

The method enables us to fit a binomial to any asymmetrical curve, the results being based on no single ordinates, but on the moments of the whole system throughout.

The importance of this solution is that it enables us to determine p and q very approximately for any system of physical, biological, or sociological measurements; *i.e.* it tells us how much greater is the tendency for a deviation to occur on one side of the mean rather than on the other. A scientific measure of this is clearly given by

$$\frac{\mu_3}{\mu_2} = (p - q)c,$$

which measures the asymmetry of the frequency curve, and tells us at the same time the difference of p and q .

University College, October 17.

KARL PEARSON.

British Association Report on Thermodynamics.

AS I am now drawing up a second report for the British Association, on certain researches connected with thermodynamics, may I be permitted to invite the assistance and co-operation of all specialists in that subject?

It is proposed to deal with (1) the "Boltzmann-Maxwell" law of distribution of energy in systems of colliding and non-colliding bodies; (2) the virial equation when intermolecular force is taken into account, and its application to liquids and gases. It is desirable that the report shall be completed in time for the 1894 meeting of the Association.

The compilation of reports on different branches of science is one of the most important functions carried out by the British Association, but it is essential that every paper bearing on the subject of a report should be consulted in its preparation. The labour involved in wading through the enormous mass of existing literature on any physical subject can only be appreciated by those who have undertaken such work, and there is a constant risk of overlooking important papers, which are often buried in the Transactions of some obscure foreign society. It sometimes happens, too, that such papers cannot be procured, and hence cannot be consulted, to the great detriment of the report. May I therefore hope that the authors of any investigations bearing on the subjects of my report will kindly send me reprints? Lists of papers or suggestions will also be most acceptable.

G. H. BRYAN.

Thornlea, Trumpington Road, Cambridge, October 18.

Curious Phenomenon.

I WAS on the top of a small mountain in the Dövfjeld, near Hjerkin, in the late afternoon of August 26, the sun being 10-15° above the horizon, when I saw a remarkable phenomenon. On the opposite side to the sun was a bright disc, perhaps 5° in diameter, shown on some drifting clouds. The shadow of my head appeared in the centre of the disc, that of my body below, while outside the disc the shadow of my legs was faintly visible. The phenomenon continued on and off—that is to say, when the clouds were favourable—for nearly a quarter of an hour. The landlord of the hotel said he had never seen anything of the sort.

WILLIAM CHURCHILL.

New University Club, St. James' Street, S.W., October 17.

HUMAN AND COMPARATIVE ANATOMY AT OXFORD.

ON October 14, a distinguished company, including the Professors of Human Anatomy in Edinburgh and Cambridge, the President of the College of Surgeons of England, and many well-known medical men and teachers, attended the opening of a new institute of Human Anatomy by the Vice-Chancellor of the University of Oxford.

The occasion is one in connection with which a few words are appropriate concerning the history of anatomical studies in Oxford and the relation between the special technical study of the anatomy of man required by medical students, and the more general study of the comparative anatomy of man and animals, or animal morphology. Historically the study of natural science has had the closest connection with the profession of

medicine. In the last century, zoology and botany were not pursued in the universities of Europe as branches of science to be studied for their own intrinsic value as departments of knowledge, but primarily as giving the student acquaintance with "drugs" or "materia medica." Linnæus was the first university professor who lectured on animals from the strictly zoological point of view; until his time, animals had been studied, even in the universities, chiefly in relation to their supposed medicinal virtues. Concurrently the anatomists, who had mainly confined themselves to exploring the structure of the human body and of the animals nearest to man, extended their area of study. Through John Hunter and Georges Cuvier an immense body of knowledge as to the anatomy of all kinds of animals was accumulated and systematised, to which the name Comparative Anatomy was applied—more especially by Cuvier and his followers.

In this country, and very generally elsewhere, the study of "comparative anatomy" was carried on by men like Hunter, members of the medical profession, even practitioners. In the earlier half of the present century it was usual to find in the universities of Germany, as well as of Britain, that anatomy, including the wider comparative anatomy, as well as the topography of man required for medical purposes, together with physiology and even pathological anatomy, were all taught by one professor. Thus the great Johannes Müller discharged this multiple function until his death in Berlin in 1858.

It is not therefore surprising that when the Oxford University Commissioners of 1856 revived the ancient foundation of Linacre, they charged the new professor with the teaching of both anatomy and physiology. To this large task Rolleston, the first Linacre professor, devoted himself with characteristic energy and with a breadth of view which few nowadays could command. Rolleston taught physiology, comparative anatomy, as well as that topographical anatomy of the human body which medical training demands—a pursuit which he loved to call "anthropotomy." Anthropotomy was not neglected in Rolleston's time; those students of the University who wished to pursue human dissections in Oxford found the necessary material and assistance in his department.

The more recent Commissioners (of 1880) came to the conclusion that it was desirable that a separate chair of Physiology should be founded in the University of Oxford, and accordingly instituted such a professorship from the funds of Magdalen College, whilst they altered the title and scope of the Linacre chair to "Human and Comparative Anatomy." It was to the Linacre chair thus modified that Moseley was appointed on the death of Rolleston in 1881, whilst subsequently Burdon Sanderson was appointed to the newly-created Waynflete (Magdalen) chair of Physiology.

A further division of labour now became desirable. The teaching of anthropotomy—the medical student's necessary groundwork—could not be carried on personally by the same professor who was charged with the subject-matter of Cuvier's life-work. It was a question between either assigning to the Linacre Professor a specially qualified assistant to superintend the dissecting-room of Human Anatomy, or appointing an independent lecturer in that subject. The latter course seemed to be the better, and Mr. Arthur Thomson, the senior demonstrator in the Medical School of Edinburgh University, was appointed as Lecturer in Human Anatomy in Oxford. The expressed purpose of this appointment was to relieve the Linacre professor of that part of his duties which consisted in teaching human anatomy for the specific purposes of medical education, and it was in no way proposed to remove from the professor his functions as a teacher of the anatomy of man in its morphological aspects and his duties as guardian of the anatomical and ethnological collections of the University.

On the death of Prof. Moseley, in 1891, I was appointed his successor in the Linacre chair of Human and Comparative Anatomy. The University voted funds for the building and fitting of additional laboratories for the Linacre professor (which were completed and opened without ceremony last year) at the same time that we approved the expenditure necessary for a new laboratory for Human Anatomy. At my suggestion a statute was prepared, and has received the assent of her Majesty in Council, removing the words "human and" from the title of the Linacre professor; so that the professorship in question is now the "Linacre professorship of Comparative Anatomy," whilst the duty of teaching anthropotomy or that special study of the topography of the human body which medical training requires, is definitely assigned to the "lecturer in Human Anatomy."

The consideration of human structure in relation to that of vertebrate animals—the morphology of man as of other animals—the "comparative" anatomy of man and

collections of Comparative Anatomy and Craniology, which are attached to the Linacre professorship, do not need advertisement; they have been rendered famous by the scientific discoveries and researches of those who in the past have held that office. Of the new rooms for the study of anthropotomy, we have the expectation that they will in the future, under the care of successive lecturers in Human Anatomy, add to the attractions of the University as a centre of professional training, and justify the policy which has led us to the expenditure necessary for their erection. E. RAY LANKESTER.

CELESTIAL PHOTOGRAPHY AT THE PARIS OBSERVATORY.

A DESCRIPTION of the work that is being done in connection with the photographic star chart and catalogue is given in *La Nature* by M. A. Fraissinet. We are indebted to that journal for the accompanying

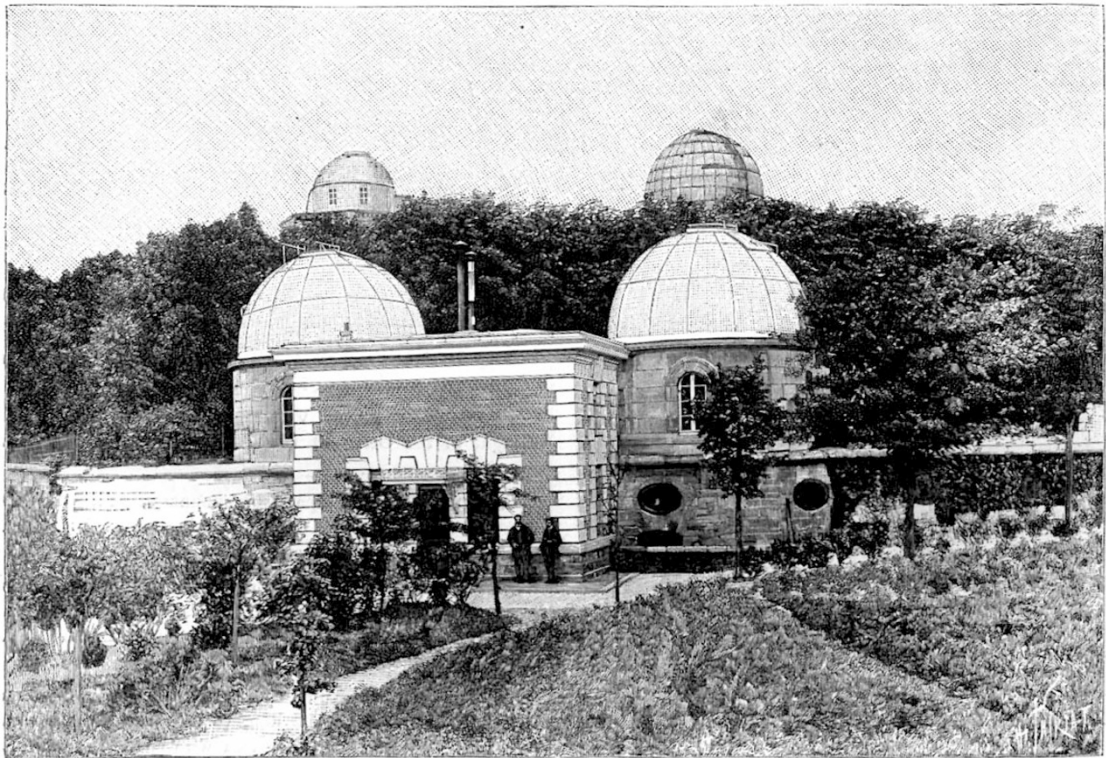


FIG. 1.—The part of the Paris Observatory devoted to the Photographic Star Chart.

animals—remain as heretofore the charge of the Linacre professorship. In short, the treatment of man's structure as part of the general science of morphology remains necessarily the business of the professor of Comparative Anatomy. The exposition of the geography of the human body, in which the surgeon, and to some extent the physician, must be as expert and familiar as a townsman in the pathways of the city in which he resides and does his business—is the distinctive function of the teacher of "human anatomy" in a medical school. It is for this special purpose that we have just added to the excellent laboratories and museum already arranged and used for the study of anatomy in its widest sense, a new dissecting room and adjuncts adapted to the reception and proper treatment of human bodies.

It is to be hoped that the effort now made by the University to establish technical training in anthropotomy as an independent offshoot of the Linacre professorship may be successful. The older laboratories and museum-

illustrations and the following information referring to them.

A special bureau for the measurement of the stellar photographs designed for the catalogue was organised at the Paris observatory in 1892.

To accommodate the new service the building shown in Fig. 1 was erected. On the first floor of the new building a photographic laboratory has been established. The ground floor has been set apart for the service of the measurement of clichés organised by MM. Henry. This service is under the direction of Mdlle. Klumpke, who is assisted by four other ladies.

Two measuring machines were provided last year of the new kind devised by Gautier, and supplied to the French and some foreign co-operating observatories.

The instrument is illustrated by Fig. 2. It consists at the lower part of a fixed horizontal piece having two rails on which a carriage may be caused to slide by means of a screw. Under the face of the carriage