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BEATRIX POTTER, NATURALIST & MYCOLOGIST

and

Charles McIntosh, the 'Perthshire Naturalist'

MARY NOBLE*

Beatrix Potter (1866–1943)** is internationally recognized as the gifted writer and illustrator of books for children; what has not yet been widely appreciated is her contribution to the study of fungi.

Even at the age of nine she made drawings of any objects of 'natural history' available to her, especially when on country holidays from London with her family. The earliest watercolours of fungi we know of were painted in 1888. At this time she was simply interested in their diverse forms and beauty of colour.

In summer 1892 the Potter family came to Birnam, very near Dunkeld and Inver, Perthshire, where Charles McIntosh lived in retirement from the Post Office and continued his studies of all aspects of natural history, including fungi; work which earned him his reputation as 'The Perthshire Naturalist'. There is an interesting and full account in Beatrix Potter's Journal (Linder, 1966) of how she tried 'all summer' to meet him, but both were very shy and it was not until just days before she was due to return to London that they met and discussed their common interest in fungi. They agreed that if McIntosh would post specimens to London she would paint them, although 'I very much fear he will never have sufficient assurance to post them but his mouth evidently watered at the chance of securing drawings ... I happened by lucky intuition to have drawn several rare species. One with white spikes on the lower side [Hydnum] he had discovered this summer for the first time in a wood at Murthly (near Dunkeld) and another, like a spluttered candle [Helvella] he had found just once...' which suggests that she did not know their names at that time.

Strangely Beatrix does not mention that her father, Rupert, had already in 1887 sent McIntosh several books about fungi, the most important being the newly published, authoritative 2-volume work on British Hymenomycetes by Reverend John Stevenson of Glamis (Stevenson, 1886). When McIntosh died in 1922 a subscription was raised to commemorate him in the form of a book, *A Perthshire Naturalist* (Coates, 1923) where it is stated that 'in 1887 a friend presented him with a copy of Stevenson's British Fungi which had been published the previous year' but with no hint as to the identity of the friend. Similarly there is a reference to Beatrix Potter but not by name; only as 'a lady who made a name for herself as a student of fungi'. This anonymity was, however, deliberate as by 1922 Beatrix Potter had become Mrs Heelis of Sawrey in

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**A detailed biography is given by Taylor (1986).

Cumbria and wanted no publicity; indeed she prized her privacy. She wrote, doubtless sending a subscription, this appreciation to Coates 'It is a complete surprise to me to learn that 'Charlie' was living until last January—so little is left of old times ... I can remember him since July 1870 swinging up the avenue, with long strides and head down, and a very small child sent to get the letters [he was their postman] waiting under a copper beech. Perhaps I remember because, on the first occasion, I ran away—I don't know which of us was shyest! He was a keen observer and first-rate field naturalist fifty years ago, and the kind of student who would continue to learn throughout a long life'.

In 1975 the Cryptogamic Society of Scotland celebrated its centenary and I planned to use Charles McIntosh as a good example of a 'home-spun' naturalist. Miss E. M. MacIntosh, his niece, then living in Dunkeld, generously provided a parcel of papers returned 50 years before when 'A Perthshire Naturalist' was completed. This parcel contained not only extremely interesting botanical material such as letters between McIntosh, Rev. John Stevenson, Rev. M. J. Berkeley and others, but three letters from Rupert Potter and 11 from Beatrix. Since then, two letters from McIntosh to Beatrix have been found (nos. VII and XI in this paper).

The original papers were deposited in the National Library of Scotland with photocopies at the Royal Botanic Garden, Edinburgh, the Armitt Trust, Ambleside, and the Linder Trust at the Victoria and Albert Museum, London, where it was thought they might be more readily available for further study. Although they have been used to a limited extent, they have not until now been published in full nor put into context of circumstances in which they were written.

Following the discovery of the 'Dunkeld letters' 24 sheets of watercolours of fungi painted by Beatrix Potter were identified in the Museum and Art Gallery of Perth. None are signed but their style, provenance, and above all their quality provide adequate proof of their authenticity. Some also have been found to match counterparts in the main collection of the Potter paintings in the Armitt Trust. Beatrix wrote to McIntosh '... With regard to the drawings I have no objection at all, but wish that they were better worth lending'. This suggests that C.M. asked for permission to exhibit the paintings he had been sent. On 20th May 1897 the Perthshire Naturalists had one of their many summer excursions, on this occasion from Guay (farther up the Tay) to Dunkeld and was attended also by members of a botany class which Mr W. G. Smith had been running during the winter. About 30 were present including several local members. Amongst these Mr Charles McIntosh is specially mentioned as a local guide. Maybe it was on this occasion that the paintings of B.P. were shown.

Almost all the names on the Perth paintings are initialled 'C.R.'. This is Carleton Rea, a founder member of the British Mycological Society who met McIntosh in 1906 at Blair Atholl, after the Potter correspondence ceased. He was very helpful, especially in publishing McIntosh's work in the *Transactions of the British Mycological Society* in a series of 'New and Rare British Fungi' (Rea, 1909). There were several postcards from 'C.R.' in the Dunkeld parcel, these are now in Perth Museum, with photocopies in the Royal Botanic Garden, Edinburgh.

The main collection of some 300 watercolours of fungi, which came to the Armitt Trust by her express wish after Beatrix Potter's death in 1943, has been beset by many difficulties not least the effects of acidity in the victorian paper causing fairly severe 'foxing'. Restoration is however, proceeding. In 1967 Dr W. P. K. Findlay selected 59 of them to illustrate his *Wayside and Woodland Fungi* published by Frederick Warne (Findlay, 1967). A selection of the Armitt paintings was shown to the British Mycological Society at Windermere in 1954 and thus reported in the *Transactions* (Hora, 1955) 'A most memorable experience of this foray was the exhibition of ... watercolour paintings of toadstools made by the late Miss Beatrix Potter, well-known as the author and illustrator of many popular children's books. For myself, they are, of their kind, the best I have seen. Not a detail has been missed'. Dr F. B. Hora was at that time Foray Secretary of the Society but is also widely known as the joint author with Lange of *Collins Guide to Mushrooms and Toadstools*.

The two volumes of Stevenson's British Fungi sent to McIntosh by Rupert Potter are in the Museum at Perth, well-used and annotated, while Stevenson's own working copy is in the Royal Botanic Garden, Edinburgh. There must always be the hope that further relevant letters, documents or even paintings may be found, but meantime the 'Dunkeld' letters have been arranged in this paper, in so far as can be determined, in chronological order. In compiling the notes all available sources of information have been used but this paper is in no way definitive; many of the conclusions are tentative and there remains urgent need for detailed study of the Armitt collection especially the 82 sheets of detailed microscope work. A short paper on just one of them (no. 2) was recently published by Noble & Watling (1986) justifying its accuracy as a record. The subject was thought by one of us (M.N.) to be *Flammulina velutipes* but corrected by Watling to *Aleurodiscus amorphus*, a fungus rarely recorded in Britain; just one example of what interesting light can still be thrown on the work of mycologists like Potter & McIntosh almost a century later.

The 'Dunkeld' Letters

I. Rupert Potter to Charles McIntosh

March 3 1887
2 BOLTON GARDENS
SOUTH KENSINGTON S.W.
London

Mr Rupert Potter has during last year purchased & received[1] from Rev. J. Stevenson of Glamis the 2 volumes of his work on 'British Fungi', published by Messrs Blackwood of Edinburgh & the book is apparently very valuable & interesting to anyone who knows enough to understand it. Mr Potter remembers that Mr C. McIntosh is a scientific authority in that department of knowledge & he therefore writes to ask Mr McIntosh whether he would accept the work from Mr Potter if Mr McIntosh had not already got it. If Mr McIntosh will write & let Mr Potter know, he will be pleased to send it to Mr McIntosh.

Mr C. McIntosh
Inver
Dunkeld

II. Rupert Potter to Charles McIntosh

ATHENAEUM CLUB
PALL MALL S.W.
LONDON

2 Bolton Gardens
London S.W.
Monday March 7/87

Mr R. Potter has taken the 2 vols of Mr Stevenson's work to his bookseller & has directed it to be carefully packed & sent off by Bookpost to Mr C. McIntosh at Inver & Mr Potter hopes the parcel will arrive in good condition. He is much pleased to learn that Mr McIntosh will value the Book as there is no one to whose knowledge in this region of learning, Mr Potter could more suitably & pleasantly offer a book which unfortunately he himself does not understand.

Mr C. McIntosh
Inver
Dunkeld

III. Rupert Potter to Charles McIntosh

REFORM CLUB
PALL MALL S.W.

2 Bolton Gardens
London SW

Mr Potter has directed his Bookseller, Messrs H. Sotheran & Co. Piccadilly London to forward, post paid to Mr C. Macintosh Inver Dunkeld 2 books on Fungology which his friend Sir E. Fry & the Secretary of the Linnean Society have recommended to Mr Potter as the most recent & suitable books on that subject which he can give himself the pleasure of sending. Mr Potter & his daughter all hope to know that Mr Macintosh will find the books interesting.

Mr C. Macintosh
Inver
Dunkeld

IV. Beatrix Potter to Charles McIntosh

Dec. 10th 92
2, BOLTON GARDENS,
S.W.

Miss Potter has sent off the drawings by parcel post, & hopes Mr McIntosh will think them sufficiently accurate to be worth his acceptance.

The last plants were particularly beautiful, Agaricus variabilis[2] is almost like a pansy and A. velutipes[3] also very handsome. A curious thing has happened to the piece of broom on which the latter was growing, it was put away in a tin canister & forgotten, and now another species of fungus has sprung up—It is a pale straw colour, grown entirely in the dark and there are nearly 100 'fingers', the longest measure $1\frac{1}{4}$ inch [see Fig. 1]—Miss Potter wonders whether it grows out of doors at this season or whether it is brought out by the heat of the room? It was about this size [sketch of four caespitose primordia 6 mm high] when first observed but being moved into a hot cupboard near the kitchen chimney, it puffed out in a very odd shape. The last shoots that have grown are the same size all the way up. Miss Potter supposes the plants are over for this season, judging by the weather reported in the Perthshire paper, but when Mr McIntosh can get any more she will be glad to draw them, it is a real pleasure to copy them, they are such lovely colours. The moss is more trouble on account of being magnified, and Miss Potter thinks she will keep any drawings of moss, to add to her set. She has drawn most of the fungi twice.[4] It might be well to mark the rarest plant in each parcel (or that could not be replaced,) so that it might be painted first. Stereum purpureum[5] went mouldy during fogs. Agaricus fragrans[6] is curiously strong &

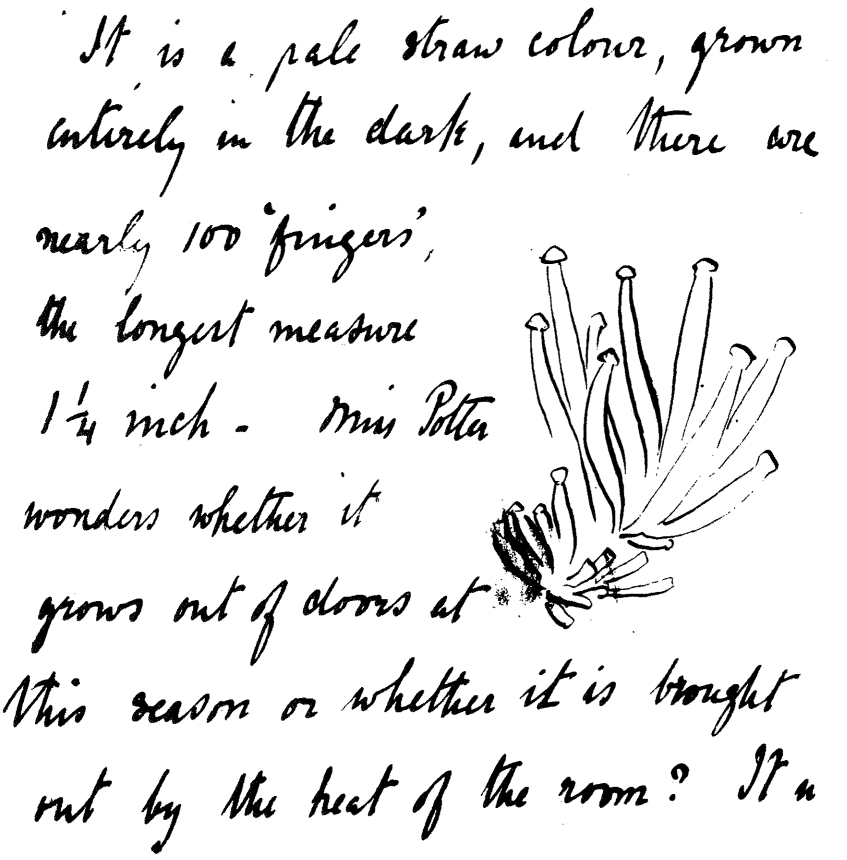


FIG. 1. Portion of letter IV from Beatrix Potter to Charles McIntosh (actual size). The sketch shows the 'finger'-like primordia of *Flammulina velutipes*. See note 3.

pleasant. Miss Potter trusts Mr McIntosh will never send a horrid plant like a white stick with a loose cap which smells exactly like a dead sheep! She went to look at a fine specimen but could not find courage to draw it.[7]

V. Beatrix Potter to Charles McIntosh

The rather abrupt beginning of this next letter suggests this is the second sheet, the first being lost; probably written in 1893 after B.P. had asked at the Natural History Museum about a book on ascomycetes. Massee's 4-volume work on the British Fungus Flora (Massee, 1892–5) had begun to appear in 1892 but Vol. 4 dealing with the ascomycetes was not published until 1895. C.M. had his own set of Massee which he obtained through his friend James Menzies of Perth who became an expert on discomycetes (Menzies, 1919). He sent a copy to C.M. who promptly replied that he was keeping it, Menzies to get another set for himself! The original set is in the library of the Museum at Perth, well-worn and annotated with the name Charles McIntosh/Inver Dunkeld and the date 1904. C.M. made marginal notes and corrections in his copy where Massee had made careless mistakes such as a spore measurement in

inches instead of 'lines', the old measurement of 2mm. When C.M. first became an associate member of the Perthshire Society for Natural Science there was just one book on fungi in the library there.

2, BOLTON GARDENS
S.W.
(? 1893)

and ask if he would tell me, or you, the name of a book that would contain the other funguses, puff-balls, Helvella etc. if there is one on the same plan as Dr Stevenson's I would prefer it. I have been looking carefully through part of the drawings at the museum, there are a number of portfolios with drawings and printed plates, which one may see at any time, but no one to give any information apparently. They have about 30 per cent of the funguses, rather more of the smaller divisions. There are the originals of the illustrations in Dr S's book, by Mr Worthington Smith. The drawing of Strobilomyces is dated Ludlow 1868. I did not hear whether it came up again. They are extremely anxious to have a specimen to put in methylated spirit, if Mr McIntosh finds it again he had better present it; it is a great curiosity, but they take no interest whatever in funguses at large.

All the plants we were doubtful about are marked? especially between B. chrysenteron and subtomentosus, B. scaber & versipellis; & varieties of luridus. B. cyanescens (mine) is like their B. pachypus, but I think there must be some confusion as pachypus does not turn dark blue.[8] Hygrophorus coccineus & puniceus[9] also?? They seem to vary much in colour but it depends on the white foot of the stem. I have not looked at the cortinariuses yet. I think I will ask at Kew Gardens some day, whether there is anyone who knows more about the names.[10]

VI. Beatrix Potter to Charles McIntosh

This letter was probably written in November 1893. Reference is made to Torquay 'last year' where she was in spring 1893.

Nov. 19th

I have not had A. mitis[11] before, you sent Panus stipticus[12] once. Most of the cortinarius was unbroken and has kept well. The only unfortunate parcel has been the fungus 'A' which was in small chips, which I regretted as it must have been a pretty group, to judge by the stalks.

I think I have made rather a successful drawing of Cantharellus umbonatus,[13] I shall be more careful now that I have the book.

I wish I had had the book sooner, for most of my drawings might have been made more accurate, without extra trouble, if I had understood anything about the distinctions. Dr Stevenson's book is rather stiff reading, but I understand it sufficiently to find it extremely interesting. I don't know if I shall ever get the classification into my head but I hope to master the glossary before next season. I have found this handbook[14] of some assistance, but I have not seen the models yet, as I have had a cold. There are several things which puzzle me completely, but I will study a bit longer before troubling you with any questions. There is one thing to be said for my drawings, they can easily be washed out & corrected being in watercolour; the gills are the weak point.[15] I think I found some of 'Myxomycetes'[16] (p. 80) at Torquay on a paling last year, like large white slugs but no skin & disagreeable to touch. I think I had better keep to the Hymenomycetes at present; there are quite enough of them.

VII. Charles McIntosh to Beatrix Potter

This letter was found in a copy of *A Perthshire Naturalist* in the Armitt Trust, probably one which B.P. would be sent as a subscriber; she must have kept it from 1894 perhaps because of the guidance about drawing fungi.

Inver Dunkeld
10 Jan. 1894

Miss Potter
Madam

I received the fungus sent. I could not get the spores, and although it cannot be said to be white, yet I think it must be Merulius corium.[17] I've seen it in this district but without the hymenium so I'm glad to get a fertile plant. I also got a British Museum guide to the funguses which you kindly sent. It is very good. I am sorry there was so little to send you since you left[18]—A good many funguses appeared but from one cause or another an entire specimen wasn't to be got. Since you have begun to study the physiology of the funguses you seem to see your drawings of them as defective in regard to the gills, but you can make them more perfect as botanical drawings by making separate sketches of sections showing the attachment of the gills, the stem if be hollow or otherwise, or any other detail that would show the characteristics of the plant more distinctly.[19]

Yours when sent
Charles McIntosh

VIII. Beatrix Potter to Charles McIntosh

This letter was probably written at Lennel, Coldstream in 1894, after receiving names of her specimens from C.M.

I am sorry that A. spadiceus[20] turned out to be common but it is very handsome in any case. I suppose A. paedidus would be about as good as A. decastes.[21] If Dr Stevenson were not infallible one would say it was more like the description of decastes. I have made some very bad guesses but had chosen the right names for Hygrophorus, except nitratus which I thought was unguinosus[22] because it never seems to have any 'strong nitrous smell', but if it is really nitratus I think I may have found the larger form as well, much thicker with broad crumpled gills. Both came up sparingly & I stupidly missed getting a drawing. There has been a good deal of Helvella,[23] single plants & two half rings at the edge of a pasture, most curious looking. A. personatus[24] appeared whiter than ever, & also the ordinary colour growing near it. The large Cortinarius[25] has not come up again properly. I got very large ones nearly rotten in Birgham Wood, the largest 8 inches across, weighing over 15 oz, think the same fungus. I had some better specimens of H. puniceus[26] but all rather dry, it must be splendid in wet weather, they were solitary in coarse grass with rushes.

On leaving Lennel, B.P. entered in her Journal on October 10th 1894, 'I was sorry to come away, with a feeling of not half worked through the district, but I have done a good summer's work. The funguses will come up again ... I made about forty careful drawings of funguses ...'

IX. Beatrix Potter to Charles McIntosh

This next letter is not only undated, but has no place of writing indicated but it is likely to have been written from London judging by the references to the Natural History Museum, and from the same evidence seems likely to have been written in 1895, certainly not earlier because of the reference to Lennel, which they left on October 11th, the Journal for 10th details the 'packing-up'.

It is quite clear from the remarks in this letter and from the Journal that the Natural History collections and paintings did not impress her.

I copied these outlines of A. cortinarius turmalis[27] from Mr Worthington Smith's at the Natural History museum; I don't think it is very like either your plant or mine, more like the very slimy yellow one which I did not send, which came up, from the first, with a longer stem. Your specimen from Murthly was very curious with the solid white stem; I hope you will find it again next season. I don't think it was the same as the Lennel one, the silkly fibre was different on the top and the white trama.

There are about 40 large sheets of drawings, life-size, framed, by Mr W. Smith, including the illustrations in Dr Stevenson's book, to the end of the agarics only. The outlines are beautifully drawn, but they don't show the texture and they are very coarsely coloured. There is no drawing of A. terreus.[28] I thought my old drawing but I am not at all sure about it was the same as a fungus which was very common in beech woods at Coldstream, which I supposed was A. terreus, but I think there was more than one sort. It was sometimes quite matted on the top & the gills varied; there must be several very similar to each other, but I never saw one with a yellow tinge like A. portenosus.[29] It was commonly rather dry, inclined to split, growing rather flat, in clumps. I don't know if there is anyone at the museum to explain about funguses, but I think they have a very poor collection, about 3 dozen British & foreign in bottles or dried. Sowerby's clay models are merely curiosities.

I see some funguses which may possibly be A. pleurotus ulmarius,[30] but not much chance of getting at them, unless they fall down when rotten.

A. longicaudus[31] is very like A. spadaceus but has a slight bulb. A. imbricatus[32] & A. vaccinus[33] look like yours. A. aureus, similar but a single plant of enormous size.

X. Beatrix Potter to Charles McIntosh

This scrap of paper was probably sent along with a hamper of specimens. The date was probably 1895 and this could be the note to which C.M. responded in letter XI.

Is not this Boletus Granulatus?[34] When first gathered the young plants were very slimy & had yellowish milky drops on the pores & stem. It was in a thin wood, scotch fir & larch, also poor specimens of B. laricinus[35] & Gomphidius glutinosus[36] & G. viscidus.[37]

Gracilis?[38] it is different to the large ones at Coldstream.

Holehird. Windermere.

XI. Charles McIntosh to Beatrix Potter

This letter was found by Mr John Clegg, former curator of the Museum at Haslemere, in a book on geology which belonged to B.P. This was Ramsay's *Physical Geology of Great Britain*, 6th edition 1894, and when Mr Clegg was in Torquay in 1965/6 re-planning the Museum there, he found this letter and others 'tucked in the book' which is dated July 1894 as if bought then by B.P. She certainly studied the geology of the district around Coldstream where the family were on holiday in summer 1894. Mr. Clegg gave this letter along with other papers and enclosures with the book to the Armitt Trust.

Inver, Dunkeld
(? 1895)

Miss Potter

Madam

The large fungus sent in the hamper is a Cortinarius belonging to the Phlegmacium tribe, and the Cliduchii division, and but for its stem which is not cylindrical and has got tawny I would take it to be C. turmalis but am not at all sure of it. If any of the three first Cliduchii it is a good find.

If you could get it in the young stage before the gills had changed colour, and the stem and cortina had been dusted with the spores, you would be able to name it. The only other like it is C. multiformis.

The scaly Agaricus growing on Ash is A. squarrosus. The var. vahlii of Agaricus aureus[47] is appearing where I found it before I hope to get a good plant of it soon.

Yours when sent
C. McIntosh

XII. Beatrix Potter to Charles McIntosh

LAKEFIELD
SAWREY
AMBLESIDE
(dated in letter 1896)

Do you think this is B. versipellis?[39] I got it in the same place last year, always bright chesnut [sic] colour & rather velvety when first gathered. B. scaber[40] does not grow at all freely here, and I think rather different to Dunkeld, generally hard shiny and wrinkled. I should be very glad of any pezizas,[41] Mr Massee at Kew Gardens can name them from dried specimens. He says they have been drawn less than agarics & advised me to keep to one division of fungi. I find plenty of microscopic pezizas but no large ones yet and I should be very much obliged if you could send me any, especially any larger ones, which grow on the ground. The young specs of B. versipellis (?) have remains of a veil, it is always badly eaten by slugs, grows in gravel at the edge of lake.
Aug 20th 96

The following might have been written by Charles McIntosh, the writing is not Beatrix Potter's. It follows B.P.'s writing:

B. scaber & versipellis are very like I dare say one would need to see them pretty often to be able to know the differences easily; but still your specs are versipellis I doubt not. The ... veil and tomentose pileus

XIII. Beatrix Potter to Charles McIntosh

2, BOLTON GARDENS Jan 12th 97
LONDON, S.W.

Do you think you could get me a fungus called corticium amorphum?[42] It grows on fir bark and looks at first like Lachnea calycina,[43] but afterwards sticky like Dacrymyces.[44]

Also I should be very much obliged if you could give me any information about Merulius corium.[45] You told me some time since that you had not found it at Dunkeld with properly developed spore. Do you mean every season or only in unfavourable seasons? Have you noticed the same thing with any other fungus? for instance Chlorosplenium aeruginosum?[46] I am doing some curious work with fungus spore, trying to draw up a paper with the assistance of my uncle Sir H. Roscoe. Have you ever suspected that there are intermediate species amongst Agarics and Boleti? We are strongly of opinion, for certain good reasons, that there are mixed fungi—that is to say—either growing actually upon a mixed network of mycelium, or else hybrid species which have originated in that way. I do not express any opinion which way, only that they are intermediate.

Of course such an idea is contrary to the books, except for lichens but I should be curious to hear whether you have had difficulty in naming any of the sorts which I suspect. Have you noticed whether fungi described as 'varieties', are constant in type? For instance does A. aureus var. vahlii,[47] come up the same every season? and all the season? I mean to say are there poor specimens towards the end of the season more like the ordinary A. aureus? I do not mean to suggest the idea if you have not noticed it yourself. I have found a fungus very like A. velutipes which Sir Henry[48] thinks is either a mixture or a new sort. There is no harm in giving an opinion, so long as it is made clear whether it is only an opinion, or the result of observation, we find some people make theories out of dried specimens without the least experience of the way things grow. If you find Corticium would you please wrap it up as soon as found, to keep the spore separate. If you take any interest in physiology I should be amused to send a copy later on, we have got into contradictions at Kew & Br. Museum already, but I think my uncle is a good judge. Do you know anything about lichens?[49]

Beatrix Potter

XIV. Beatrix Potter to Charles McIntosh

Jan 22nd 97

2, BOLTON GARDENS,
LONDON, S.W.

Thank you very much for your interesting letter, especially about the larch disease.[50] I have taken note of it in the Lake district but never saw any aphis, but of course it is a disadvantage not to be able to examine the trees at different seasons. I should think if a tree is weakened by one parasite it is less able to withstand the attack of another; or possibly the peziza spore may get into the larch through the blister & bleeding caused by the aphis. The peziza mycelium is very vigorous & spreads in the red lower layer of bark, I have seen it come out in that layer on a broken dead branch at several inches from the fungus. I quite came to the same conclusion about the bleeding of resin, = that it is the peculiar constitution of the larch which does the mischief; I think the fungus does not penetrate at all deeply but that the scar, being open, eats into the trunk. It is so bad in Westmoreland that one does not find a straight stem in 500. The woodmen think that it is caused by replanting without cleaning up, and if the fungus is the cause they are right to some extent, because it breeds to an extraordinary extent on heaps of sticks. There is something odd about that particular fungus, supposing it is the cause of the disease for others very like it seem harmless. I have seen one very like it in Gloucestershire & Surrey but the live trees were scarcely diseased at all.

I think I have found the new fungus again, I can hardly describe the difference, it is drier than velutipes, both pileus & gills, rather broader & shorter & a peculiar smell, gills a deep yellow when old, also inclined to become discoloured in patches. My difficulty about lichens is to find ripe spore for experiments, I scarcely know what to look for. I have succeeded in growing spore of Cladonia,[51] but larger spores would be more convenient. You see we do not believe in Schwendener's theory, and the older books say that the lichens pass gradually into hepaticas, through the foliaceous species. I should like very much to grow the spore of one of those large flat lichens, & also the spore of a real hepatica in order to compare the 2 ways of sprouting. The names do not matter as I can dry them. If you could get me any spore of the lichen and hepatica when the weather changes I should be very much obliged. With regard to the drawings I have no objection at all, but wish that they were better worth lending. I think you have one of S. strobilaceous[52] which is a curiosity. The fungologist at Kew said he had only seen it once—in the summer of 95—when he found any quantity in a wood nr Watford, Hertfordshire,

I remain yrs sincerely
Beatrix Potter

XV. Beatrix Potter to Charles McIntosh

Feb 22nd—97
2, BOLTON GARDENS,
S.W.

I am very much obliged to you for the 2 parcels, the hepatica is particularly curious. I hope very much I shall succeed in getting the spore to sprout. I have had a good deal of trouble about the paper, I am afraid the best part of my work will have to stand over till next season.[53] The thing which causes so much contradiction is that I succeeded in sprouting the mushroom spore, which I supposed is what it is meant for; but it seems that no one else is admitted to have done it, and therefore no one except my uncle & one gentleman at Kew will believe that any of my slides are right. I have grown between 40 & 50 sorts of spore, but I think we shall probably only send in A. velutipes, which I have grown on twice and Mr Massee has also grown according to my direction at Kew. He did not previously believe in the things at all. I am just as much sure of the mushroom but unless I can get a good slide actually sprouting it seems useless to send it to the Linnaean. I would be obliged if you would not mention it to anyone concerned with botany, until the paper is really sent, because without meaning to be uncivil they are more inclined to grow the things themselves than to admit that mine are right. What I have been doing is to sort out the 'Hyphomycetes' which in great part are not real 'species' at all, which has been suspected for a long time,[54] but it was not previously known that they belonged to Agarics as well as to pezizas. Please do not send anything more just now because my slides are full of mushrooms; which refuse to grow when required.

Beatrix Potter

XVI. Beatrix Potter to Charles McIntosh

Sept. 21st 97

I was very much pleased with the specimens of A. lenticularis,[55] I never saw the Boletus before I think. I can very likely get the name at Kew, it was peculiar in having a very hard edge. The Boletuses here seem to be most of them neither one thing nor another. I have found a great many I could not name but there are none worth sending just now. I have put in a few seeds of the wild balsam, it is not uncommon at the Lakes, growing 3 foot high in damp places such as ditches under trees. I am afraid the flowers may not be worth much after packing. The fungus is one of a large clump on a stump. I have got a good photograph of it so I wish I could name it, it is not smooth at first, I am not sure if you sent it to me once. I found the Hygrophorus[56] before, at Coldstream.

I am trying to work out the moulds=conidial forms, of the mushrooms; exceedingly difficult to grow. My paper was read at the Linnaean Society and 'well received' according to Mr Massee, but they say it requires more work in it before it is printed.[57]

I find no difficulty in sprouting the mycelium of any fungus but the 'spawn' is so very difficult to run. If I am right it will be possible to work out which of the Boleti are hybrids but it will take many years at the present rate! Your Boletus was a little too stale to sprout, & A. lenticularis I am afraid is not starting, Lactarius seems to be easy.—

NOTES

Currently accepted names for fungi are given in brackets where they differ from the names used by B.P. Common names are given for some fungi; these mainly follow the list in the *News Bulletin of the British Mycology Society* 21:13–19, 1964. An indication of etymology is provided for the scientific names, where this is reflected in the general appearance of the fungus or in the comments made in the letters.

Reference is made to the relevant paintings by B.P. housed in Perth Museum and Art Gallery or in the Armitt Trust collection, Ambleside, and to B.P.'s paintings reproduced in Findlay (1967). For some fungi not illustrated in the last, page references are given to photographs in Phillips (1981).

1. Rupert Potter's bookplate is on the inside front cover of both volumes of Stevenson's book published in 1886 and dated '? Ap. 1886' in vol. I and 'Oct. 1886' in vol. II. On the title leaf of both volumes is written by Rupert Potter, 'Charles McIntosh, Inver, Dunkeld from Rupert Potter, London' and the date 'March 7 1887'.

   From 1870 until 1881 the Potter family had their post delivered by C.M. but not after that date; they returned to Birnam in 1892. Mr Potter did, however, come for the fishing on the Tay at other times and was in Dunkeld with the famous painter Sir John Everett Millais, a family friend, in November 1886 and may then have decided to send this and the other books to C.M. The year 1886 was, according to B.P.'s Journal, a bad year for the family with illness affecting both Beatrix and her brother Bertram, and this continued in 1887 when Beatrix was very ill with rheumatic fever at Holehird, Ambleside. She was now 21 and already making very beautiful and accurate watercolours.

2. *Agaricus variabilis* (=*Crepidotus variabilis*)
   [*crepis* Gr.=a slipper]
   Illustr.: Findlay 9a; Perth 2 (CR).

   The gills face upwards from the substrate and radiate from one side, hence the idea of a pansy face.

3. *Agaricus velutipes* (=*Flammulina velutipes*) Velvet Shank
   [*flammula* L.=a little flame (from the bright colours); *velutipes*: *velutum* med. L.=velvet; *pes* L.=foot]
   Illustr.: Findlay 18b; Perth 3; Armitt 37 (Dunkeld, undated)

   A winter fungus surviving frost and common even before Dutch Elm Disease, now very common especially on dead elms. This is the fungus B.P. refers to in her letter to

C.M. of 22 February 1897 (XV). She planned to submit to the Linnaean Society an account of the germination of the basidiospores. The 'other fungus' which sprang up in the cupboard is also *F. velutipes* but growing in darkness no proper fructification would be formed.

4. 'drawn most of the fungi twice...' accounting for the Perth paintings as well as their counterpart in the Armitt Trust. She had, however, already adopted this practise as there is a painting in the Armitt dated 1888 from Derwentwater of *Hydnum repandum* (169) which matches the earliest of the Perth collection (no. 1).
5. *Stereum purpureum* (= *Chondrostereum purpureum*) Silver-leaf Fungus
[*stereus* Gr. = hard; *chondros* Gr. = grain; *purpureus* L. = purple, from the hymenium which is lilac or purplish. Common name derives from the silvery appearance of leaves when attached by this parasite.]
Illustr.: Phillips 236; Perth 5 (which looks 'mouldy').
6. *Agaricus fragrans* (= *Clitocybe fragrans*) Funnel Cap
[*clitos* Gr. = slope; *cybe* Gr. = head (from the fact that the head is sloping and the gills run down the stem); *fragrans* L. = scented (smelling strongly of aniseed)]
Illustr.: Perth 8; Phillips 50.
7. Undoubtedly *Phallus impudicus* Stinkhorn
[*phallus* Gr. = penis; *impudicus* L. = shameless]
Illustr.: Phillips 256. The illustration in Findlay is not by B.P. and the records suggest that she never did find courage to draw one!
8. *Boletus chrysenteron* Red-cracked Bolete
B. subtomentosus Downy Bolete
B. scaber (= *Leccinum scabrum*) Brown Birch Bolete
B, versipellis (= *L. versipelle*)
B. luridus
B. cyanescens (= *Gyroporus cyanescens*)
B. pachypus (= *Boletus calopus*)
[*chrysos* Gr. = gold; *entos* Gr. = within; *luridus* L. = drab yellow; *cyanescens* L. = becoming blue; *pachys* Gr. = stout; *pous* Gr. = foot; *calopus* Gr. = beautiful]

Boletus subtomentosus was perhaps the first bolete that they were sure about. It was found and painted at Eastwood, Dunkeld (3 ix 1893, Armitt 136) and is reproduced in Findlay 40b beside *B. chrysenteron*, (40a), although this was painted later (Holehird, Windermere, 5 viii 1895, Armitt 135).

Boletus luridus (Phillips 199) is common in broadleaved woods and appeared at Eastwood in July of the same year, where along with other species of the genus it would be painted *in situ*; *cyanescens* (31 viii 1893, Armitt 138); *edulis* var. *laevipes* (6 viii 1893, Armitt 146); *calopus* (ix 1893, Armitt 147 & Findlay 38a); *felleus* (11 viii 1893, Armitt 149 & Findlay 39b).

Boletus cyanescens (Phillips 207) is easily recognized by the toughness of the outer part of the stem and vividly blueing flesh. *Boletus calopus*, with its red to almost scarlet stem thickened at the base also has vividly blueing flesh as shown in Findlay 38a, Armitt 147. Both species are in Stevenson (1886, vol. II, 175).

This surely indicates that both B.P. and C.M. knew their boletes better than the experts of the Natural History Museum at that time.

9. *Hygrophorus coccineus* Scarlet Wax Cap
[*hygro* Gr. = moist; *phoros* Gr. = bearing; *coccineus* L. = scarlet]
Illustr.: Armitt 56 (Lingholm, Keswick, 8 x 1897); Phillips 62.
Hygrophorus puniceus Crimson/Blood-red Wax Cap
[*puniceus* L. = crimson or blood-red]
Illustr.: Findlay 12c; Armitt 58 (Smailholm, 7 x 1894).

The colour here cannot be described as crimson or blood-red but there may have been difficulties in printing techniques and reproduction.

10. '... will ask at Kew Gardens some day' confirms the supposition that this letter was written following a rather unfruitful visit to the Natural History Museum.
11. *Agaricus mitis* (= *Panellus mitis*)
[*mitis* L. = mild (referring to its insipid taste, in contrast to '*stypticus*'); *panus* L. = thread wound upon a bobbin, from the fibrous structure of the cap]
Illustr.: Armitt 81 (Dunkeld, xii 1894); Phillips 189.
12. *Panus stipticus* (= *Panellus stipticus*) Styptic Fungus
[*stypticus* Gr. = astringent]

Illustr.: Findlay 9d; Armitt 88 (Dunkeld, xi 1893).

P. mitis and *P. stipticus* are very closely related, with *P. mitis* distinguished by its white colour and glabrous pileus. The juxtaposition of the two names in this letter shows that B.P. and C.M. knew their fungi.

13. *Cantharellus umbonatus* (=*Cantharellula umbonata*)
[*kantheros* Gr.=cup; *umbonatus* L.=umbonate or like the boss of a shield]
Illustr.: Armitt 85b (no date or origin); Perth 13 is dated and named in B.P.'s hand, 19 xi 1893.
14. It is difficult to follow this remark as we believe she had had Stevenson's '*British Fungi*' for some time and his other book *Mycologia Scotica* was published in 1879. Most likely, however, she refers to the 2 volume *British Fungi* (*Hymenomycetes*) of which her father had sent a copy to C.M. in 1887. There is a good glossary in this work giving the derivations of the general terms used as well as the derivation of each fungus name throughout the work, as befits a scholar such as Stevenson. 'This handbook' would be the *Guide to Sowerby's Models of British Fungi*... (Smith, 1893). It seems she sent a copy to McIntosh. Her comments on the Sowerby models are in letter IX, where they are dismissed as 'merely curiosities'!
15. 'The gills are the weak point'—it was following this, in January 1894 (letter VII), C.M. told how she could improve her drawings of fungi.
16. No mention was made of myxomycetes in B.P.'s Journal, but in the 'Sequel to the Fairy Caravan' (Linder, 1970) 'I know mixomycetes [sic] walks about; I have seen him go from one end of a log to another', an accurate observation. Torquay 'last year' should read last spring. The family was in Torquay in the spring of 1893 and at Dunkeld (Eastwood) in the summer.
17. *Merulius corium* (=*Meruliopsis corium*)
[*corios* Gr.=leather (referring to the texture of the flesh)]
This semi-resupinate fungus is white on top whereas the hymenium underneath is often tinged with a reddish colour. It can be very variable and C.M. added in his copy of Stevenson 'colour often very bright almost red'. The fructifications are found from March to December so B.P. apparently sent C.M. fresh material along with the *Guide to Sowerby's Models of British Fungi* . . . by Worthington G. Smith. This was later the basis of J. Ramsbottom's *Handbook of the Larger British Fungi*.
18. 'little to send you since you left'— This followed their joint great find of *Strobilomyces floccopus* in the grounds of Eastwood House in autumn 1893. There is not a single entry in the Journal for Dunkeld in 1893 although she begins that year with the resolution made in London 'positively I will again keep a diary...'. It was from Eastwood on September 4th that B.P. wrote the famous letter about Peter Rabbit.
19. This is an important letter because of the advice offered about making separate drawings to show details of the gill attachment and the long section of the stem. In the painting of *Lepiota procera* (then called *L. prominens*) made in September 1896 (Armitt 10), and issued recently by the Armitt Trust as a postcard, all these points are clearly shown as well as the young and the fully developed fructifications—nevertheless the whole is a pleasing picture. (See also note 55).
20. *A*[*garicus*] *spadiceus* (=*Psathyrella spadicea*)
[*spadiceus* L.=date brown]
Illustr.: Armitt 62 (xi 1896).
21. *A*[*garicus*] *paedidus* (=*Melanoleuca paedida*) and *A. decastes* (=*Lyophyllum decastes*)
[*paedidus* L.=filthy; *melas* Gr.=black, referring to cap colour; *leukos* Gr.=white, referring to gill colour; *dekhas* Gr.=company of ten men, referring to clustered habit]
Illustr.: Perth 16; Armitt 27 (as *Tricholoma paedidum*, Dunkeld, 29 ix 1894); Phillips 42 as *Lyophyllum decastes*.
It is pleasant to be able to report that expert opinion allows that Dr Stevenson was fallible! There is a painting of this fungus under the name *Tricholoma paedidum* in the Perth collection, dated 26 ix 1894, now identified by Watling (pers. comm.) as of the species *decastes*!
22. *Hygrophorus nitratus* (=*Hygrocybe nitrata*) and *H. unguinosus*
[*nitratus* bot. L.=nitrous (referring to the smell); *unguinosus* L.=oily]
Illustr.: Armitt 63 (Troutbeck, 16 ix 1895); Phillips 61.
The 'larger form' may have been *irrigatus* which according to the British checklist (Dennis *et al.*, 1960) is only 'possibly distinct from *H. unguinosus*'.

In Perth there is a drawing (Perth 21) of *Hygrophorus agathosmus* which was checked by Carleton Rea, a fungus described by Stevenson (1886, vol. 2, p. 76) as 'a very remarkable species at that time only recorded from Forres and Glamis, in fir woods. Odour chiefly when older sweet, of anise'. McIntosh made a note in this copy of Stevenson 'at the Hermitage in 1895 as much as 4 in, broad' and he also found it at the Cat's Back, a little hill near Strathpeffer, Ross-shire in 1896.

23. *Helvella crispa* Common White Helvella
[*crispa* L. =wrinkled]
Illustr.: Perth 1; Phillips 266.

Helvella crispa had special significance for B.P. and C.M. As related in the Journal of October 1892 when at last they managed to meet and compare notes on their work with the fungi, B.P. had already made some paintings and had drawn one 'like a spluttered candle' which C.M. had 'found just once in the grass at the roadside near Inver tunnel' (Linder, 1966, p. 299). This is the tunnel at the Hermitage, Inver where the railway goes over the path. The drawing, on sheet 1, in the Perth collection is dated ix 1888, near Derwentwater and clearly shows *H. crispa*. On the same sheet of paintings in the Perth collection is *Hydnum repandum,* which according to B.P.'s Journal C.M. had 'discovered this summer for the first time in a wood at Murthly', and was also from 'near Derwentwater September 1888', suggesting that when she made these fungus portraits she did not know their names. It seems very likely that she gave the sheet to C.M. at the time of the visit on 29 October, only 2 days before B.P. left for London.

24. *A[garicus] personatus* (=*Lepista saeva*) Common Blewits
[*personatus* L.=masked]
Illustr.: Findlay 14a; Armitt 22 (Camfield, Herts., 1888).

This is not nearly such a good portrait as later work especially after C.M. suggested she should show attachment of the gills and a long section through the stem. It is also notable that in this early painting there is no indication of the substrate as there is in the neighbouring illustration of *Tricholoma sulphureum,* (Findlay 14b; Armitt 21, Coldstream, x 1894).

25. 'The large Cortinarius'

When B.P. was at Eastwood in 1893 she painted *Cortinarius torvus* (Findlay 28b; Armitt 109, 25 viii 1893); and the following day *C. armillatus* (Findlay 28a; Armitt 110, 26 viii 1893). Both would be done *in situ* probably with the guidance of C.M. In *C. cinnamome,* (Findlay 28c, Dunkeld, xi 1893) she shows the long section as well as the substrate although this specimen may well have been sent by C.M. to London. Birgham wood is near Kelso and Lennel. Perhaps the painting of '*Cortinarius* sp'. in the Armitt (Armitt 108, Lennel, Coldstream, 18 x 1894) could be this one. Another species *Cortinarius* (*Inoloma*) *tophaceus,* (17 x 1894; Armitt 106) is also from Murthly so was probably sent on by C.M. There is a marginal note in Stevenson's copy of his British Fungi 'Rothiemurchus, September 1900'.

Only a variety of this species is included in Stevenson's *Mycologica Scotica* (1879) and this holograph note suggests that only in 1900 was the species itself confirmed in Scotland.

The meeting at Boat of Garten, Inverness-shire, in 1900 was attended by the Perthshire Naturalists, the Cryptogamic Society, and the British Mycological Society.

26. *H[ygrophorus] puniceus*—see note 9.
27. *Cortinarius turmalis*
[*cortina* late L.=a curtain; *turmalis* L.=belonging to a troup, referring to its clustered habit]

Reference to *C. turmalis* by B.P. points to this letter having indeed been sent to C.M. after working so much with *Cortinarius* spp. during the holiday at Lennel, Coldstream. It also seems she sent specimens for identification which would fit in with C.M.'s letter about identification of *Cortinarius*. This is supported by her reference to the very slimy, yellow one which she did not send. Armitt 105 (Lennel, ix 1894) is the yellow *C. claricolor* that Stevenson placed between *C. triumphans* and *C. turmalis*, the former being reported as 'rare' while *turmalis* was found quite frequently, —was this the 'slimy, yellow one'?

28. *A[garicus] terreus* (=*Tricholoma terreum*)
[*terreum* L.=earthy referring to its colour]

'my old drawing' could be that shown in Findlay 14c which according to the Armitt record was made at Dunkeld, 13 ix 1893. This was while the family were at Eastwood

and not long after B.P. and C.M. made their great find of *Strobilomyces* in the grounds, (see note 52).

29. *Tricholoma portentosum*
[*portentosus* L. = monstrous]
Illustr.: Armitt 17 (Dunkeld, 16 x 1894); Phillips 35.
The specimen for Armitt 17 was probably sent by C.M. to Lennel, and taken on to London to paint as B.P. left Lennel on October 10th.

30. *Pleurotus ulmarius*
[*ulmarius* L. = belonging to the elm]
Presumably growing on the elms around Bolton Gardens. There is no drawing of this species in the known collections but there is a good picture of *Pleurotus cornucopiae* in Jane Crowell Morse's book '*Beatrix Potter's Americans* p. 144, captioned 'Fungus. Watercolour. Gift to Henry P.'

31. *A[garicus] longicaudus* (= *Hebeloma longicaudum*)
[*longus* L. = long; *cauda* L. = a tail]
Although not accepted in the British Check List (Dennis *et al.*, 1960) Stevenson (1879, 1889) recorded it as 'uncommon'.

32. *A[garicus] imbricatus* (= *Tricholoma imbricatum*)
[*imbricatus* L. = covered with tiles, referring to the squamules on the cap surface]
Illustr.: Phillips 38.

33. *A[garicus] vaccinus* (= *Tricholoma vaccinum*)
[*vaccinus* L. = of cows, referring to the reddish brown colour]
Illustr.: Phillips 38.

34. *Boletus granulatus* (= *Suillus granulatus*)
[*granulatus* L. = granulate, referring to the granules on the stipe]
Illustr.: Findlay 39a; Armitt 142 as *B. granulatus* (Holehird, Windermere, 2 viii 1895).
The comment that the young plants were very slimy reflects the characteristic sliminess of those species formerly in *Boletus* now in *Suillus*; furthermore they are found in coniferous woods being mycorrhizal with these trees, in this case, 'scotch fir and larch'.

35. *Boletus laricinus* (= *Suillus aeruginascens*)
[*aeruginascens* L. = becoming verdigris-green]
Illustr.: Phillips 217.
The former specific epithet correctly indicates that this species is found in larch woods as recorded by Stevenson and regarded as uncommon in Britain.

36. *Gomphidius glutinosus* Spike Cap
[*Gomphos* Gr. = a nail or peg; *glutinosus* L. = glutinous]
Illustr.: Findlay 31a; Armitt 121 (Hatchednize Wood, Coldstream, 18 viii 1894).
This record is especially interesting as there is a Journal entry on 18 August 1894 during the holiday at Lennel—'Went again to the wood near Hatchednize suspecting funguses from the climate and was rewarded, what should be an ideal heavenly dream of the toadstool eaters ... a few yards of beeches ... undreamed wilderness full of black firs.... The fungus starred the ground apparently in thousands, a dozen sorts in sight at once and such specimens, which I have noted before in this neighbourhood. I found upwards of twenty sorts in a few minutes, Cortinarius and the handsome Lactarius deliciosus being conspicuous and, joy of joys, the spiky Gomphidius glutinosus, a round, slimy purple head among the moss, which I took up carefully with my old cheese-knife, and turning over saw the slimy veil. There is extreme complacency in finding a totally new species for the first time'.

37. *Gomphidius viscidus* (= *Chroogomphus rutilus*)
[*viscidus* L. = viscid.]
Illustr.: Armitt 122 (Lennel, 20 ix 1894); Phillips 191.

38. *Gomphidius gracilis*
[*gracilis* L. = slender]
Illustr.: Armitt 123 (Holehird Windermere, 7 viii, 1895).

39. *Boletus versipellis* (= *Leccinum versipelle*) Orange Birch Bolete
[*versipellis* L. = changing in appearance]
Illustr.: Phillips 211.

40. *Boletus scaber* (= *Leccinum scabrum*) Brown Birch Bolete
[*scaber* L. = rough]
Illustr.: Findlay 39c; Armitt 151; Perth 19 (4 viii 1893).

41. Identification from dried material was, especially at this time, standard procedure at Kew but B.P., in her letter of 12 January 1897 (XIII) seems exasperated with it 'we find some people make theories out of dried specimens without the least experience of the way things grow'. In letter XIV there is evidence that both B.P. and C.M. knew at least one of the 'Peziza's', the fungus causing the canker of the larch trees. B.P. made a fine drawing of it, under the name *Dasyscypha calycina* var. *Trevelyani* (Armitt 210) showing not only the cankered twig with the cups of the fungus but the microscopic detail of the asci and ascospores, the latter germinating. (See also letter XIV and note 50).
42. This is extremely interesting as related in a paper by Noble & Watling (1986). Stevenson (1879) gave quite a long account of 'this curious plant ... so like large specimens of *Peziza calycina*' the larch canker fungus. In the Armitt collection of drawings of germinating spores of basidiomycetes there is a sheet showing this very fungus which, however, was wrongly identified as *Flammulina velutipes*. This sheet, (no 2 in the collection of microscope drawings) shows a tinted drawing of the fungus only 10–50mm across so clearly that Watling identified it as *Aleurodiscus amorphus*. The specific name is well justified as the fungus had at various times been identified as a *Corticium* (Basidiomycetes: Corticiaceae), as well as being placed in the very different, ascomycete genus, *Peziza*. The words 'Lichen Dunkeld on fir' are written faintly on the sheet. C.M. found this rarely recorded fungus 'around Murthly', near Dunkeld and it was exhibited as *Corticium amorphum* in Dunkeld in 1877. Noble & Watling (1986) mentioned finding among the Dunkeld letters a sheet of paper with, in C.M.'s handwriting, a description of *Aleurodiscus amorphus*; more recent study of his copy of Stevenson's *British Fungi* shows that he copied this into the margin of the entry on *Corticium amorphum* so he knew, by then, its identity. It seems quite likely, therefore, that C.M. did send '*Corticium amorphum*' to B.P. See also note 49.
43. *Lachnea calycina*—see note 50.
44. *Dacrymyces*

    The fungus B.P. knew was *D. deliquescens,* the conidial form; the basidial state is named *D. stillatus.*

    [*dakryon* Gr. = tear drop; *myces* Gr. = fungus; *deliquescens* L. = dissolving; *stillatus* L. = dropped]

    Illustr.: Phillips 263.

    These 'jelly fungi' comprise a complex group and include *Exidia glandulosa* or 'witches butter'. In the 'Toads' Tea Party (Appley Dapply rhymes, in the History of the Writings of Beatrix Potter p. 230, with coloured plate; in Linder, 1970) B.P. writes that they had 'witches' butter, a nice point of her mycology which seems to have remained unnoticed—the fungus is buttery in appearance but black.

    In the Journal for 26 December 1896 she dismisses the writings of the great German authority Brefeld as 'discursive and unstable as *Dacrymyces deliquescens*'!
45. *Merulius corium*—see letter VII and note 17.
46. *Chlorosplenium aeruginosum* (= *Chlorociboria aeruginascens*) Green Wood Cup

    [*chloros* Gr. = green; *plenius* L. = fully; *aeruginosus* L. = verdigris-green]

    Illustr.: Findlay 8b; Armitt 203 (undated).

    The common name comes from the way infected wood, formerly used in the manufacture of Tunbridge ware becomes green. This is an interesting question for B.P. to ask as the fungus is usually only found as mycelium and noticed because of the change in colour of the wood. On the other hand, the problem of how fungi with conspicuous fruit-bodies, 'mushrooms' and 'toadstools' survived from season to season did intrigue B.P. and she came to the conclusion that they must have some other underground form.
47. *Agaricus aureus* var. *vahlii* (= *Phaeolepiota aurea*)

    [*aurum* L. = gold]

    This fungus had special significance for C.M. (Watling, 1986). In 1875 in Perth when the Cryptogamic Society for Scotland was founded (Noble, 1975) there had been a great fungus show to which C.M. had sent a fine specimen. Dr Buchanan White, founder of the Perthshire Society for Natural Science, wrote to C.M. asking if he would send another specimen to the eminent mycologist Rev. M. J. Berkeley. The letter is now in the archives of the Museum in Perth, having been found in the parcel of papers with the Potter letters.

    A similar fungus, *Rozites caperatus* has been confused with *Phaeolepiota aurea* (Reid, 1975; Watling, 1986), the latter remarking that Johnston, in Scotland in 1853 discussed

the 'differences and misunderstandings between his *A. caperatus* (=*Phaeolepiota aurea* (Matts.: Fr.) Maire) and what others called *A. aureus,* a mix-up echoed over 100 years later by Reid'.

C.M. has a marginal note on p. 210 of his copy of Massee's *British Fungus Flora,* vol. 2, that *P. aurea* var. *vahlii* was seen at Inver 8th December in the same place where he had first seen it but 'not for 15 years since', so that record was likely made in 1890. There is also a note in pencil about the spores, 10–12 × 4μm and a little sketch along with the comment 'one end of the spore pointed, the other rather blunt' (—he had got his microscope in 1884). Stevenson's working copy of his *British Fungi* has at *P. aureus,* the following holograph notes—'September 1887, Den of Airlie, 1896, Gordon Castle; var. *vahlii* September 1875 Inver, Dunkeld and *P. caperatus* October 1880, Glamis Haughs,' all 3 with the letter 's' in red ink, Stevenson's indication that the fungus concerned had been found in Scotland.

48. The first reference to her uncle, Sir Henry Roscoe, the eminent chemist, colleague of Bunsen.

49. 'We have got into contradictions at Kew and British Museum [Br. Museum is inserted] already, but I think my uncle is a good judge. Do you know anything about lichens?.

On 30 December 1896 B.P. wrote in her Journal 'I went to the Museum with the lichen (grown) to ask Mr Murray the name. I did not expect he would know but I wanted to hear what he would say. I admit it was an old specimen. He said it was not a lichen at all but *Naematelia*'. There is a foot-note in the Journal to the effect that *Naematelia* is a 'jelly fungus' which could easily be mistaken for a lichen. *Naematelia* is now rejected as a genus having been based on several species of *Tremella,* but Martin (1940: 686) working in Canada found and described as a new species *Tremella mycophaga*; its habitat—parasitic on *Aleurodiscus amorphus* on *Abies balsamea.* Ginns (1981) has examined over 100 specimens of *Aleurodiscus* spp. so, writing from personal experience in Canada he has kindly sent the comment (pers. comm.) that '*Aleurodiscus amorphus* is not infrequently attacked by the mycoparasites *Tremella mycophaga* and *T. simplex* which form pale yellow, waxy-gelatinous spots on the pink hymenium'. So if Mr Murray was shown 'a heavily parasitised specimen of *Aleurodiscus* he would take it for '*Naematelia*!'.

This was exactly the time she was drawing the germinating spores of *Aleurodiscus amorphus* as described in note 42 so we are left with the baffling questions—where did the material come from which she showed Mr Murray and was it a piece of the *Aleurodiscus* as seems likely? Did she take this for a lichen? At this time she was also drawing the germination of the spores of *Tremella* spp. and the fungal partner of the true lichen *Cladonia,* the date on the latter drawing is 26 December 1896.

50. 'The larch disease'. Larches have been a source of great interest in Dunkeld since 1738 when the first European larches were planted near the Cathedral. They, and their progeny, proved susceptible to the serious disease, 'canker' and C.M. was one of several mycologists who observed that a small discomycete, then called *Dasyscypha* or *Peziza calycina* was often present on the diseased parts. Canker was, of course, also well-known in Europe and there too the argument continued whether this fungus was the sole cause of the disease. In recent years it has been shown that B.P.'s far-sighted comment in this letter 'something odd about that particular fungus, supposing it is the cause of the disease for others very like it seem harmless' is correct. The harmless one, very like the pathogen, now has the specific name *calcyina* while the latter has the specific epithet *wilkommii* after the German author who first described it; both are now in the genus *Lachnellula* (see summary in Noble & Watling, 1986).

On 23 July 1896 B.P. made a beautiful drawing of the larch canker fungus (Armitt 210) showing both the general appearance of its fructifications and the microscopic detail of the asci and the ascospores, some of the spores germinating. And in the Journal for 26 August 1896 she wrote 'The larch peziza came into flower, I took it quite calmly being so firmly convinced it would come'.

51. In the collection of drawings at the Armitt Trust there is one of a *Cladonia* (no 49 of the microscopic studies) dated 26 December 1896, Dunkeld, so was likely to have been sent by C.M. The drawings show the germination of the fungal partner as well as the fructification at natural size and is tinted. The theory which Schwendener put forward in 1867 that a lichen is a dual organism, fungus and alga, was certainly correct, but he also considered the fungus to be parasitic on the alga, and this was certainly not generally accepted by the authorities of the time. B.P. was also right to express doubt that lichens

'pass gradually into hepaticas' the liverworts being classed with the mosses in the major group of bryophytes. The book referred to must have been very old as Hedwig had shown in Germany, in 1784, the close relationship between mosses and liverworts. *Cladonia* is not a 'large, flat' lichen but judging by the next letter C.M. managed to send a satisfactory 'hepatica'.

52. *Strobilomyces strobilaceous* (=*Strobilomyces floccopus*) Old Man of the Woods
[*Strobilos* Gr.=pine cone; *myces* Gr.=fungus; *floccus* L.=lock of wool; *pous* Gr.=foot]
Illustr.: Findlay 42b; Armitt 155; Perth 11 (Eastwood, Dunkeld, 3 ix 1893).

This was a fungus of special significance to both B.P. and C.M. It looks rather like a brown cone of Scots pine lying 'face down' and has scarcely been recorded in Scotland; it is rather an Australasian fungus, allied to the boletes. In 1893 the Potter family rented the house, Eastwood, for the summer, this being the year after C.M. and B.P. had met at Birnam and during the winter carried out their plan of C.M. sending specimens to London for B.P. to paint. So when this strange fungus appeared in the grounds of Eastwood there is every reason to believe that C.M. was sent for. He tentatively identified it as *Strobilomyces* but also sent a specimen to Rev. John Stevenson at Glamis who replied confirming its identity and adding 'a very good find'. In Stevenson's working copy of his *British Fungi* there is a holograph entry 'July 1893, Eastwood, Dunkeld (sent by McIntosh, Inver)'. Meantime on 3 September B.P. made three paintings of the fungus, two are in the Armitt collection (155 and 155A) and one in Perth (11). On the back of the Perth painting there is a little sketch map in B.P.'s writing, showing exactly where the fungus appeared.

53. Written while B.P. was working hard on germination of the spores of the agarics; on their 'sprouting'. In Germany Brefeld had 'done it' but no-one in this country had thought of trying. The gentleman at Kew was George Massee, then cryptogamic botanist. The director, Thisleton-Dyer was unhelpful and sceptical. The very last entry in the Journal is dated 31 January 1897 as follows 'To see uncle Harry in a state of abject fright at the prospect of going to Cambridge to see Professor [Marshall] Ward... I was afraid the Director would have taken away my ticket [of admission to Kew] ... it is odious to a shy person to be snubbed as conceited, especially when the shy person happened to be right...

Sir Henry made no further change in the Paper beyond exclaiming at one point with much fervour 'now this I can not understand'. The question is whether Professor Ward will ever have the patience to go through it'.

The Proceedings of the Linnaean Society of London (1897, p. 11) show that the paper was duly communicated by Massee on 1 April 1897 but they also show that on the same programme was Thisleton-Dyer. No trace of the paper can now be found and we do not even know whether any of her drawings of the germinating spores were shown.

54. Many modern mycologists are still working on just this problem, to link up the 'hyphomycetes' with their perfect stages in agarics as well as discomycetes. The location of this letter is not given but the family spent the summer of 1897 at Lingholm, Keswick, from July to October.

55. *A*[*garicus*] *lenticularis* (=*Limacella guttata*)
[*lenticularis* L.=like a lentil, referring to the small dewy droplets appearing on the edges of the gills]

In the Armitt collection (15) there is a painting of this fungus under the name *Lepiota lenticularis* from Dunkeld, Hermitage, 7 October 1893. This would be painted from fresh material as B.P. was then at Eastwood. Two other paintings in the Armitt collection are of similar species: *Cystoderma granulosum* (then named *Lepiota granulosa*) was done on 8 October 1893 the source Tomgarrow Strathbraan (Armitt 13, Findlay 26b). Tomgarrow is a deserted village in Strathbraan, near Dunkeld so the fungus may have been brought home to Eastwood to paint. The other, reproduced in Findlay (27b, Armitt 14), was also painted in September 1893 at Dunkeld, and is *Lepiota cristata*. These three are all commonly grouped as 'Parasol Fungi'; the best known being *Lepiota procera,* which B.P. painted at Lennel, 10 August 1894, (Armitt 8) and in September 1896 at Sawrey (Armitt 10). In the sequel to the Fairy Caravan, written over 30 years later, and first published in Linder (1970) we find '...more funguses. The first was like a very tall cream-coloured umbrella with brown spots on top and a white fringe round its waist'—a very good description of this Parasol fungus.

56. *Hygrophorus psittacinus* (=*Hygrocybe psittacinus*) Parrot Wax Cap
[*psittacinus* L. = parrot-coloured]
Illustr.: Findlay 12a; Armitt 61 (Coldstream, viii 1894).
Probably from fresh material, the family being at Lennel at this time.
57. Apart from the exasperated comments in the Journal in note 53 this is the only record we have of Beatrix's feelings about the paper. 'They say it requires more work' suggests that this verdict came from the Linnaean, from Thistelton-Dyer? Whatever was actually presented to the Linnaean we still have many of her drawings in the Armitt collection as reported in note 49 (Noble & Watling, 1986).

WATERCOLOUR PAINTINGS BY BEATRIX POTTER IN THE PERTH MUSEUM AND ART GALLERY

Details are given for each of the paintings which are arranged in probable chronological order. Currently accepted names for fungi are given in brackets where they differ from the names used by B.P.

Sheet no.

1. *Hydnum repandum*, Sept. 1888 (Note 23) and *Helvella crispa*, Oct. 1888, both near Derwentwater.
2. *Cortinarius leucopus*, 1892, from Heath Park Birnam and *Peziza succosa*, 1892, from flower bed, Heath Park Birnam. The names are pencilled on, probably by Carleton Rea.
3. *Collybia velutipes* (=*Flammulina velutipes*) Dunkeld. No date on painting but see letter IV, note 3.
4. *Claudopus variabilis* (=*Crepidotus variabilis*), *Mycena corticola*, Dunkeld and *Clitocybe cyathiformis* (=*Cantherellula cyathiformis*), winter 1892.
5. *Stereum purpureum* (=*Chondrostereum purpureum*), Dunkeld, winter 1893. Name in pencil probably by B.P. The specimen looks 'mouldy' (Note 5).
6. *Stereum hirsutum*, 5 Jan. 1893. Name in pencil probably by B.P., inked over by C.M., date in ink could be by C.M.
7. *Amanita vaginatus* (=*Amanitopsis vaginatus*), Eastwood, Dunkeld, undated but likely 1893. Not identical, but very similar to Armitt 6, Findlay 25b, from Eastwood, 6 August 1893.
8. *Clitocybe odorus*. Could be *Clitocybe fragrans* referred to in letter IV note 6. If so then this came from Dunkeld, from C.M.
9. *Lactarius deliciosus*, Eastwood, Dunkeld. Named and dated '12 Aug.' by B.P.
10. *Hydnum imbricatum*, Murthly, 31 Aug. 1893. Date could be by B.P.
11. *Strobilomyces strobilaceus* (=*S. floccopus*), Eastwood, Dunkeld, 3 Sept. 1893. Name written by C.M., date and sketch map of place where the fungus was found are in B.P.'s writing. See note 52.
12. *Flammula sapinea* (=*Gymnopilus sapineus*), Eastwood, Dunkeld, 23 Sept. No year given, almost certainly 1893, name in B.P.'s hand.
13. *Cantherellus umbonatus* (=*Cantherellula umbonata*), Dunkeld, Nov. 19. No year but material sent by C.M. during winter of 1892/1893. Name of fungus and date in pencil by B.P. See letter VI, note 13.
14. *Trogia crispa* and *Polyporus versicolor*, Dunkeld, Nov. 1893. The name *Trogia crispa* written by Carleton Rea and *Polyporus versicolor by* C.M.
15. *Boletus luridus*, 25 Aug. 1894. Name in pencil by B.P., definitely named later by C.R.
16. *Tricholoma paedidum* (=*Melanoleuca paedida*) and *Lyophyllum decastes*, 26 Sept. 1894. Dated by B.P.; very tentatively named by C.M.; confirmed C.R. but see note 21, *Agaricus paedidus*. This is now identified as *Lyophyllum decastes*.
17. *Tricholoma rutilans* (=*Tricholomopsis rutilans*), Sept. 1894. Date is not in the same writing as the name, could be by C.M.
18. *Agaricus spumosus* (=*Pholiota spumosa*), 18 Aug. 1895.
19. *Boletus scaber* (=*Leccinum scabrum*), 4 Aug. Identical with Armitt 151, Findlay 39c, probably 1897, see letter XII, note 40. No year given but Aug. 4th written in ink by B.P. over pencil.
20. *Agaricus sylvaticus* (=*Psalliota excellens*). This painting is identical with Armitt 112 but has no date whereas 112 is catalogued as Dunkeld Aug. 3rd '95 and the postcard reproduction clearly shows this on the front of the painting. Is it possible that it was

named and dated later by B.P. who wrote '95 in mistake for '93 when she was at Eastwood? Both drawings, in Perth and the Armitt, show a long section accurately drawn in pencil. The specific name 'sylvatica' written by C.R.

21. *Hygrophorus agathosmos,* no date. See note 22. Tentatively named perhaps by B.P., while C.M. wrote 'stevensonii'.
22. *Lactarius helvus,* Fir woods near Inver, no date.
23. *Mycena elegans,* no date. At *Mycena* C.R. has written 'or rosella'. *Calocera abietina.* Here C.R. has written 'certainly not abietina, probably fastigiata'.
24. *Boletus variabilis,* no date. Name could be written by C.M.

The only Perth paintings without the initials of C.R. are 5, 13, 22 and 24.

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It is a particular pleasure to offer this small tribute to Douglas Henderson, whose distinguished career I have watched since his student days. On the occasion of my official retirement he, as Keeper of the Royal Botanic Garden, assured me I would be welcome to use the facilities of the Garden, especially the library, a privilege I still appreciate and enjoy.

Professor Henderson's staff, especially Dr Roy Watling, Mrs Norma Gregory and Dr Brian Coppins have made this paper possible; it would not have been written without their expert knowledge and their patience.

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