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Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954

Registered office: 5 Howick Place, London, SW1P 1WG



## Annals and Magazine of Natural History: Series 1

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tnah07>

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Published online: 04 Dec 2009.

To cite this article: Charles Kersten (1839) XXXVIII.—On a Leather-like Substance found formed upon a Meadow, *Annals and Magazine of Natural History: Series 1*, 3:18, 320-322, DOI: [10.1080/03745483909443243](https://doi.org/10.1080/03745483909443243)

To link to this article: <http://dx.doi.org/10.1080/03745483909443243>

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XXXVIII.—*On a Leather-like Substance found formed upon a Meadow.* By CHARLES KERSTEN, Prof. of Chemistry in Freiberg, Saxony, and Prof. EHRENBURG, of Berlin\*.

INCLOSED I send you an interesting vegetable production, having a deceptive resemblance to white dressed glove-leather, and which was found by M. Lindner on a meadow above the wire-factory at Schwartzenberg in the Erzgebirge.

A green slimy substance grew on the surface of the stagnant waters in the meadow, which, the water being slowly let off, deposited itself on the grass, dried, became quite colourless, and might then be removed in large pieces. The outside of this natural production, as you will observe, resembles soft dressed glove-leather, or fine paper, is shining, smooth to the touch, and of the toughness of common printing-paper†. On the inner side, which was in contact with the water, it has a lively green colour, and one can still distinguish green leaves, which have formed the leather-like pellicle. I dare say a botanist could still determine the *species* to which they belong.

I have made the following experiments on the leather-like substance, having separated it from the green inner coat.

It catches fire very easily, burns with a wax-yellow flame, leaving a pale-red rough light ash. When heated in a small retort dense white fumes are evolved, an odour of burnt paper is perceived, and simultaneously drops of a yellow empyreumatic oil are deposited on the neck of the retort. Somewhat later, water, having a strong acid action, is given off, which evaporates without leaving any residue. A light charcoal remains in the bottom of the retort.

Water, alcohol, æther, nitric acid and aqua regia have no action on it, nothing being dissolved, nor does its texture alter when heated with these re-agents. A solution of hydrate of potassa dissolves it to a brown slimy fluid; caustic ammonia has at first only a slight action, but after some days it swells out, becomes like wet printing paper, and is partially altered.

If the substance is gradually heated with hydrate of potassa,

\* We are indebted for this communication, and for a specimen of the substance described, to the kind attention of Prof. Kersten. The original appeared in Poggendorff's 'Annalen,' Part I. 1839.—R. T.

† Unsized paper.—EDT.

and the gas then given off conducted into a solution of nitrate of mercury, there is *no* black precipitate, neither are white fumes observable when the gas is brought into contact with a glass rod dipped in acetic acid: consequently *no ammonia is formed when the substance is burnt*, and, therefore, *it can contain little or no nitrogen*. The ash of itself, or when moistened with sulphuric acid, does not colour the oxidizing flame of the blowpipe. In borax it is dissolved, giving a glass which while warm is of a deep yellow, when cold of a pale yellow colour. With the double salt phosphate of soda and phosphate of ammonia it gives a pale yellow glass, leaving a thin scale of silica. Fused with soda and saltpetre on a platinum plate the ash gives a deep green mass. It has no alkaline action, does not effervesce with acids, nor does it contain any salt soluble in hot or cold water.

Thus the ash of the substance in question is composed essentially of silica, oxide of manganese and oxide of iron. The substance itself appears to be an aggregation of leaves, from which the green colouring matter, the extractive matter, and also the organic matters have by some organic process entirely disappeared.

I shall endeavour to find out the circumstances under which this complete discoloration of the ligneous matter of the leaves takes place, for this is interesting in a technical point of view.

*Postscript by Prof. Ehrenberg.*

The very meritorious attention of Prof. Kersten to this leather-like substance has recalled to my mind the subject formerly touched upon p. 119 of my work on Infusoria, but particularly so in relation to the meteoric paper of Courland\* that I could not omit submitting it to a microscopic examination. With regard to this meadow-leather of Schwarzenberg, it consists most distinctly of *Conferva capillaris*, *Conferva punctalis* and *Oscillatoria limosa*, forming together a compact felt, bleached by the sun on the upper surface, and including some fallen tree leaves and some blades of grass. Among these confervæ lie scattered a number of siliceous in-

\* A translation of Dr. Ehrenberg's notice on the meteoric paper of 1686 was given at p. 185 of the present volume.—EDIT.

fusoria, chiefly *Fragilariæ* and *Meridion vernale*. I have observed sixteen different sorts of such siliceous infusoria, belonging to six genera; besides these I have found three sorts of infusoria with membranous shields, and dried specimens of *Anguillula fluviatilis*.

Thus the silica is quite explained, as well as a part of the iron, of which last another part, as also the manganese, may arise from a little dust which lies in irregular particles with the infusoria among the confervæ. I have treated more circumstantially, before the Academy of Sciences, of the meteoric paper of 1686, which I found to be similar to this in composition.

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XXXIX.—*Contributions towards a Flora of Van Diemen's Land; from collections sent by R. W. Lawrence and Ronald Gunn, Esqrs., to Sir W. J. Hooker.* By the Rev. M. J. BERKELEY, M.A., F.L.S.

(A sequel to Sir W. J. Hooker's Paper; Journal of Botany, p. 258.)

[With a Plate.]

#### FUNGI.

1. *Lentinus villosus*, Kl. in Linn. Found also in Mauritius.
2. *Favolus pusillus*, Fr., Linn. vol. v. p. 511. tab. xi. fig. 2. *var. pallidus*, Nob. Minute, not  $\frac{1}{4}$  an inch broad. Pileus horizontal, reniform, smooth, of a tough fleshy substance, brittle when dry, ochraceous, furnished with a short lateral cylindrical stem of the same colour as the pileus. Hymenium pale. Alveoli at length elongated, flexuous; gills vein-like; their edges pruinose.

On bark. This pretty fungus accords exactly with that brought by Beyrich from Brazil, except in being paler in every part. Montagne refers to the same species *Boletus papulatus*, Bertero, MSS. n. 1680, gathered in Juan Fernandez, May, 1830, but I am inclined to think that it is quite distinct and may therefore bear the name of *Favolus papulatus*, Kl., in Hook. Herb. The alveoli, as Montagne remarks, are rounder; they are besides 4—6-sided, and much more distinct. The whole plant when fresh is apparently white and of a softer texture. In the dry state it is minutely pruinose. It may be thus characterized:—