time of perihelion 3·646 days, and this reduces the mean diurnal motion by 0″·38. As M. Bossert found that, in order to represent the 1891 observations correctly, he had also to diminish this factor by the same amount, it is suggested that this comet is subject to a negative acceleration, such as was found by M. Schulhof for the Tempel$_2$ comet, and by M. Lamp for Brorsen's comet.

In the ephemeris, which covers the period October 20 to December 31, the actual positions for 12h. (Paris M.T.) are given for each day, and observations made on September 29 and October 7 show that the ephemeris was correct for R.A. but required corrections in declination of +1′·7 and +1′·8 respectively. During the period November 1 to December 31 this comet will, according to the ephemeris, apparently travel through the constellations Cancer and Leo, from α=8h. 45·1m., δ=+24° 34′·9, to α=9h. 22·7m., δ=+14° 8′·4 (*Astronomische Nachrichten*, No. 4277, p. 79).

EPHEMERIS FOR JUPITER'S EIGHTH SATELLITE.—An ephemeris showing the position of J viii. in regard to Jupiter has been computed by Messrs. Crawford and Etal, and is published in Circular No. 105 from the Kiel Centralstelle. The following is part of it, and gives the differences :—

J viii. – ☿ *for* 12*h. G.M.T.*

		$\Delta\alpha$		$\Delta\delta$
		m. s.		′ ″
Oct. 27	...	−2 44·8	...	+26 56
31	...	−3 3·5	...	+27 14
Nov. 4	...	−3 21·9	...	+27 28

SATURN'S RINGS.—Further particulars of the new dark ring surrounding the bright rings of Saturn are published in a message from Herr Schaer, of the Geneva Observatory, to No. 4277 of the *Astronomische Nachrichten* (p. 81, October 20). On October 8 the white ring was seen to be bordered by two narrow bands of a brownish hue. When the seeing was good both bands were seen beyond the edge of the planet's sphere, and from these observations M. Schaer concludes that there is a dark exterior ring somewhat similar to the interior crape ring. This new feature is difficult to see with the Cassegrain telescope of 40 cm. aperture, using powers of 270, 450, and 660.

Prof. Strömgren, observing Saturn at Copenhagen on October 10, was unable to see any extraordinary feature, nor could Prof. Hartwig, at Bamberg on October 10 and 11, confirm M. Schaer's observation. Similarly, Senor J. Comas Sola, who observed the planet under good conditions during the beginning of the month, states that he saw nothing abnormal.

INTERNATIONAL CONFERENCE ON ELECTRICAL UNITS AND STANDARDS.

INTERNATIONAL agreement on the subject of electrical units was arrived at in Paris at the conferences of 1881 and 1884, and at Chicago in 1893. The results of these conferences have been of considerable value to electrical industries. In recent years, however, differences have occurred, partly in the definitions of the units and partly in their realisation, and the degree of precision in electrical measurements which is now possible rendered it necessary to remove these differences. The committee of delegates at the International Congress at St. Louis in 1905 expressed the desirability of summoning an International Conference on Electrical Units and Standards, and the British Government recently invited representatives from all the civilised countries of the world to discuss these subjects.

The conference was opened by the Right Hon. Winston S. Churchill, M.P., on Monday, October 12, at the rooms of the Royal Society. Delegates from twenty-four different countries, including Australia, Canada, and India, were then present. Mr. Churchill gave, as one of the main objects of the gathering, the establishment of a universal system of electrical standards acceptable to all.

Lord Rayleigh was elected president of the conference, and Dr. Glazebrook chairman of a technical committee, the members of which were nominated by the delegates.

Possibly the best general view of the results of the conference can be given by the reproduction of the first portion of Schedule B containing the resolutions which the conference adopted with the request that the delegates would lay these and the specifications which complete the schedule before their respective Governments with the view of obtaining uniformity in the legislation with regard to electric units.

Resolutions.

(1) The conference agrees that as heretofore the magnitudes of the fundamental electric units shall be determined on the electromagnetic system of measurement with reference to the centimetre as the unit of length, the gram as the unit of mass, and the second as the unit of time.

These fundamental units are (1) the ohm, the unit of electric resistance which has the value of 1,000,000,000 in terms of the centimetre and second; (2) the ampere, the unit of electric current which has the value of one-tenth (0·1) in terms of the centimetre, gram, and second; (3) the volt, the unit of electromotive force which has the value 100,000,000 in terms of the centimetre, the gram, and the second; (4) the watt, the unit of power which has the value 10,000,000 in terms of the centimetre, the gram, and the second.

(2) As a system of units representing the above and sufficiently near to them to be adopted for the purpose of electrical measurements and as a basis for legislation, the conference recommends the adoption of the international ohm, the international ampere, and the international volt defined according to the following definitions.

(3) The ohm is the first primary unit.

(4) The international ohm is defined as the resistance of a specified column of mercury.

(5) The international ohm is the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice, 14·4521 grams in mass, of a constant cross-sectional area, and of a length of 106·300 centimetres.

To determine the resistance of a column of mercury in terms of the international ohm, the procedure to be followed shall be that set out in Specification A attached to these resolutions.

(6) The ampere is the second primary unit.

(7) The international ampere is the unvarying electric current which, when passed through a solution of nitrate of silver in water, in accordance with the Specification B attached to these resolutions, deposits silver at the rate of 0·00111800 of a gram per second.

(8) The international volt is the electrical pressure which, when steadily applied to a conductor whose resistance is one international ohm, will produce a current of one international ampere.

(9) The international watt is the energy expended per second by an unvarying electric current of one international ampere under an electric pressure of one international volt.

A comparison of these resolutions and those of the Chicago Conference will show two main changes.

In the first place there is no reference to the E.M.F. of a standard cell in the definition of the volt, while in the second the definitions of the international ohm, ampere, and volt have been made more precise. As to the first of these changes, after it had been decided that the volt was to remain a derived unit, there was no difference of opinion. The other, as a reference to the account of the proceedings will show, gave rise to much discussion. The increased precision, which it should be noted concerns the definitions of the units, and probably does not affect the concrete standards by which the units are expressed, is arrived at in two ways. In the first place, a distinction is drawn between the ohm—10^9 C.G.S. units of resistance—and the international ohm—the resistance of a definite column of mercury. Previously, some such phrase as that the ohm 10^9 C.G.S. units "is *represented* by the resistance" of a certain column of mercury has been used; in the new resolutions it is stated that the international ohm represents the ohm *sufficiently nearly* for the purpose of electrical measurements and as a basis for legislation, and *is* the resistance of a certain column of mercury of length 106·300 centimetres. Precision is given in the second place by the addition of the 00 after the 3 in the above length, the international ohm being thus defined to one part in a hundred thousand.

It is not to be inferred from this that we know the ohm—10^9 C.G.S. units—to this accuracy in terms of mercury, and the difference between the ohm and the international ohm remains a matter for experiment, but resistances are compared to six or even seven figures, and it is requisite, therefore, for international purposes, that the unit in terms of which they are expressed should be defined with the same precision.

So, too, with the ampere; the definition has been rendered precise by stating that the international ampere is the current which, under certain conditions, deposits 0·00111800 gram of silver per second. In this case decision was rendered much more difficult by the fact that we know that in order to represent the ampere (10^{-1} C.G.S. units) the last two figures should probably be 25. or 20.

The following is a brief *résumé* of the more important proceedings of the meetings.

In discussing the general question of the measurement of resistance by a mercury column, Lord Rayleigh expressed some doubt as to whether the introduction of such a column was not what is called a "fifth wheel to the coach." At the present time there was reason to believe that the ohm, as defined in absolute measure, could be arrived at with a very great degree of precision. He looked forward to the time when the column of mercury might be eliminated from the definition of the international ohm, and when the ohm, 10^9 C.G.S. would be the standard.

Resolution 5, defining the international ohm, was introduced by Dr. Warburg (Germany). In discussing it Dr. Rosa (United States of America) raised the question whether it would not be better to specify the length of the column as 1 metre, and to give the weight accordingly, so that the resistance would be the same. The mass of mercury would then be 12·7898 grams instead of 14·4521. He suggested that if the specification for the international ohm was ever changed, and it probably would be as we came more nearly to the absolute value, it would be necessary to change both figures if the cross-section was to remain about 1 square millimetre. If the length were specified as 1 metre exactly, that would never be changed.

Dr. Rosa's suggestion was referred to the technical committee, and was not approved.

Mr. Trotter thought the resolution proposed by Dr. Warburg was something more than a confirmation of the ohm as established at Chicago. The scientific length was to be set aside and a conventional length declared, like the original Siemens unit. The two zeros after the 106·3 could have no scientific meaning. He thought the mercury column was an ingenious device which would serve a useful purpose, but there was no pressing need for it as a standard. While a useful result of the conference would be an organisation for the comparison of standards of different countries, it was questionable whether the differences which had to be reconciled were of sufficient importance to set aside the C.G.S. system and no longer to look upon it as the ideal. He thought it premature to add the two zeros to the 106·3, because it seemed likely that the Lorenz or some other mode of determination of the ohm would soon be made with an accuracy within a few parts in 100,000. Until that time arrived, mercury columns would be a temporary expedient.

Dr. Rosa, however, doubted whether the time was coming when resistances could be measured absolutely as accurately, and a series of determinations made to agree as closely, as mercury ohms could be set up and measured.

Dr. Warburg thought that the accuracy with which the proposed international ohm approached the true ohm was sufficient, and that an alteration in the international ohm should not take place in the future on account of its difference from the ohm (10^9 C.G.S.). He thought it of the utmost importance to preserve continuity.

In the end the resolution, as proposed by Dr. Warburg, was adopted.

The next matter taken up by the conference was the question whether the ampere or volt should be the second primary unit. In opening it, Dr. Glazebrook moved that the ampere be the second primary unit. The ampere has been defined by all congresses, with the exception of that of 1881, as the second primary unit, and he thought that as a standard the silver voltameter had a greater accuracy of reproduction than any form of standard cell. He directed attention to the following values obtained for the electrochemical equivalent of silver:—

		mgm. per coulomb
1884.	Mascart	1·1156
1884.	F. and W. Kohlrausch	1·1183
1884.	Rayleigh and Sidgwick	1·1179
1890.	Pellat and Potier	1·1192
1899.	Kahle	1·1183
1903.	Pellat and Leduc	1·1193
1904.	van Dijk and Kunst	1·1182
1906.	Guthe	1·1182
1907.	Smith, Mather and Lowry... ..	1·1183
1908.	Janet, Laporte and de la Gorce ..	1·1182

These results showed that the standard could be considered permanent and accurate; and still further confirmation is afforded by the fact that the Board of Trade ampere balance, which was adjusted fourteen years ago on the basis that the unit of current deposits 1·118 mgm. of silver per second, now gives for the equivalent of silver the value 1·11794—an extremely good agreement. A further reason for adopting the ampere as the second primary unit was that the absolute determinations of the ohm and the ampere were independent, and thus conformed more nearly to the theoretical ideal. This was of importance, as he hoped that some day we might arrive at standards which would measure resistance and current in absolute units direct. The chemistry of the silver voltameter had recently been investigated at the National Physical Laboratory; it was of importance to know that only one chemical had to be purified, and this (silver nitrate) one of extreme solubility in water, and therefore capable of purification by repeated crystallisation. No time had to elapse between setting up the voltameter and the attainment of a condition of chemical equilibrium. If secondary reactions took place, they were of very small importance, while it had been shown that the temperature coefficient was certainly not greater than 1 part in 1,000,000, and was probably smaller than this. Dr. Glazebrook did not suggest that the silver voltameter should be generally used for measurement of current; it was intended as an instrument to be used at standardising laboratories. For all ordinary measurements of current a standard cell and a resistance would still be employed. The Weston cell involved the purification of four substances, one of which (mercurous sulphate) was a very insoluble salt and very difficult of purification; moreover, there was a difference of opinion as to the best method for its preparation. If the volt were defined as a fraction of the E.M.F. of the Weston cell, the standard was certainly more concrete, but this was not very important for a standardising laboratory. Of between 300 and 400 cells set up at the National Physical Laboratory 80 per cent. agree within three or four parts in 100,000; but in the remaining 20 per cent. the differences may attain two in 10,000, and we do not know the reason of this. The results obtained by Prof. Janet, at the Laboratoire Central, showed that the permanence of the cell is far from certain, as the mean E.M.F. of one batch of cells dropped six parts in 10,000 in two years, and of another batch seven parts in 100,000 in one year. He agreed that an extraordinary concordance in the E.M.F. of Weston cells had been reached between the Bureau of Standards and the National Physical Laboratory, but it was requisite to obtain agreement with cells made at other places, and this had not yet been done.

Prof. Lippmann (France) was in favour of the volt as the second primary unit. He agreed with Dr. Glazebrook that everybody would use the cell in practical work. He considered that the volt was an independent unit and could be measured absolutely by means of a disc rotating in the earth's magnetic field. Subsequently M. Gerard (Belgium) pointed out that as this method involved the determination of the magnetic field of the earth, it was not comparable with the absolute measurement of current.

Prof. Carhart (U.S.A.) pointed out that the congress of 1881 proposed the volt as the second primary unit. In Germany all measurements of E.M.F. were made by means of a standard cell and resistance, and to all intents and purposes the E.M.F. of the Weston cell had been legalised,

and the silver voltameter was very rarely set up. Lord Kelvin at one time standardised his current balances by means of the silver voltameter, but he abandoned it in favour of a cell and a resistance. He (Prof. Carhart) believed the cell to be a constant and a useful standard. With the absolute balance at the National Physical Laboratory the electrochemical equivalent of silver was not directly determined; it was the E.M.F. of a Weston cell that was first fixed. He considered this was the correct way. At the Board of Trade the balance had only been compared with the silver voltameter once during the past eight years. He did not consider the ageing of cells to be serious; if necessary they might be kept for only a few days or a week. Cells which were set up by unskilled persons should not be considered, as it was a primary standard which was under discussion.

Dr. Rosa contended that the voltage of the Weston cell should be defined and fixed; and that, since some uncertainty must be permitted in the value of its voltage or in the value of the electrochemical equivalent of silver, it should be in the latter, as it was infrequently used, and would therefore be of minor importance. He objected to the silver voltameter because it is not permanent; it only lasts so long as the current flows. It is not a concrete standard like the cell, and it is not portable. It is laborious in practice, and it determines electric quantity and not current. Regarding the choice between Clark and Weston cells, it was possible that the Clark cell was the more stable.

Dr. Warburg thought that mercurous sulphate, which is used as the depolariser in Weston cells, could not be well defined, and that many cells gave abnormal results because of this. In fact, mercurous sulphate had been so much studied during the past three years that the Weston cell of to-day was a new one. He agreed entirely with the views expressed by Dr. Glazebrook.

In the further course of the discussion the following table of results for the E.M.F. of the Weston cell was submitted for consideration [1]:—

E.M.F. of Weston Normal Cell at 20° C.

National Bureau of Standards...	1·01847 *v.* (first batch of cells) 1·01853 *v.* (second ,, ,,)
National Physical Laboratory ...	1·0182 *v.*
Laboratoire Central d'Électricité	1·0187 *v.*
Lippmann and Guillet	1·01825 *v.* (first group) 1·01819 *v.* (second ,,)

Any uncertainty in the value of the resistance in international ohms would, it was pointed out, naturally affect these values. Ultimately the resolution in favour of the ampere was carried by 19 votes to 4.

Considerable discussion took place on resolution 7, the definition of the second primary unit—the ampere. Some of the delegates wished the ampere to be defined as the unvarying current depositing silver at the rate of 0·001118 gram per second; other delegates desired 0·00111800, that is, they wished the ampere to be so defined that comparisons could be made within one part in 100,000. The delegates from the United States, Dr. Weber (Switzerland), and some others desired that the international ampere should agree as closely as possible with the ampere (10^{-1} C.G.S.). The values suggested were 0·00111820 or 0·00111825.

After some preliminary discussion at which this divergence of view was made clear, the question of the exact number to be inserted in resolution 7, defining the ampere, was referred to the Technical Committee, and discussed by them at a long sitting. The suggestion was made that in the resolution the conference should be content to stop at the 8, but that in the specification or in the notes a statement should be made as to the figures to follow the 8 in measurements of precision, and this was at first accepted. When, however, an attempt was made to settle what these figures should be, agreement could not be reached, and ultimately it was arranged to report the various votes which had been taken in committee to the full sitting. Thus, when the conference took up the question again, resolution 7, defining the ampere as the current depositing 0·00111800 gram of silver per second, was still before them. In the discussion which ensued, Dr. Glazebrook, who moved the adoption of resolution 7, urged that as the object of the conference was to secure uniformity of international measurements to a high degree of precision, measurements of current to five or six figures at least were wanted, and that it appeared that our units must be defined to five or six figures. While the value chosen should approach the absolute C.G.S. value closely he did not think it essential to get as close as possible to this value. In the case of the ohm, 00 had been added to the 106·3 cm., and for consistency two more figures must be added after the 8 for the electrochemical equivalent of silver. He would prefer to add 00. If, in the future, it seemed possible to revert to the absolute units, the two standards might be changed together, but so long as the ohm could not be defined closely in terms of the C.G.S. system there was no real necessity to define the ampere closely.

Prof. Lippmann proposed that the international ampere shoud be defined as being equal to the ampere based on the C.G.S. system, but this proposal was not accepted. Mr. Trotter thought that nothing should be added after the 8.

Ultimately resolution 7 was carried in its original form by 21 votes to 3.

The question was again raised when the final report was submitted for approval. Dr. Carhart stated that the chief argument which had been brought forward in favour of the ampere as the second primary unit was the reproducibility of the silver voltameter and the concordant results obtained in determinations of the electrochemical equivalent of silver in different countries. Since that discussion, Dr. Rosa had received a cablegram from Washington stating that the value of the electrochemical equivalent of silver obtained with the aid of a current balance at the Bureau of Standards was 0·00111182, agreeing very closely with the last five determinations. Surely, if anything was to be added after the 8, the figures should be 20.

The majority of the delegates appeared to be, however, of opinion that the change in the equivalent should be made, if at all, at the same time as the change in the length of the mercury column, and in consequence the original decision of the conference was confirmed by a majority of 13 votes to 8, three countries not voting.

Specifications relating to mercury standards of resistance and to the deposition of silver were approved by the conference and included in Schedule B, while the duty of drawing up, as an appendix to the report, a series of notes to the specifications, and planning more fully the methods to be adopted to realise the units, was assigned to a scientific committee nominated by the president.

In cases in which it is not desired to set up the standards provided in the resolutions in Schedule B, the conference recommends the following as working methods for the realisation of the international ohm, the international ampere, and the international volt.

(1) *For the International Ohm.*

The use of copies, constructed of suitable material and of suitable form and verified from time to time, of the international ohm, its multiples and submultiples.

(2) *For the International Ampere.*

(*a*) The measurement of current by the aid of a current balance standardised by comparison with a silver voltameter; or

(*b*) The use of a Weston normal cell whose electromotive force has been determined in terms of the international ohm and international ampere, and of a resistance of known value in international ohms.

(3) *For the International Volt.*

(*a*) A comparison with the difference of electrical potential between the ends of a coil of resistance of known value in international ohms, when carrying a current of known value in international amperes; or

(*b*) The use of a Weston normal cell whose electromotive force has been determined in terms of the international ohm and the international ampere.

Steps necessary to secure Uniformity of Standards in the Future.

The conference expressed a wish that some permanent steps for securing uniformity of standards in the future should be taken, and for such a purpose recommended the

[1] To this table must be added the results just obtained by M. Pellat, which give the value 1·0184.

establishment of a permanent International Commission for Electrical Standards. Pending the appointment of this commission, Lord Rayleigh nominated a scientific committee of fifteen to advise as to the organisation of the commission and to formulate a plan to direct such work as may be necessary in connection with electrical standards all over the world. In order to facilitate this work, various standardising laboratories will be asked to cooperate with the commission, and to carry out, if possible, such work as it may desire. The question was discussed of enlarging the functions of the International Conference on Weights and Measures, so as to combine with it in future electrical conferences, and the opinion of the conference was favourable to such a combination.

It is hoped that the scientific committee will from time to time modify the notes accompanying the specifications as may be necessary, and that this will conduce to greater uniformity between the standards of the various countries.

ANTHROPOLOGY AT THE BRITISH ASSOCIATION.

THE meeting of the anthropological section of the British Association was amongst the most successful that has been held in recent years. The address of the president, Prof. Ridgeway, which has been reported in full in NATURE, has already led to considerable discussion and promises to have a good effect, and the meeting, so happily inaugurated, has been fruitful of much good work. As has been noticeable for some time past, papers upon archæological subjects were by far the most numerous. It is to be regretted that the communications in physical anthropology, although of exceptional interest, were hardly so numerous as those interested in the welfare of the section would wish to see. It is to be feared that there is a tendency among physical anthropologists to submit the results of their work to bodies other than the association—a matter for regret in view both of the importance of this branch of the study of man and of the interest in the subject taken by the ordinary members of the association, as shown by the size of the audience usually attracted by such papers.

The papers on physical anthropology included an important communication by Prof. Symington, on certain changes in the lateral wall of the cranium due to muscular development. Observations were made upon the relation of the temporal muscle to the skull and brain from birth until adult life, and it was demonstrated that at birth the muscle was small compared with the brain case, and that consequently the temporal ridge was low at this period of life. After birth the muscle grows more rapidly than the lateral area of the skull, and gradually extends upon it, so that the temporal ridge reaches a much higher level than in the infant. This extension proceeds gradually, and is associated with that of the jaws and teeth, being independent of that of the brain.

In his paper on the significance of the so-called accessory dental masses sometimes found in the upper jaw-bones, Prof. Francis Dixon, from an examination of a series of young Ibo skulls, came to the conclusion that these masses do not represent the rudiments of aborted or vestigial molars, corresponding to the third premolars of the platyrrhine apes, but arise as unabsorbed portions of the second milk molar. It is an interesting question why these fragments are so frequently retained in certain races.

An important contribution to our knowledge of the Egyptian races was made by Prof. Elliot Smith in his paper on anthropological work in Egypt. In his opinion the present population is remarkably uniform, the range of variation being not appreciably greater than that of any other known race. The infusion of negro blood is very small in amount, and its effect is usually slighter than is commonly supposed to be the case. The negro influence is least marked in pre-dynastic times. In Nubia, which was always open to raids from the south, there is a much more marked negro element, and the population of this district may be said to be a hybrid one. There is also evidence of a Levantine element in the Delta as early as the time of the Pyramid builders. The Copts show the least resemblance to the ancient Egyptians, owing to intermarriage with immigrants of their own faith.

Other physical papers were one on the adult brain, by Prof. A. Fraser; the report of the Cretan Committee, which published a preliminary statement on Mr. Hawes's examination of the crania; and that of the Anthropometric Committee, which published a report giving the result of its deliberations for the last seven years.

Another paper, by Prof. Elliot Smith, on the history of mummification in Egypt, may be mentioned here. After showing how in pre-dynastic times the custom of burying bodies in the sand led to their preservation, the author suggested that the idea of preserving their dead by art must have occurred to the Egyptians by observing this phenomenon, more especially as the later custom of burying in coffins or rock-cut chambers led to the bodies' dissolution. The desire was, of course, prompted by religious beliefs. When exactly embalming was first attempted there were no data to show. Although the earliest bodies known to have been embalmed are of the tenth dynasty, there is some evidence to show that the custom was practised by the Pyramid builders. The process of mummification reached its highest development under the New Empire, although under the Middle Empire the general technique was that which was followed for the succeeding two thousand years. Further stages in the art were followed by a period of rapid decline.

An important paper on Rajputs and Mahrattas was contributed by Mr. Crooke, who criticised the views of Sir Herbert Risley on the origin of these peoples. On the evidence of anthropometry, the Rajputs have been classed as Indo-Aryans, but the evidence rather points to the conclusion that they are a status group, compounded from varied elements, and not an ethnical unit. The Mahrattas similarly are a status group, the basis being the Dravidian or indigenous Kunbi tribe. It was suggested that the uniformity which characterises the physical character of the peoples of the Punjab might be due to sexual selection and the influence of environment, which have to some extent been overlooked by ethnologists.

Dr. C. G. Seligmann gave an account of his recent expedition to the Veddas of Ceylon, who may be divided into three divisions, Veddas, village Veddas, and coast Veddas, characterised by different sociological features. The coast Veddas have borrowed largely from the Tamils, and the village Veddas have intermarried with the Sinhalese, but in spite of this the clan organisation of the wild Veddas largely remains. There is hardly any decorative art. Their cult of the dead has given rise to pantomimic dances, which are performed chiefly by men trained to invoke the spirits. In language the Veddas speak Sinhalese or Sinhalese dialects with the addition of a few words not obviously Sinhalese.

A collection of Dinka laws, made by Captain O'Sullivan, was read by Mr. E. Sidney Hartland. The Dinka government is patriarchal with male descent. An interesting custom is the legal fiction by which an heir is provided when the male line has died out.

The archæological papers were of a very varied character, but naturally a considerable part of the section's work consisted in discussing Irish antiquities, and here the section was at the advantage of meeting next door to the National Museum where the Irish collections are displayed, and Mr. Coffey and Mr. Armstrong, the keeper and chief assistant of the Department of Irish Antiquities, were assiduous in their efforts in showing members the magnificent collections which are in their charge. The section, moreover, was fortunate in hearing papers from both these gentlemen on subjects which they have made their own.

Thus Mr. Coffey presented three papers. The first, on the distribution of the gold *lunulae*, showed that whereas in Ireland sixty of these characteristic Irish ornaments had been found, only eighteen had been discovered in Great Britain and the rest of western Europe. This distribution points either to early raids on Ireland from the Continent or to an early trade for gold. The *lunulae* may be dated between 1200 B.C. and 1500 B.C. Another paper by Mr. Coffey was on the survival of La Tène ornament on some Celtic penannular brooches. These brooches may be safely dated at not later than 700 A.D., as there is a complete