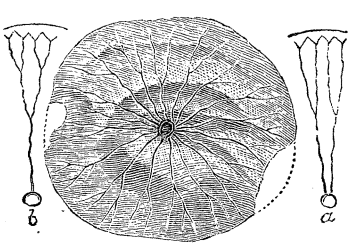
or less widely than single photographs do under similar conditions. The composites ought to be almost wholly independent of fortuitous circumstances such as this; and, although the separate negatives of the same individual might exhibit considerable deviations from each other for one reason or another, yet such deviations should have no cumulative effect in the composite, but be in effect obliterated. If, however, there is, as there well may be, some personal peculiarity in the adjustments of a photographer, his composite will necessarily bear the impress of this mannerism, and furnish a kind of personal error, which can perhaps be only eliminated by making a composite from a number of composites of the same group, each taken by a different person.

LETTERS TO THE EDITOR.

A modern type of plant in the cretaceous.

THE genus Brasenice, or Hydropeltis, is represented in eastern North America by a single species, B. peltata, Pursh (Hydropeltis purpurea, Michaux), which, according to Gray, is also a native of Puget Sound, Japan, Australia, and India. A form so widely distributed may be expected to have been early introduced, so that we need not be surprised to find it occurring along with the earlier forms of exogenous life in the cretaceous of our north-west.

The specimens to which this note refers were obtained in the beds of the Belly-River series of the



BRASENICE ANTIQUA, UPPER CRETACEOUS, SOUTH SASKATCHEWAN RIVER. LEAF NAT. SIZE. *a*, *b*, DIAGRAMS OF VENATION, SLIGHTLY ENLARGED.

Canadian survey, near Medicine Hat. These beds are upper cretaceous, and hold fossils, some of which resemble those of the Laramie group, others those of the Pierre group. They contain workable beds of lignitic coal; and the specimens in question were found in nodular clay ironstone, associated with one of the coal-beds worked in the 'Lawson mine.'

A specimen of this interesting fossil, obtained, I believe, from Mr. Lawson, the manager of the mine, was kindly given to me last year by Mr. J. R. Byron, one of the members of the British association; and additional specimens, some of them very perfect, were afterwards collected by Mr. T. C. Weston of the geological survey. They resemble very closely the leaves of the modern species, differing only in their generally smaller size and somewhat less elliptical form, and slightly in the venation, the primary veins being more numerous, or about eighteen in number, while fourteen is a common number in the modern species. These differences may indicate merely a varietal form; but I have thought it best to designate the species or variety by the name B. antiqua. Associated with these leaves, in the same bed, are some other aquatics, notably Pistia corrugata (Lesqx.) and Lemna scutata (Dn), both species of the Laramie; and Platanus nobilis of Newberry (Aralia notata of Lesquereux), which, though apparently regarded in the United States as miocene, is certainly in Canada characteristically Laramie. There is also a new species of Populus — P. latidentata (Dn) — closely allied to the modern P. grandidentata, and an Acer (A. saskatchewense), whose leaves resemble small or immature leaves of A. dasycarpum. A species of Sequoia also occurs, probably S. Reichenbachii. Though all these plants have a very modern aspect, they are unquestionably cretaceous; and I have myself assisted at the disinterment of a dinosaur of the genus Diclonius from beds overlying those in which the leaves occur. These facts furnish another instance of that modern aspect of the upper cretaceous flora on which I have elsewhere insisted, and which has been a fertile source of error with reference to the age of beds of this formation in the west. It is interesting to note that beds of this age in western Canada contain the modern Onoclea sensibilis of America, along with Davallia tenuifolia, also modern, but now Asiatic.

J. WM. DAWSON.

Lateral movements of the earth's crust.

While observations are being made for the purpose of investigating 'variations of latitude,' is it not desirable that the U. S. coast and geodetic survey should make simultaneous observations with a view to discover, if possible, whether or not places along our coasts are suffering changes of latitude or longitude, or both, due to lateral movements of the earth's crust?

If it is true that during geological history large lateral movements of the earth's crust have taken place, and if such changes are still going on, it would seem inevitable, that, in regions where lateral displacements are taking place, landmarks should suffer a change of latitude or longitude, or of both, according to the direction of yielding to lateral pressure, and that places located upon regions suffering compression or folding should be moved, to some extent, bodily toward places in adjoining regions, toward which the movements take place, but which are not themselves undergoing displacements.

Since vertical movements of the earth's crust are taking place at measurable rates, and since, in the past, lateral movements appear to have exceeded the vertical, it might be expected that lateral movements are now taking place at measurable rates. Of course, if the superficial strata are not involved in these movements, the deeper strata only yielding, surface landmarks could not reveal the movement; but in this case, and in case folds of the superficial strata along our coasts are in process of evolution, it would seem that such changes might be discovered by sinking deep vertical shafts at intervals along lines normal to the coast. These carefully surveyed at intervals during one or two centuries, it would seem, should show a measurable warping or tilting if such movements are going on. F. H. KING.

River Falls, Wis.