uranium lead. No lead minerals were recognized in a careful microscopic examination of the material, and it is believed that none were present. It is unfortunate that sufficient material was not at hand to separate the quantity of lead necessary for an atomic weight determination, and thus definitely settle the question. Such determinations are important when age calculations are to be based on analyses. However, it seems probable that our ideas of geologic time must be lengthened rather than shortened.

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# DIRECTIONAL FACTORS IN RADIO CRYSTAL DETECTORS

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During experimentation with the various crystal detectors enumerated by Wherry in his recent excellent article,[1] it occurred to the writer that perhaps there might be some directional factor involved in the excellence of certain crystal detectors, i.e., that such detectors might transmit radio waves more readily in one or more directions than in others, said directions depending upon the molecular network of the crystals of the detectors concerned. It was therefore decided, as the simplest convenient way of trying out the idea, to test as many natural crystals as possible to determine whether certain crystallographic faces or series of faces gave better or poorer rendition on the crystal set when the "cat's whisker" was applied to them. Very good results were obtained from crystals of some of the better detectors when they were used without mounting, simply resting on a face parallel to that upon which the "cat's whisker" was brought to bear. Among the galena crystals tried, those from Mineral Point, Wisconsin, gave excellent results, the strength and clearness of rendition being very much better on all the octahedral faces of the natural crystal than on the cubic ones. The best pyrite crystals that were tried came from near Winkelman, Arizona, showing cube, octahedron, dodecahedron, three pyritohedrons and one or more diploids. These and pyrites from some other localities were tried, with the result that the octahedral faces were found to give strongest and clearest results, the cube faces being next best, and the pyritohedrons and diploids rather inferior. Roughness of the octahedral faces, nevertheless, may play an important part in the results obtained. It is hoped

[1] *Am. Mineral.*, **10**, 28–31 (1925).

that following this suggestion, someone will find an opportunity to test a number of oriented sections of the better radio detectors, in order to demonstrate the truth or falsity of the ideas herein set forth.

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# NOTES ON PYRITE AND CELESTITE FROM ROCHESTER, NEW YORK

A. C. Hawkins, *Rochester University*

A short article contributed some little time ago to this journal by the present writer[1] is supplemented by the following brief notes.

During 1925, in the town of Brighton, near the eastern boundary of the City of Rochester, pyrite crystals in the form of the simple dodecahedron, with an occasional tiny octahedral modification, have been discovered. They are oxidized to a nearly black color, but are fresh within. The largest of them are not more than a millimeter in diameter. Their edges are slightly raised, as in some sphalerite crystals, and they are perched upon crystals of yellow dolomite associated with scalenohedrons of calcite and tiny marcasite crystals. The occurrence is in loose boulders of the Lockport dolomite, or the Guelph member thereof.

Celestite crystals from the town of Brighton, $3\times5$ centimeters in size, and white in color, consist of a simple combination of the unit prism (*m*), and the pinacoid (*a*). Small crystals of this type show pyramidal terminations, too deeply etched for measurement. This celestite is associated with yellow dolomite, and occasionally with fluorite which is colorless or light blue. A celestite crystal from the barge canal in the vicinity of the Scottsville road at the extreme western edge of the city, is yellow in color, and associated with a very deep purple fluorite crystal and dolomite. This celestite crystal is about 2.5 centimeters in diameter and is strongly tabular on the base, with a shape like many wulfenite crystals. Its forms are as follows: *c*(001), *m*(110), *b*(010), *d*(101), *o*(011), $\vartheta$(124). Its yellow color and unusual habit are tentatively attributed by the present author to the presence of petroleum residues, which are found at times in the cavities in dolomite and in crystals of the various minerals themselves. Both of these occurrences of celestite are probably in the Guelph member of the Lockport dolomite.