A DICTIONARY OF THE FUNGI

by

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FOREWORD

[To the First Edition]

THIS book was originally planned as an aid to university students in the study of fungi, but as it developed it became more and more technical, and it is hoped that in its final form it will prove of service to mycologists in general. The unsatisfactory state of the classification of fungi has made the compilers' task a difficult one. Synonymy in particular has presented problems because of the lack of unanimity between mycologists. The authors have, however, kept abreast of the subject and of what has been said and is being said about the various groups of fungi, and I believe their conclusions reasonably reflect current mycological opinion. They do not claim more for their work than this. For many years to come mycology must occupy itself with the critical revision of genera and species, and I hope and believe that as an introduction to its classification, an index to its names, a glossary of its terms, and as a guide to its methods, this book will furnish workers in the subject with a really useful tool.

S. P. WILTSHIRE,
Director.

IMPERIAL MYCOLOGICAL INSTITUTE,
KEW, SURREY.
March, 1943.

TO THE READER

THE object and scope of this work are still, in the words of the Preface to the First Edition, 'an attempt . . . on the lines of Willis's *Dictionary of the Flowering Plants and Ferns*, to give a list of all the generic names of Fungi (Eumycetes and Myxothallophyta but not Bacteria and Lichens) . . . For every genus a systematic position is given, together with the distribution and number of its species. There are in addition short accounts of the chief Families, Orders, and Classes of Fungi and of the Bacteria and Lichens; explanations of words used in mycology; the common and scientific names of important fungi; and other details of interest to systematic and to applied mycologists and plant pathologists'.

About 2 a.m. on February 1, 1953, an exceptionally high tide in the North Sea caused the Thames to overflow Kew Green and water flooded the Institute's publication store. Most of the remaining stock of the third edition was ruined. The book could have been reprinted from the standing type to allow time to recast it as we had intended; but so many additions and alterations seemed necessary as the result of the activities of mycologists during the last four years that we felt obliged to prepare a new edition without radical revision. The most important changes result from the application of the new *International Code of Botanical Nomenclature* adopted in 1950; this Code includes a number of generic names of fungi now conserved or rejected. Several important monographs have appeared, including Corner on the Clavariaceae, Lodder & Van Rij on yeasts, Singer on the Agaricaceae. More and more new generic names are proposed: to those given in Ed. 3, we have had to add 525, most of them new (from Vol. 1, part 18, to Vol. 2, part 7, of the Institute's *Index of Fungi*) and many doubtless unnecessary. About the same

number of described genera have been revised, rejected, or reshuffled by various authors.

In a Dictionary of this sort, it is impossible to provide a synthesis of the genera in a family or an order until specialists reach agreement, or an authoritative monograph is published. The synonymy we give is a compilation. We should perhaps reiterate that for each genus *one* systematic position is given, not necessarily the right one, but whenever possible with a reference to a recent systematic work. An author or publication is cited with practically every generic name entered as a synonym. We again urge users to try and verify the synonymy, the geographical distribution, and the number of species of any genus compiled herein and to make up their own minds.

The authors are once more greatly indebted to a number of correspondents and colleagues, and particularly to Prof. Martin for yet again revising his most useful Key, adapted from his *Outline of the Fungi*.

G. C. AINSWORTH.
G. R. BISBY.

October 1, 1953.

CLASSIFICATION OF SOME LONGER ENTRIES

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History and Biography

History of mycology
Biographical notes: Berkeley, Brefeld, Cooke, de Bary, Farlow, Fries, Micheli, Pasteur, Persoon, Saccardo, Schweinitz, Tulasne and others; see Authors, p. 33.

Systematic Mycology

'FUNGI' (p. 137) is the starting point; see in addition the Key to the Families of Fungi (p. 437) and the Systematic Arrangement of the Genera (p. 385).

A DICTIONARY OF THE FUNGI

NOTE.—For other details of a Genus, see the division (as given by the numbers and/or letters in brackets) of the Family or Order in which the genus is placed; of a group higher than a genus, see its sub-divisions, the Representative Genera, the Key to the Families of Fungi (pp. 437–455), and the Systematic Arrangement of the Genera (pp. 385–435).

For the full citation of a reference given by name and year only, see Literature or the literature list for the group; of one to *Ann*[*ales*] *Myc*[*ologici, Berlin*], *Mycol*[*ogia*], or *T*[*ransactions of the*] *B*[*ritish*] *M*[*ological*] *S*[*ociety*], see the index to the volume of the year or number given.

For the reference to the first account of a genus (or species), see Saccardo's *Sylloge*, Clements & Shear's *Genera of Fungi*, Petrak's Lists (see Literature), and other works, or, if after 1939, the *Index of Fungi* (C.M.I.).

Certain words for which explanations are given, and common names of fungi and diseases are grouped together under a prefix, such as hetero-, macro-, pseudo-, or a key word, such as mildew, mould, rust.

a-, an- (prefix), without; not; as in acaudate, anaerobe.

A-spore = alpha spore.

ab- (prefix), position away from.

Abaphospora Kirscht. = Amphididymella (Sphaer.; *Ann. Myc.*, **38**).

abaxial, (of a basidiospore), the side away from the long axis of the basidium (Corner, 1948); cf. adaxial.

Abbreviations and signs frequently used in this work are:

adj(ective)
Afr(ica)
Amer(ica)
Ann(*ales*) *Myc*(*ologici, Berlin*)
C(entral)
c(on)f(er), compare; make a comparison with
cosmop(olitan), probably in almost all countries
E(ast)
Ed(ition)
et al(*ia*), and others
e(xempli) g(ratia), for example
em(ended by)
esp(ecially)
Eur(ope)
ex, from; used esp. when prevalid authors are given; see Nomenclature
fide, teste, used for "on the authority of"
Fam(ily, -ilies)
Fig(ure)
gen(us, -era)
Hemisp(here)
Isl(and, -s)
Lit(erature)
Mediterr(anean region)
Mycol(*ogia, New York*)
Mycol(*ogical*) *Pap*(*ers*, C.M.I., Kew)
N(orth)
Nom(en) cons(ervandum), nom(en) rej(iciendum), see Nomenclature
obsol(ete), no longer in use
Philip(pine Islands)
q(uod) v(ide), which see
repr(esentative)
R(*eview of*) *A*(*pplied*) *M*(*ycology*)
S(outh)
sp(ecies)
syn(onym, -s) (q.v.)

T(ransactions of the) B(ritish) M(ycological) S(ociety)
Temp(erate parts)
teste, see fide
Trop(ics); trop(ical)
U(nited) S(tates of) A(merica)
W(est)
widespr(ead), in a number of countries
O, I, II, III, see Uredinales
=, is a synonym of
≡, is an obligate synonym of
*, sign for the authority taken for the classification or synonymy of a group
( ), sign for " is the cause of ", e.g., *Ascochyta pinodella* L. K. Jones (foot rot of pea)
±, more or less
μ, micron

See also Fungi Imperfecti for abbreviations for spore groups (A1, B1, etc.).

The abbreviations of names of periodicals, but for those noted, are taken from the *World List of Scientific Periodicals*, 1934 and 1952.

If the abbreviation of an Order or Family given with a synonym is not clear the cross-reference gives it in full.

And see Authors.

abhymenial, opposite the spore-producing surface.

abjection, the separating of a spore from a sporophore or sterigma by an act of the fungus (Fig. 76 c).

abjunction, the cutting off of a spore from a hypha by a septum.

aboospore, a parthenogenetic oospore (Fig. 22).

Abortiporus Murrill is based on *Polyporus distortus* (Schw.) Fr.

Abrothallomyces Cif. & Tom., see Lichens.

Abrothallus de Not., Helotiales. 3 or 4 on lichens, widespr.

abrupt, as if cut off transversely; truncate.

abscission, separating by the disappearance of a joining layer or wall, as of spores from a conidiophore.

Absidia van Tiegh., Mucorales (2). 17, widespr., esp. in soil.

Abstoma G. H. Cunn., Lycoperdales. 2, Australasia, N. Amer.

abstriction, abjunction and then abscission, esp. by constriction.

Acallomyces Thaxt., Laboulbeniales (2). 2, N. Amer., Philip.

Acalyptospora Desm. is based on gland-like leaf hairs.

acanth-a, a sharp pointed process; a spine: **-ophysis,** (in Thelephoraceae, etc.), a sterile hymenial hyphal end having a number of short pin-like outgrowths from its surface; 'bottle-brush paraphysis' (Burt).

Acantharia Theiss. & Syd., Sphaeriales (B2). 1, N. Amer. (Hansford, 1946).

Acanthocystis (Fayod) Kühner is a segregate from Pleurotus (Agar.).

Acanthomyces Thaxt. [non Akanthomyces Leb.] ≡ Rhachomyces (Laboulben.).

Acanthonitschkea Speg., Sphaeriales (AA). 3, Amer. (*Mycol.*, 1940).

Acanthophiobolus Berl. = Ophiochaeta (Sphaer.), fide Sacc

Acanthorhynchus Shear, Sphaeriales (A2). 1 on cranberry (*Vaccinium*), N. Amer.

Acanthosphaeria Kirschst. = Trichosphaeria (Sphaer.; *Ann. Myc.*, 1940).
Acanthostigma de Not., Sphaeriales (C1). 20, widespr. *A. parasiticum* (Hartig) Sacc. (white felt blight of conifers).
Acanthostigmella Höhnel ? = Acanthostigma (Sphaer.).
Acanthostigmella Rick ? = Acanthostigma (Sphaer.).
Acanthostigmina Höhnel ? = Acanthostigma (Sphaer.).
Acanthostoma Theiss., Sphaeriales (B2). 2, India, Afr.
Acanthotheca Clem. & Shear = Acanthotheciella (Sphaer.).
Acanthothecium Höhnel, Sphaeriales (E). 2, S. Amer.
Acanthothecium Speg., ? = Ypsilonia (Sphaeropsid.).
Acanthothecomyces Cif. & Tom., see Lichens.
Acarella Syd., Sphaeropsidales (3A1). 1, C. Amer.
Acarocybe Syd., Moniliales (5A2). 1, Afr.
Acaropeltis Petrak, Sphaeropsidales. 1, C. Amer.
Acarosporium Bubák & Vleugel, Sphaeropsidales (4B). 2, Eur., N. Amer. (*Mycol.*, 1938).
Acarosporomyces Cif. & Tom., see Lichens.
Acarothallium Syd. = Dimeriella (Sphaer.), fide Hansford.
acaryallagic, see caryallagic.
acaudate, not having a tail.
Acaulium Sopp = Scopulariopsis (Monil.), fide Thom.
Acaulopage Drechsler, Entomophthorales (1). 15, N. Amer., Eur.
accumbent, resting against anything.
acephalous, not having a head.
Acerbia (Sacc.) Berl. = Ophiobolus (Sphaer.), fide Clem. & Shear.
Acerbiella Sacc., Sphaeriales (E). 2 or 3, S. Amer., Java.
acerose, needle-like and stiff (Fig. 106).
acervate, massed up; heaped; growth in heaps or groups.
Acervulopsora Thirum. (1945), Uredinales. 1, India.
acervulus, an erumpent, cushion-like mass of hyphae having conidiophores and conidia, and sometimes setae, characteristic of the Melanconiales (q.v.) (Fig. 96).
Acervus Kanouse, Helotiales. 1, N. Amer.
Acetabula (Fr.) Fuckel, Pezizales. 20, N. Temp.
Acetabularia (Berk.) Massee [non Lamour.] = Cyphellopus (Agar.).
acetabuliform, saucer-like in form.
Achitonium Kunze ex Fr. is an earlier name for Pactilia (Monil.).
Achlya Nees ex ? Pringsh., Saprolegniales (1). 35, N. Temp.
Achlyella Lagerh., Chytridiales (? 4). 1, Eur.
Achlyogeton Schenk, Chytridiales (2). 1, N. Temp.
Achlyopsis De Wild., ? Saprolegniales.
Achorella Theiss. & Syd., Dothideales (3). 4, widespr.
Achorion Remak is based on *Trichophyton schoenleini* (Leb.) Langer. & Milochev.
Achorodothis Syd. = Placostroma (Dothid.), fide Clem. & Shear.
Achoropeltis Syd. = Peltostroma (Sphaeropsid.), fide Clem & Shear.
achroic, achrous, without colour or pigment; see colour.

achromatic, having no colour.
Achroomyces Bon. ? = Platygloea (Trem.).
Achrotelium Syd., Uredinales (1). 3, Philip., U.S.A., India.
Acia Karst. [non Schreber] = Mycoacia (Hyd.).
acicular, needle-like.
Aciculosporium Miyake, Hypocreales (E). 1, Japan.
acid-fast, (of bacteria), keeping carbol fuchsin stain after the addition of 25 per cent. sulphuric acid (H_2SO_4).
Acinophora, Saccardo's misspelling of Actinophora.
Acinula Fr., Mycelia Sterilia. 1, Eur.
Ackermannia Pat. = Sclerocystis (Mucor.), fide Zycha.
acladiosis, a dermatomycosis caused by *Acladium castellanii* Pinoy; see Butler, *Parasitology,* 1937.
Acladium Link is an earlier name for Rhinotrichum (q.v.) sensu Sacc.
Acleistia Bayliss Elliott is based on the conidial state of *Ombrophila alniella* (Nyl.) Karst.
Acmosporium Corda = Botrytis (Monil.), fide Sacc.
Acoliomyces Cif. & Tom., see Lichens.
Acolium (Achar.) Fée = Schizoxylon (Helot.), fide Fée.
Acompsomyces Thaxt., Laboulbeniales (3). 4, Amer.
Acontia Hill = Hydnum (Hyd.), fide Sacc.
Acontium Morg., Moniliales (3A). 2 or 3, N. Amer.
Acrasiales, Myxothallophyta (1). 9 gen. (3 monotypic) + 2 syn; 25 sp. Saprophytic, generally coprophilous, organisms having a characteristic growth phase of free-living myxamoebae, and a reproductive phase in which the myxamoebae typically become grouped into colonies or pseudoplasmodia forming spores or pseudospores in stalked or sessile, uncovered masses kept together by slime. Fam. and repr. gen. (and see Arnaud, *Botaniste,* 1949):
(1) Sappiniaceae, *Sappinia* only
(2) Guttulinaceae, *Guttulina, Guttulinopsis*
(3) Dictyosteliaceae, *Dictyostelium, Polysphondylium.*
Olive, *Proc. Boston Soc. nat. Hist.,* **30,** 1902.
acrasin, a chemotactically active substance which controls the streaming together of the myxamoebae of *Dictyostelium discoideum* (Bonner, *J. exp. Zool.,* **110,** 259, 1949).
Acrasis van Tiegh., Acrasiales (3). *A. granulata* van Tiegh. on beer yeast, France.
Acremoniella Sacc., Moniliales (4A). 5, widespr. (Mason, 1933.)
Acremonium Link ex Fr., Moniliales (3A). 10, esp. Temp.
acro- (prefix), at the end; apical; terminal; **-chroic,** see colour; **-genous,** development at the apex; **-petal,** produced successively in the direction of the apex, i.e., the apical member is youngest; basifugal; **-pleurogenous,** at the end and on the sides; **-spore,** an apical spore (Fig. 92).
Acrocladium Petrak (1949), Moniliales (4A). 2, S. Amer.
Acrocordiomyces Cif. & Tom., see Lichens.
Acrocylindrium Bon., Moniliales (3A). 3, Eur.

Acrocystis Ellis & Halst., ? Actinomycetales (*Phytopathology*, 1940).
Acrodesmis Syd., Moniliales (4A). 1, C. Amer.; imperfect state of *Allosoma*.
Acrogynomyces Thaxt., Laboulbeniales (2). 6, Afr.
Acroscyphus Lév., Lichenes.
Acrospeira Berk. & Br., Moniliales (4D). 4, N. Temp. (*T.B.M.S.*, **21**, 1938).
Acrospermoides Miller & Thompson (1940), 'Pseudosphaeriales.' 1, U.S.A.
Acrospermum Tode ex Fr., Dothideales (*Mycol.*, 1936). 10, widespr.
Acrosphaeria Corda = Xylaria (Sphaer.), fide Sacc.
Acrospira Mont., Moniliales (? 3). 1, Eur.
Acrosporium Nees ex S. F. Gray = Oidium (Monil.).
Acrostalagmus Corda = Verticillium (Monil.), but is often used.
Acrotellomyces Cif. & Tom., see Lichens.
Acrothamnium Nees is based on mycelium, fide Fries.
Acrotheca Fuckel = Ramularia (Monil.; *Mycol. Pap.*, 38).
Acrotheciella Koord., Moniliales (6C2). 1, Java.
Acrothecium Corda, a subgenus of *Trichothecium*.
Acrothecium Sacc., Moniliales (4C) or nomen dubium. 15, widespr.
Actidium Fr., ? Ascomycetes.
Actigea Rafin. = Scleroderma (Scleroderm.), fide Sacc.
Actiniceps Berk. & Br., Moniliales (5A1). 3, Ceylon, N. Amer., Afr.
Actiniopsis Starb. is based on two lichens (*Hedwigia*, 1935); some later spp. are Helotiales.
Actinobacterium Haass = Actinomyces and Nocardia (Actin.), fide Bergey *et al.*
Actinobotrys Hoffm. = Bremia (Peronospor.), fide Sacc.
Actinocephalum Saito = Cunninghamella (Mucor.), fide Zycha.
Actinochaete Ferro, Moniliales (4A). 1, Asia.
Actinocladium Ehrenb. ex Fr. is a nomen dubium.
Actinocladothrix Afanas. = Actinomyces (Actin.), fide Bergey *et al.*
Actinocymbe Höhnel, ? Dothideales (1). See Hansford, 1946.
Actinodermium Nees = Scleroderma (Scleroderm.), fide Fischer.
Actinodochium Syd., Moniliales (6A2). 1, C. Amer.
Actinodothiopsis Stev., Spheriales (C1). 2, Hawaii. See *Sydowia*, 1952.
Actinodothis Syd., Hemisphaeriales (1). 3, Philip., Hawaii
Actinomma Sacc. = Atichia (Myriang.), fide von Höhnel.
Actinomucor Shostakovitsh, Mucorales (2). 1, N. Temp.
Actinomyce Meyen is a nomen dubium.
Actinomyces Harz, Actinomycetales (2). 2 on man and animals causing actinomycosis (q.v.), widespr. Anaerobic or microaerophilic, not acid-fast.
Actinomycetales, Bacteria (2). 5 gen. + 21 syn.; 126 sp. Actinomycetes; 'Ray Fungi.' The elongated, Gram + cells show a tendency to branch and in Families (2) and (3) there is a

well-marked mycelium with hyphae about 1μ in. diam. (Fig. 9). No endospores but sometimes arthrospores or conidia (Fig. 9 *a*). *Fam.* (see Waksman & Henrici, *J. Bact.*, **46**, 1943):

(1) Mycobacteriaceae: little or no mycelium, no spores, acid-fast. (*Mycobacterium.*)

(2) Actinomycetaceae: mycelium, arthrospores, no conidia. (*Actinomyces, Nocardia.*)

(3) Streptomycetaceae: mycelium, conidia, no arthrospores. (*Streptomyces, Micromonospora.*)

Lit.: **Bergey's Manual of determinative bacteriology* (Ed. 6), 1948 (q.v. for fuller synonymy); *Henrici's Molds, yeasts, and Actinomycetes* (Ed. 2), 1947; Waksman, *Principles of soil microbiology* (Ed. 2), 1931; *The Actinomycetes*, 1950 (general account); Perlman, *Bot. Rev.*, **19**, 1953 (physiology).

actinomycin, see antibiotic substances.

actinomycosis, a disease in man or animals caused by an actinomycete, esp. *Actinomyces.* Human — (*A. israeli* (Kruse) Lachn.-Sand.); cattle — (lumpy jaw) is usually attributed to '*A. bovis* Harz' (a nomen confusum, see Erikson, *Med. Res. Counc., Spec. Rep. Ser.* **240**, 1940 and Langeron, 1945), see Mohler & Shahan, *Circ. U.S. Dep. Agric.* **438**, 1943.

actinomycotin, an extract of cultures of *Actinomyces* used against actinomycosis.

Actinomyxa Syd., Hemisphaeriales (3). 1, Australia.

Actinonema Fr., Melanconiales (B1). 10, widespr. *A. rosae* (Lib.) Fr. [perfect state, *Diplocarpon rosae* Wolf] (black spot of rose).

Actinonemella Höhnel, nom. provis. for *Actinonema padi* (DC.) Fr.

Actinopelte Sacc., Sphaeropsidales. 2, N. Temp. (*Mycol.*, 1945; *R.A.M.*, **27**, 500.)

Actinopeltella Doidge = Mycolangloisia (Hemisphaer.), fide Hansford.

Actinopeltis Höhnel, Hemisphaeriales (4). 2, S. Amer. (*Ann. Myc.*, 1925, 1935).

Actinophora Rafin. is a nomen dubium.

Actinoplacomyces Cif. & Tom., see Lichens.

Actinoplanes Couch (1950), Actinomycetales with zoospores. 1, Philip.

Actinoscypha Karst. is probably an earlier name for Niesslella (Hemisphaer.), fide Nannfeldt.

Actinosoma Syd., Hemisphaeriales (4). 1, S. Amer. (Hansford, 1946). But see *Sydowia*, **4**.

Actinospira Corda = Myxotrichum (Eurot.), fide Sacc.

Actinospora Ingold (1952), Moniliales (G). 1 in water, England.

Actinostilbe Petch, Moniliales (5B1). 1, Ceylon.

Actinostroma Klotzsch = Cladoderris (Thel.), fide Sacc.

Actinothecium Ces., Sphaeropsidales (3A1). 5, widespr.

Actinothyrium Kunze ex Fr., Sphaeropsidales (3E). 10, widespr.

Actinotrichum Wallr. = Actinonema (Melancon.), fide Sacc.

Actonia C. W. Dodge, ? Endomycetales. 1 on man, Mesopotamia.

acule-ate, having narrow spines (Fig. 138 *c*); **-olate,** having somewhat spine-like processes.
acuminate, narrowing to a point.
Acurtis Fr. was based on an agaric; see Singer, 1951.
acute, pointed (Fig. 106); less than a right angle.
adapted race (Magnus) = physiologic race.
adaxial, (of a basidiospore), the side next the long axis of the basidium, usually that with the apiculus (Corner, 1948); cf. abaxial.
Adea Petrak, Melanconiales (C2). 1, Canary Isl.
Adella Petrak, Sphaeropsidales (1C). 1, Greece.
Adelococcus Theiss. & Syd., Sphaeriales (A2). 3 on lichens, Eur.
Adelodiscus Syd., Helotiales. 1, Philip.
Adelomyces Thaxt., Laboulbeniales (2). 2, Sumatra, Borneo.
Adélomycètes Mang. & Vinc. = Fungi Imperfecti; see Langeron, 1945.
Adelopus Theiss. = Phaeocryptopus (Sphaer.), fide Petrak.
adelphogamy, pseudomictic copulation of mother and daughter cells, as in some yeasts (Gäumann & Dodge).
adenose, having glands; gland-like.
adnate, (of gills or tubes), widely joined to the stipe (Fig. 77 *c*); (of pellicle, scales, etc.), tightly fixed to the surface.
adnexed, (of gills or tubes), narrowly joined to the stipe (Fig. 77 *b*).
adpressed, see appressed.
adspersed, of wide distribution; scattered.
aduncate, bent; hooked; crooked.
Aecidiconium Vuill., ? Uredinales.
Aecidiella Ellis & Kelsey = **Puccinioxira** (Ured.), fide **Arthur.**
Aecidiolum Unger, Uredinales. **A name at one time sometimes** given to the pycnial state of **rusts.**
Aecidites Debey & Ettingh., Fossil Aecidium ?
Aecidium Pers., Uredinales; a Form-Genus for (0 and) I only. 600 on Angiosperms, esp. in areas where there is little knowledge of the life-histories of rusts. A number may be "duplicate" names. As with other Fungi Imperfecti, an *Aecidium* name is sometimes used even when there is a named perfect (telial) state.
aeciospore (aecidiospore), a spore formed in an aecium (Fig. 61 *a*).
aecium (aecidium), a more or less cup-like sorus of the Uredinales; a cluster-cup (Fig. 61).
Aedycia Rafin. (nom. rej.) ? = Mutinus (Phal.).
Aegerita Pers. ex Fr., Moniliales (6A1). 10, widespr.
Aegeritopsis Höhnel = Aegerita (Monil.), fide Clem. & Shear.
aequi-hymeniiferous, (of fruit body organization in all agarics but *Coprinus*), having hymenium development equal all over the surface of each gill (Buller, 2).
aero-aquatic fungi, fungi that grow under water but produce spores in the air above (*T.B.M.S.*, 34, 280).
aerobe, an organism needing free oxygen for growth; cf. anaerobe.
Aerophyton Eschw. ex Fr. is a nomen dubium.
Aerothrix Wollenw. = Streptomyces (Actin.), fide Bergey *et al.*

Aeruginospora Höhnel = Clitocybe or Armillaria (Agar.).
Aethaliopsis Zopf = Fuligo (Myxom.), fide G. Lister.
aethalium, (of Myxomycetes), a sessile fruit body made by a massing of all or a part of the plasmodium.
Aethalium Link = Fuligo (Myxom.), fide G. Lister.
aetiology, see etiology.
Aetnensis Lloyd is a nomen nudum.
agamic, agamous, asexual.
agar, agar-agar, a substance from certain red algae (*Gelidium* (Japan, U.S.A.), *Gracillaria* (U.S.A.), *Gigartina* (Britain), *Pterocladia* (New Zealand), etc.) used to make culture media into gels which few micro-organisms can liquefy. See V. J. Chapman, *Seaweeds and their uses*, Chap. 5, 1950, and Lily Newton, *Seaweed utilization*, Chap. 7, 1951; cf. gelatin.
agaric, (1) one of the Agaricaceae; **fly —,** *Amanita muscaria* (Pers. ex Fr.) S. F. Gray; **honey —,** *Armillaria mellea* (Vahl ex Fr.) Quél.; (2) (in early Medicine, obsol.), species of *Fomes* or *Polyporus*; **female, white,** or **purging —** (Agaricum), *F. officinalis* (Vill. ex Fr.) Lloyd; **male —,** *F. igniarius* (L. ex Fr.) Kickx.
Agaricaceae, Agaricales (7). The Gill Fungi; Mushrooms and Toadstools. About 100 gen. + 350 syn., 4,000 (or fewer) sp., cosmop. The mycelium, which is frequently seen in leaf-mould or wood, may be perennial; sometimes there are sclerotia or rhizomorphs. The characteristic macroscopic fruit body (Fig. 73) is made up of a fleshy, or sometimes cartilage-like, and generally stipitate, pileus having hymenium-covered gills (lamellae) on its under side. The young fruit body may be covered by a layer of tissue, the universal veil, which becomes broken by the growth of the pileus, but part is sometimes seen round the base of the stipe (as a volva) and, as in *Amanita*, on the top surface of the mature pileus. The hymenium may at first be covered by a partial veil which may later become a cortina (as in *Cortinarius*) or be seen as a ring (annulus) round the mature stipe (e.g., in *Agaricus, Amanita*). There may be cystidia, setae, or paraphyses among the basidia producing the 1-celled, hyaline or coloured basidiospores.

Most of the Agaricaceae are saprophytes, but a small number (e.g., spp. of *Armillaria, Marasmius*) are pathogenic to higher plants. Some have mycorrhizal associations, esp. with forest trees (see Mycorrhiza). A number are edible, and some of them may be used in Mushroom culture (q.v., and see Edible fungi); others are poisonous to man (see Poisonous fungi).

Classification. Fries in his *Systema* put almost all the Agaricaceae in the genus *Agaricus*, his ' tribes ' (subgenera) being the common genera of to-day. Later he made genera of some of his ' tribes ', but other mycologists, esp. Quélet, made most of such changes. (Under the present Rules the authority for *Collybia*, for example, is (Fr.) Quél., not Fr.) Fayod, Karsten, Earle, Murrill and others have made genera by the division of the Friesian group-

ings or have taken up pre-Friesian names for genera, but most of these generic names are not in general use. See Singer & Smith, *Mycol.*, 1946.

Attempts at a ' natural ' arrangement of the genera have been made by Singer (summarized in *Lilloa*, **22**, 1951) and others, but classifications are still commonly based on spore colour as given by a spore print.

Spore groups and repr. gen. :

Spores white or almost so *Amanita, Lepiota, Armillaria, Collybia, Lactarius, Hygrophorus*	(1) Leucosporae
Spores light green *Chitoniella*	(1A) Chlorosporae
Spores light red, rosy or salmon *Clitopilus, Entoloma*	(2) Rhodosporae
Spores yellow or brown *Cortinarius, Pholiota*	(3) Ochrosporae
Spores purplish *Agaricus, Hypholoma*	(4) Porphyrosporae or Amaurosporae
Spores black *Coprinus, Panaeolus*	(5) Melanosporae

Lit. Among systematic works are : Killermann, 1928 ; Kauffman, *Agaricaceae of Michigan*, 1918 ; Rea, *British Basidiomycetae*, (1922 ; revised British list *T.B.M.S.*, **31**, 145) ; Wakefield & Dennis, *Common British fungi*, 1950 ; Cleland, *Toadstools and Mushrooms . . . of South Australia*, 1934 ; Lange, *Flora Agaricina Danica*, 1935–40 ; Bresadola, *Iconographia mycologica*, 1927–32 ; Konrad & Maublanc, *Les Agaricales*, **1**, 1948, **2**, 1952 ; Singer, The Agaricales (mushrooms) in modern taxonomy, 1951 (*Lilloa*, **22**) ; Pilát, *Agaricalium europaeorum clavis dichotomica*, 1951 (in Czech) ; Kühner & Romagnesi, *Flore analytique des champignons supérieurs*, 1953 (see review, *T.B.M.S.*, **37**) ; Josserand, *La description des champignons supérieurs*, 1952 (technique, vocabulary) ; and see Buller, **1–6** ; Heim, *T.B.M.S.*, **30** (phylogeny).

Agaricales, Basidiomycetes (4). About 200 gen. + 800 syn. and some 7,000 sp. Fruit body generally macroscopic, with well-marked hymenium ; basidium simple, with apical sterigmata and generally four basidiospores. *Fam.* (q.v.) :

Hymenium on galls on host	(1) Exobasidiaceae
Hymenium ± smooth, pileus not clavate	(2) Thelephoraceae
Hymenium smooth, pileus ± clavate	(3) Clavariaceae
Hymenium on teeth	(4) Hydnaceae
Hymenium in tubes, pileus not fleshy	(5) Polyporaceae
Hymenium in tubes, pileus fleshy	(6) Boletaceae
Hymenium on gills	(7) Agaricaceae

The Agaricales are by many considered to include only (6) and (7), the other families being placed as Polyporales (or Aphyllophorales) : see p. 289.

Agaricochaete Eichelbaum, Agaricaceae Incertae Sedis.
agaricolous, living on agarics.
Agaricum, see agaric.
Agaricus L. ex Fr., Agaricaceae (4, ring but no volva, gills free). 60, Temp. *A. campestris* L. ex Fr. is the common, or field, mushroom (see Mushroom culture). See Möller, *Friesia*, **4** (Danish species, as *Psalliota*); Pilát, *Acta mus. nat. Prag.*, **7**, 1951.
agglutinate, fixed together as if with glue.
aggregate, aggregated, near together; crowded.
aggregate plasmodium, see plasmodium.
Aglaospora de Not. ? = Massaria (Sphaer.).
Agmocybe Earle = Inocybe (Agar.), fide Kauffman.
Agostaea (Sacc.) Theiss. & Syd., ? Dothideales. 1, S. Amer.
Agrobacterium Conn (1942), Bacteria (1). 4, widespr. Type: *A. tumefaciens* (E. F. Sm. & Towns.) Conn (≡ *Bacterium tumefaciens* E. F. Sm. & Towns.) (Crown gall). See hairy root.
Agrocybe Fayod, Agaricaceae. 17, widespr., fide Singer.
Agyriales, used by Clements & Shear for Atichiaceae and other Ascomycetes.
Agyriella Ellis & Everh. ≡ Agyriopsis (Helot.).
Agyriella Sacc., Moniliales (6A2). 1, Eur.
Agyriellopsis Höhnel, Sphaeropsidales (4A1). 2, Eur.
Agyrina (Sacc.) Clem. = Steinia (Helot.), fide Nannfeldt.
Agyriopsis Karst. is a Section of Peziza.
Agyriopsis Sacc. & Syd., Helotiales. 3, Amer., Java.
Agyrium Fr. is based on a lichen; some species are Helotiales.
Agyrona Höhnel, Myriangiales. 3, widespr.
Agyronella Höhnel, Myriangiales. 1, Brazil.
Ahlesia Fuckel, Hypocreales, fide Keissler. 1, Eur.
Ahmadia Syd., Fungi Imperfecti. 1, India.
air spora, see spora.
Aithaloderma Syd. = Chaetothyrium (Dothid.; Eileen Fisher, *Ann. Bot., Lond.*, 1939).
Aithalomyces Woronich., Dothideales (1). 2, Russia, N. Amer.
Akanthomyces Leb., Moniliales (5). 4, widespr. (*Mycol.*, 1950).
akaryote, (of Plasmodiophoraceae), the stage in the nuclear cycle before meiosis in which no or little chromatin is seen in the nucleus.
akinete, a non-motile reproductive structure; a resting cell.
Akrophyton Leb. = Cordyceps (Hypocr.), fide Sacc.
alate, winged.
Alatospora Ingold (1942), Moniliales (3G). 1 in water, Britain.
Albatrellus S. F. Gray ? = Polyporus (Polyp.).
Albertiniella Kirschst., Eurotiales (2). 1, Eur. (*Sydowia*, **1**, 85).
Albigo Auct. = Sphaerotheca (Erysiph.), fide Salmon.
Albocrustum Lloyd is based on *Sphaeria atropunctata* Schw.
Alboffia Speg. = Corynelia (Dothid.), fide Petrak.
Alboffiella Speg. = Itajahya (Phal.), fide Fischer.

alboleersin, a metabolic product of *Helminthosporium leersii* Atkins. (*Biochem. J.*, **32**, 449).

Albomyces Miyake ? = Aciculosporium (Hypocr.).

Albugo Pers. ex S. F. Gray, Peronosporales. See Cystopus.

Aldona Racib., ? Hysteriales (see Nannfeldt, 1932). 1, East Indies.

Aldridgea Massee is a nomen dubium.

Aldri[d]giella Rick, Thelephoraceae. 1, Brazil.

Alectoriomyces Cif. & Tom., see Lichens.

Alectorolophoides Batt. ex Earle ≡ Cantharellus (Agar.).

alepidote, having no scales or scurf; smooth.

Aleuria Fuckel, Pezizales. 10, N. Temp. (*T.B.M.S.*, **23**, 1939).

Aleuriella Karst. = Mollisia (Helot.), fide Sacc.

Aleurina (Sacc.) Sacc. & Syd., Pezizales. 5, N. Temp.

aleuriospore, a terminal or lateral chlamydospore like a conidium verum but not deciduous, e.g., of *Aleurisma*, *Mycogone* (after Vuillemin; see Mason 1933, 1937).

Aleurisma Link ex Fr., Moniliales (3A). 5, widespr.; certain species reported on man. See *T.B.M.S.*, **27**, 1944.

Aleurodiscus Rabenh. ex Cooke, Thelephoraceae. (Nom. cons.) 40, widespr.; 2 spp. are sometimes pathogenic to *Abies* and *Quercus*. See Cyphella.

Aleurodomyces Buchner, Pseudosaccharomycetaceae. 1 in insects.

Aleurophora Magalhaes = Aleurisma (Monil.), fide C. W. Dodge.

Aleurosporia Grigorakis is a segregate from Trichophyton (Monil.).

algicolous, living on algae.

Algincola Velen., ? Helotiales.

Algorichtera O. Kuntze ≡ Scorias (Dothid.).

aliform, wing-like in form.

Alina Racib., Dothideales (1). 1, Java.

allantoid, (esp. of spores), a little curved with rounded ends; sausage-like in form (Fig. 109).

Allantonectella Petrak (1950), Sphaeriales (C1). 1, S. Amer.

Allantonectria Earle, Hypocreales. 1, Amer., Eur., N. Afr.

Allantophoma Kleb., Sphaeropsidales. 3 on *Pseudotsuga*, Eur. (*R.A.M.*, **12**, 789).

Allantophomopsis Petrak = Phoma (Sphaeropsid.), fide Clem. & Shear.

Allantoporthe Petrak = Diaporthe (Sphaer.), fide Wehmeyer.

Allantosphaeriaceae, Sphaeriales-Allantosporae (AA); *Ann. Myc.*, 1918. 31 gen. (11 monotypic) + 20 syn., 400 sp. on branches, stems, etc., widespr. Spores allantoid.

Allantospora Wakker ? = Cylindrocarpon (Monil.).

Allantozythia Höhnel = Phlyctaena (Sphaeropsid.; *Ann. Myc.*, 1929).

Allantula Corner (1952), Clavariaceae. 1, Brazil.

Allarthoniomyces Thomas, see Lichens.

Allarthotheliomyces Cif. & Tom., see Lichens.

allergy (adj. allergic), the condition of increased sensitivity of an animal to a substance as the result of putting (or getting) a small