sixty thousand may be found in a moment, and on the back of it is a complete record of the criminal's past life, together with an accurate description of him. The bureau is very serviceable, the criminals being the only ones who find any fault with its workings.

An interesting paper upon the physiological action of saccharine — discovered some years ago by Fahlberg — has been contributed by MM. Aducco and Mosso. They find that frogs cannot live in a solution of this substance, on account of its acidity, though strong doses of a concentrated solution of it do not seem to affect them. Upon dogs, saccharine has no definite action. The weight of the animals is not changed by its use, and it has no effect upon the quantity or quality of the urine voided. Chlorides seem to be ejected in greater proportion, but this is all. Saccharine passes through the body without change, its only effect being to render the urine less putrescible than usual. Upon man the effects are similar, five-gram daily doses having no effect whatever, passing away wholly with the urine, entirely unchanged. Upon the whole, saccharine seems to be an inoffensive substance, having the valuable quality of being a substitute for sugar without the injurious effects of the latter in certain ailments, such as diabetes.

An excellent work upon hygienic dietetics has recently been published by M. Dujardin-Beaumetz, in which he ably reviews previous works upon the physiology of digestion, and advances sound ideas of what dietetics must be as governed by the various states of health and disease. Another work, by M. Dangeard, upon the inferior organisms, will prove useful to zoölogists and botanists. It is a book of reference concerning a very small division of protozoa, but contains no general ideas upon physiology or morphology. V.

Paris, Feb. 11.

GEOGRAPHICAL NOTES.

Africa.

The European population of Algiers in 1886 numbered 261,500 French and 210,000 foreigners. Among the latter the Spanish element is the most numerous. As among the French population there are 38,000 soldiers, and about a thousand foreigners are naturalized every year, the foreigners actually outnumber the French. The European population has doubled during the last twenty-five years, and the native population, which numbers 3,300,000 Arabs and Kabyles and 43,000 Israelites, is increasing at a rate of about 80,000 a year. Since 1881 the increase was 423,000.

Stanley publishes a letter in which he states that all the political authorities and experts in Cairo are opposed to the idea of his taking the Kongo route for reaching Emin Pasha. As his expedition will be well armed, they do not consider the obstacles he would find on the Karagwé or Masai route insuperable. Stanley, however, wishes to avoid a struggle with Uganda, as he fears that the missionaries now in Mwanga's power will be murdered in case of war. He estimates the length of the Kongo route at 157 days, — twenty days by steamer from Zanzibar to the Kongo, three days by steamer on the Lower Kongo, thirty-five days on the Upper Kongo, and ninety-nine days of land journey to Lake Mwootan. The Karagwé route he calculates at 156 days land journey, the Masai route at 154 days.

No news has been received of Mr. Lüderitz, who went on an exploring expedition in southwestern Africa last fall. He has not been heard of since he embarked on the Orange River in a canoe.

Dr. E. Holub's party has been attacked by the Bechuanas, and his companion was killed in the fight. Holub escaped unhurt. After the news of this disaster was received, a committee was formed in Vienna to raise funds for enabling Dr. Holub to resume his explorations on the upper Zambezi.

The French are making use of their occupation of Madagascar, says *Nature*, to gain a thorough knowledge of the natural history of the island. There have already issued from the national press several fascicules of a magnificent 'Histoire physique, naturelle, et politique de Madagascar,' edited by M. Alfred Grandidier, to be completed in thirty volumes quarto. The subjects to be comprised in this work are: 1°, physical and astronomical geography; 2°, meteorology and magnetism; 3°, ethnology, anthropology, and linguistics; 4°, political, colonial, and commercial history; 5°, natural history of mammals; 6°, natural history of birds; 7°, natural history of fishes; 8°, natural history of reptiles; 9°, natural history of Crustacea; 10°, natural history of terrestrial and freshwater mollusks; 11°, natural history of plants; 12°, geology and paleontology. The various sections are intrusted to competent authorities; and the geological portion is to be illustrated by about five hundred chromo-lithographs or colored plates, the anatomical details being represented in lithography and photography. The total number of plates will not be less than 1200.

America.

Mr. Chaffanjon was going to leave San Fernando de Atabapo on the Upper Orinoco in November, 1886, to explore the sources of that river. Through the support of the government he got

some Moquivitares Indians for guides. They are the neighbors of the Guaharibos, who occupy the district of the sources of the Orinoco. The latter are very much feared by the whites, as they murder everybody who tries to enter their country. Chaffanjon hopes through the help of his Moquivitares friends to be able to gain their confidence and accomplish his purpose. On his way to San Fernando he made interesting linguistic and archeological researches.

Oceania.

It is stated by *Nature* that the lake district in New Zealand is showing signs of fresh disturbances. Tremors have been felt at Rotorua, and Tarawera has emitted dense volumes of steam. The Wahanga Peak appeared most active. No fire was visible, and after this outburst everything quieted down again.

On the 15th of January a new volcanic eruption took place on Hawaii.

Oceans.

The Proceedings of the Royal geographical society for December, 1886, contain an interesting paper by J. Y. Buchanan on 'Similarities in the physical geography of the great oceans.' The author mainly discusses three important oceanographical problems, — the equatorial current, the equatorial counter-current, and the rising of cold water near the coasts of continents. Buchanan describes the influence of the evaporation which takes place in the region of the dry and warm trade-winds and monsoons. The water which gets warmer but more concentrated sinks under the colder layers of less concentrated water, and thus becomes a medium of transportation of heat into the deeper strata. As this warm water is moving west, it reaches its greatest depth in the western parts of the oceans. As corals are confined to regions of warm water, they principally live in the same area. While the region of the equatorial current has water of great density, the equatorial counter-current has lighter water, and wherever the velocity of the eastern current is increasing, its density is decreasing. Buchanan does not give an explanation of the origin of the counter-current. His observations on the density agree with the well-known fact that the current lies beyond the belt of trade-winds which effect a rapid evaporation. The mechanical cause of this current remains still doubtful, though it seems probable that the equatorial current is its principal cause. Buchanan's remarks on the rising of cold water near the coasts of continents are of great interest. Formerly the existence of cold water was considered a sufficient proof for the existence of cold currents. Recent researches, however, make it probable that in such places cold abysmal water rises from the adjoining depths. Buchanan shows on a map that the cold water is principally found on windward coasts of the oceans, where the currents are flowing from the continent. The loss of water in these regions is made good by the rising cold water. The January number of the *Annalen der hydrographie* calls our attention to the fact that wherever a current is deflected from a coast, it attracts the adjoining water. It depends on the configuration of the ocean whether the abysmal water or that of the adjoining surface takes the place of the water that is carried away by the current. The rotation of the earth is the principal cause for the deflection of the currents and the consequent rising of the cold water. Every coast-current in the northern hemisphere is deflected to the right, in the southern to the left, and in all these places cold water may be observed.

General.

The February number of the *Scottish geographical magazine* contains a paper by John Murray on the total rainfall of the globe, and its relation to the discharge of rivers, accompanied by a map showing the distribution of annual rainfall. According to Mr. Murray, 2,243 cubic miles of rain fall annually on areas with inland drainage. Such areas extend to 11,486,350 square miles. The land draining directly to the ocean has an area of 44,211,000 square miles. If from this quantity we subtract all areas having less than 10 inches of annual rainfall, we get 38,829,750 square miles. The mean discharge from this area into the ocean is 6,569 cubic miles annually. The total weight of substances carried by this means to the ocean is rather more than 5,000,000,000 tons each year.

NOTES AND NEWS.

THE cholera epidemic is now declining in the Argentine Republic, having entirely disappeared from Cordoba. It still prevails in Montevideo, and has recently broken out at Frey Benitos, where the Liebig company has its slaughter-houses and factories for the preparation of the extract of meat. The La Plata River is closed to navigation on account of the epidemic. Although cholera has declined in the interior of the Argentine Republic, there is no change in the city of Buenos Ayres. There is no news from Paraguay, but it is learned from the Brazilian province of Matto Grosso that cholera is doing great havoc there. At Corumbá the people are terror-stricken and have fled into the interior. Fear is now enter-