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IV. Causes of the Movements in Diatoms, with Illustrative Models

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to be further indicated by the misty clouds overspreading the whole district, condensed by the cold of the night, and again raised into vapours by the morning sun. I observe that in Java the Dutch have glass houses for raising the *Cinchona* cuttings, as it is necessary to preserve an equable temperature with dampness, and to protect the cuttings from the direct rays of the sun. The duty of preparing sites, and of meeting Mr Markham at Calicut, has devolved upon Mr W. G. M'Ivor, superintendent of the Government gardens, Utakamund, and the necessary funds have been allowed for carrying out this preliminary work. Mr M'Ivor indicates a good locality adjoining the gardens. The branch nurseries of the Utakamund gardens are also suitable localities, where supervision would be secured. Mr Clements Markham, the gentleman entrusted with the work of introducing the *Cinchona* into India, is now on the Nilgiri Hills. He went to South America in December 1859, and returned to England in August with a supply of *Cinchona Calisaya*, and also a few plants of the *C. orata*, and *C. micrantha*. The Secretary of State, in writing to the Madras Government on the subject, states that of these plants, 216 were already throwing out shoots, and 53 more retained life, being 60 per cent. of the number originally planted in the Wardian cases at the Peruvian port of Islay. Collections of *Cinchona* plants and seeds of other valuable species from the north of Peru, and from the Ecuador will, it is believed, arrive in India about this time; and I trust that the experiment may fully succeed through the subsequent transmission of seedlings from Kew.

IV. *Causes of the Movements in Diatoms, with Illustrative Models.* By S. J. MEINTJES, jun. Esq.

In this paper the author endeavoured to show that the movements were due to the entrance and exit of fluid, and he illustrated the motion by glass models to which india-rubber tubes and balls were attached. The models resembled a *Pleurosigma* in form, and were held suspended in water, while, by pressure on the balls, water was made to pass through the models in several ways.

Mr Trevelyan reported that Miss Ellen Howden had found *Osmunda regalis* in the neighbourhood of Pencaitland in Haddingtonshire. The locality is in a warm and well sheltered valley of no great depth or length, having a peaty bottom partially drained by a running stream. The valley was formerly covered with firs, but there are now only a few remaining. On each side there is an oak coppice of considerable extent, the ground being tangled with brambles, among which the fern is found growing. Only five plants were noticed. The name of the farm is Woodhall. The greatest elevation of the ground on the farm is 300 feet above the level of the sea.

T. C. Archer, Esq. exhibited a series of drawings illustrating the Indian fibre-yielding plants, sent to the Industrial Museum by Dr Forbes Watson, India Office.

Mr Alexander Buchan sent specimens of *Centunculus minimus*, from Clachland Point, Arran.

Dr Alexander Dickson sent a forked specimen of *Polystichum angulare*, from Hartree.

Dr Lowe, King's Lynn, sent a specimen of *Calceolaria*, in which the lips of the flower were so united as to form a tube not unlike foxglove, but with a narrow orifice.

Dr Cleghorn exhibited a packet of *Pilgrim's food*, composed of dates and almonds enclosed in kid skin, from a Coptish convent at Mount Sinai.

10th January 1861.—Professor BALFOUR, Vice-President,
in the Chair.

The following Donation to the Society's Library was laid on the table :—

Transactions of the Royal Scottish Society of Arts, Vol. V., Part 4, from the Society.