be prepared to erect another more beautiful because truer building if the first should be overthrown. It is truth that we seek after, and the building of our hands can never be truth itself, but at best only its fit temple.

I trust that I shall not be misunderstood in what I have said about these dangers. I am not an iconoclast, but wish only to plead for conservatism and moderation.

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THE VETTERN ESCARPMENTS OF SOUTHERN SWEDEN.

To a geologist a fault is always a fault. Whatever its age, whatever the present condition of the land, he reconstructs the dislocation in his mind's eye, and sees the break as vividly as though the action were going on before him. Not so, however, some physiographers. To them a fault is expressive only in its topographic sense; and just in so far as the dislocations can be seen on the surface do many of the students recognize their existence.

On the other hand, the geologist frequently fails to note two points of some importance; at least, he often neglects them in his writings. These are the age of the dislocation, and the form assumed by the land after faulting. While in many cases some attention is paid to these, it is very noticeable that the literature of faulted regions contains little of definite statement concerning them. A good illustration of the physiographic attitude is afforded by a study of the escarpments in southern Sweden which run east from the northern end of Lake Vettern to the Baltic. On the ground, the appearance is of a tolerably steep bluff from higher land on the north down to lower ground on the south. The main escarpment is fairly continuous except near the lake, and is formed of a series of leads and offsets at high angles. The connection between them and the joint systems elaborated by Mr. J. B. Woodworth at once suggests itself, but so far only a general resemblance has been established. The various planes in these examples are more irregular in direction and continuity than in the minute cases which are the basis of Mr. Woodworth's work.

The series may be divided east and west into two parts. That about the lake and for some distance east is characterized by having the angle of the notches face southwest and the sides making the angle concave; the land is higher within the angles, *i. e.*, to the north and east. The rest of the series has angles facing southeast and the sides convex; the land is higher to the north and west. Whether this is due to any known laws cannot be shown at present. One thing is noticeable; the escarpment enters the sea on the east, but dies out on the west. It may be that this is a case of a fault dying out at both ends, and caused by some disturbance at its center; which would probably make a symmetrical figure, not alike on both sides. However, this is mere hypothesis.

To the north of the escarpments the country is a fairly even upland, peculiarly dissected and surmounted by innumerable hills which bear northwest, more westerly than any of the offsets of the escarpments. The drainage is by lakes and small streams. The former are curvilinear, and both take in general the direction of the axes of the hills. All this apparently is due to glacial action, and the same pattern exists over all the country around. In the lowland along the south side of the escarpment series there is a line of drainage from Lake Vettern on the west to the Baltic on the east. It consists of Lakes Boren and Roxen and the estuary Braviken, with a stream connecting them.

The escarpments cannot be due to glacial action, for (1) they are neither in line with the ice motion, as shown by lakes and eskers, nor at right angles to it; (2) in cer-

tain localities the same drift is present on both sides of the escarpment, passing over the interruption, and in other places the bluff marks the boundary between two glacial formations. Whatever did cause the escarpments was local; for they are limited in extent, and besides them no others with similar alignment exist reasonably near. The only methods ordinarily found are the erosion of sedimentary strata of various resistances, and faulting. The geology of the region is that of an old-land surface, of complex structure, composed of very ancient sediments and crystallines. This could not possibly give such an escarpment by simple erosion.

The field evidence, however, leads directly to faulting as the ultimate cause of the present topography. Here the physiographer must turn to the geologist for help. But having received his answer, certain problems of erosion are thrust upon him; and he must decide whether the faulting is recent, and if not, its age and the subsequent history of the surface. These I have not found treated in the literature of the country, nor more than hinted at in conversation with Continental geologists who are acquainted with the localities.

To the south of the escarpments the rocks are Cambrian, Cambro-Silurian and Silurian sediments, with some outcrops of the pre-Cambrian crystallines close to the fault. To the north are mainly crystallines, with two outcrops of Silurian close to the bluff. In most places where the escarpments are not accompanied by a waterway the surface deposits change abruptly. In other instances no change takes place.

From the physiographic standpoint, then, it appears that the fault is an old one, of unknown date, which brought weaker Silurian and Cambrian rocks against the crystallines. The down-throw was to the south, allowing that portion of the sediments which now remains, to drop. Since then the country has been reduced to base-level at least once, and probably a number of times; and any sediments which once extended northward over the crystallines have been eroded. The last cycle of changes has included re-elevation, revival of stream action, and etching out of the present topography in the less resistant Silurian and Cambrian, giving the appearance of a recent fault.

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*LIFE CONDITIONS OF THE OYSTER: NORMAL AND ABNORMAL.**

The Committee are bringing their investigations to an end for the present, and they now state in this final report a series of the conclusions at which they have arrived. The details of the evidence upon which these conclusions are based will appear in a fully-illustrated memoir by Professor Boyce and Professor Herdman, which is nearly ready for publication. A good deal of that evidence has, however, been outlined in our former reports (at Ipswich, Liverpool and Toronto), and need not be now repeated.

Since last year's report, however, we have gone further into the question of the amount of copper and iron present in different parts of various kinds of oysters, with results which sustain the conclusions we had already arrived at.

We have also gone more minutely into the question of typhoid-like organisms, their occurrence in shellfish, and the differentiation of these from the *B. coli communis* on the one hand, and from the true *B.*

* Third and Final Report of the Committee of the British Association for the Advancement of Science, consisting of Professor W. A. Herdman (Chairman), Professor R. Boyce (Secretary), Mr. G. C. Bourne, Dr. C. A. Kohn and Professor C. S. Sherrington, appointed to Report on the Elucidation of the Life Conditions of the Oyster under Normal and Abnormal Environment, including the Effect of Sewage Matters and Pathogenic Organisms. (Drawn up by Professor Herdman, Professor Boyce and Dr. Kohn.)