

to meet in conference with one from the Navy Department and together to consider the whole question, especially the equipment of the expedition, the financing of it, etc.

It is highly probable if the expedition should be carried out and should prove its value, such research work would almost of necessity become a permanent feature of the Department's activities; since recently acquired knowledge of the sea-bottom within the Pacific and Caribbean regions indicates that there exist a number of extended narrow zones close to the island groups within which there is an altogether exceptional instability, and that within these zones *vi-gias*, or before unknown perils to navigation, make their appearance. It will be necessary for this reason to repeat soundings within such regions at intervals of a decade or so, and in any case after sea-quakes have been registered in their neighborhood. It is certain that science will be vastly extended through the making of such a map of the sea-floor as is here proposed.

Inasmuch as general meetings of the scientific bodies will generally not be held before the next Christmas holidays, it might be well for those scientific bodies whose advice has been requested to act either through their councils or through their instructed presidents in making their reply to the inquiries received.

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PHOSPHORESCENCE OF AMERICAN ICE- LAND SPAR AFTER RADIUM RADIATION¹

SUBSEQUENT to some experiments in the radiation of calcites by radium, made at the request of Professor Wm. P. Headden, the results of which have been recently reported by him,² the writer had occasion to observe the phosphorescence and especially the remarkable thermophosphorescence of American Iceland spars.

Specimens from Greycliff, Montana, Cedarville, California, and one from Nevada³ were radiated. As far as the preliminary observation showed, all behaved identically.

The phosphorescence is reddish-orange, of deeper hue than that of kunzite, is of about the same brilliancy at ordinary temperature, but becomes more brilliant than kunzite on raising the temperature of both. Professor R. E. Nyswander, of the Univer-

¹ Published by permission of the Director, U. S. Bureau of Mines.

² Headden, Wm. P., *American Journal of Science*, Vol. VI, Sept., 1923, pp. 247-261.

³ The exact locality was not disclosed by the owner.

sity of Denver, with the cooperation of the writer, will make a study of the thermophosphorescence of Iceland spar from Montana by the new method reported at the recent meeting of the American Physical Society in Cincinnati.

Professor Headden further states⁴ that the phosphorescent phenomena of the Montana Iceland spar under X-radiation are the most brilliant that he has observed for any mineral.

S. C. LIND

COLUMNAR HOLES

IN an article in *SCIENCE* for June 22, Mr. J. W. Harshberger explains the cause of the columnar holes in the wandering sand dunes of New Jersey. His explanation entirely confirms my own observation and conclusion as to the origin of like holes which I have found all around the shores of Bermuda in the solid rock bordering the sea. As is well known, the whole of the visible portion of those islands, and down to a depth of seven or eight hundred feet, has been built up by dunes—not of sand, but of the minute fragments of the calcareous skeletons of plants and animals which inhabit these waters. This substance, which is much lighter than sand, has been blown from the beaches upon the land and of course around the trunks of the trees. The rain brought down carbon-dioxide from the air. This dissolved some of the lime, which evaporating made a solid crust of rock about the body of the tree. Subsequently the tree died and decayed and left a cylindrical hole in the rock. They are found all along the shore and vary in diameter from a few inches to two feet or more.

In one of these holes I once found the top of the old stump, which had resisted the waves and the weather for one knows not how many centuries and was still solid wood and very hard. I contrived to chip off some pieces and put a thin section under the microscope, comparing it with a like section of a living juniper tree, a species which makes up, I suppose, 95 per cent. of our native forest, and found the structure the same. I afterwards submitted the specimen to an expert in wood structure and he positively confirmed my conclusion.

A. B. HERVEY

BATH, MAINE

THE TERM "ARROSTIC"

BASING his criticism apparently only on a few lines of an abstract of a lecture that I gave before the Palaeontographische Gesellschaft in 1923, R. Moodie objects in *SCIENCE* (Vol. LVIII, Nov. 2, 1923) to the use of the term *arrostic*.

He is evidently unacquainted with my paper on this.

⁴ Private communication.