

feet above the top of the pipe entering the well the spouting should cease, since the pipe will then be carrying water at its full capacity with little or no air under these conditions entering the well. As a matter of fact following the heavy rains attending the storm of October 17 and 18, 1910, the lake rose several feet and the well upon being reopened received water without spouting. A similar spouting well at Albany, Ga., was described some years ago by Professor S. W. McCallie.²

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GRAPHITE IN VEIN QUARTZ¹

THE writer has recently discovered a graphitic quartz in Troup County, Ga., which has some geological significance, since it is entirely unlikely that the graphite is directly of organic origin. The graphite occurs in massive vein quartz and, recognizing the already known occurrence of graphite in pegmatite and gneiss at other localities, affords additional evidence of the inorganic origin of graphite under peculiar geological conditions.

The graphite occurs in small flakes and in irregular bunches, two or three millimeters in diameter or length, disseminated through massive, clear quartz. In fact, in the specimens at hand, except for iron stains, quartz and graphite are the only components of the rock. Under the microscope, minute black crystals were noted, but the black color disappeared upon ignition, leaving the crystal form intact, indicating only a covering of graphite over minute quartz crystals. The graphite, roughly estimated, forms only two or three per cent. of the quartz at present exposed.

The nearest rock exposed in the vicinity of the quartz vein is a peridotite and it is not improbable that the vein is cutting this rock. The quartz, of course, could possibly be derived from pegmatite, but at the surface neither feldspar nor mica were found with it. The vein is evidently of small dimensions.

² SCIENCE, N. S., XXIV., p. 694, 1906.

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The nearest strata of certain sedimentary origin are the Pine Mountain quartzites a few miles to the southward.

Whether the quartz was deposited from an aqueous solution or is of aqueo-igneous origin, the carbon must have been held in some form in the rock solution and the graphite deposited contemporaneously with the quartz. Its dissemination, not cavity filling, through compact, crystalline quartz is sufficient evidence that it is not directly of organic origin or derived from the metamorphism of carbonaceous matter. Perhaps the most suggestive theory of the origin of the graphite under these conditions is that it was derived from carbon dioxide (CO₂), or a hydrocarbon vapor held in the siliceous solution. The presence of carbon dioxide in crystals of quartz is well known. Smoky quartz from Branchville, Conn., yielded gas, analyzed by A. W. Wright, which contained 98.33 per cent. of CO₂.

OTTO VEATCH

CONCERNING SEXUAL COLORATION

IN the linnet of California (*Carpodacus frontalis*), after the post-juvenal (first fall) molt, the sexes are conspicuously different in color. The female is obscurely streaked beneath with hair-brown on a dull white ground, above more uniformly hair-brown. The male is usually red in color, on the whole chin, throat, malar region and chest, on the frontal and lateral portions of crown, and on the rump; otherwise the male is like the female. The linnet would thus appear to provide a good case of "sexual coloration."

After the post-juvenal molt, there is, in both sexes throughout the lifetime of the individual, but one molt annually, taking place in August. *There is no pre-nuptial molt.*

In a large series of male linnets, leaving out the occasional aberrant examples which are distinctly yellow or orange, striking variation is shown in the shade and intensity of the red. Arrangement of the component examples by date, from September to July, shows this variation to parallel uniformly the lapse of time beyond the annual molt in August. In