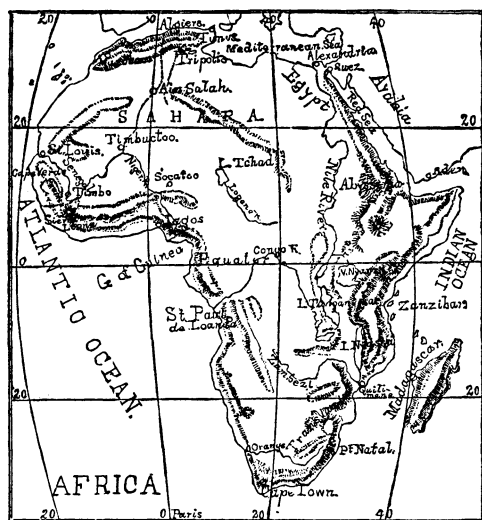


brackish pools, or deposits of salt and gypsum. The more extensive areas are called 'chotts.' The first of these is the Chott-el-Fedjedj, the eastern end of which is 12 miles from the shore of the gulf, and separated from it by a ridge of drift and limestone whose altitude at the lowest point is 150 feet. The surface of el-Fedjedj is nowhere less than 48 feet above the sea. Toward the west it is contracted in width somewhat by the encroachment of the ridges which bound it on the north and south. Beyond this point, which is about 70 miles from its eastern limit, it widens out, and is known as Chott-el-Djerid. Here the surface is for the most part level, and covered with an incrustation of salt, beneath which, in a few places, are pools of water. The plain of el-Djerid is from



MAP OF AFRICA, SHOWING THE RELATIVE SIZE OF THE PROPOSED INLAND SEAS.

50 to 200 feet above the sea-level. Its width from north to south is about 45 miles.

Near the north-west border of el-Djerid, and separated from it by a ridge whose least altitude is 550 feet, is the Chott Gharsa or Rharsa, whose surface is from 30 to 35 feet below the level of the sea. Gharsa is about 50 miles long and 20 miles wide. Beyond this chott to the west, and separated from it by an insignificant elevation, is a much larger depressed area, known as Chott Melghigh or Melhrie. This is the basin referred to as the site of the proposed interior sea. The area which, lying below the Mediterranean, can possibly be flooded by it, is represented by the shaded portion on the accompanying maps.¹ Portions of

¹ The scale of the larger map is about 58 miles to the inch.

this area are 100 feet below the sea-level; and the average depth, if flooded, would be 78 feet.

The figures above given exhibit the possible dimensions of the 'flooded Sahara.' The united areas of the two chotts over which the sea would flow is, by Roudaire's measurements, about 3,100 square miles, less than half the area of Lake Ontario.

Throughout the remainder of the Great Desert the elevation is considerable. Competent authorities estimate the average height at 1,100 feet. Dr. Lenz found, in travelling over many hundred miles of the western portion of the Sahara, no point of less altitude than 470 feet above the sea.

The fact that marine deposits are found in many parts of this area is, of course, a fact of no significance in this connection. The skeleton of a whale found in one of the highest cuttings of the Vermont central railway is not regarded as an evidence that the Green Mountains could now be submerged by the waters of the ocean.

The whale probably stranded there during what geologists term the 'Champlain epoch,' since which time the surface has slowly risen. The hypothesis that at least eighty thousand years have elapsed since this epoch is believed by most geologists to be well founded. Explorations across the African desert justify the belief that the marine deposits found there are not less ancient than those of the Champlain period.

To flood such a section with the sea, either the next great subsidence must be patiently awaited, or else an extensive system of pumping must be resorted to. The realization of the scheme of submergence (to accord with the popular estimate of it), by either of these plans, may be regarded as equally remote.

The project of flooding the Sahara to the utmost practicable limit can hardly be called a great one. It is safe to say, that if executed, which is doubtful, it will not sensibly affect the climate of southern Europe. It will not create dangerous currents at Gibraltar, nor inconvenience seaports in any part of the world. GEO. W. PLYMPTON.

LONDON LETTER.

A SUGGESTIVE report by Mr. W. H. Power, of the Local government board, has just been published, relative to the connection between scarlet-fever and infected milk, — a connection which has long been suspected. The farm in question was sanitarily perfect, every modern improvement in respect to cleanliness of vessels, and examination of persons employed, being in force. Mr. Power was assisted in his investigation by Dr. Klein; and their joint results leave little or no

doubt that the cows of the dairy were infected with a specific disease of a constitutional character, whose local manifestations were external sores on the animals, and that the milk from these cows was capable of imparting scarlatina to human beings, and was the real cause of an epidemic of scarlatina in a large district (Marylebone) in London. Two of these animals were purchased for the Brown institution (established in connection with the University of London for the investigation of animal pathology); and the exact nature of the diseased milk is still being inquired into by Dr. Klein.

The ensilage commissioners have just issued their complete parliamentary report, one of the most valuable documents ever put into the hands of the English farmer. They have gone about their work in a thoroughly judicial spirit, and the result of their inquiry is to establish the use of the silo as an essential part of the procedure of successful agriculture. Green forage well preserved in a silo is, weight for weight, one-third of the same forage made into hay; but, as the weight of the most perfect silage is five times that of the hay, it is sixty per cent more valuable. The full conclusion of the commissioners can best be expressed in their own words: "After summing up the mass of evidence which has reached us, we can without hesitation affirm that it has been abundantly and conclusively proved to our satisfaction that this system of preserving green-fodder crops promises great advantages to the practical farmer, and, if carried out with a reasonable amount of care and efficiency, should not only provide him with the means of insuring himself to a great extent against unfavorable seasons, and of materially improving the quantity and quality of his dairy produce, but should also enable him to increase appreciably the number of live-stock that can be profitably kept upon any given acreage, whether of pasture or arable land, and proportionately the amount of manure available to fertilize it."

The deputy master of the mint has just issued his report for 1885, a document of much interest. The coinages required by the English colonies were more numerous than, and exceeded by £85,000 in amount, those of any previous year. This is attributed in great measure to the depression in the West Indies. The balance of receipts over expenditures was more than £70,000, one of the expenses being the preparation of medals for troops engaged in suppressing the Canadian rebellion. Mr. Fremantle reports, that "although during the year 1885 a considerable amount of coinage has been executed in the British and United States mints, and in those of some European nations,

hardly any addition has been made in several countries, and notably in France and Germany, to the metallic currency of the world;" and also that "the questions connected with coinage, which have of late years been discussed with the greatest interest, have not made any appreciable progress toward solution."

A large private electric-lighting installation has just been inaugurated at the London terminus of the Great western railway. The whole district lighted is $1\frac{1}{2}$ miles long, and covers 67 acres of ground; 4,115 glow-lamps of 25 candle-power each are used, 93 arc-lamps of 3,500 candle-power, and 2 arc-lamps of 12,000 candle-power. The two dynamos employed are those of Mr. J. E. H. Gordon, and weigh 45 tons each, one-half of which is due to the ten-foot revolving magnet wheel, which runs at 146 revolutions per minute. The electromotive force is 150 volts. The mains are all underground, and the glow-lamps are all in parallel arc. Two lines of steam-pipe supply the engines, and a third dynamo is kept in reserve. The Telegraph construction and maintenance company have contracted with the railway company to work it for three years.

At the last meeting for this season, of the Society of telegraph engineers, etc., about thirty-five candidates were elected into the society. There was an interesting discussion, in which Dr. Jacques, electrician to the Bell telephone company, U.S.A., took part, on the use of the telephone as a receiving-instrument for Morse signals in warfare, and on the general military question of recording *versus* non-recording receiving-instruments.

In continuation of brief comments upon exceptional weather in Britain, which have appeared in this correspondence, it may here be mentioned that from May 11 to May 15 the mean temperature was from 6° to 8° below the average; and that torrents of rain fell over a very wide district, more than four inches in three days (11th, 12th, and 13th) being not uncommon. The valleys of the Severn and Trent suffered severely, railway traffic being suspended, and many inhabitants driven from their homes. Severe tornadoes occurred at Madrid, Krossen, Linz, and other European towns, two or three days after those in Kansas City and other parts of the states.

English pathology has suffered a severe loss by the death, at the early age of forty-five, of Surgeon-Major T. R. Lewis, the assistant professor of pathology at the Army medical school. He had made a special study of microscopic organisms and their relations to disease, and was the author of several most valuable reports to the government of India on cholera and the fungus disease of India. In the autumn of 1884 he visited Mar-

seilles, where cholera was then prevalent, for the purpose of investigating the results obtained by Dr. R. Koch and the other members of the German cholera commission in Egypt and India; and he arrived at the conclusion, which is now widely accepted, that the selection of the comma-shaped bacilli as the *materies morbi* of cholera appears to be entirely arbitrary, for he found that these comma-shaped bacilli are ordinarily present in the mouths of perfectly healthy persons.

The value of Professor Lewis's biological work was recognized by the council of the Royal society when they selected him, in April last, as one of the fifteen candidates to be recommended to the society for election in June; and his death thus leaves a vacancy in the list, which it is said the council will now fill up by the selection of Mr. A. Sedgwick, M. A., of Trinity college, Cambridge.

Mr. W. H. Caldwell of Cambridge, who has spent some time in Australia for the purpose of obtaining the material required for investigating the embryology of marsupials, monotremes, and *Ceratodus*, exhibited some of the results of his work at the recent Royal society *soirée*. It will be remembered that a telegram was sent to the Montreal meeting of the British association to announce his discovery of the fact that the eggs laid by the monotreme mammals developed in a manner closely similar to those of the Reptilia. Series of these mammalian eggs were exhibited by Mr. Caldwell, some taken a few hours after fertilization, with others at various stages up to hatching, and likewise different stages of the young after hatching, up to five inches long. He also showed a complete series of eggs of *Ceratodus*, the air-breathing fish of Queensland, from the unsegmented egg up to hatching, together with stages of the young fish after hatching. All this material is of the highest value, and Mr. Caldwell's researches are sure to throw much light upon many obscure problems of vertebrate morphology. He will also be able to supply Prof. W. K. Parker with the specimens necessary for investigating the development of the skull in *Ceratodus*, *Echidna*, and many marsupials. W.

London, May 30.

NOTES AND NEWS.

THE first circular of the local committee at Buffalo, of the American association, announces that the meetings will be held in the recently enlarged high-school building. Reduced rates have been obtained over many of the railroads, most of which will allow a return ticket at one-third of the usual fare, upon certificate from the local secretary at Buffalo. The Chicago and north-

western railway system will return members attending the Buffalo meeting, from Chicago, at one-third of the regular fare, upon presenting at the Chicago ticket-office a certificate from the local secretary at Buffalo: hence members residing in the north-west must see that they are in possession of two certificates when the meeting adjourns, — one to be used in Buffalo, and the other in Chicago. The Western union telegraph company, with its usual courtesy, will place its lines and district telegraph system at the service of members. The Botanical club of Buffalo is arranging an excursion and reception for the Botanical club of the association, as is also the Entomological club of that city for the Entomological club of the association. The address of the local secretary is Dr. Julius Pohlman, Buffalo, N. Y.

— The Appalachian mountain club propose issuing advance sheets of the forthcoming White Mountain map on a scale of 1:50000 by tracing the work now done, lettering the tracing roughly, adding the streams approximately, and copying by the 'blue print' process. Two sheets, a northern and a southern, will together cover the most important areas. It is hoped to have them ready by the first of July, and the cost is not likely to exceed seventy-five cents per sheet. Members may thus obtain maps of the accurately located points (including nearly all marked summits), on which they may fill in the lesser details, and mark corrections of the streams. Artistic appearance will not be attempted for these sheets; but their practical value will lie in the large scale, which is twice (linear) that on which the finished map is to be published. A field-meeting will be held on the summit of Mount Washington from July 1 to 8. Papers may be expected from Profs. E. C. Pickering and N. S. Shaler, Dr. W. G. Farlow, Messrs. J. Rayner Edmonds, Rosewell B. Lawrence, and others. The papers will be arranged for stormy weather and the evenings.

— Yale college, induced by the success of the Columbia college school of political science, and by the work in progress at Johns Hopkins, Cornell, and the University of Michigan, is making special arrangements for courses in political and social science, to begin in the autumn. Professor Sumner is announced to lecture on finance and the science and art of politics in the history of the United States; Professor Farnam, on the principles of public finance; Professor Hadley, on railroad administration; Mr. Wheeler, on Roman law; Mr. Terry, on the doctrine of rights; Mr. Raynolds, on comparative constitutional law; Mr. H. C. White, on local government in the United States; and Mr.