

hollows could only have done so on meeting with an obstruction such as a steep slope which would deflect the current of ice, and make it acquire a gyratory motion which would enable it to scoop out semicircularly backwards, and possibly at the same time downwards. . . . To be a cwm a hollow must be approximately curvilinear. Rain is doing all it can to destroy this curvilinearity. Rain-streamlets in cwms are gullyng their brims and channelling their sides. A continuation of the process would render a cwm a mere confluence of ravines. The chipping action of frost, aided by rain, is tending to reduce the steepness of the encircling cliffs by bevelling off their upper parts, and hiding their bases under screes. Rain in a state of dispersion is possessed of so little power that it cannot keep up a uniform abrasion of the sides of cwms so as to preserve their curvilinearity. . . . If a single stream cannot produce a cwm, several streams cannot combine so as to give rise to a cwm. . . . Springs would be incapable of undermining laterally so as to leave a hollow at all approaching to the breadth of an average cwm, while a spring undermining backwards would leave a ravine, not a cwm. . . . Springs and streams are the effects instead of the cause of cwms. . . . What is the stream now doing in the upper part of its course, for instance under Glaslyn [Snowdon]? Merely rutting a continuous face of rock." The above are only a few quotations selected from many passages to the same effect. I have likewise, in articles in the *GEOL. MAG.*, etc., frequently referred to the evidences furnished by glaciated rock-surfaces in peculiar positions, and by the undisturbed curvilinearity of *eskers*, of the very small influence exerted by rain and freshwater streams since the Glacial period. While, however, agreeing with much that Mr. Goodchild has written, I cannot help differing from him on many points—such, for instance, as the forms he assigns to the traces of sea-action; but I fear I have already trespassed too much on your increasingly valuable space.

D. MACKINTOSH.

"BOTTLEITE."¹

SIR,—It gives me great pleasure to find that Mr. G. H. Kinahan admits that the curious black mineral called "Bottleite," attached to the base of some layers of granite, "seems due to crystalline structure, the substance being deposited from solution." (See his letter *GEOL. MAG.* for September last, p. 426.) As I have long held that Flint is stalactitic, so I feel certain is Bottleite, a siliceous "stalactite" which has dripped, so to speak, out of the granite.

Whatever Bottleite and Flint are, Obsidian and Isopyre must be classed with them.² More information is anxiously looked for by
Yours, etc.

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¹ Mr. Allport, F.G.S., remarks: "'bottleite' and 'trachalite' are synonymous, 'bottleite' being the local name for a vitrioid rock pronounced to be 'trachalite.'"—*EDIT. GEOL. MAG.*

² We venture to suggest that Miss Alder has opened a wide field of inquiry for Mr. Collins's proposed New Mineralogical Society. (See *ante* p. 569.)—*EDIT. GEOL. MAG.*