from it, and yet to do so would not be more illogical than the course they have pursued of separating the description of the cranio-spinal nerves from that of the central nervous axis. If the anatomical description of the human body is ever to be put on a scientific basis, it must be founded on the facts of comparative anatomy and of development, and the great aim of descriptive writers should be to accommodate their descriptions to these facts.

After this protest against some features in the general arrangement of the book, we may now glance at the manner in which the process of revision has been performed by the different editors. The first volume bears throughout the mark of careful revision by Prof. Thane. We have compared many of the descriptions with those of the corresponding structures in the immediately preceding edition, and we notice many changes both in the matter, and in the mode of expression. Various redundancies have been expunged, errors have been corrected, new facts have been introduced, and to some extent the descriptions generally have been re-arranged. Several new woodcuts have been inserted, and those illustrating the vascular system have been made more diagrammatic by colouring the arteries red and the veins blue. We notice, however, that Prof. Thane, as is unfortunately only too common with some English human anatomists, does not properly discriminate between the meaning of the terms mesial line and mesial plane. In his description, for example, of the recto-vesical portion of the pelvic fascia, he speaks of its being "continuous from side to side across the middle line in front of the bladder," forgetful apparently of the fact that the descriptive term "middle line" expresses a line on the surface, either anteriorly or posteriorly, as the case may be; whilst the imaginary plane between these anterior and posterior mesial lines is the mesial plane of the organ or region.

The greatest amount of change, however, as was naturally to be expected from the subjects discussed in it, has been made in the second volume, and more especially in the chapters edited by Mr. Schäfer. The important section on General Anatomy, or Histology, has been in some measure re-arranged, and many of its chapters re-written. The latest investigations into the structure of the nucleus, the part which it plays in the multiplication of cells, and the process of maturation of the ovum, have been explained and illustrated by woodcuts. The description of the structure of the individual tissues has obviously been carefully revised, and various changes both in the way of addition and omission have been made. Not the least important is the addition to each chapter of the titles of the most recent papers on the subject-matter of the chapter.

If we were disposed to be very critical, we could undoubtedly lay our fingers upon more than one statement to which objection could be taken. And there is indeed one point that we cannot pass over without notice, as it illustrates that in the comparatively small matter of editing a work on anatomy, as in the much larger subject of administering the finances of Egypt, a Dual Control has many disadvantages. Mr. Schäfer, for example, in his references to the layers of the embryo, in which the several tissues take their rise, employs the terms ectoderm, mesoderm, endoderm, to express the

three layers of the blastoderm, and in this respect adopts the nomenclature most commonly used by German anatomists; whilst Dr. Thomson, in his references to the same layers, almost invariably speaks of them as epiblast, mesoblast, and hypoblast, which, indeed, are the terms commonly in use amongst British anatomists. The employment in different sections of the same work of two distinct words to express the same structure, is an error in judgment, and certainly not to the edification of the student.

The chapter on the spinal cord and brain has also been greatly modified, and in re-arranging it Mr. Schäfer has largely availed himself of the book, the title of which stands second at the head of this article. The history of this book is somewhat curious. Originally it appeared as a German translation of an earlier edition of "Quain," edited by Prof. Hoffmann. Then, somehow or other, the name of Quain dropped out of the title in the later German editions, and now, as regards the chapters on the Nervous System, written by Prof. Schwalbe, it is essentially a new book, and in our opinion contains the best account of the anatomy of the nervous system in man which has yet been published.

Of the section on Embryology, prepared by Dr. Thomson, we have not space to say more than that it narrates in a convenient compass the successive series of changes which result in the formation of the adult human body; that the descriptions are clear, well arranged, and embrace the latest investigations; and that on points under dispute the author expresses himself with reservation and caution, in a manner characteristic of the writings of this anatomist.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Transit of Venus, December 6

IN the morning here the sky was clear, and the sun remarkably free from spots. I noticed only 4 small ones on the disk: quite a contrast to the monstrous appearance a month ago.

Being neither equipped nor qualified for technical astronomical observations, I did not attempt to do more than to give a popular demonstration of the transit of Venus to between 30 and 40 friends interested in the phenomenon. My experience of stargazing was chiefly obtained upwards of 50 years ago, before I became otherwise occupied; and then I found for myself, that the best way of studying solar phenomena, whether eclipses or spots, was by projecting on white paper or cardboard, the image of the sun from the telescope, focussed a little beyond the point for direct vision through the dark eye-glass; extraneous sunlight being shut out by a napkin suspended around the telescope. I presume that this method is well known, and it seems to have been adopted, (with the additions of a dark chamber) by Mr. Campbell of Islay, in the exhibition of the transit at Cannes, so well described by the Duke of Argyll in NATURE (p. 156). In this way with a small achromatic of 32 inches focal length, and $2\frac{1}{4}$ inches aperture we saw well all the chief features of the transit, (which I need not describe, as this has already been done by more competent observers), and this without fatigue to the eyes, and the unnatural colouring, inseparable from looking through the telescope with darkened glasses. Further, as the time of sunset approached, at about 3.30 p.m., we had in our camera view the additional charm of the colours

of the objects in view. As, in the Italian sky the golden orb sank with the dark planet spot on its disk, under brightly tinted clouds, shaded off in streaks of tender grey into the azure above, with the blue rose-tipped mountains of the Esterets beneath,—the scene was one as fascinating in beauty as it was interesting in science. All these tints appeared distinctly, albeit faintly, in the telescopic image on the card.

One point was remarkable,—that whilst the shades of the mountains were all *blue*, the dark round spot of the planet on the sun was almost *black*. It was the darkest object in the field of view. Partly, but I hardly think entirely, this may be explained by its being higher, and less subjected to the decomposing power of the lower atmospheric layers. I have endeavoured to represent in water-colours this view of the transit of Venus. The result, of course, cannot be reproduced in print, but any of your readers who may be visitors at Cannes will be welcome to see it, as an original kind of reminiscence of a very rare event.

C. J. B. WILLIAMS

Cannes, December 21

The Comet during the Last Month

SINCE my last communication (see *NATURE*, vol. xxvii, p. 110) the weather and the presence of moonshine has been unfavourable for views of the comet; but I have seen it, more or less distinctly, on seven nights, from November 22 to December 21. I will not take up your space with details, but mention, as the general result of these observations, that the comet has become smaller in dimensions, and much fainter in its light. With moonlight, no trace of a tail is visible; and the nucleus can only be discerned by telescope as a nebulous star of third magnitude. In absence of moonlight, as on December 6, 8, and 12, between 2 and 3.30 a.m., the tail was visible to a length of about 10°, with a breadth expanding from the head, with no distinguishable outline. My last view of it was on the 20th, at 3 a.m., when, with a brilliant starlight after moonset, the comet was in the south-south-east, about 20° above the horizon, with a tail about 8° long, and a nucleus, a nebulous star of third or second magnitude. Its position was about as far to the east-north-east of Procyon as that star is east-south-east of Sirius. It seems likely to be visible in clear moonless nights for two or three weeks longer.

C. J. B. WILLIAMS

Cannes, December 21

The Heights of Auroras

THE observations described in your last number as having been made long since in Siberia, of lunar halos projected on auroras, have not, I believe, been confirmed by other observers; but if correct, possibly this phenomenon may be a peculiarity of auroras in Siberia, or in the Arctic regions. There seems reason to think (see Capron's "Auroræ," pp. 37-40) that auroras may be lower when near the magnetic pole than further south. If this is the case, it is so far favourable to the theory (propounded, I think, by a German writer) described in *NATURE* (Vol. xxv, p. 320), that the auroral zone is a plane, and not part of a sphere concentric with the earth's surface. The majority of the observations in lower latitudes cited in Capron's "Auroræ," place the phenomenon at a height of 100 miles or upwards.

The height of the spindle-shaped object seen in the aurora of November 17 is thus no argument against its auroral character, which I see no reason to doubt. It is true that in my experience (which, in this northern part of the country is probably much greater than that of your correspondents), I have never seen anything resembling it, judging from the descriptions of it; but I do not think this is a reason for supposing such an auroral phenomenon could not take place. The fact that it moved along a parallel of magnetic latitude is a very strong argument for its auroral character. Besides, its spectrum is stated to have exhibited the characteristic auroral line. I hope some one will collect all possible observations of this beam, especially from the continent, and undertake a careful investigation into its path and height.

T. W. BACKHOUSE

Sunderland, December 23

The Aurora and its Spectrum

IN reference to Mr. Ralph Abercrombie's letter (*NATURE*, vol. xxvii, p. 173), I may mention that his remarks quite accord with an opinion expressed to me by my friend, H. R. Procter, that the "aurora is generally formed in some imperfect mist or

vapour." I am intending some experiments on discharges *in vacuo* under such conditions and reduced temperatures, also on phosphorescence, in connection with which M. Lecoq de Boisbaudran has shown in his "Spectres lumineux," that we get a line in the red, brightening as the temperature is reduced. I do not read the result of my Swan lamp experiment, as Mr. Munro (same number and page) does. The lamp, when perfect, gave quite a bright white glow, with a strong carbon spectrum. I should therefore attribute the absence of the nitrogen spectrum at this time not so much to a high spectrum as to the probability that the lamp had been, as far as possible, exhausted of air, and filled with some form of carbon gas. I am not aware of any air-vacuum point at which the nitrogen bands or lines disappear, except for want of light in the discharge. With regard to the letter of W. M. F. P. on the "Meteor of November 17th," I only assumed the correctness of the figures and heights quoted in mine for the purpose of showing the complex nature of the auroral questions. I am not the less perfectly satisfied that the "beam" was a true aurora, and not a meteor, my spectroscopic observation of it putting this beyond a doubt.

J. RAND CAPRON

Guildown, December 23

The Weather

IT is curious how the recent auroræ have been followed not only by a cold wave, but by a subsequent warm one, and these respectively of such extremes, that 21° at 9 a.m. on the 11th is this day replaced by 48° or 27° of difference. Equally strange have been the effects on animal and vegetable life. During the cold, an almost Arctic season in its ice-bound stillness prevailed, and a flock of wild geese crossing in front of the house (the forerunners, in public opinion, of a hard winter) represented external creature life. Now all is changed almost to spring. Roses, though somewhat nipped by the frost, seem ready to blow; flies and gnats are unthawing, and last night, in going up to the observatory, I noticed the phosphorescent glimmer of a luminous centipede under one of the shrubs, a sight I do not remember ever to have met with in winter before.

J. RAND CAPRON

Guildown, December 19

A Common Defect of Lenses

A CHANCE observation a few weeks since led me to the discovery of a serious defect in the object-glass of the collimator of a spectroscope by Grubb, of Dublin, which I have been using for some time. As further investigation has shown me that the defect is very common, while at the same time it is a source of considerable error in all experiments on the plane of polarisation of polarised light, it seems worth while to call the attention of readers of *Nature* to it. The object-glass in question has been imperfectly annealed. As a consequence, a plane polarised incident beam is elliptically polarised on emergence from it.

If it be looked at between crossed Nicols in a pencil of parallel rays, the field of view becomes bright, and is crossed by two brushes hyperbolic in form, which for two positions of the lens became two straight lines. If again plane polarised light be allowed to pass through the lens while it is turned round its own axis, there are four positions of the lens for which the central portion of the emergent beam is plane polarised, and can be quenched by an analysing Nicol; for all other positions of the lens, the emergent beam is elliptically polarised, and the light cannot be quenched, but reduced to a minimum. Moreover, as the lens is turned, the position of the axes of the ellipse varies by nearly half a degree. I have since examined a large number of lenses, without finding one quite free from the defect. One well-known London optician declines to attempt to supply me with a two-inch object-glass which shall not show it, while another states he has never known any lens absolutely free from it.

The important bearing of the point on all investigations into the polarisation of light is obvious. The consequences it produces in modifying the results of some recently-published experiments of mine (*Phil. Trans.*, Part ii., 1882) formed the subject of a paper read at the last meeting of the Royal Society.

R. T. GLAZEBROOK

Trinity College, Cambridge, December 20

New Deep-Sea Fish from the Mediterranean

MY letter in *NATURE*, vol. xxv, p. 535, called forth two important notes from such competent ichthyologists as Mr. J. Y.