managers recommended that no change should be made. The earlier practice was to appoint the professor only for a course of lectures, and upwards of fifty years ago a bye-law was passed that the election of a professor should be only for one session. With a few exceptions, the election of professors has been annual from that date down to the present time, and the power of not re-electing has been of great service, says the report, in the management of the University. Dr. Steven introduced a motion to abolish the annual election of professors. He spoke of the present system as most degrading. It struck at the root of the institution's claim to be a university; and while it was evidently contrary to the will of the founder, Dr. Anderson, he had heard of no case in which it had been of benefit. Mr. Kidston, secretary, remarked that many years ago it had been the means of causing the professors to pay up their rent. Dr. Steven said he had heard it remarked that the trustees might come to look upon security for rent as a qualification in their professors of more consequence than educational ability. The professors, he contended, should be elected *aut vitam aut culpam*.—Dr. Pirrie seconded the motion. An amendment was moved by Mr. M'Lelland for having no alteration in the present system. Dr. Adams supported the motion in a speech of some length, in which he characterised the annual election of professors as somewhat disreputable. The chairman recommended that no alteration should take place. All the other officials, he argued, were elected annually, and why not the professors? Dr. Weir asked an explanation of the paragraph in the report which stated that the system had been found to be of great service. Mr. Kidston, by way of reply, again instanced the refusal of the professors to pay rent. On a division, the amendment was carried by 35 as against 6. The meeting was proceeding to some routine business when our reporter left."

We had hoped that the trustees of Anderson's University would have made good use of the opportunity which exists at the present time, in consequence of the vacancy in the chair of Chemistry and of Mr. Young's munificent offer to endow a professorship of Practical Chemistry, to make some alterations in the status of the professors of the institution, but we seem doomed to disappointment. The professors are still to be appointed yearly, to give one course of lectures, and to have the privilege of paying rent for their laboratories and class-rooms in the meantime. The consequence of this will be that no chemist of eminence will be induced to undertake the duties of a post in which he will find himself on the same footing with *other officials*, doorkeepers, and laboratory man, we suppose; and we shall be much surprised if anyone will be found to apply himself solely to the duties of the appointment if he is to be liable to find himself turned out at the end of a year. The principal portion of his time must necessarily be devoted to commercial work and other means of obtaining a living, to the great detriment of scientific research, and certainly not to the credit of an institution which claims to be a university.

THE MICROSCOPE

CHOICE OF A MICROSCOPE.—Medical and other students are at this time of the year purchasing a microscope with which to begin the investigation of animal and vegetable structures. Others who would wish to invest in an instrument are deterred by the expense on the one hand and by the fear of obtaining a worthless thing on the other. Too strong a protest cannot be made against the notions prevalent with regard to microscopes, and encouraged by most of the makers in this country. The handsome-looking instrument of great size, with its long tube and innumerable wheels, is not to be recommended to the would-be observer, even should he feel justified in the expenditure. The microscopes which are used in most of the German laboratories where so much thorough work is done (to the writer's knowledge in Prof. Stricker's and Prof. Rokitansky's laboratories at Vienna, in Prof. Schweigger Seidel's at Leipzig, and in Prof. Claude Bernard's at Paris), are the little instruments of Hartnack, which do not stand above ten inches high, with a simple but large stage without any movement, no rackwork to the tube, but a sliding motion and a fine adjustment. The instrument is used in the vertical position with complete comfort, and when liquid is on the stage, this position being necessary, it is of considerable advantage to have a small microscope over which one can easily bend the head. Large microscopes, with their complicated machinery, are made to suit the optician who sells them, and not for the convenience of the observer. Those who wish to get a microscope should insist either on having one of these small and handy instruments made, or order one from M. Verick or M. Hartnack in Paris. Such a body having been purchased at a very minimum of cost, a larger sum may be expended on the really essential part of the apparatus, namely, the lenses. And here it will be found of great advantage to have the tube of the microscope not more than three-and-a-half or four inches in length, for then the objectives of the continental makers can be used with the greatest advantage, though, with proper care as to the ocular or eye-piece, they may be used on our ordinary long-tubed awkward English microscope. It is almost incredible that the English makers of object-glasses continue to demand three, or even four, times the price for their lenses which foreign makers do for lenses in every respect as good. For two pounds an object-glass may be obtained of M. Verick or M. Hartnack, of Paris, No. 8, which is quite as good a glass and in some respects more pleasant to use than the one-eighth, for which English opticians demand eight guineas. Many persons anxious to work with the microscope are deterred by the price of really first-rate instruments in this country. What we urge upon them most earnestly is to purchase such a body with eye-piece as that described above—simple but strong and steady—for between two and three pounds, and to equip the instrument with the objectives of MM. Verick or Hartnack, say No. 2, No. 5, and No. 8, which can be obtained for another four pounds. We shall have occasion again to speak of the merits of English and foreign objectives, especially of the immersion object-glasses. At present we speak from personal experience, and desire to point out the convenience and cheapness of the small microscope-body, and the thorough excellence and immensely diminished cost of the French makers' object-glasses.

Cutting Sections of Tissues.—The method of "embedding" first practised by Stricker and Klebs is now extensively used in Germany, and is of very great assistance to the practical histologist. It consists simply in surrounding the object from which sections are desired, with either paraffin, stearine, or a mixture of wax and oil. This latter is preferred at Vienna by Prof. Stricker and Dr. Klein, his assistant, and can be obtained of the exact consistency which may be desired; usually equal parts are to be used. A little tray of paper is made, and some of the wax composition in a melted state is poured in. The object to be cut is then placed in the tray, and more composition added, till the object is thoroughly enclosed. When hard, sections of the mass can be cut, the advantage being in the case of thin laminæ or processes, that a complete support is offered by the surrounding composition, and a uniformly thin cutting may be obtained. For some purposes the microtome of Dr. Ranvier, of Paris, is very useful: it is similar to one recently brought out by Mr. Stirling, of the Anatomical Museum, Edinburgh. In this little instrument we have a flat piece of brass with a hole in the centre, leading into a cylindrical chamber, at the bottom of which a screw works. A piece of elder-pith is excavated, so as to hold the tissue to be cut; and when this has been well fixed in it, the pith is squeezed into the cylindrical box through the hole in the brass plate. A razor drawn along the surface of the brass plate cuts through the pith and the tissue it embraces, leaving a surface perfectly smooth and continuous with that of the plate. A turn of the screw, which works into the cylindrical box, now causes a certain very small thickness of the pith and tissue to project above the plate, and the razor again drawn across and pressed on to the surface of the brass plate, cuts a fine section, the exact thickness of which may be nicely regulated by the screw which pushes up the pith. This little instrument may be obtained at a small cost from M. Verick, 2, Rue de la Parcheminnerie, Rue St. Jacques, Paris. It is not unlike an instrument described in English books on the microscope for cutting sections of wood, but its application with the use of pith, previously much in use for making sandwiches with delicate tissues which had to be cut, increases its value greatly. As to knives to be used in making sections, though some large knives are made on purpose, there is nothing better than a first-rate broad-bladed razor. Dr. Meynert has cut his immense collection of brain preparations with a common razor.

Staining and Mounting Tissues.—The method which is now very extensively used in German histological laboratories for the study and preservation of all kinds of delicate tissues, such as sections of the developing hen's egg, morbid growths, fine injections, nerve tissues, &c., is as follows: The section, either from a fresh specimen or from one preserved in alcohol, is placed in a solution of carmine in ammonia, from which all excess of ammonia

has been allowed to evaporate, as tested by the smell. The solution is also carefully filtered before use, and diluted to a small extent. After from three to ten minutes or more in the carmine solution, the section is placed in distilled water and thoroughly washed for some time by blowing into the water with a small pipette. From this the section is removed momentarily to a watchglass containing distilled water and two drops of acetic acid, and then is placed in absolute alcohol. The water is thus removed, and in five or ten minutes the section may be placed in oil of cloves, which renders it very transparent. From this it is removed to the glass slip, and is mounted in a solution of gum damara in turpentine, such as is sold by artist's colourmen. At any stage in this process we can proceed back again by the same steps, ammonia being used in place of acetic acid, and re-stain, re-wash, or re-acidify as the case may be. If the staining is carefully managed and the subsequent washing a thorough one, most cellular structures are very beautifully and clearly brought out. Where rapidity is desired, and for the purpose of inspecting a specimen, it may be simply mounted in glycerine after the staining. The process above described is that of Gerlach and Stieda, and is preferred to any other by some observers of great experience. Thus Dr. Meynert, of the lunatic asylum at Vienna, who is throughout Germany regarded as the great authority on the histology of the brain, uses this method for mounting his sections of cerebrum, cerebellum, &c. It is very convenient to have little glass dishes with covers for each of the above-mentioned re-agents, so that the sections may be passed from one to the other and left covered up, if desired, for a day or two—the waste of re-agents involved in filling watch-glasses each time they are required being also avoided. If preparations have been preserved in chromic acid, they must be very well washed before staining, and very often cannot be made to stain well at all. Various methods are useful in various cases, but, as one of great general use, the carmine staining and oil of cloves clearing may be strongly recommended. Staining tissues with nitrate of silver, chloride of gold, and with bile-pigment are most important aids to the histologist, the merits of which have been recently much discussed, and of which we shall have a word to say from experience.

Glycerine Jelly.—This composition, which has been lately introduced, melts at a lower temperature than Deane's medium, and has a greater clearing action on the objects mounted in it. A small piece of the jelly put on a glass slip and warmed, soon liquefies, and is ready to receive any object, after which the cover is directly applied. For objects which do not require any great amount of "clearing," it is a most useful medium. Insects, worms, small crustacea, &c., may be mounted in this way excellently. E. RAY LANKESTER

METEOROLOGY OF JUNE 1870

I BEG to send you a few particulars of the weather of the past month (which was characterised by unusual atmospheric phenomena), deduced from daily observations with standard instruments, the place of observation being in latitude 51° 27′ N., longitude 0° 18′ W., height above sea level 64 feet.

The barometrical readings have been corrected for capillarity, index error determined by comparison at the Royal Observatory, Greenwich, and certified by James Glaisher, Esq., F.R.S., and reduced to 32° Fahr. and mean sea level.

The thermometrical readings have been corrected for index error determined by comparison at the Kew Observatory of the British Association.

Time of observation, thermometer $7^h\ 45^m$ A.M., barometer $8^h\ 0^m$ A.M., wind direction $8^h\ 30^m$ A.M., daily (approximate).

The following are the calculated monthly means, &c.

Mean height of the barometer (corrected) . .	30·135 in.
Highest observed reading	30·551 in.
Lowest observed reading	29·747 in.
Monthly range	0·804 in.
Mean temp. air ($7^h\ 45^m$ A.M.)	60·8°
,, ,, of evaporation	55·3°
,, ,, of dew point	50·6°
Relative humidity (dry air = 0, saturation = 100)	70
Mean of the maxima	75·1°
Mean of the minima	51·2°
Mean diurnal range of temperature	23·9°
Extremes { Highest reading (June 22) . .	91·4°
Extremes { Lowest reading (June 6) . . .	41·6°
Monthly range of temperature	49·8°
Mean estimated force of wind (0 to 6) . . .	1·5
Total rainfall	0·597 in.
Days on which rain fell	5
Evaporation on 22 days	3·652 in.
Mean intensity of ozone (24h)	2·5

*** Sun at greatest meridional altitude (year) or greatest N.D. June 21st.

A lunar halo (or portion of a circle) was observed on June 9 shortly after 10^h P.M. (or 10^h astronomical time). Its estimated extent was 270° of a circle whose diameter was 60°. Estimated altitude of the moon at time of observation, 35°.

A thunderstorm occurred on the 16th, with very vivid lightning, yielding 0·355 inch of rain, which was equivalent to 7987·5 gallons, 1288·65 cubic feet, or 35·9 tons per acre, assuming the rainfall to be equally distributed, which may be done with some degree of truth, as the amount measured at the Kew Observatory, one mile distant, agrees with mine to the second decimal.

The atmosphere was moderately charged with moisture during the month, which must have been an assistance to vegetation in spite of the excessive drought.

The rainfall during this month was 0·558 inch less than that registered during the corresponding period last year.

Wind directions in the lower regions of the atmosphere were observed on 12 out of 16 points, the prevailing directions being between W. and S.W. points.

Richmond, Surrey, July 7 JOHN J. HALL

THE ROTUNDITY OF THE EARTH

"PARALLAX" is not dead yet. His backer, Mr. John Hampden, has again brought his sophisms and his misstatements before the public in the form of a periodical called the *Armourer*, which has already had one period of existence, having been discontinued about four years since, "amidst the regrets of hundreds of its readers," as the editor asserts. When Mr. Hampden speaks of the recent experiment by which the falsity of "Parallax's" views was exposed, as "the Bedford Canal swindle," of Mr. Wallace's victory as having been obtained by "Scotch knavery and cunning," and of the conduct of the editor of the *Field* as umpire as having been "false, unfair, and fraudulent," we may well leave these charges to be replied to by these gentlemen themselves, or by the law. As, however, "Parallax" repeats unblushingly his assertion that he has for years propounded his views by lectures in various parts of the country without their having been once refuted, we may call to his remembrance a circumstance which he has probably found it convenient to forget. During the recent experiments at the Bedford Level, "Parallax" carefully concealed the fact that the very same test had been previously applied. In the year 1856, however, after a lecture by "Parallax," at Norwich, two gentlemen challenged him to an experimental proof of his views. He accepted the challenge and was invited to witness the experiment, which invitation, however, he did not respond to, but prudently left the town in the interim. The nature and result of the experiment are detailed in a printed slip which was inserted at the time in the local papers, and a copy of which we append:—

COPY OF AGREEMENT.—We, the undersigned, "Parallax," of No. 61, Upper North Place, Gray's Inn Road, London, on the one side, and John Weir, of No. 14, Suffolk Street, Union Place, Norwich, and Charles William Millard, of Prince's Street, Norwich, on the other side, having different opinions as to whether the Earth be a Plane or a Globe, agree to test the accuracy of our respective opinions in the following manner, that is to say, to place four flags in a straight line, intersecting the River Yare between Strumpshaw or Bradestone and Norton, for a space of not less than four miles, or six miles if possible. The flags to be at the same height above the water except the