

observed in a detailed exploration of only four gatherings, those, namely, from Elgin, Elchies, Lochleven, and Duddingston Loch. Nay, he had found them all, except only one or two, by degrees, in the Lochleven gathering alone, and a very large proportion of them in each of the three others. So that, if his observations had been confined to these four gatherings, or even to that of Lochleven, it would have been possible to recognise and distinguish nearly all the species here mentioned.

The above list of forms is entirely exclusive of those very numerous and varied ones, occurring, however, in many of the gatherings examined by the author, as above described, which he has elsewhere united together, described, and figured, under the name of *Navicula varians*.

The figures of *Navicula elliptica*, Kutz., and its very striking varieties, as the author had observed them in the study of these gatherings, were referred to, in order to prove that certain species vary not only in form or outline, as in the case of *Navicula varians*, *Pinnularia divergens*, and many others, but also in general aspect, in the number of striæ in $\frac{1}{1000}$ th of an inch, comparing two frustules of equal size, in the structure of the median line, and in that of the central or terminal nodules.

2. On Glacial Phenomena in Peebles and Selkirk Shires. By Robert Chambers, Esq., F.R.S.E., &c.

In this short paper, the author presented facts, from which he thought himself entitled to infer that the Silurian mountain tract of southern Scotland falls entirely into his views regarding ancient glacial operations in the country generally, as expounded in a paper read to the Royal Society of Edinburgh, in December 1852, and published in the *Edinburgh New Philosophical Journal* for April 1853. He showed that the compact boulder clay, which he regards as the detritus of the early and general *glaciation* of the country, exists in the valleys of this district, and in passes amongst the hills, up to those of Glenlude and Tweedshaws, which are respectively 1152 and 1352 feet above the mean level of the sea. Striated boulders from Glenlude and Tweedshaws were brought before the Society. The rounded form of the hills, and the horizontal *mouldings* or *flutings* which are seen along the faces of many of them, he con-

siders as other memorials of the operation in question. The nature of the rocks is unfavourable for the preservation of smoothed and striated surfaces; but Mr Chambers had found one such on the border of St Mary's Loch in Selkirkshire, 800 feet above the sea. On the assumption that the hills had been shorn and rounded by moving ice, it appeared from the high inclination of the strata, as exhibited in a copy of Professor Nicol's section of the district, that the amount of denudation fully equalled the remarkable examples adduced by Professor Ramsay in regard to South Wales and the Mendip hills. Finally, Mr Chambers described an example of the later and limited operations of ordinary glaciers, in the elevated moor of Loch Skene, a tarn formed and retained by a moraine.

3. Preliminary Notice on the Decompositions of the Platinum Salts of the Organic Alkalies. By Thomas Anderson, M.D., Regius Professor of Chemistry in the University of Glasgow.

The following pages are intended merely as a preliminary notice of an investigation, which has occupied me for some time past, and which, though still too incomplete for publication in full, is sufficiently advanced to render obvious the general character of the results, although, from the extensive and elaborate nature of the inquiry, a very considerable time must elapse before it is complete in all the requisite details.

It has been known for some years that the platinum salts of the organic alkalies are decomposed when boiled with excess of bichloride of platinum; and with narcotine, the only one as yet examined, the action is a true process of oxidation, yielding results similar to those obtained by treating the base with peroxide of manganese or nitric acid. The present investigation refers to the pure platinum salts, which undergo an entirely different decomposition, the nature of which is materially dependent on the stability of the base. Having observed that the decomposition was more precise and definite when the less decomposable bases were employed, and apparently calculated to afford the key to the more complex changes, which occur in other cases, I have hitherto directed my attention more particularly to pyridine and picoline, which are so remarkable for their stability,