these cases, the resistance of the voltameter itself appears to have been the same, the different measures varying from 38 to 35.

'On the Difference in the Physiological Actions of the Yellow and Red Prussiates as an evidence of their containing dissimilar radicals,' by Dr. LETHEBY.—In the course of my inquiries into the actions of the various compounds containing cyanogen on the animal economy, I was particularly struck with the great dissimilarity in the effects produced by the yellow and red prussiates of potash. This led me to think it might furnish some evidence upon the side of Liebig's doctrine, that the two salts contain radicals which are dissimilar. To prepare myself for this inquiry, however, I thought it necessary to ascertain what would be the effects of the simple and the double cyanides, and then to experiment with the yellow and red prussiates of similar bases. Of the simple cyanides, I chose those of potassium, sodium, ammonium, mercury, lead, iron, zinc, and silver; and to provide against any fallacy which might arise from the action of the gastric juice, I injected them into the veins or peritoneal cavity. Contrary rather to my expectations, it was found that they were all poisonous; the soluble ones generally acting as quickly as prussic acid—while the others required a little longer time for the developement of the symptoms; but, in all cases, death followed their administration—from two to five grains being sufficient to produce such a result. Of the double cyanides, I chose those of potassium and zinc, potassium and silver, potassium and nickel, and a mixture of cyanide of potassium with cyanide of iron. These also were found to be most poisonous;—proving fatal in doses almost as small as the preceding. Now, these inquiries clearly established two facts:—that neither the simple nor double cyanides could be given even in five-grain doses with impunity. How great, therefore, was my astonishment to find that a class of salts regarded by some chemists as double cyanides should have little or no action upon the animal economy, and that they might be administered in doses of half an ounce without their exhibiting any unpleasant symptoms whatever! I am alluding now to the ferrocyanides; and I experimented with those of potassium, sodium, ammonium, barium, lead, iron, and silver. Moreover, I am disposed to think that the acid, called by Liebig ferrocyanic, which I liberated both by the action of muriatic acid and ether on the potassium salt, and by that of sulphuretted hydrogen on the ferrocyanide of lead, was equally inert. It was true that when the acid was injected into the peritoneum, it produced a slow poisoning; but the effect was evidently due to its decomposition, and to the liberation of hydrocyanic acid—for this compound was easily detected in the abdominal cavity directly after death. I next examined the effects of the red prussiates; and here again, contrary to what would have been surmised from the want of action in the preceding compounds, it was found that they constituted a class almost as poisonous as the simple cyanides. My experiments were made with the red prussiates of potash, and lead, and with a crystalline acid which I obtained by the action of muriatic acid and ether upon the former of these compounds;—each of these was quickly fatal in doses of from ten to forty grains.

'Notice of a Gas Furnace for Organic Analysis,' by Dr. PERCY.—This was an ingenious arrangement, by which gas, burnt, mixed with air, through wire gauze, was substituted for charcoal. Its advantages are its extreme cleanliness, and the power which the operator possesses of regulating, at will, the heat,—which is not practicable in the ordinary furnace for organic analysis with charcoal.

SECTION C.—GEOLOGY.

'On the Fishes of the London Clay,' by M. AGASSIZ.—The Professor stated that since his last report the number of species known from the Paris basin increased; whilst few new forms had been obtained in the London clay. He had, however, been interested in the examination of specimens of the teeth of the saw-fish (*Pristis*); and had noticed some curious changes which they underwent during the growth of the animal. The young teeth were covered with enamel, and had a notch in their posterior margin; whilst in old tusks the bony material alone existed and the margin was entire. On these grounds he considered the three species of Pristis described by Shaw (*P. semi-sagittatus*, *microdon*, and *cuspidatus*) as constituting in reality only one. Widely as these teeth differed in appearance from the flat, pavement-like teeth of the sting-rays (*Myliobatis*), their microscopic structure was identical; and Prof. Müller, of Berlin, had lately shown that the Pristis was not a shark, but belonged to the family of Rays. The Professor then pointed out a peculiarity in the construction of the ventral fins of the Mediterranean Goby, a fish which fixes itself to the bottom by its fins; that act also like springs in enabling the fish to rise from the bottom. He expected soon to be able not only to discriminate every individual bone of any importance in the skeleton of a fish, but also to distinguish the separate fin rays.—M. Agassiz then made some general remarks on the geographical distribution of recent fishes. There were many families—of which the flying-fish (*Exocœtus*) was an example—which were found equally in the Indian, Pacific, and Atlantic Oceans. Others, like the sharks and rays, were found in every sea from the Arctic circle to the Tropics, but the species differed on each coast; whilst some families were confined to the Indian seas, and co-extensive only with the great land animals of that region. The Goniodontes were peculiar to the freshwaters of South America; but these were connected with Ganoides of North America; and these again closely allied to the sturgeon, whose affinities have hitherto been little understood. We have here confined to the New World all the representatives of an order widely dispersed over the ancient strata. Looking at the distribution of particular species, like the Silurus, confined to the Danube, Rhine, and a few other freshwaters of Europe, it might be asked by what means it had wandered from one locality to another; to which he would reply that these freshwater fish must have been created in the very streams in which they now live and in the same proportion as now. They leave the egg in so short a time, it was quite impossible they should be transported by birds or otherwise. The fishes in the Paris basin appeared to have lived on a coral reef or rocky bottom, whilst those of the London clay were such as in existing seas are found in shallow seas and muddy waters.

Dr. BUCKLAND supported the view of Prof. Agassiz respecting the origin of the distribution of freshwater fishes; and remarked the improbability that any herbivorous animals were created in pairs only, as they would soon have been exterminated by the carnivorous species. He believed that not only were groups of species created where they are now found, but multitudes of individuals of each species.

'Notice of the Coal of India, being an Analysis of a Report communicated to the Indian Government on this subject,' by Prof. ANSTED.—The coal districts of India described in this report are five in number, three in Northern India and one in Cutch, whilst the fifth includes the province of Arracan and the coast of the Birman Empire near Tenasserim. The *coal of Cutch* is not of the carboniferous epoch, is of little importance, and unpromising. The great series of coal-fields of Northern India extends from Hoosungabad, and the Nerbudda river (lat. 23° N. long. 78° E.) in a N.E. direction for 400 miles, to Palamow; thence eastward, for 250 miles, to Burdwan, near Calcutta, and again northwards, 150 miles, to Rajmehal, exhibiting a frequent out-crop of sandstone shales and limestone, with occasional beds of coal of variable thickness and value. Commencing again on the flanks of the Garrow Mountains, near the Bramahpooter, and on the banks of that vast river, similar beds, also containing coal, extend in a north-easterly direction nearly 400 miles. It is thus possible that there exists a range of carboniferous strata for 1,000 miles along the base of the Himalaya Mountains, gradually becoming more distant towards the west.—1. The workable beds of the *Burdwan coal district* are 9 and 7 feet thick respectively. There are thirteen spots at which they are worked, which is usually at the surface, the deepest sinking is 190 feet. The distance from Calcutta is about 90 miles. The quality of the coal is very inferior to that of England. 2. *Central district.* The coal has been worked near Palamow at four places: there are several beds of workable size, but the coal is associated with a good deal of iron, is heavy, and of inferior quality. The coal of the Nerbudda district (Benar coal-field) is about 350 miles from Bombay, and the Nerbudda river is not navigable. At Gurrawarra the coal is said to exist in beds respectively 20, 40, and 25½ feet thick. 3. *Beds east of Calcutta.*—In the district of Silhet, on the south flanks of the Garrow, eleven beds of coal, having a total thickness of 85 feet, have been discovered. This coal is of excellent quality, and belongs to the true carboniferous period. The Assam districts extend about 350 miles, chiefly along the south side of the Burhampooter: in the upper district six coal fields are enumerated, and three in the lower; the coal of the upper district is associated with abundance of clay ironstone. About 80 miles above Biskenath other beds, 6 feet thick, have been worked; the commander of one of the Assam Company's steamers describes it as the best he ever used, and far superior to any in Calcutta. The *Tenasserim and Arracan coal districts* are important from their near vicinity to India. In the former, coal has been worked at four spots,—one of which promises to become valuable; another has been the subject of a report by Mr. Prinsep, who states it to be an admirable coal for gas. The whole is probably of the tertiary period.

Col. SYKES observed that it was of importance to obtain coal for the proposed railways in India, especially as wood was beginning to be scarce in many parts. The report mentioned the occurrence of coal at 90 localities,—most of them in a bed between the Nerbudda and Calcutta. With a trifling exception the whole of India south of this line was destitute of coal.—Mr. LYELL stated that he had lately examined the coal-field of Richmond, in Virginia,—one of the most valuable in the United States. He had obtained fishes from that coal-field, which M. Agassiz referred to the *Oolitic period;* and the plants, which had been examined by Mr. Bunbury, presented an assemblage agreeing with those found at Whitby, in Yorkshire. The coal-field was known to be newer than the carboniferous period; and it contained one bed of coal, 30 feet thick, from which gas had been made,—and it was now becoming of great value. No estimate of the probable value of Indian coal could be formed by comparing it with coal of the same age in Europe.—Sir H. DE LA BECHE observed that it was incorrect to suppose that, in other countries, the most valuable coal would be found in rocks agreeing in age with our own coal-measures. The *Burdwan* coal appeared to be of the same age with the Australian coal, as there were plants common to both.—Mr. JUKES pointed out the identity in direction of the granitic hills of North-Eastern Australia with those of the Malay Peninsula; and the occurrence of coal, at an intermediate point, in Borneo.—Dr. FALCONER considered the Burdwan coal-field peculiar:—its plants were all unlike those of Europe; and it contained neither dicotyledonous nor coniferous wood. He thought it might be older than any of our coal-fields.

Mr. W. SANDERS exhibited Sections made on the line of the Great Western Railway, between Bristol and Taunton.—The general section represented a distance of 45 miles, on a scale of 33 inches to the mile. It passed first through the junction beds of red marl and lias; then for 6 or 7 miles through new red sandstone, touching once upon the upper beds of the carboniferous limestone. For the next 12 miles there are alluvial tracts, separated by cuttings of new red sandstone. At 21 miles, the Uphill cutting passes through the new red sandstone and lias and then the carboniferous limestone, at the base of which are some masses of trappean rock. The railway then proceeds for 17 miles over an alluvial plain, interrupted only by a cutting through the new red marl and lias at Puriton. From this point to Taunton the course is over a moderately level country of new red sandstone. Four enlarged drawings represented the details of the Ashton, Uphill, and other cuttings. In the section at Pylle, Mr. Sanders discovered remains of Cypris, and a plant (*Naiadites lanceolata*), in the lower lias marls; and in the Uphill and Puriton sections the representatives of the bone bed occurs. Since there are usually several calcareous beds in the lower marls, containing the same fish-scales, shells, &c., Mr. Sanders prefers the classification of Mr. Conybeare, who considered these beds the lowest member of the lias to the separation of the bone bed,—which is only a part of this series, into