A similar comparison in which the values are given in the English system was published in the *Canadian Mining and Metallurgical Bulletin*, April 1951, as follows:

Type of Fiber	*Diameter of Fiber (inches)*	*Fibrils in 1 Linear Inch*
Human hair	0.00158	630
Ramie	0.000958	1015
Wool	0.0008 to 0.0011	910 to 1250
Cotton	0.0004	2500
Rayon	0.0003	3300
Nylon	0.0003	3300
Glass	0.00026	3840
Rock wool	0.000142 to 0.000284	3520 to 7040
Asbestos (chrysotile)	0.000000706 to 0.00000118	850,000 to 1,400,000

Since the initial studies by Clark and Marburg in 1927–28, roentgenographic methods have been employed to explore the fine structure of asbestos. These have contributed to the determination of the crystal structure, etc., for purely scientific purposes, but through the approximate evaluation of the x-ray diagrams of fiber and powder they have also aided in increasing measure in determining the grade of the fiber, the quantity of iron oxides present, the nature of the accompanying minerals, etc., and hence such procedures have provided much information of direct practical significance. X-ray studies have been made of practically all asbestoses no matter what their source, and consequently no other facet of the entire field relating to asbestos has such an abundant literature.

For the most part these investigations have employed filtered copper radiation (CuKα). As the crystal structures of chrysotile and the amphibole asbestoses are different, their reflection images of the diffracted monochromatic x-rays meeting the ions of the respective lattices at an identity period that is the same for both varieties (theoretical 5.25 Å; found 5.2 to 5.3 Å) are also different. Even a layman can distinguish the difference in the character of the roentgen diagram of a fiber of chrysotile as compared with that of an amphibole asbestos. The diagram of chrysotile (Fig. 24) shows few reflections and these are not sharp because of the bending and curling of the lamella, and furthermore they tail out toward the outside of the diagram. In contrast, the diagram of

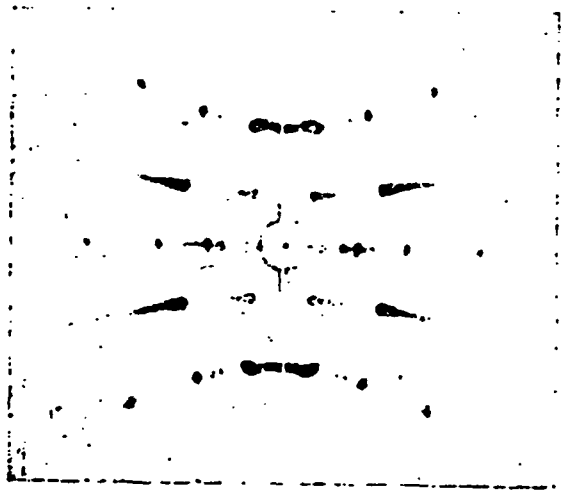


FIG. 24. X-RAY DIFFRACTION PATTERN OF FIBER OF URAL CHRYSOTILE (P2)

amphibole (Fig. 25) shows numerous sharp reflections. The intensity of the diffuse blackening in the vicinity of the undiffracted primary radiation yields information about the iron oxide content of the specimen. The occurrence of supplementary periods indi-

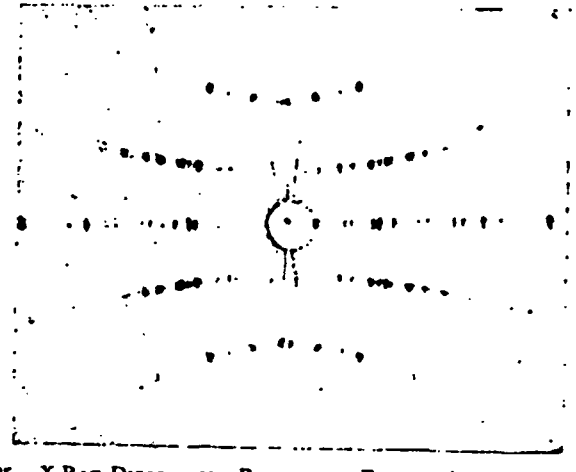


FIG. 25. X-RAY DIFFRACTION PATTERN OF FINNISH ANTHOPHYLLITE (A1)

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