areas of extinction have been areas where the old river-courses have changed or dried up; and these, according to Powell and Dutton, are comparatively few. An interesting line of research suggests itself here, which lack of material may prevent at present, upon the divergence of structural characters after the separation of the eastern and western fauna by the Rocky-Mountain system.

Professor Marsh's paper upon birds with teeth contains little that did not appear in his monograph, 'Odontornithes:' it is, in fact, an abstract of that volume, with the omission of many details of structure. There have been added, however, several characters to Archaeopteryx, which the author himself discovered upon the European specimens. It is an astonishing fact, worth mentioning here, that in many foreign museums it is still considered more important to preserve these specimens intact than to publish the rich truths they might reveal under a careful use of the hammer and chisel.

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

U. S. geological survey.

Rocks from Oregon. — During the field-season of 1883, Mr. Frank Wood, a stone-cutter in Albany, Or., contributed to the Cascade-Range collection of rocks several specimens of stone used extensively in that part of the country for building and ornamental purposes. They were examined by Mr. J. S. Diller, and proved to be of unusual interest, not only on account of their economic value, but also for their bearing upon the geological history of the Cascade Range.

Among them was an eruptive rock, which is quarried twenty miles east of Albany, on the western slope of the Cascade Range, and which presents an ancient aspect. The composition of this rock is that of a diabase with an admixture of rhombic pyroxene; but in its general facies and structure, as well as in the character of its alteration products, it is closely related to the gabbros. Rocks of the same character, high up in the mountains, are abundant a short distance south-west of Mount Hood. While it has long been known that the Cascade Range is built up chiefly of recent lavas, it is becoming more and more evident that eruptions of gabbroic and granitic rocks must be admitted as important elements in its construction.

On the Willamette River, eight miles from Albany, a sandstone is quarried which belongs to the tertiaries of the Willamette valley, and, with the exception of the cementing-material, is composed wholly of volcanic matter. When first taken from the quarry, it is said to be soft, and easily carved into any desired shape. Upon exposure, it becomes hard and more durable. This change in its physical character, so far as can be judged from the hand specimen in the collection, appears to be connected with a peculiar alteration in its cement. The unaltered sandstone, when held in such a position as to reflect the light from its surface, is seen to have a peculiar shimmer, which, upon closer examination, is found to come from the brilliant cleavage-surfaces of the well-crystallized calcite which forms the cement. The rock splits quite readily in three directions. Following these lines of easiest cleavage, a small rhombohedron was split out of the sandstone, which showed the peculiar shimmer on all sides. With an improvised goniometer, the angles between the reflecting surfaces were measured, and found to be the regular cleavage-angles of calcite. In the thin section it could readily be seen that the calcite cement had the same optical orientation throughout. There can be no doubt that all the calcitic cement within the hand specimen belonged essentially to the same crystal. Professor Irving has shown that siliceous cement in sandstone is very frequently arranged with reference to the crystallographic axes of the quartz-grains which it envelops. It is much less common, however, to find the cement arranged as in this Albany sandstone. That carbonate of lime can arrange itself in one crystal, when mixed with from fifty to sixty per cent of sand, is clearly shown by the well-known crystals from Fontainebleau and Nemours, in France. Under atmospheric influences, the calcitic cement appears to be replaced by one which is in large part siliceous. The boundaries of the grains of sand become less distinct, and the cement assumes a spherulitic structure. To be able to assert positively that this peculiar structure in the cement of a sedimentary rock is due to weathering, our observations with the microscope need to be supplemented by an examination of the rock *in situ* at the quarry. The rock, therefore, becomes more durable, being insoluble, and is much less liable to injury from great and sudden changes of temperature.

Krakatoa dust. — A report by Mr. Diller, on the Krakatoa dust submitted to him for examination, has been completed. Reusch determined the rhombic pyroxene in the Krakatoa dust to be bronzite, while Daubree, Renard, and others have asserted that it is hypersthene. Although Mr. Diller obtained the dust from four different localities, enough was not received to furnish sufficient rhombic pyroxene for chemical analysis to settle the question; and without a Nörrenbergs apparatus, or a microscope with a larger field than the one used by Mr. Diller for the observation of optic axial figures, so that the char-

stomach. These are formed of delicate membrane, lined by a layer of secreting-cells so arranged that a central channel is left for the transmission of the bile. The cells are polygonal from mutual pressure, nucleated and nucleolated, often projecting, and giving the tubes a beaded aspect. The bile is apparently composed of oil-globules and many fine dark granules. The entire organ is very tortuous, and closely applied to the alimentary canal.

Minnesota academy of natural sciences.

June 3. — Mr. C. L. Herrick described Spirochona gemmipara Ehr., — an infusorian found parasitic upon the gills, legs, and gill-covers of Gammarus lymnaeus, near the university grounds. The European Spirochona was the subject of an elaborate memoir by Hertwig, and was shown to be one of the most pleasing subjects for the study of the subdivision of the nucleus. Attention was drawn to the fact that the American species of Spirochona seems beyond a doubt identical with the European, while the Gammarus, upon which it lives, is of a different species from that forming its host in Europe. It was not found upon Hyallela or elsewhere. Spirochona Scheutenii Stein is the only other member of the genus, and may not be distinct. —— Mr. Herrick also mentioned the occurrence of another curious protozoan in Minnesota, this form being similar to Ophridium versatile of Ehrenberg. The animal bearing this name is allied to the Vorticellae, and is social; but the colonies adhere to the surface of crystal-clear masses of jelly, which may be as large as one's fist. The individuals are sessile upon the sphere, and are peculiar in the great length of the neck-like anterior part of the body when extended. The American specimen measured 0.16 of a millimetre when quite extended. The width of the peristome is .024 of a millimetre. The species was provisionally called Ophridium problematicum. A third infusorian was described as closely related with Paramoecium, but differing in several interesting particulars from it and its allies. In form, this animal is linear lanceolate (about 0.2 of a millimetre long), tapering posteriorly to an almost acuminate point. Anteriorly is a long vibratile proboscis, or flagellum, which exceeds, when extended, the whole length of the body. The mouth is situated at the base of this proboscis, and opens into a very short infundibulum. The whole surface of the body and proboscis is covered with minute cilia, which are inserted in rows, giving the body a punctate appearance. Longer cilia surround the mouth. The sarcode is transparent, and, aside from a few greenish food-balls, contained only a large number (over a dozen) of oval bodies of a similar character (endoplastules in an unobserved coiled endoplast?) The motions of the animal are very quick, and are occasioned chiefly by the whip-like motions of the proboscis, which is extremely vigorous in movement, and alters its form greatly. Aside from this rapid motion, it can propel itself slowly by means of the cilia covering the entire surface. It is the type of a new genus, and was called Phragelliorhynchus nasutus. —— Rev. L. J. Hange contributed a letter on the vegetable remains of the drift. As a missionary among the Scandinavians and Indians of the north-west for over a quarter of a century, his attention has been called frequently to these remains; and he has over seven hundred specimens of woods, leaves, etc., in his collection. In Minnesota, wood is found at from thirty-five to forty-five feet below the surface: going west into Dakota and Montana, the depth is greater. On the Missouri, above Bismarck, a stump twenty-three feet high and a foot in diameter was struck fifty-nine feet below the surface. Many pines have wood well preserved; others are completely silicified and chalcedonic. Upon many a high point of land in western Dakota one finds a pile of stones, and among them some fine specimens of the silicified wood peculiar to this region. These piles were evidently built by human hands; and the writer suggested that they were built by the Indians as altars or landmarks. —— Rev. Dr. H. C. Hovey related some interesting facts touching the habits of the ant-lion, a colony of which he keeps in his study.

NOTES AND NEWS.

OVER one hundred members of the British association have notified the local committee at Philadelphia of their intention to be present at the meeting of the American association. About seven hundred of the British association are expected at the meeting in Montreal.

— *Nature* states that the arrangements for the meeting of the geological section of the British association are now well advanced.

The International geological congress meets at Berlin in September, and this will prevent many continental geologists from going to Montreal; Dr. Richthofen, however, will probably be present, and will communicate a paper on some comparisons between the geology of China and North America. It is hoped that others may also arrange to come.

Meeting in the typical Laurentian country, it is only to be expected that the archean rocks will receive much attention. Amongst the papers sent or promised are the following: Professor Bonney, on the lithological characters of the archean rocks in Canada and elsewhere; Mr. Frank Adams, on the occurrence of the Norwegian 'apatitbringer' in Canada, with a few notes on the microscopic characters of some Laurentian amphibolites; Dr. T. Sterry Hunt, on the eozoic rocks of North America.

On paleozoic geology and paleontology generally, the following are expected: L. W. Bailey, on the Acadian basin in American geology; E. W. Claypole, the oldest known vertebrates, — an account of some fossils recently discovered in the Silurian rocks of Pennsylvania; J. H. Panton of Winnipeg, geological gleanings from the outcrops of Silurian strata in the Red-River valley, Manitoba. Principal Dawson will give a comparison of the paleozoic floras of North America and Europe, whilst Mr. J. S. Gardner will