ment that the life of Charles Darwin, by his son, which will be published before Christmas, will contain an autobiographical chapter dealing chiefly with the great naturalist's religious opinions.

— Mr. William Saunders of London, Ontario, has been appointed chief director of the Dominion experimental farms of Canada, and has in consequence given up the editorship of the *Canadian entomologist*, a monthly journal which he has conducted for many years. The former editor, Rev. C. J. S. Bethune of Port Hope, will succeed him.

— An international railway exposition and congress will be held in Paris from May to October, 1887, when a railway jubilee of the fiftieth anniversary of railroads in France will be celebrated. John W. Weston, editor of the *American engineer*, Chicago, has been appointed commissioner-general for the United States.

— Lieut.-Col. W. T. McLeod sends us a brief account of the weather of two summers as observed by him at Nassau on the Bahamas. It would seem from the frequency of heavy rains, thunderstorms, and tropical cyclones, to be quite unlike the mild winter climate of the islands that invalids seek to enjoy. The following description of a passing cyclone reveals the characteristic reversal of its central winds: 'On Thursday, Aug. 19, 1886, at 9 A.M., the barometer began to fall, and continued to do so gradually up to 12 o'clock noon on Sunday, Aug. 22. From this hour it fell rapidly up to 4 A.M. on Monday, to the extent of 7-10 of an inch. The barometer remained steady for half an hour, and then rose as rapidly to its previous height. During this depression a severe gale raged. At about 6 P.M. the sun went down in a yellowish patch, with a purple haze. The cloud-masses were blown out into rain-film. The rain fell and the wind blew in gusts from the east, and continued to blow from east to south-south-east, up to 3.45 A.M. on Aug. 23, with increasing force. A lull occurred, and, as the barometer shot upwards, the wind shifted and blew furiously from west-south-west from 4.30 A.M. up to 7.30 A M. During this gale several lives were lost and schooners wrecked. Lightning accompanied the gale.

— At a meeting on Oct. 19, of the committee of the subscribers to the British school of archeology at Athens, according to *Nature*, Professor Jebb said the school had been erected and paid for, Mr. F. C. Penrose had been appointed director, and a provisional income of £400 a year for three years had been raised, but additional funds were required. Prof. C. T. Newton, in urging the importance of having a great school of archeology, suggested that there should ultimately be raised a special fund for the payment of the travelling expenses of the students at Athens. On the motion of Professor Jebb, a managing committee was appointed.

— Messrs. Whittaker & Co. have issued a book by Mr. William Anderson, "On the conversion of heat into work, a practical hand-book on heat-engines."

LETTERS TO THE EDITOR.

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

The deepest fresh-water lake in America.

IN the issue of your journal of the 27th of August are contained some remarks on Crater Lake in Oregon, and its remarkable depth. The perusal of these remarks leads me to say a few words with regard to another lake in the extreme eastern portion of the continent, which, though far from approaching that mentioned, has nevertheless a depth, as well as some other features, which are quite exceptional. I refer to Lake Temisconata in the Province of Quebec.

This lake is situated very near the axis of the divide between the waters of the St. Lawrence and those of the St. John, its outlet by the Madawaska River forming one of the main tributaries of the latter stream. Its total length is twenty-eight miles, about eighteen of this having a general direction a little east of south; while the remainder, forming the more northerly position, trends to the north-east nearly at a right angle with the former. The breadth varies from one to three miles. Throughout its length and on both sides, the land is usually high, forming numerous ridges and promontories projecting into the lake, but just at the angle referred to one of these, known as Mount Wissick or Mount Essex, rises almost precipitously to a height of 550 feet, while the opposite shore is here quite low. The height of the lake above tide-water is, by aneroid, about 400 feet; the distance of the upper end from the St. Lawrence being thirty miles, while the length of its actual discharge, by way of the Madawaska and St. John to the Bay of Fundy, is 288 miles.

Having had occasion to spend some time about the lake during the last summer in connection with the work of the Canadian geological survey, and having heard incredible stories as to its depth, means were taken to ascertain the truth by a number of soundings at points which seemed to promise the best results. Of these, three, taken near the foot of the lake, gave a depth varying from 215 to 225 feet; farther north a depth of 410 feet was reached; and midway between Mount Wissick and old Fort Ingalls, 500 feet. It seems probable, however, from the statements of reliable parties, that even this depth is at some places considerably exceeded.

In the case of Crater Lake, if one may judge from its name, its depth is no more than one might expect from the conditions of its origin; but in the case of Lake Temisconata there is absolutely nothing of a volcanic character, and the whole depression is evidently the result of simple erosion. That that erosion

should have occurred to a depth fully 100 feet below tide-level, and that, too, directly along the line of the great Appalachian axis, is certainly remarkable. It is further singular, that while the ledges along the shores of the lake are covered with glacial striae, corresponding generally with the course of the depression at the point where they occur, the transportation of bowlders has been largely to the north, blocks of fossiliferous limestone from the beds of Mount Wissick being abundantly scattered about the upper end of the lake, but not to the southward. The country between the head of the lake and the St. Lawrence has not yet been examined, but along certain lines is believed to be low. The Madawaska, on the other hand, flowing almost due south, occupies a drift-filled valley, bordered by high and steep hills similar to those of the lake, and probably marks its former extension in this direction. It would seem as if lake and river formed together a great transverse channel of erosion, the result of sub-aerial action, from the St. Lawrence to the St. John, at a time when the entire region stood several hundred feet higher than now, and that the movement of the ice was in the direction of the former. The fact that the direct northward extension of this depression is coincident with the famous gorge of the Saguenay gives additional interest to the observations mentioned.

L. W. BAILEY.

Fredericton, N.B., Oct. 23.

Coloring geological maps.

Professor Branner has issued a neat little card containing a colored geological map of the state of Indiana, on a scale of 1:4,878,720, or 77 miles to the inch! In a letter, which, from its having been written in French, is probably designed to be widely distributed in Europe as well as this country, he complains, 1°, that, with the scale of colors provisionally adopted by the International congress, it is not possible to employ a color which shall indicate the Devonian without specifying whether the area be upper, middle, or lower. Professor Branner will be convinced that he is mistaken if he will look at the report of the committee on the geological map of Europe (Amer. com. rep., p. 43, *b*), where in such a case it was suggested (and later approved by the congress) to use the medium shade of color accompanied by the characteristic letter of the system (in this case, *d*), but without any one of the indices 1, 2, or 3 (see Amer. com. rep., p. 103, for the conclusions of the map committee, arrived at after the meeting of the congress).

Professor Branner complains also that the difficulty of indicating four or five divisions in the carboniferous is greater still. This is not surprising on a map-scale of closely one-five-millionth. The congress never contemplated such a problem, though even here the individual geologist is expressly left free to employ his ingenuity to differentiate by means of tints and symbols, the only restriction laid upon him being that the base of the tint used shall be gray. This certainly opens the way to any method of differentiation which he may desire to try.

Professor Branner misunderstands the object of the congress if he supposes that the color-scale was adopted only for the geological map of Europe, and not for the use of all the geologists of the world. The fact is, that the geological map of Europe was simply selected as a lay figure on which to display the present 'provisional system.' If it be found that this system is bad, another will be substituted for it; but it will require more proof than Professor Branner furnishes to convince geologists of this.

If the 'carbonic' of Europe can be adequately represented by the proposed system, there is good ground to hope that the carboniferous of Indiana will not present insuperable difficulty; but not while the human eye remains what it is can any one succeed in displaying geological details at a scale of one-five-millionth and on a paper surface already one-third covered with printer's ink, representing names of towns and counties and railroad lines.

It is only fair to add that the system proposed by the congress will come as near to satisfying this impossible demand as any other.

PERSIFOR FRAZER.

Air from a cave for house-cooling.

I wish your opinion upon a matter in which I am much interested. Grand Avenue cave, situated four miles from Mammoth cave, contains some nine miles of avenues filled with delightfully cool, pure, dry air; temperature 55°. I propose to erect a house immediately over this cave; make the outside walls and partitions all hollow, so that they may communicate with a cellar, which shall be connected with the cave by a large shaft, say, eight feet square. The question is, will the air between the house and cave take the temperature of the cave by diffusion or otherwise, or will it be necessary to use mechanical means to get the air into the building? I have seen and spoken to several scientific men on the subject, who agree with me that an interchange of air will take place. and continue until equilibrium is restored by making the temperatures the same.

It is proposed to erect a hotel for a cool-air summer resort, and also for a sanitarium. If you think proper, I would like you to put this before the readers of your valuable periodical, and get the benefit of their opinions. It is a matter of some scientific interest, in which physicists, geologists, and sanitarians may be interested.

M. H. CRUMP.

Ogden college, Ky., Oct. 26.

Zinc in Moresnet.

In your issue of this date, on p. 383, you speak of tin ore being found at Moresnet. This is a mistake. The county contains, however, some of the most important zinc-mines of Europe. Almost every collection of minerals contains some specimens of zinc taken from these very interesting and important mines.

THOS. EGLESTON.

New York, Oct. 29.

Ely's Labor movement in America.

A newspaper discussion in criticism of any particular article or review is rarely profitable, but it seems necessary to make a brief reply to the communication of Professor Ely published in *Science* for Oct. 29.

Professor Ely charges that his reviewer, while apparently neither an untruthful nor malevolent person, failed to read the book in question before noticing it. Inasmuch as every statement of Professor Ely's which is mentioned in the review is accredited to the page on which it occurs, his allegation is of