

***Licea alexopouli* M. Blackw. SM16 (= PDD 110396) – [Blackwell, M. 1974. A new species of *Licea* (Myxomycetes). Proc. Iowa Acad. Sci. 81: 6.] This species has not been reported from New Zealand.**

Designation: Collection #A101 (Ann's designation for this Australian dung collection used during the preparation of her publication on Australian dung fungi [Bell A. 2005. *An Illustrated Guide to the Coprophilous Ascomycetes of Australia*. Centraalbureau voor Schimmelcultures (CBS) Biodiversity Series No. 3. Utrecht, 172 pp.]; dried herbarium specimen = SM16

Substrate: *Petrogale penicillata* (brush-tailed rock wallaby) dung

Collector: Mrs. Margery Smith

Collection site and vegetation: Pine Mountain, Tumut, New South Wales, Australia; 148° 14' 51" E, 35° 11' 30" S; vegetation *Casurina stricta* and *Callitris endlicheri* (black cypress-pine), rocky terrain, sparse native grass.

Collection date: 13 July 1997

Date incubated: 10 August 2001

Other slime mold and fungi in dung collection A101: *Ascobolus immersus*, *Coprinus* sp. (had sporulated heavily before the slime mold fruited), *Iodophanus carneus*, *Perichaena luteola*, *Podospora australis*, *P. bicornis*, *P. communis*, *P. conica*, *P. curvuloides*, *P. intestinacea*, *P. vesticola*, *Saccobolus verrucisporus*, *Sporormiella minima*

Brief description: Ann's last recorded observation of A101 dung was on 1 Nov. 2001. At that time no slime molds were on the dung. She wetted the dung before then but not since (the glass plate cover over the incubation vessel was tight enough so that the dung had not dried out when she looked at it on approx. 15 January 2002. At that time (after incubation for approx. 5 months), the mature slime mold *Licea alexopouli* was in abundance on 6 pellets where it appeared as small black spherical, sessile sporangia. Microscopic observation immediately ruled out a cleistothelial ascomycete or *Pilobolus* sporangia.

Continued on the next page:

Sporangia sessile, globose, dull to somewhat shiny blackish depending on the amount of debris deposited on the sporangial peridium (some slightly immature sporangia a dull dark yellow brown), 80–180 µm in diameter (n=25); **peridium** a tough (like a thin breakable leather), thin, dark brown rather featureless shell with scattered crystalline material and miscellaneous debris over its surface (among the toughest peridia I've seen in slime molds – a little reminiscent of a *Pilaira* or *Pilobolus* peridium); a 2nd inner peridial layer lighter brown and firmly affixed to the dark outer layer—except as seen along the broken edges of squashed peridia. **Dehiscence** of any kind not observed [among the hundreds of sporangia – no circumscissile lid, platelets or any regular (or irregular) type of peridial breakage]. **Capillitium, pseudocapillitium, or columella** none. **Spores** light yellow brown to light brown in mass, nearly hyaline individually, globose, thick-walled [1–1.5 µm – wall thickness more obvious in slightly heated Shear's mounting fluid (SMF) than in water], smooth or with an inconspicuous roughness (finely granular), (9–)10–11(–11.5) µm in diameter (n=15).

Comments: Keys readily to this species in the following references: (However, none provide a complete description – for the original description, see the following page.)

- 1) Keller, H.W., Brooks, T.E. 1977. Corticolous myxomycetes VII: Contribution toward a monograph of *Licea*, five new species. *Mycologia* 69: 667–684.
- 2) Elliasson, U.H., Keller, H.W. 1999. Coprophilous myxomycetes: updated summary, key to species, and taxonomic observations on *Trichia brunnea*, *Arcyria elaterensis*, and *Arcyria stipata*. *Karstenia* 39: 1–10.
- 3) Elliasson, U. 2013. Coprophilous myxomycetes: Recent advances and future research directions. *Fungal Diversity* 59: 85–90. (This reference updates the Elliasson & Keller 1999 reference.)

The following are a few articles that cite *L. alexopouli*:

- 1) Elliasson U., Lundqvist, N. 1979. Fimicolous myxomycetes. *Bot. Notiser* 132(4): 551–568 (no description).
- 2) Mock, D.L., Kowalski, D.T. 1976. Laboratory cultivation of *Licea alexopouli*. *Mycologia* 68: 370–376. (Mock & Kowalski describe and illustrate the spore-to-spore life cycle in culture.)
- 3) Keller, H.W., Anderson, L.L. 1978. Some coprophilous species of myxomycetes. *ASB Bull.* 25:67.

Interestingly Nannenga-Bremekamp, in her 1991 treatment of temperate myxomycetes, doesn't include any mention of *L. alexopouli*.

Continued on the next page:

Blackwell, M. 1974. A new species of *Licea* (Myxomycetes). Proceedings of the Iowa Academy of Sciences. 81(1): 6. (on the right side of this page)

Blackwell's description of the slime mold closely matches the specimen from A101 except in the following characters:

- 1) spore color: She describes as "bright yellow in mass, pale yellow by transmitted light". The A101 collection is described above as "light yellow brown to light brown in mass, nearly hyaline individually".
- 2) sporangium peridium: She does not record any peridial layers. The A101 collection is described as having "a 2nd inner peridial layer lighter brown and firmly affixed to the dark outer layer—except as seen along the broken edges of squashed peridia".
- 3) sporangial dehiscence: She describes as "by a preformed lid or irregular". The A101 collection is described as "Dehiscence of any kind not observed [among the hundreds of sporangia – no circumscissile lid, platelets or any regular (or irregular) type of peridial breakage]".

Other characters of the sporangia and sporangio-spores, however, closely match specimen A101

A New Species of *Licea* (Myxomycetes)

MEREDITH BLACKWELL¹

BLACKWELL, M. (Division of Biological Sciences, University of Florida, Gainesville, Florida 32611). A new species of *Licea* (Myxomycetes). *Proc. Iowa Acad. Sci.* 81(1): 6, 1974. A new protoplasmial species of the genus *Licea* is reported from dung of herbivorous animals. It is differentiated from all

other species in the genus except one by a smooth shiny black peridium; from *L. fimicola* Dearness and Bisby it differs by sporangial shape and spore characters.

INDEX DESCRIPTORS: *Licea*, Myxomycete Taxonomy.

A member of the genus *Licea* was isolated from dung placed in a moist chamber. Because of its distinct combination of sporangial and spore characters it is described here as a new species.

Licea alexopouli Blackwell, sp. nov.

Sporangia dissipata, sessilia, hemispherica vel subglobosa, 0.08-0.13 mm in diam., nitentia nigra, lenia, interdum rugosa postquam exsiccata; peridium crassum, cartilaginatum; dehiscens per preformatum operculum vel irregulare; sporae globosae ad ovales, flavae in massa, crassitunicata, laeves; 9.5-11 μ in diam. Protoplasmodium hyalinum.

Sporangia scattered, sessile, hemispherical to subglobose, 0.08-0.13 mm in diameter, shiny, black, smooth, sometimes becoming wrinkled and impregnated with refuse material on drying; sporangial wall thick, cartilaginous; dehiscence by a preformed lid or irregular; spores globose to oval, bright yellow in mass, pale yellow by transmitted light, their walls thick, smooth; 9.5-11 μ in diameter. Protoplasmodium colorless.

Collections Examined: UTM 615 (type), UTM 1265, DTK 12631, DTK 12632, DTK 12641, DTK 12951, and DTK 12954.

Type Locality: Austin, Travis Co., Texas, from horse dung collected 15 December 1964.

Habitat: Horse and bison dung in moist chamber, cow dung.

Distribution: Texas, Oklahoma, California.

A portion of the type collection has been deposited in the University of Texas Myxomycete Collection (UTMC), Austin, Texas; the remainder has been retained in the personal collection of the author.

This species is named in honor of Dr. C. J. Alexopoulos, who continually and carefully contributes to our better understanding of the taxonomy and systematics of the Myxomycetes.

Licea alexopouli is distinguished from all other species of *Licea* except one by its smooth, shiny, black peridium; from *L. fimicola* Dearness and Bisby it is distinguished by its hemispherical to subglobose sporangial shape (Figure 1) and smooth, paler, smaller spores (Figure 2). *L. tuberculata* Martin also has a shiny black peridium, but it is strongly tuberculate.

The sporangia of the genus *Licea* are easily differentiated from other myxomycetes by their lack of capillitium or pseu-



Figure 1. Habit photograph of *Licea alexopouli*. Scale indicates 0.1 mm.

Figure 2. Spores and peridium of *L. alexopouli*. Scale indicates 10 μ m.

docapillitium. It is often more difficult to separate them from the fruit bodies of other fungi. This is evidenced by the fact that at least eight Ascomycetes have been described as species of *Licea* by competent myxomycete taxonomists (Martin and Alexopoulos, 1969 [p. 53]). For such reasons Alexopoulos (1960, 1969) has emphasized the taxonomic importance of studying the entire life cycle of myxomycetes.

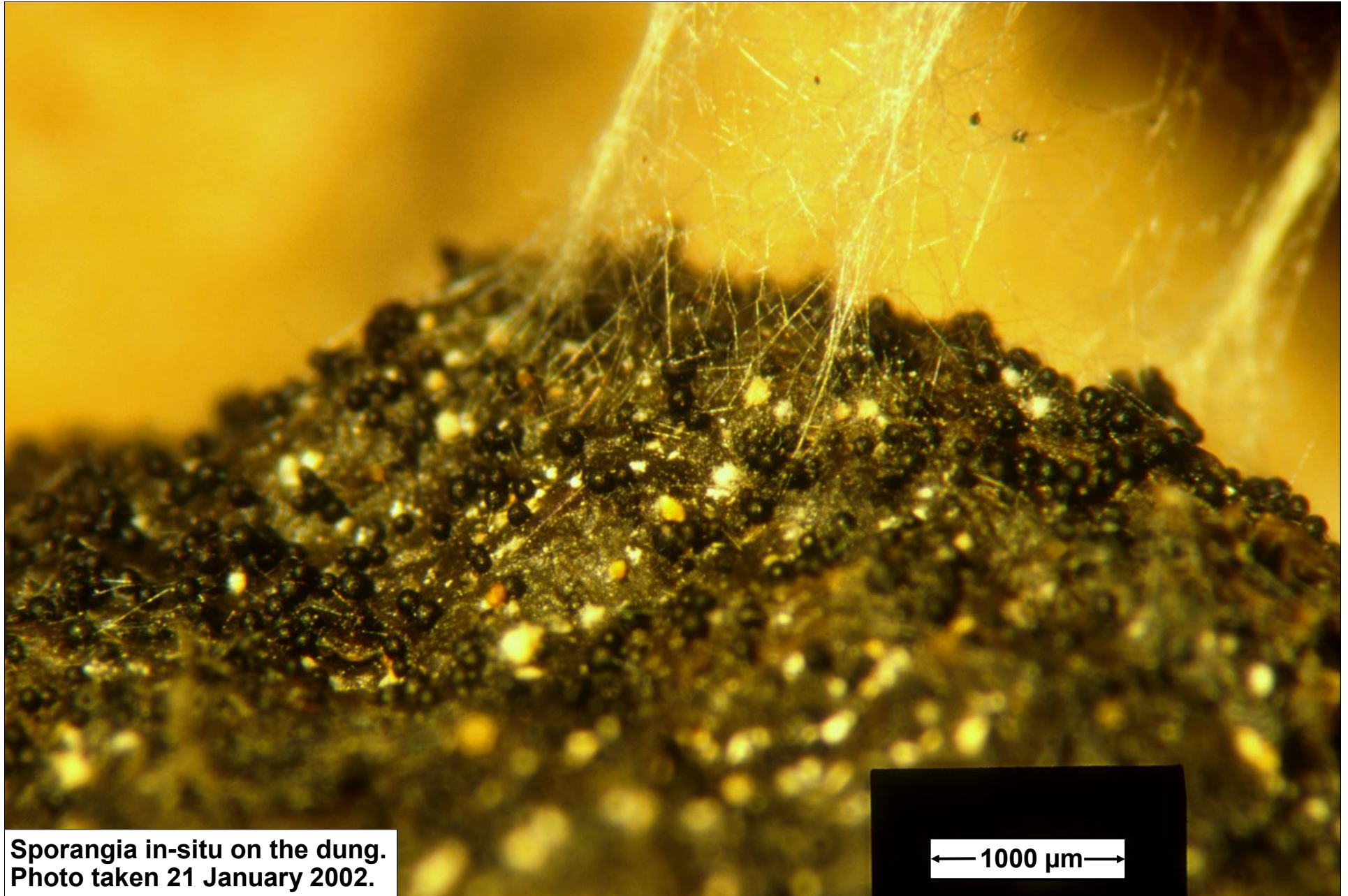
Since the sporangia of *L. alexopouli* resemble the sporangia of certain species of *Pilobolus*, an attempt was made to grow the organism in agar culture. But even spore germination, which would have been diagnostic, failed. However, more horse dung from the type locality and another locality was incubated in moist chamber, and almost colorless protoplasmodia were seen to develop into the shiny black sporangia. These observations were verified by Dr. Janet Winstead (Madison College, Harrisonburg, Virginia), who found this species in moist chamber cultures of bison dung from Oklahoma.

I should like to thank Dr. D. T. Kowalski (California State College, Chico, California) for the loan of his specimens of this species. Ms. Patricia Baxter kindly prepared the Latin diagnosis.

REFERENCES CITED

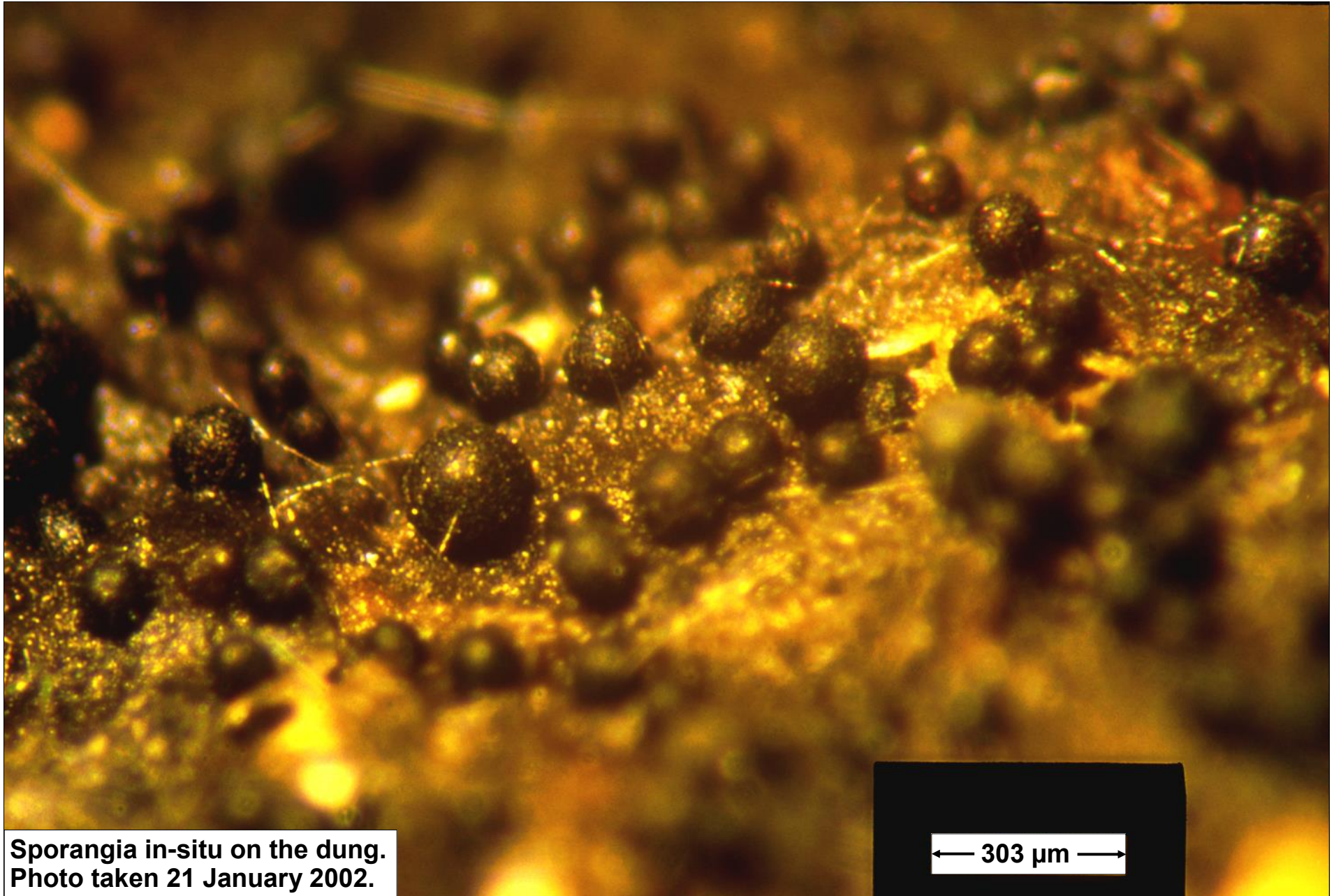
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———. 1969. The experimental approach to the taxonomy of the Myxomycetes. *Mycologia* 61: 219-239.
MARTIN, G. W., and C. J. ALEXOPOULOS. 1969. *The Myxomycetes*. Univ. of Iowa Press, Iowa City. 561 p.

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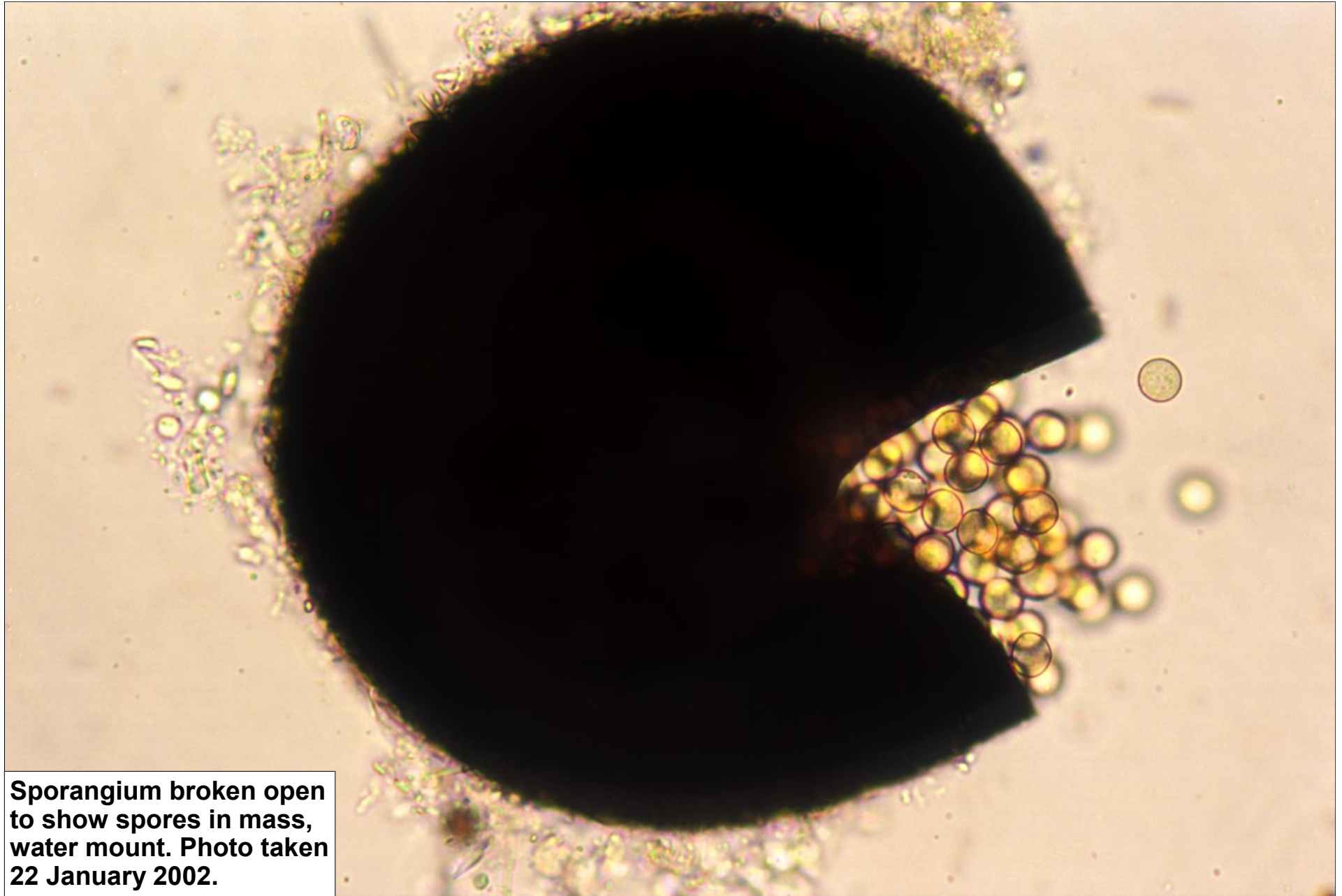
Sporangia in-situ on the dung.
Photo taken 21 January 2002.

← 1000 μm →

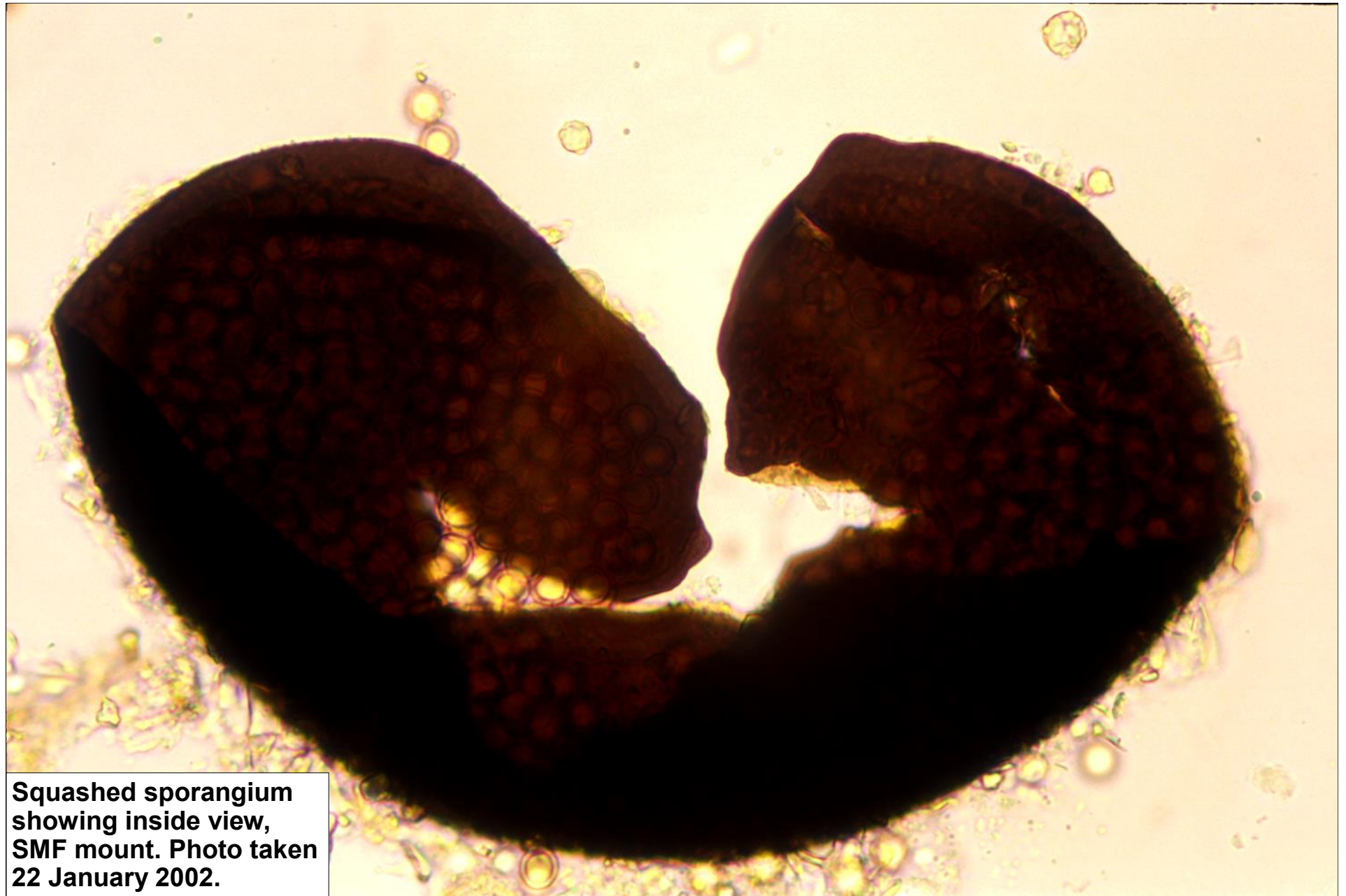


Sporangia in-situ on the dung.
Photo taken 21 January 2002.

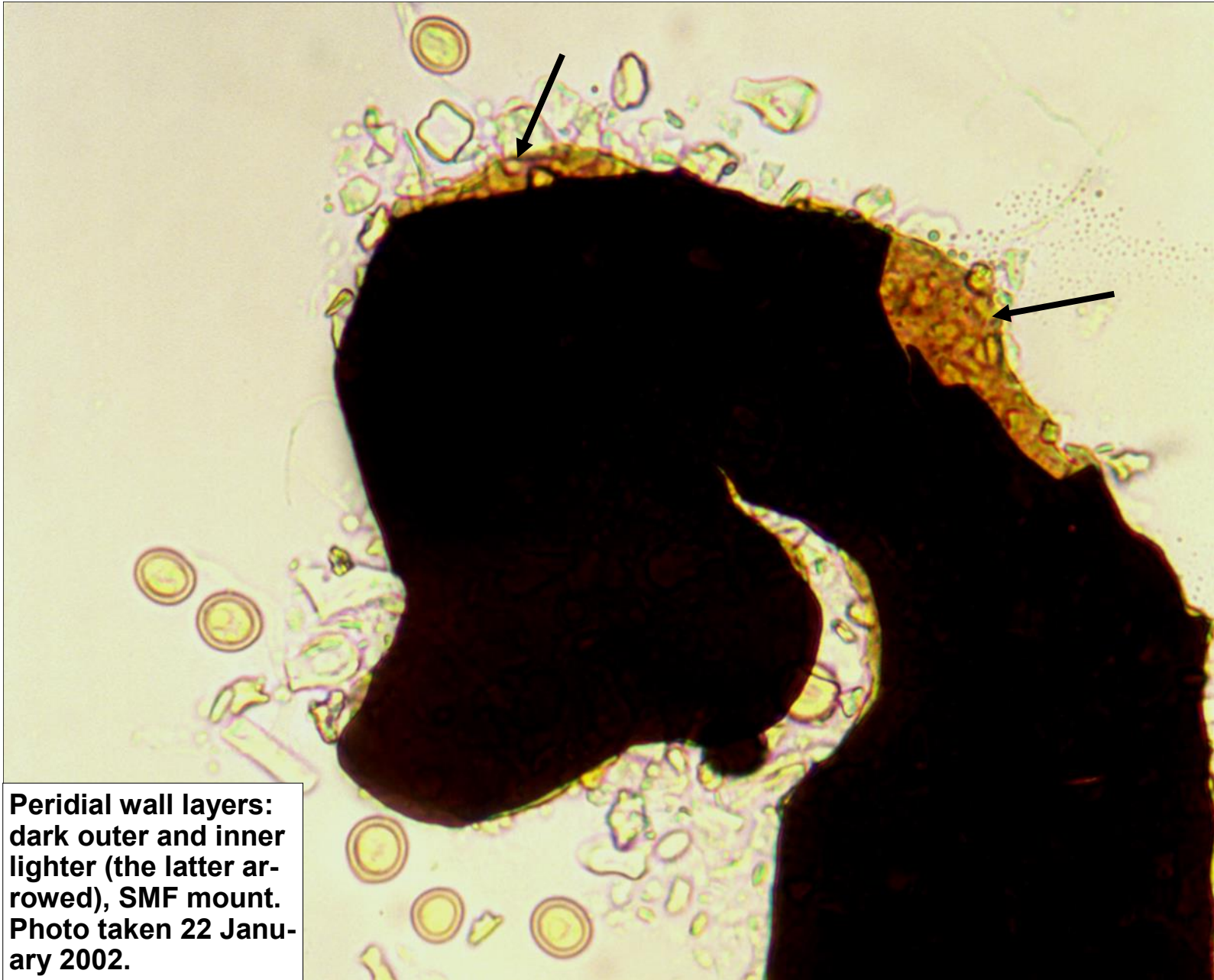
← 303 μm →



Sporangium broken open to show spores in mass, water mount. Photo taken 22 January 2002.



Squashed sporangium showing inside view, SMF mount. Photo taken 22 January 2002.



**Periderial wall layers:
dark outer and inner
lighter (the latter ar-
rowed), SMF mount.
Photo taken 22 Janu-
ary 2002.**



Spores in water mount. Photo taken 22 January 2002. Walls don't seem as thick-walled in water mounts – compare with spores mounted in Shear's mounting fluid (SMF) on the next page.



Spores in SMF mount. Photo taken 22 January 2002. Walls seem thicker-walled in SMF than in water mounts.