along the coast of Norway, and may be traced even to Spitzbergen.

Another equally interesting illustration of the mildness of the winter in Norway is shown by two diagrams of the "thermal anomaly" in January. By way of comparison the month of July is included. It may be added that by thermal anomaly is meant the difference which exists between the *true* mean temperature of a place and the mean temperature *actually registered* in that latitude.

In January the thermal anomaly is very remarkable. Thus, along the coast of Norway, between the northernmost and westernmost promontories, the North Cape and Stat, it reaches + 20° C., and in the sea outside most probably + 25° C. These figures are certainly very remarkable. Eastwards, it decreases inland, but even here—where the cold is very great in the winter—it never falls below + 7°. In the Baltic, on the other hand, it again rises, as might be expected.

In the summer, however, the conditions are far from being so favourable. There is, indeed, then a narrow strip of land, on the very verge of the coast, where the thermal anomaly is slightly *negative*. The line for the 0° C. anomaly then follows the west coast, decreasing gradually seawards, whilst eastwards, across Southern Norway, it rises to + 4° C., and in Finmarken to + 70° C.

For the further elucidation of this, the following comparison of the January mean temperature in various places on the globe in about the same latitude may serve :—

About 60° *N. lat.*	°
Hellisö Lighthouse...	2
Bergen	0
Christiania	− 5
Stockholm	− 3
St. Petersburg	− 10
Jakutsk	− 42
North Kamchatka	− 20
South Alaska	− 20
Great Slave Lake	− 25
North Coast of Labrador	− 25
Cape Farewell	− 7
Shetland Islands	4

About 71° *N. lat.*	°
North Cape...	− 4
South Novaya Zemlya	− 20
Mouth of the Yenisei	− 34
Mouth of the Lena	− 40
Point Barrow	− 30
Boothia	− 32
Upernivik	− 20
Jan Mayen	− 10

The coldest place on the globe where the mean temperature has been *exactly* ascertained, viz. Werchojansk, in the interior of Siberia, with − 48° C. in January, lies in the same latitude as Bodö, where it is − 2° C., and Röst, with 0°·5 C.

In order to obtain correct normal values of the temperature in a place, long and continuous series of observations are necessary ; and when we consider that the longest we possess for any place only extends over 100 years, and that meteorology is but a science of yesterday, the Norwegian meteorological records can make a fair show. With regard, however, to the changes which take place in the climate in a certain spot during ages—which occurrence is beyond dispute—we have no reliable data. I will only mention here Prof. Blytt's theory,[1] which has attracted many supporters, viz. that the periodical changes in the climate are due to the precession of the equinoxes (with a mean period of about 21,000 years), and to changes in the eccentricity of the earth's orbit.

It is, however, possible to accept a shorter periodical change in the climate than this, and theories on this point have not been wanting ; but the only one which has found any support is the eleven-year period, corresponding to that of the sunspots, which again coincides with that of the terrestrial magnetic phenomena. It has even been attempted to bring the fall of rain and snow within a certain law, and, as some maintain, with success ; but in my opinion the proofs advanced in support of such a theory are far from being conclusive.

[1] Cf. Prof. Darwin's Address to the British Association, Section A ; also NATURE, vol. xxxiv. pp. 220 and 239.

TO PROVE THAT ONLY ONE PARALLEL CAN BE DRAWN FROM A GIVEN POINT TO A GIVEN STRAIGHT LINE

(1) LET OP and OQ be two lines at right angles, and let PQ move along them from O, so that OP always = OQ. Then PQ always $>$ OQ or OP.

Hence if OQ increase without limit, PQ must also do so.

Let ON bisect the angle POQ. Then N bisects PQ.

Then if OQ increase without limit, QN does so (QN = $\frac{1}{2}$ QP).

If OQ′ be taken along ON = OQ, QQ′ $>$ QN.

Hence if OQ increase without limit, QQ′ does so.

Similarly by bisecting Q′OQ by OM, we can show that QM increases without limit with OQ, and so on by continual bisection. Hence—

If two straight lines meet at any angle, the perpendicular from a point of one on the other becomes infinite when that point is at infinity.

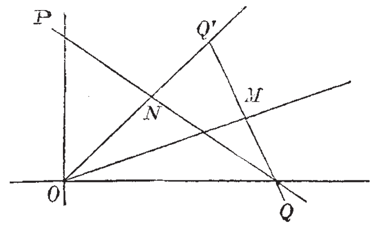

FIG. 1.

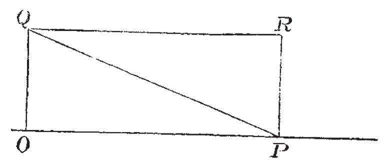

FIG. 2.

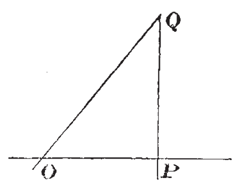

FIG. 3.

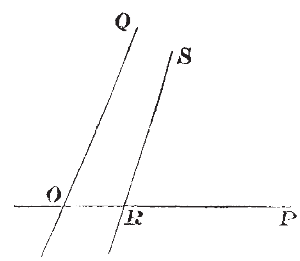

FIG. 4.

(2) Let OQ be some given length taken at right angles to a line OP ;

Let PR move along OP at right angles to OP, so that PR always = OQ.

Join QR, QP.

Let OP increase without limit.

Then the angle PQR tends to become zero.

For the lines QR, PQ never become infinitely separated.

Thus there is evidently some definite position for the line QP when OP becomes ∞.

(3) Let a line PQ move at right angles to OP, so that PQ = OP.

Then if OP increase without limit, OQ increases without limit.

Hence, there is some finite angle, QOP, such that the perpendicular QP from Q at ∞ on OP falls at an infinite distance from O.

The same thing is evidently true for all angles less than QOP.

Then either it is true of all angles less than a right angle, in which case it can be easily shown that only one parallel can be drawn from a given point to a given line ;

Or, there is some limiting angle, QOP, for which QP falls at ∞, and for any greater angle ($<$ right angle) QP falls at some finite distance from O.

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Let Q O P be this limiting angle. Take R on O P, and draw R S to Q at ∞ along O Q.

Then if S is at ∞, the perpendicular S P falls at an infinite distance from R.

∴ Angle P R S not greater than P O Q, and it cannot be less (Eucl., I., 16 and 27).

Hence it must be equal.

Hence R S making the angle S R P = Q O P meets O Q at ∞ at both ends.

And any other straight line through R becoming infinitely distant from R S must cut O Q in some finite point.

Thus from R only one parallel, R S, can be drawn to a given line, O Q.

By moving O P along O Q always at the same angle, Q O P, 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 SiO_2, NiO 3·06 (coarse crystals), 72·93 PbO, 18·51 SiO_2, 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 Widmanstättian 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 $Fe_2Al_2Si_3O_{12}$. 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 *Chiropodomys 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 *Scelidotherium*, 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. leptocephalum* 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 *Scelidotherium*.—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 *Cypselidæ*.—A communication was read from Dr. R. A. Philippi, C.M.Z.S., containing a preliminary notice of some of the Tortoises 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.

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