

Let QOP be this limiting angle. Take R on OP , and draw RS to Q at ∞ along OQ .

Then if s is at ∞ , the perpendicular SP falls at an infinite distance from R .

\therefore Angle PRS not greater than POQ , and it cannot be less (Eucl., I., 16 and 27).

Hence it must be equal.

Hence RS making the angle $SRP = QOP$ meets OQ at ∞ at both ends.

And any other straight line through R becoming infinitely distant from RS must cut OQ in some finite point.

Thus from R only one parallel, RS , can be drawn to a given line, OQ .

By moving OP along OQ always at the same angle, QOP , we can show that

From a given point only one parallel can be drawn to a given line.

This theorem, therefore, must be true. E. BUDDEN

SCIENTIFIC SERIALS

American Journal of Science, October.—A dissected volcanic mountain; some of its revelations, by James D. Dana. Here the author returns to the subject of Tahiti, largest of the Society Islands, already described by him in 1850 from materials supplied by the Wilkes Exploring Expedition of 1839. The old cone, some 7000 feet high, is now a dissected mountain, with valleys cut profoundly into its sides, and laying bare the centre to a depth of from 2000 to nearly 4000 feet below the existing summit. As shown on the accompanying map, the valleys, due to erosion, are so crowded on one another, that the dissection is complete, thus disclosing the inner structure of a great volcanic mountain. The interior is shown to be composed, not of lava-beds, there being no horizontal lines, but of imperfect columnar formations, rising vertically in the unstratified mass quite to the summit. The uniform massiveness through so great a height at the volcano's centre is attributed to the cooling of continuously liquid lava in the region of the great central conduit of the cone. A comparative study of Mauna Loa (Hawaii), shows that such a massive central structure is a common feature of the greater volcanic mountains, the extremely slow cooling process under great pressure causing the lava to solidify into a compact crystalline rock, and often into a coarsely crystalline rock.—Origin of the ferruginous schists and iron ores of the Lake Superior region, by R. D. Irving. Rejecting the igneous theory, now held by few, the writer, after a careful survey of the whole field, concludes that these rocks were once carbonates analogous to those of the coal-measures, which by a process of silicification were transformed into the various kinds of ferruginous formations now occurring in this region.—Further notes on the artificial lead silicate from Bonne Terre, Montana, by H. A. Wheeler. An analysis of this interesting substance, which was found under the hearth of an old reverberatory roasting-furnace, yielded 73.66 PbO, 17.11 SiO₂, NiO 3.06 (coarse crystals), 72.93 PbO, 18.51 SiO₂, and smaller quantities of nickel, cobalt, and other ingredients.—Limonite pseudomorphs after pyrite, by John G. Meem. The paper gives a short account of the pseudomorphs occurring in Rockbridge County, Virginia, where they are associated with Lower Silurian limestones. These crystals, varying in colour from a very light to a very dark brown, and sometimes almost black, are hydrous, and yield a yellow powder, showing them to be limonite, most commonly of octahedral form.—Note on the hydro-electric effect of temper in case of steel, by C. Barus and V. Strouhal. The object of this inquiry is to determine directly the carbon relations of steel as a function of the temperature (0° to 400°, 400° to 1000°) and of the time of annealing, with full reference to the physical occurrences observed in the first and second phases of the phenomenon.—On the crystalline structure of iron meteorites, by Oliver Whipple Huntington. It is shown that the usual classification of these meteorites into octahedral and cubic crystals cannot be natural or fundamental. A careful examination of the large collection belonging to Harvard College, containing types of all the characteristic meteorites of this class, leads to the conclusion that masses of meteoric iron are cleavage crystals, broken off probably by impact with the air, and showing cleavages parallel to the planes of all three fundamental forms of the regular system (octahedron, cube, and dodecahedron); further, that the Widmanstätten figures and Neumann lines

themselves are sections of planes parallel to these same forms, exhibited in every gradation from the broadest bands to the finest markings, with no natural break, the features of von Widmanstätten's figures being, moreover, due to the eliminations of impurities during the process of crystallisation.—A new meteoric iron from Texas, by W. Earl Hidden. The specimen here described and illustrated was discovered by Mr. C. C. Cusick on June 10, 1882, near Fort Duncan, Maverick County, Texas. It weighs over 97 pounds, is quite soft, being easily cut with a knife, and consists of iron 94.90; nickel and cobalt, 4.87; phosphorus, 0.25, with traces of sulphur and carbon; specific gravity, 7.522.—On pseudomorphs of garnet from Lake Superior and Salida, Colorado, by S. L. Penfield and F. L. Sperry. The Lake Superior specimen is essentially an iron alumina garnet, with formula Fe₂Al₂Si₃O₁₂. That of Colorado is higher in protoxides and water, the increase being perhaps due to the presence of ripidolite.—Further notes on the meteoric iron from Glorieta Mount, New Mexico, by George F. Kunz.—On the Brookite from Magnet Cove, Arkansas, by Edward S. Dana. These crystals, first described in 1846 by Shepard under the name of *arkansite*, are especially remarkable for the great variety of their forms, which is most unusual for crystals occurring in the same locality.

SOCIETIES AND ACADEMIES

LONDON

Zoological Society, November 16.—Prof. W. H. Flower, F.R.S., President, in the chair.—An extract was read from a letter addressed to the President by Dr. Emin Bey, dated Wadilai, Eastern Equatorial Africa, January 1, 1886, and containing some notes on the distribution of the Anthropoid Apes in Eastern Africa.—A letter was read, addressed to the Secretary by Dr. Chr. Lütken, of Copenhagen, F.M.Z.S., containing some information as to the locality of *Chiroptomys penicillatus*.—A letter was read from Dr. A. B. Meyer, C.M.Z.S., communicating some remarks by Mr. K. G. Henke on a specimen of a hybrid Grouse in the Dresden Museum.—Prof. Flower, F.R.S., exhibited and made remarks on a specimen of a rare Armadillo (*Tatusia pilosa*) belonging to the Scarborough Museum.—Prof. Bell exhibited, and made remarks on, an object (apparently of the nature of an amulet) made from a portion of the skin of some mammal, and received from Moreton Bay, Australia.—Mr. H. Seebohm, F.Z.S., exhibited a skin of what he considered to be a young individual of the Lesser White-fronted Goose (*Anser albifrons minutus*), shot in September last on Holy Island, off the coast of Northumberland, and observed that it was the first recorded example of the small form of the White-fronted Goose which had been obtained on the coasts of our islands.—Mr. Blanford, F.R.S., exhibited, and made remarks on, a mounted specimen of a scarce Paradoxure (*Paradoxurus jerdoni*) from the Neilgherry Hills in Southern India.—A communication was read from Colonel Charles Swinhoe, F.Z.S., containing an account of the species of Lepidopterous insects which he had obtained at Mhow, in Central India.—A communication was read from Dr. R. W. Shufeldt, C.M.Z.S., containing an account of the anatomy of *Geococcyx californianus*.—Mr. Lydekker described three crania and other remains of *Scelidothierium*, two of the former being from the Argentine Republic, and the third from Tarapaca, in Chili. One of the crania from the first locality he referred to the typical *S. leptcephalum* of Owen, while the second, which had been described by Sir R. Owen under the same name, he regarded as distinct, and proposed to call *S. bravardi*. The Tarapaca form, which was characterised by the extremely short nasals, was also regarded as indicating a new species, for which the name of *S. chilense* was proposed. The author concluded that there were not sufficient grounds for separating Lund's proposed genus *Platyonyx* from *Scelidothierium*.—Mr. G. A. Boulenger pointed out that two distinct forms of the Batrachian genus *Bombinator* occur in Central Europe, and read notes on their distinctive characters and geographical distribution.—A communication was read from Dr. R. W. Shufeldt, containing a correction, with additional notes, upon the anatomy of the *Trochili*, *Caprimulgi*, and *Cypselida*.—A communication was read from Dr. R. A. Philippi, C.M.Z.S., containing a preliminary notice of some of the Turtles and Fishes of the coast of Chili.—Mr. Sclater exhibited the head of, and made remarks upon, an apparently undescribed species of Gazelle from Somali Land.