this feature still predominates in other portions of the motor area where the *size* of the cells no longer warrants us in calling them giant cells, their position in the order of lamination, their general form and distribution in clusters sufficing to identify them as the same elements.

This disparity in size between these elements in the fourth layer of the motor area induces us to reject the term giant cell as applied *generally* to this formation, and to call them in preference the ganglionic cells of the cortex. Their close resemblance to the ganglionic cells of the spinal cord has been fully recognised by Betz and other observers.

EXPLANATION OF DRAWINGS.

Plate 1. A section taken through the ascending frontal at its upper extremity, exhibiting the five layers of the cortex as seen magnified 87 diameters.

Plate 2. The ganglionic cells of the fourth layer of the cortex from an area opposite the first frontal on the ascending frontal convolution. In the lower group the various forms assumed by these giant cells are well shown, whilst the upper group represents the appearance presented by sections carried across their long axis. The latter method illustrates the wide area commanded by their outspreading branches.

Plate 3. A scheme illustrative of the exact number and arrangement of the ganglionic cells at different points of the ascending frontal and two upper frontal gyri.

Each curved line is supposed to represent the boundary line of a section carried vertically through the ascending frontal from before backwards. The right hand portion of the curve, therefore, represents the side adjacent to the ascending parietal; the left hand segment of the curves represents the frontal aspect, from which the frontal gyri arise. Figs. 1 and 2 serve to localise the site of these sections. The exact number of these cells, and their relative positions, were first sketched, as accurately as possible, under a quarter-inch power, and the sketch reduced by photography. That portion of the scheme relating to the two frontals shows, at R, a section through the area of the first frontal carried *across* its length, and at S in like manner, a section through the ascending frontal opposite the second frontal, and, therefore, carried *along* the length of that convolution.

N.B.—Plates 1 and 2 represent sections obtained from frozen brain, by means of the ether microtome.

III. "Researches in Spectrum Analysis in connection with the Spectrum of the Sun." By J. Norman Lockyer, F.R.S. Received November 17, 1877.

(Abstract.)

The author refers to the work already done in the new map of the Solar Spectrum as enabling the chemical constitution of the Sun's atmosphere to be studied under more favourable conditions.

He shows that the work already done enables him to confirm the presence of Sr, Pb, Cd, K, Ce and U, and also that it indicates the probability of the presence of Va, Pd, Mo, In, Li, Rb, Cs, Bi, Sn, La, Gl, Yt or Er.

IV. Note on the Bright Lines in the Spectra of Stars and Nebulæ." By J. NORMAN LOCKYER, F.R.S. Received December 31, 1877.

Owing to absence from England in April last, I have only just become acquainted with Dr. Huggins' paper, in reply to that by Mr. Stone, on the above subject. As Mr. Stone has again directed attention to the matter, I am anxious to say that I agree with him so entirely* that two years ago I searched for indications of a large chromosphere in the case of *a* Lyræ and some other stars. I believe I have had glimpses of bright lines at *F* and *b*, but if this discussion had not arisen I should

* I append an extract from a lecture on the Structure of Nebulæ and Stars, which I gave at Manchester in the autumn of 1876 ("Manchester Science Lectures"), to show the perfect accord there is between us. "There are nebulæ and stars with spectra so similar that if one had the evidence of the spectroscope alone, it might be impossible to decide which was nebula and which was star. Now this may be a little startling to some of you, and therefore it is only fair I should explain it. The stars, you know, are so remote from us that in the most powerful telescopes to which spectroscopes are applied, they appear only as the finest points of light. Now these points of light, it is not absurd to imagine, may in some instances be two millions, or perhaps even three millions, of miles in real diameter. We know that our own sun, which is certainly not the largest star in the heavens, is nearly one million miles in diameter; that is to say, the true sun, the true stellar nucleus, is one million miles in diameter. Now when I dealt in my second lecture with the physical constitution of the sun, I pointed out that the sun which we see, the sun which sends us the majority of the light we receive, is but a small kernel in a gigantic nut, so that the diameter of the real sun may be, say, two million miles. Suppose then that some stars have very large coronal atmospheres; if the area of the coronal atmosphere is small compared with the area of the section of the true disc of the sun, of course we shall get an ordinary spectrum of the star; that is to say, we shall get the indications of absorption which make us class the stars apart; we shall get a continuous spectrum barred by dark lines. But suppose that the area of the coronal atmosphere is something very considerable indeed, let us assume that it has an area, say fifty times greater than the section of the kernel of the star itself; now, although each unit of surface of that coronal atmosphere may be much less luminous than an equal unit of surface of the true star at the centre, yet if the area be very large, the spectroscopic writing of that large area will become visible side by side with the dark lines due to the brilliant region in the centre where we can study absorption; other lines (bright ones) proceeding from the exterior portion of that star will be visible in the spectrum of the apparent *point* we call a star. Now it is difficult to say whether such a body as that is a star or a nebula. We may look upon it as a nebula in a certain stage of condensation; we may look upon it as a star at a certain stage of growth."