

*References to the Figures, see TAB. II. Fig. 4 and 5.*

- a. The Circumference nearest to the Belly 36 Inches and an half.
  - b. The thickest Part, 38 Inches.
  - c. From a to c, the Length, 34 Inches.
  - d. The Wound.
  - e. Several great Protuberances.
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VII. *A Letter from Mr. Wm. Watson, F.R.S. to the ROYAL SOCIETY; containing further Remarks concerning Mushrooms: Occasioned by the Reverend Mr. Pickering's F. R. S. Paper in the preceding Transact. p. 96. with Observations upon the poisonous Faculty of some Sorts of Fungi.*

Gentlemen,

Read May 31. 1744. I HOPE I shall have the Reverend Mr. Pickering's Excuse, if I lay before you a few further Observations upon his Papers concerning *Mushrooms*.

With regard to the Seeds of *Mushrooms*, although they were never shewn to the ROYAL SOCIETY before, the Fact was known to many Members thereof: for the industrious *Micheli* did not only raise *Mushrooms* from their Seeds, but has, in his Tables, shewn the daily Progress from their first Point of Vegetation, even to their perfect State.

The *Fungus porosus crassus magnus* is not the *Mushroom* usually raised in *England* for the Table,

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as this Gentleman did imagine ; that Name being given by *John Bauhin*, in the third Volume of his History (p. 833.), to a Species which is to be distinguished from all other *Fungus's*, by the inferior Substance not being divided into *Lamellæ*, or (what we call in *England*) Gills ; but has, in lieu thereof, a great many *Papillæ* ; and being of a greenish-yellow Colour. But what is raised in *England* (of which this learned Gentleman brought several Samples to the SOCIETY) is the *Fungus campestris albus supernè, infernè rubens*, of *John Bauhin*, which differs *toto cælo* from the former, and which Dr. *Dillenius* enumerates among the Species of *Boletus* ; whereas the latter is a Species of *Amanita*.

I must beg Leave to differ from this Gentleman likewise, in regard to the Use of the Ring, which surrounds the Stalk of this *Mushroom*. He imagines it placed there, by the wise Author of Nature, to break the Fall of the Seeds when ripe ; whereby those light Bodies may be preserved from the Fury of the Winds, in order to the abundant Propagation of their Species. I have Reason to believe, that those Seeds, which fall upon this Ring, fall there by Accident ; and adhere there only from the Viscosity, whereby they are intangled. But, before I examine this Matter, give me Leave to make a few Observations upon the Oeconomy of this Plant. The *Fungi*, then, are of that Class of Vegetables, which are ranged, by that most skilful Botanist *Linnaeus*, under the Appellation of *Cryptogamia*, or those which perform their Fructification in secret. Under this Head we find the Fig-tree, all the Species of Fern, Mosses, Mushrooms, and a few others, whose Flowering and Seeding are  
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observed with more Difficulty, than in those we usually call the more perfect Plants. In some of this Class, the Fructification, notwithstanding the great Assistance furnish'd to the modern Botanists by Microscopes, which the ancient were wholly destitute of, remains yet undiscover'd. This Plant then being of this Class, almost all those whose Stems are thick and fleshy, as well as their Umbels, have a Ring upon their Stem; from which, when the Plant is young, and until it arrives at a flowering State, there arises a Membrane, which connects the Rim of the Umbel to the Stem, and preserves the under Part of the Plant in this State: But, when this is over, the Umbel, which before was almost of an hemispherical Figure, growing larger, and the Membrane not giving way, is loosened from the Rim of the Umbel, and adheres only to the Stem. Soon after this State, the Seeds ripen, and the Umbel, losing its former Figure, commences almost a Plane; and the Plant in this State is sold in our Markets, by the Name of *Flaps*. Now, when the Umbel is of this Figure, the Seeds, being perfectly ripe, must fall naturally upon the whole Space the Umbel covers (which *Micheli* observed, by placing Leaves of Trees under them); and, upon the Ring, as well as any other Part; though I have Reason to believe not more. As for those Species of *Fungi* whose Stems are thin, and whose Umbels are soft, and more ductile, they need not, nor have they, this Ring or Membrane; because, in their tender State, the Rims of their Umbels clap themselves quite close to the Stalk, in the Form of a contracted *Umbrella*; and expand as the others do, when their  
 Seeds

Seeds are ripe : nevertheless the Species of this Tribe are as numerous as the former.

I now come to consider how far the Poison of *Mushrooms* can possibly proceed from Animalcules : But, first, give me Leave to doubt, whether or no any Person was ever injured from eating the common *Mushroom*, or *Amanita* ; unless such Accident may have proceeded either from eating too many at once, and thereby overloaded the Stomach ; or from some particular Dislike in the Constitution ; as we sometimes see, even with regard to Honey, Cheese, and some of the most innocent Parts of our Diet ; but which, notwithstanding this, are by no means to be rank'd among Poisons. If there were many Instances of their being pernicious, such must frequently occur to the Practitioners in Physic, on account of the vast Quantity annually consumed in *London* ; but I don't remember to have even heard of any such Accident ; but many Instances occur of the noxious Quality of many of the other Species of this Tribe : Nor is it at all wonderful, that the different Subjects of this Class of Vegetables should differ in their Effects more than those of the more perfect Kind. The Roots of Carrot, Parsnep, and many others of the umbelliferous Class, are daily used as Food ; but the Water-Hemlock, and *Lobel's Oenanthe*, though of the same Class, are most certain Poisons.

Here I must observe what Pains have been taken by Naturalists, to distinguish the useful from the pernicious Kinds. Among the *Romans*, the *Boletus* mentioned by *Juvenal*, on account of the Death of the Emperor *Claudius*, is sufficiently described by *Pliny* ; but, among the later Writers, *Carolus Clusius*

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was of the first of those, who, about the Middle of the sixteenth Century, being tired with the Critics and Commentators of the Time he lived in, presumed to believe, that the Whole of Knowledge was not confin'd to the Writings of the *Greek, Roman,* and *Arabian* Physicians; because, from the Revival of Letters in the Western World to his Time, nothing was regarded, as of any Importance, but what was dignified with the Authority of Antiquity: And hence it came to pass, that when the Clouds of Ignorance began to disperse, the *Epocha* of Commentators took Place; but many of the Descriptions of the Plants of *Theophrastus, Dioscorides,* and *Pliny,* were so very deficient, that little Light could be acquired therefrom; especially from this last Author, who is to be consider'd as the only *Roman* Naturalist that we have handed down to us; and it is no Wonder, if, among the vast Variety of Subjects that this most admirable Historian treats of, he is, in many Instances, rather to be consider'd as an Enumerator, than as a Describer: I shall only mention the imperfect Sketches he has left us of *Silvaus, Geum, Molon,* among the many others.

There arose, I say, such Heats and Disputations among the Critics upon those Authors, very often about Trifles, that they rather increased than diminished the Ignorance of those Times. This excellent *Clusius,* finding that a thorough Knowledge of Nature was necessary, not only to understand rightly the Ancients, but to lay the Foundation of future Knowledge, was desirous to join careful Observations of his own to those which were to be acquired from Books. How much he travell'd, and what

what Progress he made in this Undertaking, his many valuable Works are the best Testimony. Among them, his History of *Fungus's* bears not the *least* Character; he therein enumerates a great Variety, not only of the esculent, but noxious Kinds; but, as the different Appellations of every Species was not, at that time, much consider'd, he gives no other *Synonyms* to either Class, than that of, *viz. Esculentorum primum Genus, Noxiorum decimum Genus*, and such-like. But this Want of specific Names has been sufficiently supplied by *John* and *Caspar Bauhin*, *Ray*, *Morison*, *Tournefort*, *Vaillant*; but, above all, by *Dillenius*, in his *Catalogus Giffensis*, and by *Micheli*, in his *Nova Plantarum Genera*. In most of these Authors we find Instances of mischievous Effects from the pernicious Kinds; which Property some of them have equal to *Opium*, *Aconite*, or *Henbane*; but how far this Property proceeds from Animalcules, the following Instance will sufficiently demonstrate. We have a Sort growing in *England*, called, by *Caspar Bauhin*, *Fungus albus acris*; which Monsieur *Tournefort* has rightly observed stimulates the Tongue, and is almost as sharp as tho' it were steep'd in Spirit of Nitre; and, being rubbed upon Paper dyed blue with Turnsole, turns it as red as any violent acid Spirit will. This caustic Quality remains even after the *Fungus* is dry. We need make no further Inquiry for the Cause of the Poison in this Plant; the above-mentioned is a sufficient Criterion. *John Bauhin* likewise tells you, that after having handled this *Fungus*, he rubbed his Eyes by Accident, and brought on a violent Irritation upon his Eye-lids. *Caspar Bauhin* mentions a Sort which kills

kills the very Flies. *Micheli* describes a Species, which, upon eating them, almost kill'd the Painter he usually employed, and an old Woman, the Painter's Mother. This Man, being sent by the Author to delineate some of these *Fungus's*, and being taken with their Appearance, order'd some of them to be fried, and he and his Mother eat thereof; but were, in about Two Hours, seized with violent Pains in their Bowels, from which they were with great Difficulty relieved. I might produce many other Instances of this Sort; but the above, I believe, are sufficient.

I presume I have set these Matters in a clear Light; but, fearing I have already taken up too much of your Time, I conclude myself,

*Gentlemen,*

*Your most devoted,*

*London, May 12.*

1744.

*humble Servant,*

W. Watfon.

VIII. *Two Letters from Mr. Thomas Preston to Mr. Joseph Ames, F. R. S. concerning the Island of Zetland.*

*Dear Sir,*

*Zetland, Jan. 31. 1744<sup>3</sup>/<sub>4</sub>.*

*Read May 31.*  
1744.

**T**HIS Island has very rarely any Correspondence with the rest of the World for the Six Winter Months; I should say, for

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