bathed by the chyle or lymph. This granular layer being continuous in both directions with the scale-like epithelium of the extra-glandular lymphatics, it is therefore merely a developed form of this epithelium.

Mr Goodsir then stated that the opinion of those anatomists who hold that the intra-glandular lymphatics form a net-work, is correct. In the glands in which the meshes of this net-work are elongated, the vessels, even after forcible injection, never assume the cellular appearance. In those glands again, or in those parts of glands in which the meshes are rounded or equilateral, the injection of mercury produces the appearance of globular cells. In other lymphatic glands, a process of absorption, similar to that which occurs in the maternal vascular system of the human placenta, reduces the meshes of the lymphatic net-work to mere threads or bars, and converts one or more short lymphatic branches into one multilocular cavity. All these varieties are modifications of the simple net-work.

The ultimate capillaries of the blood-vessels form very fine networks on the external surface of the germinal membrane of the intra-glandular lymphatics. The anatomical relations of this capillary net-work, and the germinal membrane and granular substance of these lymphatics, are identical with those of the vessels, membrane and secreting epithelia of true glands.

One of the functions of the granular substance, the author stated to be the secretion of chyle and lymph corpuscles; but, as these are also formed in other parts of the lymphatic system, he reserved his observations on this part of the subject for a future occasion. He concluded by observing, that the structure he had described afforded, in his opinion, satisfactory evidence, 1st, That the lymphatic glands are merely net-works of lymphatic vessels, deprived of all their tunics but the internal, the epithelium of which is highly developed for the performance of particular functions; and, 2d, That these peculiar lymphatics have a fine net-work of capillary blood-vessels in close contiguity with their external surfaces, for the purpose of affording matter for the continued renovation of the epithelium.

3. On the Determination of Heights by the Temperature of Boiling Water. By Professor Forbes.

The investigations in this paper were made in order to reduce certain observations on the boiling point of water, made by the author in the Alps, in 1842.

He considered that it has been too generally assumed that the boiling point corresponds to a barometric pressure which expresses the elasticity of steam taken from the usual tables. He, therefore, attempted to deduce the connection of these data by a direct comparison of cases, in which both the barometer and boiling point were noticed by himself. He finds this result, that the pressures increase *rigorously* in a geometrical ratio, whilst the temperature of the boiling point rises uniformly. This law is not new, for Deluc arrived at the same result; but it appears to have been considered by all late writers as unworthy of adoption, and the scale of the elasticities of vapour by Dalton or Ure has been preferred. Now, these elasticities cannot, it is well known, be accurately represented by a geometrical proportion to the temperature; but Professor Forbes finds that the geometrical ratio represents the barometric heights exactly, whilst the tabular elasticities do not. But, farther, since the common barometric formula shews that the pressure varies geometrically, whilst the height above the sea varies uniformly, we have the same form of relation between the boiling point and the barometric pressure as between the height above the sea and the barometric pressure, namely, that each is as the logarithm of the other. Hence the boiling point falls *exactly* in proportion to the height ascended, and at the rate of 549.5 feet for 1° Fahr.

The following Donations of Books to the Society's Library were announced.

Monthly Notices of the Astronomical Society of London, containing Abstracts of Papers and Reports of the Proceedings of the Society. Vols. 1, 2, 3, 4, and vol. 5. Nos. 1–27.

Memoirs of the Royal Astronomical Society. Vol. XIV.—*By the Society.*

Examination Papers of the several Faculties in the University of London, for 1842.—*By the Council of the University.*

Mémoire sur la Chaleur des Gas Permanens, par Jean Plana, Astronome Royal, et Directeur de l'Observatoire de Turin.—*By the Author.*

Journal of the Asiatic Society of Bengal. Nos. 124 and 125, for 1842.—*By the Society.*

The Quarterly Journal of Agriculture, and the Prize Essays and Transactions of the Highland and Agricultural Society of Scotland. No. 60, for March 1843.

The following Donation to the Museum was presented—

A Specimen of a Vegetable Impression from Burdie House.—*Presented by D. Balfour, Esq. younger of Trenaby.*

The following Gentlemen were duly admitted Ordinary Fellows of the Society :—

Andrew Coventry, Esq., Advocate.

D. Balfour, Esq. younger of Trenaby.

Monday, 20th March 1843.

Sir DAVID BREWSTER, Vice-President, in the Chair.

The following communication was read :—

Papers on Glaciers. No. 3, On the Structure of Glaciers, and the cause of their motion. By Professor Forbes.

With reference to his former paper of the 27th February, the author stated, that he had received a most satisfactory confirmation of his opinion respecting the motion of glaciers in winter. From observations made by his direction on the Mer de Glace of Chamouni, and in which he places entire confidence, it appears that the ice moved no less than 76 feet between the 12th December 1842 and 17th February 1843, or at the rate of $13\frac{1}{2}$ inches *per diem*, whilst its mean motion during the summer was $17\frac{1}{2}$ inches.

The author then explained the manner in which he conceives the conoidal structure of glaciers to be due to the varying velocity of different points of their section producing discontinuity by minute fissures, which are infiltrated and ultimately frozen. He had before satisfied himself that the forms of these surfaces are such as the motion of the particles of a viscid fluid, obstructed by the sides and bottom of the canal in which it moves, would engender. But to make this more palpable, he has endeavoured to imitate the motion of a glacier, by causing a plastic fluid of different colours to mould itself by the action of gravity in an inclined bed, and he has thus succeeded in reproducing the forms of the structural surfaces of glaciers so precisely that they cannot be distinguished from the curves which he had drawn as representing the actual phenomena.—*See Edinburgh Philosophical Journal*, Oct. 1842, pages 346, 347.