

3. No powerful machinery is needed as for moving or raising heavy materials.

4. A saving in the levelling of the rock for a foundation for the tower.

5. The ease of landing on exposed rocks small fragments of stone, as compared with the landing of heavy and finely-dressed materials.

The erection of an experimental beacon on the plan I have suggested would be attended by comparatively small expense.

Edinburgh, Aug. 29

THOMAS STEVENSON

Neologisms

It may be something of a bull, but I wish to consult your correspondents about a neologism which does not exist. It must exist very soon, however, because it is urgently wanted, as will be seen from the following considerations:—

A straight line has a certain *direction*; we all know what is meant; it is an inherent property of a straight line. The answer to the question what property two parallel straight lines have (independently of their being produced) is that they have *the same direction*. I do not invite discussion on the propriety of this definition, but only call attention to the fact that the words exist by which this conception of parallels can be expressed.

Now to speak of planes. A plane has a certain —; two parallel planes have the same —. The same *what*?

Again, here are two theorems, which are, in fact, reciprocal:—(1) planes parallel to given straight lines are themselves parallel; and (2) if two intersecting planes are respectively parallel to two other intersecting planes, the lines of intersection are parallel; which may be better enunciated as follows:—(1) two directions determine one —; and (2) two — determine one direction.

The German geometers have no difficulty about it. They say, "Durch 2 Richtungen ist eine Stellung, durch 2 Stellungen eine Richtung bestimmt."

J. M. WILSON

Rugby, Sept. 1

The Nucleus of Adipose Tissue

WILL you allow me to make one or two observations upon the remarks made by the writer of the article on the last part of the "Physiological Anatomy and Physiology of Man?" In few words the reviewer has drawn attention to several of the most important points advanced in this part, and for this I feel much indebted to him. But with reference to adipose tissue, he observes that I convey the impression that the adult fat cell "consists merely of an envelope containing oily matter—no mention being made of the fact that by proper treatment a nucleus also can be almost always demonstrated." This is strange, for I believe I was the first to demonstrate the "nucleus" in the fat cells of adult adipose tissue. In my lectures at the Royal College of Physicians in 1861, I showed specimens illustrating the fact, and in the work reviewed I have endeavoured to show that the so-called "nucleus" (germinal matter or bioplasm) is concerned in the formation of the fatty matter, and in its removal from the fully formed fat vesicle (p. 305) whenever we get thin from the absorption of fat. In fig. 108, plate xx., fat vesicles in various stages of development are represented, the "nucleus" being given in every one, while in fig. 132, plate xv., are shown some fat vesicles in cartilage, the nucleus being seen in every instance. If I have not made this point sufficiently clear in my description, it arises from the circumstance that I desired to leave as much as possible of the general description given by my predecessors in the first edition. In the early part of the chapter the nucleus has not been mentioned, which is to be regretted, but in the latter part, containing the new matter, very frequent allusion to it has been made.

It is this *constant presence* of the "nucleus" (bioplasm) in all tissues, at every period of life, at least as long as their activity lasts, to which I have long attached such great importance. I have endeavoured to show that this nucleus matter (bioplasm or germinal matter) is alone instrumental in the formation and removal of all textures, and at every period of life. This alone, of all the matter of the body, is in a living state, and capable of formation. Contrary to the generally received opinion, I have proved its presence even in all forms of yellow elastic tissue, and have shown that this texture is formed upon the same principles as other tissues.

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LIONEL S. BEALE

Eclipse Photography

FROM letters I have received, it appears that the table of exposures given in my "Notes" is not correctly understood. It is necessary to explain again that the reason why the plate exposed 8 secs. gave a better result than the one exposed 30 secs. was because the eclipsed sun was nearly covered by cloud during the long exposure, and was quite clear during the short. The 30 secs. plate would have been greatly over-exposed for certain details, but the outer corona would probably have been more clearly defined. By giving some plates short and others long exposures, it was intended to show different effects, as would certainly have been the case if we had been favoured with a cloudless sky.

I am informed that it is proposed to attempt to obtain uniformity of results by using the same kinds of instruments and chemicals at all the stations. So far, good. But where is the certainty that the hands that will use the chemicals and instruments will produce equality of results? It is about the same as giving to a dozen men pens, ink, and paper, and expecting from them twelve specimens of calligraphy all alike. It would be preferable to decide beforehand whether negatives, or positives, or both are to be taken, and then to allow the operators to choose their own methods.

A. BROTHERS

The Museums of the Country

IT must be obvious to any scientific person visiting the provincial museums of this country, how inefficient they are for the purpose of preserving Geological and Natural History collections, which are being formed more or less throughout the land.

Whilst the British Association directs so much attention towards the advancement of science by means of investigation, and grants money for the purpose, it is short-sighted on its part to neglect the subject of Local Museums as means for preserving collections for the benefit of science and of posterity.

To give an illustration of the way in which such museums are too often conducted. In a west-country museum there has lately been an addition, consisting of a valuable collection of cave bones, and that is well-preserved and arranged, but why? In a great measure because one of the members of the local society happens to take an interest in that department. But in what condition is the local geological collection? In a state of neglect and disorder, because in that department no one takes an interest. In other museums, where there is nobody to take an interest in the subject, the state of the collections may be imagined.

It is much to be regretted that museums should remain in such a condition. The formation and preservation of local collections ought not to depend upon impulse, or the chance enthusiasm of individuals, but should be the result of a generally recognised business-like system; and it should be the interest of the various local societies to provide competent curators. It should also be the duty of these societies to preserve for the museum of the district the collections which have been formed by local geologists or collectors, and not to permit them to be scattered or added to those in the British Museum and to that in Jermyn Street, where they may be said to become buried, and where the geological collections are already of an unmanageable size.

F. G. S.

Thunderstorms

THE prevalence of thunderstorms accompanied by serious accidents during the last two months has led me and many others to consider whether the phenomena of electrical discharges are thoroughly understood. We have heard of several instances in which the electric fluid "came down the chimney, filled a room with sulphurous vapour," and terrified or injured persons sitting near the fire-places. One fatal accident took place within a few hundred yards of my own house. A gentleman's coachman driving along the turnpike road was instantaneously killed on his box, "the lightning," it is said, "having struck him on the head and passed through his body to the iron work of the carriage, and thence to the ground." From the appearance of the body there is no doubt that the fluid did pass through the poor fellow and caused his death, but my opinion is that he was killed by an ascending current which was attracted to the wheels of the carriage, passed upwards through his body, issued at his head, and shivering his hat (made of felt, and therefore a bad conductor) to fragments, passed to the cloud above. During the same storm I was watching the lightning playing on the hill which is