

much in the dark, about the affair as at first." Now it was possibly an extract from this very letter, accompanied by this very phial of insects, which was lately submitted to the Academy of Sciences at Paris; and it would therefore have been more ingenious, had the public been also informed that the savans thought the subject wholly unworthy even of consideration:—here is their decision: "L'Académie ne juge pas que cette communication doive être l'objet d'un rapport." One of the members, however, M. Turpin, made some observations on the insects themselves, which he had examined out of curiosity, although he entirely concurred in the opinion, that the subject of the communication was wholly beneath the serious consideration of the Academy. He had, he said, examined the insects with a microscope multiplying 280 times the diameter, and they appeared to constitute a new species of the genus *acarus*; those described and figured, to which this animal belongs, are found in cheese and flour. If, said M. Turpin, Mr. Crosse believes that he has entirely formed, by the means described, an animal of so elevated an organization as that of his *acarus*, he cannot have sufficiently studied the organization and comparative physiology of living beings: the means he has employed have been merely stimulants, such as excite and favour germination in grain, and will hasten the hatching of eggs.

#### SCIENTIFIC AND LITERARY

##### ROYAL SOCIETY.

Nov. 23.—Francis Baily, Esq., V.P., in the chair. The following papers were read:—

1. Magnetical Observations made in the West Indies, on the Coast of Brazil, and North America, in the years 1834, 1835, 1836, and 1837. By Sir James Esmond Home, Bart. C.R.N. The Observations reduced by the Rev. George Fisher, M.A.

2. On Low Fogs and Stationary Clouds. By William Kelly, M.D., communicated by Captain Beaufort, R.N.

##### GEOLOGICAL SOCIETY.

Nov. 1.—W. H. Fitton, M.D., V.P., in the chair. The first paper read at this meeting was, by Mr. Williamson, 'On the Remains of Fishes in the Coal-field of Lancashire.' The author having in a previous account of the Ardwick limestone described the Ichthyolites found there, consisting of scales of Megalichthys and Palæoniscus, with teeth of the latter, has now come to the conclusion, in conjunction with Professor Johnstone, that the bed in which these occur is entirely a coprolitic mass. With the above was also described a tooth of *Diplopus gibbosus*. In this, as well as in another pit near Ringley, where the same roofstone occurs, one or two species of *Unco* were found, as well as remains of *Stigmaria ficoides* and *Calamites nodosus*, with other plants.

The next paper read was, 'On the Geology of the Island of Zante,' by H. C. Strickland, Esq. F.G.S., which the author commenced by stating, that the structure of this island is simpler than that of the other Ionian Islands, and that it presents an epitome of their component rocks in an almost unbroken series. The geological phenomena of Zante may be arranged under the three heads of:—1. The Apennine limestone; 2. Tertiary deposits; 3. Mineral springs.

1. The name of Apennine limestone is preferred for the vast deposit of the south of Europe, especially on the shores of the Adriatic, which is uniform in character for many thousand feet of vertical thickness, and many hundred miles of horizontal extent. Its fossils, though rare, show it to be the equivalent of the cretaceous, and perhaps also of the oolitic series of northern Europe.

This light-coloured limestone which extends in a ridge along the west coast of the island, often assumes the characters of the hard chalk of the north of England; no flints were found, but fossil remains, such as nummulites and fragments of hippurites, occasionally occur. It abounds in numerous faults and fractures, as well as caverns, and has been mistaken for the carboniferous limestone of northern Europe.

2. The tertiary beds repose on the eastern flank of the limestone range, extending thence to the eastern coast. They form several detached hills rising through the alluvial matter, which forms the central

plain of the island. The uppermost strata consist of an aggregate of calcareous and arenaceous particles, forming a pale yellow, porous stone, which is easily worked, containing a few fossils; and it is succeeded by a deposit of blue clay and marl, in which occur a few shells of *Pectunculus auritus*, *Natica glauca*, &c.

Gypseous beds are found on the south coast of Zante, and the strata above them clearly belong to the Pliocene epoch, as many of their fossils are identical with those of the Sub-Apennine hills. The beds below the gypsum contain but few fossils, as crushed echini and obscure bivalves. In one situation a bed of indurated bluish marl, contains shells of a *Hyalea* and *Cretsea*, larger than the species *H. cornea* and *C. spinifera*, now living in the Mediterranean.

On the west side of Port Cheri, a low argillaceous cliff, containing a few scales and vertebrae of fish, and a species of *Vermiculum*, has probably been brought down from some higher part of the tertiary series, by the subsidence which seems to have formed the valley and bay of Port Cheri, and of which striking proofs may be seen in the parallel striae and hardened exterior smooth surface, on the small surface of a fault in the Apennine limestone which descends to the sea.

3. The mineral springs.—The sources of bitumen, for which Zante has been celebrated since the time of Herodotus, rise in the midst of the marshy plain at Port Cheri. The wells yielded about forty barrels annually. The bitumen oozes up from the bottom, and above it the well is filled by a spring of clear, cool, and tasteless water.

These and other bitumen springs occurring in the neighbourhood of faults, and there being nothing in the composition of either the tertiary or secondary rocks to account for its production, the author infers that it is derived from the region of volcanic action, which may almost be demonstrated to underlie the Ionian Islands.

The last paper read was, by C. Darwin, Esq. F.G.S. 'On the Formation of Mould.' The author commenced by remarking on the two most striking characters, by which the superficial layer of vegetable mould is distinguished. These are, its nearly homogeneous nature, although overlying different kinds of subsoil, and the uniform fineness of its particles. This may be well observed in any gravelly country, where, although in a ploughed field, a large proportion of the soil consists of small stones, yet in old pasture land not a single pebble will be found within some inches of the surface. The author's attention was called to this subject, by Mr. Wedgwood of Maer Hall, in Staffordshire, who showed him several fields, some of which a few years before had been covered with lime, and others with burnt marl and cinders. These substances in every case were now buried to the depth of some inches beneath the turf, as was ascertained by a careful examination of the several fields; and Mr. Darwin stated, that the appearance in all cases was as if the fragments had, as the farmers believe, worked themselves down. But it did not appear to him at all possible, that either the powdered lime or the fragments of burnt marl and the pebbles, could sink through compact earth to some inches beneath the surface. Nor is it probable that the decay of the grass, although adding to the surface of some of the constituent parts of the mould, should separate in so short a time the fine, from the coarse earth, and accumulate the former on those objects, which had so lately been strewed on the surface. Mr. Darwin had also observed near towns, in apparently unploughed fields, pieces of pottery and bones some inches below the surface. So on the mountains of Chili, he had been perplexed by marine elevated shells, covered by earth, in situations where rain could not have washed it on them.

The explanation which occurred to Mr. Wedgwood of these phenomena, Mr. Darwin does not doubt to be the correct one: namely, that the whole is due to the digestive process, by which the common earth-worm is supported. On carefully examining between the blades of grass in the fields where the observations had been made, the author found that there was scarcely a space of two inches square, without a little heap of the cylindrical castings of worms. It is well known, that worms in their excavations swallow earthy matter, and having separated the serviceable portion eject, at the mouth of their bur-

rows, the remainder in little intestine shaped heaps; hence the fine particles are brought to the surface, and the cinders, burnt marl, or powdered lime, would by degrees be undermined, and eventually become covered by what was previously the underlying earth. In a field on which cinders had been spread only half a year before, Mr. Darwin actually saw the castings of the worms heaped on the smaller fragments.

On the above hypothesis, the great advantage of old pasture land, which farmers are always averse to break up, is explained; for the worms must require a considerable length of time to prepare a thick stratum of mould, by thoroughly mingling the original constituent parts of the soil, as well as the manures added by man. The author observes, that the digestive process of animals is a geological power of greater extent than might at first be imagined. In recent coral formations, the quantity of stone converted into the most impalpable mud, by the excavations of boring shells, and of nereidous animals, must be very great. Numerous large fish (of the genus *Sparus*) likewise subsist by browsing on the living branches of coral. Mr. Darwin believes, that large portions of the chalk of Europe has been produced from coral, by the digestive action of marine animals, in the same manner as mould has been prepared by the same process on disintegrated rock.

##### STATISTICAL SOCIETY.

Nov. 20.—G. R. Porter, Esq., V.P., in the chair. —At this, the first meeting of the present session, the attendance was remarkably numerous. Above fifty members were present, besides occasional visitors. Two members were elected, and six gentlemen were proposed. An extensive list of contributions to the library was reported; after which the following papers were read:—

An account of the proceedings of the Statistical Section of the British Association at the meeting at Liverpool, by R. W. Rawson, Esq.

After the ample reports of these proceedings which have appeared in this Journal, we need not offer to our readers an abstract of this paper.

The next paper read was 'A Statistical account of the Turn-out of the Silk-weavers and other Operatives at Derby, in 1833-4,' by William Felkin, Esq., of Nottingham.

It was stated that, in the course of the year 1833, many Trades Unions had been formed, in which nearly the whole working population of some manufacturing districts was enrolled. The arrangements attained considerable consistency, and the executive bodies exercised for a time great influence. It was laid down as a principle, that the times and modes of labour, amount of wages, and regulation of factories, should be put under general laws, binding the employers and owners of machinery, as well as their workpeople. Some professed friends of the labouring classes went further than this; accordingly, in their organ, the *Pioneer*, of 13th November, 1833, it was stated by O. P. Q., the correspondent of the *Morning Chronicle*, that "to attack private property on a large scale, is the real object and eventual tendency of Trades Unions,—that this would be a social revolution, which is indispensable, practicable, and speedily to be accomplished: and that, this change of property, or attack on it, can hardly be hoped to be effected without disorders or troubles,—but that the present state of society is untenable."

From peculiar local circumstances, of no importance in the inquiry, the town of Derby became the field of one of the most protracted and severe contests between the masters and the men that has ever been witnessed in a manufacturing community. The majority of the workpeople formed a union, which nearly all the masters were determined to resist. Trade was good, the hands were generally employed, and no question of wages had been recently, or was now attempted to be, raised on either side. The difference therefore was one involving not only a simple principle, but one of vital importance, and which excited commensurate interest. The employers and employed in the surrounding districts, and at length throughout the county at large, watched the progress of events at Derby as indicative of their own future circumstances, and spoke and acted accordingly. The declaration of the Derby masters was published on the 25th of November, wherein