Polynesia.

The eruption of Mauna Loa has almost entirely ceased, although steam is still issuing from fissures along the mountain-side. The activity in the crater of Kilauea, more particularly in Halema'uma'u (*vide* map in *Science*, ix. 181), is constantly increasing.

Polar regions.

The well-known Scotch whaler David Gray of Peterhead, who tried to find a new whaling-ground in the sea surrounding Franz-Josef Land, has failed to reach those islands, as the pack-ice extended far south, and was so closely packed that he was unable to enter it.

Mr. Alexander McArthur has returned from his 'trip to the north pole,' after having reached York Factory, and has given up his plans of proceeding by the Hudson Bay route.

NOTES AND NEWS.

The Journal of the science college of the Imperial university of Japan, the first part of which has just made its appearance, may be regarded as a continuation of the scientific memoirs which have been from time to time published by the Tōkyō university. This journal is intended to be the journal through which the world at large may receive Japan's own contributions to the progress of science. One unique feature which will be apparent at once has regard to the language or languages in which the various papers are to be presented. Each contribution must be written in one of the three languages, English, French, or German, the choice being left entirely to the author. The necessity for this tri-lingual character springs, of course, from the very peculiar but well-known condition under which science has been cultivated in Japan and by the Japanese. The appearance of this journal is a strong commentary on the advance in culture in Japan, which, from being a country depending on the culture of foreign parts, is now beginning to return the debt.

— Our readers who are interested in astronomy will find an excellent guide for first explorations of the constellations in an illustrated article by Mr. G. P. Serviss ('Astronomy with an opera-glass — the stars of spring'), contributed to the *Popular science monthly* for April.

— A state board of health has just been organized in Vermont, making twenty-nine states which now have state boards.

— The *Medical record* quotes Dr. Mackenzie as being of the opinion that American catarrhs are largely due to the dust, and says that it is not unreasonable to believe that the tremendous clouds of unsterilized earth which are driven into the faces of our city's population during this season have something to do with the excess of coughs and colds and the high mortality-rate during this period, which in some years is exceeded only in the hot months of summer.

— An experimental passenger-train, lighted throughout by electricity, and heated by steam from the engine, now runs between New York City and Boston. Each car is illuminated by eighteen 16-candle glow-lamps, the current being derived from storage-batteries hung beneath the floor-timbers, charged for ten hours by dynamos. Both light and heat are said to be ample; and danger from fire, in case of accident to the train, is much lessened, if not almost wholly done away with.

— Messrs. Estes & Lauriat, Boston, announce for early publication, 'Key to North American birds,' third revised edition, by Elliott Coues; also 'Key to North American birds,' sportsman's and tourist's edition.

— Among recent numbers of the Van Nostrand science series, we note the following: 'Petroleum, its production and use,' by Boverton Redwood, a reprint from the Journal of the Society of arts, London, with the omission of such portions as would seem to be of little or no interest to American readers; 'Leveling, barometric, trigonometric and spirit,' by Ira O. Baker, prepared originally as a part of the author's lectures on geodesy, given in the University of Illinois; 'Analysis of rotary motion, as applied to the gyroscope,' by J. G. Barnard, a reprint of the analytical exposition of the motions of the gyroscope, written by General Barnard in 1858 for the *Journal of education;* 'Beams and girders, practical formulas for their resistance,' by P. H. Philbrick, which aims to deduce general formulas for the resistance of beams and girders, applicable to all cases, and to set forth truly practical formulas so far as seemingly required in the use of existing forms and sections; 'Compressed gun-cotton for military use,' by John P. Wisser, a translation of the work of Lieutenant von Förster, with additions giving an outline of the present process of manufacture and a summary of the properties of the best form now produced.

— The fish commission will send the steamer Albatross to the Pacific coast next fall, to remain several years, and will make a thorough investigation of all matters relating to food-fishes. The cod, halibut, and other food-fishes are caught in the Pacific; but little is known of their distribution, and the fisheries have not been developed. The Albatross will also make investigations in the Gulf

of California. The commission has deposited during the last few years a large supply of young shad in the Colorado River, and the Albatross will visit the Gulf of California partly with the view of ascertaining the results of this work. The Thetis. which will cruise in Alaskan waters, will also make investigations, and the results of the work in arctic waters will be important in connection with the investigations of the Albatross.

— Capt. C. E. Dutton, chief of the bureau of volcanic geology of the geological survey, will read a paper at the next meeting of the National academy of sciences, which occurs the third week in April, embodying the results of the study of an immense mass of data upon the Charleston earthquake. The recorded rate of motion of earthquakes of history varies from three thousand to nine hundred metres per second. The data upon the Charleston disturbance prove conclusively that its earth-waves travelled between four thousand and five thousand metres a second, while French journals containing observations upon the Riviera shock give rates almost as high.

— It is believed that the department of agriculture's new departure in setting up machinery in Washington for winding the silk from cocoons will result in considerable extension of the silk-growing industry in this country. Great interest is manifested in the experiments, and the demands for copies of the bulletin on silkworm culture has made it necessary to issue seven or eight editions. Officials of the department say that the requests for silkworm eggs greatly exceed those received in any previous year since the department began their distribution. As a consequence, it is expected that large quantities of American-grown silk will be placed on the market this year.

— Commissioner of Agriculture Colman has returned to Washington from a recent trip to Louisiana to investigate the field for experiments in cane-sugar making by the diffusion process. He speaks highly of the mammoth plantation of Governor Warmouth, which has been selected for the work, and says, that, if the experiments in Louisiana are successful, the planters will be enabled to compete successfully with the beet-sugar interests beyond a doubt. Cane which would ordinarily yield eighty pounds to the ton will yield a hundred and forty pounds under the new process.

— A curious instance of lead-poisoning is reported in the *Medical news* by Dr. Bidwell of Vineland, N J. The patient had been distilling domestic wine, using a coil of lead pipe for the worm of the still. Some of the wine had undergone acetic fermentation; and the acetic acid, being less volatile than the alcohol, had distilled only at the last of the process, when, trickling through the lead pipe, it had taken up and carried with it the poison as sugar-of-lead. The patient had observed a slightly sweetish taste in the brandy which came over last. Some similar cases of lead-poisoning have recently occurred in England, due to the same cause; the acids of home-made wines having acted upon the glaze of the earthenware vessels in which fermentation has taken place.

— The assumed fact that plumbers escape disease and infection from the inhalation of sewer-air is often referred to as indicating the harmlessness of this air or gas. Were all the facts known, this view would undoubtedly be much modified. A recent occurrence in England would seem to prove that men who follow this trade are not so exempt as is generally supposed. An inquest was held during the past month in Liverpool on the body of a plumber's apprentice who had been engaged during the previous week in repairing pipes which connected with a sewer. Quantities of gas came through these pipes, and at the time the young man complained of pain and sickness: in forty hours he died. The medical evidence was to the effect that death was due to the inhalation of sewer-air, and the jury rendered a verdict to that effect.

— Dr. Goto, of the Kakaako leper hospital in Japan, is said to be able to cure leprosy. Patients are bathed daily in warm water containing an infusion of Hichiyon bark, Aesculus turbinata, and sulphur. They are fed on a generous diet, and take internally the bark of the Hoang-nan tree, besides iron, quinine, and other well-known remedies. He reports that five of his patients are 'almost cured,' nineteen are improving, and seventeen are relieved.

— From the *British medical journal* we extract the following in reference to the duration of infectiousness in the diseases named: measles, from the second day, for exactly three weeks; small-pox, from the first day, under one month, probably three weeks; scarlet-fever, at about the fourth day, for six or seven weeks; mumps, under three weeks; diphtheria, under three weeks. While these may be reliable averages, we doubt very much whether any one can fix the exact period during which any of these diseases may be communicated, as is here done with measles. Some excellent authorities believe, that, even before some of these diseases make their presence known, persons exposed may contract them.

— Professor Dennis of New York recently made a number of interesting observations to test the

purity of the ocean-air while crossing the Atlantic. He had previously prepared capsules of sterilized gelatine. One, which was exposed in a state-room on the main deck of the steamer, developed five hundred points of infection in eighteen hours; one exposed in the cabin on the main deck developed only five or six points in ten days; a third, hung over the bow of the ship for ten days, remained uncontaminated.

— A parrot is reported to have died of diphtheria contracted from children sick with that disease in the same house.

— A new and complete edition of the writings of Galileo, in twenty volumes, is to be published at Florence under the authorization of the Italian minister of public instruction, who has nominated a committee of scholars to edit the work.

— We have received a communication from Professor MacGregor in reply to Dr. Hall's last letter on inertia-force. but we consider the subject to have been sufficiently discussed for the present.

LETTERS TO THE EDITOR.

****The attention of scientific men is called to the advantages of the correspondence columns of* SCIENCE *for placing promptly on record brief preliminary notices of their investigations. Twenty copies of the number containing his communication will be furnished free to any correspondent on request.*

The editor will be glad to publish any queries consonant with the character of the journal.

Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

Elementary instruction in zoölogy.

I WAS much interested in the letters of 'L. H.' and Mr. Shufeldt in regard to the teaching of zoölogy, and I am inclined to agree, almost without qualification, with the latter.

It is unnecessary to make any distinction between a high school and a college course; for at the present time they are practically identical, inasmuch as few college students have had any zoölogical training in their preparatory course. Is, then, the course indicated by 'L. H.' a wise course for the general student? My experience leads me to believe that he is almost as far from the *best* course as the old style of teachers whose work was undeniably superficial.

The theory of studying one animal thoroughly, then taking up nearly related forms, and gradually extending the study to the whole animal kingdom, is very plausible; but has 'L. H.' tried it with an ordinary college class, and in the time allotted to zoölogy in the ordinary college course? He indicates a course that would require several years of continuous work, while most colleges give from one to three terms, and allow for only a limited amount of laboratory work.

Now, while zoölogy is a science worthy of being taught *for itself* and for the discipline it affords, it has a bearing on other sciences, and this second element must not be lost sight of. For example: to understand geology, the student must know the principles of classification of animals; but the method of 'L. H.' would never bring the average student to knowledge of classification. He would know about crustaceans perhaps, but might in reality know very little of zoölogy.

I find I get the best results by following a method which is essentially like that outlined by Mr. Shufeldt. First my students dissect, in a somewhat superficial manner of course, a series of types. For this work I find that even a manual like Colton's tells too much: for I wish to have students, first of all, learn to use their own eyes, and not simply to verify some one else's description. For this stage of the study the less of text-book and the fewer works of reference, the better. In order that material may not be wasted, I furnish my students a little pamphlet of elementary instruction, which tells them what to do, but not what they will find.

This work forms a basis for teaching classification, which I do largely by lectures, or rather talks.

This elementary work gives the student a fair general idea of the animal kingdom. That his knowledge is superficial, I acknowledge, but I consider it none the less valuable. Now the student is prepared to make a thorough study of some higher animal. We use the cat, and from the cat teach the comparative anatomy of vertebrates. More advanced students take up histology and embryology.

I do not think that in this course we have reached the ideal; we may make great changes in it: but it seems to us the best according to our present knowledge.

I am inclined to think that the compound microscope is used too freely with elementary classes; that it would be better if all of their work for the first term or two were on macroscopic anatomy, and that the microscope should be brought in only when the student actually feels the need of it to pursue his investigations further. This is the method of nature, and it seems to me more profitable. C. D. M.

Ripon, Wis., March 30.

Lepidoptera at sea.

On the evening of March 5, 1870, it was my fortune to be on board ship, bound from Callao for London, and at that time a little more than a thousand miles from Cape Frio, the nearest portion of the coast of Brazil. We were in latitude 25° south, longitude 24° west, just south of the border of the south-east trade-winds. Late in the afternoon we encountered several light squalls of wind and rain, during one of which two butterflies were driven past. The weather continued squally all night and for part of the next day, the wind coming from the westward. The following morning it was found that quite a number of Lepidoptera had been blown on board, and ensconced themselves in various places sheltered from the wind. They were mostly, if not wholly, nocturnal species of small size, although one large hawk-moth was among them. About twelve or fifteen specimens, representing nearly as many species, were captured, and others seen; so that not less than twenty or thirty individuals must have reached our ship.

It would appear from this abundance that the total number swept out to sea must have been ex-