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Publisher: Taylor & Francis
Informa Ltd Registered in England and Wales Registered Number:
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Transactions of the Botanical Society of Edinburgh

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tped18>

IV. On an Easy and Effective Style of Nature-printing

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Published online: 01 Dec 2010.

To cite this article: Mrs Stirling (1863) IV. On an Easy and Effective Style of Nature-printing, Transactions of the Botanical Society of Edinburgh, 7:1-4, 529-530, DOI: [10.1080/03746606309467903](https://doi.org/10.1080/03746606309467903)

To link to this article: <http://dx.doi.org/10.1080/03746606309467903>

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death. Further, in *Amæba*, *Actinophrys*, *Diffugia*, *Arcella*, and the *Rhizopoda* generally, the processes are manifestly *actively* elongated, while these organisms, by stimulus as by death, are contracted into globules. Similar phenomena are exhibited by *Hydra viridis*, &c. In all these organisms there is a permanent contraction in death, which yields only to diffuence of the body by decomposition. There is no final relaxation, as in true muscular tissue.

The author gives some figures representing the microscopic appearances of the cells of the filament in the expanded and contracted conditions, but which it is unnecessary to reproduce here.*

IV. *On an Easy and Effective Style of Nature-printing.* By Mrs STIRLING of Kippenross. Communicated by T. C. ARCHER, Esq.

Take some finely powdered lamp-black, mix it smoothly with fine almond oil and a small proportion of pale drying oil, till of the consistence of very thick cream. The paper used should be of a soft spongy kind. Smooth crayon paper or fine Bristol board is best; a hard, rough-grained paper will not answer well. Take a small branch where the leaves are nearly perfect. As accuracy is chiefly required, it is better to lay the branch face downwards on your paper, and with a pencil lightly trace out the stem and side branches, marking where the principal groups of leaves lie,—this will ensure a more faithful copy than sketching the branch by sight. Place the branch upright before you in a pot of wet sand, and then you can either strip off these leaves and print them, or by having other branches beside you, you can select leaves resembling those of your model, remembering that the side of the branch next your right hand is on the *left* of the paper. Take the finger off a clean white kid glove, put a small bit of jeweller's cotton into it, so that when you put the glove finger on the first finger of your right hand, the cotton forms a soft cushion at the end. Fold some soft paper in several folds, upon this lay the topmost leaf, or group of leaves, face uppermost; take some of the black upon your first finger and smear it over the leaf (or leaves) quite evenly and quickly; lay them down on your crayon paper in their right position; put a thin piece of paper over them, holding it quite steadily, and rub each leaf firmly all over, following the veins of the leaves, running your finger from the stem to the point, and from the midrib to the edge. Each bit should be done at once; going over the same part twice often causes a double impression. Raise the leaf quickly when done. In blacking the leaves include the footstalk; it will never make a perfect impression, but serves to mark the outline, and forms a guide for

* There appears to be some mistake in the representation of the section in fig. *d* (*l. c.* p. 369): it purports to be a transverse section of the filament, and the more or less hexagonal outline of the cells would bear out the assertion; yet I do not understand how *transverse* corrugation could appear in a transverse section at all in the way represented in the figure, almost like the edge of a close frill.—A.D.

you afterwards. No blots, or thicker portions of the black must be allowed; they will make a blotch in the impression. Work downwards from the top of the branch. When all your leaves are finished, take lithographic chalk and draw in the whole of the stem, branches, and foot-stalks, marking any irregularities, knots, or buds, as these should be finished with equal care and accuracy. Lithographic chalk has the advantage of fixing at once, and blends better with the printing than any crayon or glossy pencil. As to the capabilities of this process, I found that a group of acacia or elm leaves could be done together; the horse-chestnut, ash, or walnut leaves, require to be separated. No very glossy or very rough leaf will take the black sufficiently to make a good impression. All the leaves must be perfectly fresh. I have done a series of forest trees, including several of the fir tribe. These last print very imperfectly, but still well enough to show the character of the tree, and the imperfect parts can be filled in with chalk. I have also done a number of the ferns, the difficulty with them being solely in their size; but I divide them into suitable portions, and no break is discernible in the impression. I thus managed to print both the *Osmunda regalis* and the common bracken. If the surface you have to blacken is too large, the first bit you do becomes dry before the rest is finished. Many flowers are capable of being printed.

V. *Notice of the Tallow Tree of China* (*Stillingia sebifera*), lately introduced into the Punjab. By WILLIAM JAMESON, Esq., Saharunpore.

Communicated by Professor BALFOUR.

The timber of this tree is hard and durable, and fitted to make printing blocks. Its leaves are useful as a black dye. But the plant is chiefly valued for the oils contained in its fruit, which are thus obtained. The nuts or capsules, when ripe, are gently pounded in a mortar, to loosen the seeds from their shells, from which they are separated by sifting. To facilitate the separation of the white sebaceous matter enveloping the seeds, they are steamed in tubs with convex open wicker bottoms, placed over caldrons of boiling water. When thoroughly heated they are reduced to a mash in a mortar, and thence transferred to bamboo sieves, kept at a uniform temperature over hot ashes. This operation of steaming and sifting is repeated if the first does not deprive the seeds of all their tallow. The article thus obtained becomes a solid mass on falling through the sieve, and to purify it, it is melted and formed into cakes for the press; these receive their form from bamboo hoops, a foot in diameter and three inches deep, which are laid on the ground over a little straw. On being filled with the hot liquid, the ends of the straw beneath are drawn up, and spread over the top, and when of sufficient consistency are placed with their rings in the press. This apparatus is of the rudest description, constructed of two large beams placed horizontally, so as to form a trough capable of holding about fifty of the rings, with their sebaceous cakes. At one end it is closed, and at the other adapted for receiving wedges which are successively driven into it by ponderous sledgehammers wielded by athletic men. The tallow oozes in a melted state into a receptacle below, where it cools. It is again melted, and poured into tubs smeared with mud to prevent its adhering. It is now marketable in masses of about 80 lbs. each, hard, brittle, white, opaque, tasteless, and without the odour of animal tallow. The seeds yield about 8 per cent. of tallow, which sells for about five cents per lb.

The process of preparing the fluid oil, which is carried on at the same time, is as follows:—It is contained in the kernel of the nut. The seba-