formerly have extended that the lakes lie. The great depth of Lake Maggiore beneath the sea-level—2,300 ft.—is no argument against the theory, for a large mass of ice would block out the sea-waters. In Wales the lakes are never of large size, Lake Bala, the largest, being about 4½ miles long; Lake Windermere lies in a true rock basin, as do many others in that district; in Scotland, where the climate was more severe, the lakes are larger and more numerous; in Sweden and Norway, in Finland and N. Russia the lakes are almost innumerable, while in N. America they are scattered almost broadcast over the country N. of lat. 43°. Where the glacial action was most intense, there the lakes become more and more numerous, and he believed they were due not to special glaciers, like those on the south side of the Alps, but to that great ice sheet which, according to Agassiz, covered the whole country. In South America and New Zealand, too, are signs of a similar action, and there too, lakes of this class occur. The present glaciers of New Zealand are very small compared with what they evidently were at a previous period, and in the course of every one of them are lakes, which, according to reports he had received, also lie in true rock basins.

II. Salt Water Lakes, their Origin and Geographical Distribution

The lecturer said that he could not account for the origin of all salt-water lakes, but for some of them the evidence is clear, and it is plain to see why they are salt. The principal minerals forming the rocks of the earth's crust are silica, alumina, lime, potash, soda, magnesia, peroxide of iron, &c. Rain-water takes up from the atmosphere and the earth's surface a small proportion of carbonic acid, and thus acquires the power of dissolving certain of these minerals as it percolates through the rocks, notably lime, which it carries away in the form of a bi-carbonate. And thus the water of all springs is charged more or less with mineral ingredients, though these may be recognisable only by the skill of the chemist. Thus the water of the fountains in Trafalgar Square contain 69·75 grains of salts per gallon, including chloride of sodium 25·7; bi-carbonate of soda 14·5; sulphate of soda 18·4. The Thames water at Teddington contains 22·5 grains per gallon, and thus carries to the sea in the course of a year 377,000 tons of salts; the old well at Bath holds 144 grains of salts per gallon, thus bringing to the surface 608 tons of salts per year. The apparently small quantity of bi-carbonate of lime in a per-centage of the salts of sea-water, is still sufficient to furnish to marine creatures materials for their shells and skeletons, and thus indirectly to build up the great beds of limestone which are now in course of formation, or belong to former geological periods. The analyses of salts in sea-water and in the water of various lakes is given in the following table:

Per centage of	Mediterranean Sea.	Black Sea.	Sea of Azof.	Caspian Sea.	Dead Sea.
Chloride of Sodium.....	2·9460	1·4020	0·9658	0·3673	12·110
,, Magnesium	0·3223	0·1304	0·0887	0·0632	7·822
,, Calcium.....	—	—	—	—	2·455
,, Potash.....	0·0505	0·0189	0·0128	0·0076	1·217
Bromide of Magnesium	—	0·0005	0·0004	trace	
Sulphate of Lime	0·1357	0·0105	0·0288	0·0490	
,, Magnesium	0·2480	0·1470	0·0764	0·1239	
Bromide of Sodium	0·0558	—	—	—	0·452
Carbonate of Lime.....	0·0113	0·0359	0·0022	0·0171	
,, Magnesia	—	0·0203	0·0129	0·0013	
Peroxide of Iron.....	0·0004	—	—	—	
	3·7700	1·7661	1·1880	0·6294	24·056

Salt lakes though not so numerous as fresh-water lakes, occur in large numbers in certain regions. The Caspian Sea with an area as large as Spain, the Sea of Aral, and a vast number among the mountains and table-lands north of the Himalaya; the Dead Sea in Syria; L. Utah, and neighbouring lakes among the mountains on the western side of North America; and among the mountains of South America and in the interior of Australia are examples of large salt water lakes. It will be noticed that all these lakes lie in an area of inland drainage, that they have rivers running into them, but that they have no outlet. On inspecting the above table it will be seen that the Black Sea is fresher than the Mediterranean, by reason of the greater supply of fresh water furnished by the rivers, and Edward Forbes showed that this freshening has caused certain of the shells of Mediterranean species to assume "monstrous" shapes. The Caspian is still fresher, and its fauna and fossils in recent deposits in the neighbourhood prove it to have once had connection with the Black Sea, from which it has been separated by changes in physical geography; it was then salter than at present, but is now growing salter again every year, and the fauna now inhabiting its waters have likewise considerable affinities with North Sea types. Its surface level is 83·5 ft. below that of the Black Sea, while the surface of the Dead Sea is 1300 ft. below that of the Mediterranean. In all cases where rivers flow into depressions in the land, however these might have been formed (oscillating movements of the earth's crust might perhaps form such large ones as the Caspian basin), carrying with them certain salts in solution, if the lake have no outflowing river, the water must be carried away by evaporation, in which case the salts will be left behind, and the remaining waters become more and more saturated. It is stated that crystals of salt have been brought up from the Dead Sea, and on the shallow waters on its coasts evaporating in summer saline incrustations are left. The same water which flows *through* the Sea of Galilee, a fresh-water lake, renders the Dead Sea one of the most remarkable salt lakes in the world. And in this and all similar cases accumulation of salts will go on till the saturation point is reached, and then precipitation will commence. The region to the north of the Himalayas is comparatively rainless, owing to the mountains condensing the moisture carried by the south winds, and the rivers consequently do not carry into the lakes sufficient water to make them overflow their boundaries, hence they are salt. Lake Baikal, with an outlet to the sea, is quite fresh. For a similar reason the moisture from the south-west winds being condensed in great part by the Sierra Nevada, the lakes which lie in the great plains and table-lands to the east of that range have not a sufficient supply of water to cause them to overflow, and consequently they are salt, and are continually becoming salter. In 100 parts by weight of the water of the Great Salt Lake in that region, there are of chloride of sodium (common salt) 20·196; sulphate of soda 1·834; chloride of magnesia 0·252; chloride of calcium a trace, making a total of 22·282. And by means of the old water levels in the form of terraces round its margin, it can be proved that it has shrunk very considerably, and therefore its salts must be becoming very much concentrated. On the surrounding plains a saline efflorescence is found, which the lecturer believed might be explained by the rain which saturated the rocks during the rainy season rising again to the surface charged with salts dissolved from the rocks, during the intense heats of summer.

(*To be continued*).

SCIENTIFIC SERIALS

THE *Zoologist* for January and February contains reviews of the works of Capt. Shelley and the late C. J. Andersson. Dr. Gray contributes a paper on the Cetacea of the British Seas, and Mr. Harting has a supplement to his paper on the British Heronries, a subject on which there are several letters also published. Messrs. Stevenson and J. H. Gurney, jun., send Ornithological notes from Norfolk, and Messrs. Gatcombe and Cordeux from Devon and Lincolnshire respectively.

THE *Entomologist* for January and February, among other articles of interest, contains one by Mr. H. C. Lord, on "The Lepidoptera of Switzerland," as far as could be obtained in a twelve days stay. Out of the sixty-three species of butterflies met with, twenty-four are not British. Many of the English commonest forms are among the most frequently found there. *Colias Hyale* is commoner in some parts than *C. Edusa*, and *C. Helice* is not unfrequently found. Mr. F. Walker continues his papers on "Economy of Chalcidiæ."

SOCIETIES AND ACADEMIES

London

Royal Society, Jan. 9.—"On a new Method of viewing the Chromosphere," by J. N. Lockyer, F.R.S., and G. M. Seabroke.

The observations made by slitless spectroscopes during the eclipse of December 11, 1871, led one of us early this year to the conclusion that the most convenient and labour-saving contrivance for the daily observation of the chromosphere would be to photograph daily the image of a ring-slit, which should be coincident with an image of the chromosphere itself.

The same idea has since occurred to the other.

We therefore beg leave to send in a joint communication to the Royal Society on the subject, showing the manner in which this kind of observation can be carried out, remarking that, although the method still requires some instrumental details, which