

ENTEROBLASTIC

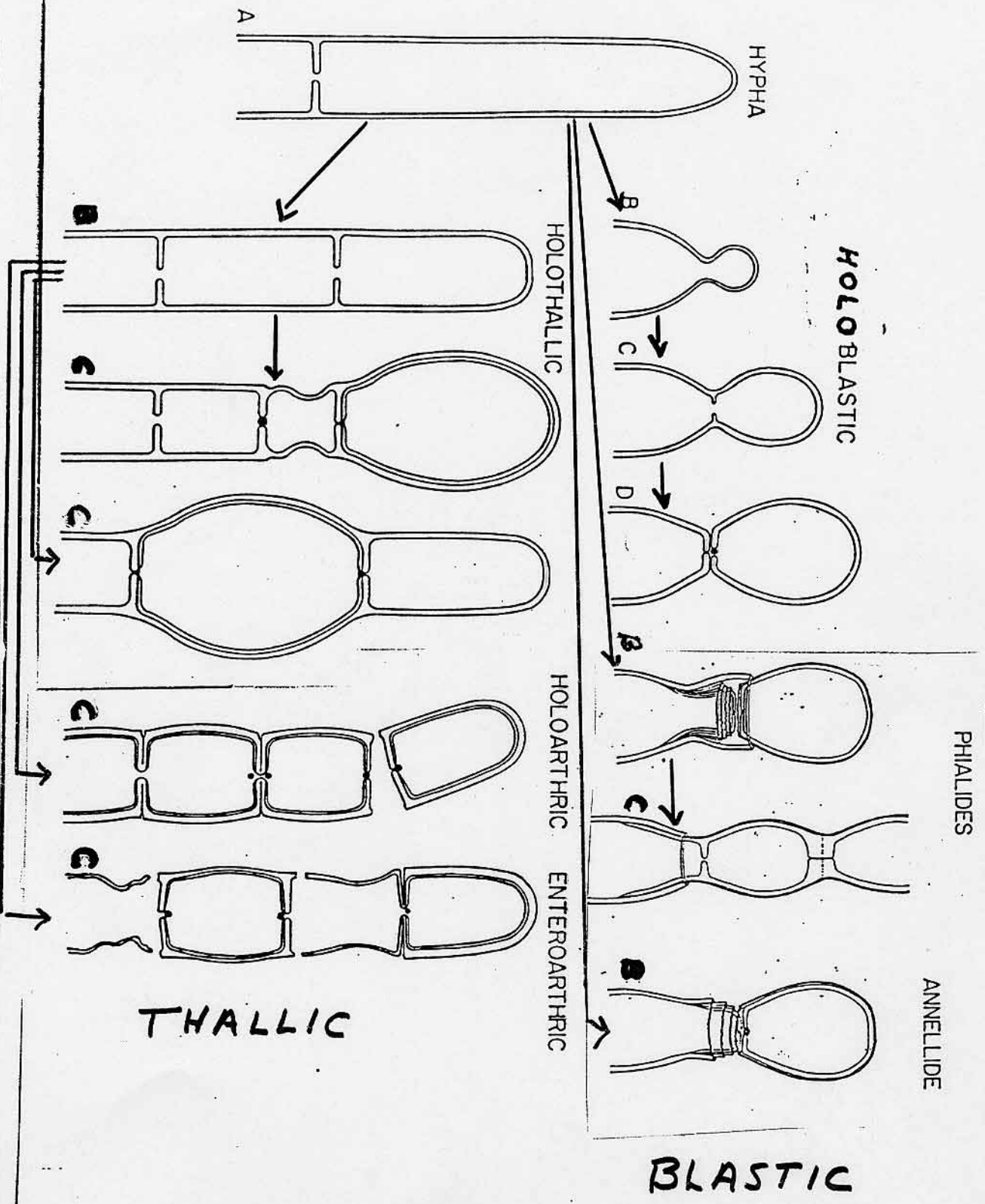


Table 3 Modes of Conidiogenesis in Pathogenic Filamentous Fungi and Corresponding Mycoses^a

Mode of conidiogenesis	Pathogen	Mycosis
Blastic		
Holoblastic		
Solitary	<i>Histoplasma capsulatum</i>	Histoplasmosis
	<i>Emmonsia parva</i>	Adiaspiromycosis
	<i>Blastomyces dermatitidis</i>	Blastomycosis
Botryose	<i>Sporothrix schenckii</i>	Sporotrichosis
	<i>Fonsecaea pedrosoi</i>	Chromoblastomycosis
	<i>Fonsecaea compacta</i>	Chromoblastomycosis
	<i>Acrotheca aquaspersa</i>	Chromoblastomycosis
	<i>Dactylaria gallopava</i>	Phaeohyphomycosis
	<i>Scolecobasidium humicola</i>	Phaeohyphomycosis
	<i>Aureobasidium pullulans</i>	Phaeohyphomycosis
Catenulate	<i>Cladosporium</i> spp.	Phaeohyphomycosis
Porogenous	<i>Loboa lobo</i>	Lobomycosis
	<i>Helminthosporium</i> spp.	Phaeohyphomycosis
	<i>Alternaria</i> spp.	Phaeohyphomycosis
Basauxic	<i>Drechslera</i> spp.	Phaeohyphomycosis
	<i>Wallemia sebi</i>	Phaeohyphomycosis
Enteroblastic		
Phialidic-annelidic	<i>Phialophora verrucosa</i>	Chromoblastomycosis
	<i>Phialophora richardsiae</i>	Phaeohyphomycosis (phaeomycotic cyst)
	<i>Phialophora parasitica</i>	Phaeohyphomycosis (phaeomycotic cyst)
	<i>Acremonium</i> sp.	Phaeohyphomycosis
	<i>Paecilomyces lilacinus</i>	Phaeohyphomycosis
	<i>Penicillium marneffei</i>	Phaeohyphomycosis
	<i>Aspergillus fumigatus</i>	Aspergillosis
	<i>Exophiala jeanselmei</i>	Mycetoma
	<i>Exophiala spinifera</i>	Phaeohyphomycosis
	<i>Exophiala werneckii</i>	Tinea nigra
	<i>Wangiella dermatitidis</i>	Phaeohyphomycosis
	<i>Scopulariopsis brevicaulis</i>	Phaeohyphomycosis
	Thallic	
Holothallic	<i>Microsporum</i> spp.	Tinea
	<i>Trichophyton</i> spp.	Tinea
	<i>Epidermophyton</i> spp.	Tinea
Thallic-arthric		
Holoarthric	<i>Trichophyton mentagrophytes</i>	Tinea
	<i>Geotrichum candidum</i>	Geotrichosis
	<i>Trichosporon beigellii</i>	White piedra
Enteroarthric	<i>Coccidioides immitis</i>	Coccidioidomycosis

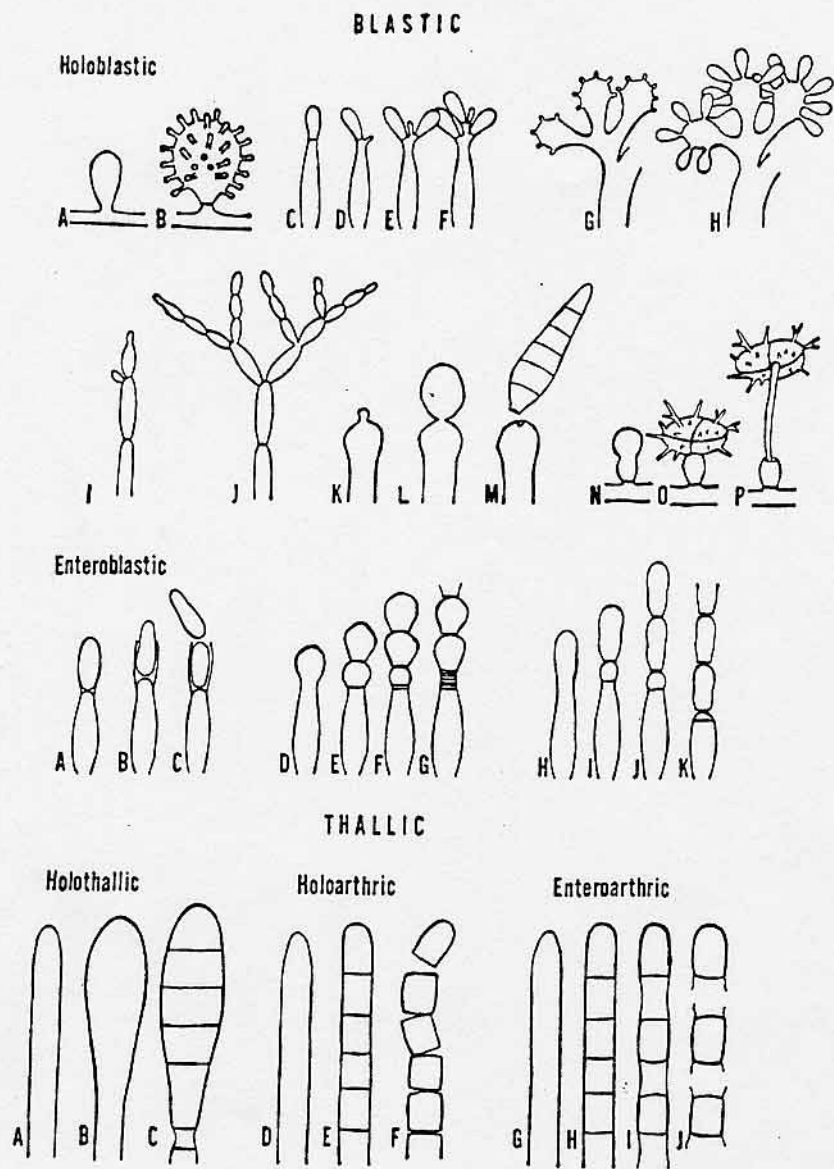
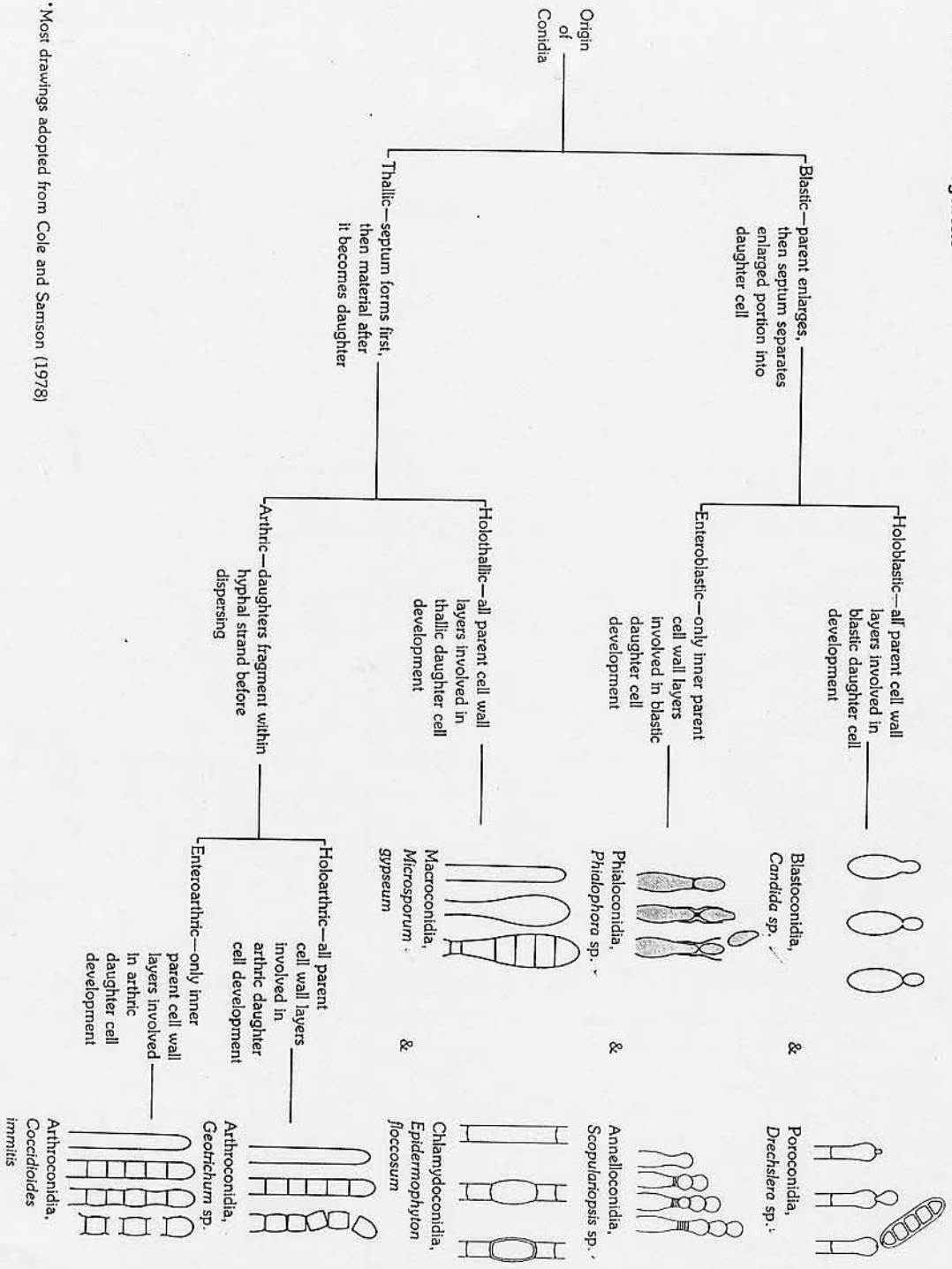


Figure 16 Diagrammatic summary of modes of conidial and conidiogenous cell development examined in the text. The following symbols are used to denote the three major criteria that distinguish the developmental categories: CW, conidial wall differentiation; OA, order of production and arrangement of conidia on the conidiogenous cell; CC, process of conidiogenous cell proliferation. Classification of ontogenetic processes based on modes of conidial wall differentiation (CW) under blastic and thallic development is indicated on the diagram. Additional subdivisions and a list of the representative species illustrated in Fig. 16 are presented below.

CW: Holoblastic. (A,B) *Histoplasma capsulatum*. OA: terminal, solitary; CC: determinate. (C-F) *Tritirachium oryzae*. OA: Terminal, solitary; CC: proliferous (sympodial). (G,H) *Botrytis cinerea*. OA: synchronous, botryose; CC: determinate. (I,J) *Cladosporium bantianum*. OA: acropetal (catenulate); CC: proliferous. (K-M) *Deightonella torulosa*. OA: terminal, solitary; CC: porogenous. (N-P) *Spegazzinia tessarthra*. OA: terminal solitary; CC: basauxic. **CW: Enteroblastic.** (A-C) *Phialophora lagerbergii*. OA: basipetal, solitary; CC: phialidic. (D-G) *Scopulariopsis brevicaulis*. OA: basipetal, solitary; CC: proliferous (annellidic). (H-K) *Cladobotryum varium*. OA: basipetal, solitary; CC: retrogressive. **CW: Holothallic.** (A-C) *Microsporium gypseum*. OA: terminal, solitary; CC: determinate. **CW: Holoarthric.** (D-F) *Geotrichum candidum*. OA: random, chains; CC: determinate. **CW: Enteroarthric.** (G-J) *Coccidioides immitis*. OA: random, chains; CC: determinate. (From Ref. 88.)

CHART 1-1. Conidiogenesis*



*Most drawings adopted from Cole and Samson (1978)

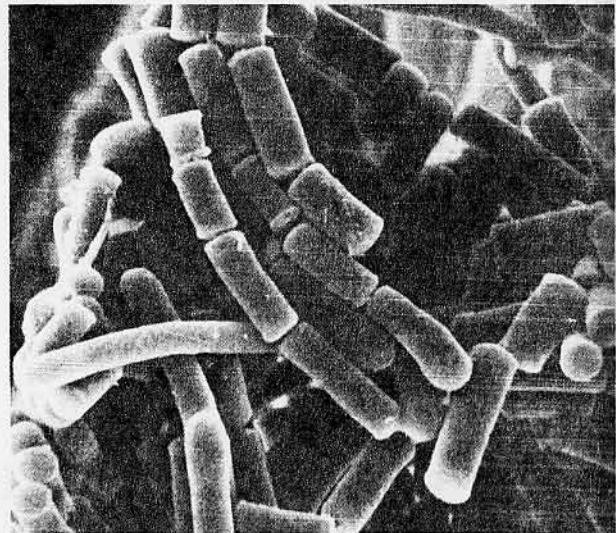
BASICS OF MYCOLOGY

ALTERNATE KEY TO SERIES AND GENERA (Moniliaceae and Dematiaceae)

Tuberculariaceae and Stilbaceae, as well as some genera in which there is inadequate knowledge of conidial formation, are excluded from this key.

- 1a Conidia (arthrospores) formed by segmentation of vegetative hyphae or branches of nonmeristematic conidiophores; mature conidia usually with truncate ends, ellipsoid or cylindrical . . . (Examples: *Geotrichum*, *Amblyosporium*) . . . Series ARTHROSPORAE

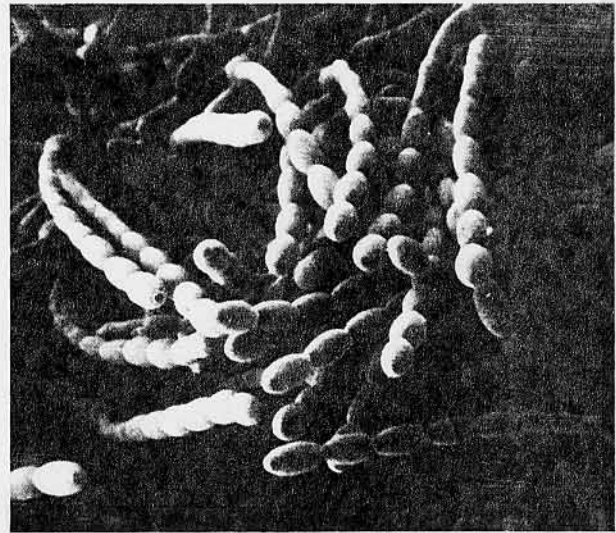
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Arthrospora, *Geotrichum*

- 1b Conidia (arthrospores) developing in basipetal succession by meristemic growth of the special portion of conidiophore, resulting in a gradual change from conidiophore to conidium; conidia usually, but not necessarily, hanging together in chains . . . (Examples: *Oidium*, *Basipetospora*) . . . Series MERISTEM ARTHROSPORAE

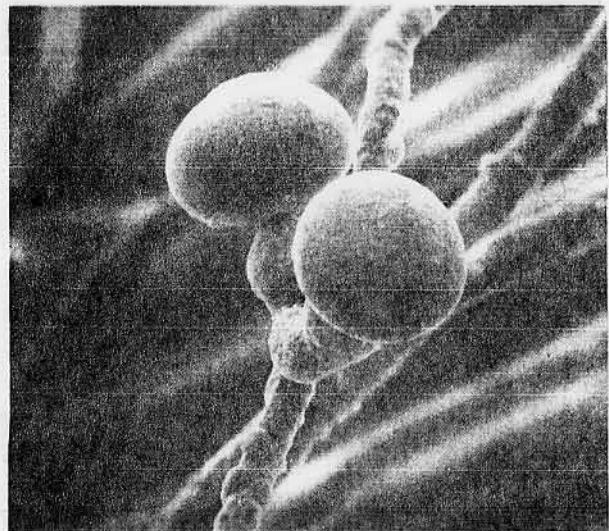
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Meristem Arthrospora, *Oidium*

- 1c Conidia (aleuriospores) usually single and apical on conidiophore or sporogenous cells, often thick-walled and pigmented but may be hyaline, often not easily deciduous or deciduous by means of a special cell at apex of conidiophore; accessory conidial states often present . . . (Examples: *Humicola*, *Sepeдонium*, *Microsporium*) . . . Series ALEURIOSPORAE

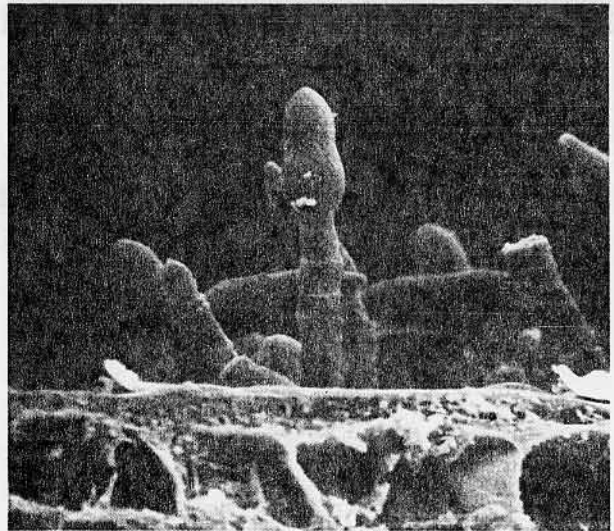
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Aleuriospora, *Nigrospora*

ld Conidia (annellospores) produced successively on apex of conidiogenous cells or conidiophore which increases slightly in length by percurrent proliferation through previous conidial scars; successive scars appear as faint annellations at apex of conidiogenous cell ... (Examples: *Spilocaea*, *Scopulariopsis*) ... Series ANNELLOSPORAE

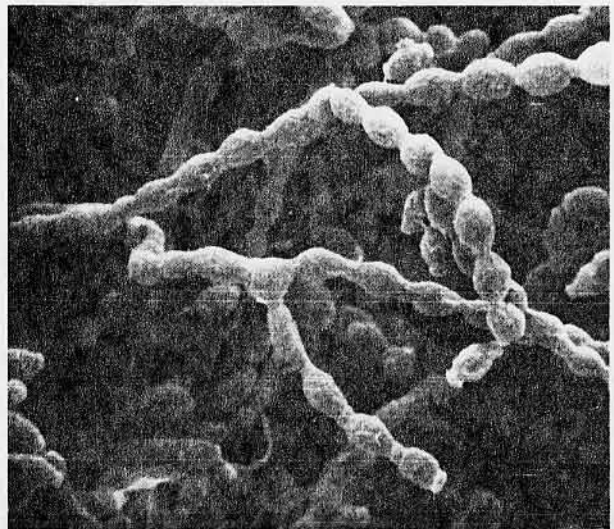
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Annellosporae, *Spilocaea*

le Conidia (blastospores) developing as buds from simple or branched conidiophores, or directly from vegetative cells or previous conidia, often forming simple or branched acropetalous chains ... (Examples: *Aureobasidium*, *Monilia*, *Cladosporium*) ... Series BLASTOSPORAE

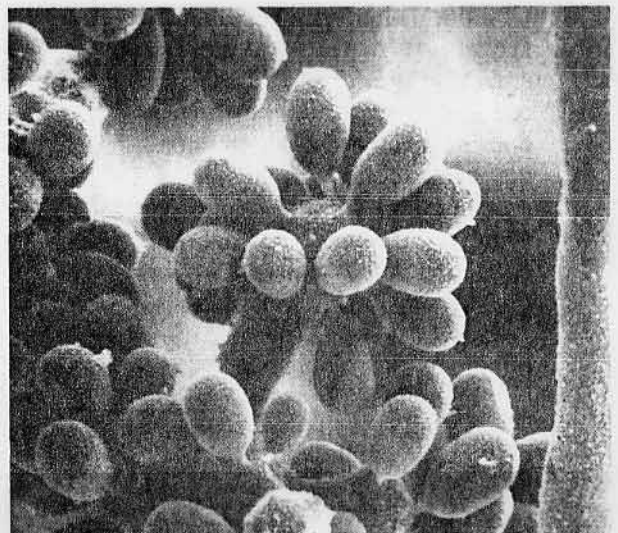
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Blastosporae, *Monilia*

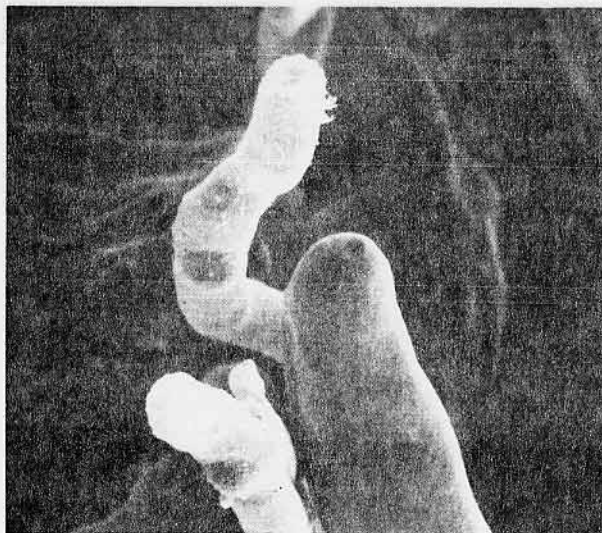
lf Conidia (blastospores) produced on well differentiated swollen cells which bear many conidia simultaneously, forming clusters or heads, solitary or in simple or branched acropetalous chains; mature conidia easily deciduous revealing small denticles on sporogenous cells ... (Examples: *Oedocephalum*, *Botrytis*, *Gonatobotryis*) ... Series BOTRYOBLASTOSPORAE

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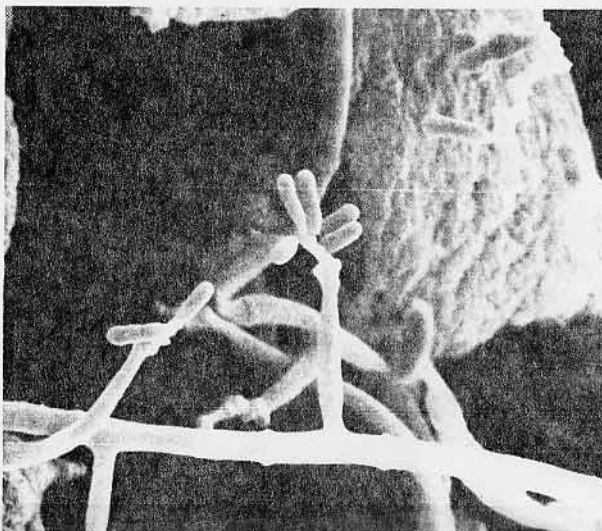
Botryoblastosporae, *Botrytis*

lg Conidia (porospores) developing through pores in outer wall at apex or side of conidiophore, single or in some genera produced on successive new growing points formed by sympodial proliferation ... (Examples: *Helminthosporium*, *Bipolaris*, *Stemphylium*) ... Series POROSPORAE 90



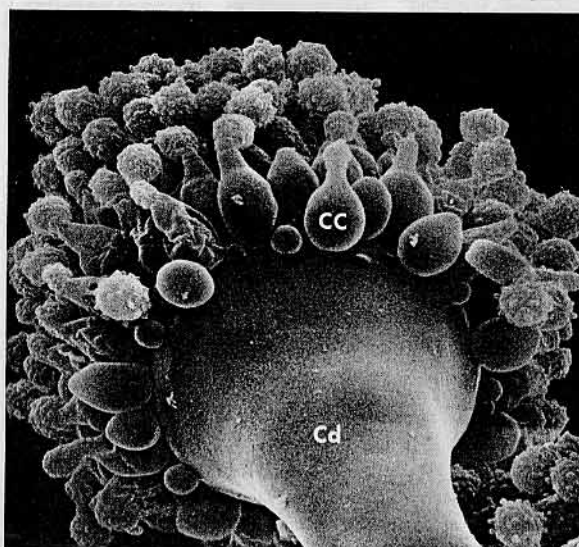
Porosporae, *Bipolaris*

lh Conidia (sympodulospores) developing at tips of conidiophores or conidiogenous cells (not from pores in outer wall) and forming successively on new growing tips by sympodial proliferation; increase may be slight but conidia are of different ages; (this key includes some genera placed by some authors in the Porosporae) ... (Examples: *Fusicladium*, *Tritirachium*, *Cercospora*) ... Series SYMPODULOSPORAE 102



Sympodulosporae, *Sporothrix*

li Conidia (phialospores) formed successively from open apex of conidiophore or conidiogenous cell (phialide), which ordinarily does not increase in length; conidia often collect in droplet of mucilage or slime at apex or remain attached in basipetal chains; in a few genera the simple conidiophore proliferates percurrently and forms new phialides ... (Examples: *Chalara*, *Phialophora*, *Verticillium*, *Aspergillus*) ... Series PHIALOSPORAE 151



Phialosporae, *Chalara*