EXPLORATION AND TRAVEL.

Brazil.

DR. HASSLER, who returned last April from an interesting journey through the Brazilian province of Matto Grosso, has described the results of his journey in a lecture delivered before the Geographical Society of Bern. The expedition, which was organized by the Brazilian Government, consisted of Dr. Hassler, an Englishman, a Brazilian lieutenant with forty soldiers, and several natives. They ascended the Paraguay, and began their explorations from Cuyabá, the capital of Matto Grosso. Having ascended the Rio Cuyabá, they crossed the divide between the La Plata and Amazon systems, and tried to reach the Rio des Mortes. Having first struck the little-known rivers feeding the Xingú, they found the Rio des Mortes, which they descended to its confluence with the Araguaya, and followed the latter river to its confluence with the Tocantins. They returned by the Araguaya, and, having traversed an extensive part of the plateau of Matto Grosso, they reached the Rio Lourenço, and returned by this way to Asuncion. Dr. Hassler discovered and explored several large tributaries of the Araguaya. The region traversed by this expedition is not far east from where Von der Steinen made his important discoveries in 1883, and the results of this journey will undoubtedly form a valuable contribution to our knowledge of the geography of central Brazil. The topography of the plateau of Matto Grosso and of its northern slope is little known, and it is fortunate that the Brazilian Government should at last undertake the exploration of this extensive country. Dr. von der Steinen, who is now on his way to the sources of the Xingú, was unable to carry out his plan, to reach the Matto Grosso from the east coast of Brazil, but had to take the Paraguay route. His last letter is from Cuyabá. The expedition was detained in Brazil by the prevalence of cholera in the Argentine Republic. They used this time for exploring the *sambaguí* (or shell-heaps) of Santa Catharina. They intended to start from Cuyabá to the head waters of the Xingú, where they will establish a camp and study the interesting Indian tribes inhabiting this remote region.

NEW GUINEA. — Since we published the sketch-map of New Guinea in No. 242 of *Science*, several interesting reports on new journeys have been published. Dr. Schrader, the leader of the expedition of the New Guinea Company, has ascended the Augusta River in a small steamer some distance beyond the point reached on the first expedition. The Proceedings of the Royal Geographical Society say that Mr. C. H. Hartwig and Mr. G. Hunter succeeded last July in reaching the summit of the Owen Stanley Range. They appear not to have reached the highest elevations, but by a judicious choice of route, along the valleys of the Kemp Welsh and Musgrave Rivers, ascended to the saddle between Mounts Obree and Brown, and crossed to the eastern or inland slope of the range. They started with twenty-seven friendly natives, but had some difficulty, in commencing the ascent, with the hostile tribe who guard the great mountain Paramagoro, which they believe to be the abode of the spirits of the departed. Their hostility was eventually overcome by peaceable measures, and upward of two hundred of them followed the expedition in the ascent, conciliated by the daily supply of meat of wild pigs, which the travellers obtained by means of their rifles, though the chief cause of the success is attributed to the great experience of Mr. Hunter, who had for a long time prepared for the expedition by making friends with the tribes, several of whose languages he speaks fluently. The flora is described as magnificent in the extreme, including palms of many species, tree-ferns, marantas, orchids, and an endless variety of tropical flowering plants. East of the range the country is more open and richly grassed. The same number of that journal contains a full report of the discovery of two large rivers, the Douglas and Jubilee Rivers, emptying at the head of the Gulf of Papua, accompanied by a map and several illustrations. Their discovery was mentioned in a recent issue of *Science*. The well-known traveller, Capt. Adrian Jacobsen, has been sent out to New Guinea and the neighboring islands by the Ethnological Museum of Berlin, principally for making collections among the various Papuan tribes.

TIMBUKTU. — Timbuktu and the upper Niger have lately attracted considerable attention. The French are rapidly extending their possessions toward this important place, starting from the Senegal. The Geographical Society of Paris has published several sketch-maps showing the advance that has recently been made. The upper Gambia and the neighboring districts have been surveyed, and extensive stretches of land on the upper Niger have been placed under French protectorate, which now extends from the right bank of the Niger to Sierra Leone and Liberia, including the whole of Futa-Djallon. Roads are being built, and much advance is being made in our knowledge of these districts. While this is a safe and reliable way of progress, Mr. George Angeli's scheme of a railway from Cape Juby to Timbuktu seems rather vague, and unlikely to be carried out. Of great interest is an approach to the upper Niger by Dr. A. Krause through a country which was formerly considered impenetrable. We mentioned the beginning of his journey, on which he started from the Gold Coast, in No. 218 of *Science*. He succeeded in entering the totally unknown region in the great bend of the Niger, but had to return when about one hundred and fifty miles from Timbuktu. The results of this journey will be of great importance. As it is generally accepted that journeys in Africa are very expensive, it will be of interest to learn that Krause had no more than twenty-five dollars on landing.

STANLEY FALLS. — The London *Times* publishes an interesting letter of Major Barttelot on the state of affairs in Central Africa. This letter makes it clear that Tippo-Tip's authority in Stanley Falls is very limited, and that he will require support from the Kongo Free State to suppress the slave-hunters, who extend their raids almost to the confluence of the Aruvimi. The Kongo Free State has decided to send some troops to his assistance, and, in case this effort should prove unsuccessful, to endeavor to obtain the support of the Sultan of Zanzibar. If Tippo-Tip is true to his obligations, it may be that the efforts of the state will be successful.

HEALTH MATTERS.

Vital Statistics in Massachusetts.

THE Massachusetts State Board of Health has issued the forty-fifth registration report of that State, containing the vital statistics for the year 1886. During this year the public health has markedly improved; the birth-rate being greater, and the death-rate less, than in any other year since 1879. 50,788 births, 18,018 marriages, and 37,244 deaths were recorded, being an increase of 1,998 births and 966 marriages, and a decrease of 850 deaths, as compared with 1885. The death-rate was 18.85; the birth-rate, 25.69; and the marriage-rate, 9.12. The number of illegitimate births was 1,034, or 20.3 per thousand. The rate in Russia is 29, and in Bavaria 152, the average for Europe being 64. In Massachusetts, and also in Rhode Island, Connecticut, and Vermont, as well as in most countries of Europe, the marriage-rate has decreased during the past twenty-five years. 601 divorces were granted during 1886, 45 less than in 1885, but 105 more than the average for the preceding twenty years. Of these, 20.8 per cent were for adultery, 45.7 for desertion, 16.3 for intoxication, 5.3 for extreme cruelty, 10.3 for cruel and abusive treatment, and 1.2 for neglect to provide maintenance. The infant mortality was greater than in any year since 1875, and also greater than the average of the past fifteen years. The average age of all persons at death was 34 years, the extremes being 48.63 in Barnstable County, and 30.29 in Suffolk. The ratio of deaths from zymotic diseases to all deaths has steadily decreased from 28.6 in 1876, to 18.5 in 1886. The death-rate from consumption has decreased from 3.25 per thousand in 1867, to 2.98 in 1886; that from cancer has, during the same period, increased from 0.29 to 0.56. During the ten years ending 1886, there have been the following deaths: from typhoid-fever, 8,466; from whooping-cough, 2,765; from diphtheria, 15,288; from measles, 1,832; from scarlet-fever, 5,130; and from small-pox, 193. The increase in the mortality from diseases of the brain during the past twenty-five years is very marked. In 1865 the rate per ten thousand for this class of disorders was 12.06; in 1865, 14.39; in 1870, 14.35; in 1875, 16.42; in 1880, 17.00; and in 1885, 20.01. In this class are included apoplexy, softening of the brain, paralysis, insanity, cephalitis, and brain disorders generally. There were but 32 deaths reported from ague and remittent fever during the year: 62.5 per cent of these were in the five western counties, having but twenty-six per cent of

the population. One-fourth of the whole number occurred in Hampden County. Eastern Massachusetts suffered severely from malarial fevers in 1884, 1885, and 1886, but few of the cases, however, proved fatal.

MICHIGAN SANITARY CONVENTION. — A sanitary convention is to be held at Albion, Mich., under the auspices of the State Board of Health, Dec. 6 and 7. The objects of the convention are the presentation of facts, the comparison of views, and the discussion of methods relating to the prevention of sickness and deaths, and the improvement of the conditions of living. It is intended to be a convention of the people generally. Among the subjects which it is expected will be presented and discussed are the following: 1. The present and future water-supply of Albion; 2. Disposal of waste in Albion by sewerage and otherwise; 3. School hygiene; 4. Money-value of sanitary work; 5. Restriction and prevention of communicable diseases, from four standpoints, — (*a*) of the State Board of Health, (*b*) of the health-officer, (*c*) of the clergyman, (*d*) of the lawyer.

CHLOROFORMING WHILE ASLEEP. — We had occasion in a recent number of *Science* to refer to the possibility of chloroforming persons while asleep without awaking them. In confirmation of the statement which was then made, that under favorable circumstances this could be accomplished, we quote a case which occurred in the New Orleans Charity Hospital and is reported in the *New Orleans Medical and Surgical Journal.* A child six years of age was suffering from pleurisy, and it became necessary to draw off the fluid effusion which had accumulated in his chest. He was very much afraid of the operation, and it was determined to attempt it while he was asleep. On the following day, while sound asleep, chloroform was administered without awaking the child, and twenty-four ounces of fluid were withdrawn. The child continued to sleep throughout the night, and when it awoke the following morning knew nothing of the operation.

FLIES AS CARRIERS OF CONTAGION. — A report was made to the French Academy of Sciences by Spillman and Hanshalter, giving the results of their investigations into the possibility of flies acting as carriers of contagion. These observers examined the excrement and intestines of flies that had fed on the contents of spit-cups used by consumptive patients, and found the bacilli of consumption in abundance. These bacilli were also found in the dried excrements of flies scraped from the windows and walls of rooms occupied by consumptives. These facts are in perfect consonance with the recommendations of the American Public Health Association, that the sputa of consumptive patients should be received in vessels in which disinfectants have been placed.

THE PLYMOUTH TYPHOID EPIDEMIC. — Our readers will remember the epidemic of typhoid-fever which created such consternation in Plymouth, Penn., in 1885. The population at that time was 8,000. Of these, 1,153 contracted the fever, and 114 died, a mortality of nearly 10.33 per cent. It is now stated that typhoid again prevails to an unusual extent in Plymouth, and that fears are entertained of another epidemic. There are said to be thirty cases of the fever there at the present time. In connection with the subject of typhoid-fever, there have been reported in France three cases in which the disease seems to have been transmitted through the air. A patient suffering with typhoid-fever stopped at a hotel in Eaux-Bonnes. In four weeks she recovered, but the three daughters of the hotel-keeper were attacked. Eaux-Bonnes is said to have a bountiful supply of excellent spring water, and there was no other case of typhoid in the town. The discharges from the stranger were thrown, in an undisinfected state, into the water-closet, the door of which communicated with the room in which the landlord's daughters slept, at a distance of only three feet. It seems reasonable in this instance to eliminate the drinking-water from the factors in causing these three cases, and to charge the infection to the neglect of disinfection of the excreta.

SEASICKNESS. — The *Semaine Médicale* contains the views of Dr. W. Skinner on seasickness. He looks upon it as the expression of certain purely functional or dynamic disturbances of the organism, some of the symptoms indicating a general fall of the arterial blood-pressure. The starting-point is probably a reflex inhibition coming from the sensorium or from the nerves of the abdominal organs, which is brought about by a contusion or stretching of these organs due to the motions of the vessel. His treatment consists in the use of vaso-motor stimulants, strychnia, atropia, and caffeine, introducing them hypodermically. Dr. Skinner reports thirty-nine cases in which his treatment was efficacious, one of them being an infant of two years and a half.

HYDROPHOBIA. — In the latter part of September three children died in England from hydrophobia, having been bitten by rabid dogs. Their mother was bitten at the same time, and has gone to Paris to be treated by Pasteur. Another child, not of the same family, was bitten by a rabid dog at Lancaster. Seven days after, he went to Paris, where he remained a month under treatment. The day after his return the first symptoms of hydrophobia appeared, and in two days proved fatal.

YELLOW-FEVER AT TAMPA. — Dr. Porter, president of the Key West Board of Health, has gone to Tampa, Fla. He reports that the disease which lately appeared there is undoubtedly yellow-fever. To Oct. 14, there had been eighty cases, of which twelve had proved fatal.

MENTAL SCIENCE.

Bilateral Asymmetry of Motion.

DR. J. LOEB of the University of Würzburg has made some very interesting observations on the motion of the two arms. A thread is stretched between two uprights at such a height, that, with the fore-arm bent at a right angle at the elbow, it can be conveniently held between the thumb and forefinger of either hand. In the first series of observations, the two hands started together at the middle of the string, and moved outwards to either side until signalled to stop by the experimenter. The object was to move the two hands with equal speed; but it was found that every subject either constantly moved the right hand farther than the left, or the left constantly farther than the right. Right-handed persons who were not handicraftsmen, usually allowed the right hand to make the longer excursion, and contrariwise for the left-handed. The difference between the movements of the two hands varied from one-tenth to one-half of the space moved over. If, instead of the operator's signal, a clamp was placed upon the thread on one side to indicate when the subject should stop, the general result was the same, though the hand on the side of the clamp usually moved more cautiously.

Thinking it probable that the difference was due to the difference in the nature of the voluntary impulse imparted to the two hands, Dr. Loeb himself moved one of the subject's hands to one side, while the latter was to simultaneously move the other out to an equal distance. But the result was as before: the asymmetry constant for each person remained; and that, too, no matter whether the right hand was passively moved and the left hand moved voluntarily, or the reverse. The size of the error, however, is reduced in the sense, that, compared with a voluntary motion under the same conditions, a passive motion seems larger. This Dr. Loeb thinks may be due to the fact that there was a conscious fear of moving the active hand too far, and that the attempt to correct this resulted in an error in the opposite direction. All the above observations were made upon persons ignorant of the resulting asymmetry. Those who were informed of the result, or discovered it for themselves, thereafter much diminished their error.

The next variation consisted in having the two hands move, not in opposite, but in the same direction; that is, either with the left hand starting in the middle and the right hand to the right side to move towards the left, or with the right hand in the middle and the left hand to the left side to move towards the right. As before, the two movements were simultaneous, were to be made equal in extent, and the motion of one hand was arrested by a clamp set upon the string, Here a new law enters; and the result is, that, independently of the hand and of the direction of the motion, the motion from the exterior towards the middle is always distinctly larger than from the middle towards the exterior.

To eliminate the asymmetry between the two hands, the experiment was made with one hand only, first moving out a given dis-