

Taking into account the superior thickness of the basalts in Mull, and above all the presence of ash beds at their base, it seems probable that they were nearer the vents than Antrim, and that their lowest beds are at least not newer, so that the Mull leaf-beds at 150 feet from the base should be much older than the Glenarm and Ballypalady leaf-beds at 600 feet from the base.

The horizontal extent of the fluvial beds of Mull is more difficult to estimate. Gravel is mentioned as present at Loch Truadh, to the north-west, and at Carsaig to the east. In the latter locality it is, perhaps, thicker and more extensive than at Ardtun. The horizon should also be found in two of the Treshnish isles and round the north-west coast of Mull, and there can be little doubt but that deposits of plants exist in many localities besides Ardtun. Black shales, with identical leaves, have been found in Canna, and leaflets of *Taxus* or a similar foliated conifer at Uig.

Though the fluvial beds at Bourg are unfossiliferous, a very interesting relic of the Eocene vegetation occurs there, for a large tree, with a trunk 5 feet in diameter, has been enveloped as it stood to a height of 40 feet, by one of the underlying lava beds. Its solidity and girth enabled it to resist the fire, but it subsequently decayed, leaving a hollow cylinder filled in with *debris* and lined apparently with the charred wood. There is also the limb of a larger tree in a fissure not far off. The wood proves to be coniferous, belonging possibly to the *Podocarpus* whose leaves are so conspicuous in the beds above.

III. "Addition to a former Paper on *Trichophyton tonsurans*."
("Proc. Roy. Soc.," vol. 33, p. 234.) By GEORGE THIN, M.D.
Communicated by Prof. M. FOSTER, Sec. R.S. Received
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In the "Proc. Roy. Soc.," vol. 33, p. 234, 1881, a paper of mine is published on "*Trichophyton tonsurans*."

Since the time that the investigations recorded in that paper were made, the study of parasitic fungi has been greatly facilitated by the introduction by Dr. Koch of gelatinised meat juice as a medium for cultivation, and having again studied the development of trichophyton with the advantages derived from the use of this medium, I believe that two results which I have obtained might be usefully published as a supplement to the paper referred to.

The gelatinised meat juice which I used was peptonised and neutralised, and trichophyton grew on it readily and with certainty.

In my previous experiments (in which I used vitreous humour) I had succeeded in growing the fungus when the hairs containing the

spores were floated on the surface of the fluid, but I had not succeeded in finding evidence of growth when the hairs were submerged. This result must have been due to some accidental cause which escaped undetected, as I have found that trichophyton grows when the hairs are entirely submerged in the gelatinised beef juice, and the spores are excluded from contact with the air.

In my previous paper I described a number of experiments which appeared to show conclusively that trichophyton is not related to the ordinary fungi (*Penicillium*, *Mucor*, &c.) with which it had been up to that time confounded. The experiments with gelatinised meat juice confirm that view. In many instances in which I cultivated trichophyton on this medium I never once observed organs of fructification or appearances that suggested that it could be identified with common fungi. As regards *Penicillium glaucum* with which, from the abundance of its spores in the atmosphere of laboratories, cultivations are most likely to be, and are most often fouled, the difference can be shown by a very simple experiment.

A layer of the gelatinised meat juice is poured over a pure slide and allowed to cool under proper precautions. Ringworm hairs and penicillium spores are "sown" in parallel lines on the surface of the medium, and the slide is put in a moist chamber at ordinary temperatures. If the slide is examined in from twenty-four to forty-eight hours the penicillium will be found to be growing with great rapidity, whilst the mycelium of trichophyton has made in comparison very little growth. Repeated crops of penicillium may be grown up to the stage in which the characteristic organs of fructification are fully developed, whilst during the same time the trichophyton mycelium grows steadily and slowly, with no distinct signs of spore formation, and no trace of organs of fructification.

I may add that, in a recent letter to me, Dr. Koch states his conviction that trichophyton is a distinct and independent kind of fungus.

IV. "A New Form of Spectroscope." By J. NORMAN LOCKYER, F.R.S. Received December 5, 1885.

Some two or three years ago, when the sun-spot work carried on at Kensington revealed the different behaviour in different spots of lines visible in the spectra of the same element, it seemed desirable to extend similar observations to metallic prominences, and, if possible, in such a way that comparisons over a considerable reach of spectrum should be possible.

It then struck me that a grating cut in half, with one part movable, would afford a ready means of doing this.