

by Von Schreibers could be mistaken for the upper side of this, were it not that this is larger. It measures $17\frac{1}{2}$ inches (44 cm.) by $15\frac{1}{2}$ inches (39 cm.), while the Agram measures $15\frac{1}{2}$ by 12 inches. A high ridge, 5 inches high at the highest point (12.5 cm.), runs through the centre. One half of the mass is not over 3 inches (7.5 cm.) thick, part of it is only 2 inches (5 cm.), and around the edge it is only 1 inch, or less. It is only exceeded in size, among the irons seen to fall, by the Nejed, Central Arabia, now in the British Museum, which fell in the spring of 1865, and weighs 59,420 kgm. The weight is $107\frac{1}{2}$ lbs. (48,750 kgm.), and it is intact with the exception of three small points, weighing not more than 2 ounces in all, which were broken off. One of these is seen in the etched figure, another was sent to Prof. Clarke by Colonel Betten to be analyzed, and the third piece was lost.

The two sides are wholly dissimilar (see Figs. 1 and 2¹). In fact, one would scarcely suppose that they belonged to the same mass. The upper side is ridged and deeply dented, while the lower side is flat and covered with shallow but very large pittings. On top the colour is in many places almost tin white without any coating whatever, and the pittings are very deep, and usually quite long, like finger depressions made in potters' clay. These depressions measure from 2 cm. to 4 cm., and from 1 cm. to 4 cm. This side is remarkable for striæ showing the flow and burning, and all running from the centre toward the edge, identical with those in the Rowton, Nedagolla, and Mazapil irons, but on a larger scale. Some of them are thinner than a hair, and yet twice as high (like a high knife-edge), and they are from 1 to 4 inches long. In one space of 5 cm. twenty are arranged side by side, and on one small part which is black, there are fifty lines in 1 inch of space (25 mm.), all running in the same direction. Near all the pointed edges the fused metal has flowed and cooled, so as to hang like falling water. The striæ and marks of flowing are around the edges of the upper surface (Fig. 1). On the under side pittings are very shallow,



FIG. 3.

but much broader, one depression, apparently made up of four pittings, being 20 cm. long, and 9.5 cm. wide. The whole side is coated with a black crust, 1 mm. thick, and having minute round bead-like markings. On one of the indentations of the lower edge the crust has a strikingly fused appearance, as if a flame had been blown on it from the other side. In reality this edge is undoubtedly the place where a greater amount of burning took place when the body was passing through the air. Seven small, bead-like lumps, from 5 mm. to 10 mm. in size, which are visible on this side, are drops of metal that were entirely melted, and flowed and cooled so that they resemble drops of a thick liquid. There are also to be seen what appear to be cracks, fifteen in number, and nearly as thin as a hair. One of these is 10 cm. long, and extends from the highly-fused edge above mentioned towards the centre. The others are from 3 cm. to 5 cm. long. These are so evenly arranged that they are without doubt *Reichenbach lamellen*, in which the inner troilite has been burnt out. If such is the case, they are as abundant as in the Staunton (Va.) meteoric iron.

On the upper side ten nodules of troilite are exposed, measuring from 33 mm. in diameter, to 55 mm. long, and 25 mm. wide. On the lower side there are twelve such nodules exposed, 13 mm. in diameter, while the largest measures 19 mm. by 39 mm. On the upper side these nodules are coated in spots with a black crust, similar to that found on the mass, but on the lower side the crust extends completely around the side of the nodules, showing the fusion very plainly. The troilite is very bright and fresh, like a newly broken mineral, and on the upper side one of the nodules shows deep striation, suggesting that the entire nodule is one crystal, and the exposed part is only one side of it. In some cases where the nodules were broken, they were found to be iridescent. This is one of the octahedral irons showing the Widmanstätten figures beautifully on etching (see Fig. 3), and is one of the Caillite groups of Stanislas Meunier and of the

mittlere lamellen of Brezina. The lamellæ are 1 mm. wide, and the markings more closely approach the Rowton¹ and Mazapil² irons. Fig. 4 shows the etching on the surface of the unpolished exterior, there being no crust. The lower end of the figure, which is flat, was produced by the hammering off of the piece; but the etching was really finer where it was done on the natural surface of the iron. The specific gravity of the small piece figured is 7.773. Troilite, as before stated, is very abundant in the mass. Schreibersite and carbon have also been found



FIG. 4.

between the laminae. Chlorine is present only in slight quantity, as scarcely any deliquescence has been observed.

The following is a comparative table of analyses of meteoric irons most nearly approaching this in composition:—

	Cabin Creek (Whitfield).	Estherville (Smith).	Mazapil (Mackintosh).	Rowton (Flight).	Charlotte (Smith).
Iron ...	91.87	92.00	91.26	91.25	91.15
Nickel ...	6.60	7.10	7.845	8.582	8.05
Cobalt ...	trace	0.69	0.653	0.371	0.72
Phosphorus ...	0.41	0.112	0.30	—	0.06
C, S, &c.	0.54	99.902	100.038	100.203	99.98
	99.42				

GEORGE F. KUNZ.

THE ROYAL HORTICULTURAL SOCIETY.

THE Council of the Royal Horticultural Society request the horticulturists of the United Kingdom to read and consider the following statement and appeal:—

1. The grounds at South Kensington, known as the Gardens of the Royal Horticultural Society, having been devoted to the Imperial Institute, the Council endeavoured, in obedience to the wishes so graciously expressed by Her Majesty the Queen, the Patron of the Society, to obtain from the Royal Commissioners of the 1851 Exhibition such a site as would justify them in advising the Fellows to remain at South Kensington.

2. The Royal Commissioners were, however, unable to offer any adequate site, and gave the Council distinctly to understand that the erection of offices, committee-rooms, &c., on their land would not be held to confer any claim whatever, either legal or moral, to the use of the Conservatory and Gardens for the purposes of the Society. The negotiations consequently came to an end. An informal offer has since been made by the Royal Commissioners to let a portion of the Gardens and the Conservatory to the Society at a guaranteed rent of £1000 a year, which with rates, taxes, and maintenance would involve an expenditure of £2000 a year at least, a sum far beyond the resources of the Society.

3. The Society has been in existence for eighty three years, having been founded in 1804, and incorporated by Royal Charter in 1809. It has done much to advance the interests of practical and scientific horticulture, and it is the recognized authority on all horticultural questions. In addition to the valuable work of the Scientific Committee, presided over by Sir J. D. Hooker, K.C.S.I., C.B., F.R.S., new and rare plants, fruits, and vegetables, collected abroad or raised at home, have been continually submitted, in large and increasing numbers, to the judgment of the Fruit and Floral Committees, whose verdicts are accepted without question. The Society has also continuously carried on valuable trials of plants, fruits, and vegetables, at Chiswick. It has published during the last three years the following, viz.:—"Report of the National Apple Congress held at Chiswick, October 1883," "Report of the Orchid Conference held at South Kensington, May 1885," "Report of the National Pear

¹ These figures were made by the Ives process, and are faithful reproductions direct from the photograph.

² "Meteoriten Sammlung des k.k. mineralogisches Hofcabinet in Wien." Wien, 1885, 8vo, Plate 2, Fig. 2.

³ American Journal of Science, III. vol. xxxiii. p. 225, Fig. 2.

Conference held at Chiswick, October 1885," "Report of the Primula Conference held at South Kensington, April 1886, and of the Orchid Conference held at Liverpool, June 30, 1886," "Report on the Effects of Frost on Vegetation during the Severe Winters 1879-80, 1880-81, published in 1887."

4. The Council are of opinion that the connection of the Society with South Kensington, however promising at first, has proved adverse to its true interests and permanent welfare. They recognize that altered circumstances require a complete re-organization of the Society on a more popular basis. They believe that, while local Horticultural Societies attract local support, a central Metropolitan Society (to which local Societies may be affiliated) is, in the interests of horticulture, indispensable. Under analogous circumstances the Royal Agricultural Society prospers, although there are local Societies in every county of the Kingdom.

5. The Council do not believe that the Society can be carried on any longer under the trammels of the existing Charter, which was granted in 1850 in view of a wholly different state of things; nor do they think a Charter will be requisite for its future working. They believe that the numbers of the Council should be considerably increased and their mode of election modified and made popular, and that the ordinary work of the Society should be carried on by Committees, under powers delegated to them by the Council. They hold that the Society should henceforth devote itself strictly to the advancement of practical and scientific horticulture.

6. The view of the Council is that the expenditure of the Society should be reduced as much as possible, and its resources devoted to the following objects:—

(1) The maintenance of the Chiswick Gardens and the conduct of plant, fruit, and vegetable trials there; and possibly the establishment of a School of Gardening.

(2) The immediate engagement of such premises in a convenient and central situation as may suffice for office requirements, the safe housing of the Lindley Library, the meetings of the Society's Committees, and its fortnightly shows, to the maintenance of which they attach great importance.

(3) The publication of periodical Reports of the work done at Chiswick, and by the Society's Committees, and on horticultural subjects generally.

7. For many years the nature of the accommodation which the Society has been able to obtain at South Kensington has virtually prevented meetings being held for the discussion by the Fellows of points of interest in the practice of horticulture. It is essential that these meetings should be resumed, and it is believed that they will be of great value in bringing together those who take an active part in British horticulture. It is also hoped that such meetings would give an opportunity for the consideration of the numerous directions in which the rural economy of the country seems likely to be modified by the substitution of horticultural for agricultural methods.

8. The Council would recommend that the subscription should be in future £2 2s. for Fellows, and that a grade of Member or Associate, at £1 1s., should be created for professional and practical gardeners, who have rarely hitherto belonged to the Society. They calculate that the maintenance of Chiswick will cost £1500 a year, and that for the other purposes of the Society a further sum of not less than £1500 a year will be required. During 1887, 150 Fellows have paid £4 4s., and 623 Fellows £2 2s., making a total of £1938 6s., a sum altogether insufficient for the working and requirements of the Society.

9. In conclusion, the Council believe that the extinction of the Royal Horticultural Society would be regarded by all interested in horticulture as a national loss. The history of the Society, and the good work it has done and is doing, entitle it to the consideration and support of the horticultural world, to whom the Council make this appeal. They address it with equal confidence to amateurs and to the trade, in the belief that their interests are identical, and that for the protection and advancement of these interests the maintenance of the Royal Horticultural Society is essential. The Council have had difficult duties to perform. While they are willing to continue to discharge these duties, if desired, they believe that the best course would be for them to place their resignations in the hands of the Fellows, at the end of the year, so as to leave the Society entirely unfettered. But they consider it due both to the Fellows and to themselves to say that, unless they receive assurances of adequate support, in response to this appeal, the Society must necessarily come to an end.

10. The favour of an early answer is requested on the inclosed form. The Donations would be devoted to the cost of establishing the Society in its new home and to similar purposes.

On behalf of the Council,

TREVOR LAWRENCE, *President*.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The Thurston Prize at Caius College, value £54, for the best original investigation by a member of the College in the past three years in physiology, pathology, or practical medicine, has been adjudged to Mr. C. S. Sherrington, M.A., M.B., Fellow of the College.

The Sedgwick Memorial Committee having declined to assent to the building of rooms for teaching purposes with the Sedgwick Fund, while waiting the building of a complete museum; and other proposals having been made, a syndicate has been appointed to plan out the entire disposal of the sites surrounding the new museums, so as to satisfy as many scientific requirements as possible.

Mr. E. C. Dawson has been appointed Demonstrator of Mechanism and Applied Mechanics in succession to Mr. Ames.

Next term the General Board of Studies will nominate a University Lecturer in Pure Mathematics, in consequence of the resignation of Mr. Macaulay. The stipend is £50 per annum, and the appointment will be for five years. A preference will be given to a lecturer who would take subjects not at present represented. Among these are theory of equations, theory of numbers, and projective geometry.

Scholarships in Natural Science will be competed for this month or next at Gonville and Caius, King's, Jesus, Christ's, St. John's, Trinity, Emmanuel, and Sidney Sussex Colleges. The tutors will give full information.

A Clothworkers' Exhibition for Natural Science, tenable at Oxford or Cambridge for three years, will be awarded next July by an examination under the Oxford and Cambridge Schools Examination Board. Particulars may be obtained from the Censor of Non-Collegiate Students, Cambridge.

Another general modification of examinations in natural science is proposed, which we shall refer to when it has been discussed by the Senate.

SCIENTIFIC SERIALS.

American Journal of Science, November.—On the relative motion of the earth and luminiferous ether, by Albert A. Michelson and Edward W. Morley. A complete and satisfactory explanation of the aberration of light is given by Fresnel's undulatory theory, which assumes, first, that the ether is supposed to be at rest except in the interior of transparent media; secondly, that in this case it moves with a velocity less than that of the medium in the ratio $\frac{n^2 - 1}{n^2}$, where n is the

index of refraction. The second hypothesis having been fully established by Fizeau's celebrated experiment, the first alone is dealt with in this paper. From the delicate researches here described, which have been carried out by the aid of the Bache Fund, it is inferred that, if there be any relative motion between the earth and the luminiferous ether, it must be small, quite small enough entirely to refute Fresnel's explanation of aberration. It is further shown that the theories of Stokes and Fresnel also fail, and that it would be hopeless to attempt to solve the question of the motion of the solar system by observations of optical phenomena at the surface of the earth.—On the existence of carbon in the sun: contributions from the physical laboratory of Harvard University, by John Trowbridge and C. C. Hutchins. Without discussing the well-known observations of Abney on the absorption-bands in the solar spectrum at high altitudes, or Siemens's hypothesis of the presence of carbon vapour in interplanetary space, the authors here study the remarkable character of the carbon spectrum formed by the voltaic arc in air between carbon terminals, drawing attention to the evidence presented by the juxtaposed solar spectrum of the existence of carbon in the sun. They conclude that at the point of the sun's atmosphere where the carbon is volatilized, the temperature of the sun approximates to that of the voltaic