

M. Dionys Szabó has made the character of the acid in gastric juice a subject of research (vol. i. p. 140), and has ascertained that it consists of both hydrochloric acid and lactic acid, analogous to that produced by the souring of milk. As hydrochloric acid is the more powerful corrosive and solvent agent, it is natural to expect it to be present in larger quantity than lactic acid in the stomach of the dog, which requires it to bring fragments of bone, &c., into solution. In certain dyspeptic cases hydrochloric acid is wanting, hence, probably, the dyspepsia, owing to lactic acid alone not being sufficient to bring the food into solution. It is probable that the lactic acid is produced from the albuminous constituents of food by oxidation, and that it acts on the salt which we take with our food, forming lactate of sodium, and liberating hydrochloric acid. Chemical decompositions of this nature, the converse of what happens in laboratory experiments, appear to be greatly favoured by dialysis through colloidal membranes, such as the walls of the ducts of the mucous membrane of the stomach.

Prof. Richard Maly (vol. i. p. 174) has made an attempt to explain the phenomenon of inverse chemical reactions, occurring under the influence of diffusion, with regard to the formation of hydrochloric acid. Prof. Graham, in his well-known researches on diffusion, showed that hydrochloric acid is the most diffusible of all liquids; that if a jar be filled with it, and carefully immersed in water, taking care not to mix the acid with the water, more hydrochloric acid escapes in a given time than is the case, under similar circumstances, with any other liquid. Now it is an ascertained fact that a weak acid can replace a strong one to a small extent, provided the weak acid is present in large quantity compared with the strong one. This replacement proceeds to a given point, when balance sets in, and the reaction goes no further, owing to the strong acid being liberated in such amount as to check any further decomposition, provided no disturbance takes place. But in the case of lactic and hydrochloric acids in the stomach, disturbance does take place, owing to the more rapid diffusibility of hydrochloric acid through the walls of the ducts. The hydrochloric acid is constantly being removed as it is formed, and the sodium chloride, or common salt, is continually in process of decomposition by the lactic acid. Hence the presence of hydrochloric acid in gastric juice. This decomposition is also effected by what is generally called "neutral sodium phosphate," which, although it has a faint alkaline reaction on litmus paper, yet, in a chemical point of view, is an acid substance, for it still contains hydrogen replaceable by a metal.

Dr. O. Lassar (vol. i. p. 165) contributes a paper on irrespirable gases. Every one who has visited a vitriol work knows the insufferable feeling of choking produced by the fumes of the evaporation-chamber, and even those who have not had that opportunity must occasionally have experienced the disagreeable sensation of breathing the fumes of burning sulphur from a sulphur match. This choking sensation seems not to be felt by animals; it is due to spasm in the glottis and involuntary contraction of the vocal chords. The object of Dr. Lassar's experiments was to ascertain whether such acid fumes are absorbed by the lungs, conveyed into the blood, and passed out by the urine. For this purpose he exposed rabbits and dogs to the dense fumes of sulphuric acid for more than an hour at a time, and examined the urine carefully for that acid. It was invariably absent, showing that the acid is not absorbed by the lungs. It was curious to remark that on exposure of an animal to nitric acid vapour of such strength that the hair, and even the membrane of the lungs, turned yellow, the animal did not suffer in health, and that the only effect of acid fumes in air is to diminish the proportion of oxygen. This explains what has often been wondered at—that workmen in the chlorine cham-

bers and sulphuric acid evaporating-chambers are not injuriously affected by the acid fumes.

WILLIAM RAMSAY

### GEOGRAPHICAL NOTES

THE special committee appointed by the International Meteorological Congress at Rome for the promotion of expeditions to the Arctic seas charged with making synchronous meteorological and magnetic observations, will meet at Hamburg on October 1 next, in order to arrange details and to discuss the means of arriving at the object aimed at. Preliminary steps in this direction have, as our readers are doubtless aware, been taken by Count Wilczek and Lieut. Weyprecht.

ON August 7 next a century will have elapsed since Karl Ritter, unquestionably the greatest geographer of his time, was born at Quedlinburg.

IN the last issue of the *Colonies and India* the attention of members of the Alpine Club is directed to the mountain peaks of the West Indies. In the Blue Mountains of Jamaica, for instance, views can be obtained which cannot be surpassed in the world. Many of these mountains have been, as yet, untraced by the foot of man, and they offer a wide field to the student of natural history as well as the practical explorer. In the Island of Dominica, again, there are opportunities for exploring mountains which are hardly, if at all, known. An expedition under two Englishmen has lately scaled for the first time one of the peaks, known as Morne Trois Pitons, situated to the north of Roseau. The heights of these peaks are 4,528, 4,552, and 2,672 feet respectively. The foot of the centre *piton* was found to be at an elevation of about 1,800 feet. For a considerable distance the party were able to follow a wild-pig track, but they had to leave this and cut their way through dense vegetation and scrub. On reaching the summit they found it to be nearly flat, and covered with impenetrable vegetation. This curious plateau was estimated to be about ten acres in extent.

THE new number of the Belgian Geographical Society's *Bulletin* publishes reports from M. Cambier and Dr. Dutrieux on the march of the first Belgian African expedition from Mpwapwa to Tabora, in Unyanyembe. These are accompanied by a sketch-map of the country between the East Coast and Lake Tanganyika, on which the route of the expedition is laid down.

A GOOD harbour is stated to have been discovered near Point Parker, in the Gulf of Carpentaria, which will probably be of service in the development of that part of Australia.

THE Coreans are as little given to leaving their own country as the Japanese used to be, but we learn from a Shanghai contemporary that there appears to be a little colony of them forming in the neighbourhood of Chinkiang, for, in addition to the usual *ginseng* traders, there are now there several well-dressed Coreans having the appearance of the better class of officials. They wear slate-coloured garments as a sign of mourning for the Queen.

THE new number of *Le Globe* contains M. Veniukof's account of geographical work in Asiatic Russia during 1878, and a paper on the Sahara.

THE last *Bulletin* of the Société de Géographie Commerciale de Bordeaux has a long note on French establishments in India, which will be found useful in supplying information on a subject respecting which the world at large knows but little.

THE just published number of *Les Annales de l'Extrême Orient* contains the continuation of Dr. Harmand's notes on Khmer monuments, and of the Marquis de Crozier's essays on Indo-China, based on Dr. Bastian's investigations.