

to Lake Howe has been carefully measured, and, with the exception of the north-west portion of the colony, nearly every district has been emmeshed by the geodetic surveyors. The most important operation of late has been the determination of the termini of the boundary between New South Wales and Victoria." It is much to be regretted that the late retranchments in the public expenditure have materially interfered with the progress of the survey.

After a few remarks on the commercial importance of local industries, especially the preservation of meat, the president referred to our vastly increased knowledge of the sun since the date of the eclipse of May 1869, to the nature of the sun's spots, and to the connection of the latter with the occurrence of magnificent auroras and magnetic storms, and to the spectrum of auroral light. "During the most brilliant display in April last, I was able," he observes, "to obtain a very bright spectrum of the light with a micro-spectroscope. Unfortunately the dispersion was small, but the light was so intense as to admit of a very narrow slit. The spectrum obtained from the red streamers consisted of a strong red band or line (which I estimated was rather more refrangible than C line), and bands in the green, which I believe to be the same as described by Angström. The spectrum of the green light which formed the lower arch of the aurora, however, contained no red band, and the appearance of it, as the spectroscope was passed up and down, so as to receive the light from the streamers or green arch, was very marked indeed. I am not aware of this red band or line having been noticed by any previous observers; and had it not been so clear and prominent, far brighter than the green ones—and had I not proved that it belonged to the red streamers, and not to any other, of the auroral light, by the method referred to—I might have been doubtful as to the real existence of a line not hitherto noted in the spectra of aurora." The address concludes with a few observations regarding the possibility of our ever being able to ascertain the laws which govern the weather so as to predict with certainty the atmospheric condition of to-morrow. On this point Mr. Ellery does not express himself very hopefully, but he thinks that the greater climatal events, such as dry or wet, hot or cold, seasons may be traced to varying conditions in the sun itself, and will be found to be extraneous to our globe.

G. E. D.

SCIENTIFIC SERIALS

THE *Journal of the Royal Geological Society of Ireland*, vol. xii. Part 3 (vol. ii. Part 3, new series), containing the Proceedings of the Society for the session 1869-70, has just been published. It contains among other memoirs, Prof. Traquair on *Griffithides mucronatus* (McCoy) Plate xvi., and on *Calamoichthys calabricus*. Rev. J. D. La Touche on Spheroidal Structure in Silurian Rocks, Plates xvii.-xx. Rev. M. Close on some Corries and their Rock Basins in Kerry, Plate xxi. Edward Hull on the Geological Age of the Ballycastle Coal-field, and its Relations to the Carboniferous Rocks of the West of Scotland, Plate xxiii. W. H. Bailly on the Fossils of the Ballycastle Coal-field, Co. Antrim.

Zeitschrift für Ethnologie, 1870, Hefts 3, 4.—A paper by Bastian on the legend of the Amazons, is full of valuable information, but is written with less skill than learning. The footnotes make more than three-fourths of the whole, and the parentheses nearly half of the rest.—Hensel contributes a description of two skulls of Coroado Indians (Brazil) with figures. He agrees with many of our best ethnologists that the dimensions of the cranium afford us no safe ground for making racial or specific distinctions. On the other hand, he regards the structure of the facial bones as of great importance from this point of view.—R. Hartmann continues his studies on domestic animals by an account of the reindeer in its present condition, followed by an interesting discussion on the evidence of its domestication in prehistoric times. This number also contains a short archaeological account of the Uglei See (one of the numerous lakes in the east of Holstein, situated in an enclave belonging to Oldenburg), by E. Friedel.—The last number of the same journal (1870, 4) is almost entirely devoted to American Ethnology. Prof. Strobel concludes his contributions to comparative ethnology by an account of the weapons and food of the South American Indians; Dr. Fonck has a paper on the Indians of Southern Chili; Ernst of Carácas one on the Natives of the Peninsula of Goajiro, which forms the western boundary

of the entrance to the gulf and bay of Maracaybo, in Columbia; and Erman contributes an account (with a map) of the various races inhabiting what was until lately Russian America, the Aleutian Isles, and the opposite coast of N.E. Asia; he divides them into two great groups according to their system of numeration.

In the *Journal of the Ethnological Society of London* (October 1870) is an interesting paper by Mr. David Forbes "On the Aymara Indians of the Peruvian highlands." Very full information as to their physical structure is given, together with *exact measurements*. Beside their short stature and capacious thorax (which seems to be constantly fixed in the condition of inspiration) Mr. Forbes's statistics show that the thigh is shorter than the leg, and that the heel is as much shorter than a European's as a Negro's is longer. The half-castes between these Indians and the white population are not believed by the author to be prolific, so that, as in the case of mulattos, the intermediate race would soon die out if not continually recruited by new accessions. Among many interesting details on the food of the Aymaras—especially their method of preparing potato so as to keep it from rotting—on their disposition and habits, their implements, and their language, perhaps the most remarkable is an account of a silver statuette (figured in pl. xx.) of a man in a strange headdress, who holds in one hand a mask, which he has apparently taken off in order to look through an instrument like a telescope. This tube he holds to his left eye (without shutting the other) and directs it upwards. Mr. Forbes believes this to be a unique specimen.

The last part (Band vii. Heft 1) of the *Zeitschrift für Biologie* contains: 1. The results of an elaborate series of experiments by Gustave Meyer of Oldenburg on the effects of feeding dogs and man on bread alone, and bread mingled with meat and other articles of diet. He shows what indeed has long been known, that to feed either animals or man on bread alone is a great waste of material, and that immense quantities must be given in order that the body should lose no flesh, whilst on the other hand the addition of some, even though a small quantity, of meat is economical. He demonstrates that the tissues of the body become more watery with insufficient food, which renders the whole organism less capable of resisting injurious influences. In his experiments on man he endeavoured to ascertain which of the several kinds of bread in ordinary use (white bread, rye bread, black bread) was absorbed in greatest amount during its passage through the alimentary canal, and found that white wheaten bread occupies the first place, then leavened rye bread, then the bread (rye) prepared by the Horsford-Liebig process, and lastly the Pumpernickel (North German black bread). Nevertheless, the first is not so satisfying to the feeling of hunger as the three latter, and is more expensive in every point of view. He denies the great nutritious value often attributed to bran, since the nitrogenous compounds it contains are mingled with much non-assimilable matter, but admits that if these could be extracted and were then returned to the flour, the best results would be obtained, as the meal already contains abundance of salts. 2. A paper by MM. Ernst Schulze and Max Märcker on the determination of Nitrogen in the Urine of the Ruminants. 3. A paper by Dr. J. Bauer on the Metamorphosis of tissue in poisoning with Phosphorus; and lastly a short paper by Max von Pettenkofer on Typhus and Cholera as connected with the basal water line in Zurich.

SOCIETIES AND ACADEMIES

LONDON

Chemical Society, April 6.—Prof. Frankland, F.R.S., president, in the chair. The president, occupying the chair the first time since his election, returned his thanks to the Society for the honour conferred upon him, and expressed his readiness to discharge the duties of his office to the best of his abilities. The following gentlemen were elected fellows:—F. Coles, C. E. Groves, E. W. T. Jones, L. T. MacEwan, and J. L. Shuter. The following papers were read: "On Burnt Iron and Burnt Steel," by W. Mattieu Williams. Iron, which has been damaged by reheating, or excessively heated and exposed after balling in the puddling furnace, is designated "burnt iron" by the workmen. It is remarkable that no amount of heat applied to the iron in the blast furnace or in the early stages of the puddling process produces burnt iron. Burnt iron is brittle, its fracture is