

under ether, chloroform, nitrous oxide, etc., than has as yet been made. Scientific literature has frequently contained accounts of isolated individual experiences reported most often because of their strangeness. A very large number of descriptions of the ordinary experiences is what is now desired, and to this end blanks have been prepared on which replies to certain simple questions may be written. All persons, and especially hospital surgeons, officers of medical societies, and instructors in medical schools, are respectfully requested to send to the undersigned for as many of these blanks as they care to distribute among persons who have been under an anæsthetic. These will be gratefully sent, and received when filled out.

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NOTE ON THE PIGMENTS OF THE COCCID
CHIONASPIIS FURFURA, FITCH.

I HAVE just had occasion to examine some specimens of *Chionaspis furfura* sent me by Professor C. A. Keffer, from Tennessee, and in so doing, I found some pigments which may be of interest to others than coccidologists. The female *C. furfura* is brown-pink, but on being placed in liquor potassæ immediately becomes olive-green. The addition of hydrochloric acid at once restores the brown-pink color, showing that the two are simply acid and alkaline phases of one pigment, the living female having an acid reaction. These two colors are strikingly like those seen in the feathers of certain birds, namely the jacana, and the herons of the subgenera *Hydranassa* and *Butorides*; the resemblance being so close as to suggest that the maroon and green colors of these birds are likewise due to two phases of a pigment closely similar to that of the *Chionaspis*. The eggs of *C. furfura*, abundantly present in the material examined, are purplish-pink, with orange portions due to an oil or fat. The oil retains the same brilliant orange color even after boiling in caustic potash, but collects in globules varying from 6 to 60 μ diameter. The purplish-pink pigment is turned Prussian-green by liquor potassæ, but in a short while this again alters to a

clear indigo blue. The latter change is hastened by boiling. On adding hydrochloric acid, the blue becomes reddish-purple. The egg-pigment is therefore similar to that of the mother insect, yet apparently not identical.

T. D. A. COCKERELL.

MESILLA PARK, NEW MEXICO, March 31, 1900.

CURRENT NOTES ON PHYSIOGRAPHY.

PORTO RICO.

R. T. HILL has prepared some 'Notes on the Forest Conditions of Porto Rico' (U. S. Dep't Agric., Forestry Bull. 25), which are prefaced by a description of the island's configuration and by a plate taken from a relief model. The discontinuous axial sierra, steeper to south than north and mostly of volcanic rock, is of rugged aspect, less than 3500 feet in height. The mountains do not rise to a single crest line, but form a sea of conical peaks and beaded ridges, elaborately dissected by numerous ravines and valleys between knife-edged spurs of graded slope. Here habitations find no place in the narrow valley floors but occupy the mountain sides, where heavy rainfall and deep-weathered tenacious soil support a luxurious vegetation; coffee and tobacco are cultivated to the very summits. The sierra is surrounded by a narrow and broken 'collar' of limestone, forming coastal hills of heights up to 500 feet or more, round or dome-like in form, with few ravines; here the surface is sheeted with a thin red argillaceous residual soil. South of the sierra, where the climate is relatively dry, the hills are mostly covered with thorny vegetation or chaparral. Longitudinal valleys sometimes separate the hills from the sierra; transverse valleys divide the hills into groups separated by wide alluvial floors which open into triangular plains (filled estuaries) occupied by sugar plantations on nearing the coast. A great part of the island has been cleared of its original forest. The 3268 square miles of the island contain 26,650 farms, which therefore average 7.4 to the square mile; but much land once cultivated, is now 'ruinate' from long use without fertilizers or from soil-washing.

The 'Water Resources of Porto Rico' are described by H. M. Wilson (Water Supply and

Irrigation Papers, U. S. Geol. Surv., No. 32, 1899).

THE DUNES OF GASCONY.

THE great belt of dunes that borders the straight coast of Gascony is well described by R. Le Mang (*Deutsch geogr. Blätter*, Bremen, xxii, 1899, 235-256). The dunes frequently rise 40 meters (one reaches 89 m.) over a belt 6 or 8 kil. wide and 240 kil. long. Near the sea the ridges lie north and south, parallel to the shore; further inland they trend east and west, parallel to the prevailing winds. The inland dunes have long been forested and stationary; the shore dunes were until recently barren and wandering. Fields and forests were buried and villages were overwhelmed by the advancing sand; the mouths of streams were blocked and shifted; lagoons were pushed inland with rising water level, invading and drowning fields and villages. Now, after many years of experimental effort and nearly a century of systematic work, the advancing dunes have been arrested. A half artificial dune or dike runs along the beach, with very gentle slope to the sea; here the wear of winter storms must be repaired during the succeeding summer. Next follows a protection zone, 300 to 1500 met., wide, covered with stunted firs and bushes, where the first strength of the sea wind is expended. Then comes the great artificial forest of firs and oaks, under whose cover the invasion of the dunes has entirely ceased.

THE MORVAN.

AN area of crystalline rocks, forming an upland known as the Morvan, a northern branch of the central plateau of France, was visited in the spring of 1899 by a party under the direction of M. Vélain, professor of physical geography at the Sorbonne; and a report of the excursion is made by M. Martonne, instructor in geography in the university of Rennes (*Annales de Géogr.*, viii, 1899, 405-426, maps and photos.). The mesozoic strata that once covered the crystallines of this district more or less completely are now worn back so that the ancient crystalline floor is broadly revealed as a plateau, gently undulating where it has longer been exposed to erosion, remarkably even where recently uncovered; the harder members of the

overlapping strata have retreated in strong escarpments that rim around the crystalline area on the east, north and west, while the less resistant members are reduced to plains between the scarped reliefs. A recent general elevation is indicated by the narrow valleys, frequently having incised meanders, by which the uplands and lowlands are alike dissected. The origin of the drainage is not especially considered; it appears to be in greater part the accordant with the general dip of the strata away from the Morvan center, and hence would be classed as originally consequent.

THE FLÄMING.

BETWEEN the mountains of middle Germany—Harz, Erzgebirge, Riesengebirge—on the south, and the Baltic lowlands on the north runs a belt of low uplands, underlain by some inequality of rock-floor and built up as a 'diluvial plateau' by the moraine of an early glacial epoch; now cut into disconnected parts by the broad valleys of glacial rivers. The Fläming is one of these uplands, lying east of Magdeburg between the Elbe and the Spree. It is recently described by E. Schöne (*Beitr. zur Geogr. mittl. Deutschland*, herausg. von F. Ratzel. *Wiss. Veröffentlichungen Verein f. Erdkunde*, Leipzig, iv, 1899, 93-194). The softly rounded hills are separated by ramifying dry valleys or 'Rummeln' which lead streams in wet weather. Faint terraces on the sloping valley sides are ascribed to stream action during the erosion of the valleys, although in a photographic illustration they closely resemble pasture paths, and indeed their modification by sheep is noted in the text. The steeper valleys on the northern slope of the Fläming have supplied gravel for the construction of a number of flat alluvial fans on the floor of the bordering glacial-river trough.

W. M. DAVIS.

BOTANICAL NOTES.

FOSSIL PLANTS OF THE BLACK HILLS.

A RECENT paper in the nineteenth annual report of the United States Geological Survey, entitled 'The Cretaceous Formation of the Black Hills as indicated by the Fossil Plants,' by Lester F. Ward, is of more than usual in-