid distortion of the paper; a dark-room roller helps to obtain an even spreading of the glue. The glass disc is now to be glued to the turn-table from which the felt must be stripped, and the protruding part of the axle sawed off. Centering of the net is effected at this stage before the glue between glass disc and turn-table has a chance to dry: a sheet of tracing paper is pinned on the corks and a cross marked above the center of the net; the table is turned until the net center is at its greatest distance from the mark on the paper and a new cross marked half-way between the old one and the newly positioned net center; this new cross will lie approximately over the center of rotation, and so the net center is brought below it; the process is repeated until cross and net center remain coincident throughout rotation of the table, at which stage the disc is left to dry.

The arrangement here described has certain advantages over the more usual rotation of the paper above a stationary net. There is no danger of tearing the paper on account of wear around the pin, as so often happens with many conventional arrangements. In addition, the ease with which the net may be rotated is particularly satisfying in practice; the brake is of course a luxury. The principal advantage, however, is that the orientation of the projection remains constant; it is helpful, especially for

students, to see the various parts of the projection retaining their original orientation, north always remaining in the north even during rotation of the net for the plotting of new data or auxiliary circles.

For classroom use a number of robust but simpler instruments were cheaply made using standard phonograph axes and turn-tables mounted on plywood. Here again, corks glued around the periphery serve as posts for the attachment of the tracing paper. Rubber shoes below the boards protect table tops from scratching.

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MORPHOLOGICAL ANALYSIS OF HODGKINSONITE

L. A. HARDIE, JAMES L. MUNOZ, *The Johns Hopkins University, Baltimore, Md.*, GABRIELLE DONNAY, *Geophysical Laboratory, Carnegie Institution of Washington* AND J. D. H. DONNAY, *The Johns Hopkins University, Baltimore, Md.*

Hodgkinsonite, $MnZn_2(OH)_2SiO_4$, is monoclinic with $a:b:c=1.539:1:2.215$; $a=8.17\pm0.02$, $b=5.31\pm0.005$, $c=11.76\pm0.01$ Å, $\beta=95°28'\pm15'$; and space group $P2_1/a$ (Rentzeperis, 1958). Its morphology shows some striking anomalies to the first generalization of the law of Bravais (Donnay and Harker, 1937). It was therefore decided to analyze these anomalies to find whether they might give information concerning the bonding between atoms in the crystal structure, in accordance with the second generalization (Donnay and Donnay, 1961).

A theoretical list of interplanar distances for hodgkinsonite was computed on the IBM 7094 of the Johns Hopkins University Computation Center, by means of a program written by Charles W. Burnham. This program lists the d(*hkl*) values in decreasing order, using the correct multiple indices required by the space group. According to the first generalization of the law of Bravais, this theoretical sequence should closely correspond with the list of the forms arranged in decreasing order of observed morphological importance (frequency of occurrence and relative size).

The observed list was prepared from drawings and projections of measured hodgkinsonite crystals (Palache, 1935). The rank of a form was determined only by the number of times it occurs on the drawings. No discrimination among the forms that appear only once or twice was attempted. Although hodgkinsonite shows considerable variation in habit, attempts to treat the data in separate classes by recognizing several habits had to be abandoned. The Palache symbols were transformed to