TYPIFICATION OF THE SPECIES OF ASPERGILLUS AND ASSOCIATED TELEOMORPHS

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SUMMARY

The typification of 190 taxa of Aspergillus and associated teleomorphs is investigated and adjusted to meet the rules of the International Code of Botanical Nomenclature. When no dried type specimen was indicated by the original author(s), a lectotype is designated. In 24 cases where the original names apply to the teleomorph (in combination with Aspergillus or other generic names) and no other names are available for the anamorph, new names are proposed for the anamorph.

INTRODUCTION

In the following pages we investigate the typification of the remaining taxa described in Aspergillus, Sterigmatocystis and their associated teleomorph genera and designate types in cases where typification was not appropriate or lacking. Although it would be useful to sort out the typification for all taxa ever described in Aspergillus, we confine this study to those taxa accepted by Raper and Fennell (1965) and Samson (1979) and some species described more recently.

Most taxonomic studies were based on observations of cultures and recent new taxa were always based on living type cultures. The Sydney edition of the International Code of Botanical Nomenclature again confirmed the requirement for dried type specimens to satisfy Art. 37, while living type cultures are considered insufficient. In the case of Aspergillus the available living type cultures are generally stable enough to document the identity of a species several decades after its description. Hence we accept species described after 1958 (Art. 37) for which only living type cultures were designated, and cite them with their original date of publication, but ensure that dried type material is preserved too (see Recommmendation 3, chapter 7).

Aspergillus, according to all protologues, is an anamorphic genus. In this century, following the precedent of Fischer (1897), Aspergillus was repeatedly treated with the explicit inclusion of teleomorphs. The necessity for recognizing distinct genera for groups of teleomorphs within the Trichocomaceae (=Eurotiaceae) was clearly established by Benjamin (1955). When teleomorphic fungi were originally described as Aspergillus, their epithets must be transferred into a teleomorphic genus and they then apply to the holomorphic fungus (Malloch & Cain, 1972). These epithets are no longer available for use in combination with Aspergillus to designate the anamorph only. Although we feel that there is a limited need for different anamorph names for many such species, we follow the recommendation (Recommendation 5, see chapter 7) made in subsequent discussions during this workshop and introduce new epithets for such fungi.

For the species of Eurotium Blaser (1975) designated living type cultures; dried type material has still to be designated based on his suggestions. Further decisions about species delimitation in this genus made by Pitt (this publication) are followed. For the typification of taxa of the A. niger group some typifications were proposed by Al-Musallam (1980). Kozakiewicz (1982) clarified the typification of A. parasiticus. The cultures designated as representative for the species of the A. ochraceus group by Christensen (1982) agree with those cited here.

An investigation of other Aspergillus types showed that dried reference cultures of many improperly typified taxa are preserved in the herbarium of the Commonwealth Mycological Institute in Kew (IMI). Because these specimens were dried down from subcultures of original type cultures at a date later than the original publications, these specimens are considered lectotypes. If no dried IMI specimen is present, dried specimens from CBS subcultures were prepared and designated lectotypes (in herb. CBS). All these accession numbers are identical with those of available living CBS or IMI cultures.

Referring to Pitt's paper on Eurotium (see chapter 6) we take the view that apparently identical teleomorphs with distinguishable anamorphs should have different names (as they apply to the holomorph), whereas taxa differing in minor details of the teleomorph only and to date distinguished as varieties, need not have separate anamorph names.

For all names the protologues have been checked and the precise nomenclature and author's citation are corrected where applicable.

Hemicarpenteles acanthosporus Udagawa & Takada--Bull. Nat. Sci. Mus. Tokyo 14: 503. 1971.
Anam: A. acanthosporus Udagawa & Takada -- ibid.
Holotype NHL 22462, derived from CBS 558.71, ex soil, Bougainville Island.

A. aeneus Sappa -- Allionia 2: 84, 1954 (no type indicated, no dried type specimen).
Original culture WB 4769 = CBS 128.54 = IMI 69855, ex forest soil, Somalia. Herb. CBS 128.58, derived from the type culture, is here designated as lectotype.

A. allahabadii Mehrotra & Agnihotri -- Mycologia 54: 400. 1962 (no dried type specimen).
Original culture WB 4539 = CBS 164.63 = IMI 139273, ex garden soil, Allahabad, India. Herb. CBS 164.63, derived from the type culture, is here designated as lectotype.

Petromyces alliaceus Malloch & Cain -- Can. J. Bot. 50: 2623. 1972 [= Syncleistostroma alliaceum (Thom & Church emend. Fennell & Warcup) Subram. -- Curr. Sci. 41: 756. 1972 (nomen anamorphosis)].
Anamorph: A. alliaceus Thom & Church -- The Aspergilli p. 163. 1926.
Holotype of teleomorph designated by Malloch & Cain (1972) and neotype of anamorph: TRTC 46232, derived from culture ATCC 16891 = CBS 542.65, ex soil Mt. Riddock, Australia.

A. alutaceus Berk. & Curt. -- Grevillea 3(25): 108. 1875. Syn. A. ochraceus Wilhelm -- "Beiträge zur Kenntniss der Pilzgattung Aspergillus". Diss. Strassburg, p. 66. 1877.
Holotype in herb. K, on decaying maize.
No type culture of A. ochraceus available but WB 398 = CBS 108.08 received from Blochwitz is considered representative.

A. ambiguus Sappa -- Allionia 2: 254. 1955 (no type indication, no dried type specimen).
Original culture WB 4737 = CBS 117.58 = IMI 139274, ex savannah soil, Somalia. Herb. CBS 117.58, derived from the type culture, is here designated as lectotype.

Eurotium amstelodami Mangin -- Annls Sci. nat., Bot., Sér. 9, 10: 360. 1909 = A. amstelodami (Mangin) Thom & Church -- The Aspergilli, p. 113. 1926.
As no epithet is available for the anamorph, we propose
ASPERGILLUS HOLLANDICUS st. nov.
Anamorphosis Eurotii amstelodami. Stipites conidiophororum hyalini vel dilute luteovirides, 275-350 µm alti, vesiculae subglobosae, 18-25 µm diam., phialides 5.0-6.5 x 2.5-3.5 µm. Conidia (sub)globosa, spinulosa, plerumque 4.5-5.0 x 3.5-4.0 µm, catenis radiantibus vel columnaribus disposita, olivaceo-viridia. Holotypus CBS 518.65.
Neotype culture CBS 518.65 (designated by Blaser), received from C. Thom. Herb. CBS 518.65, derived from this culture, is designated as neotype for the teleomorph.

A. amylovorus Panasenko ex Samson -- Stud. Mycol., Baarn 18: 28, 1979.
Holotype herb. CBS 600.67, derived from the original culture, ex wheat starch, Ukraine.

A. anthodesmis Bartoli & Maggi -- Trans. Br. mycol. Soc. 71: 386. 1978.
Holotype 103 S in herb. RO, derived from culture CBS 522.77, ex soil in Ivory Coast.

Eurotium appendiculatum Blaser -- Sydowia 28: 38. 1975.
Anam. A. appendiculatus Blaser -- ibid.
Holotypus ZT 8286, isolated from smoked sausage, Switzerland. Derived from living culture CBS 374.75 = IMI 278374.

A. arenarius Raper & Fennell -- Genus Aspergillus p. 475. 1965 (no dried type specimen).
Type culture WB 5012 = CBS 463.65 = IMI 55632, ex soil in Mysore, India. Herb. IMI 55632, derived from the type culture, is here designated as lectotype.

A. asperescens Stolk -- Antonie van Leeuwenhoek 20: 303. 1954.
Type culture CBS 110.51 = WB 4770 = IMI 46813, ex soil from caves, Poland. Dried type specimens were deposited in herb. K and L. The specimen in herb K. is here designated as holotype.

Edyuillia athecia (Raper & Fennell) Subram. -- Curr. Sci. 41: 756. 1982 = Gymneurotium athecium (Raper & Fennell) Malloch & Cain -- Can. J. Bot. 50: 2619. 1972 = Eurotium athecium (Raper & Fennell) v. Arx -- = A. athecius Raper & Fennell -- Gen. Aspergillus, p. 183, 1965 (no dried type specimen).
As no epithet is available for the anamorph, we propose
ASPERGILLUS ATHECIELLUS st. nov.
Anamorphosis Edyuilliae atheciae. Diagnosis Latina in "Genus Aspergillus" (Raper & Fennell) p. 184. 1965 continetur. Typus IMI 32048.
Original culture WB 5000 = CBS 464.65 = IMI 32048, ex coffee beans. Herb. IMI 32048, derived from the type culture, is here also designated as lectotype of the teleomorph.

A. aureolatus Muntanjola-Cvetković & Bata -- Bull. Inst. Jardin bot. Univ. Beograd 1: 196. 1965 (no dried type specimen).
Original culture BKZ = WB 5126 = CBS 190.65 = IMI 136527, ex air, Yugoslavia. Herb. CBS 190.65, derived from the type culture, is here designated as lectotype.

Neosartorya aureola (Fennell & Raper) Malloch & Cain -- Can. J. Bot. 50: 2620. 1972 = A. aureolus Fennell & Raper -- Mycologia 47: 71. 1955 (no dried type specimen).
As no epithet is available for the anamorph, we propose
ASPERGILLUS AUREOLUTEUS st. nov.
Anamorphosis Neosartoryae aureolae. Diagnosis Latina in Mycologia 47: 71. 1955. continetur. Typus CBS 105.55.
The original cultures WB 2244 and 2391, ex soil Gold Coast, Africa, were listed as representative by Raper & Fennell (1965). WB 2244 = CBS 105.55 = IMI 61451 is selected and Herb. CBS 105.55 designated as lectotype.

A. auricomus (Guégen) Saito -- J. Ferment. Technol. Osaka 17: 3. 1939 = Sterigmatocystis auricoma Guegen -- Bull. Soc. mycol. Fr. 15: 171. 1899.
No type material is available. The culture WB 391 = CBS 467.65, received from P. Biourge as A. auricomus, was considered as representative by Raper and Fennell (1965). Herb. CBS 467.65 is hence designated as neotype.

A. avenaceus G. Smith -- Trans. Br. mycol. Soc. 25: 24. 1943 (no dried type specimen).
Type culture WB 517 = CBS 109.46 = IMI 16140, ex pea seed, UK. Herb. CBS 109.46, derived from the type culture, is here designated as lectotype.

A. awamori Nakazawa -- Rep. Inst. Govt. Res. Formosa 1, 1907.
Al-Musallam (1980) designated herb. CBS 557.65 as the neotype. The culture (WB 4948) was originally received from Instituto Ozwaldo Cruz.

Emericella bicolor M. Christensen & States -- Mycologia 70: 337. 1978.
Anam. A. bicolor M. Christensen & States -- ibid.
Holotype RMF 2058 in herb. NY, derived from living culture CBS 425.77 = IMI 216612, ex Artemisia grassland, Wyoming, USA.

A. biplanus Raper & Fennell -- Gen. Aspergillus p. 434. 1965 (no dried type specimen).
Raper and Fennell (1965) mentioned two isolates, WB 5071 en 5072, ex soil in Costa Rica. The first isolate is preserved as herb. IMI 235602 and is here designated as lectotype.

A. bisporus Kwon-Chung & Fennell -- Mycologia 63: 481. 1971.
Dried type specimen in BPI, derived from culture CBS 707.71 = NRRL 3693, ex mouse infected by soil-passage technique, USA.

A. brevipes G. Smith -- Trans. Br. mycol. Soc. 35: 241 1952.
Dried holotype specimen in herb. K, derived from culture WB 4078 = CBS 118.53 = IMI 16034 = IMI 51494, ex soil in Australia.

A. bridgeri M. Christensen -- Mycologia 74: 210. 1982.
Holotype JB 26-1-2 in herb. NY, derived from culture CBS 350.81 = IMI 259098, ex soil under Atriplex gardneri, Sweetwater County, Wyoming, USA.

A. brunneo-uniseriatus Singh & Bakshi -- Trans. Br. mycol. Soc. 44: 160. 1961 (no dried type specimen).
Type culture WB 4273 = CBS 127.61 = IMI 227677, ex soil under Shisham trees, India. Herb. IMI 227677, derived from the type culture, is here designated as lectotype.

A. brunneus Delacr., see Eurotium echinulatum

A. caesiellus Saito -- J. Fac. Sci. Coll. Imp. Univ. Tokyo 18: 49-50. 1904 (no dried type specimen).
Type culture WB 5061 = CBS 470.65 = IMI 172278, received from IFO Saito's type strain. Herb. IMI 172278, derived from the type culture, is here designated as lectotype.

A. caespitosus Raper & Thom -- Mycologia 36: 563. 1944 (no dried type specimen).
Type culture WB 1929 = CBS 103.45 = IMI 16034, ex soil, Fayetteville, Arkansas, USA. Herb. IMI 16034ii, derived from the type culture, is here designated as lectotype.

A. campestris M. Christensen -- Mycologia 74: 212. 1982.
Holotype ST 2-3-1 in herb. NY, derived from CBS 348.81 = IMI 259099, ex top soil from native prairie, near Zap, North Dakota, USA.

A. candidus Link -- Mag. Ges. naturf. Fr. Berlin 3: 16. 1809.
No type specimen could be traced in herb. B. The culture WB 303 = CBS 567.65 = IMI 91889, supplied by J. Westerdijk, was listed as representative by Raper & Fennell (1965). Consequently herb. CBS 567.65, derived from this isolate, is here designated as neotype.

A. carbonarius (Bain.) Thom -- J. agric. Res. 7: 12. 1916 = Sterigmatocystis carbonaria Bain. -- Bull. Soc. bot. Fr. 27: 27. 1880.

As no original material is available, Al-Musallam (1980) designated CBS 556.65 = Thom's 4030-1, originating from A. F. Blakeslee, as neotype culture and specimen.

A. carneus Blochw. -- Annls mycol. 31: 81. 1933.
No type material is known to exist. The culture WB 527 = CBS 494.65 = IMI 135818, ex air, USA, was listed as representative by Raper & Fennell (1965). Herb. IMI 135818, derived from this culture, is here designated as neotype.
Note: Blochwitz described this as a new species and considered it different from Sterigmatocystis carnea van Tieghem. Hence it must not be cited as A. carneus (van Tiegh.) Blochw. (as done by Raper & Fennell, 1965).

Eurotium carnoyi Malloch & Cain -- Can. J. Bot. 50: 63. 1972.
Anam. A. carnoyi Biourge ex Thom & Raper -- Misc. Publ. U.S. Dep. Agric. 426: 34. 1941.
Type culture WB 126 = CBS 471.65 = IMI 17227, obtained by G. Smith from P. Biourge. Herb. IMI 17227, derived from the type culture, is here designated as lectotype.

A. cervinus Massee -- Kew Bull., Misc. Inf. 4: 158. 1914.
Christensen & Fennell (1964) designated a neotype specimen WT 540 (herb. WISC) because Massee's holotype has apparently been lost. This specimen is derived from WB 5025 = CBS 537.65, ex soil from rain forest near Kuala Lumpur, Malaysia.

Eurotium chevalieri Mangin -- Annls Sci. nat., Bot., Sér. 9, 10: 361. 1909 = A. chevalieri (Mangin) Thom & Church -- The Aspergilli, p. 111. 1926.
As no epithet is available for the anamorph, we propose
ASPERGILLUS EQUITIS st. nov.
Anamorphosis Eurotii chevalieri. Stipites conidiophororum 700-850 µm alti, vesiculae fere globosae, 25-35 µm diam., phialides 5-7 x 3.0-3.5 µm. Conidia ovalia vel ellipsoidea, spinulosa, plerumque 4.5-5.5 µm longa.
Typus IMI 211382.
Neotype culture designated by Blaser (1975) WB 78 = CBS 522.65 = IMI 211382, isolated by C. Thom from coffee beans in 1916. Herb. IMI 211382, derived from the neotype culture, is here designated as neotype for both the teleomorph and the anamorph.

Chaetosartorya chrysella (Kwon & Fennell) Subram. -- Curr. Sci. 41: 761. 1972 = Harpezomyces chrysellus (Kwon & Fennell) Malloch & Cain -- Can. J. Bot. 50: 2619. 1972 = A. chrysellus Kwon & Fennell -- Gen. Aspergillus, p. 424, 1965 (no dried type specimen).
As no epithet is available for the anamorph, we propose
ASPERGILLUS CHRYSEIDES st. nov.
Anamorphosis Chaetosartoryae chrysellae. Diagnosis in "Gen. Aspergillus" (Raper & Fennell) p. 424 continetur. Typus IMI 238612.
Type culture NRRL 5084 = CBS 472.65 = IMI 238612, ex forest soil, Costa Rica. Herb. IMI 238612, derived from the type culture, is here designated as lectotype.

A. citrisporus Höhnel, see Sclerocleista thaxteri

A. clavato-flavus Raper & Fennell -- Gen. Aspergillus p. 378. 1965 (no dried type specimen).
Type culture WB 5113 = CBS 473.65 = IMI 124937, ex forest soil, Australia. Herb. IMI 124937, derived from the type culture, is here designated as lectotype.

A. clavato-nanicus Batista, Maia & Alecrim -- Anais Fac. med. Univ. Recife 15: 197. 1955 (no dried type specimen).
Type culture WB 4741 = CBS 474.65 = IMI 235352, ex man. Herb. IMI 235352, derived from the type culture, is here designated as lectotype.

A. clavatus Dezm. -- Annls Sci. nat., Bot., Sér. 2, 2: 71. 1834.
No type specimen could be traced in PC.
The culture WB 1 = CBS 513.65 = IMI 15949, (received by C. Thom from J. Westerdijk in 1909), was listed as representative by Raper & Fennell (1965). Herb. IMI 15949, derived from this culture, is here designated as lectotype.

A. conicus Blochwitz apud Dale -- Annls mycol. 12: 38. 1914 and Annls mycol. 27: 206. 1929 (no dried type specimen).
No type material available. WB 149 = CBS 475.65 = IMI 172281, received from P. Biourge in 1924, was considered representative by Raper and Fennell (1965). Herb. IMI 172281, derived from this culture, is here designated as neotype.

A. conjunctus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus p. 552. 1965 (no dried type specimen).
Type culture WB 5080 = CBS 476.65 = IMI 135421, ex forest soil, Costa Rica. Herb. IMI 135421, derived from the type culture, is here designated as lectotype.

A. coremiiformis Bartoli & Maggi -- Trans. Br. mycol. Soc. 71: 386. 1978.
Holotype 102 S in herb. RO, derived from CBS 553.77 = IMI 22302, ex tropical rain forest soil, Ivory Coast.

Emericella corrugata Udagawa & Horie -- Mycotaxon 4: 535. 1976.
Anam. A. corrugatus Udagawa & Horie -- ibid.
Holotype NHL 2763, ex sugar cane field, Thailand. Corresponding culture CBS 191.77.

Chaetosartorya cremea (Kwon & Fennell) Subram. -- Curr. Sci. 41: 761. 1972 = Harpezomyces cremeus (Kwon & Fennell) Malloch & Cain, Can. J. Bot. 50: 2620. 1972 = A. cremeus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus p. 418. 1965 (no dried type specimen).
As no epithet is available for the anamorph, we propose
ASPERGILLUS CREMEOFLAVUS st. nov.
Anamorphosis Chaetosartoryae cremeae. Diagnosis in "Gen. Aspergillus" (Raper & Fennell) p. 418 continetur. Typus IMI 123749ii.
Type culture WB 5081 = CBS 477.65 = 123749, ex forest soil, Costa Rica. Herb. IMI 123749ii, derived from the type culture, is here designated as lectotype.

Eurotium cristatum (Raper & Fennell) Malloch & Cain -- Can. J. Bot. 50: 64. 1972 = A. cristatus Raper & Fennell -- "Gen. Aspergillus" p. 169. 1965.
Anam. A. spiculosus Blaser -- Sydowia 28: 42. 1975. Connection made by Pitt (this publication).
Type culture for E. cristatum WB 4222 = CBS 123.53 = IMI 172280, received from H. J. Swart, S.Africa. IMI 172278, derived from the type culture, is here designated as lectotype. Type culture for A. spiculosus and dried lectotype specimen CBS 377.75, ex soil, Spain.

A. crustosus Raper & Fennell -- Gen. Aspergillus, p. 532. 1965 (no dried type specimen).
Type culture WB 4988 = CBS 478.65 = IMI 135819, ex human skin,

Illinois, U.S.A. Herb. IMI 135819, derived from the type culture, is here designated as lectotype.

A. curviformis Chowdhery & Rai -- Nova Hedwigia 32: 229. 1980.
Holotype, ex mangrove mud, Kagh Isl. (West Bengal), India (in herb. Lucknow). Living culture not seen.

A. crystallinus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus, p. 471. 1965 (no dried type specimen).
Type culture WB 5082 = CBS 479.65 = IMI 139270, ex forest soil, Costa Rica. Herb. IMI 139270, derived from the type culture, is here designated as lectotype.

A. deflectus Fennell & Raper -- Mycologia 47: 83. 1955 (no dried type specimen).
Type culture NRRL 2206 = CBS 109.55 = IMI 61448, ex soil in Brazil. Herb. IMI 61448, derived from the type culture, is here designated as lectotype.

Emericella desertorum Samson & Mouchacca -- Antonie van Leeuwenhoek 40: 121. 1974. Has no anamorph.
Holotype specimen and culture CBS 653.73, ex soil, Kharga Oasis, Egypt.

A. dimorphicus Mehrotra & Prasad -- Trans. Br. mycol. Soc. 52: 331. 1969 (no dried type specimen).
Type culture CBS 649.74 = IMI 131533, ex garden soil, India. Herb. IMI 131533, derived from the type culture, is here designated as lectotype.

A. diversus Raper & Fennell -- Gen. Aspergillus, p. 437. 1965 (no dried type specimen).
The cultures WB 5074 and 5075, ex soil in Costa Rica, were listed as representative by Raper & Fennell (1965). WB 5074 is preserved as CBS 480.65 = IMI 232882. Herb. IMI 232882, derived from this authentic culture, is here designated as lectotype.

A. duricaulis Raper & Fennell -- Gen. Aspergillus, p. 249. 1965 (no dried type specimen).
Type culture WB 4021 = CBS 481.65 = IMI 172282, ex soil in Argentina. Herb. IMI 172282, derived from the type culture, is here designated as lectotype.

A. eburneo-cremeus Sappa -- Allionia 2: 87. 1954 (no indication of type, no dried type specimen).
Type culture WB 4773 = CBS 130.54 = IMI 69856, ex forest soil, Somalia. Herb. IMI 69856, derived from the type culture, is here designated as lectotype.

Eurotium echinulatum Delacr. -- Bull. Soc. mycol. Fr. 9: 266. 1893 = A. echinulatus (Delacr.) Thom & Church -- The Aspergilli, p. 107. 1926.
Anam. A. brunneus Delacr. -- Bull. Soc. mycol. Fr. 9: 185. 1893.
Neotype culture designated by Blaser (1975) for both states WB 131 = CBS 524.65 = IMI 211378, ex Californian figs. Herb. IMI 211378, derived from the neotype culture, is here designated as neotype.

A. egyptiacus Moubasher & Moustafa -- Egypt J. Bot. 15: 153. 1972 (no dried type specimen).
Type culture CBS 656.73 = IMI 141415, ex sandy soil, Egypt. Herb. IMI 141415, derived from the type culture, is here designated as lectotype.

A. elegans Gasperini -- Atti Soc. toscana Sci. nat. Pisa, Mem. 8: 328. 1887.
No type material available. The culture WB 4850 = CBS 102.14 = IMI 133962, received from A. Blochwitz, was listed as representative by Raper & Fennell (1965). Herb. CBS 102.14 derived from this culture, is here designated as neotype.

A. ellipticus Raper & Fennell -- Gen. Aspergillus p. 319. 1965 (no dried type specimen).
Type culture WB 5120 = CBS 482.65 = IMI 172283, ex soil in Costa Rica. Al-Musallam (1980) found that this culture was mixed with A. helicothrix and purified it as CBS 707.79. Herb. CBS 707.79, derived from this culture, is here designated as lectotype.

A. elongatus Rai & Agarwal -- Can. J. Bot. 48: 791. 1970 (no dried type specimen).
Type culture WB 5495 = CBS 387.75, ex alkaline soil, India. Herb. CBS 387.75, derived from the type culture, is here designated as lectotype.

A. flaschentraegeri Stolk -- Trans. Br. mycol. Soc. 47: 123. 1964.
Stolk (1965) deposited dried specimens of CBS 108.63 = WB 5042 = IMI 101651 in herb. K and L. The specimen in herb K is here designated as the lectotype.

Neosartorya fischeri (Wehmer) Malloch & Cain var. fischeri -- Can J. Bot. 50: 2621. 1972.= A. fischeri Wehmer -- Centbl. Bakt. ParasitKde, Abt. 2, 18: 390. 1907.

As there is no epithet available for the anamorph, we propose ASPERGILLUS FISCHERIANUS stat. nov.
Anamorphosis Neosartoryae fischeri. Stipites conidiophororum 300-500(-magis quam 1000) µm alti, vesiculae lageniformes, 12-18 µm diam., griseo-virides. Phialides viridescentes, 5.5-7.0 x 2.0-2.5 µm. Conidia subglobosa, asperulata, dilute pigmentata, 2.0-2.5 µm diam., sed ad 3.0 µm longa. Typus IMI 21139ii.
Type culture WB 181 = CBS 101.12 = IMI 21139, received from Wehmer in 1923. Herb. IMI 21139ii, derived from the type culture, is here designated as lectotype.

Neosartorya fischeri var. glabra (Fennell & Raper) Malloch & Cain -- Can. J. Bot. 50: 2621. 1972 = A. fischeri var. glaber Fennell & Raper -- Mycologia 47: 74. 1955.
Type culture WB 2163 = NRRL 2163 = CBS 111.55 = IMI 61447, isolated from rubber scrap, by G.W. Martin, Iowa. Herb. IMI 61447, derived from the type culture, is designated as lectotype here.

Neosartorya fischeri var. spinosa (Raper & Fennell) Malloch & Cain -- Can. J. Bot. 50: 2621. 1972 = A. fischeri var. spinosus Raper & Fennell -- Gen. Aspergillus, p. 256. 1965.
Type culture WB 5034 = CBS 483.65 = IMI 211390, ex soil in Nicaragua. Herb IMI 211390, derived from the type culture, is designated as lectotype here.

Fennellia flavipes Wiley & Simmons -- Mycologia 65: 937. 1973.
Anam. A. flavipes (Bain. & Sart.) Thom & Church -- The Aspergilli, p. 155. 1926 = Sterigmatocystis flavipes Bain. & Sart. -- Bull. trimest. Soc. mycol. Fr. 27: 90. 1911.
Type of the teleomorph herb. QM 9131. Type culture for the anamorph WB 302 = CBS 103.22 = IMI 171885, received by Da Fonseca from the

Bainier collection. Herb. IMI 171885, derived from the type culture, is here designated as lectotype.

A. flavo-furcatus Batista & Maia ('flavo-furcatis') -- Anais Soc. biol. Pernambuco 8: 94-96. 1955 (no dried type specimen).
Type culture WB 4911 = CBS 484.65 = IMI 124938, ex culture contaminant. Herb. IMI 124938, derived from the type culture, is here designated as lectotype.

A. flavus Link var. flavus -- Mag. ges. naturf. Fr. Berlin 3: 16. 1809 : Fries -- Syst. mycol. 3: 386. 1832
Neotype designated by Kozakiewicz (1982): IMI 124930, derived from NRRL 1957 = CBS 569.65, isolated from cellophane.

A. flavus var. columnaris Raper & Fennell -- Gen. Aspergillus, p. 366. 1965.
Type culture WB 4818 = CBS 485.65 = IMI 124932, ex butter in Japan. Herb. IMI 124932, derived from the type culture, is here designated as lectotype.

A. floriformis Samson & Mouchacca -- Antonie van Leeuwenhoek 40: 343. 1975.
Holotype in herb. CBS, derived from CBS 937.73, ex desert soil, Western Desert, Egypt.

Emericella foeniculicola Udagawa -- Trans. mycol. Soc. Japan 20: 13. 1979.
Anamorph A. foeniculicola Udagawa -- ibid.
Holotype NHL 2777, ex Foeniculum vulgare seed, China; corresponding culture CBS 156.80.

A. foetidus Thom & Raper -- Man. Aspergilli, p. 219. 1945 = A. aureus Nakazawa 1907 non Berk. 1836.
Al-Musallam (1980) pointed out that CBS 121.28 = WB 341, received in 1930 from Yokoyama as A. aureus Nakazawa, is the type culture of this species. Herb. CBS 121.28 is here designated as lectotype.

Emericella foveolata Horie -- Trans. mycol. Soc. Japan 19: 313. 1978.
Anamorph A. foveolatus Horie -- ibid.
Holotype IFM 4547, corresponding culture NHL 2839 = CBS 279.81, ex Indian herbal drug, Japan.

A. fresenii Subram. = A. sulphureus (Fres.) Wehmer -- Pilzgatt. Aspergillus, p. 113. 1901; Thom & Church -- The Aspergilli, p. 185. 1926 = Sterigmatocystis sulphurea Fres. -- Beiträge zur Mykologie 3: No type material is preserved from Fresenius. The culture WB 4077 = CBS 550.65 = IMI 211397, ex soil from Mysore, India, was listed as representative by Raper & Fennell (1965). Herb. IMI 211397, derived from this culture, is here designated as neotype.

Emericella fruticulosa (Raper & Fennell) Malloch & Cain -- Can. J. Bot. 50: 61. 1972 = A. fruticulosus Raper & Fennell - Gen. Aspergillus, p. 506. 1965 (no dried type specimen).
As no epithet is available for the anamorph, we propose
ASPERGILLUS FRUTICANS st. nov.
Anamorphosis Emericellae fruticulosae. Diagnosis Latina in "Gen. Aspergillus" (Raper & Fennell) p. 506. 1965 continetur. Typus IMI 139279.
Type culture WB 4903 = CBS 468.65 = IMI 139279, ex soil from California. Herb. IMI 139279, derived from the type culture, is here designated as lectotype.

A. fumigatus Fres. var. fumigatus -- Beiträge zur Mykologie: 81. 1863
Fresenius's drawing is perfectly recognizable and can serve as iconotype. In addition, a representative culture is WB 163 = CBS 136.61 = IMI 16152, ex chicken lung. The dried culture IMI 16152, derived from this culture, is here designated as neotype.

A. fumigatus var. ellipticus Raper & Fennell -- Gen. Aspergillus, p. 246. 1965.
Type culture WB 5109 = CBS 487.65 = IMI 172286, ex man. Herb. CBS IMI 172286, derived from the type culture, is here designated as lectotype.

A. funiculosus G. Smith -- Trans. Br. mycol. Soc. 39: 111-114. 1956 (no dried type specimen designated).
Type culture WB 4744 = CBS 116.56 = IMI 44397, ex soil, Nigeria. Herb. IMI 44397, derived from the type culture, is here designated as lectotype.

A. giganteus Wehmer -- Pilzgatt. Aspergillus, p. 85-87. 1901.
No type material is known to exist. The culture WB 10 = CBS 526.65 = IMI 227678, isolated ex bat dung in Yucatan caves by F.A. Wolf, was listed as representative by Raper & Fennell (1965). Herb. IMI 227678, derived from this culture, is here designated as neotype.

Eurotium glabrum Blaser -- Sydowia 28: 35. 1975.
Anam. A. glaber Blaser -- ibid.
Holotype ZT 8218T, ex leaves of Vaccinium myrtillus, Switzerland, derived from culture CBS 379.75.

A. glaucus (Mich. ex L. : Fr.) Link, see Gams & Samson, see Chapter 2.

A. globosus Chowdhery & Rai -- Nova Hedwigia 32: 229. 1980.
Holotype in herb. Lucknow, ex mangrove mud, Kagh Island, India. Culture not seen.

A. gorakhpurensis Kamal & Bhargava -- Trans. Br. mycol. Soc. 52: 338. 1969 (no dried type specimen).
Type culture CBS 684.74 = IMI 130728, ex forest soil under Tectona grandis, India. Herb. IMI 130728, derived from the type culture, is here designated as lectotype.

A. gracilis Bain. -- Bull. trimest. Soc. mycol. Fr. 23: 90. 1907.
No type material available. A representative culture is WB 4962 = CBS 539.65 = IMI 211393, received from R. Emerson, isolated ex gun-firing mechanism returning from the South Pacific. Herb. IMI 211393, derived from this culture, is here designated as neotype.

A. granulosus Raper & Thom -- Mycologia 36: 565. 1944 (no dried type specimen).
Type culture WB 1932 = CBS 588.65 = IMI 172278, ex soil, Fayetteville, Arkansas, USA. Herb. IMI 172278, derived from the type culture, is here designated as lectotype.

Eurotium halophilicum C.M. Christensen, Papavizas & C.R. Benjamin -- Mycologia 51: 636. 1959.
Anam. A. halophilicus C.M. Christensen et al. -- ibid.
Type culture NRRL 2739 = WB 4679 = CBS 122.62 = IMI 211802, ex Triticum sativum. The dried specimen from the type culture deposited

at BPI, which was listed first among the syntypes for both states, is here designated as lectotype.

A. helicothrix Al-Musallam -- Revision of the black Aspergilli, Diss. Utrecht, p. 22. 1980.
Holotype in herb. CBS, derived from culture CBS 677.79, originally a culture contaminant in CBS 482.65 (A. ellipticus).

Eurotium herbariorum (Wiggers : Fr.) Link, see Gams & Samson, this publication.

Eurotium heterocaryoticum C. M. Christensen et al. -- Mycologia 57: 535. 1965
Anam. A. heterocaryoticus C. M. Christensen et al. - ibid.
Holotype NCF C-100 (herb. BPI) derived from CBS 410.65, isolated from rough stored rice in Mexico.

A. heteromorphus Batista & Maia -- Anais Soc. biol. Pernambuco 15: 200. 1955 (no dried type specimen).
Type culture WB 4747 = CBS 117.55 = IMI 172288, ex culture contaminant. Herb. IMI 172288, derived from the type culture, is here designated as lectotype.

Emericella heterothallica (Kwon et al.) Malloch & Cain -- Can. J. Bot. 50: 62. 1972 = A. heterothallicus Kwon, Fennell & Raper apud Raper & Fennell - Gen. Aspergillus, p. 502. 1965.
As no epithet is available for the anamorph, we propose ASPERGILLUS COMPATIBILIS, st. nov.
Anamorphosis Emericellae heterothallicae. Diagnosis Latina in "Gen. Aspergillus" (Raper & Fennell), p.502. 1965 continetur. Typus CBS 488.65.
Type cultures indicated WB 5096 = CBS 488.65 = IMI 139277 and WB 4981 = CBS 489.65 = IMI 139278, both ex soil, Costa Rica. A cross of the two cultures in herb CBS, representing the teleomorph, is here designated as lectotype.

A. insulicola Montemayor & Santiago -- Mycopathologia 55: 130. 1975 (no dried type specimen).
Type culture CBS 382.75, ex soil, Aves Isl. north of Venezuela. Herb. CBS 382.75, derived from the type culture, is here designated as lectotype.

A. itaconicus Kinoshita -- Bot. Mag. Tokyo 45: 60. 1931 (no dried type specimen).
Type culture WB 161 = CBS 115.32 = IMI 16119, ex juice of salted plums. Herb.IMI 16119, derived from the type culture, is here designated as lectotype.

A. ivoriensis Bartoli & Maggi -- Trans. Br. mycol. Soc. 71: 383. 1978.
Holotype 101 S in herb. RO, derived from CBS 551.77 = IMI 223068, ex tropical rain forest soil, Ivory Coast.

A. janus Raper & Thom -- Mycologia 36: 556. 1944 (no dried type specimen).
The two cultures, WB 1787 and 1936, were listed as representative by Raper & Fennell (1965). Herb. IMI 16065, derived from WB 1787 = CBS 118.45 = IMI 16065, ex soil, Panama, is here designated as lectotype.

A. janus var. brevis Raper & Thom -- Mycologia 36: 561. 1944 (no dried type specimen).
Type culture WB 1935 = CBS 111.46 = IMI 16066, ex soil, Alameda,

Mexico. Herb. IMI 16066, derived from the type culture, is here designated as lectotype.

A. japonicus Saito -- Bot. Mag. Tokyo 20: 61. 1906.
Type culture CBS 114.51, received as Saito 5087 from K. Kominami. Herb. CBS 114.51, derived from the type culture, is here designated as lectotype.

A. kanagawaensis Nehira -- J. Jap. Bot. 26: 109. 1951 (no dried type specimen).
Type culture HUT 2045 = WB 4774 = CBS 538.65 = IMI 126690, ex soil, Kanagawa Pref., Japan. Herb. IMI 126690, derived from the type culture, is here designated as lectotype.

A. lanosus Kamal & Bhargava -- Trans Br. Mycol. Soc. 52: 336. 1969 (no dried type specimen).
Type culture CBS 650.74 = IMI 130727, ex forest soil under Tectona grandis, India. Herb. IMI 130727, derived from the type culture, is here designated as lectotype.

Dichlaena lentisci Mont. & Dur. -- Fl. Alg., 1: 405. 1846-49.
Anam. Aspergillus sp., described by Malloch & Cain (1972: 2616).
Holotype, on Pistacia lentiscus, in v.Höhnel's herb. (FH). Culture of anamorph is lost and the anamorph cannot yet be properly described and named therefore.

A. leporis States & M. Christensen -- Mycologia 58: 738. 1966. Holotype RMF 99 (herb. NY) derived from CBS 151.66 = IMI 25910, ex hare dung (Lepus townsendii), USA.

Eurotium leucocarpum Hadlok & Stolk -- Antonie van Leeuwenhoek 35: 9. 1969.
Anam. A. leucocarpus Hadlok & Stolk -- ibid.
Holotype herb. CBS 353.68, derived from culture CBS 353.68, ex dried sausage, W. Germany.

A. longivesica Huang & Raper -- Mycologia 63: 53. 1971.
Holotype N1129 in Herb WIS, derived from culture CBS 530.71 = IMI 156966, ex rain forest soil, Nigeria.

A. malodoratus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus, p. 468. 1965 (no dried type specimen).
Type culture WB 5083 = CBS 490.65 = IMI 172289, ex forest soil, Costa Rica. Herb. IMI 172289, derived from the type culture, is here designated as lectotype.

Hemisartorya maritima Rai & Chowdheri -- Kavaka 3: 73. 1975.
Anam. ASPERGILLUS MARITIMUS st. nov., named here.
Anamorphosis Hemisartoryae maritimae. Diagnosis Latina in Kavaka 3: 73. 1975 continetur. Typus in herb. Lucknow.
Holotypus ex mangrove mud, Kagh Islands, India, in herb. Lucknow. Corresponding culture CBS 186.77.

Eurotium medium Meissner -- Bot. Ztg 55: 536. 1897.
Anam. A. medius Meissner -- ibid.
Probable type culture WB 124 = CBS 113.27, received from Bierberg via Raistrick. Herb. CBS 113.27, derived from this culture, is here designated as lectotype.

A. melleus Yukawa. J. Coll. Agric. Imp. Univ. Tokyo. 1: 366. 1911.
No type culture known, but representative culture WB 5103 = CBS

546.65, received from B. S. Mehrotra, India. Herb. CBS 546.65 derived from this culture, is here designated as neotype.

A. microcysticus Sappa -- Allionia 2: 251.1955 (no type indication, no dried type specimen).
Type culture WB 4749 = CBS 120.58 = IMI 139275, ex savannah soil, Somalia. Herb. IMI 139275, derived from the type culture, is here designated as lectotype.

A. multicolor Sappa -- Allionia 2: 87. 1954 (no indication of type, no dried type specimen).
Type culture WB 4775 = CBS 133.54 = IMI 69875 ex forest soil, Somalia. Herb. IMI 69875, derived from the type culture, is here designated as lectotype.

Emericella navahoensis M. Christensen & States -- Mycologia 74: 226. 1982.
Anam. A. navahoensis M. Christensen & States -- ibid.
Holotype SD-5 in herb. NY, derived from culture CBS 351.81, ex soil near Page, Arizona, USA.

Emericella nidulans (Eidam) Vuill. var. nidulans -- C. r. hebd. Séanc. Acad. sci. Paris 184: 137. 1927 = Sterigmatocystis nidulans Eidam in Cohn -- Beitr. Biol. Pfl. 3: 392. 1883 = A. nidulans (Eidam)Winter -- Rabenh. Krypt. Fl. 1(2): 62. 1883.
As no epithet is available for the anamorph, we propose ASPERGILLUS NIDULELLUS st. nov.
Anamorphosis Emericellae nidulantis. Stipites conidiophororum saepe sinuosi, leves, cinnamomeo-brunnei, saepe 75-100 x 2.5-3 µm, sursum ad 3.5-5 µm dilatati. Vesiculae 8-10 um diam. Metulae 5-6 x 2-3 µm, phialides 5-6 x 2.0-2.5 µm. Conidia globosa rugulosa, 3-3.5 µm diam., in massa viridia. Typus IMI 86806.
No type material known to exist. Representative culture WB 187= CBS 589.65 = IMI 86806, obtained from Bainier's collection. Herb. IMI 86806, derived from this culture, is here designated as neotype.

Emericella nidulans var. acristata (Fennell & Raper) Subram. -- Curr. Sci. 41: 758. 1972 = A. nidulans var. acristatus Fennell & Raper, Mycologia 47: 79. 1955 (no dried type specimen).
Type culture WB 2394 = CBS 119.55 = IMI 61453, isolated from fabric exposed in New Mexico. Herb. IMI 86806, derived from the type culture, is here designated as lectotype.

Emericella nidulans var. dentata (Sandhu & Sandhu) Subram. -- Curr. Sci. 41: 758. 1972 = A. nidulans var. dentatus Sandhu & Sandhu -- Mycologia 55: 297. 1963.
Type culture WB 4908 = CBS 114.63 = IMI 126693, isolated from diseased nails in India. Herb. IMI 126693, derived from the type culture, is here designated as lectotype.

Emericella nidulans var. echinulata (Fennell & Raper) Subram. -- Curr. Sci. 41: 758. 1972 = A. nidulans var. echinulatus Fennell & Raper -- Mycologia 47: 79. 1955.
Type culture WB 2395 = CBS 120.55 = IMI 61454, ex soil, Argentina. Herb.IMI 61454, derived from the type culture, is here designated as lectotype.

Emericella nidulans var. lata (Thom & Raper) Subram. -- Curr. Sci. 41: 758. 1972 = A. nidulans var. latus Thom & Raper -- Mycologia 31: 657. 1939.
Type culture WB 200 = CBS 492.65 = IMI 45625. Herb. IMI 45625,

derived from the type culture, is here designated as lectotype.

A. niger van Tieghem -- Annls Sci. nat., Bot., Sér. 5, 8: 240. 1867 = Sterigmatocystis nigra (van Tieghem) van Tieghem -- Bull. Soc. bot. Fr. 24: 102. 1877.
Al-Musallam (1980) designated WB 326 = CBS 554.65, ex tannin-gallic fermentation, USA, as neotype, but several older epithets predate the species and the conservation of the epithet will be necessary.

Eurotium niveoglaucum (Thom & Raper) Malloch & Cain, Can. J. Bot. 50: 64. 1972 = A. niveoglaucus Thom & Raper -- Misc. Publ. U.S. Dep. Agric. 426: 35. 1941.
As no epithet is available for the anamorph, we propose ASPERGILLUS GLAUCONIVEUS st. nov.
Anamorphosis Eurotii niveoglauci. Stipites conidiophororum leves, hyalini vel brunnei, 1000-1500 µm alti, vesiculam versus dilatati, vesiculae subglobosae, 40-50 µm diam. Phialides 8-10 x 3-4 µm. Conidia ellipsoidea ad ovalia, hyalina, spinulosa, plerumque 7-8 x 6.0-6.5 µm. Typus IMI 32050ii.
Type culture WB 127 = CBS 114.27 = IMI 32050, received from CBS as A. glaucus mut. alba Blochwitz. Herb. IMI 32050ii, derived from the type culture, is here designated as lectotype.

Fennellia nivea (Wiley & Simmons) Samson -- Stud. Mycol. Baarn 18: 5. 1979 = Emericella nivea Wiley & Simmons - Mycologia 65: 934. 1973.
Anam. A. niveus Blochwitz -- Annls mycol. 27: 205. 1929.
Holotype of the teleomorph herb QM 8942, ex soil, Thailand.
Type culture for the anamorph NRRL 5505 = CBS 115.27 = IMI 171878, received from A. Blochwitz. Herb. IMI 171878, derived from this culture, is here designated as neotype.

A. nutans McLennan & Ducker -- Aust. J. Bot. 2: 355. 1954 (no dried type specimen).
Type culture WB 4364 = CBS 121.56 = IMI 62874, ex soil, Australia. Herb.IMI 62874ii, derived from the type culture, is here designated as lectotype.

A. ochraceoroseus Bartoli & Maggi -- Trans. Br. mycol. Soc. 71: 393. 1978.
Holotype 104 S in herb. RO, derived from CBS 550.77 = IMI 223071, ex tropical rain forest soil, Ivory Coast.

A. ochraceus Wilhelm, see A. alutaceus

Sclerocleista ornata (Raper, Fennell & Tresner) Subram. -- Curr. Sci. 41: 757. 1972 = A. ornatus Raper, Fennell & Tresner -- Mycologia 45: 678. 1953.
As no epithet is available for the anamorph, we propose ASPERGILLUS ORNATULUS st. nov.
Anamorphosis Sclerocleistae ornatae. Diagnosis Latina in Mycologia 45: 678. 1953 continetur. Typus IMI 55295.
Type culture NRRL 2256 = CBS 124.53 = IMI 55295, ex soil in oakwood, Madison, Wisc., U.S.A. Herb. IMI 55295, derived from the type culture, is here designated as lectotype.

A. oryzae (Ahlburg 1878) Cohn var. oryzae -- Jber. schles. ges. vaterl. Kult. 61: 226. 1884 = Eurotium oryzae Ahlburg apud Korschelt -- Dingler polytechn. J. 230: 330. 1878.
Representative culture WB 447 = CBS 102.07 = IMI 16266, received from CBS in 1909. Herb. IMI 167226 derived from this culture, is here designated as neotype.

A. oryzae var. brunneus Murakami -- J. gen. appl. Microbiol. Tokyo 17: 304. 1972 (no dried type specimen)
Type culture CBS 817.72, ex koji. Herb. CBS 817.72, derived from the type culture, is here designated as lectotype.

A. oryzae var. effusus (Tirab.) Ohara -- Res. Bull. Fac. Agric. Gifu Univ. No. 1: 81. 1951 = A. effusus Tirab. -- Annali Bot. Roma 7: 16. 1908.
Representative culture WB 506 = CBS 574.65 = IMI 124935 ex Zea mays. Herb. IMI 124935, derived from this culture, is here designated as neotype.

A. oryzae var. viridis Murakami -- J. Gen. appl. Microbiol. 17. 303. 1972 (no dried type specimen).
Type culture CBS 819.72, ex tane koji. Herb. CBS 819.72, derived from the type culture, is here designated as lectotype.

A. ostianus Wehmer -- Bot. Centbl. 80: 449-461. 1899 (no dried type specimen) =? Sterigmatocystis butyracea Bain. -- Bull. Soc. bot. Fr. 27: 29. 1880 = A. butyraceus (Bain.) Thom & Raper -- Man. Aspergilli, p. 282. 1945.
Representative culture WB 420 = CBS 103.07 = IMI 15960, received from R. Westling as A. ostianus. Herb. IMI 15960, derived from this culture, is here designated as neotype for A. ostianus. A presumably authentic isolate for A. butyraceus, WB 422 = CBS 627.78, deviates from the original diagnosis of that species, but fits the concept of A. ostianus.

A. pallidus Kamyschko -- Nov. Sist. niz. Rast. 1963: 93. 1963.
Type culture VKM F-1136 = CBS 344.67 = IMI 129967, ex soil in Moldavian SSR. Herb. IMI 129967, derived from the type culture, is here designated as lectotype.

A. panamensis Raper & Thom -- Mycologia 36: 568. 1944 (no dried type specimen).
Type culture WB 1785 = CBS 120.45 = IMI 19393, ex soil, Panama. Herb. IMI 19393, derived from the type culture, is here designated as lectotype.

Hemicarpenteles paradoxus Sarbhoy & Elphick -- Trans. Br. mycol. Soc. 51: 156. 1968.
Anam. A. paradoxus Fennell & Raper -- Mycologia 47: 69. 1955 (no dried type specimen).
Type culture for anamorph WB 2162 = CBS 527.65 = IMI 117502, isolated by J. Warcup from possum dung in New Zealand. Herb. IMI 117502, derived from this culture, is here designated as lectotype. Type culture for the teleomorph IMI 61446 = CBS 793.68. Herb IMI 61446 (microscopical slide), derived from the type culture, is here designated as lectotype.

A. parasiticus Speare var. parasiticus -- Bull. Hawaii. Sug. Planters' Assoc. Exp. Stn, Pathol. & Physiol. Ser. 12: 38. 1912.
Type culture WB 502 = CBS 103.13 = IMI 15957(ix), ex Pseudococcus calceolariae. Herb. IMI 15958ix, derived from the type culture was designated as lectotype by Kozakiewicz (1982).

Emericella parvathecia (Raper & Fennell) Malloch & Cain -- Can. J. Bot. 50: 62. 1972 = A. parvathecius Raper & Fennell - Gen. Aspergillus, p. 509. 1965.
As no epithet is available for the anamorph, we propose
ASPERGILLUS MICROTHECIUS st. nov.

Anamorphosis Emericellae parvatheciae. Diagnosis Latina in "Genus Aspergillus" (Raper & Fennell), p. 509. 1965 continetur. Typus IMI 139280.
Type culture WB 4904 = CBS 493.65 = IMI 139280, ex human skin in California. Herb. IMI 139280, derived from the type culture, is here designated as lectotype.

A. parvulus G. Smith -- Trans. Br. mycol. Soc. 44: 45. 1961.
Holotype IMI 86558, derived from culture WB 4753 = CBS 136.61 = IMI 86558, ex forest soil, USA.

A. penicilloides Speg. -- Revta La Plata Univ. Fac. Agron. Vet. 2: 246. 1896.
No type material obtained from herb. LPS, but representative culture WB 4548 = CBS 540.65 = IMI 211342, ex human skin, Brazil. Herb. IMI 211342, derived from this culture, is here designated as neotype.

A. petrakii Vörös -- Sydowia Beih. 1: 62. 1957 (no type indication, no dried type specimen).
Type culture WB 4369 = CBS 105.57 = IMI 172291, ex Leptinotarsa decemlineata. Herb. IMI 172291, derived from the type culture, is here designated as lectotype.

A. peyronelii Sappa -- Allionia 2: 248. 1955 (no type indication, no dried type specimen).
Type culture WB 4754 = CBS 122.58 = IMI 139271, ex savannah soil, Somalia. Herb. IMI 139271, derived from the type culture, is here designated as lectotype.

A. phoenicis (Corda) Thom -- J. agric. Res. 7: 14. 1916 = Ustilago phoenicis Corda -- Icon. Fung. 4: 9. 1840.
Holotype U. phoenicis on Phoenix dactylifera fruits in PRM, see Al-Musallam (1980). Representative living culture WB 4757 = CBS 552.65 ex kuro-koji.

A. proliferans G. Smith -- Trans. Br. mycol. Soc. 26: 25. 1943.
Type culture WB 1908 = CBS 121.45 = IMI 16105, ex cotton fabric. Herb. IMI 16105iii, derived from the type culture, is here designated as lectotype.

A. protuberus Muntanjola-Cvetković -- Mikrobiologija 5: 119. 1968 (no dried type specimen).
Type culture CBS 602.74, ex rubber-coated electric cables. Herb. CBS 602.74, derived from the type culture, is here designated as lectotype.

A. pseudodeflectus Samson & Mouchacca -- Antonie van Leeuwenhoek 40: 345. 1975.
Holotype and living culture CBS 756.74, ex desert soil, Egypt.

Eurotium pseudoglaucum (Blochwitz) Malloch & Cain -- Can. J. Bot. 50: 64. 1972 = A. pseudoglaucus Blochwitz -- Annls mycol. 27: 207. 1929.
As no epithet is available for the anamorph alone, we propose ASPERGILLUS GLAUCOAFFINIS st.nov.
Anamorphosis Eurotii pseudoglauci. Stipites conidiophororum 150-300 µm alti, vesiculae 12-20 µm diam, phialides 6-8 x 3-4 µm. Conidia subglobosa, spinulosa, 5 -7.5 µm diam. Typus IMI 16122ii.
Type culture WB 40 = CBS 123.28 = IMI 16122, received from A. Blochwitz. Herb. IMI 16122ii, derived from the type culture, is here designated as lectotype.

A. pulverulentus (McAlpine) Wehmer -- Centbl. Bakt. ParasitKde, Abt. 2, 18: 385. 1907 = Sterigmatocystis pulverulenta McAlpine -- Agric. Gaz. N.Z.Wales 7: 302. 1897.
Holotype on French beans in herb. VPRI (Al-Musallam, 1980). Representative culture WB 4851 = CBS 558.65, received as A. elatior Mosseray.

A. pulvinus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus, p. 455. 1965 (no dried type specimen).
Type culture WB 5078 = CBS 578.65 = IMI 139628, ex forest soil, Costa Rica. Herb. IMI 139628, derived from the type culture, is here designated as lectotype.

A. puniceus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus, p. 547. 1965 (no dried type specimen).
Type culture WB 5077 = CBS 495.65 = IMI 126692, ex soil, Costa Rica. Herb. IMI 126692, derived from the type culture, is here designated as lectotype.

Emericella quadrilineata (Thom & Raper) C.R. Benjamin -- Mycologia 47: 680. 1955 = A. quadrilineatus Thom & Raper -- Mycologia 31: 660. 1939.
As no epithet is available for the anamorph, we propose
ASPERGILLUS TETRAZONUS st. nov.
Anamorphosis Emericella quadrilineatae. Diagnosis Latina in Mycologia 47: 680. 1955 continetur. Typus IMI 89351.
Type culture WB 201 = CBS 591.65 = IMI 89351, ex soil in New Jersey. Herb. IMI 89351, derived from the type culture, is here designated as lectotype.

A. raperi Stolk -- Trans. Br. mycol. Soc. 40: 190. 1957.
Holotype specimen in herb. K, derived from culture WB 4221 = CBS 123.56 = IMI 70949, ex grassland soil, Zaire.

A. recurvatus Raper & Fennell -- Gen. Aspergillus, p. 529. 1965 (no dried type specimen).
Type culture WB 4902 = CBS 496.65 = IMI 36528, ex lizard dung, California. Herb. CBS IMI 36528, derived from the type culture, is here designated as lectotype.

Eurotium repens de Bary -- Abh. Senckenberg. naturf. Ges. 7: 379. 1870 = A. repens (de Bary) Fischer -- Engler & Prantl, Natürl. PflFam. 1(1): 302. 1897.
Anam. A. glaucus var. repens Corda -- Icon. Fung. 5: 53. 1839.
As the binomial A. repens for the anamorph is preoccupied by Fischer's incorrect combination for the teleomorph, the new name
ASPERGILLUS REPTANS nom. nov.
is substituted for Corda's fungus.
Holotype material possibly preserved among De Bary's slides at BM, but at present not accessible. A neotype culture was designated by Blaser (1975), CBS 529.65 = WB 13, received from Da Fonseca. Herb. CBS 529.65, derived from this culture, is designated as neotype here.

A. restrictus G. Smith -- J. Textile Inst. 22. 115. 1931 (no dried type specimen).
Type culture WB 154 = CBS 117.33 = CBS 541.65 = IMI 16267, ex cotton goods, UK. Herb. IMI 16267, derived from the type culture, is here designated as lectotype.

A. robustus M. Christensen & Raper -- Mycologia 70: 200. 1978.
Holotype WB 5286 (NY) derived from CBS 428.77 = IMI 216610, ex soil in thorn forest, Kenya.

Eurotium rubrum König, Spieckermann & Bremer -- Z. Unters. Nahr- u. Genussm. 4: 726. 1901 = A. ruber (König et al.) Thom & Church -- The Aspergilli, p. 112. 1926. Syn. A. sejunctus Bain. & Sart. -- Bull. trimest. Soc. mycol. Fr. 27: 361. 1911.

As no epithet is available for the anamorph only, we propose

ASPERGILLUS RUBROBRUNNEUS st. nov.

Anamorphosis Eurotii rubri. Stipites conidiophororum leves, hyalini vel aurantiobrunnei, 500-750 µm alti, vesiculae subglobosae, 25-35 µm diam. Phialides 7-9 x 4-5 µm. Conidia ellipsoidea, ovalia vel subglobosa, dense spinulosa, plerumque 5-7.5 µm diam., capitula griseo-brunnea formantia. Typus CBS 530.65.

A. ferrugineus (Sow.) Link (L. Sp. Pl. Ed. 4, 6(1): 68. 1824) was suggested by Raper & Fennell (1965) to be an available name for the anamorph. Sowerby's (Col. Fig. Engl. Fungi 3, pl. 378, fig. 10. 1803) figure of Mucor ferrugineus renders this interpretation unlikely; its classification as Nematogonium ferrugineum (Sow.)Hughes was based on Persoon's specimen

As no type material for E. rubrum is known to be in existence, the representative culture WB 52 = CBS 530.65 is selected and a dried culture of it is designated as neotype.

Emericella rugulosa (Thom & Raper) C.R. Benjamin -- Mycologia 47: 680. 1955 = A. rugulosus Thom & Raper -- Mycologia 31: 660. 1939.

As no epithet is available for the anamorph, we propose

ASPERGILLUS RUGULOVALVUS st. nov.

Anamorphosis Emericellae rugulosae. Stipites conidiophororum sinuosi, leves, dilute brunnei, 50-80 µm alti, vesiculae hemiphaericae, 8-10 µm diam. Metulae 7-8 x 3-3.5 µm, phialides 6-7 x 2.5-3.0 µm. Conidia globosa, viridia, rugulosa, 3-4 µm diam. Typus IMI 136775.

Type culture Thom 4138.T11 = WB 206 = CBS 133.60 = IMI 136775, ex soil in New Jersey, U.S.A. Herb. IMI 136775, derived from the type culture, is here designated as lectotype.

A. sclerotiorum Huber -- Phytopathology 23: 306. 1933 (no dried type).

Type culture WB 415 = CBS 549.65 = IMI 56673, ex Pyrus malus. Herb. IMI 55673, derived from the type culture, is here designated as lectotype.

A. silvaticus Fennell & Raper -- Mycologia 47: 83. 1955 (no dried type specimen).

Type culture WB 2398 = CBS 128.55 = IMI 61456, ex soil in Tafo, Gold Coast, Africa. Herb.IMI 61456, derived from the type culture, is here designated as lectotype.

A. sparsus Raper & Thom -- Mycologia 36: 572. 1944 (no dried type specimen).

Type culture WB 1933 = CBS 139.61 = IMI 19394, ex soil, Honduras. Herb. IMI 19394, derived from the type culture, is here designated as lectotype.

Emericella spectabilis M. Christensen & Raper -- Mycologia 70: 333.1978.
Anam.A. spectabilis M. Christensen & Raper -- ibid.

Holotype RMFH 429 in herb. NY, derived from culture CBS 429.77 = IMI 21661, ex coal mine soils, USA.

A. speluneus Raper & Fennell -- Gen. Aspergillus, p. 457. 1965 (no dried type specimen).

The cultures WB 4989 and 4990 were listed as representative by Raper & Fennell (1965). WB 4989 = CBS 497.65 = IMI 211389, ex dead cane

crickets, is selected and Herb. IMI 211389, derived from this culture, is here designated as lectotype.

A. spiculosus Blaser, see Eurotium cristatum

Warcupiella spinulosa (Warcup) Subramanian -- Curr. Sci. 41: 757. 1972 = Sporophormis spinulosa (Warcup) Malloch & Cain -- Can. J. Bot. 50: 2624. 1972 = A. spinulosus Warcup in Raper & Fennell -- Gen. Aspergillus, p. 204. 1965.
As no epithet is available for the anamorph only, we propose ASPERGILLUS WARCUPII st.nov.
Anamorphosis Warcupiellae spinulosae. Diagnosis Latina in "Gen. Aspergillus" (Raper & Fennell) p. 204. 1965 continetur. Typus IMI 75885.
Type culture WB 4376 = CBS 512.65 = IMI 75885. Herb. IMI 75885 is designated here as lectotype.

A. stellatus Curzi, see Emericella variecolor

Neosartorya stramenia (Novak & Raper) Malloch & Cain -- Can. J. Bot. 50: 2622. 1972 = A. stramenius Novak & Raper in Raper & Fennell -- Gen. Aspergillus, p. 260. 1965.
As no epithet is available for the anamorph alone, we propose ASPERGILLUS PALEACEUS st. nov.
Anamorphosis Neosartoryae strameniae. Diagnosis Latina in "Gen. Aspergillus" (Raper & Fennell) p. 260 continetur. Typus IMI 172293.
Type culture WB 4652 = CBS 498.65 = IMI 172293, ex forest soil, Wisconsin, USA. Herb. IMI 172293, derived from the type culture, is here designated as lectotype.

Emericella striata (Rai, Tewari & Mukerji) Malloch & Cain -- Can. J. Bot. 50: 62. 1972 = A. striatus Rai et al., Can. J. Bot. 42: 1521. 1964.
As no epithet is available for the anamorph alone, we propose ASPERGILLUS STRIATULUS st. nov.
Anamorphosis Emericellae striatae. Diagnosis Latina in Can. J. Bot. 42: 1521. 1972 continetur. Typus IMI 96679.
Type culture WB 4699 = CBS 592.65 = IMI 96679, ex mangrove mud, Kagh Islands, India. Herb.IMI 96679, derived from the type culture, is here designated as lectotype.

Chaetosartorya stromatoides Wiley & Simmons -- Mycologia 65. 935. 1973.
Anam. A. stromatoides Raper & Fennell -- Gen. Aspergillus, p. 421. 1965 (no dried type specimen).
Holotype for the teleomorph herb. QM 8944, ex soil, Thailand, derived from QM 8944 = CBS 265.73. Type culture of the anamorph is WB 4519 = CBS 500.65 = IMI 123750, ex soil, Panama. Herb. IMI 123750, derived from the type culture, is here designated as lectotype.

Emericella sublata Horie -- Trans. mycol. Soc. Japan 20: 481. 1979.
Anam. A. sublatus Horie -- ibid.
Holotype IFM 4553, ex Japanese herbal drug, Japan. Correlated cultures in NHL and IFO (not seen).

A. subolivaceus Raper & Fennell -- Gen. Aspergillus, p. 385. 1965 (no dried type specimen).
Type culture WB 4998 = CBS 501.65 = IMI 44882, ex Lintafelt cotton, England. Herb. IMI 44882, derived from the type culture, is here designated as lectotype.

A. subsessilis Raper & Fennell -- Gen. Aspergillus, p. 530. 1965 (no dried type specimen).

Type culture WB 4905 = CBS 502.65 = IMI 135820, ex desert soil, USA. Herb. IMI 135820, derived from the type culture, is here designated as lectotype.

A. sulphureus (Fres.) Thom & Church, see A. fresenii

A. sydowii (Bain. & Sart.) Thom & Church -- The Aspergilli, p. 147. 1926 = Sterigmatocystis sydowii Bain. & Sart. -- Annls mycol. 11: 25. 1913. No type material is known to be extant. Representative culture WB 250 = CBS 593.65 = IMI 211384. Herb. IMI 211384, derived from this culture, is here designated as neotype.

A. tamarii Kita -- Centbl. Bakt. ParasitKde, Abt. 2, 37: 433. 1913. Authentic culture CBS 104.13, received from G. Kita, ex koji, Japan. Herb. CBS 104.13, derived from this culture, is here designated as lectotype.

A. terreus Thom apud Thom & Church var. terreus -- Am. J. Bot. 5: 85. 1918.
Type culture WB 255 = CBS 601.65 = IMI 17294, ex soil, USA.
Herb. IMI 17294, derived from the type culture, is here designated as lectotype.

A. terreus var. africanus Fennell & Raper -- Mycologia 47: 86. 1965 (no dried type specimen).
Type culture WB 2399 = CBS 130.55 = IMI 61457, ex soil, Tafo, Gold Coast, Africa. Herb. IMI 61457, derived from the type culture, is here designated as lectotype.

A. terreus var. aureus Thom & Raper -- Man. Aspergilli, p. 198. 1945 (no dried type specimen).
Type culture WB 1923 = CBS 503.65 = IMI 82431, ex soil, Texas. Herb. IMI 82431, derived from the type culture, is here designated as lectotype.

A. terricola Marchal var. terricola -- Rev. mycol. 15: 101. 1893.
No type known to be preserved, but representative culture WB 426 = CBS 579.65 = IMI 172294, received from C. Thom. Herb. IMI 172294, derived from this culture, is here designated as neotype.

A. terricola var. americanus Thom & Church -- Am. J. Bot. 8: 125. 1921 (No dried type specimen).
Type culture WB 424 = CBS 580.65 = IMI 16127, ex soil, Georgia. Herb. IMI 16127, derived from the type culture, is here designated as lectotype.

A. terricola var. indicus (Mehrotra & Agnihotri) Raper & Fennell -- Gen. Aspergillus, p. 412. 1965 = A. indicus Mehrotra & Agnihotri -- Mycologia 54. 403. 1962.
Type culture WB 4680 = CBS 167.73 = IMI 172295, ex bread. Herb. IMI 172295, derived from the type culture, is here designated as lectotype.

Sclerocleista thaxteri Subram. -- Curr. Sci. 41: 757. 1972 = Neosartorya citrispora Malloch & Cain -- Can. J. Bot. 50: 2620. 1972.
Anam. A. citrisporus Höhnel -- Sber. K. Akad. Wiss. Wien, Math.-naturw. Cl. 111: 1036 (Fragm. Mykol. 45). 1902.
Subramanian (1972) designated a dried specimen (herb. FH) of WB 2292 = CBS 105.25 = IMI 55296, ex caterpillar dung, Kittery Point, USA, as the holotype. Living representative culture WB 2292 =

CBS 105.25, isolated by R. Thaxter and maintained at CBS, probably originating from the same source.

A. thomii G. Smith. -- Trans. Br. mycol. Soc. 34: 17. 1951 (no dried type specimen).
Type culture WB 2097 = CBS 120.51 = IMI 45664, culture contaminant. Herb. IMI 45664, derived from the type culture, is here designated as lectotype.

Eurotium tonophilum Ohtsuki -- Bot. Mag. Tokyo 75: 438. 1962.
Anam. A. tonophilus Ohtsuki -- ibid.
Type culture WB 5124 = CBS 405.65 = IMI 108299, ex optical lens, Japan. Herb. IMI 108299, derived from the type culture, is here designated as lectotype.

A. toxicarius Murakami -- J. gen. appl. Microbiol. Tokyo 17: 307. 1971. (no dried type specimen).
Type culture CBS 822.72 = IMI 89717, ex Uganda groundnuts. Herb. CBS 822.72, derived from the type culture, is here designated as lectotype.

Emericella unguis Malloch & Cain, Can. J. Bot. 50: 62. 1972.
Anam. A. unguis (Emile-Weil & Gaudin) Thom & Raper -- Mycologia 31: 667. 1939 = Sterigmatocystis unguis Emile-Weil & Gaudin -- Arch. Méd. exp. Anal. Pathol. Paris 28: 463. 1918.
Type culture of teleomorph WB 2393 = QM 25b = CBS 132.55 = IMI 61452, ex shoe leather. Herb. IMI 61452, derived from the type culture, is designated as lectotype.
Type culture for the anamorph WB 216 = CBS 595.65 = IMI 136525 ex man. Herb. IMI 136525, derived from the type culture, is here designated as lectotype.

A. unilateralis Thrower -- Aust. J. Bot. 2: 355. 1954.
Type culture WB 4366 = CBS 126.56 = IMI 62876. Herb. IMI 62876, derived from the type culture, is here designated as lectotype.

A. ustus (Bain.) Thom. & Church -- The Aspergilli, p. 152. 1926 = Sterigmatocystis usta Bain. -- Bull. Soc. bot. Fr. 28: 78. 1881.
No type material is known to be preserved. Representative culture WB 275 = CBS 261.67 = IMI 211805. Herb. IMI 211805, derived from this culture, is designated here as neotype.

A. varians Wehmer -- Bot. Centbl. 80: 460. 1899. emend. Raper & Fennell, Gen. Aspergillus p. 467. 1965.
Type culture Thom 115 = WB 4793 = CBS 505.65 = IMI 172297. Herb. IMI 172297, derived from the type culture, is designated here as lectotype.

Emericella variecolor Berk. & Br. apud Berk. var. variecolor -- Introd. Crypt. Bot., p. 340. 1857 = A. variecolor (Berk. & Br.) Thom & Raper -- Mycologia 31: 663. 139. Syn. A. stellatus Curzi -- Rendic. Accad. naz. Lincei 19: 424. 1934.
As no epithet is available for the anamorph alone, we propose
ASPERGILLUS STELLIFER st. nov.
Anamorphosis Emericellae variecoloris. Stipites conidiophororum leves, cinnamomeo-brunnei, 140-200 µm alti, vesiculae hemisphaericae, 8-10 µm diam. Metulae 7-8 x 3-4 µm, phialides 8-9 x 2.5-3.0 µm. Conidia globosa, rugulosa, 2.5-3.5 µm diam. Typus CBS 598.65.
Holotype material in herb. K, "ad Bowenpilly, prope Secundarabad". Representative culture CBS 598.65 = IMI 136778, ex soil, Panama.

Emericella variecolor var. astellata (Fennell & Raper) C.R. Benjamin -- Mycologia 47: 679. 1955 = A. variecolor var. astellatus Fennell & Raper -- Mycologia 47: 81. 1955.
Type culture WB 2396 = CBS 134.55 = IMI 61455, isolated from leaves of Ilex sp., Baltra Island, Galápagos, by G.W. Martin. Herb. IMI 61455, derived from the type culture, is designated as lectotype here.

A. versicolor (Vuill.) Tiraboschi -- Annali Bot. Roma 7: 9. 1908-9; apud Thom & Church, The Aspergilli, p. 142. 1926 = Sterigmatocystis versicolor Vuill. apud B. Mirsky, Thse Nancy, p. 15. 1903.
Type material not known to be preserved. Representative culture WB 238 = CBS 583.65. Herb. CBS 538.65, derived from this culture, is designated here as neotype.

Emericella violacea (Fennell & Raper) Malloch & Cain -- Can. J. Bot. 50: 62. 1972 = A. violaceus Fennell & Raper -- Mycologia 47: 75. 1955.
As no epithet is available for the anamorph alone, we propose ASPERGILLUS VIOLACEO-BRUNNEUS st.nov.
Anamorphosis Emericellae violaceae. Diagnosis Latina in Mycologia 47: 75. 1972 continetur. Typus IMI 61449.
Type culture WB 2240 = CBS 138.55 = IMI 61449, ex soil, Tafo, Gold Coast, Africa. Herb. IMI 61449, derived from the type culture, is here designated as lectotype.

A. violaceofuscus Gasperini -- Atti Soc. Toscana Sci. nat. Pisa 8: 326. 1887.
No type material known to be preserved. Representative culture is WB 360 = CBS 123.27, received from M. Church. Herb. CBS 123.27, derived from this culture, is designated as lectotype.

A. viridinutans Ducker & Thrower -- Aust. J. Bot. 2: 355. 1954 (no dried type specimen).
Type culture WB 4365 = CBS 127.56 = IMI 62875, ex rabbit dung, Frameston, Australia. Herb. IMI 62875, derived from the type culture, is here designated as lectotype.

A. wentii Wehmer -- Centbl. Bakt. ParasitKde, Abt. 2, 2: 150. 1896.
Representative, possibly original culture WB 375 = CBS 104.07 = IMI 17295, ex soybeans, Java. Herb. IMI 17295, derived from this culture, is here designated as neotype.

A. zonatus Kwon & Fennell apud Raper & Fennell -- Gen. Aspergillus, p. 377. 1965 (no dried type specimen).
Type culture WB 5079 = CBS 506.65 = IMI 124936, ex forest soil, Costa Rica. Herb. CBS 506.65, derived from the type culture, is here designated as lectotype.

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