XLV. On a new species of calculus

Mr. J.T. Cooper

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at present; nor is it clear that the heat of the air, earth, or water, in those high latitudes, has yet attained its lowest degree*.

By keeping in mind that there has been a time in which the climate was temperate, and the soil, for the same reason, was productive in high northern latitudes, we are enabled to account for many phænomena which had appeared very enigmatical. We are no longer surprised that any part of our species should have migrated and settled themselves willingly in Lapland and other regions near the arctic circle; in regions from which nature, in the present age, seems to shrink with horror. Those countries, as we conceive, were all of them settled while the climate was temperate and the soil fit for cultivation. As the miseries that are caused by cold weather and a frozen soil increased, the habits and constitutions of the inhabitants suffered a considerable change, and they became attached to the land of their ancestors. They now live, or seem to live, contented, in a country to which criminals are banished as one of the severest punishments.

By attending to the above-stated changes in soil and climate in high northern latitudes, we can easily discover how it should have happened that Norway contained a crowded population above one thousand years ago, and sent out colonies.

By attending to that change of climate in high latitudes, we can easily account for incidents that have excited general attention twelve or fifteen hundred years ago. We discover how it happened that certain countries, which at present are not very desirable nor productive, had formerly been the *officina gentium*, the very nursery of nations; and why, in the process of time, it became necessary for those very people to migrate by thousands in quest of better habitations.

XLV. On a new Species of Calculus. By Mr. J. T. COOPER.

To Mr. Tilloch.

SIR, — IN July last I sent you an account of a new species of calculus, page 27; and having submitted it to a more correct analysis, I now transmit you the result.

Ten grains of it, after being heated to about 220° Fahrenheit, for the space of twenty minutes, gave of

Carbonate of lime	..	9·3
Phosphate of lime	..	·4
Oxide of iron	..	·2
Loss	..	·1
		<u>10·0</u>

* Vast bodies of ice from the northern seas are thought to have become more dangerous of late to navigators, near the banks of Newfoundland, than formerly.

I was not able to find the least trace of uric acid.

Finding the substance to consist almost wholly of carbonate of lime, I suggested the probability there might be of dissolving the calculus in the bladder by the action of dilute muriatic acid. Accordingly this was had recourse to; and I am happy to add, that by the injection of two drachms of muriatic acid diluted with eight ounces of water, heated to about 100°, every day, the whole of it has been removed, and that in eleven days. The acid during almost the whole period came away nearly neutral. I think it not improbable that in time a solvent for urinary calculi of every description may be discovered, and render cutting for the stone, that most dreadful of all operations, perfectly unnecessary.

I remain, sir,

Yours, &c. &c.

76, Drury-Lane, Sept. 14, 1816.

JOHN THOMAS COOPER.

XLVI. *Extract from a Memoir read to the Institute on the 13th of May 1816, on the Possibility of making the Molluscæ of Fresh Water live in Salt Water, and vice versâ.* By F. S. BEUDANT*.

THE experiments which form the object of this memoir have been undertaken chiefly with a view to account for some remarkable geological circumstances, and particularly for the mixture of sea- and fresh-water shells in the same rock, which M. Beudant discovered in 1808, at Beauchamp near Pierrelaye, in the department of the Seine and Oise, and more recently in the valley of Vaucluse.

Experiments on Fresh-water Molluscæ.

Towards the end of summer 1808, M. Beudant first attempted to convey suddenly fresh-water molluscæ into water charged with 0·04 parts of muriate of soda, as sea-water generally is. These animals could not withstand the change; for their shells contracted, and they died in a few seconds. The bivalve molluscæ merely resisted the salt-water a little longer, in consequence of shutting their shells: in a few days, however, they died also.

Being desirous of accounting for the almost total absence of fossil shells in the beds of gypsum, M. Beudant tried the action of water charged with sulphate of lime on the molluscæ; and with this view he plunged some *lymnæi* suddenly into this mix-

* *Annales de Chimie et Physique*, tome ii. p. 32.