

The unfortunate end of the Marquis Antinori is known. His successor, Count P. Antonelli, more happy, has returned to Rome, and has recently given an account of his investigation of Shoa, in south-eastern Abyssinia, to the Italian geographical society. This society is publishing the results of the Italian expedition. An interesting account of the fresh-water fishes of Shoa has already appeared. Soleillet, the French explorer of Shoa, appears from his reports to be living *en grand seigneur*, under the protection of his Shoa Majesty, King Menelik II., having been appointed to a feudal office somewhat between a baron and a justice of the peace. Bremond's report of his scientific and commercial expedition from the French colony of Obock to Shoa has recently been printed in *L'Exploration*. This region, though but a few years since untrodden by civilized men, offers rich rewards to traders; and the privileges of trade have lately been the object of lively competition between the commercial explorers of several nations. W. H. DALL.

GREEN MOUNTAIN RAILWAY, MOUNT DESERT ISLAND.

THE Green Mountain railway on Mount Desert Island, Me., is intended for pleasure-travel. It was operated for the first time during the last summer season. It is in a great measure a copy of the railway up Mount Washington, New Hampshire, built some thirteen years ago. These two lines, and the Mount Righi railway in Switzerland, are the only ones employing the central cog-rail as a means of surmounting steep gradients. The trip for tourists from Bar Harbor to the summit of Green Mountain is made, first, by wagons or stages, two miles and a half to Eagle Lake; thence by steamer on the lake two miles; and finally by rail sixty-three hundred feet, in which latter distance the ascent is twelve hundred and seventy feet to the summit, fifteen hundred and thirty-five feet above the sea. While the grade averages about a foot rise in four feet and a half distance, in some places it is as steep as one in three.

Surveys were made, and the work of clearing and grading was begun, in the winter of 1882-83. In April a large force of men was employed, and the road was completed by July 1. The track is not raised on trestle-work, as is the case at Mount Washington: much of it, especially on the heaviest grades, is constructed on the solid ledge. Where the longitudinal timbers, or stringers, rest directly upon the rock, iron bolts one and a quarter inches in diameter, six feet apart, are driven through them into holes drilled in the ledge. Where it is necessary to raise the stringers above the surface in order to make a regular inclination, bed-ties are used every six feet, secured against slipping by two or three one and a quarter inch iron bolts firmly fixed in the rear of each tie. All longitudinal timbers required to bring the line to grade are fastened to the bed-ties with iron bolts of the same size. The timbers and ties in contact with the rock were carefully hewed, and fitted to place.

The spruce timber needed for this portion of the work was obtained from a forest-growth on the mountain itself.

The sleepers or ties, six inches square and six feet long, are laid upon the stringers at a distance of two feet from centre to centre, and two seven-eighth inch iron bolts are driven into the stringers, immediately in the rear of each tie, in grooves in the tie, which serve to prevent lateral motion. Upon the ties lie 'T'-rails, joined by fish-plates and bolts, and spiked in the usual way. The rack or cog-rail in the middle of the track is made of two angle-irons which have between them cogs of one and a quarter inch iron accurately rolled to uniform size. This cog-rail is secured to the ties by two lag-screws, five inches and a half long, in every tie, and additional ones at each joint. The rack was manufactured by the Atlantic iron-works, East Boston.

The engine weighs ten tons, and embodies all the improvements suggested by the operation of the White Mountain road. Its entire mechanism is double, — four cylinders, two cog-wheels, and two driving-shafts. Intermediate gearing between the crank-axes and cog-wheels reduces the speed, and increases the tractive force. The cog-wheel axles carry ratchet-wheels with pawls; and either one of these ratchet-wheels, in case of accident to the engine, will hold the train on any grade. In addition, two band-brakes on the smaller shafts may be instantly applied by the engineer. The ascent is made by steam-power; and the engine, when backing down the mountain, is still kept in forward gear, that is, with valves set to go ahead, so that it is constantly pumping air into its boiler; and this air, allowed gradually to escape, exerts an upward tractive force, thus easing the descent.

The floor of the passenger or observation car is adjusted so as to be level on the average grade, and the sides are open to admit of an unobstructed view. The car is always pushed ahead of the engine, and is provided with double hand-brakes, two cog-wheels, ratchet, and pawl, which will easily control the car in descending.

CHARLES E. GREENE.

ANTHROPOLOGICAL PAPERS IN PETERMANN'S MITTHEILUNGEN FOR 1883.

IN order to keep pace with the growth of knowledge respecting the natural history of man, one must not neglect the geographical journals. The files of *Petermann's Mittheilungen* for the past year will be found quite rich, especially in ethnographic information. The following summary will guide to the most important contributions.

Upon the subject of the variation of climate in the region of the southern Mediterranean and northern Sahara, Professor Fischer of Kiel holds, that, in this locality, a diminution of precipitation has taken place, the influence of which on health, population, and the means of living, is easily conjectured (pp. 1-4).

The subject of marshes, *instabilis terra nec navigabilis aqua*, begetter of pestilence, precursor of fertile

fields, and preserver of antiquities, is discussed briefly, in its relation to history and human weal, by inspector T. Schlacht of Oldenburg (pp. 5-12).

The researches of M. Baber in Szetschuen and Yunnan, south-west China, brought him into communication with the Lolos, — an interesting tribe, who present but few points of agreement with the Mongolian type (pp. 26-28).

Dr. Hagen, on a journey inland from the east coast of Deli, in Sumatra, observed carefully the Battas of the coast, the Orang-Lussun of the foot-hills, and the Orang-Karo, Orang-Timor, and Orang-Tobah, in the vicinity of Tobah Lake. The writer dwells at some length upon their anthropometry and their social and technical characteristics (pp. 44-53, 102-104, 142-149, 167-177).

Mr. Fr. v. Schenck has added a little to our information upon the people of Colombia, South America, by references to the Antioqueños and Medellinos (pp. 85-93, 213-220).

A minute description of the inhabitants of the Jagnau valley, which lies near the 40th parallel, on the borders of Turkestan, is given by Bonvalot. These people are considered by Professor Fred. Müller to speak a very old Iranian language (pp. 93-102).

The archeology of Julianehaab, the most southern district of Greenland, first studied by Steenstrup in 1876, has more recently received the attention of Holm, who locates over a hundred ruins of Scandinavian dwellings, and who has examined many graves (pp. 137, 138).

Gerhard Rohlfs rates the number of Jews in Africa at 450,000: to wit, Algiers, 34,000; Egypt, 8,000; Tunis, 60,000; Tripoli, 100,000; Morocco, 200,000; the rest scattered over the continent (p. 211).

The names and localities of the African tribes living on the upper Niger, in Adamaua and the neighboring regions, is given by R. Flegels (p. 246). The accompanying chart is an excellent help in fixing definitely the location of each tribe.

Dr. Emin Bey, governor of the equatorial provinces of Egypt in 1880, made a journey from Lado to Makraka, and in the following year prosecuted his researches through the Mudirié Rohl. Emin Bey's travels were mainly in the country visited by Petterick in 1862, by Schweinfurth in 1869-71, by Wilhelm Junkers in 1877 and 1878, and by Fekin and Wilson in 1879. This communication is illustrated by an excellent map, and contains much that is worth preserving about the tribes along the route (pp. 260-268, 323-340, 415-428). Dr. Junkers has a paper on his travels, in the journal, and describes especially the A-Madi (p. 286) and the A-Baranbo (p. 289) stock. Frequent references to Emin Bey and Junkers will be found in the bibliographic lists of the *Mittheilungen*.

The Rumuni, in Istria, are called by the Germans, Wallachs; by the Slavs, Wlaks; by themselves, Rumuni, or Rumeri. Dr. Karl Lechner devotes a few pages to a description of them (pp. 294-299).

Dr. Polakowsky makes the statement that Mr. Gabb's 'Tribes and languages of Costa Rica' has

been published this year, with learned comments by L. Fernandez, as a special supplement of the Costarican official gazette. The author also describes at length a visit of the Catholic bishop Thiel to the Chirripo, and other tribes of this Central-American state (pp. 300-304).

An excellent example of the application of graphic methods to anthropology is the nationality chart of Bohemia, designed by E. Hochreiter. Among the facts brought out and illustrated is the title which the Bohemians have won for being wanderers. While there are 490,565 Bohemians in Austro-Hungary outside of Bohemia, there are only 80,236 persons in that country who are not natives (pp. 321-323).

St. v. Rogozinski, visiting Liberia in March, 1883, gives a very flattering account of the state of affairs in that colony. Leaving Cape Palmas, he visited the coast of Assini, formerly a French colonial possession, but deserted in 1871. 'Of all the stocks of the west coast,' says Rogozinski, 'that I have seen, the Assinese are the most comely.' The court and village of King Amatifu made a very good impression upon the traveller; and he was able to acquaint himself with many of the customs of the people, especially those connected with the burial of the dead, the taking of meals, fetich doctors, and dancing. The journal of Rogozinski concludes with a brief recital of a visit to Elmina, in Ashanti, and the announcement of his arrival in Fernando Po (pp. 366-373).

Two papers descriptive of the upper streams of the Yang-tse-Kiang and the Taw-la Mountains, by N. Prjevalski, make incidental allusions to ethnologic subjects. The Jegrai and the Golyks (Kolö of Hue), of Tangut stock, find mention on p. 351; and the Tibetans are described at greater length on p. 379.

Notes on the customs of Kafiristan are to be found in the communication relating to that country, by Hughes and Munschi-Synd-Schah, especially on pp. 408, 409.

Supplement No. 71 is devoted entirely to the Cosacks. It is compiled from the work of Choroschin and from other sources, by F. v. Stein. We have in this essay an excellent monograph upon the Cosacks, commencing with a brief *résumé* of their history, so far as it is known, and enlarging upon their present dispersion, characteristics, their works and industries, and chiefly their social and military organization. Upon the last point, carefully prepared statistics have been compiled.

Supplement No. 72 is a report of Juan Maria Schuver's journey to the upper Nile region, including his observations and discoveries upon the watershed between the Blue and the White Nile, and on the border-line between Egypt and Abyssinia. This number is replete with descriptions of the people in the districts considered.

Supplement No. 73 is a methodical investigation concerning the cinnamon-producing regions, by Dr. Carl Schumann. One of the many useful results of this study is its bearing upon the history of commerce.