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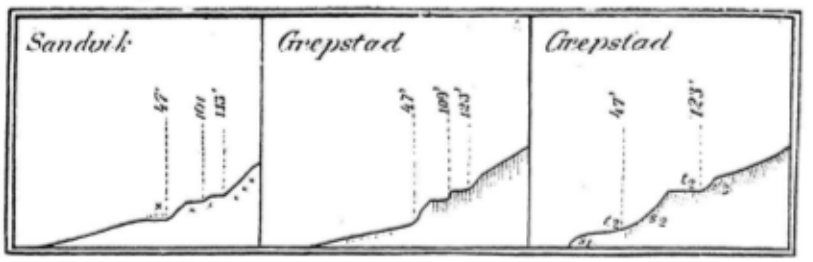
the coast near Tromsö, and figs. 2, 3, 4 give sections at three points (see also fig. 1), which may fairly be taken as typical. Figure 2 is from Sandvik, where are three levels, namely, 14·5, 31·6 and 35·4 meters above the mean sea surface (in the figures the heights are given in Norwegian feet); the lowest has a maximum breadth of 19 meters. Fig. 3 is a section at a point between Sandvik and Grepstad, where the three levels are 14·5, 34·1 and 38·5 meters. Fig. 4 represnts a section at Grepstad where there are only two levels, namely, 14·5 and 38·4 meters.

2. 3. 4.



It is concluded, in the first place, that the terraces and "strandlinien" do not, taken as a whole, follow definite levels. Some of them are local and are observed only for short distances, while others extend along for many miles. The latter are more typically developed, are more connected with definite levels, and may be traced as such for long distances in Northern Norway. The formation of these was probably in part determined by periodic changes in climate. The course of any particular line is nearly horizontal, whether it runs parallel with the coast, or extends from the coast into the interior, although the highest levels are found in the interior of the fiords. The conclusion of Bravais (1842) that these lines are not horizontal but rather rise in level toward the interior, upon which the idea of a gradual secular elevation of the land, joined with an unchanged level of the sea, has been in part based is not accepted as generally true. That the wearing action of the sea has been the only cause in producing the results observed is not regarded as probable, and this conclusion is supported by several arguments; what other forces were instrumental in producing the result is not distinctly stated. The formation of the "strandlinier" must have begun at the upper edge of the downward slope and the excavation gone on from above down while the land rose slowly in reference to the surface of the sea. The apparent elevation of the land is regarded as having gone on gradually and slowly and not suddenly and interruptedly. In general these changes in level which went on along the coast of northern Norway during the post-glacial time are believed to be most easily explained by the supposition of a changing level of the sea.

2. *On the substances obtained from some "Forts vitrifiés" in France.*—M. Daubrée has made a critical mineralogical and

chemical examination of materials obtained from several "Forts vitrifiés" in different parts of France. This name is given to the walls or to the simple debris of walls, whose materials have been fused together by the action of fire.

The substance obtained from the neighborhood of Argentan was of a dark greenish brown color, opaque, and resembled certain slags. A section examined under the microscope revealed the presence of large numbers of crystals of an octahedral mineral, probably spinel, and also crystals of melilite, both formed by the process of fusion. An analysis showed a considerable amount of alumina and of soda, leading to the inference that the fusion had been accomplished by adding marine salt to the aluminous silicate in the clays and schists. Some partially fused granitic rocks from the forts of Château-vieux and of Puy de Gaudy (Creuse), also from the neigborhood of Saint Brieuc (Côtes-du-Nord), were especially examined. The specimens consisted of small fragments of the granite, some angular, others more or less rounded, and all forming a solid mass, with a glassy surface. They were in some cases similar in appearance to volcanic scoria.

When sections of the granite were examined in the microscope it was found that the orthoclase still acted upon polarized light, and the albite also was nearly unaltered, but besides them there were vitreous masses produced by the fusion. Of the minerals formed by the process, spinel was very common in regular octahedrons, sometimes transparent, sometimes opaque. There are also large numbers of microlites in geodes in the fused mica, which are probably to be referred to a triclinic feldspar. The small quantity of fluorine originally contained in the mica is regarded as having played an important part in the changes accompanying the fusion. These granites had been fused immediately by fire without the aid of soda, as in the first case named, and it is reasonably certain that the process of fusing together the small fragments was intentional although the means by which it was accomplished so thoroughly is less easy to understand.

3. *Preglacial Outlet of the Basin of Lake Erie into that of Lake Ontario.*—Mr. J. W. SPENCER discusses this subject in a paper published in the Proceedings of the American Philosophical Society for 1881. He reaches the conclusion that a deep channel passed off from the southern part of Lake Huron along the course of the present valley of the Au Sable, pursued an east-southeast course and entered the basin of Lake Erie west of Vienna, bent around Long Island (east of Vienna), and then took a north-by-west course to Ancaster in the Province of Canada, whence it followed an easterly course along Dundas Valley into the west end of Lake Ontario; and that this channel was in preglacial time the outlet of Lake Erie into Lake Ontario. The supposed channel is now buried beneath drift. In the Dundas Valley (which is bounded by vertical escarpments) the drift has been penetrated to a depth of 227 feet below the surface of Lake Ontario. He also endeavors to show that the Great Lakes owe their existence to subaerial and