particularly fine. Narrative, rather than physiography, characterizes the text; but much of the quality of our higher mountains can be gleaned from it. A sad interest attaches to the later pages, in the account of the death of Philip S. Abbot on Mt. Lefroy, Canada. The great precipices of the mountain are shown in a full-page plate.

The physiography of northern Indiana is described by C. R. Dryer (*Inland Educator*, IV., 1897, 63–69) as a contribution towards more rational geography in the schools. The region was first explained by Gilbert in 1870; the drainage is now shown to be even more dependent on morainic ridges than was at first supposed. North of the Maumee-Wabash line the moraines are heavier, enclosing numerous lakes and forming a most picturesque contrast to the flatter surface of the Erie clays around the lake border.

C. Sapper writes upon the physical geography and the geology of Yucatan (Bull. No. 3, Inst. geol. Mexico, 1896). A considerable area is described as of 'very strange topography;' lacking ridges of determinate direction, and everywhere gently undulating; the cause of this being ascribed to the horizontal position and the porous structure of the rocks, and to the 'sinks' consequently formed over subterranean channels. The same author describes the volcanoes of Salvador and southeast Guatemala (Petermann's Mitt., XLIII., 1897, 1–7). The volcano Guazapa is well dissected by radical valleys, while nearly all the others are young enough to have smooth contours.

John Murray, of the Challenger expedition, gives an account of 'Balfour shoal' (*Scot. Geogr. Mag.*, XIII., 1897, 120–134, two plates), probably a volcanic cone, rising from the Pacific bottom, east of Australia, in Lat. 19° S., Long. 157° E., from a depth of 1,300 fathoms to 836 fathoms. The side slopes are steepest on the northeast, where they reach 200 fathoms per mile, or 1 in 4.4. Examples of other oceanic cones may be found in a paper by G. W. Littlehales, entitled 'Average form of isolated submarine peaks,' published by our Hydrographic Office in 1890.

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CURRENT NOTES ON ANTHROPOLOGY.

THE MONOLITHS OF TAFI.

Tafi is the name of a broad valley in the province of Tucuman, Argentine Republic. The well-known scientist, Professor Ambrosetti, in a recent visit there, had his attention called to an extraordinary collocation of monolithic pillars and stone enclosures, erected in remote ages by the native inhabitants. He describes them in *Globus*, Bd. LXXI., No. 11. The monoliths are from six to ten feet in height above the soil, some plain, others decorated with conventional designs, others rudely chipped into the likeness of faces, etc. They extend over a considerable area and their purpose is problematical.

Ambrosetti is inclined to attribute them to the predecessors of the Calchaqui Indians, who occupied this territory at the Conquest. He suggests that they are the work of the same people who erected the buildings of Tiahuanuco; a suggestion which I think is extremely probable, for some of the decoration shown in his cuts is strikingly like that on the stone pillars of Hatuncolla, two leagues from Lake Titicaca, portrayed in Squier's 'Peru,' pp. 385–6.

ETHNOGRAPHY OF THE MYCENEANS.

In the excellent volume on Mycenean art from the pens of Professors Tsountas and Manatt there is a chapter devoted to the ethnic affiliations of the peoples who, some two milleniums before the Christian era, developed that remarkable culture.

Their tombs, dwellings and arts point to

two different strata of growth, but both purely and originally European and Grecian. The influence of the Orient was late and slight. The two early migrations may be called Danaan and Achæan; but the chief fact remains that they were both of indigenous cultural development, not imported or exotic.

What is more, the later, historic Greeks directly inherited this culture, as is proved by the identity or close similiarity of architecture, ornament, pottery, arms, and religious and political institutions. This also is asserted by Homer and all early Greek tradition.

The linear and hieroglyphic writing, scantily represented in the Mycenean horizon, may point to Asiatic fonts; rather Anatolian (Hittite) than Phœnician; but the evidence is too slight to speak finally on this question.

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NOTES ON INORGANIC CHEMISTRY.

A PAPER was recently read before the Royal Society, by Dr. W. A. Tilden, on the gases enclosed in crystalline rocks and minerals. From the time of Brewster, observers have found in many crystallized minerals, notably in quartz, cavities containing gas, and often drops of liquid. Water, carbon dioxid, hydrocarbons and nitrogen and, more recently, hydrogen and carbon monoxid have been found. A large number of crystalline rocks—granite, gneiss, basalt, etc.—have been examined by Dr. Tilden, and the yield of gas varied from 0.65 volumes, in a recent (1760) lava from Vesuvius, to 17.8 volumes, in a gneiss containing corundum from Serringapatam. The gas is apparently contained in cavities which are visible in thin microscopic sections, but that these cavities are extremely minute is shown by the fact that there is practically no diminution of yield when the rock has been reduced to a coarse powder before heating. The largest portion of the gas is carbon dioxid and hydrogen, with nitrogen, methane, and carbon monoxid, each to the extent of a few per cent. In no case was any evidence of helium found. The presence of hydrogen and carbon monoxid is accounted for by the formation of the rock in an atmosphere rich in steam and carbon dioxid, which was or had been in contact with an easily oxidizable substance; this might be metallic iron, which has been found in basalts and other rocks. The presence of marsh gas in the rocks tends to support the view that in the interior of the earth's crust there are large masses, not only of metal, but compounds of metals, such as iron and manganese, with carbon. This view, first put forth by Mendeleef, which would account for the great deposits of natural gas, petroleum and other natural hydrocarbons, appears to be steadily gaining ground, and has received further support by the work of Moissan and others on the metallic carbids.

MAURICE DE THIERRY communicates to the *Comptes Rendus* determinations of atmospheric ozone on Mount Blanc, begun in 1894. At Chamounix the amount of ozone was 3.5 mg. per 1,000 cubic meters of air; on the Grand Mulets (elevation 3,020 meters), 9.4 mg., or nearly four times as much as at Paris. The conclusion is drawn that the amount of ozone increases with the elevation, a confirmation of earlier results. Hail, falling at an elevation of 4,200 meters, when placed on a sheet of iodo-starch ozonoscopic paper gave immediately circular violet spots of larger diameter than the hailstones and paler in the center, but it was not determined whether these spots were due to an atmosphere of ozone surrounding the stone, or to hydrogen dioxid from the melting hail. Neighboring snows, however, have never shown a reaction for hydrogen dioxid.