

THE new volume of the "Statesman's Year Book," edited by Dr. I. Scott Keltie, with the assistance of Mr. I. P. A. Renwick, has been published by Messrs. Macmillan and Co., Ltd. This annual is now in its thirty-ninth year of publication, and every year brings political and other changes which necessitate the revision of much of the information contained in its pages. So far as it is possible for a volume to reflect the condition of the States of the world, the "Statesman's Year Book" performs that function most creditably. Nothing of importance in political geography is overlooked; and the shifting scenes, figures and activities are faithfully recorded. The volume for 1902 contains much revised material relating to the accession of King Edward VII., the census of Great Britain and of India, the development of our educational system, and colonial changes. The maps and diagrams show the results of recent censuses at home and abroad, existing and projected railways in East Central Africa, the new Indian province, and the projected Central America canals. The contents now occupy 1332 pages, and the volume should not be permitted to exceed this number very largely, or it will lose its handy character. How the editor will prevent the ultimate expansion of matter beyond the present limits of space is a problem to which he will need to give careful consideration.

THREE new volumes of Ostwald's series of "Klassiker der exakten Wissenschaften" have been received from Mr. W. Englemann, of Leipzig. (London: Williams and Norgate.) The volume No. 119 (price 2s. 6d. net) contains two papers on hygrometry, by H. B. de Saussure (1783), edited by Dr. A. J. von Oettingen. The papers deal with the theory of evaporation and the application of the theory to some meteorological phenomena. No. 120 (price 3s. net) contains a German translation, with notes by Dr. M. Möbius, of two papers by Malpighi (1675 and 1679) on the anatomy of plants. Fifty figures illustrate the text, and the editorial notes will be of service to German students. Two papers on plant hybrids, by Gregor Mendel (1865 and 1869), edited by Dr. E. Tschermak, form No. 121 of the series. The price of this volume is 1s. net.

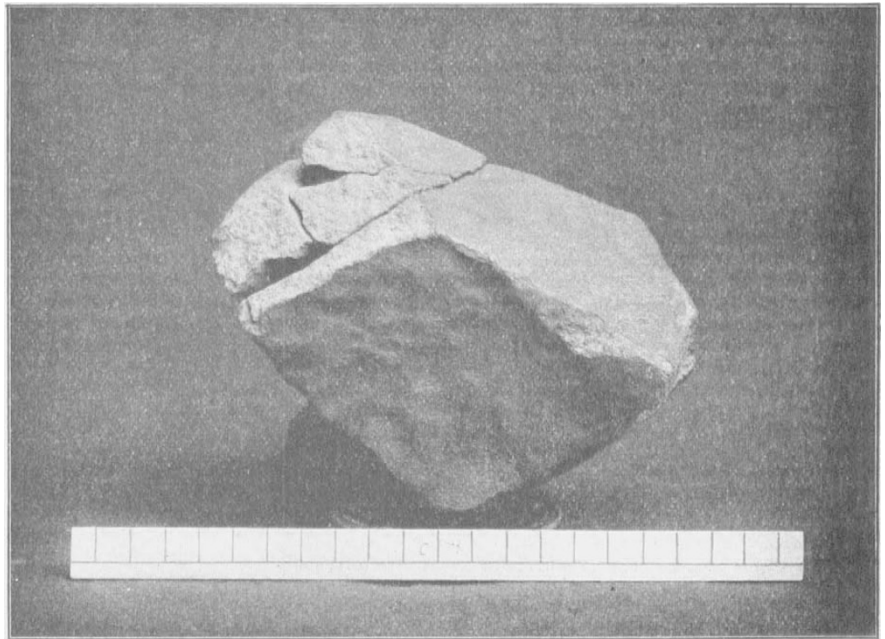
A NEW edition (the tenth) of Mr. W. T. Lynn's booklet on "Remarkable Comets" has been published by Messrs. Sampson Low, Marston and Co. The only comet expected to return this year is Swift's comet, having a period of $5\frac{1}{2}$ years. This is due towards the end of the year.

THE additions to the Zoological Society's Gardens during the past week include two Black Apes (*Cynopithecus niger*) from the Celebes, presented by Miss A. T. M. Elliot; a Malayan Bear (*Ursus malayanus*) from Malacca, presented by the Marquis of Downshire; a Suricate (*Suricata tetradactyla*) from South Africa, presented by Mrs. Philips; a Golden-naped Amazon (*Chrysotis auripalliata*) from Central America, a Yellow-billed Amazon (*Chrysotis panamensis*) from Panama, seven Elegant Terrapins (*Chrysemys scripta elegans*) from

North America, two Wrinkled Terrapins (*Chrysemys scripta rugosa*) from the West Indies, deposited; six Ruffs (*Machetes pugnax*), four Snow Buntings (*Plectrophenax nivalis*) European, eight Undulated Grass Parrakeets (*Melopsittacus undulatus*) from Australia, purchased; an Eland (*Orias canna*) born in the Gardens.

JUR ASTRONOMICAL COLUMN.

THE FELIX METEORITE.—In a recent number of the *Proceedings* of the United States National Museum, Mr. G. P. Merrill gives an account of the fall of a meteoric stone at 11.30 a.m. on May 15, 1900, near Felix, Alabama. A luminous meteor was seen and three loud reports as of explosion were heard. The main mass weighed about 7 lbs. and was found buried six inches deep in soft ground. In aspect of fractured surface the material is like that of the stones of Warrenton and Lancé, but the chondritic character is more pronounced than in the latter and the colour is darker than in the former, owing to the presence of graphitic carbon in appreciable quantity. The essential minerals are, olivine (73 per cent.), augite and enstatite (18 per cent.), with troilite (5 per cent.), nickel-iron (3 per



The Felix Meteorite. The scale below the meteorite is divided into centimetres.

cent.) and graphitic carbon (0.4 per cent.): the micro-structure is tuff-like.

ON THE RELATION BETWEEN INTELLIGENCE AND THE SIZE AND SHAPE OF THE HEAD.

THERE is a popular belief that men of great ability have larger heads than the average population; this belief, however, is not based on trustworthy statistics handled in a satisfactory manner.

In a paper read before the Royal Society, January 23, Prof. Pearson gives the results of statistical investigations undertaken with a view to determine whether any head measurements, and if so, which, are correlated with intellectual capacity.

He points out that although the professional classes are more intellectual and have a larger mean head capacity than the hand-working classes, this does not lend any support to the current notion; for the former are better developed physically, and the difference is probably only due to difference of nurture. It is necessary to take a homogeneous class in order to investigate the matter.

The Cambridge Anthropometric Committee furnished a series of measurements made on Cambridge undergraduates, and information was obtained from the University Registry of the degree (honours or poll, class, place, subject, &c.) taken by each of the individuals whose measurements were given.

The undergraduates furnish a homogeneous class of the same general habits.

They were divided into two groups—honours and poll men—and fourfold tables were made for:—

(1) Cephalic index and degree; (2) length of head and degree; (3) breadth of head and degree.

The table for (1) will illustrate the method in which all the tables were made.

Cephalic Index.

		Under 80.	Over 80.	Total.
Ability	Honours ...	307.5	216.5	524
	Pass ...	276.5	210.5	487
	Total	584	427	1011

The tables were worked by the method given in Prof. Pearson's memoir "On the Correlation of Characters not Quantitatively Measurable" (*Phil. Trans.*, vol. cxcv. A., pp. 1-47).

The divisions taken for length were under 7".65 and over 7".65, and for breadth over 6".05 and under 6".05. The correlation between ability and dolichocephaly was found to be .0305 ± .0349; between ability and long heads .0861 ± .0332; between ability and broad heads .0450 ± .0322.

If the numbers here given were of sensible magnitude, they would lead to the conclusion that ability is directly correlated with increased length and with increased breadth of the head and also with dolichocephaly. But on a comparison of the numbers with their probable errors it is seen that the correlation has no significance in the cases of cephalic index and of breadth; in the case of length, the correlation is between two and three times the probable error, but it is in itself too small to be of any real importance.

The Cambridge results may consequently be taken to show that there is no marked correlation between ability, as judged by entry for an honours examination, and the size or the shape of the head.

The problem was next worked out from a series of measurements made in schools. The data here are less satisfactory, for the measurements were made in schools of all grades all over the country, and consequently give a mixture of classes and of ages.

The cephalic index remains practically constant during growth; children of all ages may therefore be put together in this measurement; the length and the breadth of the head change with age, and the measurements in these cases must be reduced to the same age.

This was done by forming tables of correlation between length of head and age, and between breadth of head and age.

1856 boys were taken of ages running from four to nineteen years; the mean length was found for each year of age and a curve obtained of the average length of head of boys from four to nineteen years of age.

This curve showed apparently a period of rest in growth during the twelfth year. (A similar but less-marked rest in the twelfth year is also shown by T. W. Porter's curves for growth of head of St. Louis boys.)

The twelfth year was consequently chosen as the standard age to which all the measurements were reduced. The growth of the average boy for every year of age was then found. These values were added to the lengths for boys under twelve and subtracted from the lengths for boys over twelve. This gives what would be the length of head at twelve under the assumption that each boy grows like the average boy; this is, of course, not actually the case, but for a broad classification will hardly lead to serious error.

The same method was applied to the measurements on the breadth of head.

The children were arranged by their schoolmasters into the following classes:—

Quick-Intelligent, Intelligent, Slow-Intelligent, Slow, Slow-Dull, Very Dull.

In forming the correlation tables for ability and head-measurements, Quick-Intelligent and Intelligent were placed in one class and all the rest into a second class, called respectively Intelligent and Slow.

The divisions for cephalic index were taken as under 78.5, over 78.5; for length of head (reduced to twelfth year) below 184.5 mm., above 184.5 mm.; and for breadth of head (reduced to twelfth year) below 145 mm., above 145 mm. The results found were:—

Correlation between ability and dolichocephaly = .0052 ± .0240

Correlation between ability and long heads = .0437 ± .0242

Correlation between ability and broad heads = .0843 ± .0240

The results are in complete agreement with the Cambridge results.

The Cambridge and the school results taken together give practically a (mean) correlation of .065 between size of head and ability. This value was taken and the class of people considered who have an ability so great as only to occur in 2 per cent. of the population—a fairly high standard. This was worked out by the tables of the probability integral, and it was found that 44 per cent. of the population have heads as large or larger than the mean head of the exceptional 2 per cent. of the population. Conversely, 44 per cent. of the population are as able or abler than the 2 per cent. of the population with exceptionally big heads.

But as 50 per cent. of the population are abler or larger-headed than the mean of the population, the above result shows the smallness of the basis upon which the argument from ability to largeness of head, or *vice versa*, depends.

The Cambridge statistics were then investigated in the following manner. The honours men were divided into the three classes taken in examination. Two tables were made; in the first table, first- and second-class men were put in one division and third-class men in another, and a fourfold table was made with cephalic index. The correlation between ability and dolichocephaly came out = .0641 ± .0487. In the second table, the first-class men were taken alone for one division, and the second- and third-class men formed the second division; the correlation was found to be = .0254 ± .0490. The numbers in both cases are non-significant; there is no evidence to show that ability as tested by examination is related to shape of head.

Corresponding tables were made for length of head and for breadth of head. The results were:—

Length (first and second classes together) ...	correlation = .0865 ± .0471
Length (second and third classes together) ...	correlation = .1263 ± .0439
Breadth (first and second classes together) ...	correlation = .0056 ± .0475
Breadth (second and third classes together) ...	correlation = .1689 ± .0478

These results seem to show an increasing correlation between ability and size of head when the first-class men are separated from the rest, but it seems possible to attribute the divergence of the results to other causes. Length and breadth of head increase with age, and here, on the whole, the honours men are older than the poll men and the first-class men than the second, for a considerable number of resident dons were included in the measurements of the honours classes.

Of course the scale of intellectual ability must always be a vague one. A man is reputed to be "able" by his contemporaries, but future ages may rate him as of small importance. All we can do is to take a more or less popular appreciation. The examiner's test is not a perfectly satisfactory one, but it is idle to suppose that *on the average* it does not distinguish between the able and the dull. The same may be said of the teacher's estimate; it is far from absolutely correct, but it is reasonable *on the average* and better than the examiner's. Lastly, we have the youth's own opinion of his capacity, as judged by the reading for a poll or honours degree. Tried by all these three tests, there is in the general population very insignificant correlation between ability and either the size or shape of the head. Very brilliant men may have a slightly larger head than the average, but the increase is so small that no weight can be laid on it in our judgment of ability.