and returned home, the Field Museum party made a new stripping beside the old and obtained from it large additions to its summer's collection. Photographs of the fossils exposed in the various stages of the work of this party formed the subjects of many of the illustrations used in the *Cosmopolitan* article.

Elmer S. Riggs.

Field Columbian Museum.

January, 23, 1900.

CURRENT NOTES ON PHYSIOGRAPHY.

PHYSIOGRAPHY OF JAMAICA.

In connection with his studies of coral reefs, Mr. Alexander Agassiz has had surveys made of several West Indian islands by R. T. Hill, whose latest report is on the 'Geology and Physical Geography of Jamaica' (Bull. Museum Comp. Zool., Harvard College, xxxiv, 1899, 256 p., xli pl., including a topographical and a geological map). The island contains an interior mountainous area (the Blue mountains, 7360 feet), of greatly deformed rocks and of well subdued and elaborately carved form, occupying about one-sixth of the total area, chiefly in the east. A limestone plateau, whose gently arched strata were deposited unconformably upon the denuded older rocks during a period of submergence, rims around the eastern mountains and covers the central and western parts of the island to heights of 3000 feet; it is terminated toward the coast by strong bluffs, often terraced, 1200 feet high on the north. Below the bluffs, low plains descend gently to the sea. Solution has exerted great control over the drainage of the plateau, as may be seen in the interesting series of depressions, from incipient hollows of small size, to deep 'cock-pits' or sink-holes, and great basins, walled in by strong cliffs. Some of the basins still have underground drainage; others discharge their waters through canyons that have been formed by the retrogressive erosion of exterior rivers; while still others have lost their outer wall by the greater advance of erosion, subaërial or marine, and now form amphitheaters open to the coast. Inliers of older rocks sometimes rise in mountain form from the floor of the larger basin, as in Clarendon valley in the center of the island. The strata of the coastal plains lie on denuded benches of limestone or older rocks; their surface is diversified by coral reefs and transverse valleys, the first deposited, the second eroded during the time of elevation. The largest plain is that of Liguanea, upon which Kingston is situated.

The geological structure and history of the island, and its relation to the surrounding regions are fully discussed.

NICARAGUA CANAL ROUTE.

No article recently published gives better illustration of the practical value of the explanatory or genetic method in geographical description than that by Hayes on the 'Physiography of the Nicaragua Canal route' (*Nat. Geogr. Mag.*, x, 1899, 233–246; see also Science, x, 1899, 97–104). One feels on reading it that the author has critically observed the salient facts and that his account of them fully expresses the results of his observations. The region described may be divided into three parts: The upland traversed by the San Juan river from Lake Nicaragua eastward to the Carribbean, the basin of the lake, and the upland or continental divide that separates the lake from the Pacific. The eastern upland is part of an uplifted and dissected peneplain, 100–200 feet above sea level, and bordered by hills and mountains on the north and south. Its revived streams still run nearly at the upland level in their upper courses; then they descend rapidly in young valleys that they are still deepening to aggraded alluvial floors, which suggest a recent depression after the time of first valley cutting. The lake now stands where a bay once opened northwest to the Pacific; the eastern upland was then the continental divide. The bay seems to have been formed by warping or faulting a western portion of the peneplain above referred to. Numerous volcanic cones grew on the bay floor and converted its head into the lake, whose level rose until an eastern overflow formed the San Juan river, now cutting a trench across the eastern upland. The southwestern barrier of the lake seems to be another part of the peneplain, warped so as to give a steep descent to the Pacific and a gentler descent to the lake. On account of the unequal slopes thus determined,

several Nicaraguan streams have lost their headwaters to the Rio Grande, which enters the Pacific at Brito; and the point where one of the now beheaded Nicaraguan rivers rises on its old valley floor is the lowest pass on the present continental divide, and hence is selected for the path of the canal from the lake to the ocean. A fuller discussion of the region is given by the same author in *Bulletin of the Geological Society of America* (x, 1899, 285–348).

THE PLAINS OF RUSSIA.

A NOTE in SCIENCE, May 2, 1898, was in error in describing the plains of central Russia as dipping under the drift sheet on the northwest. The plain is continuous across the older rocks and the drift sheet of the first glacial invasion, and both areas are to-day dissected similarly by valleys. Philippson returns to this subject (*Pet. Mitt.*, xlv, 1899, 269–271) to emphasize his conclusion that the paleozoic and mesozoic area of the plain is a surface of denudation, now broadly uplifted and somewhat dissected; the denudation being completed contemporaneously with the formation of the drift plain. The rivers may have followed shallow depressions in the surface of the great plain, but the valleys of to-day are undoubtedly the work of erosion after uplift, and hence all of quaternary date. Even the broad and unsymmetrical valley of the Volga is held to be of later origin than the first glacial epoch. Small rivers have cut valleys 100 meters deep, either entirely in the older rocks, or in the drift area, or passing back and forth from one to the other. Most of the valleys are of a considerable width already, with well graded floors; but where the Dneiper crosses the granite swell of southwestern Russia there are rapids in its course. Philippson urges that the solution of morphological problems of this kind should not be postponed until the completion of detailed geological surveys, but that they should be studied during the prosecution of the surveys; he also wishes fuller information from the Russian geologists concerning the date of folding in the Urals and of their later upheavals after extensive denudation.

THE AMALFI LANDSLIP.

THE Boston *Transcript* of January 13th gives a translation from an Italian newspaper, *La Tribuna*, describing the landslip at Amalfi on December 23d, last. For several days preceding the disaster a trembling motion had been noticed in the mountain over the town and many peasants had left their houses. Early on the morning of the 23d, a noise like that of splitting wood was heard in Hotel Santa Caterina on the mountain slope, and a crack was found in one of the walls. A man from a quarry brought news that a small fissure had opened in the mountain side. Soon afterwards stones began to roll down the steep slope at more and more frequent intervals, and then a mass of rock estimated at 30,000 cubic meters broke away from the mountain and fell with terrible noise, crushing everything in its way and raising a dense cloud of dust. Some peasants working on the upper slope saw a long fissure open 'beneath their feet' and had only time to leap aside before the ground on which they had been standing broke away and fell. Others working at a lower level were killed. The sliding mass swept away a peasant settlement on the upper slope, buried the Hotel Caterina, crushed one end of the old monastery known now as the Hotel Cappuccini, a favorite resort of travellers, and then ran into the sea, destroying two boats, capsizing two others, and obstructing the shore waters. The highway near the shore was covered and all travel on it was suspended for fear of later disasters. Along the track of ruin for some distance up the mountain side, houses are demolished, trees uprooted, and gardens overwhelmed. A number of lives were lost, and the damage is estimated at over 1,000,000 lire.

W. M. DAVIS.

CURRENT NOTES ON METEOROLOGY.

A NOTEWORTHY BALLOON VOYAGE.

AN interesting point in connection with a recent balloon trip is noted in the *Zeitschrift für Luftschiffahrt* for December. The trip in question was made by MM. de Saint-Victor and Mallet, starting from Paris on September 30th last, at 6:15 p. m., and landing near Vestewick, in Sweden, on the evening of the following day. The duration of the trip was 23¼ hours, and the distance passed over was 1330