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'N TAKSONOMIESE STUDIE VAN TRANSVAALSE VARSWATER EUGLENOPHYCEAE EN CHLOROPHYCEAE

deur

MARTHA ISABELLA CLAASSEN

Voorgelê ter vervulling van 'n deel
van die vereistes vir die graad

DOCTOR SCIENTIAE

in die Fakulteit Wis- en Natuurkunde
(Departement Plantkunde)

Universiteit van Pretoria

PRETORIA

DEEL 2 : BYLAE

Desember 1982

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VERKLARING BY FIGURE

By die lyntekeninge van verteenwoordigers van die desmied= genusse Actinotaenium, Cosmarium, Desmidium en Hyalotheca kom afbeeldings van selle in vooraansig en/of syaansig en/ of vertikale aansig voor. In alle gevalle word die sy= aansig en vertikale aansig van selle deur die letters b en c onderskeidelik aangedui. Slegs waar die verskillende aansigte van dieselfde sel afgebeeld is word die vooraansig ook aangedui en wel deur die letter a. Alle afbeeldings wat nie op die manier aangedui is nie, verteenwoordig die vooraansig van 'n sel.

Die skaallengtes wat onder aan die figuurlegendes van die aftaselektronmikrograwe aangegee word, verwys na een van die skaalmerkers wat in wit op die mikrograwe verskyn. In enkele gevalle is die skaalmerkers duidelikheidshalwe met swart Indiese ink aangebring.

Die bladsynommers wat in die figuurlegendes tussen hakies direk na die name van spesies en infraspesifieke taksons aangegee word, verwys na Deel 1 van hierdie werk.

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FIGUUR 1

Kaart van Transvaal wat die verspreiding van lokaliteite (▲) waar algmonsters versamel is toon.

Plekname wat in hoofletters verskyn verwys na die verskillende ruite waarin Transvaal ingedeel is.

(Vir die verspreiding van lokaliteite in ruite 2329 D en 2330 C kyk figuur 2.)

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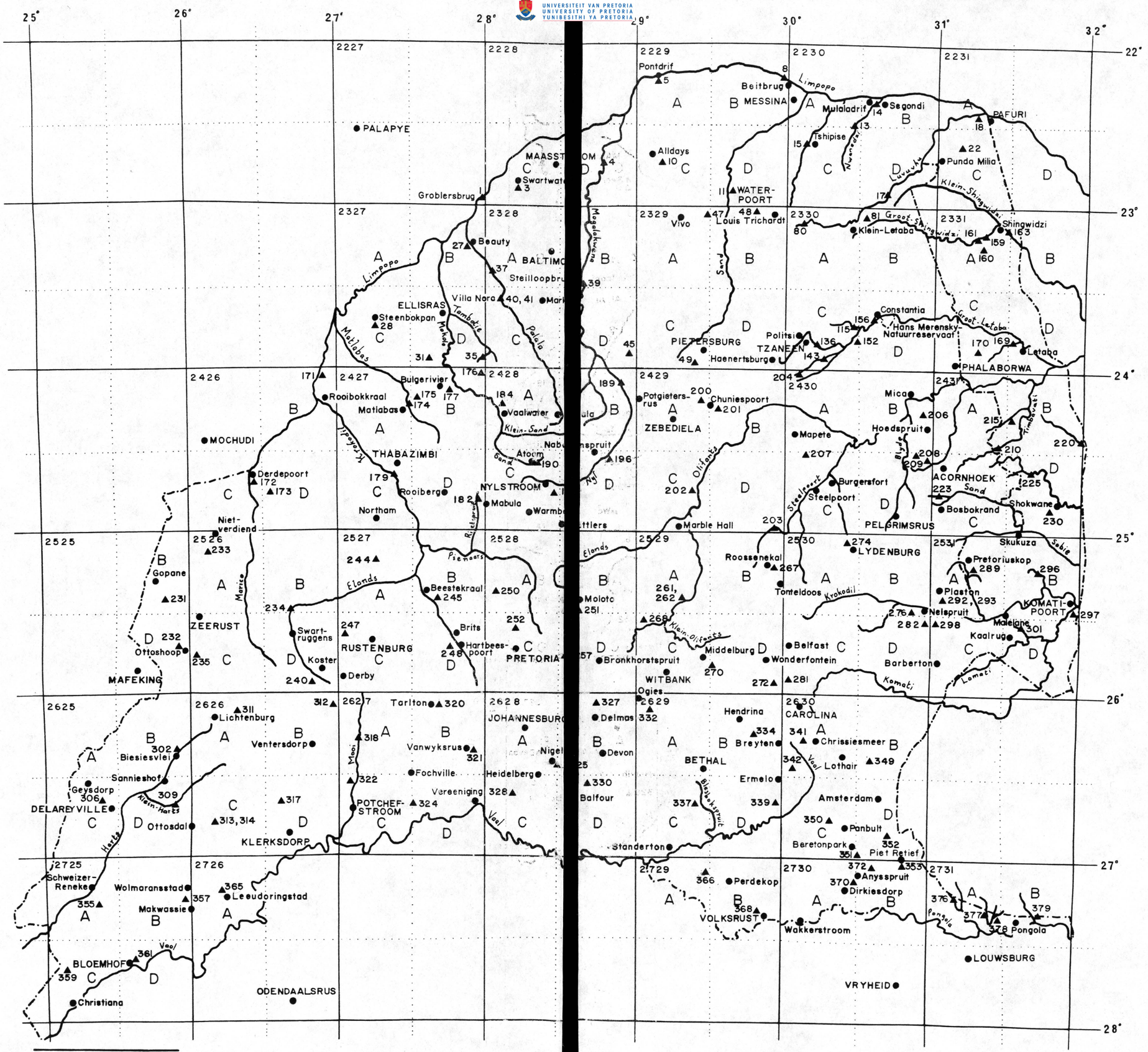

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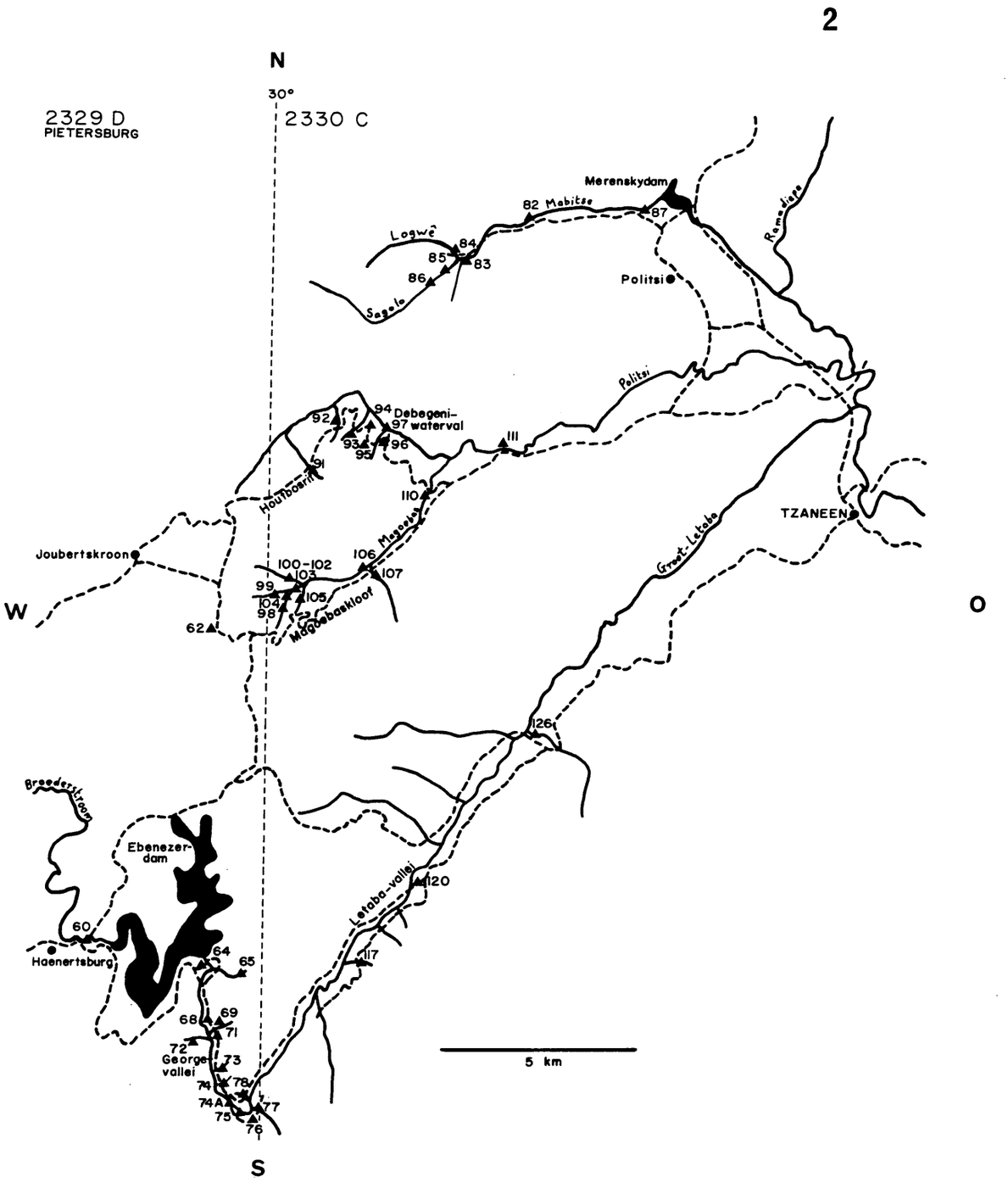

FIGUUR 2

Kaart wat die verspreiding van lokaliteite (▲) in die Georgevallei- (2329 D PIETERSBURG) en Magoebaskloof-Letabavallei (2330 C TZANEEN) omgewings toon.

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G E O L O G I E S E L E G E N D E

	Ongekonsolideerde oppervlakafsettings. Konglomeraat, kalksteen, sandsteen, merrel; hoëterrasgruis			TERSIÊR TOT RESENT		SENOSOIKUM
K4v	Rioliet, dasiet, piroklaste	Étage Lebombo	Serie Stormberg	SISTEEM KAROO	Trias tot Jura	MESOSOIKUM
K4v	Basalt, limburgiet, piroklaste, ondergeskikte sandsteen	Étage Drakensberg				
K4	Sandsteen, skalie, moddersteen, merrel; steenkool	Étages Molteno, Rooilae, Holkranssandsteen				
K2	Skalie, sandsteen, grintsteen; steenkool		Serie Ecca		Bo-Karboon tot Bo-Perm	PALEOSOIKUM
K1	Tilliet, sandsteen, skalie		Serie Dwyka			
W2	Sandsteen, sliksteen, konglomeraat		Serie Kransberg	SISTEEM WATERBERG		
W1	Lawa, sandsteen, konglomeraat, sliksteen, grouwak		Serie Nylstroom			
AG5	Verskeie tipes graniet, porfier		Stollingskompleks Bosveld en ander intrusies			PREKAMBIUM
AN3	Gabbro, noriet, pirokseniet en verwante gesteentes					
Lf	Felsiet en piroklaste					
AG4	Migmatiet, gneis, ultrametamorfe gesteentes		Limpopostreek van metamorfose en granitisasie			
T3s	Kwartsiet, skalie, horingfels, kalksteen, andesiet, tuf, konglomeraat	Etage Smelterskop	Serie Pretoria	SISTEEM TRANSVAAL		
T3m	Kwartsiet, skalie, horingfels, lawa, piroklaste, jaspilliet, gestreepte ystersteen, chert, kalksteen	Etage Magaliesberg				
T3d	Kwartsiet, skalie, tilliet, andesiet, chert, jaspilliet, kalksteen	Etage Daspoort				
T3t	Kwartsiet, skalie, konglomeraat	Etage Timeball Hill				
T2	Dolomiet, gestreepte ystersteen, chert, skalie, kwartsiet, konglomeraat, tilliet		Serie Dolomiet			
V	Andesiet, suurporfier, piroklaste, sedimente			SISTEEM VENTERSDORP		
AG3	Graniet		Plutone van Pongola, ens.			
Dr	Konglomeraat, kwartsiet, skalie, filliet, kalksteen, tilliet, lawa			SISTEEM DOMINIUMRIF		
AG2	Migmatiet, gneis, ultrametamorfe gesteentes		Noord-Kaap-Transvaalstreek van metamorfose en granitisasie		Argeïese Kompleks	
AN1	Ultrabasiese en basiese intrusies en hul gemetamorfoseerde derivate		Stollingskomplekse Jamestown en Rooiwater; ander soortgelyke intrusies moontlik van uiteenlopende ouderdomme			
S1	Basiese en suur vulkaniese gesteentes; sedimente		Serie Onverwag	SISTEEM SWAZILAND		
S	Gemetamorfoseerde sedimente, vulkaniese gesteentes en intrusies, moontlik van uiteenlopende ouderdomme			SISTEME KHEIS- en SWAZILAND		

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FIGUUR 3

1. Limpoporivier, Groblersbrug; waterpoel aan ooste= kant van rivier, suid van brug.

2. Limpoporivier, Groblersbrug; suid van brug.

3. Gronddam by Swartwater.

4. Mogalakwenarivier; suid van brug.

5. Limpoporivier, Pontdrif; oos van drif.

6. Limpoporivier, Beitbrug; oos van brug.

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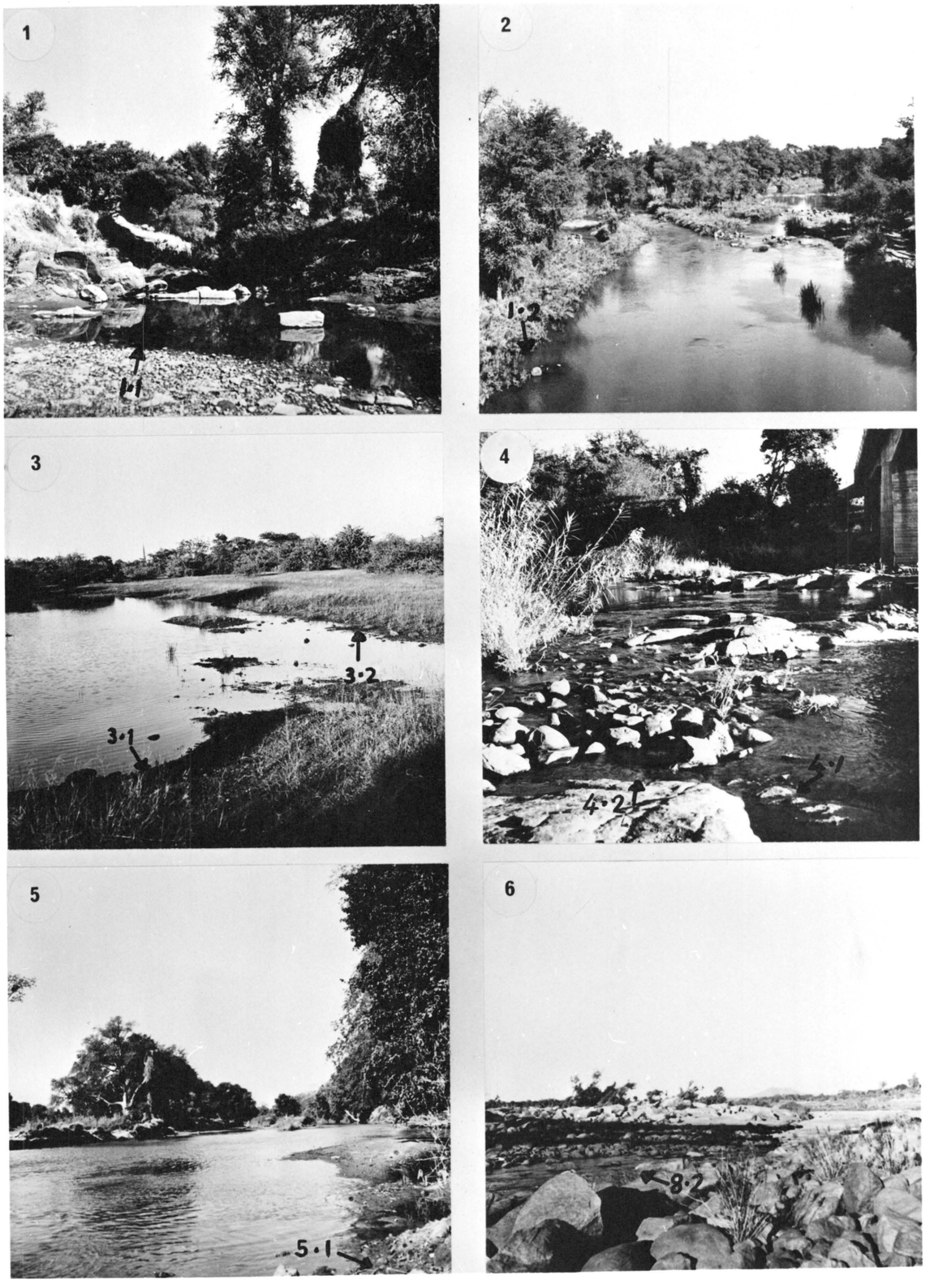

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FIGUUR 4

1. Gronddam tussen Vivo en Alldays.

2. Sandrivier, Waterpoort.

3. Nwanedzirivier, tussen Tshipise en Segondi.

4. Nwanedzirivier, tussen Segondi en Mulaladrif.

5. Levuvhurivier, tussen Louis Trichardt en Punda Milia.

6. Harpemeer, naby Pafuri.

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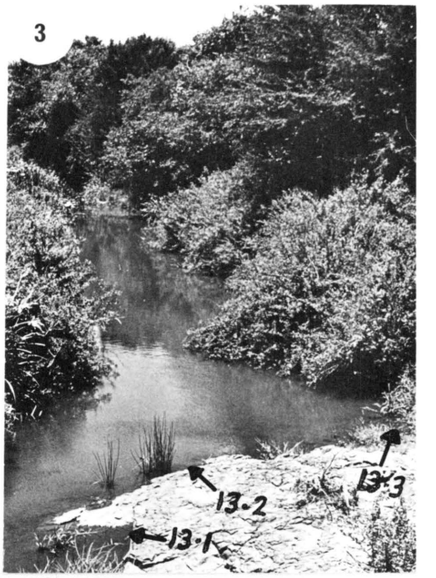

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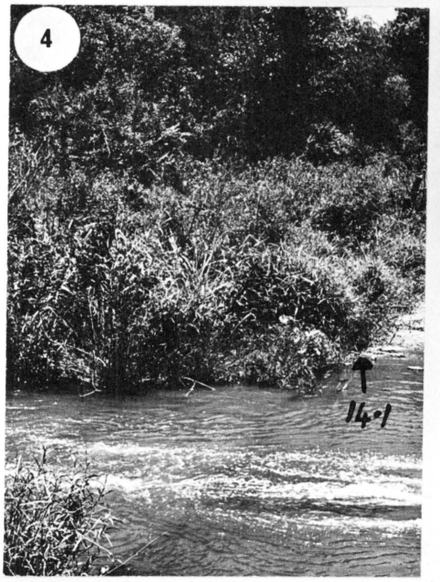

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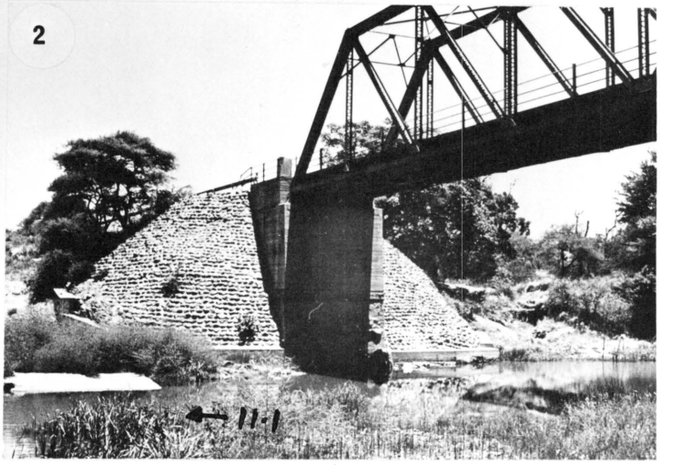

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FIGUUR 5

1. Waterpoel in spruit by Klopperfonteindam.

2. Palalarivier, naby Beauty; noord van brug.

3. Ghwarriegat in droë pan, naby Steenbokpan.

4. Sytak van Tambotierivier; in 'n suidoostelike rigting (stroomaf) afgeneem.

5. Palalarivier, tussen Ellisras en Baltimore.

6. Mogalakwenarivier, Steilloopbrug; oos van brug.

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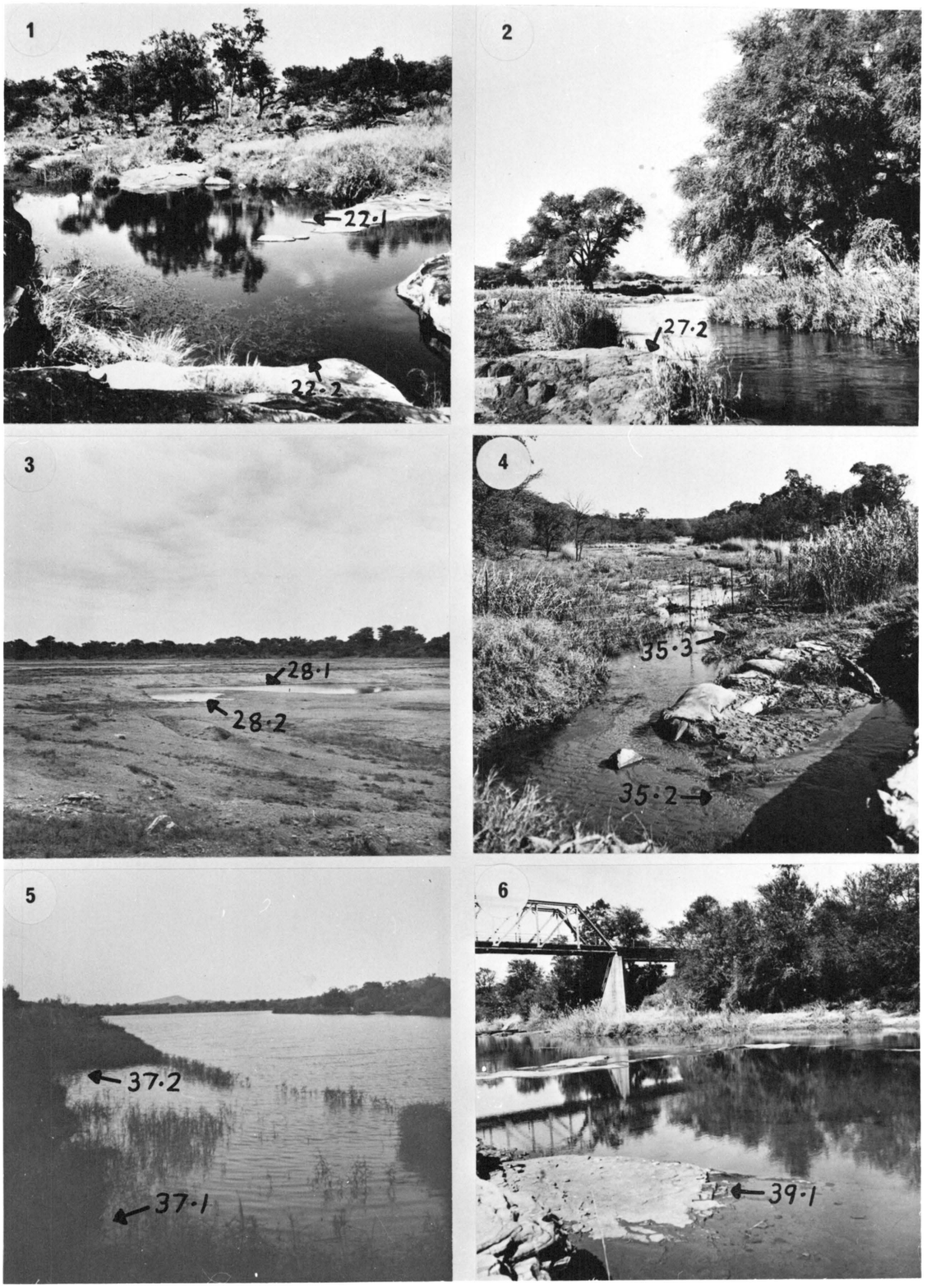

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FIGUUR 6

1. Mogalakwenarivier, Steilloopbrug; weswaarts afgeneem.

2. Palalarivier naby Villa Nora; aan noordekant van nuwe brug.

3. Syferwater afkomstig van fonteintjie aan oostekant van pad tussen Potgietersrus en Steilloopbrug.

4. Spruitjie, 23,3 km van Vivo op Louis Trichardt-pad; noord van pad.

5. Dieselfde as vorige; suid van pad.

6. Dorprivier naby Louis Trichardt; suid van brug.

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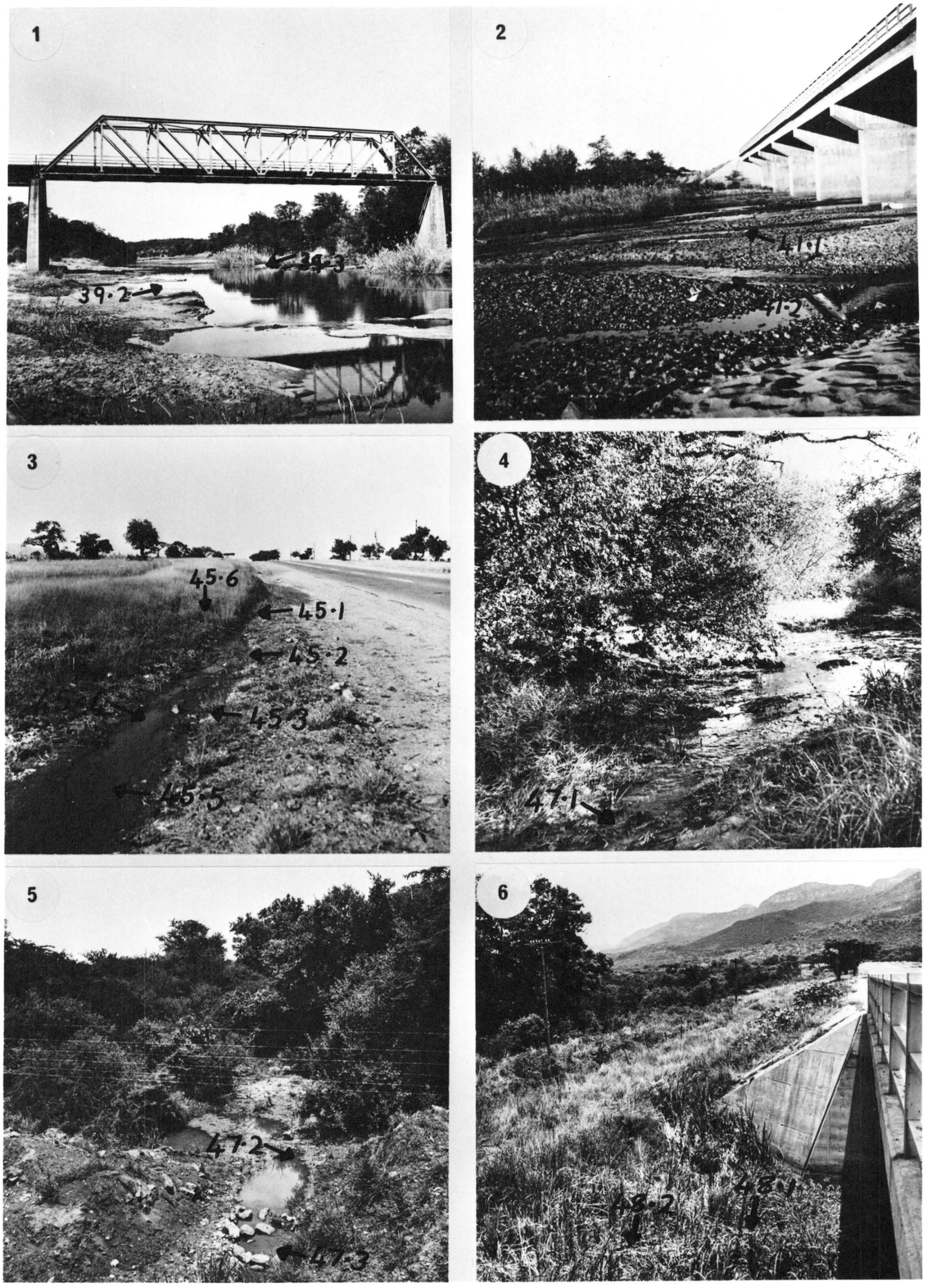

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FIGUUR 7

1. Pannetjie naby Pietersburg; wes van Potgietersrus-Pietersburg-pad.

2. Boloop van sytakkie van Groot-Letabarivier.

3. 25-40 meter stroomaf van monsterpunt 65.1 (Fig. 7: 2).

4. Watervalle in Groot-Letabarivier, ca 2 km stroomaf van Ebenezerdam. Vier watervalle kom voor naamlik A, B, C en D (Februarie 1968).

5. By waterval C; noordelike rivieroewer.

6. By waterval A; noordelike rivieroewer, ca 100 meter stroomop van waterval C.

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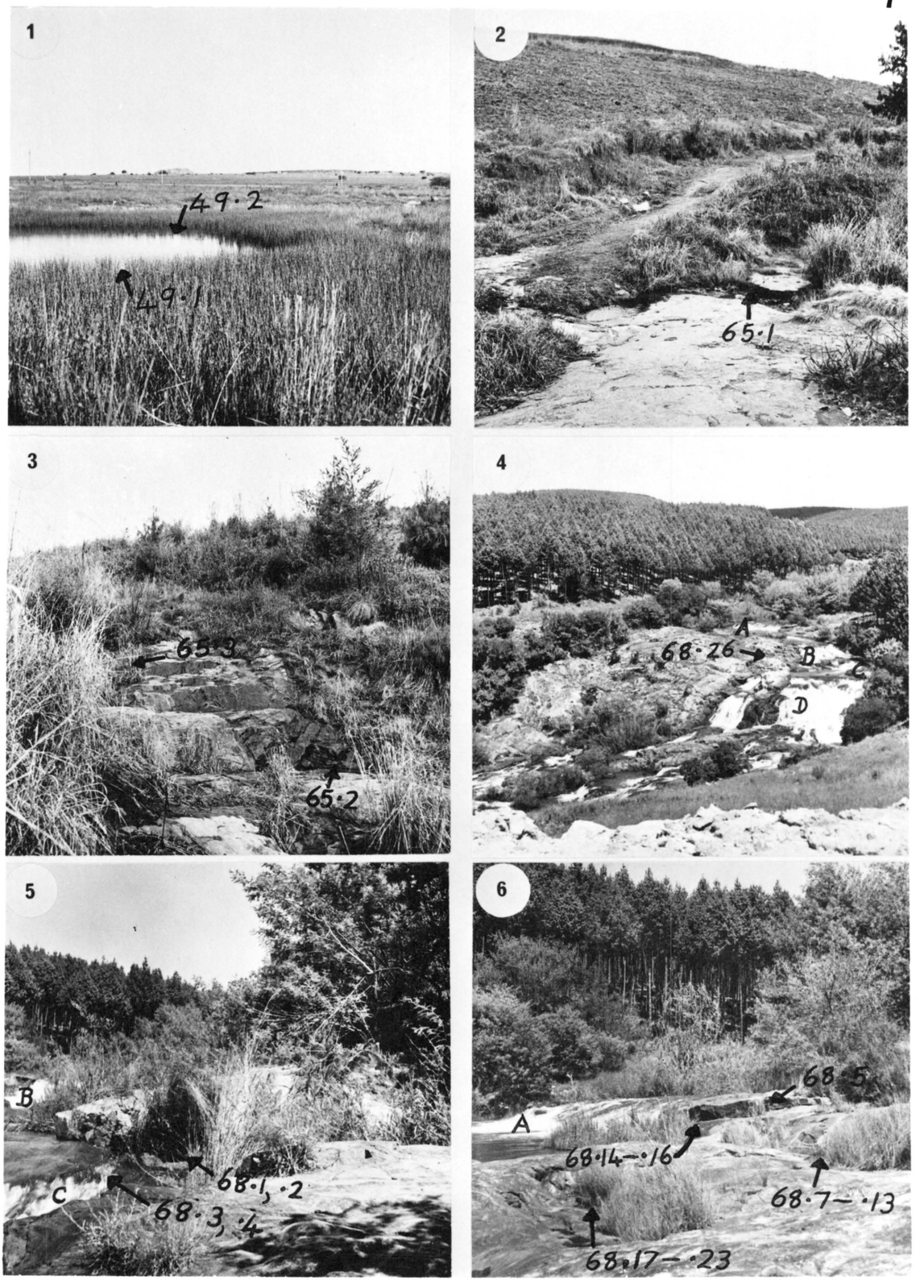

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FIGUUR 8

1. Groot-Letabarivier by boonste waterval (A) (Julie 1970).

2. Groot-Letabarivier by watervalle; watervlak baie laag (Junie 1968).

3, 4. Sytakkie van Groot-Letabarivier; lokaliteit 69.

5. Groot-Letabarivier in Georgevallei; die pyltjies dui aan waar monsterpunte 71.1 en 72.1 geleë is.

6. Boloop van systroompie van Groot-Letabarivier; lokaliteit 73.

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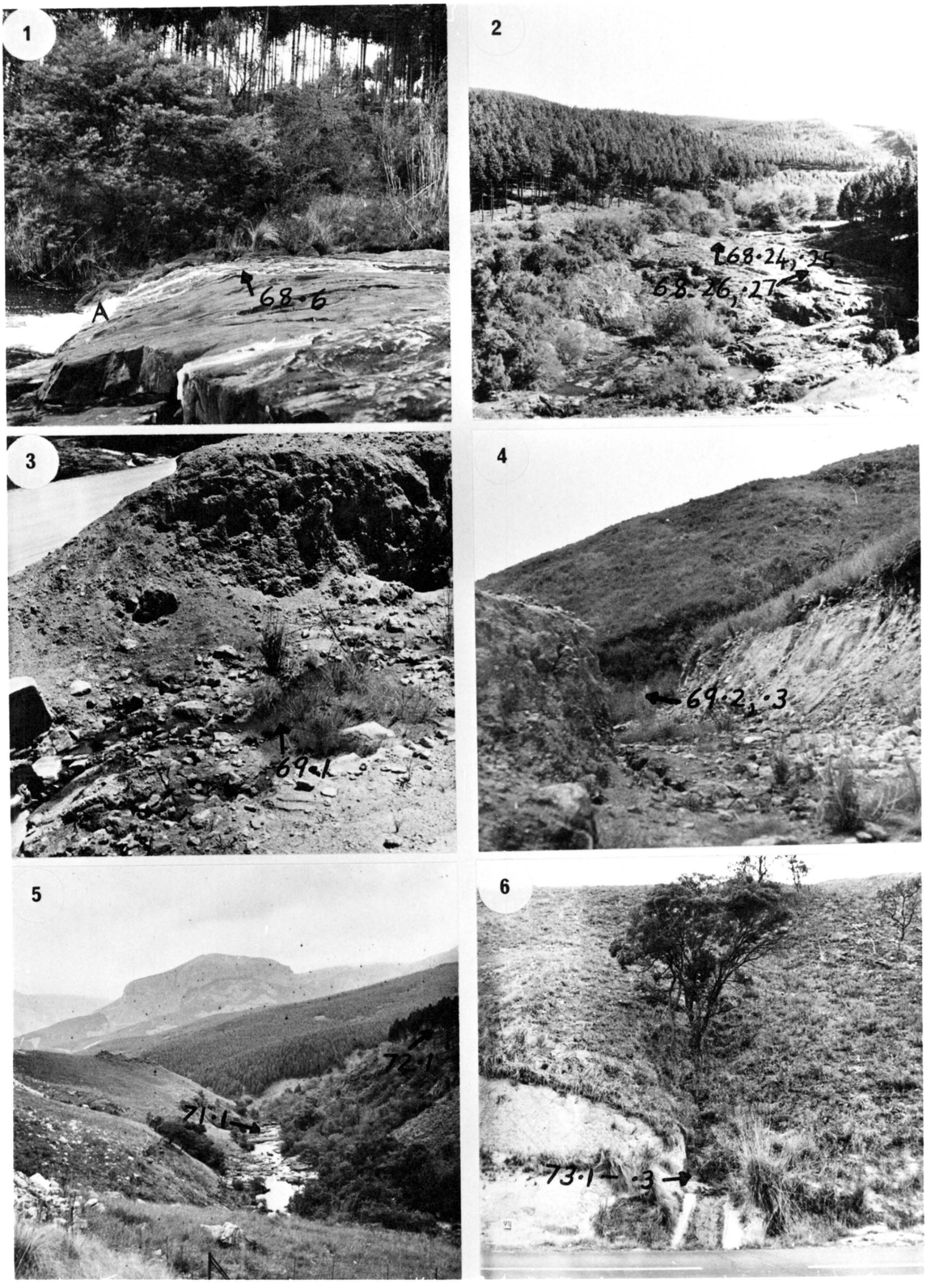

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FIGUUR 9

1. Waterpoel in sytakkie van Groot-Letabarivier; lokaliteit 74.

2. Groot-Letabarivier by laagwaterbruggie op afdraaipad na Bergplaasplantasie.

3. Waterval in Groot-Letabarivier by lokaliteit 75.

4. Albasinidam in Levuvhurivier.

5. Noordoostelike kant van wal van Albasinidam.

6. Spruitjie tussen Levuvhurivier en Klein-Letaba.

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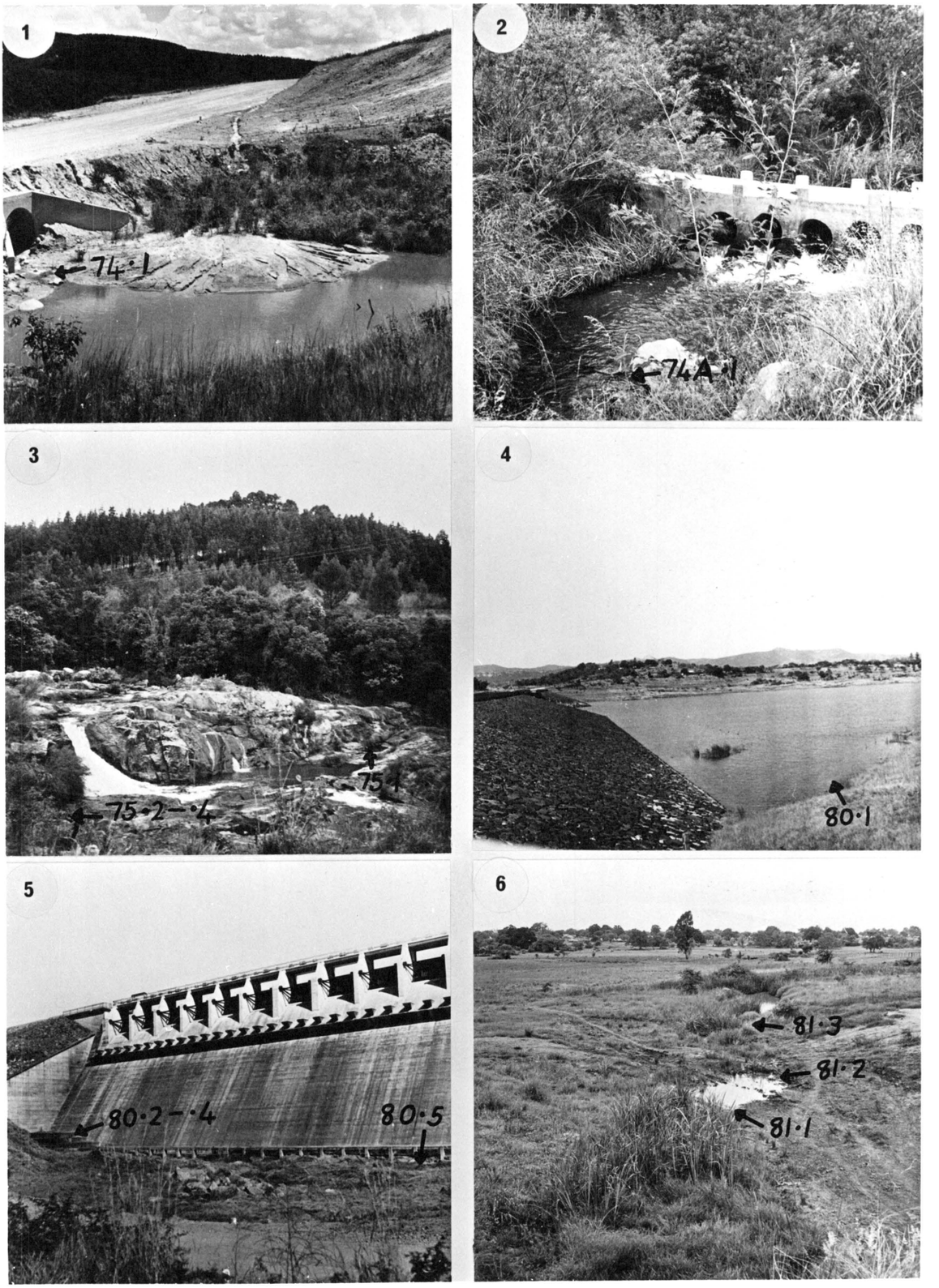

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FIGUUR 10

1. Sytakkie van Politsirivier, naby Debegeniwaterval.

2, 3. Politsirivier by Debegeniwaterval.

4, 5. Waterpoeletjies op granietrotsbank langs Groot-Letabarivier, ca 17,5 km van Tzaneen op pad deur Letabavallei na Georgevallei.

6. Groot-Letabarivier naby Ledzeestasie.

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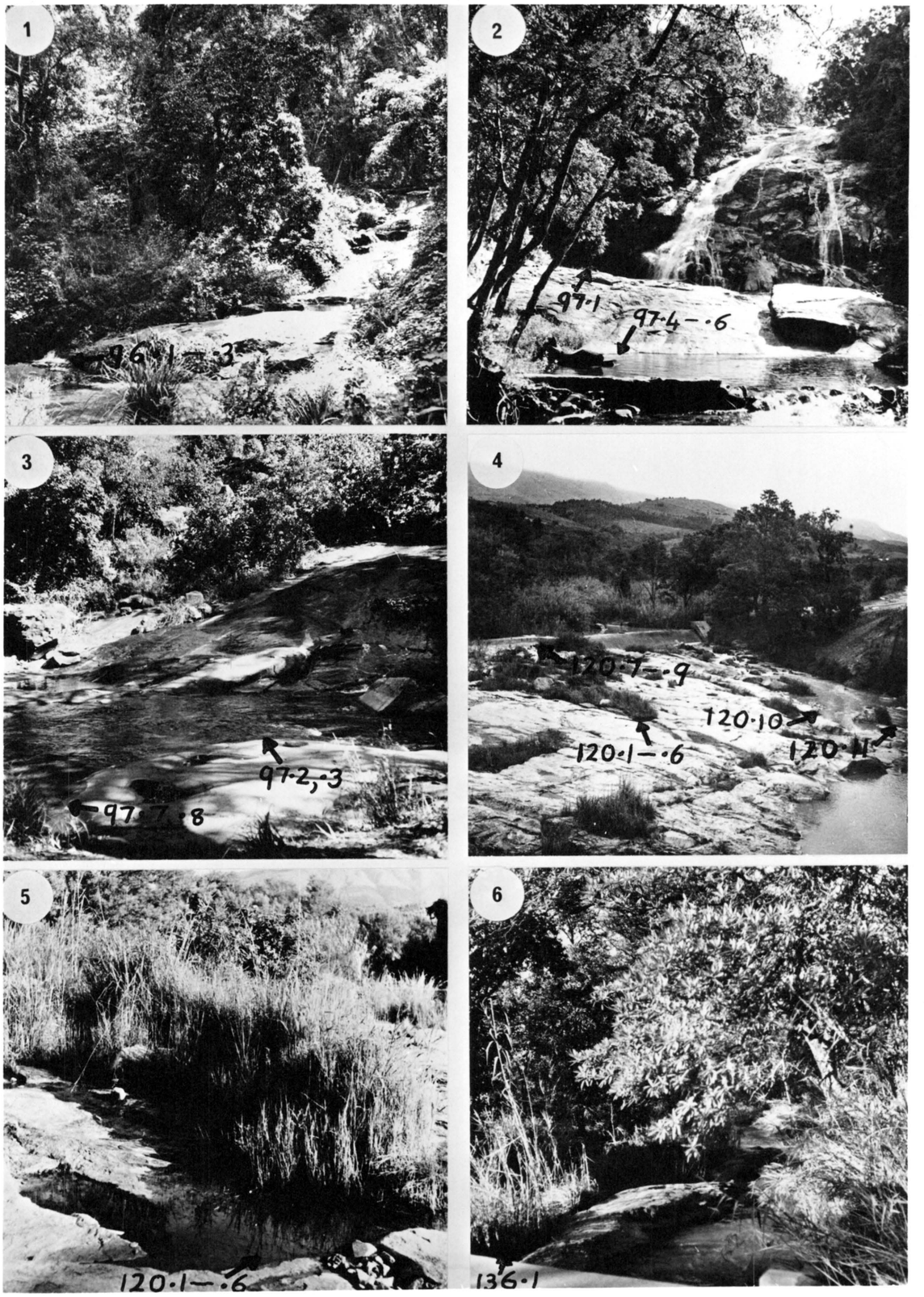

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FIGUUR 11

1. Groot-Letabarivier, ca 3,5 km noordoos van La Cotte; stroomaf van brug.

2. Dieselfde as Figuur 11: 1; stroomop van brug.

3, 4. Shingwidzirivier, Rooirotse; waterpoeletjies op rotsplaat.

5. Waterpoel in droë bedding van Shingwidzirivier, tussen Olifantsuitkyk en Rooirotse.

6. Shingwidzirivier, tussen Shingwidziruskamp en Lebombo= drif.

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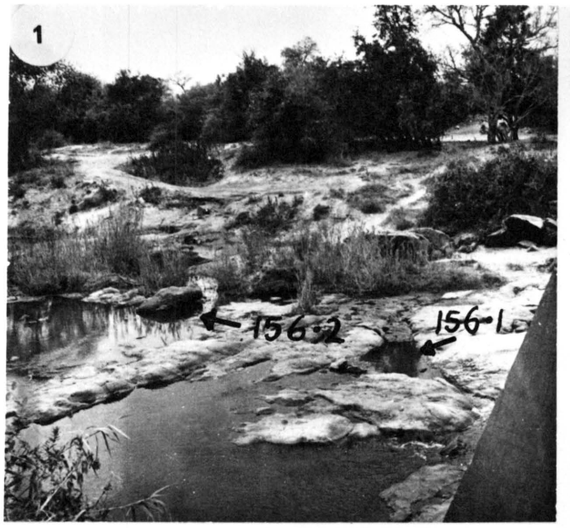

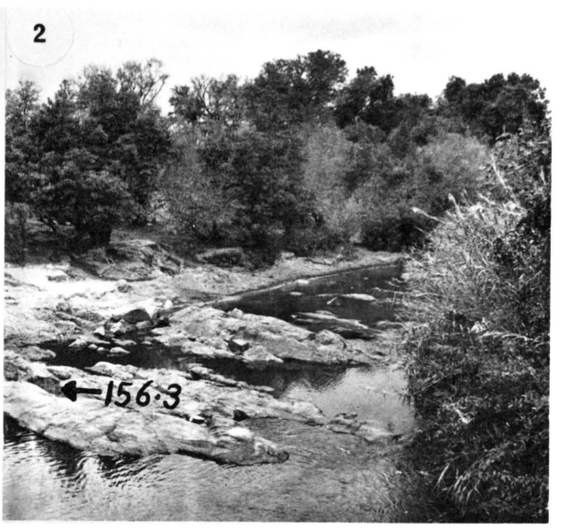

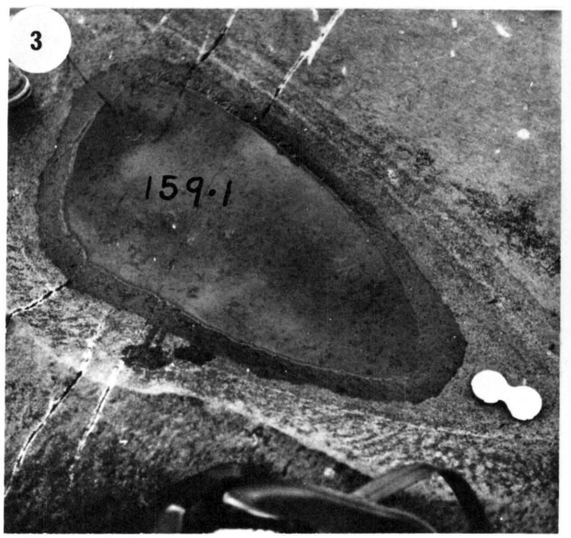

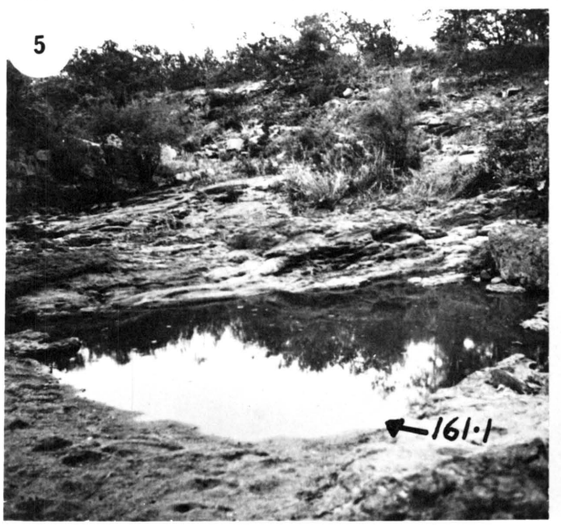

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FIGUUR 12

1. Nkokodzi-windpompdam, Nasionale Krugerwildtuin.

2. Shivulani-windpompdam, tussen Malopene en Letabarus= kamp.

3. Waterpoeletjie in Nwanedzirivier, sytak van Groot-Letabarivier, naby Letabaruskamp.

4. Waterpoel langs oostelike oewer van Maricorivier by Derdepoort.

5. Pannetjie naby Kayaseput.

6. Matlabasrivier, ca 3 km van Matlabas op Bulgerivier-pad.

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FIGUUR 13

1. Mamparivier, op Matlabas-Bulgerivier-pad.

2. Vlei, suid van Poerseloop.

3. Rietspruit, naby Mabula.

4. Dwarsrivier, naby Vaalwater.

5. Sandrivier, op Nylstroom-Marken-pad.

6. Spruitjie op Nylstroom-Settlers-pad.

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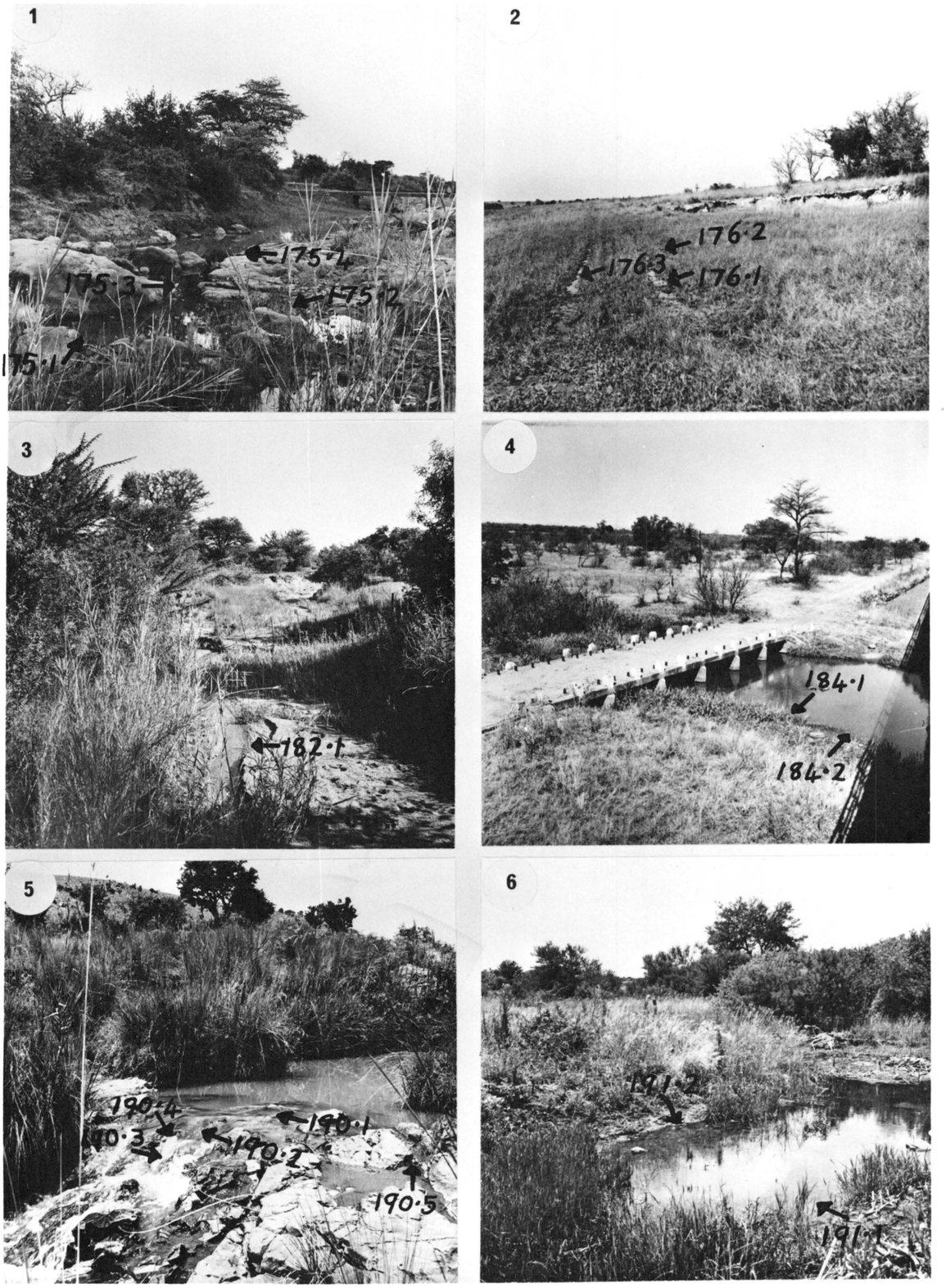

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FIGUUR 14

1 - 6. Nylvleie op die plaas Mosdene, oos van Naboom= spruit.

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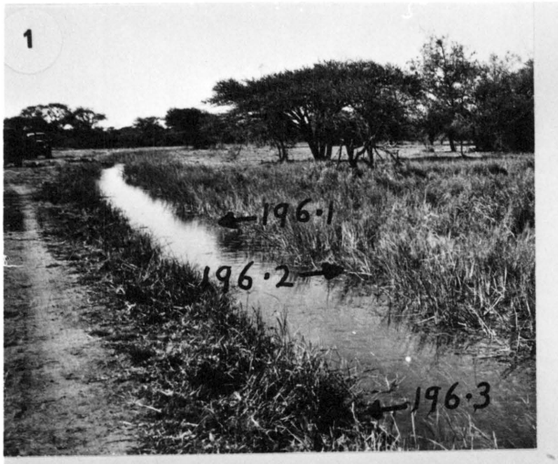

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FIGUUR 15

1. Mosdene; vlei met vinnigvloeiende water.

2. Syferwater langs Chunespoort-Zebediela-pad.

3. Chunesrivier by Chunespoort.

4. Vlei langs Marble Hall-Zebediela-pad.

5. Steelpoortrivier met waterpoel in voorgrond; rivier in vloed.

6. Gronddam tussen Hoedspruit en Mica.

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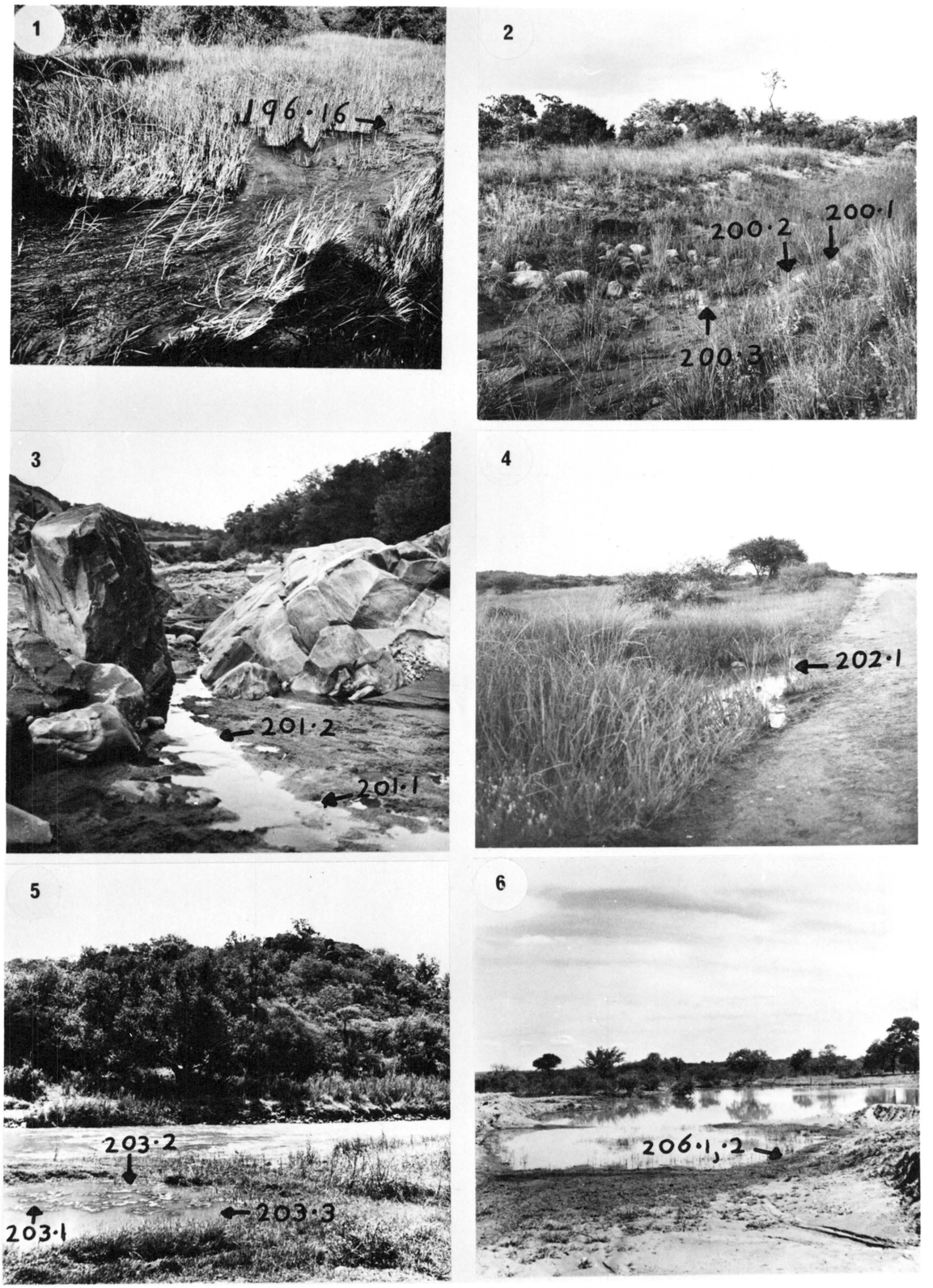

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FIGUUR 16

1. Deurlaatsloot, tussen Burgersfort en Mapete.

2. Waterpoel in droë bedding van die Timbabatirivier naby Kingfisherspruit, Nasionale Krugerwildtuin.

3. Waterpoel direk stroomaf (noordoos) van die Shisaka-sha-ngondodam se wal, Nasionale Krugerwildtuin; streping op water veroorsaak deur rooi- en groenkleurige ver= teenwoordigers van die Euglenophyceae.

4, 5. Waterpoeletjies in bedding van 'n spruit; sytak van Shisaka-sha-ngondorivier.

6. Nwanedzirivier naby Nwanedziruskamp, Nasionale Kruger= wildtuin.

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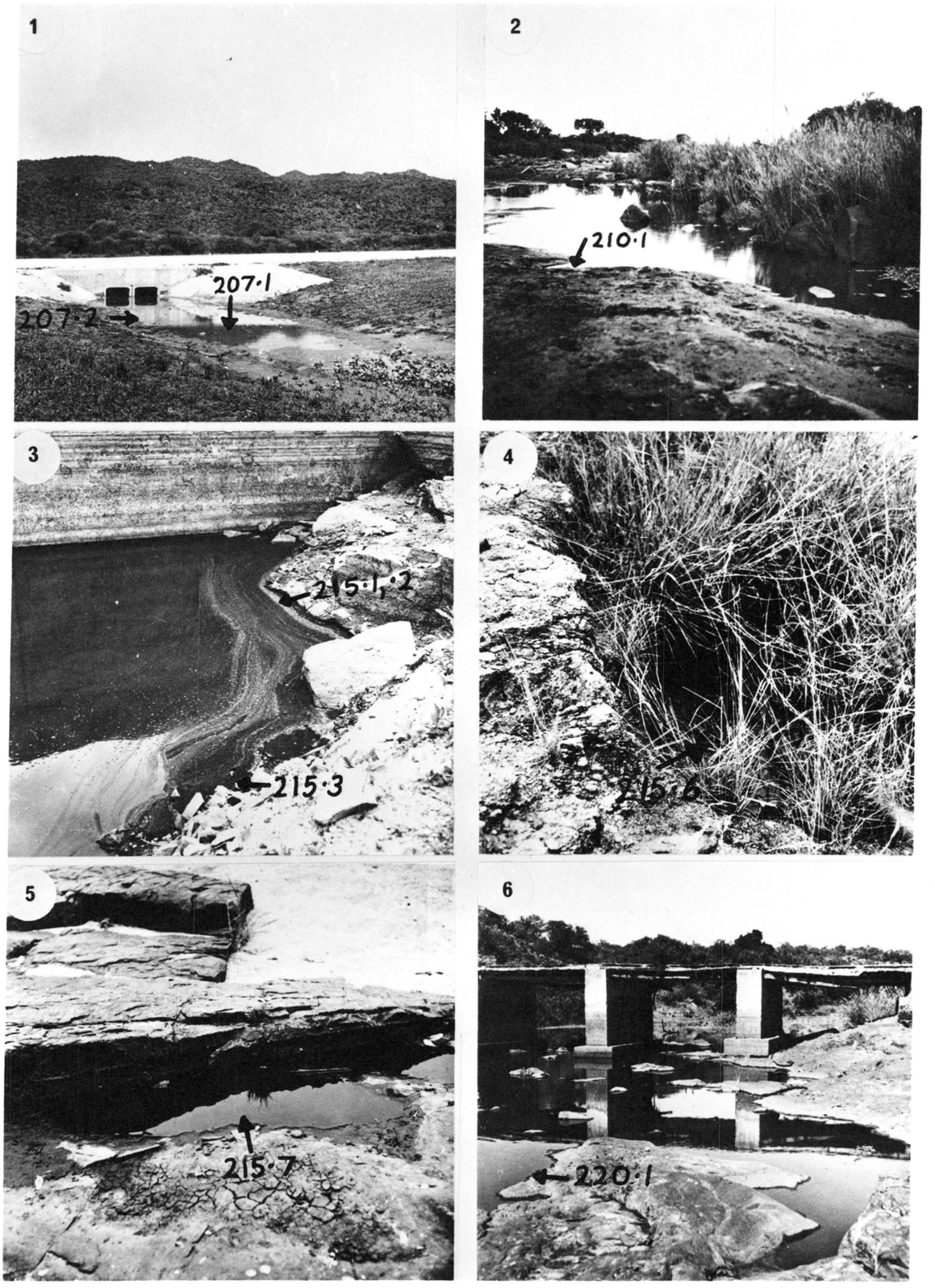

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FIGUUR 17

1. Waterpoeletjie, direk stroomaf (suid) van wal van Nwanedzidam.

2. Mutlumuvirivier, tussen Bosbokrand en Acornhoek.

3. Klein waterpoel, stroomaf (oos) van wal van Nwaswitsont= sodam, Nasionale Krugerwildtuin.

4. Leeupan, tussen Skukuza en Tshokwane, Nasionale Kruger= wildtuin.

5. Pannetjie tussen Zeerust en Gopane.

6. Stinkhoutboomspruit by Ottoshoop.

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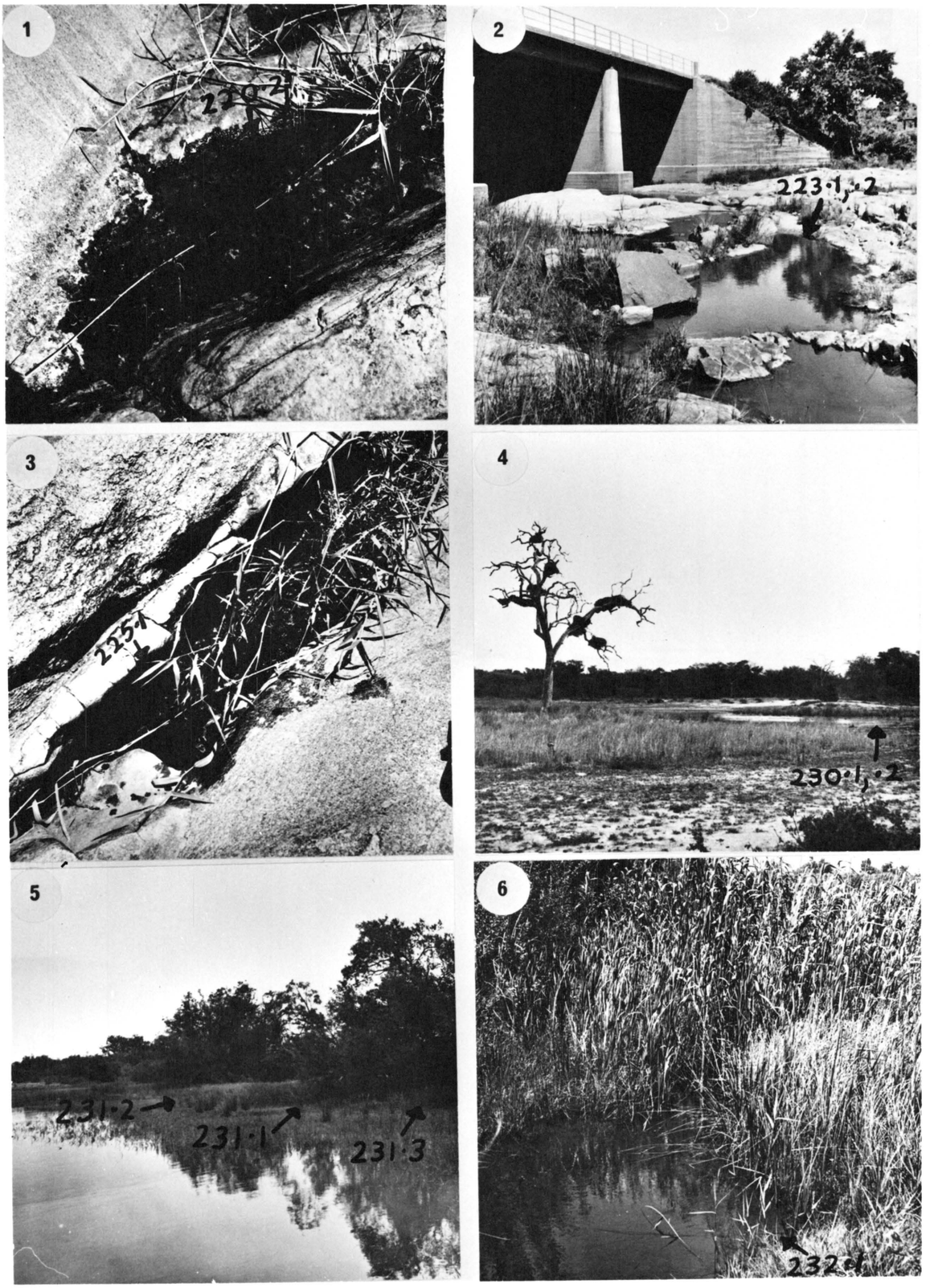

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FIGUUR 18

1. Sandsloot, tussen Zeerust en Nietverdiend.

2. Elandsrivier by Lindleyspoortdam.

3. Stinkhoutboomspruit, noordoos van Ottoshoop-Lichten= burg-pad, ca 11 km van Ottoshoop.

4. Vlei, 11,5 km van Koster op Lichtenburg-pad.

5. Vlei, 25,8 km van Northam op Rustenburg-pad.

6. Vlei, 8 km van Beestekraal op Brits-pad.

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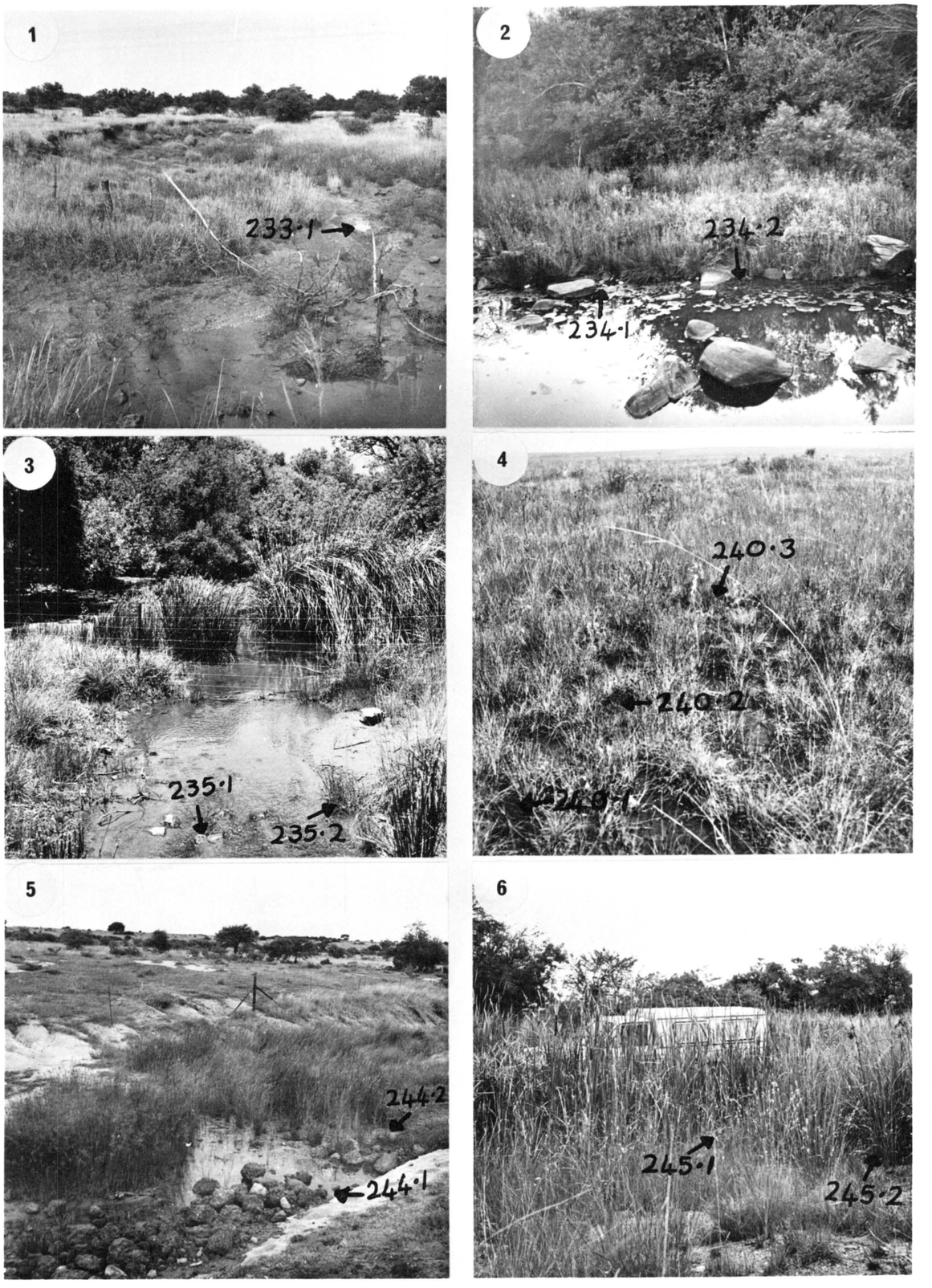

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FIGUUR 19

1. Ghwarriegat, naby Hartbeespoort op Rustenburg-pad.

2. Sytak van Elandsrivier naby Moloto.

3. Spruitjie, ca 1 km suidoos van Roossenekal.

4. Pannetjie aan noordoostelike kant van Carolina-Wonderfontein-pad, ca 23,3 km van Carolina.

5. Spruitjie, 8 km van Lydenburg op Burgersfort-pad.

6. Vlei naby Nelspruit, op Schoemanskloof-pad.

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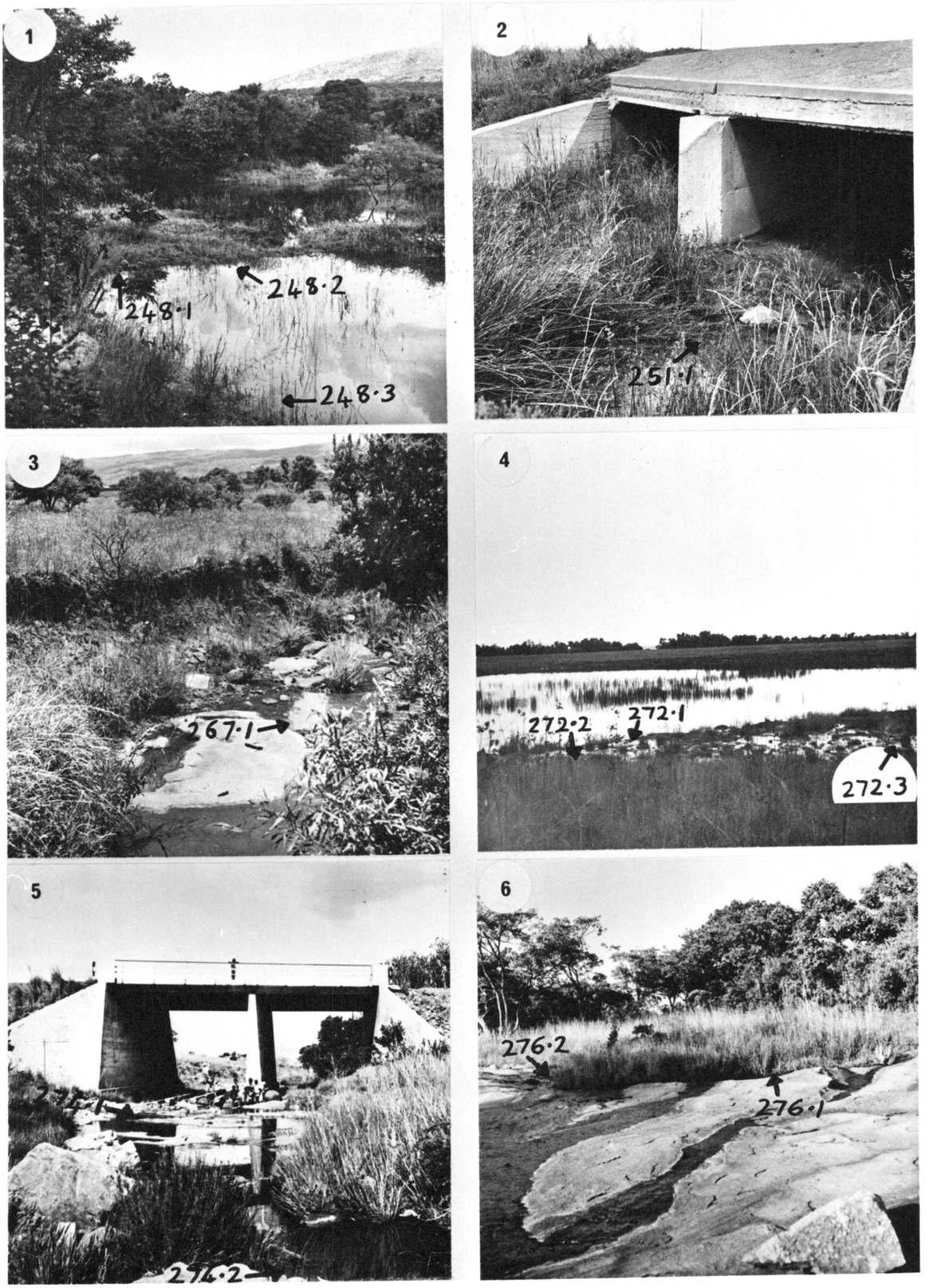

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FIGUUR 20

Kaart wat versamelpunte in Kaalfonteinvlei, ca 34 km van Pretoria op Bronkhorstspruit-pad, toon.

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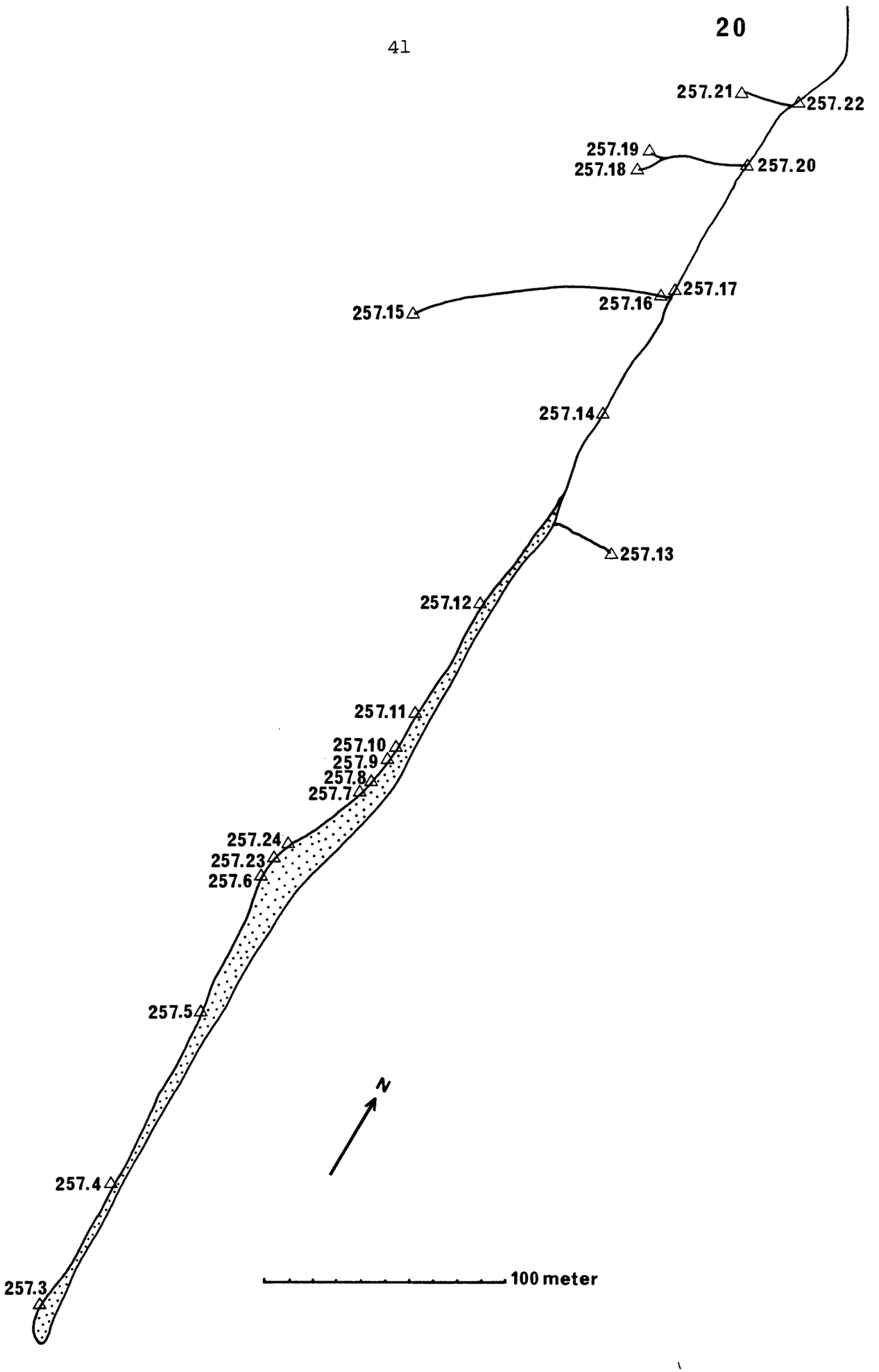

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FIGUUR 21

1. Pannetjie, wes van Carolina-Belfast-pad, ca 20,5 km van Carolina.

2 - 5. Poele op rotsplaat by Faaispruit, naby Pretorius= kop, Nasionale Krugerwildtuin.

6. Bumewatergat, Nasionale Krugerwildtuin.

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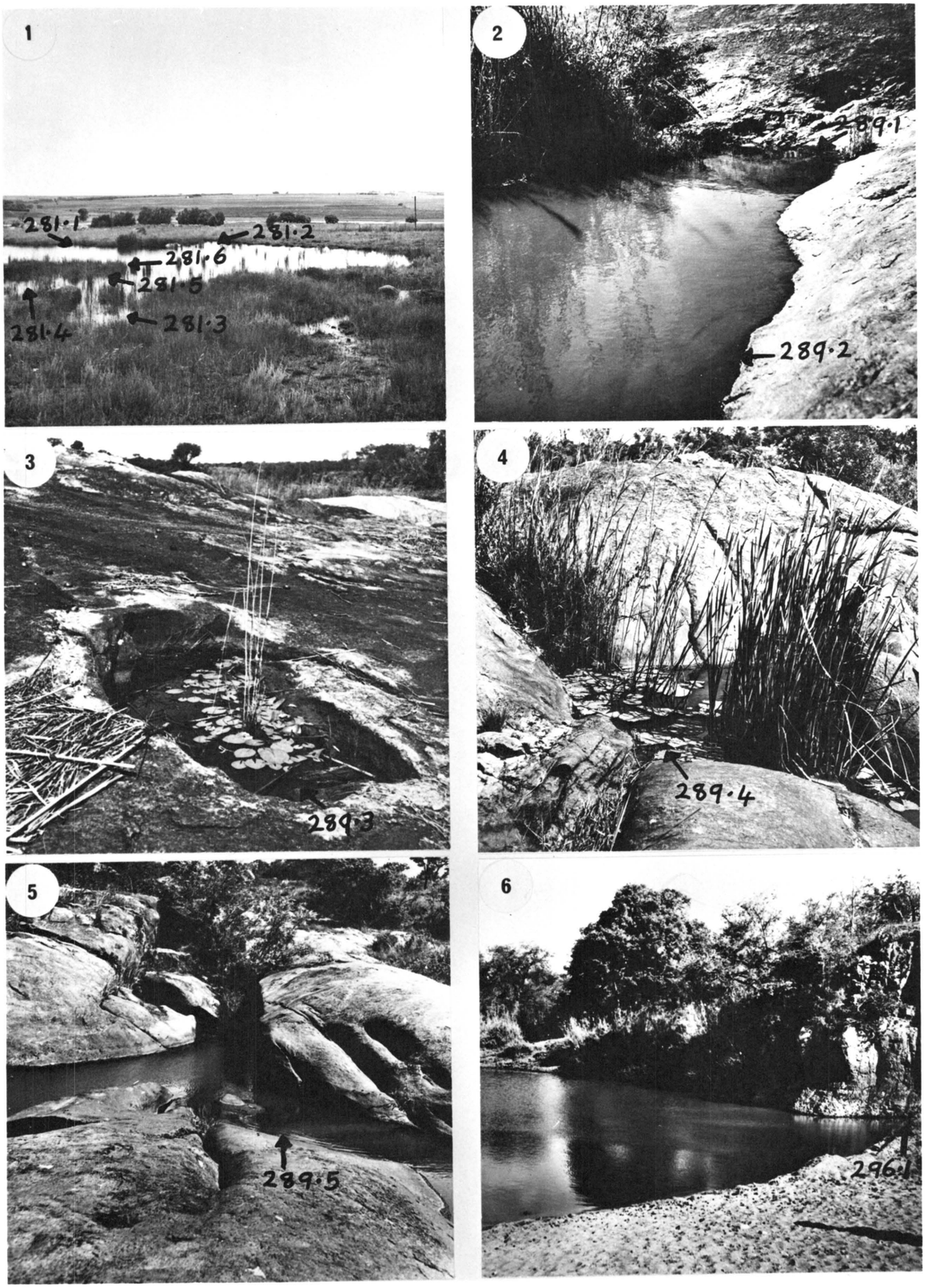

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FIGUUR 22

1. Waterpoel, wes van Bumewatergat, Nasionale Krugerwild=tuin.

2. Sytak van Lomatirivier, tussen Malelane en Kaalrug.

3. Gronddammetjie by 'n soutpan, suid van Delareyville-Geysdorp-pad, 9,4 km van Delareyville.

4. Vlei, 16,8 km van Lichtenburg op Koster-pad.

5. Stroompie tussen Derby en Ventersdorp.

6. Ghwarriegat naby Ottosdal.

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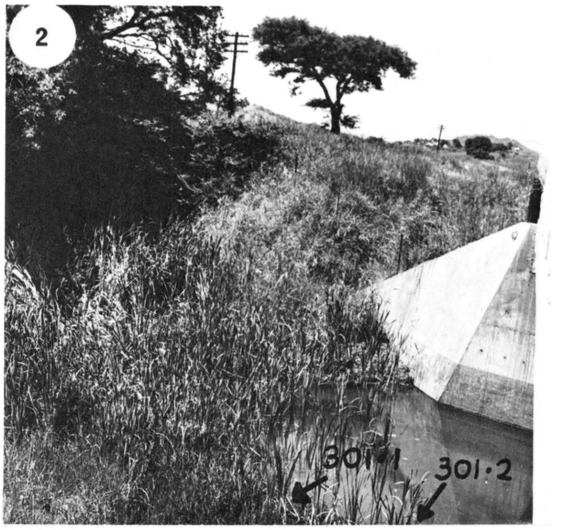

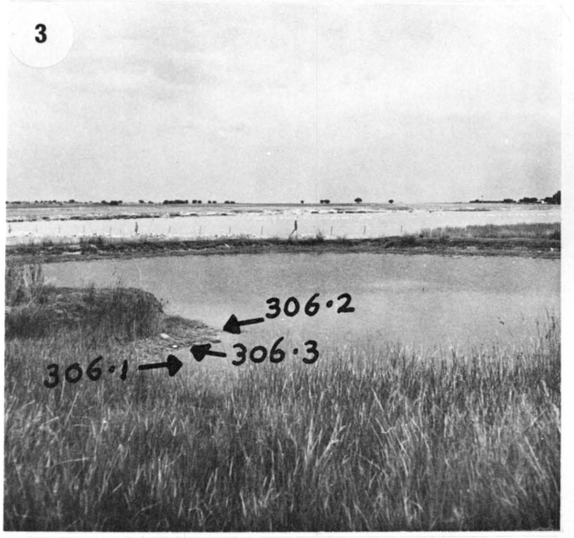

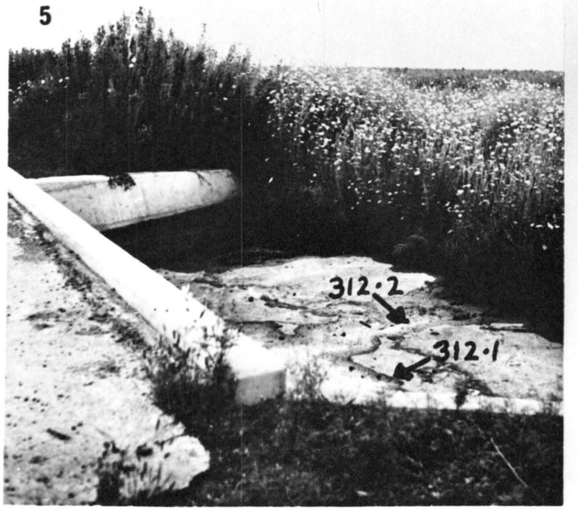

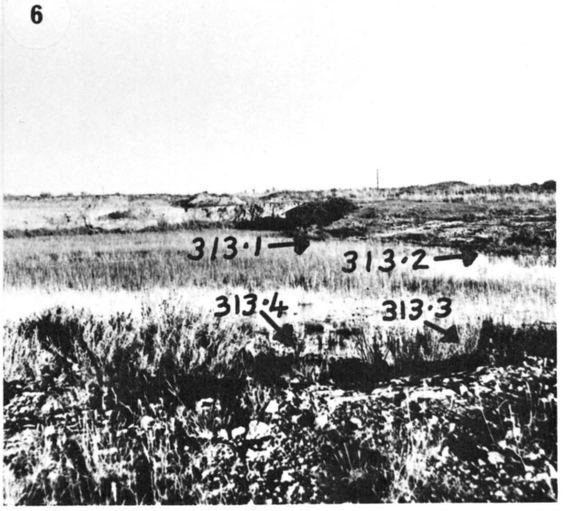

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FIGUUR 23

1. Vlei, oos van Klerksdorp-Ventersdorp-pad, ca 24 km van Klerksdorp.

2. Waterpoeletjie, stroomaf van Klerkskraaldam se wal.

3. Gronddam in Rietspruit by Tarlton.

4. Olifantsvlei by Vanwyksrus.

5. Spruitjie tussen Parys en Fochville.

6. Spruitjie en vlei oos van Nigel.

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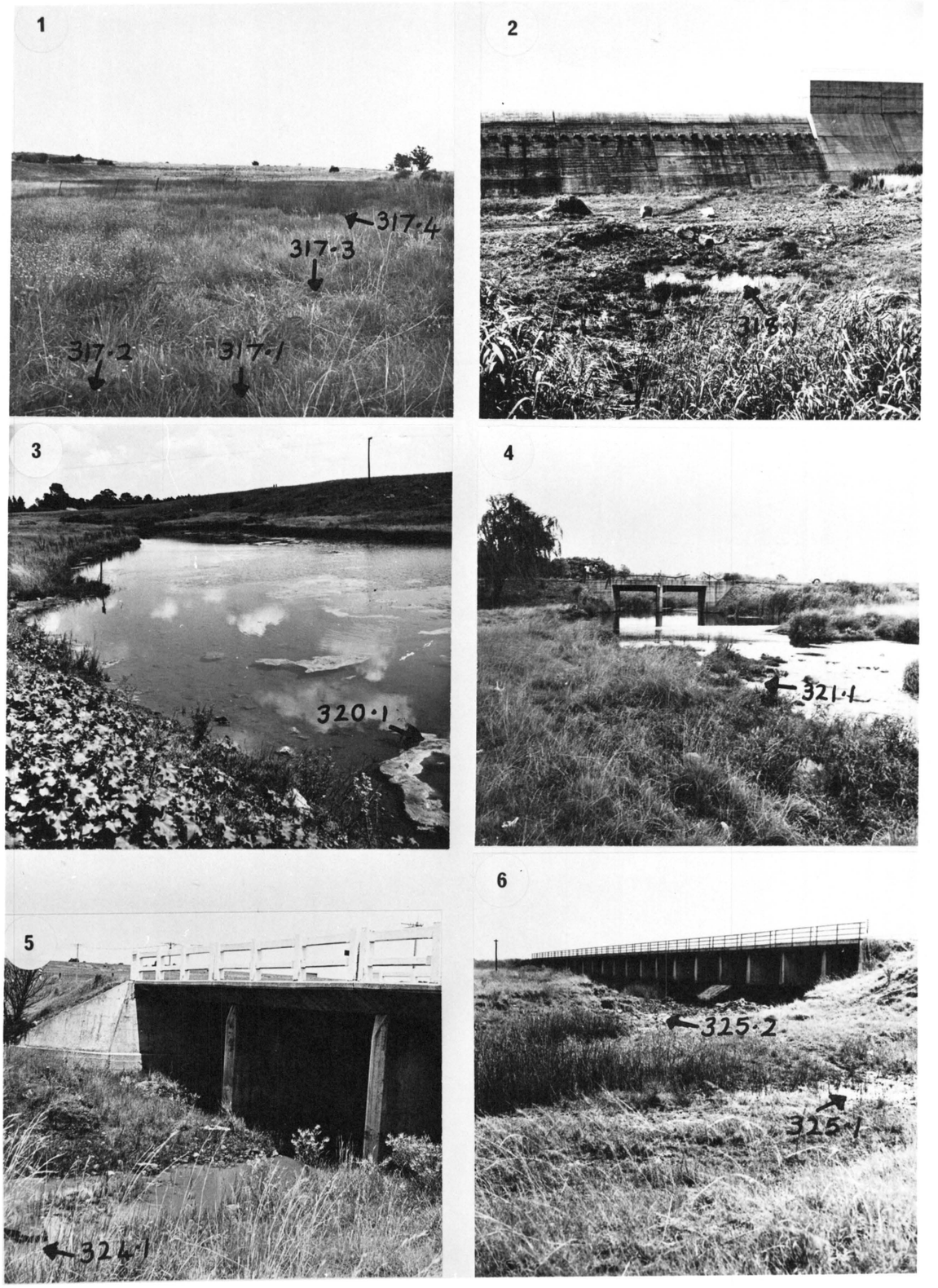

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FIGUUR 24

1. Suikerbosrandrivier, tussen Balfour en Devon.

2. Spruitjie, 6,3 km van Ogies op Bethal-pad.

3. Sytak van Blesbokspruit, tussen Bethal en Standerton.

4. Pannetjie waar Lothair-pad by Ermelo-Chrissiesmeer-pad aansluit.

5. Spruitjie, 16 km van Lothair op Amsterdam-pad.

6. Spruitjie tussen Anysspruit en Breretonpark.

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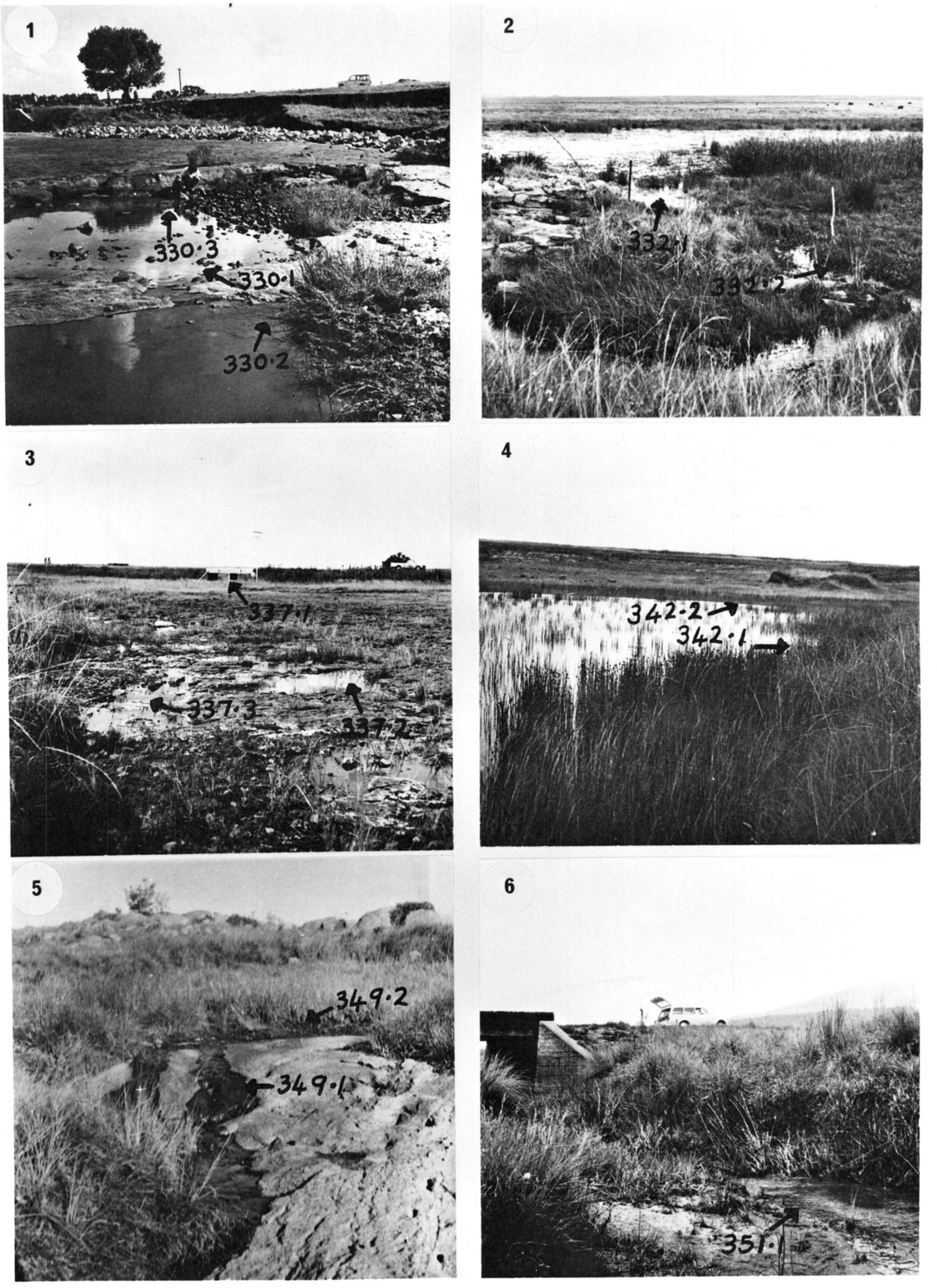

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FIGUUR 25

1. Spruit tussen Piet Retief en Amsterdam; aan westekant van pad.

2. Vlei naby Schweizer-Reneke op Bloemhof-pad; suidwes van pad.

3. Pannetjie tussen Wolmaransstad en Makwassie; wes van pad.

4. Pannetjie tussen Schweizer-Reneke en Christiana; oos van pad.

5. Vaalrivier, Bloemhof; noordwestelike oewer.

6. Pannetjie naby Leeudoringstad, op Wolmaransstad-pad; noordoos van pad.

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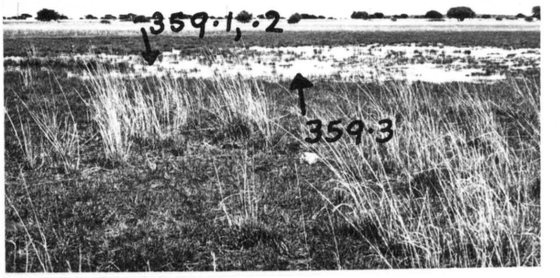

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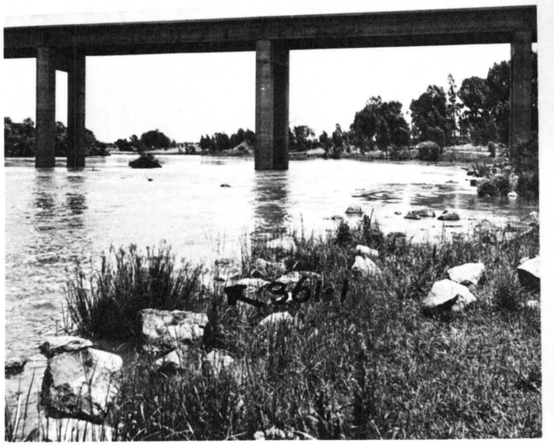

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FIGUUR 26

1. Gronddam tussen Standerton en Perdekop; suidwes van pad.

2. Spruitjie noordoos van Dirkiesdorp op Wakkerstroom-Piet Retief-pad.

3. Fontein tussen Piet Retief en Anysspruit; noord van pad, ca 19 km van Piet Retief.

4. Mozanerivier, op Piet Retief-Pongola-pad.

5. Spekboomrivier, op Piet Retief-Pongola-pad.

6. Swasiesrivier, op Piet Retief-Pongola-pad.

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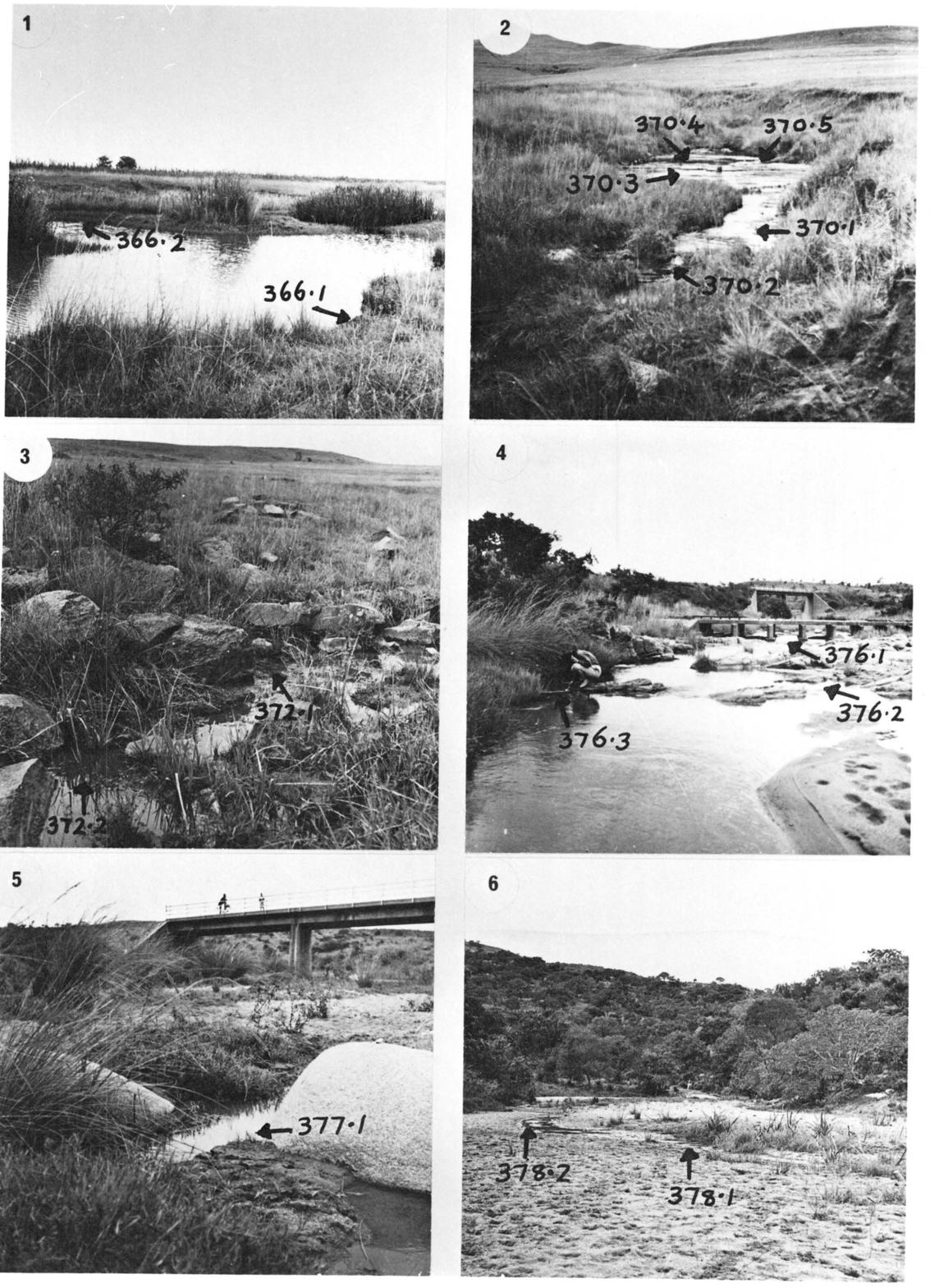

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FIGUUR 27

1. Euglena tripteris (p. 77).

2. Phacus acuminatus var. acuticaudus forma (p. 79).

3, 4. P. angulatus (p. 79).

5, 6. P. bicalyx forma (p. 80).

7 - 9. P. caudatus (p. 80).

10. P. hamatus (p. 82).

11 - 14. P. longicaudus var. longicaudus (p. 83).

15. P. longicaudus var. attenuatus (p. 84).

16. P. orbicularis (p. 84).

17. P. pseudonordstedtii var. pseudonordstedtii (p. 86).

18 - 20. P. swirenkoi (p. 88).

21, 22. P. tortus (p. 88).

23. Strombomonas clavata var. transvaalensis (p. 90).

24, 25. Trachelomonas abrupta var. arcuata f. arcuata (p. 92).

26. T. curta (p. 99).

27. T. dybowskii (p. 100).

28 - 30. T. helvetica (p. 102).

31. T. hispida var. punctata (p. 105).

32. T. lucidula (p. 107).

33. T. oblonga var. oblonga (p. 107).

34. T. scabra var. scabra (p. 109).

35. T. volvocina (p. 112).

36. T. volzii var. cylindracea (p. 113).

37, 38. T. volzii var. cylindracea forma (p. 114).

39. Trachelomonas sp. A (p. 114).

40. Trachelomonas sp. C (p. 115).

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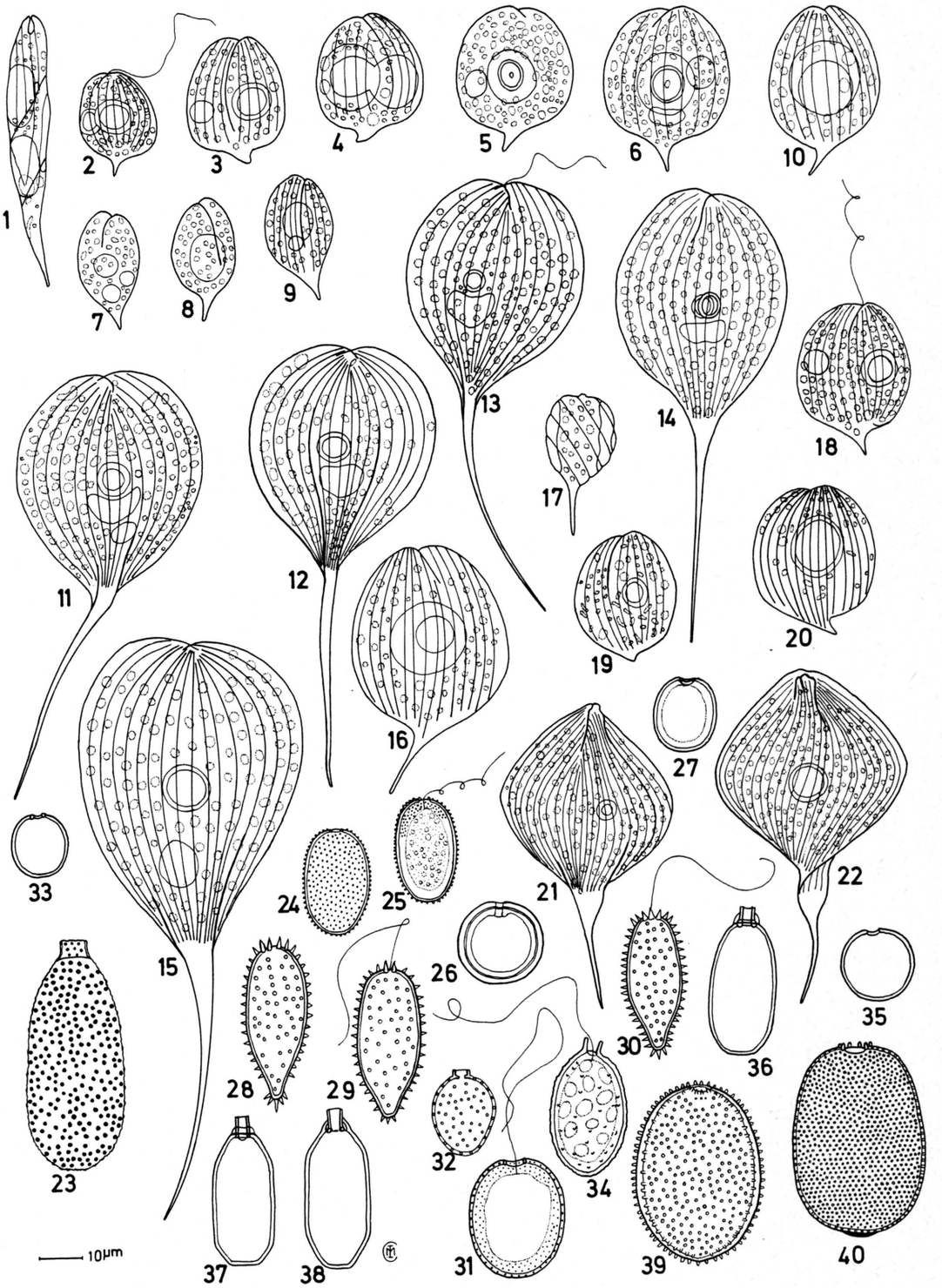

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FIGUUR 28

Fotomikrograwe van

1. *Euglena acus* (p. 73).

2 - 4. *E. allorgei* (p. 74; toon staafvormige paramilumkorrels.

5 - 9. *E. geniculata* (p. 74); variasie in selvorm as gevolg van elastisiteit van die periplas.

10. *E. proxima* (p. 75).

11 - 14. *E. spirogyra* var. *spirogyra* (p. 76); toon staafvormige paramilumkorrels en skulptuur van die periplas.

15, 16. *E. spirogyra* var. *fusiformis* forma (p. 77); verskillende fokusinstellings van 'n sel om die skulptuur van die periplas en die paramilumkorrels te toon.

17. *E. tripteris* (p. 77).

18. *Lepocinclis ovum* var. *ovum* (p. 78).

19 - 21. *L. ovum* var. *globula* (p. 78); variasie in selvorm en -grootte.

1 - 4, 11 - 16: skaal A

5 - 10, 17 : skaal B

18 - 21 : skaal C

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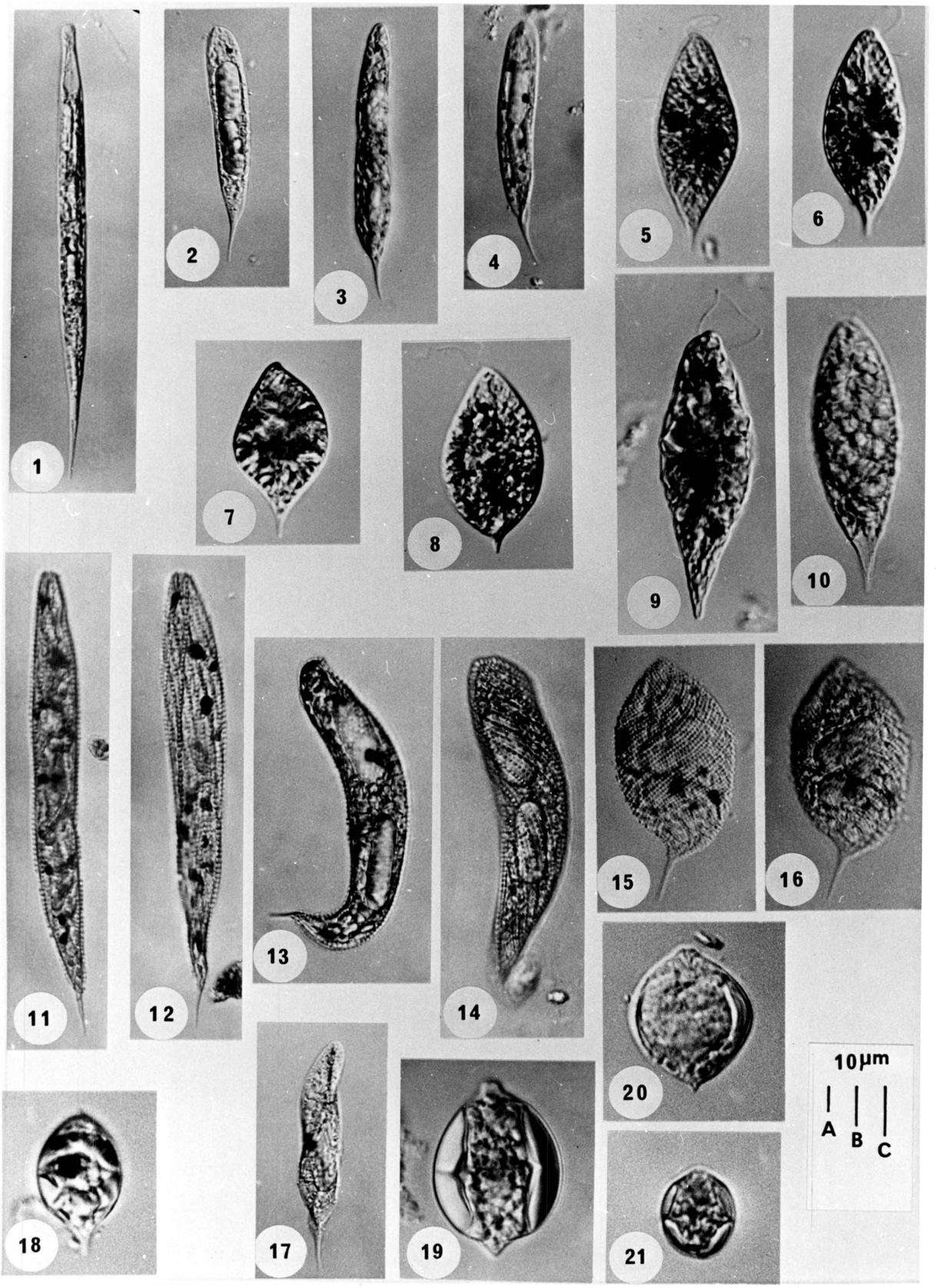

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FIGUUR 29

Fotomikrograwe van

1. *Euglena subehrenbergii* (p. 77).

2. *Phacus acuminatus* var. *acuticaudus* forma (p. 79).

3 - 8. *P. angulatus* (p. 79); variasie in selvorm en uitbeelding van die stekel.

9. *P. bicalyx* forma (p. 80).

10. *P. caudatus* (p. 80).

11 - 14. *P. curvicaudus* (p. 81); variasie in selvorm.

15. *P. denisii* (p. 81).

16. *P. hamatus* (p. 82).

17, 18. *P. horridus* (p. 82); verskillende fokusinstellings van 'n sel om die selvorm en die skulptuur van die periplas te toon.

19, 20. *P. platalea* (p. 85); verskillende fokusinstellings van 'n sel om die selvorm en die paramilumkorrel te toon.

21 - 23. *P. obolus* (p. 84); variasie in selvorm.

1 : skaal A

2 - 23 : skaal B

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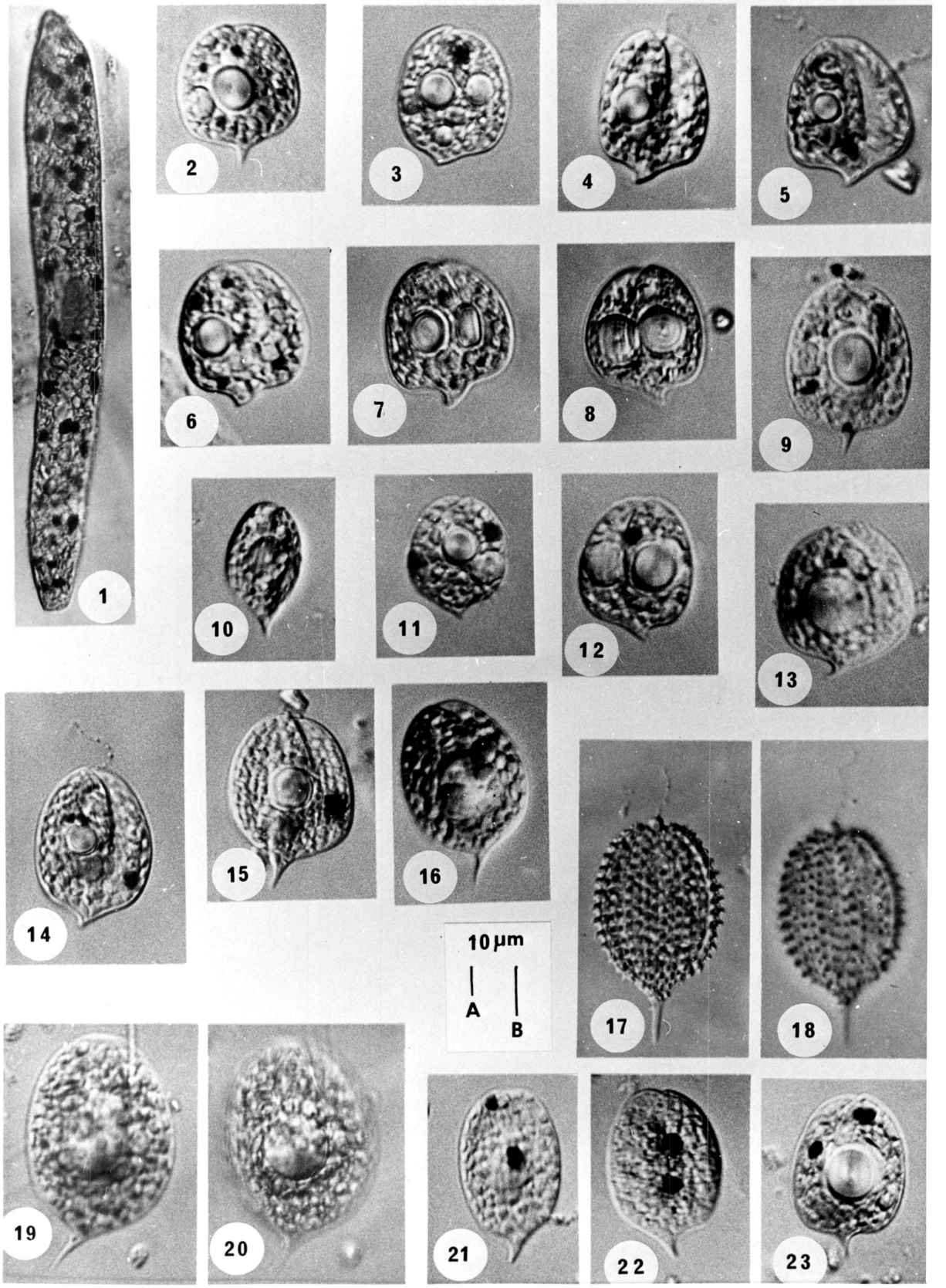

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FIGUUR 30

Fotomikrograwe van

1 - 5. Phacus longicaudus var. longicaudus, variasie in selvorm (p. 83). 3, 4. Verskillende fokusinstellings van 'n sel om die streping van die periplas te toon.

6, 7. P. longicaudus var. attenuatus (p. 84).

8, 9. P. orbicularis (p. 84).

10. P. swirenkoi (p. 88).

11. P. pseudonordstedtii var. pseudonordstedtii (p. 86).

1 - 7 : skaal A

8 - 11 : skaal B

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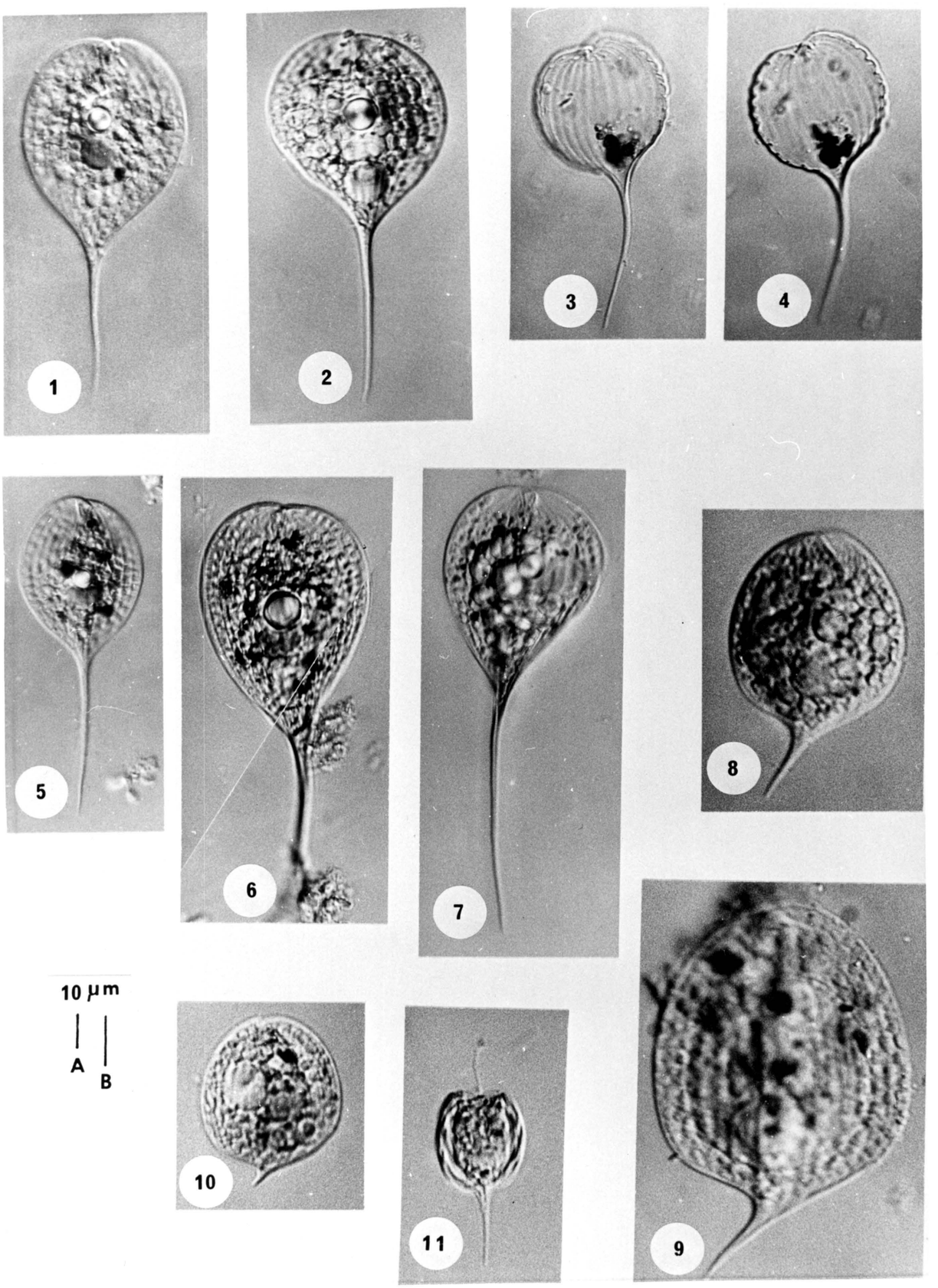

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FIGUUR 31

Fotomikrografe van

1 - 4. Phacus pleuronectes (p. 85); variasie in selvorm. 2, 3. Verskillende fokusinstellings van 'n sel om die twee paramilumkorrels te toon.

5 - 9. P. suecicus (p. 87); variasie in selvorm. 7 - 9. Verskillende fokusinstellings van 'n sel om die skulptuur van die periplas te toon.

10 - 14. P. tortus (p. 88).

15 - 17. P. unguis (p. 89). 16, 17. Verskillende fokusinstellings van 'n sel om die selvorm en streping van die periplas te toon.

1 - 9, 15 - 17 : skaal A

10 - 14 : skaal B

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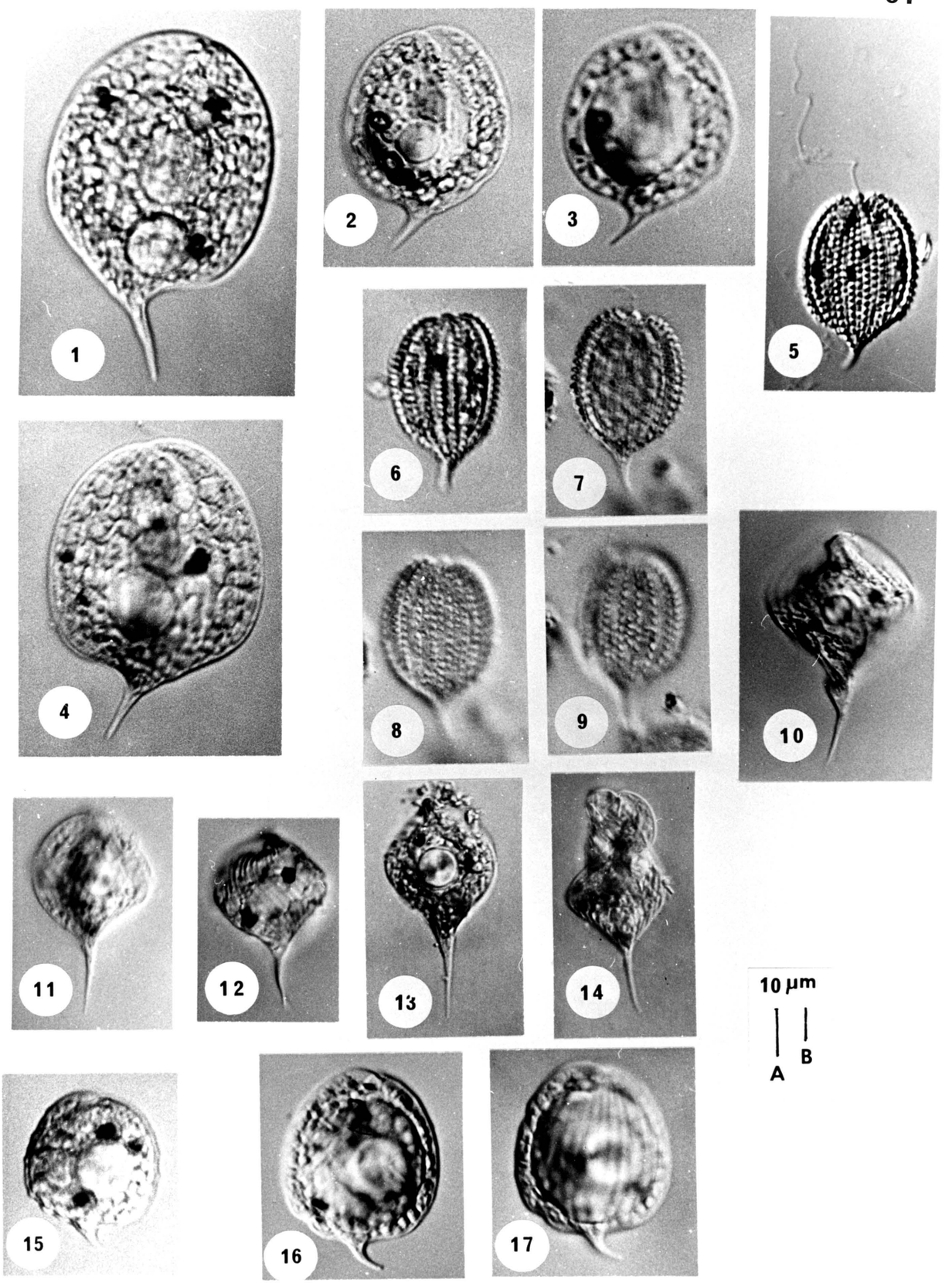

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FIGUUR 32

1. Fotomikrograaf van Euglena sanguinea-selle (p. 75).

Aftaselektronmikrograwe van

2, 3. Euglena spirogyra var. spirogyra (p. 76); verskillende vergrotings van 'n sel om die selvorm en skulptuur van die periplas te toon.

4. Phacus swirenkoi (p. 88); streping van periplas.

5, 6. P. horridus (p. 82); streping en skulptuur van periplas.

1	:	skaal = 50 µm
2, 4 - 6	:	skaal = 10 µm
3	:	skaal = 1 µm

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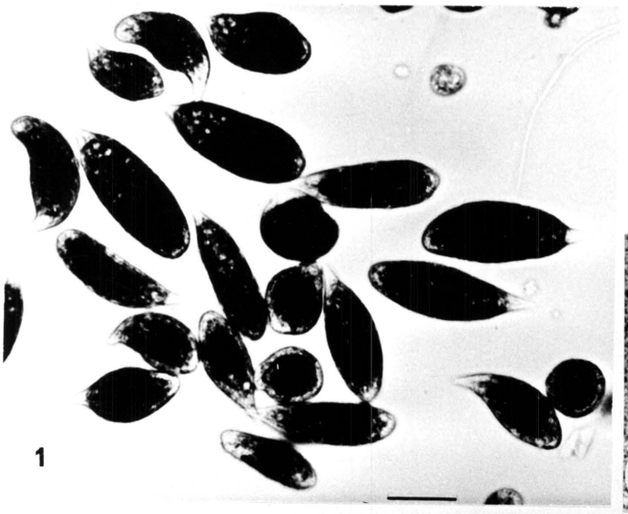
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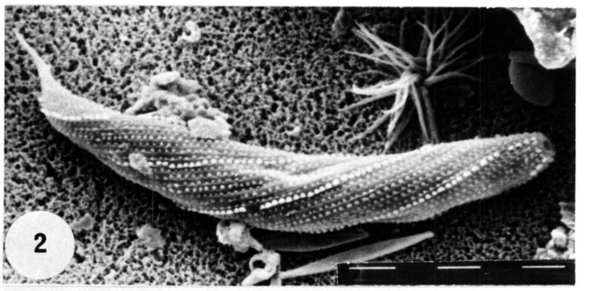
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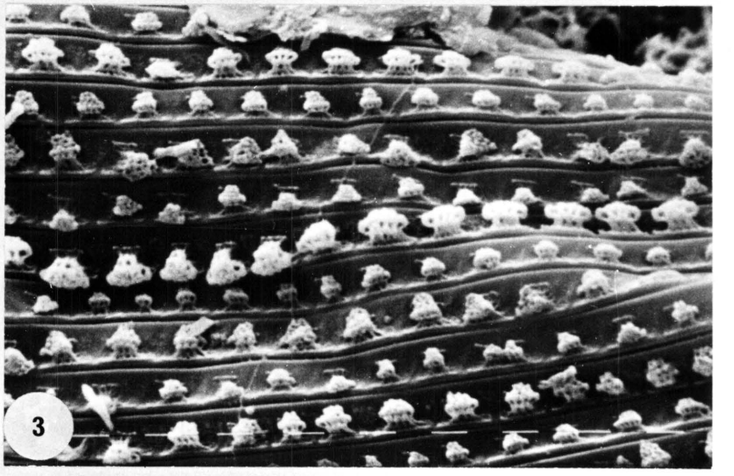
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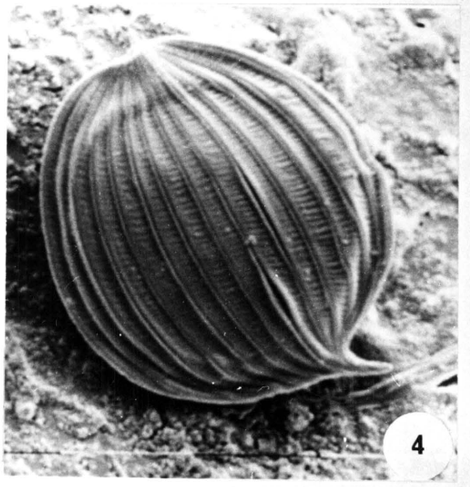
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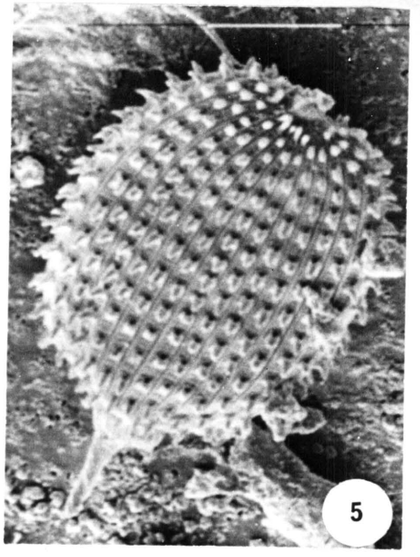
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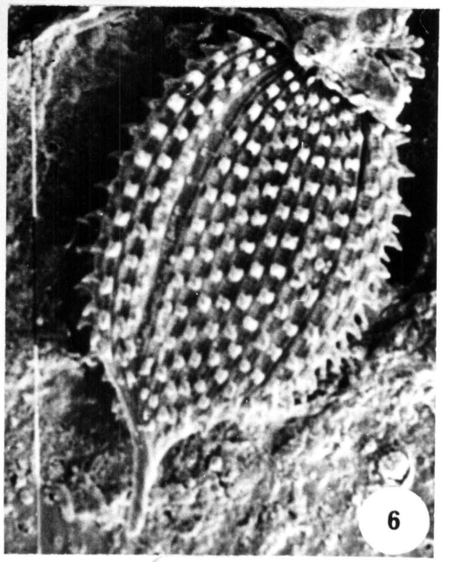
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FIGUUR 33

Fotomikrograwe van

1 - 5. Strombomonas transvaalensis (p. 90).
2 - 5. Verskillende fokusinstellings van twee lorikas om die vorm en skulptuur daarvan te toon.

6 - 8. S. fluviatilis (p. 90); variasie in lorika= vorm.

9 - 14. Trachelomonas abrupta var. abrupta (p. 91).
11 - 14. Verskillende fokusinstellings van twee lorikas om die vorm en skulptuur te toon.

15. T. abrupta var. arcuata f. arcuata (p. 92).

16 - 18. T. abrupta var. arcuata f. angustata (p. 93); verskillende fokusinstellings van 'n lorika om die vorm en skulptuur te toon.

19. T. abrupta var. minor (p. 93).

20 - 22. T. abrupta var. obesa (p. 93).
21, 22. Verskillende fokusinstellings om die vorm en skulptuur van die lorika te toon.

23. T. acanthostoma (p. 94).

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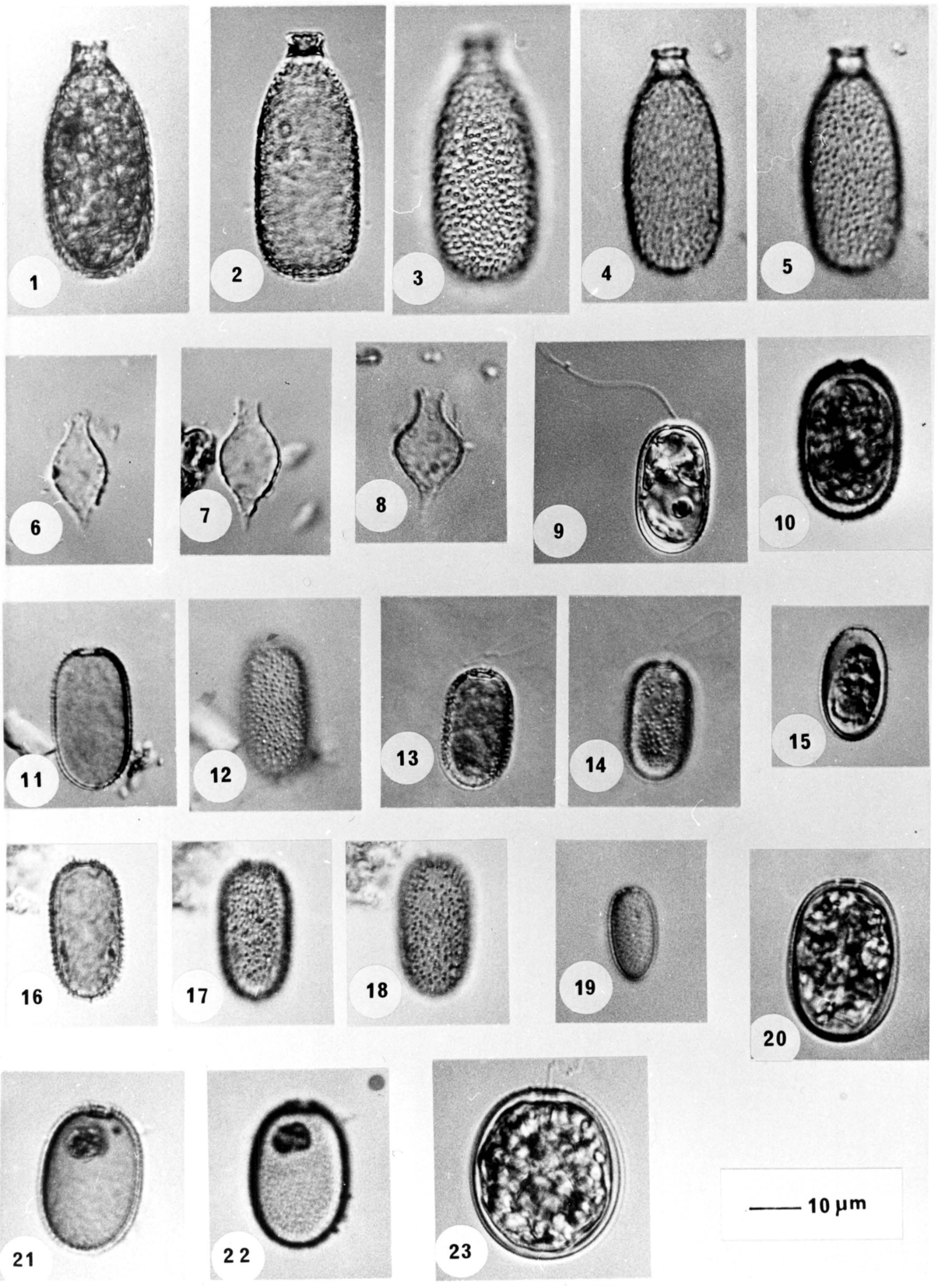

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FIGUUR 34

Fotomikrograwe van

1 - 3. Trachelomonas armata var. armata f. inevoluta (p. 95). 1, 3. Variasie in lorikavorm. 1, 2. Verskillende fokusinstellings van 'n lorika om die vorm daarvan en die gestippelde geaardheid van die lorikawand te toon.

4 - 6. T. armata var. longispina forma (p. 95); vorm en skulptuur van lorika.

7 - 10. T. armata var. steinii f. steinii (p. 96); variasie in lorikavorm en stekellengte.

11 - 13. T. armata var. steinii f. punctata (p. 97); verskillende fokusinstellings om vorm, stekels en gestippelde geaardheid van lorika te toon.

14 - 16. T. australica var. australica (p. 97). 15, 16. Verskillende fokusinstellings om die vorm en skulptuur van die lorika te toon. 15, 17. Variasie in stekellengte.

17, 18. T. bacillifera var. minima? (p. 98); verskillende fokusinstellings om die vorm en skulptuur van die lorika te toon.

19. T. curta (p. 99).

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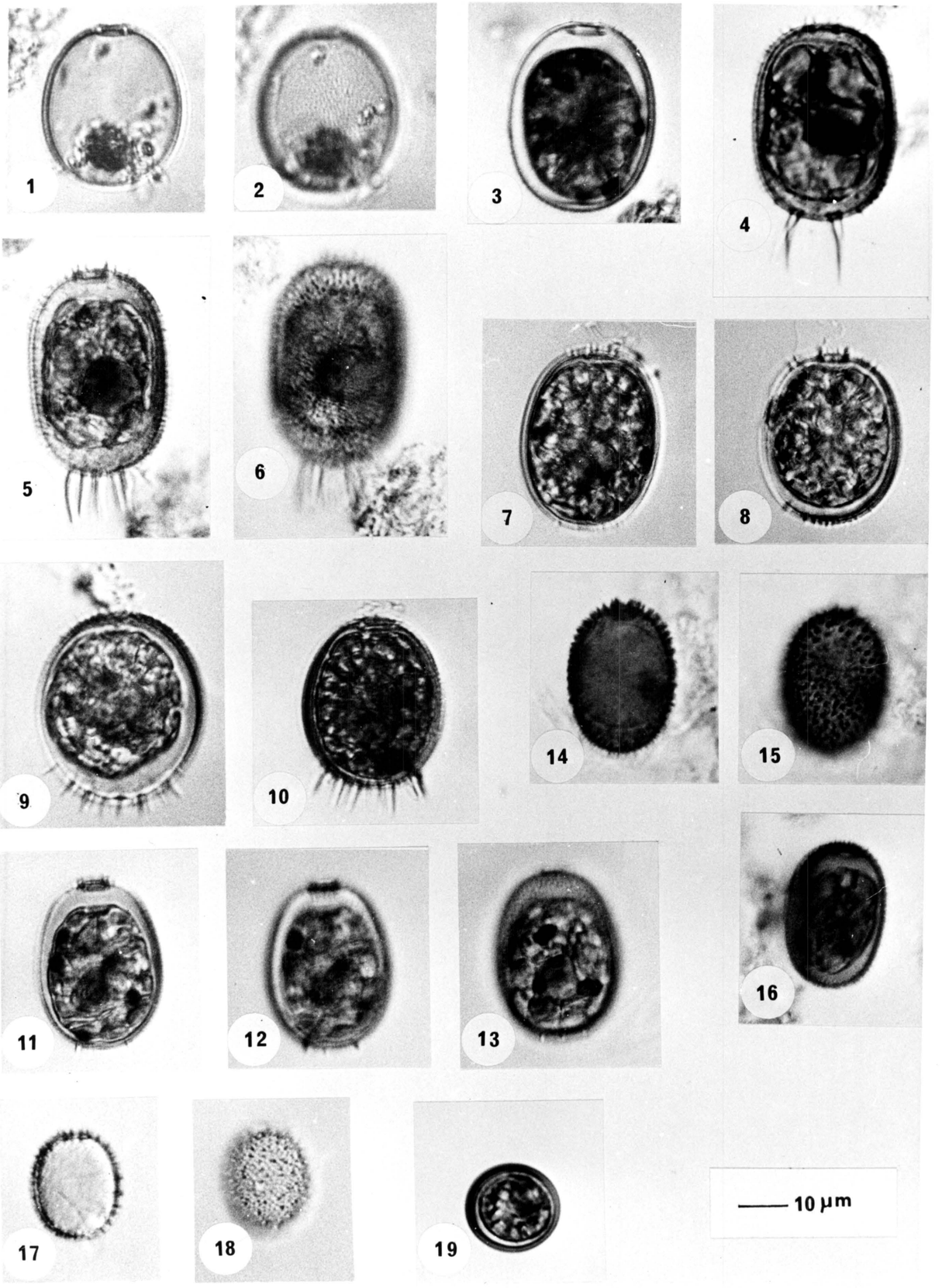

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FIGUUR 35

Fotomikrograwe van

1, 2. Trachelomonas australica var. granulata forma (p. 98); verskillende fokusinstellings om die vorm en skulptuur van die lorika te toon.

3 - 6. T. bacillifera var. ovalis (p. 99); verskillende fokusinstellings van twee eksemplare om die vorm en skulptuur van die lorika te toon.

7. T. conica f. punctata (p. 99).

8 - 10. T. dubia var. lata (p. 100).

11 - 13. T. granulosa var. granulosa (p. 101); vorm en skulptuur van lorika.

14, 15. T. granulosa var. subglobosa (p. 102); verskillende fokusinstellings om die vorm en skulptuur van die lorika te toon.

16 - 19. T. hispida var. duplex (p. 104).
16 - 18. Stekels by pole van lorika.
19. Gestippelde skulptuur van lorika.

20. T. scabra var. longicollis (p. 109).

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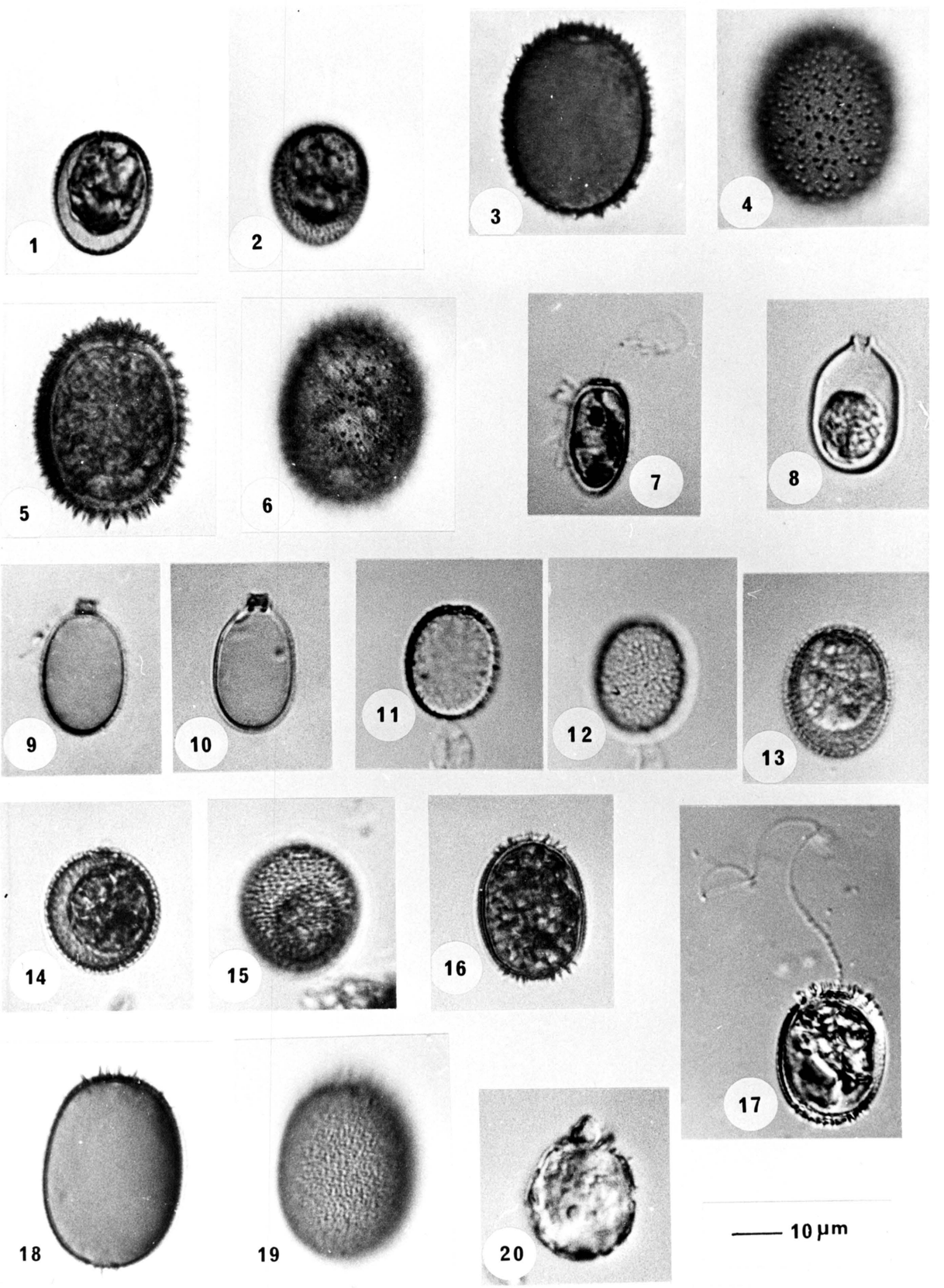

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FIGUUR 36

Fotomikrograwe van

1 - 4. Trachelomonas helvetica (p. 102).

5 - 8. T. anguste-ovata forma? (p. 94).

9, 10. Intermediêre vorm tussen T. helvetica en T. anguste-ovata forma ? (p. 102).

11 - 18. T. hispida var. hispida (p. 103).
11, 12, 14 - 16. Variasie in vorm van lorika.
13, 17, 18. Skulptuur van lorika.

19 - 21. T. hispida var. punctata (p. 105); vorm en gestippelde geaardheid van lorika.

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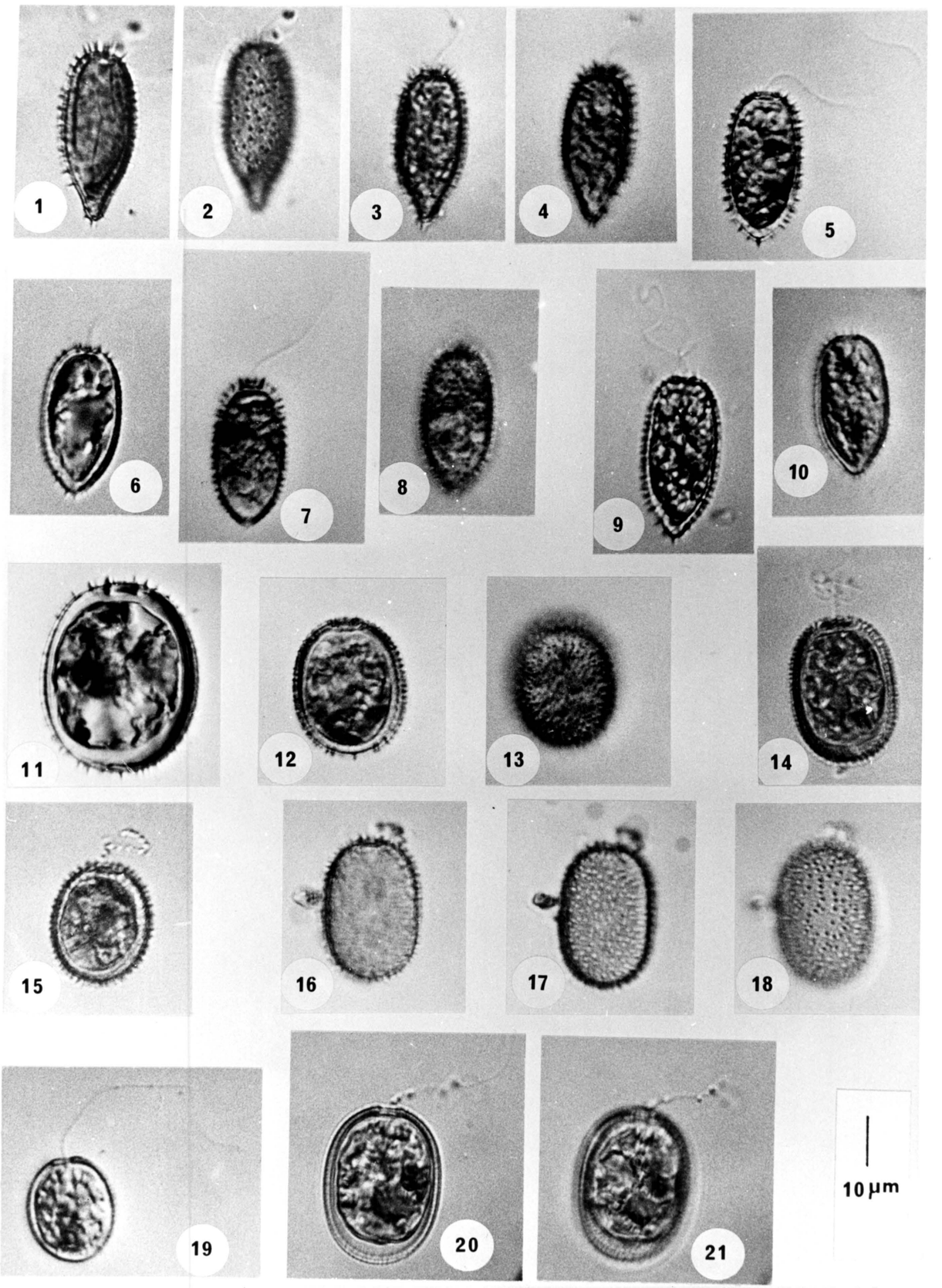

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FIGUUR 37

Fotomikrograwe van

1 - 6. Trachelomonas hispida var. coronata (p. 104). 1 - 3, 5. Variasie in lorikavorm en stekel= lengte. 3 - 6. Verskillende fokusinstellings van twee eksemplare om vorm en skulptuur van lorika te toon.

7 - 9. T. intermedia (p. 105). 7, 8. Verskillende fokusinstellings van 'n lorika om die vorm en wandskulptuur te toon.

10 - 13. T. lemmermannii (p. 106); verskillende fokus= instellings van twee eksemplare om die vorm en skulptuur van die lorika te toon.

14, 15. T. lucidula (p. 107); verskillende fokusinstel= lings om vorm en skulptuur van lorika te toon.

16 - 18. T. oblonga var. oblonga (p. 107); variasie in lorikavorm.

19 - 21. T. oblonga var. attenuata (p. 108).

22 - 24. T. playfairii (p. 108); gekromde kraag aan voorste pool van lorika.

25, 26. T. similis (p. 110); verskillende fokusinstel= lings om vorm en skulptuur van lorika te toon.

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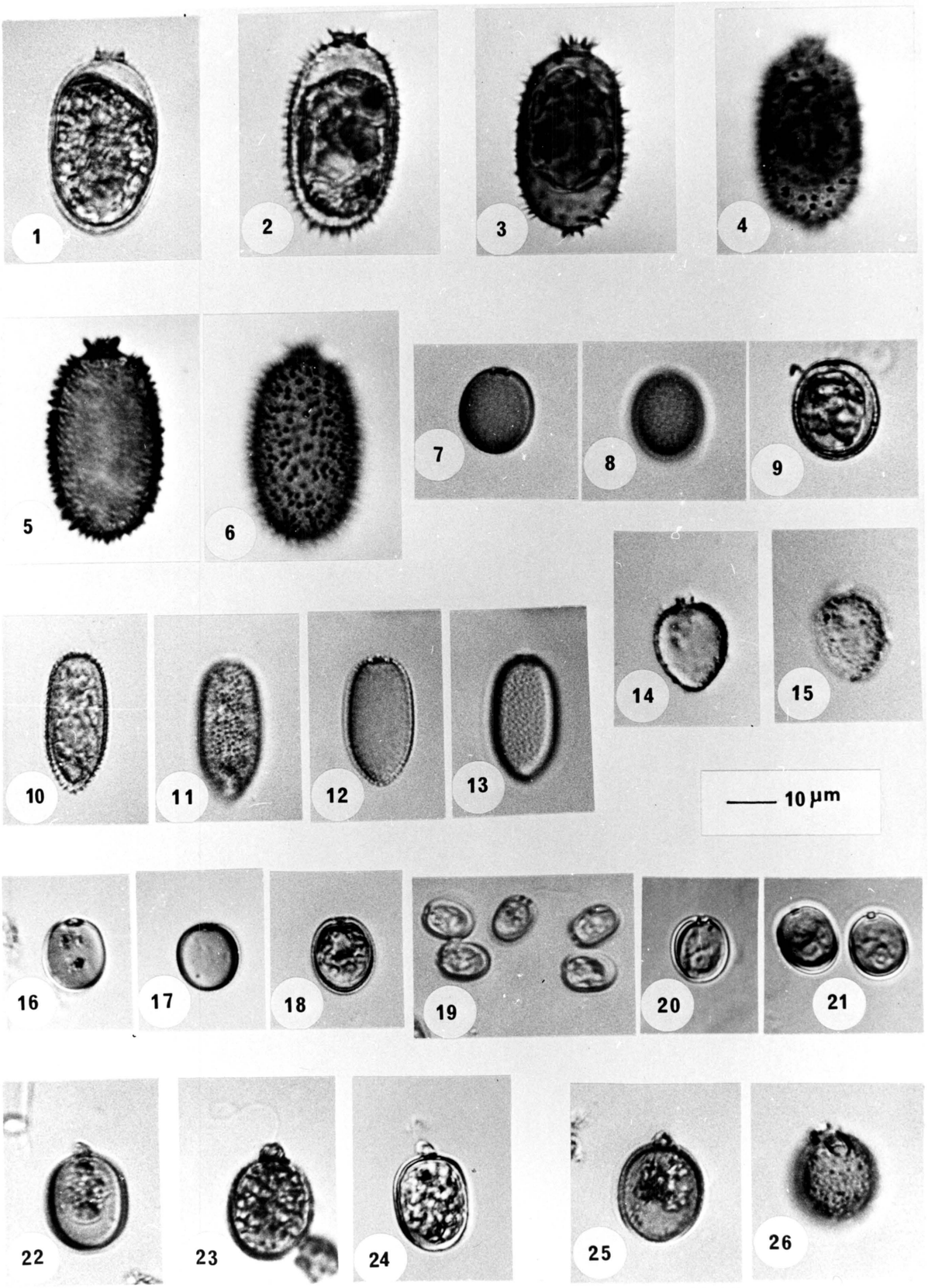

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FIGUUR 38

Fotomikrograwe van

1 - 5. Trachelomonas scabra var. scabra (p. 109). 1 - 4. Variasie in lorikavorm. 4, 5. Verskillende fokusinstellings van 'n lorika om die vorm en skulptuur te toon.

6 - 10. T. superba (p. 110); verskillende fokusinstellings van drie eksemplare om vorm en skulptuur van lorika te toon.

11. T. varians (p. 111).

12, 13. T. volvocina (p. 112); variasie in grootte van lorika.

14 - 16. T. volvocinopsis (p. 113); lorikavorm, uitbeelding van flagellumporie en groot getal chloroplaste word geïllustreer.

17. T. volzii var. cylindracea (p. 113); lorika met geronde agterste pool.

18 - 21. T. volzii var. cylindracea forma (p. 114); agterste pool van lorika afgeplat.

22 - 24. Trachelomonas sp. A (p. 114); verskillende fokusinstellings om vorm en skulptuur van lorika te toon.

25, 26. Trachelomonas sp. B (p. 115); lorika met gekromde kraag. 25. Buis wat in lorika instrek aan basis van kraag.

27, 28. Trachelomonas sp. C. (p. 115); verskillende fokusinstellings om die vorm en skulptuur van die lorika te toon.

29, 30. Trachelomonas sp. D (p. 116); sel binne lorika met 'n aantal skyfvormige chloroplaste.

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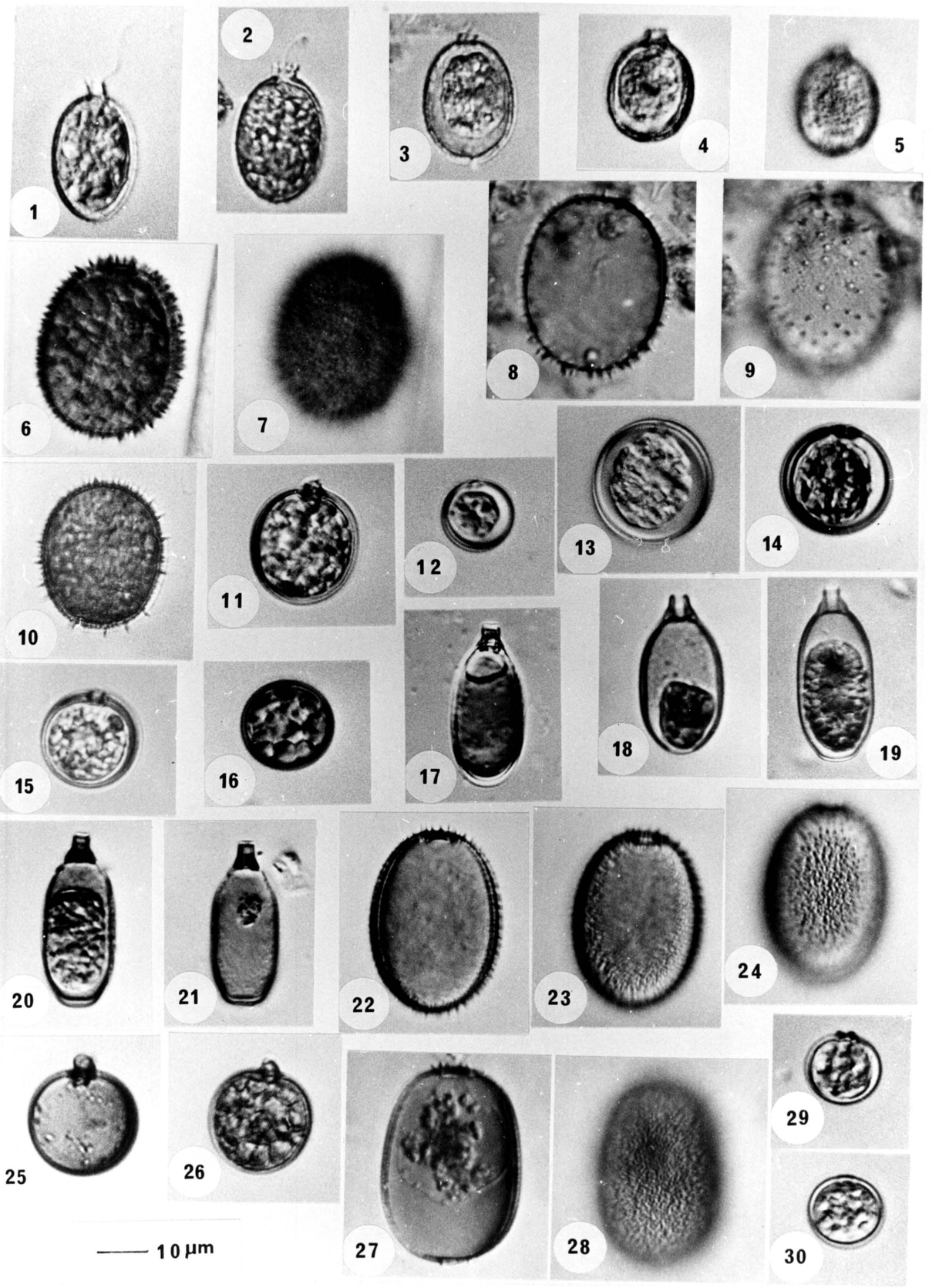

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FIGUUR 39

Aftaselektronmikrograwe van

1 - 5. Trachelomonas abrupta var. abrupta (p. 91); vorm en skulptuur van lorika. 2, 3. Lang flagellum wat by flagellumporie uitsteek. 1, 4. Variasie in stekelgetal. 4, 5. Verskillende vergrotings van 'n lorika. 2, 5. Fyn knoppies en porieë tussen stekels.

6, 7. T. volzii var. cylindracea (p. 113).

8. T. volzii var. cylindracea forma (p. 114).

3, 6 - 8 : skaal = 10 µm

1, 2, 4, 5 : skaal = 1 µm

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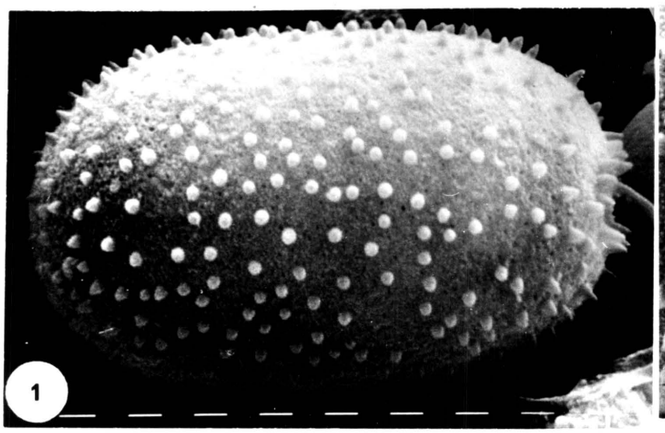
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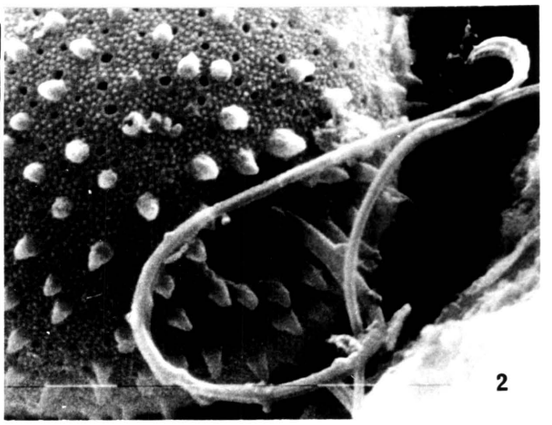
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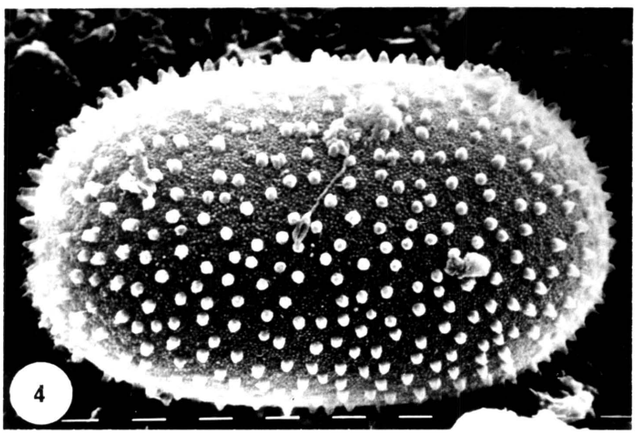
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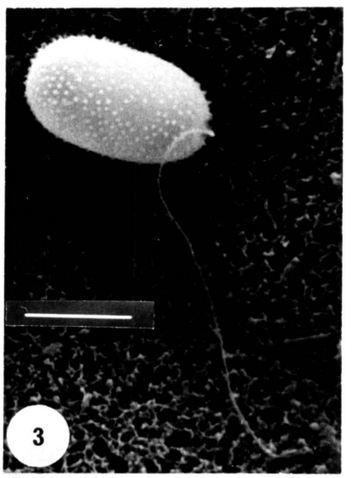
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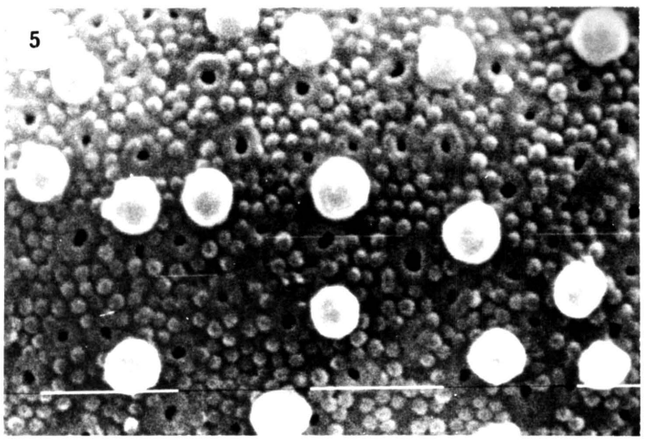
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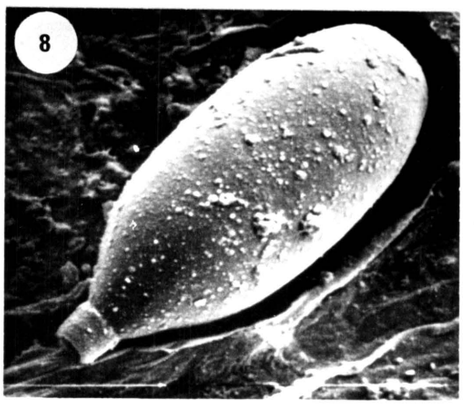
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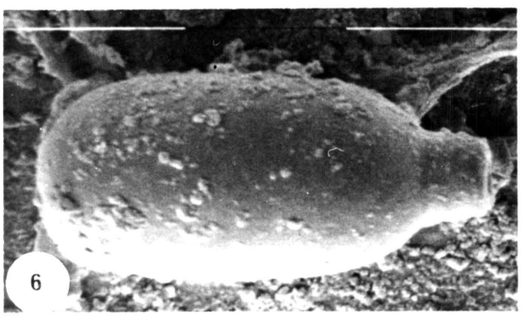
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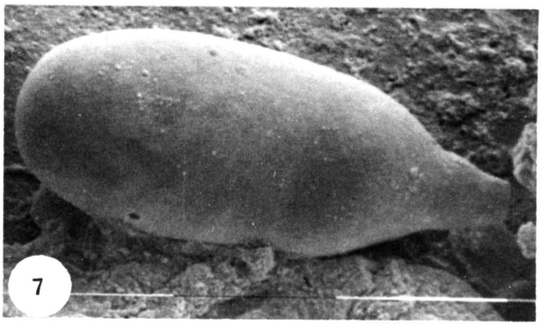
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FIGUUR 40

1 - 5. Aftaselektronmikrograwe van Trachelomonas abrupta var. arcuata (p. 92); vorm en skulptuur van lorika. 1, 4. Flagellumporie. 2 - 5. Verskillende vergrotings van twee lorikas om variasie in grootte van stekeltjies en porieë wat lorikawand versier te toon.

1, 4 : skaal = 10 µm

2, 3, 5 : skaal = 1 µm

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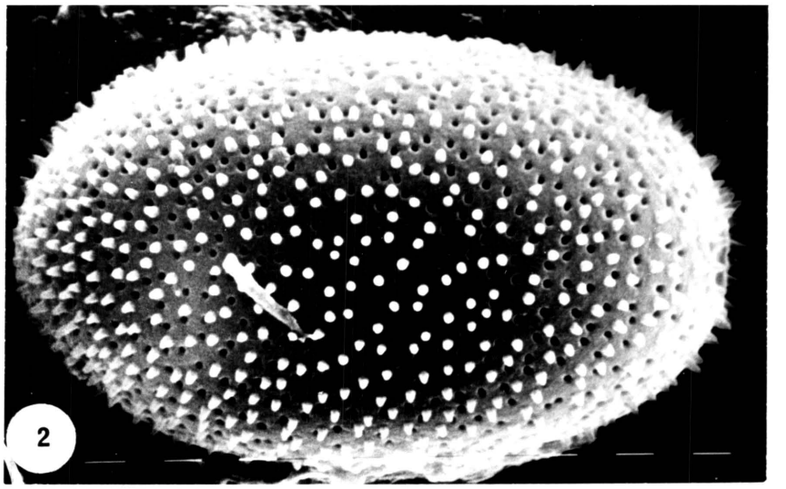

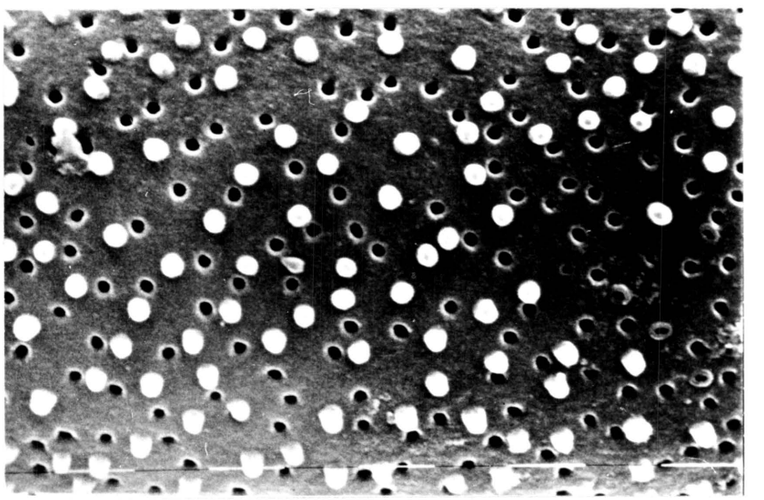

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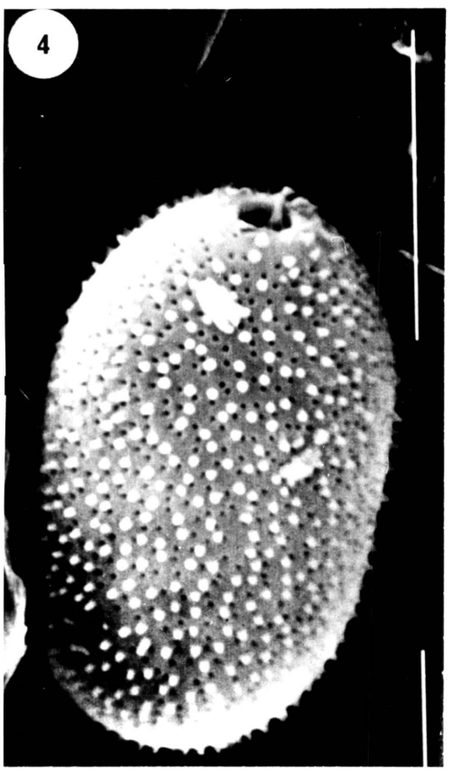

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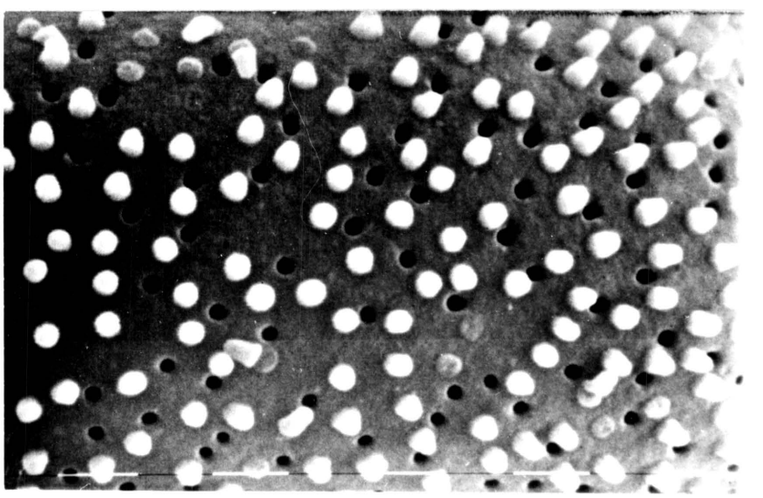

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FIGUUR 41

Aftaselektronmikrograwe van

1 - 4. Trachelomonas abrupta var. minor (p. 93); skulptuur en variasie in die aantal stekels van die lorika.

5 - 7. Skulptuur en uitbeelding van agterste pool van lorika. 5. T. helvetica (p. 94). 6. Intermediêre vorm tussen T. helvetica en T. anguste-ovata forma? (p. 102). 7. T. anguste-ovata forma? (p. 94).

1 - 4 : skaal = 1 µm

5 - 7 : skaal = 10 µm

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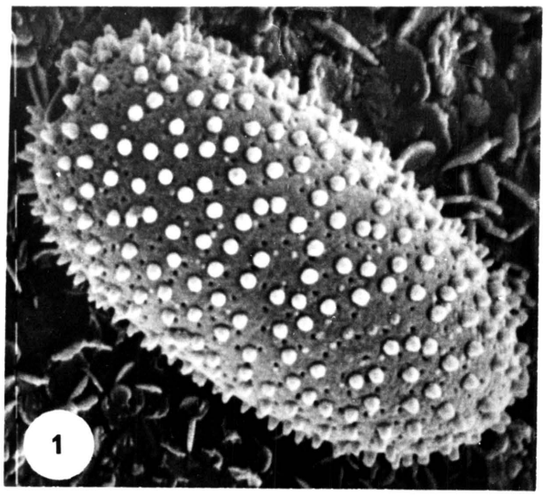

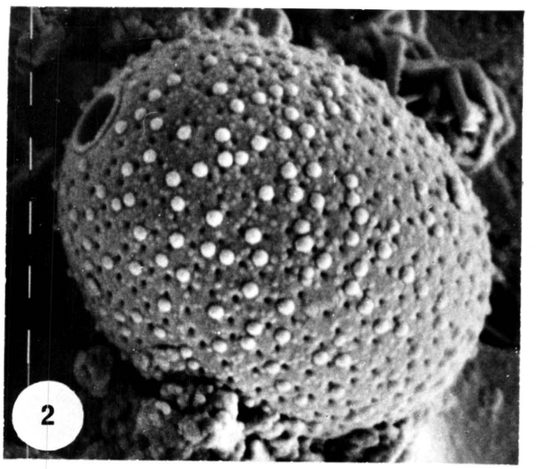

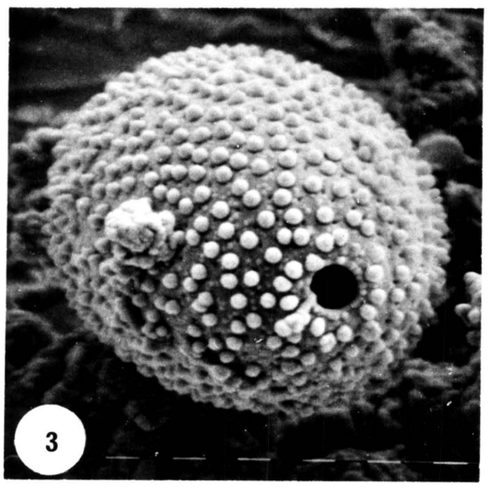

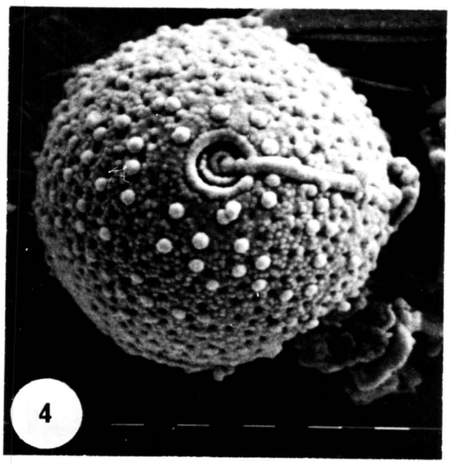

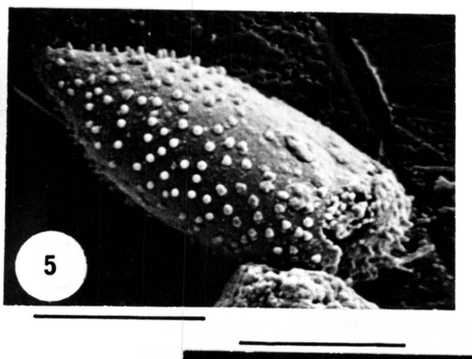

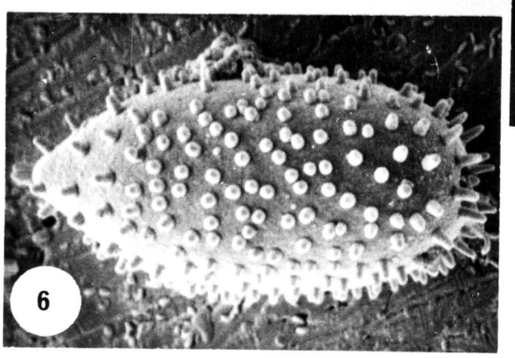

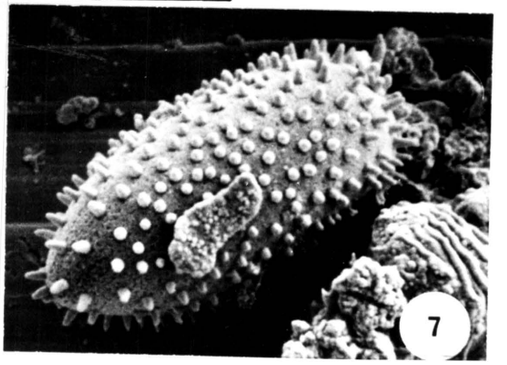

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FIGUUR 42

1 - 7. Aftaselektronmikrograwe van Trachelomonas armata var. longispina forma (p. 95) wat die vorm en skulptuur van die lorika toon. 1, 7. Verskil= lende vergrotings van 'n lorika. 2, 3. Flagellum= porie. 4 - 6. Lang stekels aan agterste pool van lorika.

1 - 3 : skaal = 10 µm

4 - 7 : skaal = 1 µm

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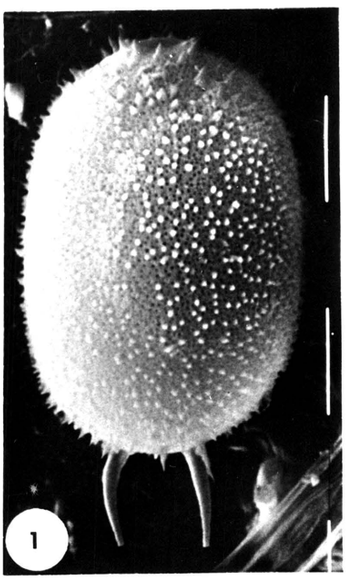

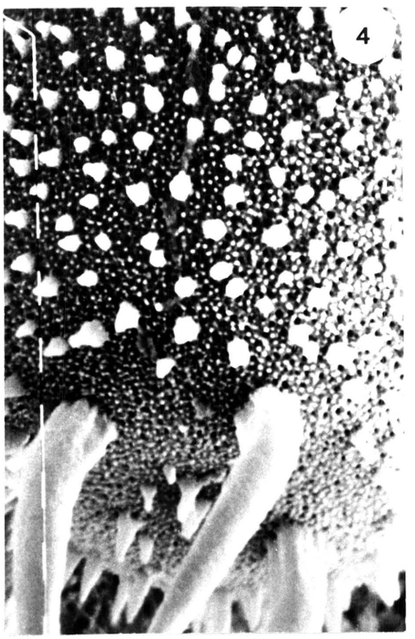

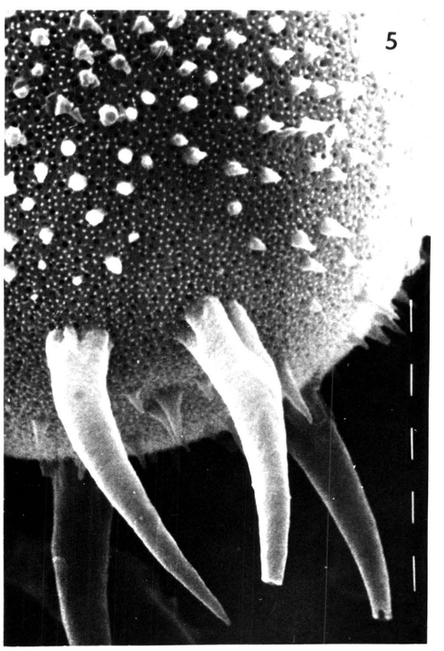

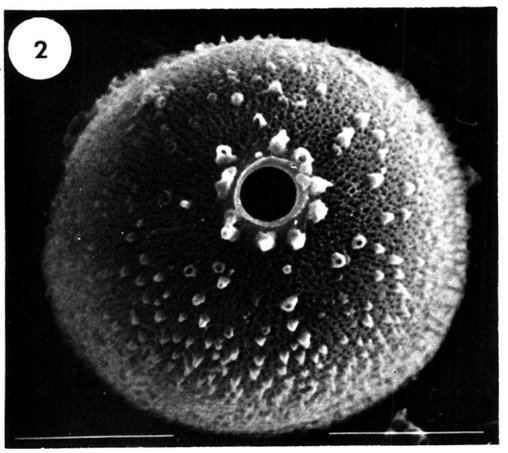

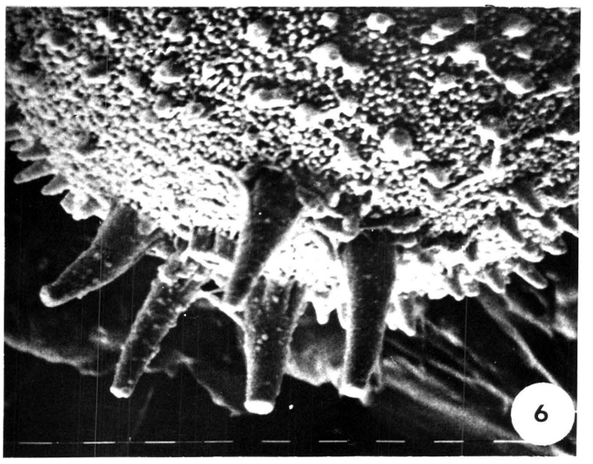

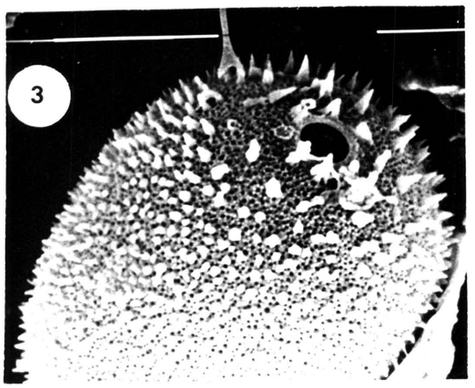

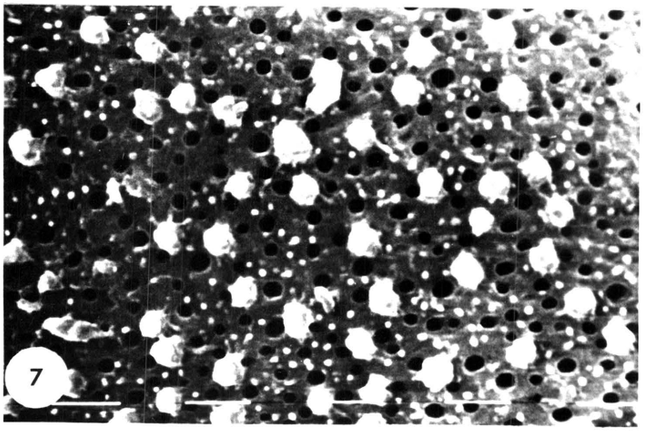

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FIGUUR 43

Aftaselektronmikrograwe van

1 - 3. Trachelomonas bacillifera var. minima? (p. 98); porieë in lorikawand en variasie in aantal stekels.

4, 5. T. curta (p. 99); lang flagellum steek by flagellumporie uit.

6. T. oblonga var. oblonga (p. 107).

7. T. oblonga var. attenuata (p. 108).

1, 2, 5 : skaal = 10 µm

3, 4, 6, 7 : skaal = 1 µm

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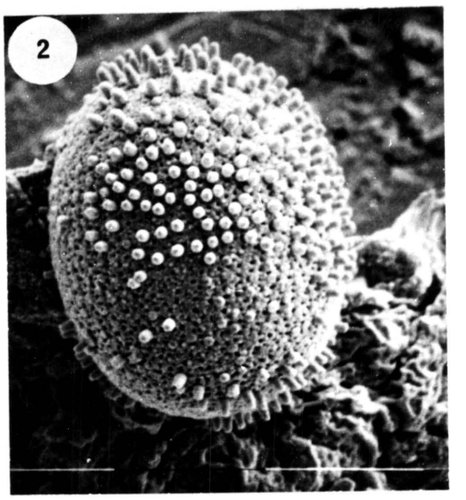

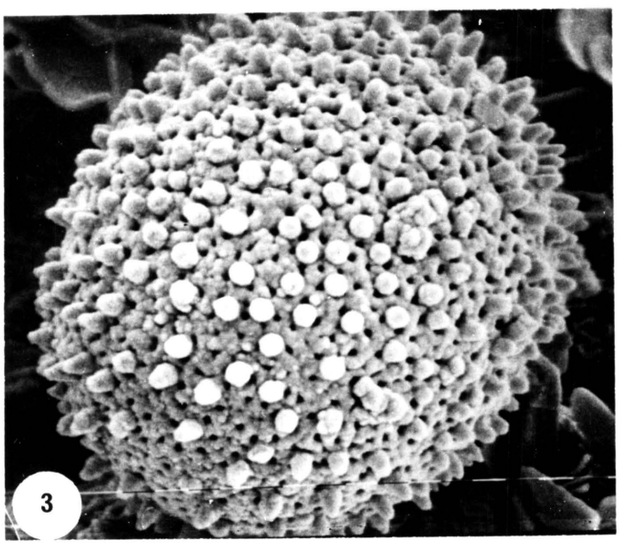

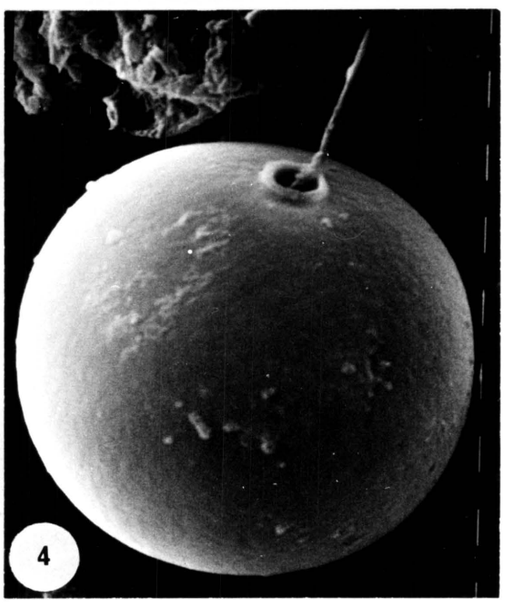

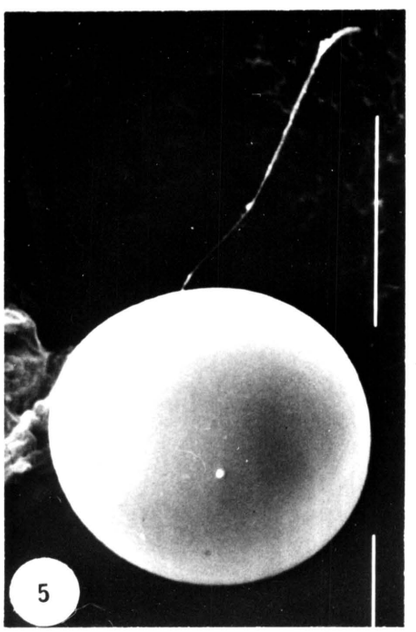

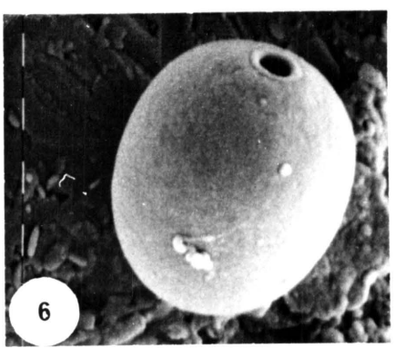

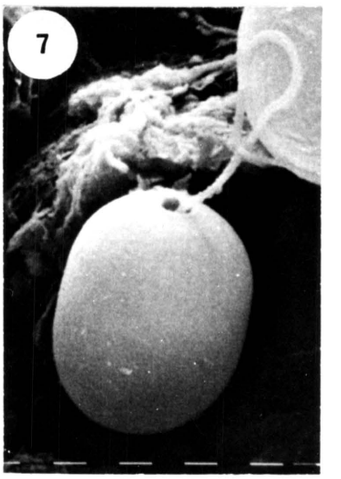

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FIGUUR 44

1 - 6. Aftaselektronmikrograwe van Trachelomonas hispida var. hispida (p. 103); variasie in aantal stekels op lorikawand. 1, 2. Lorika met relatief baie stekels. 3, 4. Lorika met yl verspreide stekels. 5, 6. Lorika met baie min stekels.

1, 3, 5 : skaal = 10 µm

2, 4, 6 : skaal = 1 µm

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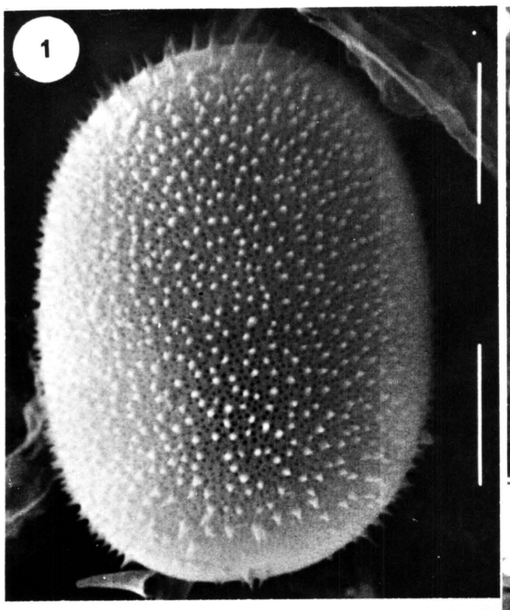

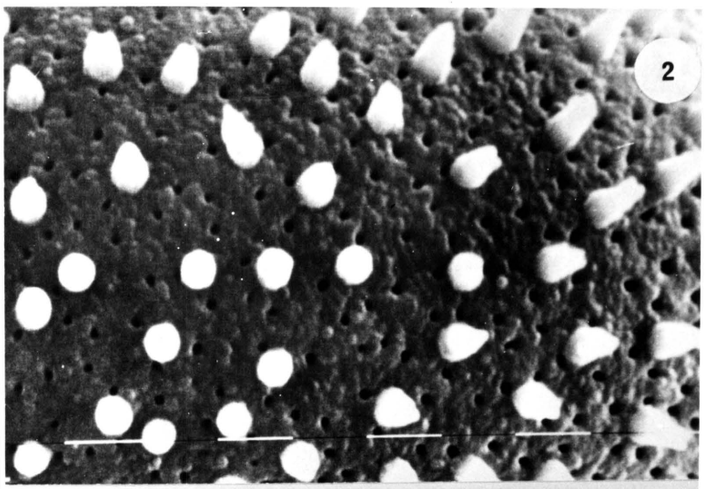

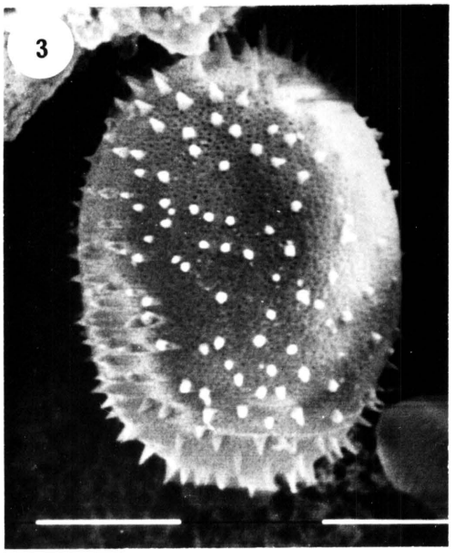

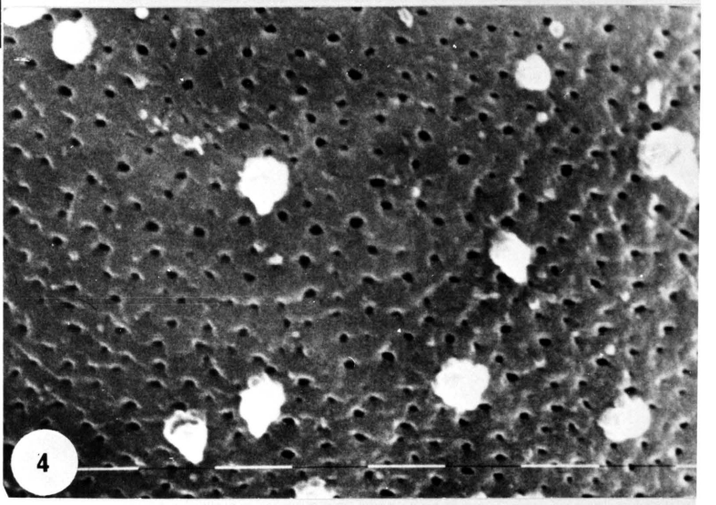

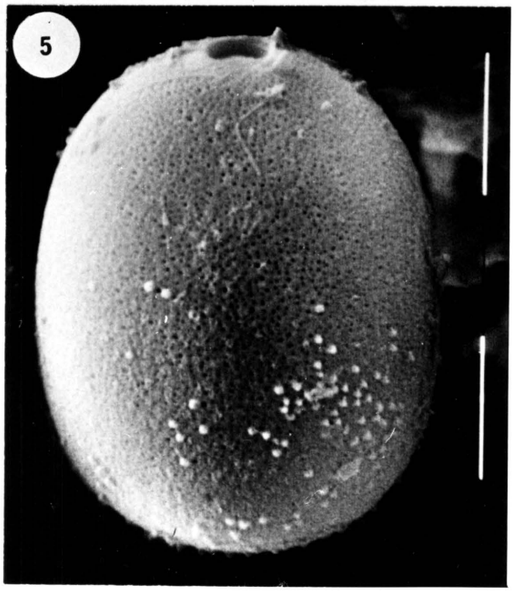

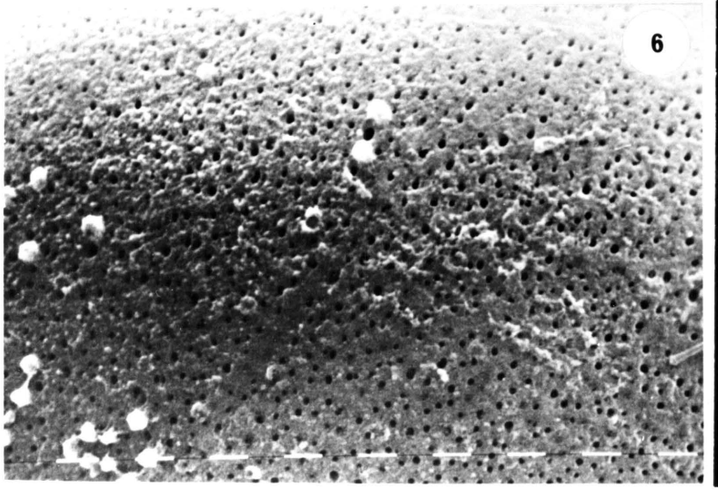

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FIGUUR 45

Aftaselektronmikrograwe van

1, 2. Trachelomonas hispida var. hispida (p. 103).
1. Flagellumporie omring deur 'n kort kraag.
2. Flagellumporie sonder kraag.

3 - 5. T. hispida var. coronata (p. 104).
3, 4. Stekelkrans omring flagellumporie.
4, 5. Verskillende vergrotings van 'n lorika om skulptuur van lorikawand te toon.

6. T. hispida var. duplex (p. 104); stekels slegs by pole van lorika, porieë in lorikawand.

1, 5 : skaal = 1 µm
2 - 4, 6 : skaal = 10 µm

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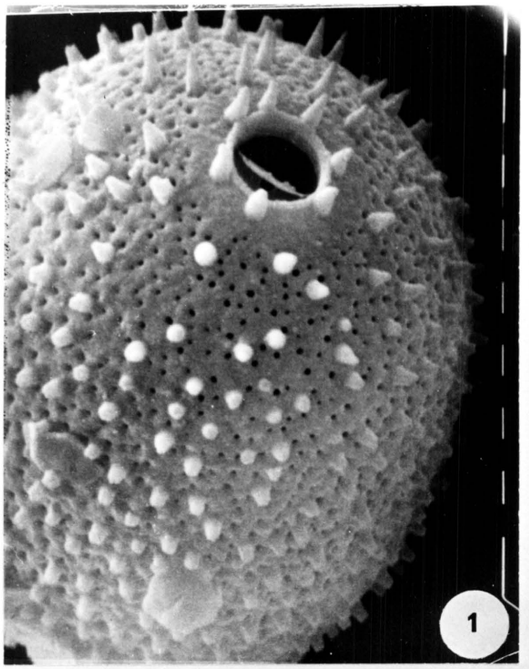

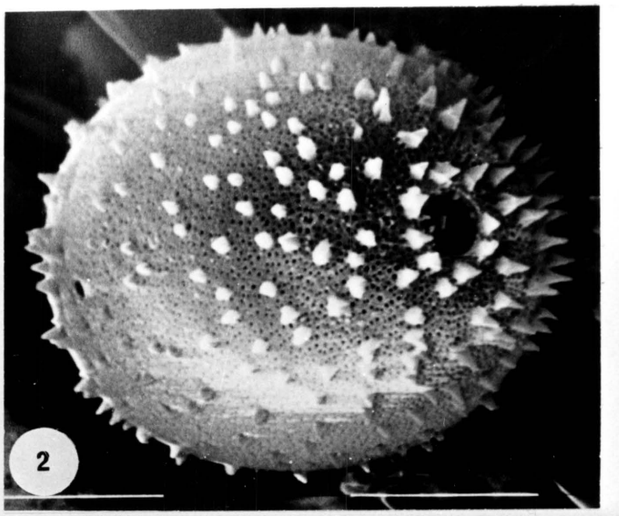

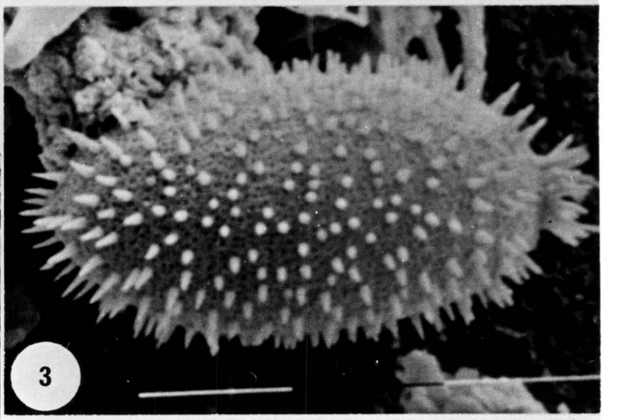

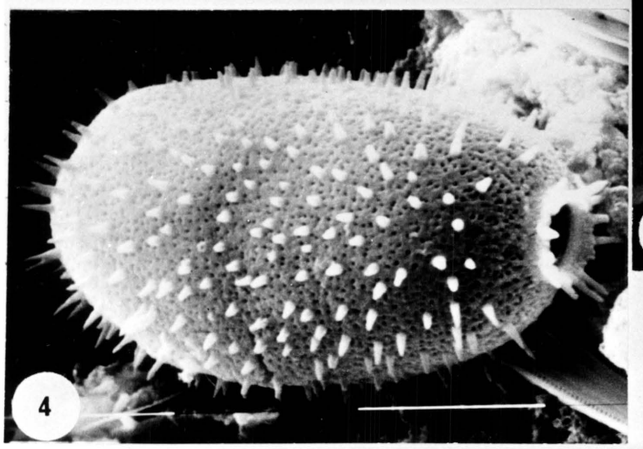

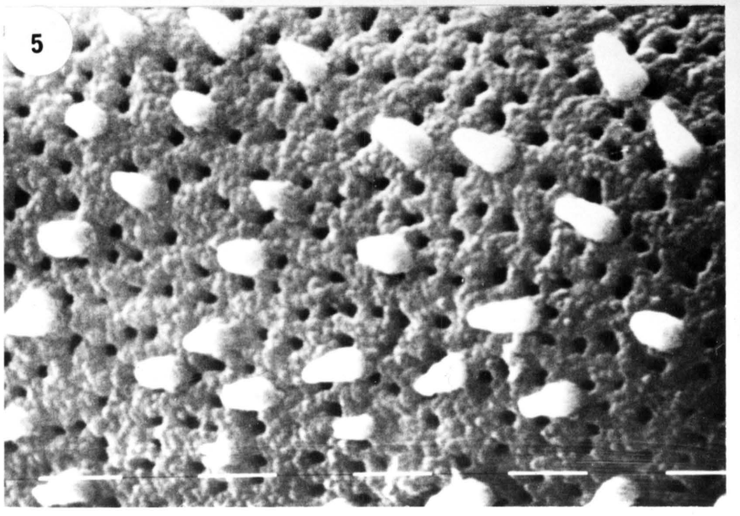

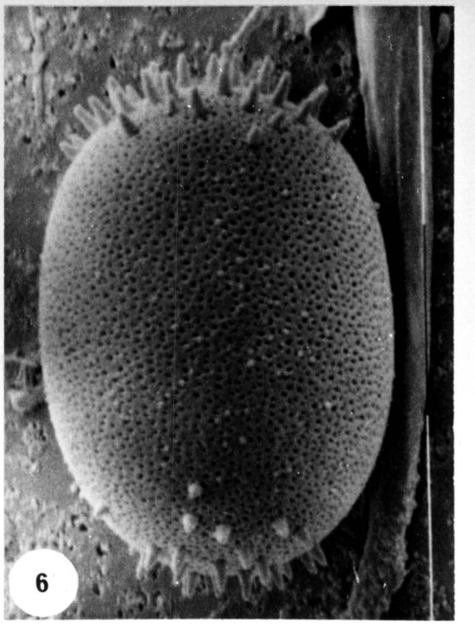

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FIGUUR 46

Aftaselektronmikrograwe van

1, 2. Trachelomonas volvocina (p. 112); gladde lorikawand; ringvormige verdikking om flagellumporie.

3. T. volvocinopsis (p. 113); lorika van bo gesien.

4 - 7. Trachelomonas sp. D (p. 116); variasie in lorikaskulptuur.

1, 2 : skaal = 10 µm

3 - 7 : skaal = 1 µm

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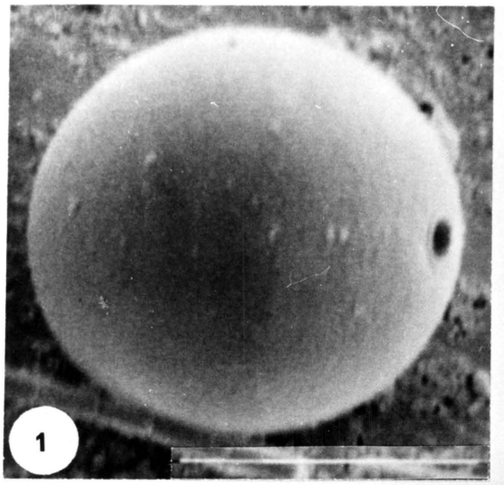

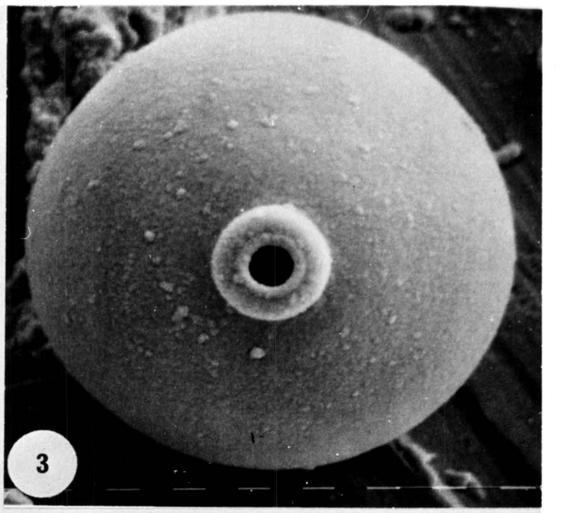

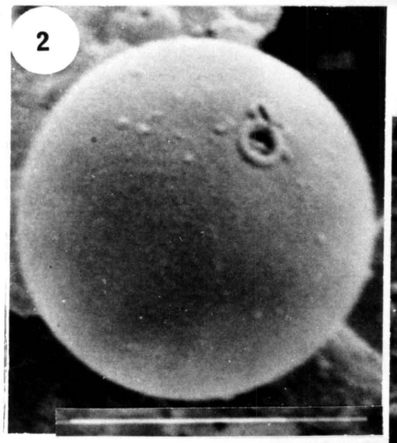

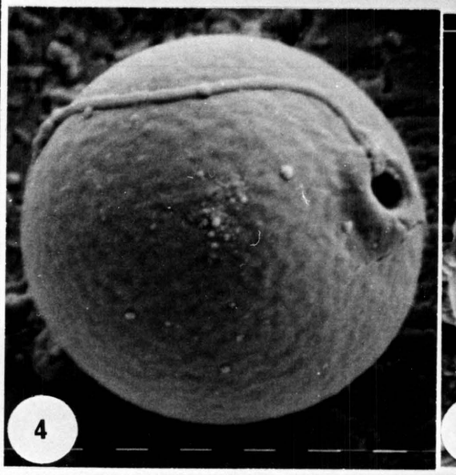

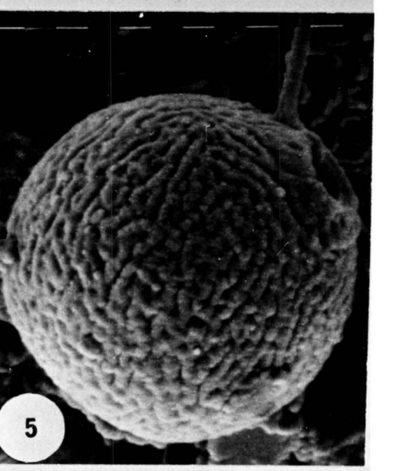

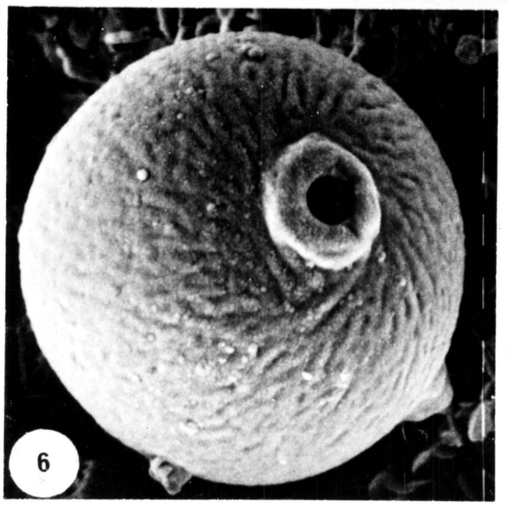

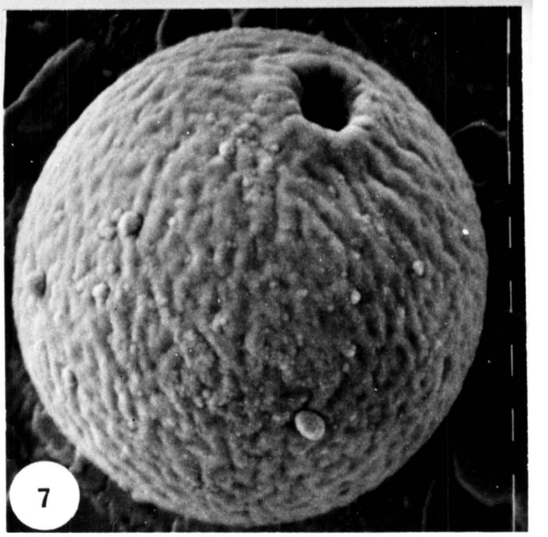

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FIGUUR 47

Fotomikrograwe van

1 - 3. Eudorina elegans (p. 116). 1. Volwasse senobium met die selle in vyf kringe gerangskik; slymskede en enkele flagellums kan waargeneem word. 2. Seldelingstadium tydens die vorming van dogtersenobiums. 3. Dogtersenobiums.

4. Gonium pectorale (p. 118); senobium.

5 - 12. Pandorina morum (p. 118). 5 - 9. Senobiums wat selvorm, slymskede en enkele flagellums toon. 7, 8. Verskillende fokusinstellings van 'n seno= bium om rangskikking van selle te toon. 10 - 12. Verskillende seldelingstadiums tydens die vorming van dogtersenobiums.

13. Pleodorina illinoisensis (p. 120); senobium; slymskede en enkele flagellums kan waargeneem word.

14. Volvox sp. cf. V. aureus (p. 120).

1 - 3, 5 - 13 : skaal A

4 : skaal B

14 : skaal C

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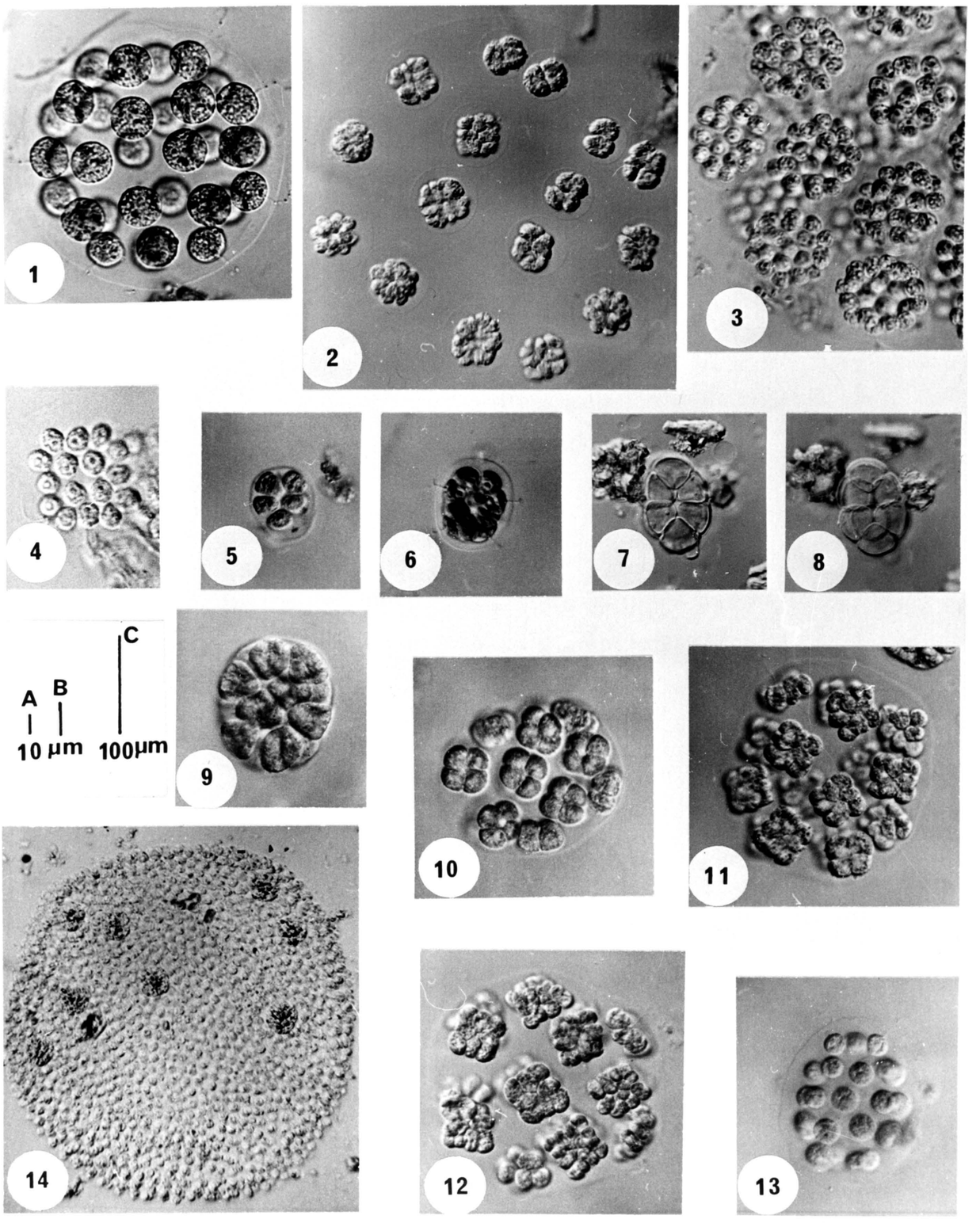

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FIGUUR 48

1. *Asterococcus* sp. cf. *A. limneticus* (p. 121).

2. *A. superbus* (p. 121).

3. *Gloeocystis ampla* (p. 122).

4 - 6. *G. gigas* f. *letabaensis* (p. 122).

7, 8. *G. lateritia* (p. 123). 7. Enkele sel.
8. Kolonie.

9. *Chlorococcum botryoides* (p. 124).

10. *C. infusionum* (p. 125).

11. *Crucigenia fenestrata* (p. 149).

1 - 6, 8 - 10 : skaal A

7, 11 : skaal B

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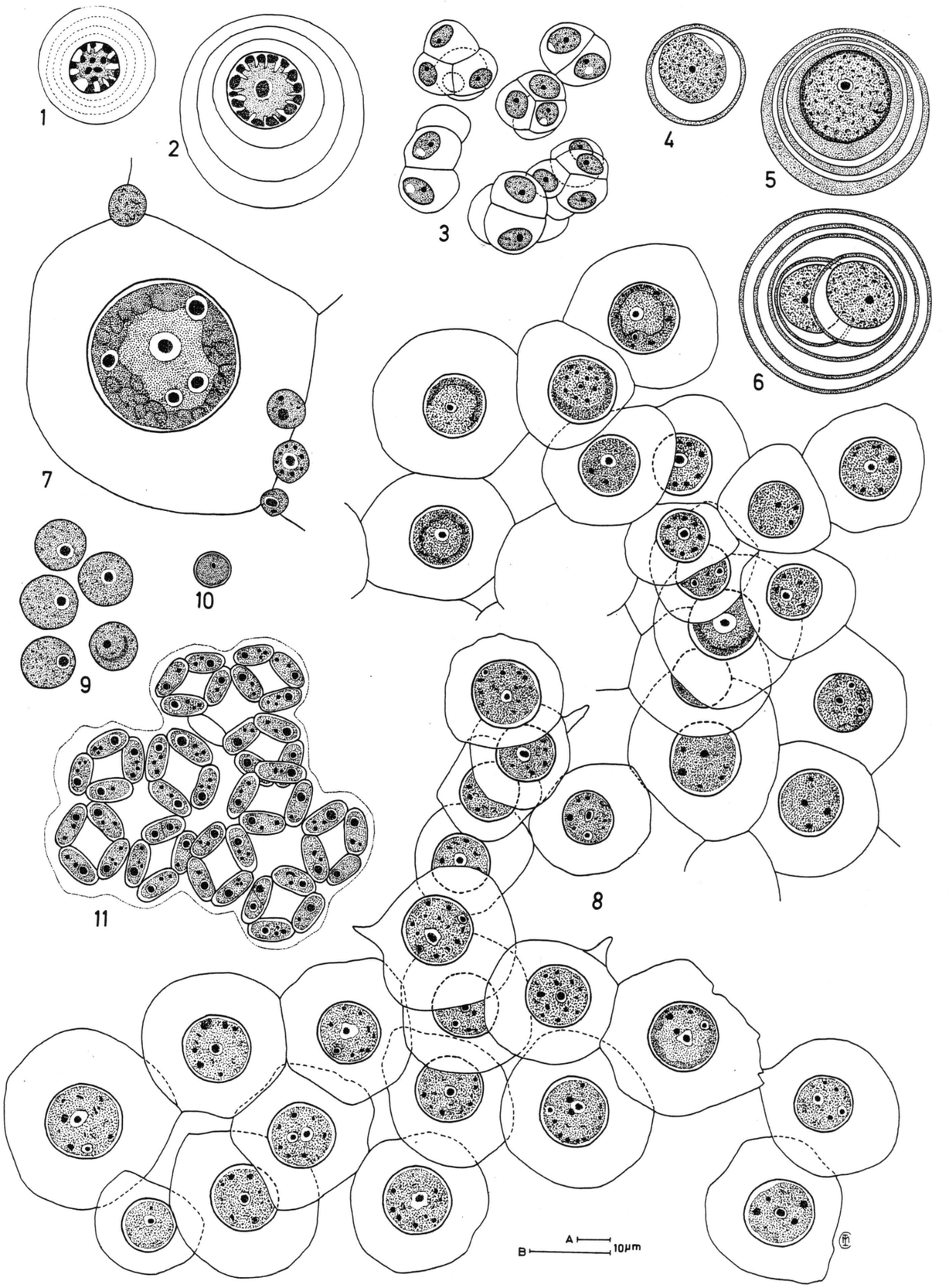

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FIGUUR 49

1 - 3. Sphaerocystis schroeteri (p. 126).
1. Kolonie. 2, 3. Stadiums na aktiewe seldeling.

1 : skaal A

2, 3 : skaal B

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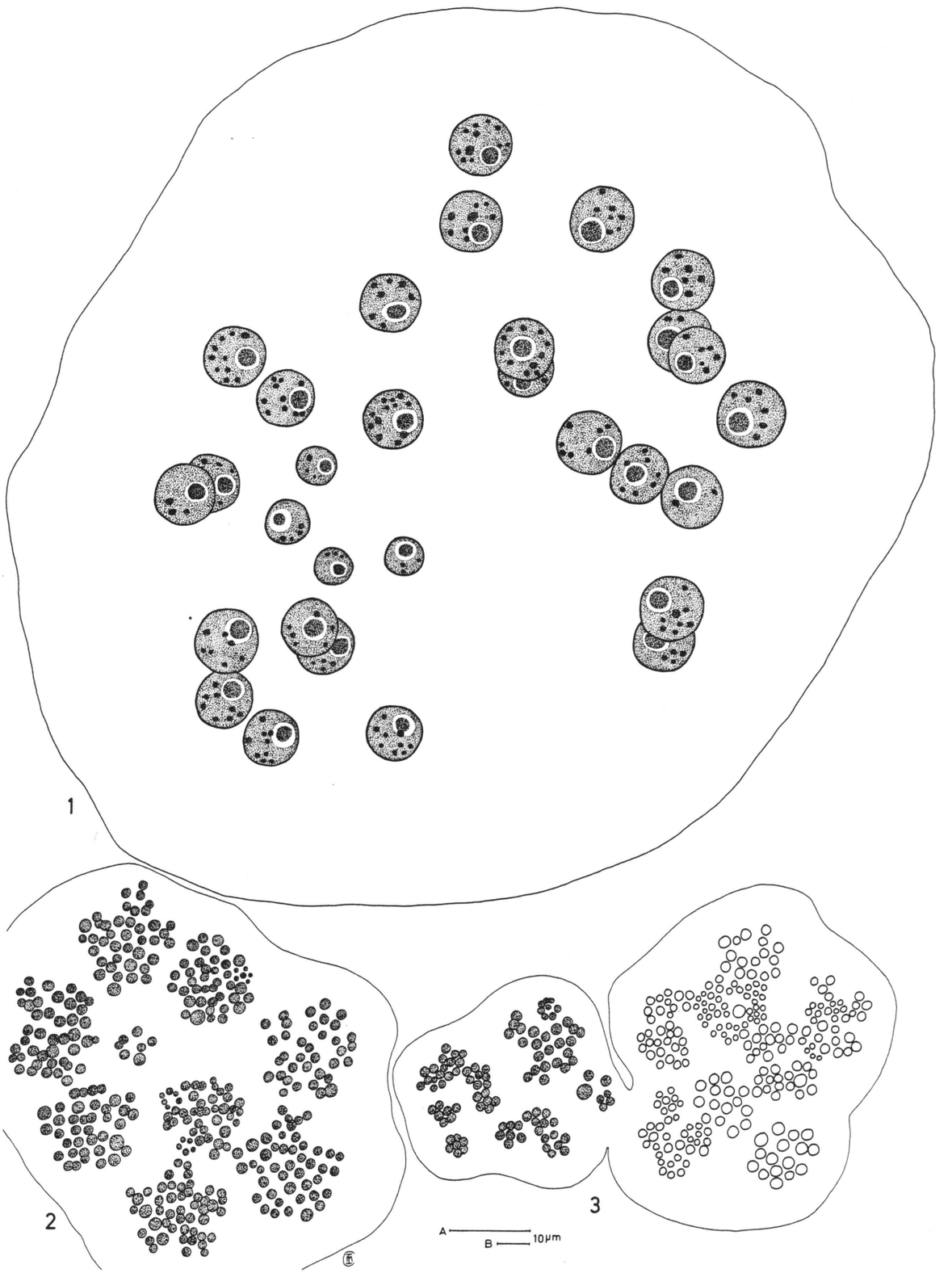

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FIGUUR 50

1. *Ankistrodesmus bibraianus* (p. 127).

2. *A. fusiformis* (p. 129).

3, 4. *A. gracilis* (p. 130).

5. *A. stipitatus* (p. 132).

6. *Closteriopsis acicularis* (p. 133).

7. *Kirchneriella obesa* var. *obesa* (p. 136).

8. *Oocystis lacustris* (p. 139).

9 - 11. *Oocystis* sp. cf. *O. rupestris* (p. 140).

12. *O. solitaria* (p. 141).

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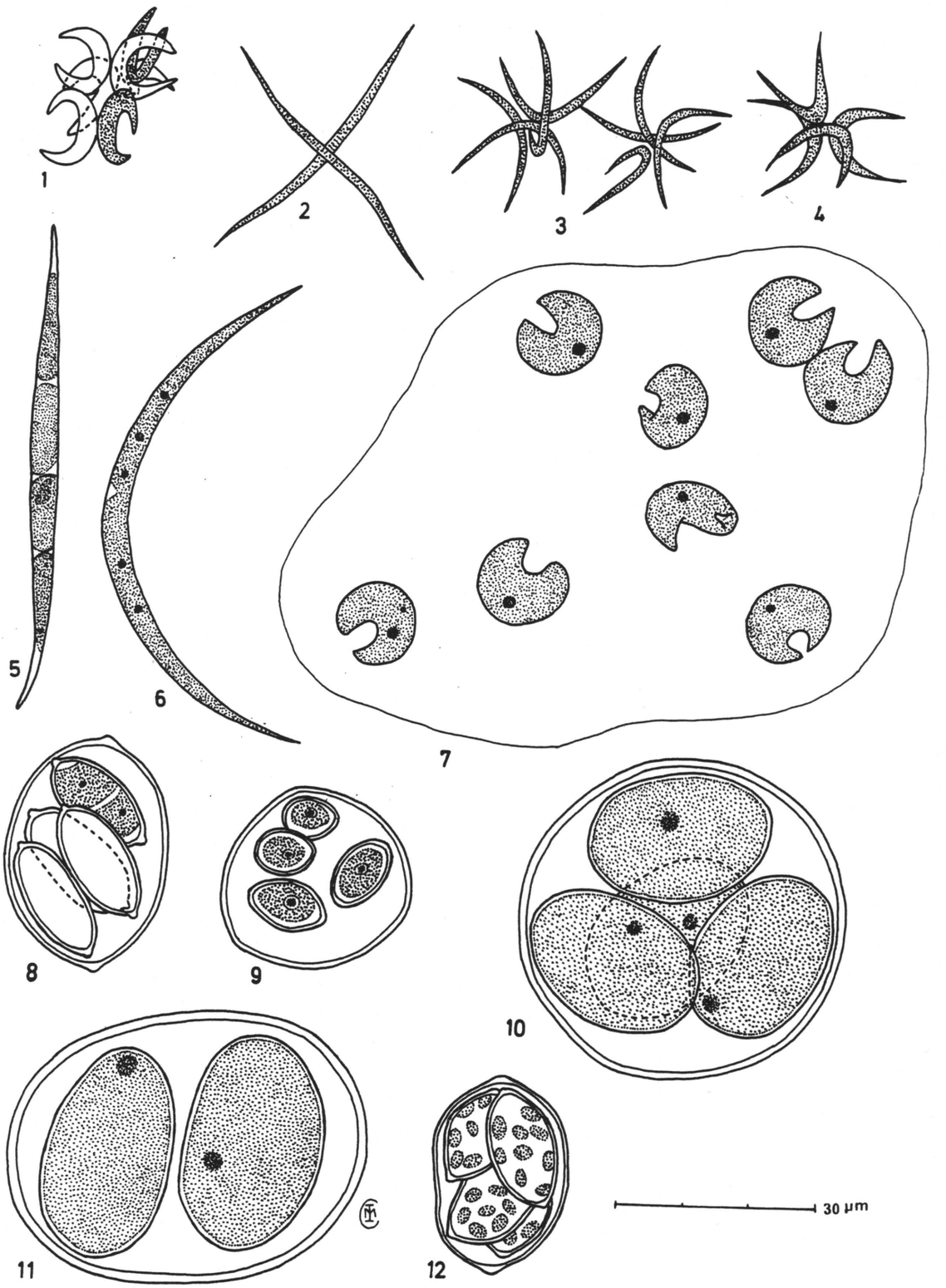

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FIGUUR 51

1. *Glaucocystis nostochinearum* (p. 134).

2. *Nephrocytium aghardianum* (p. 138).

3. *N. lunatum* (p. 138).

4 - 7. *Dictyosphaerium ehrenbergianum* (p. 142).

8. *D. pulchellum* (p. 143).

9. *Dimorphococcus lunatus* (p. 144).

10 - 12. *Westella botryoides* (p. 145).

13. *Coelastrum cambricum* forma (p. 146).

14. *C. microporum* (p. 146).

15 - 17. *C. pseudomicroporum* (p. 148).

18, 19. *C. reticulatum* f. *reticulatum* (p. 148).

20, 21. *Scenedesmus armatus* var. *majus* (p. 155).

22, 23. *S. naegeli* (p. 158).

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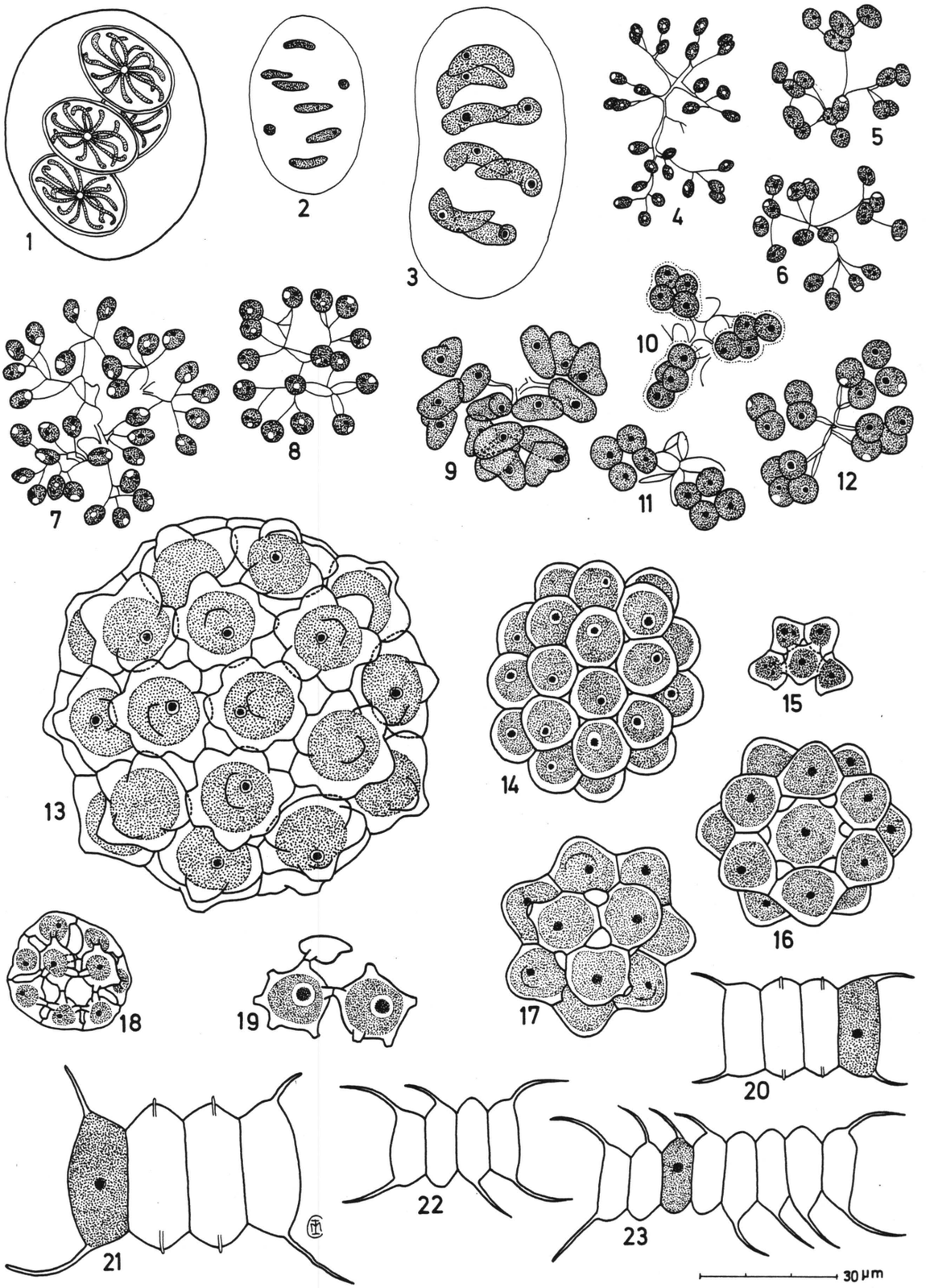

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FIGUUR 52

1, 2. Crucigenia quadrata (p. 150).

3. C. rectangularis (p. 151).

4 - 6. Scenedesmus abundans var. abundans (p. 152).

7, 8. S. abundans var. longicaudus (p. 153).

9. S. acutiformis (p. 153).

10 - 14. S. incrassatulus (p. 158).

15. S. armatus var. asymetricus (p. 154).

16 - 18. S. armatus var. bicaudatus (p. 154).

19. S. carinatus var. bicaudatus forma (p. 156).

20. S. denticulatus forma (p. 157).

21. S. nygaardii (p. 159).

22. S. dimorphus (p. 157).

23, 24. S. dimorphus forma (p. 158).

25, 26. S. obtusus f. obtusus (p. 159).

27. S. obtusus f. disciformis (p. 161).

28 - 30. Scenedesmus sp. cf. S. obtusus f. obtusus (p. 163).

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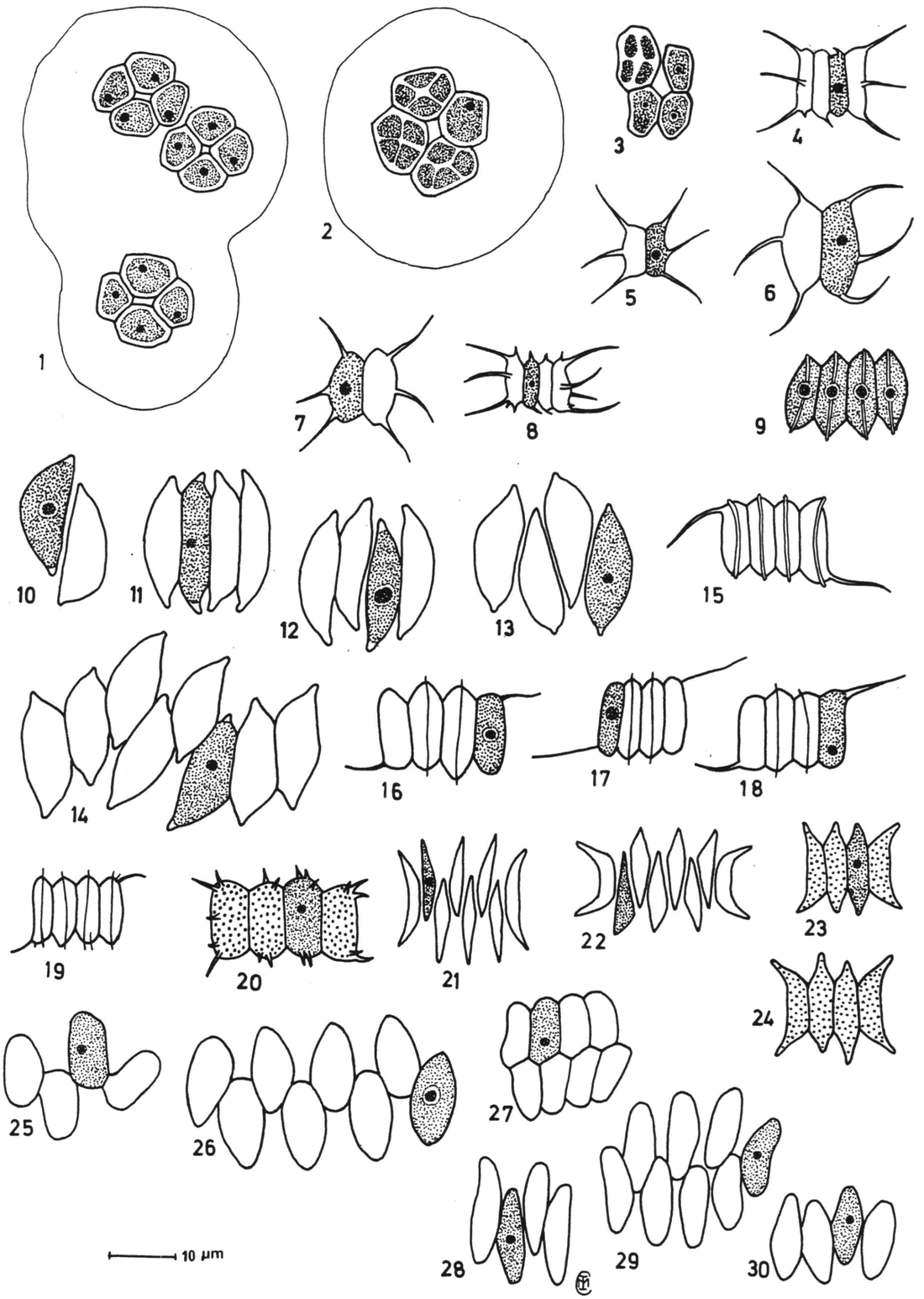

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FIGUUR 53

1 - 6. Scenedesmus sp. cf. S. obtusus f. obtusus (p. 163).

7 - 16. S. quadricaudus var. quadricaudus (p. 163).

17. S. qudricaudus var. quadrispinus (p. 165).

18. S. obtusus f. ecornis (p. 162).

19. Pediastrum simplex (p. 177); anomalie.

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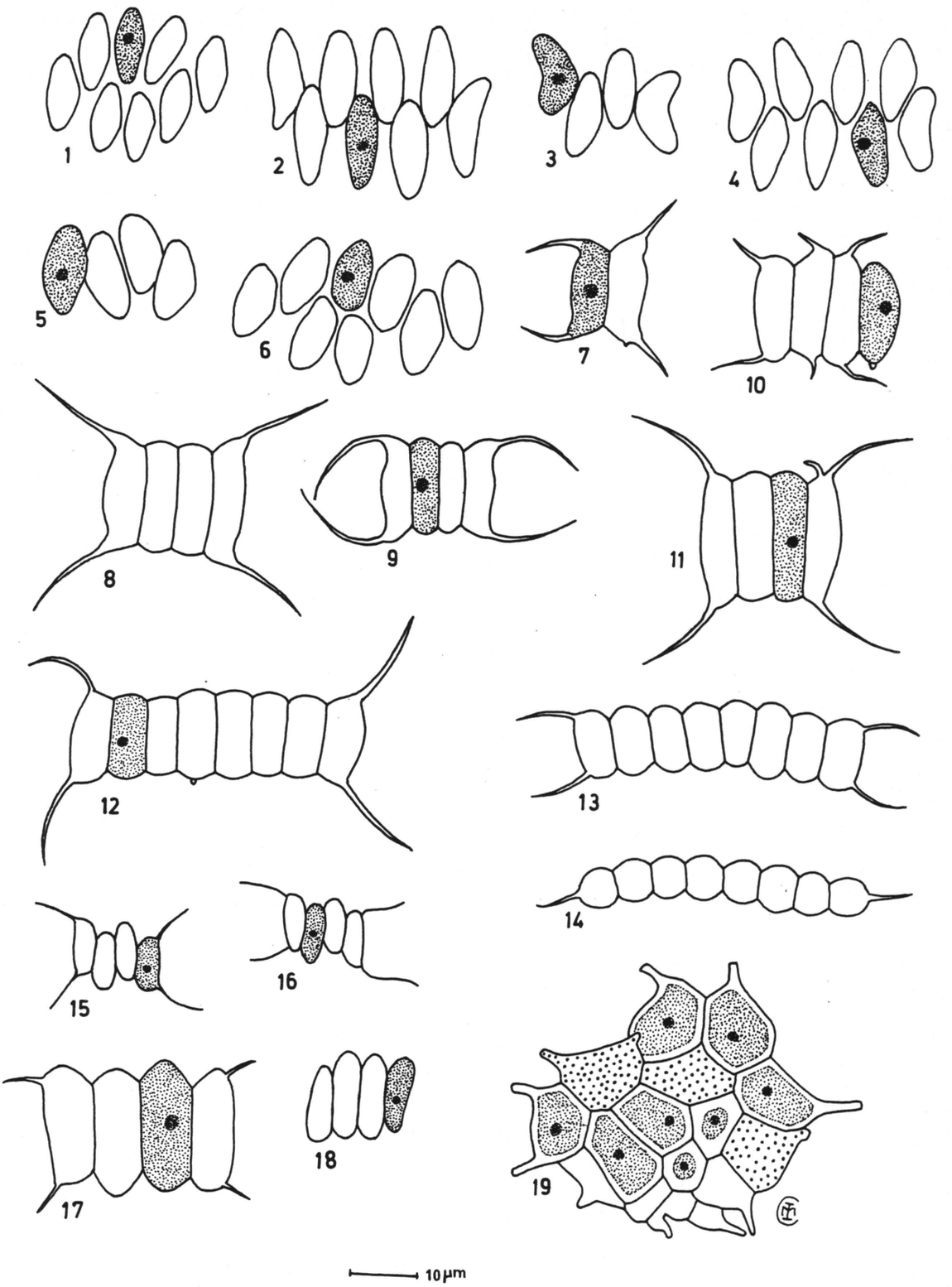

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FIGUUR 54

1. *Pediastrum biradiatum* var. *glabrum* (p. 168).

2 - 4. *P. boryanum* var. *boryanum* (p. 168).

5 - 9. *P. duplex* var. *duplex* (p. 172).

10. *P. duplex* var. *asperum* (p. 175).

11 - 15. *P. integrum* (p. 176).

16 - 20. *P. tetras* (p. 179).

21. *Sorastrum americanum* (p. 183).

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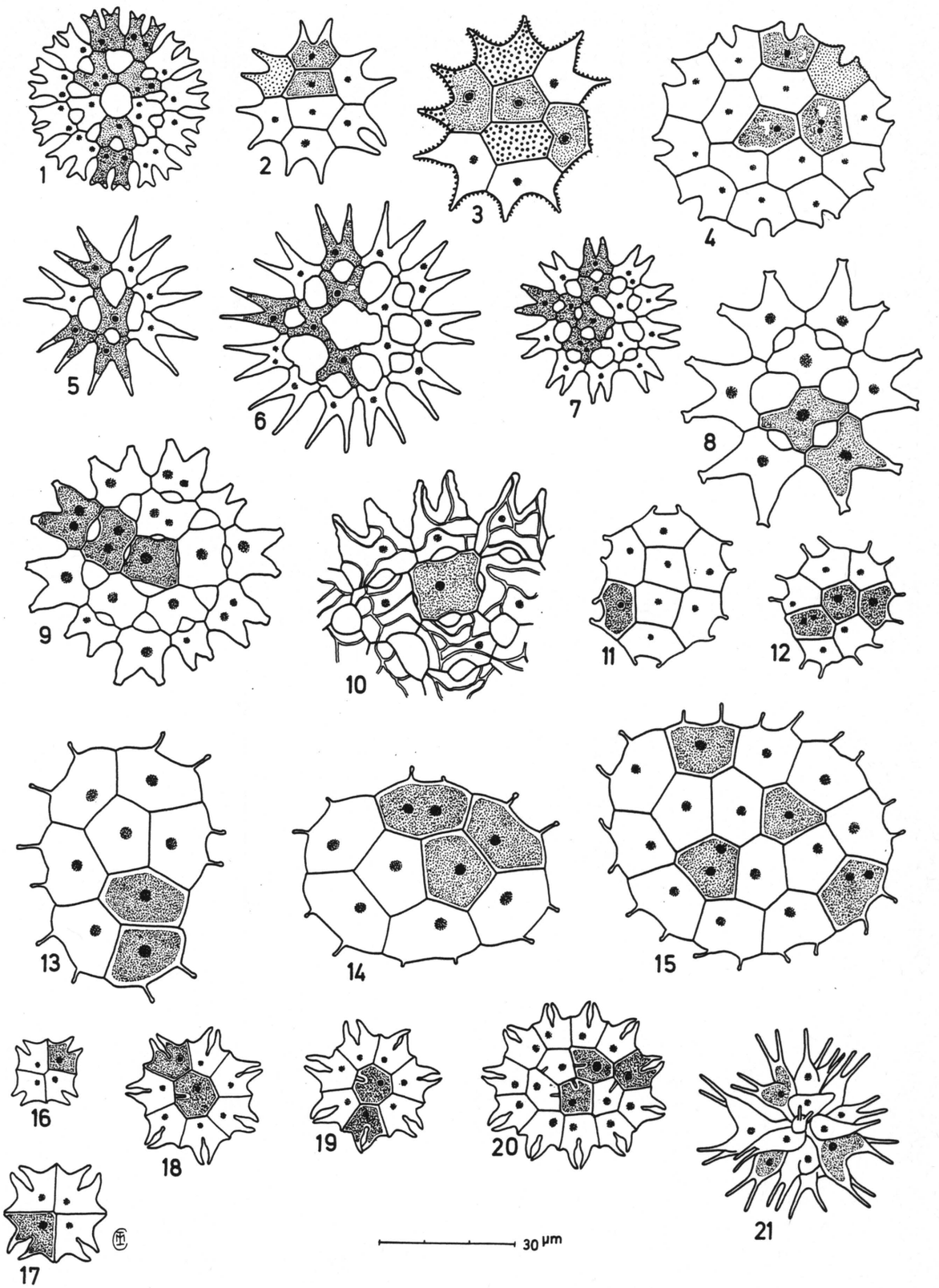

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FIGUUR 55

1 - 16. *Pediastrum simplex* (p. 177).

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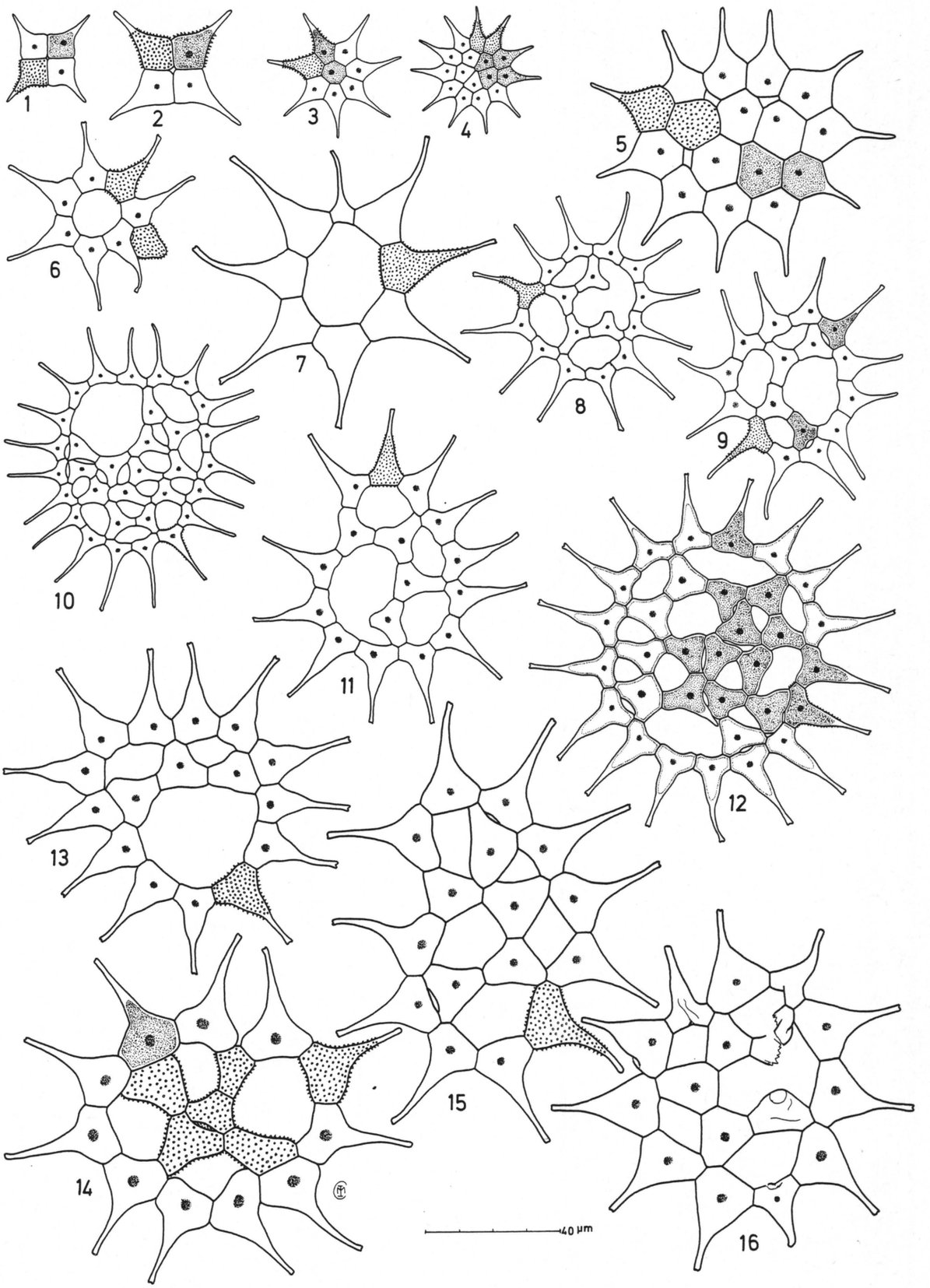

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FIGUUR 56

1 - 18. Fotomikrograwe van Gloeocystis gigas f. letabaensis (p. 122). 1. Jong sel nog sonder 'n slymskede. 2 - 13. Variasie in uitbeelding van slymskedes by enkelselle. 14 - 18. Kolonies.

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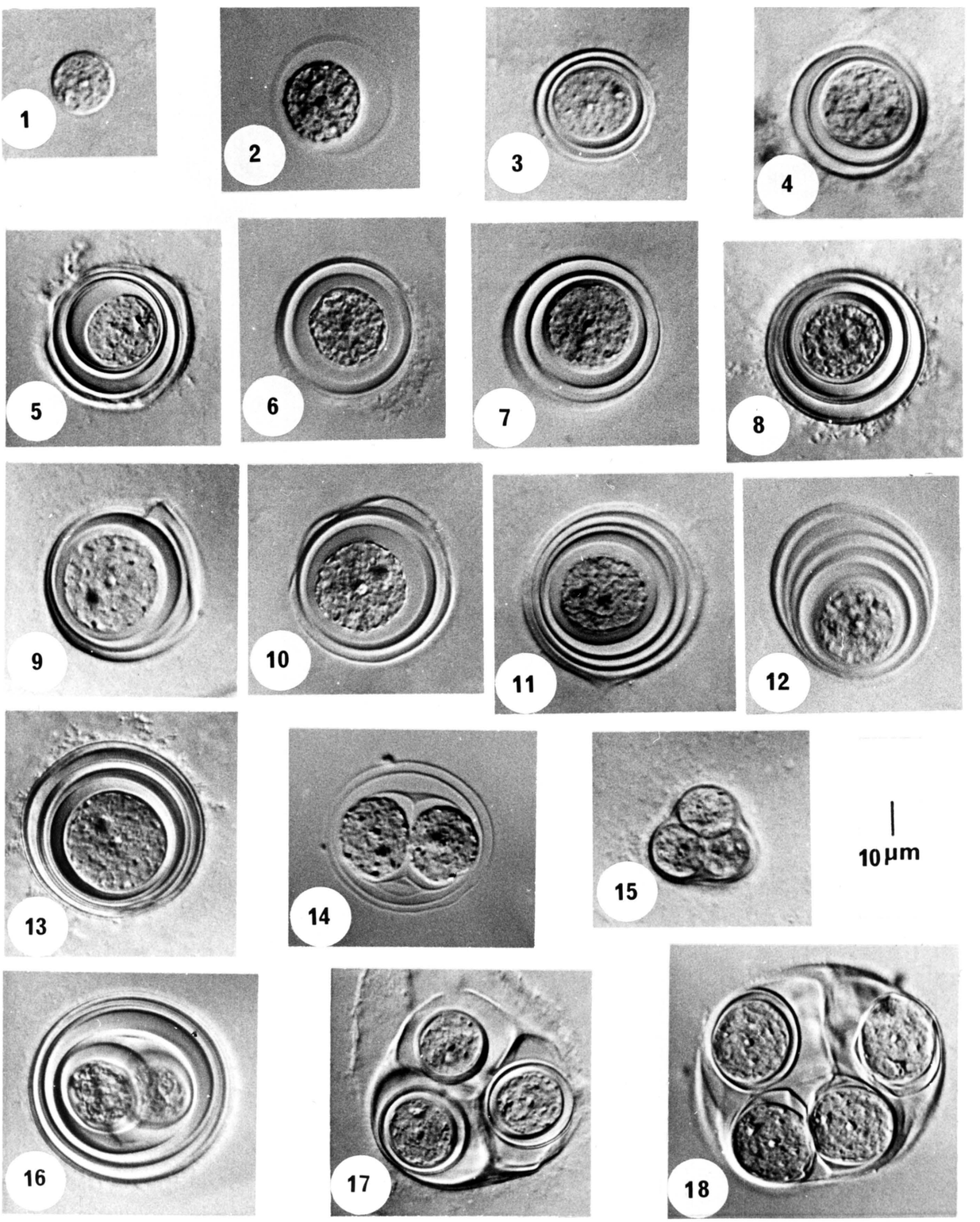

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FIGUUR 57

Fotomikrograwe van

1 - 5. Gloeocystis ampla (p. 122).

6, 7. Ankistrodesmus bibraianus (p. 127); selle tipies "rug teen rug" gerangskik.

8 - 10. Sphaerocystis schroeteri (p. 126).

11 - 14. Ankistrodesmus densus (p. 128).

1 - 7, 11 - 14 : skaal A

8 - 10 : skaal B

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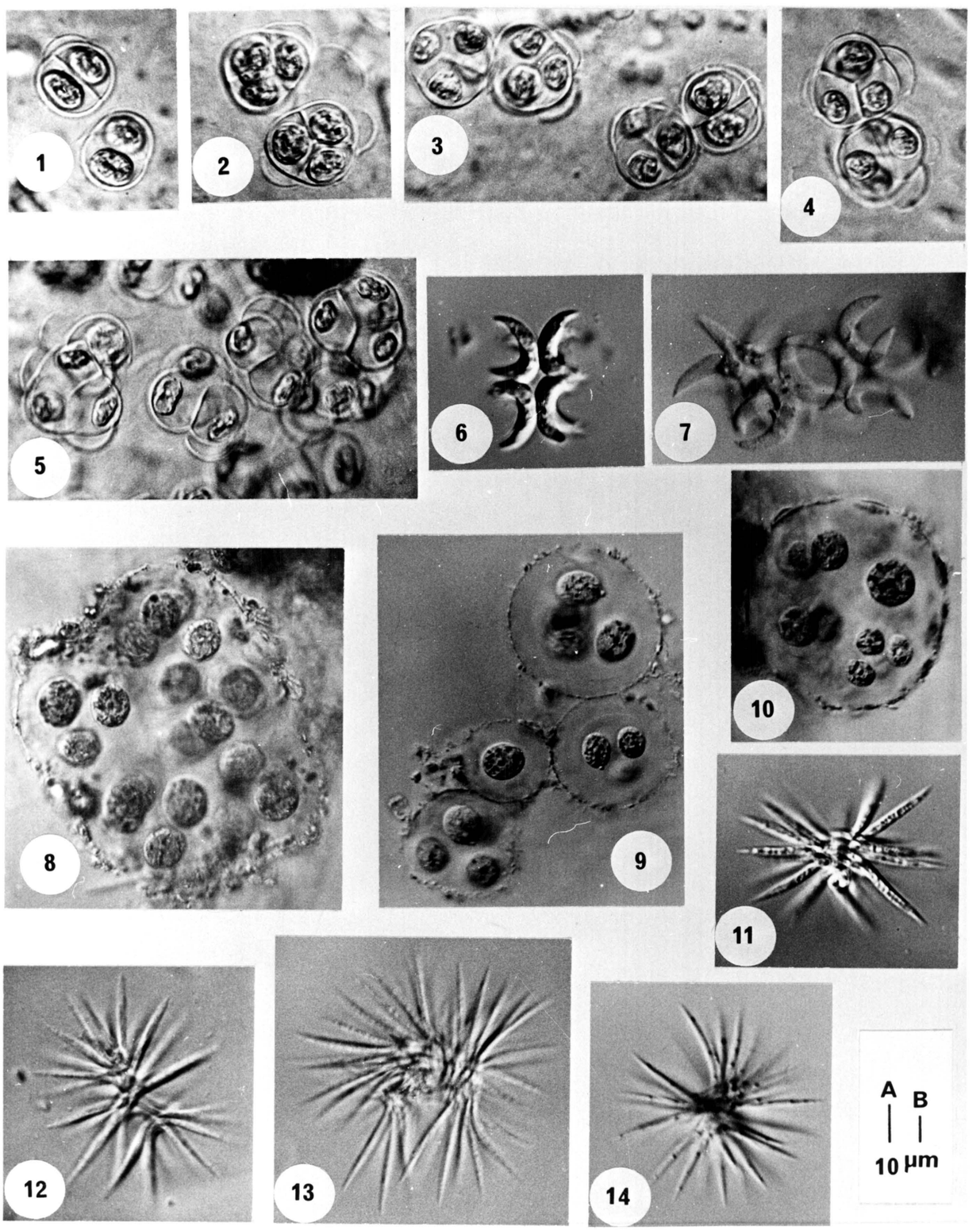

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FIGUUR 58

Fotomikrograwe van

1 - 5. Ankistrodesmus fusiformis (p. 129).

6 - 9. A. gracilis (p. 130).

10 - 13. A. spiralis (p. 131).

14, 15. Chlorella vulgaris (p. 133). 15. Deling van protoplas om outospore te vorm.

16, 17. Chlorococcum botryoides (p. 124).

18. Kirchneriella obesa var. obesa (p. 136).

19. K. obesa var. aperta (p. 137).

1 - 5 : skaal A

6 - 13 : skaal B

14, 15, 18, 19: skaal C

16, 17 : skaal D

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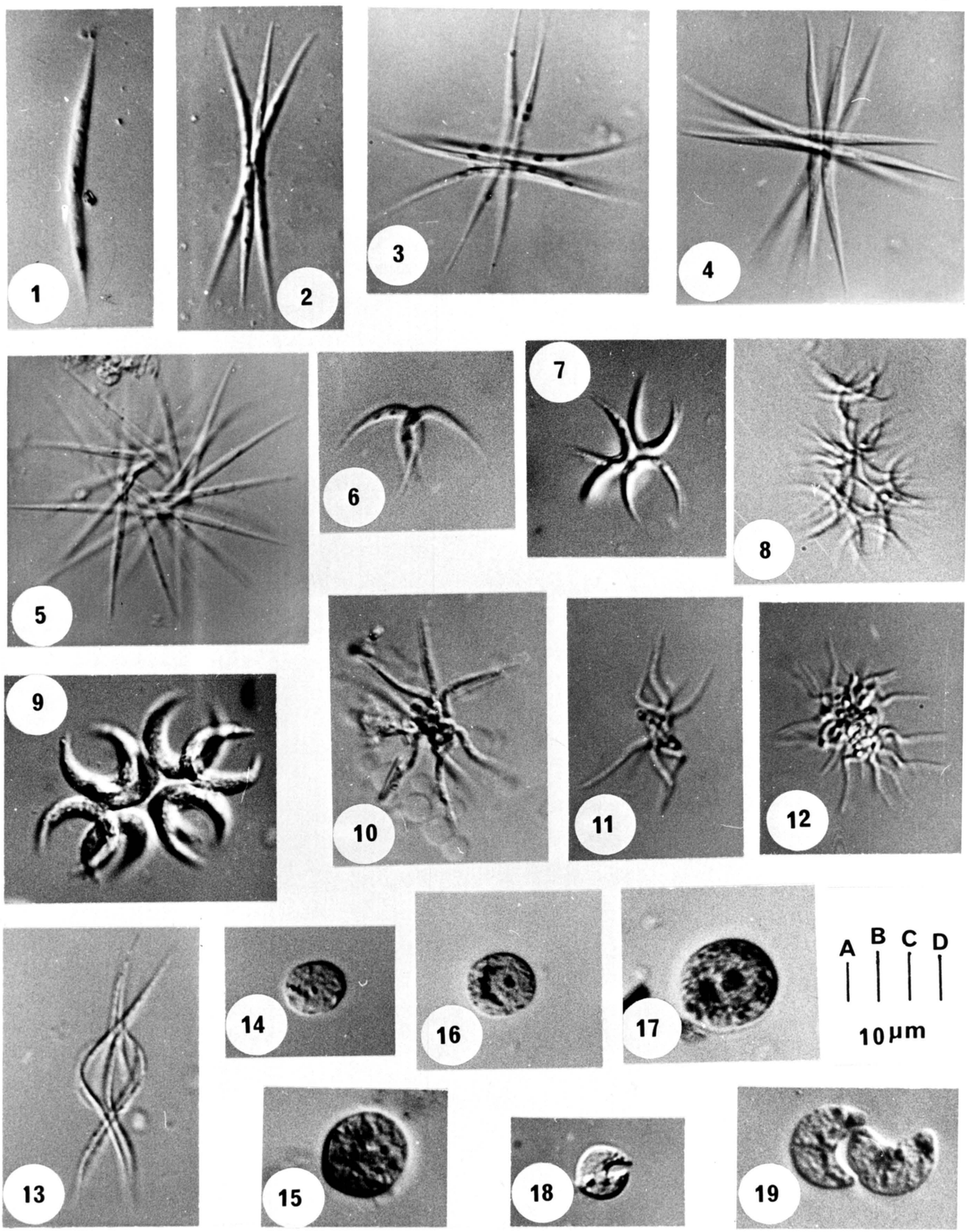

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FIGUUR 59

Fotomikrograwe van

1. *Kirchneriella lunaris* var. *lunaris* (p. 134).

2. *K. lunaris* var. *dianae* (p. 135).

3, 4. *Monoraphidium braunii* (p. 137).

5, 7, 8. *Nephrocytium lunatum* (p. 138).
7, 8. Verskillende fokusinstellings van 'n senobium om die selvorm en -rangskikking te toon.

6. *N. aghardhianum* (p. 138).

9. *Ankistrodesmus stipitatus* (p. 132).

10. *Dictyosphaerium ehrenbergianum* (p. 142).

11. *D. pulchellum* (p. 143).

12 - 14. *Westella botryoides* (p. 145).

1 - 8 : skaal A

9 : skaal B

10 - 14 : skaal C

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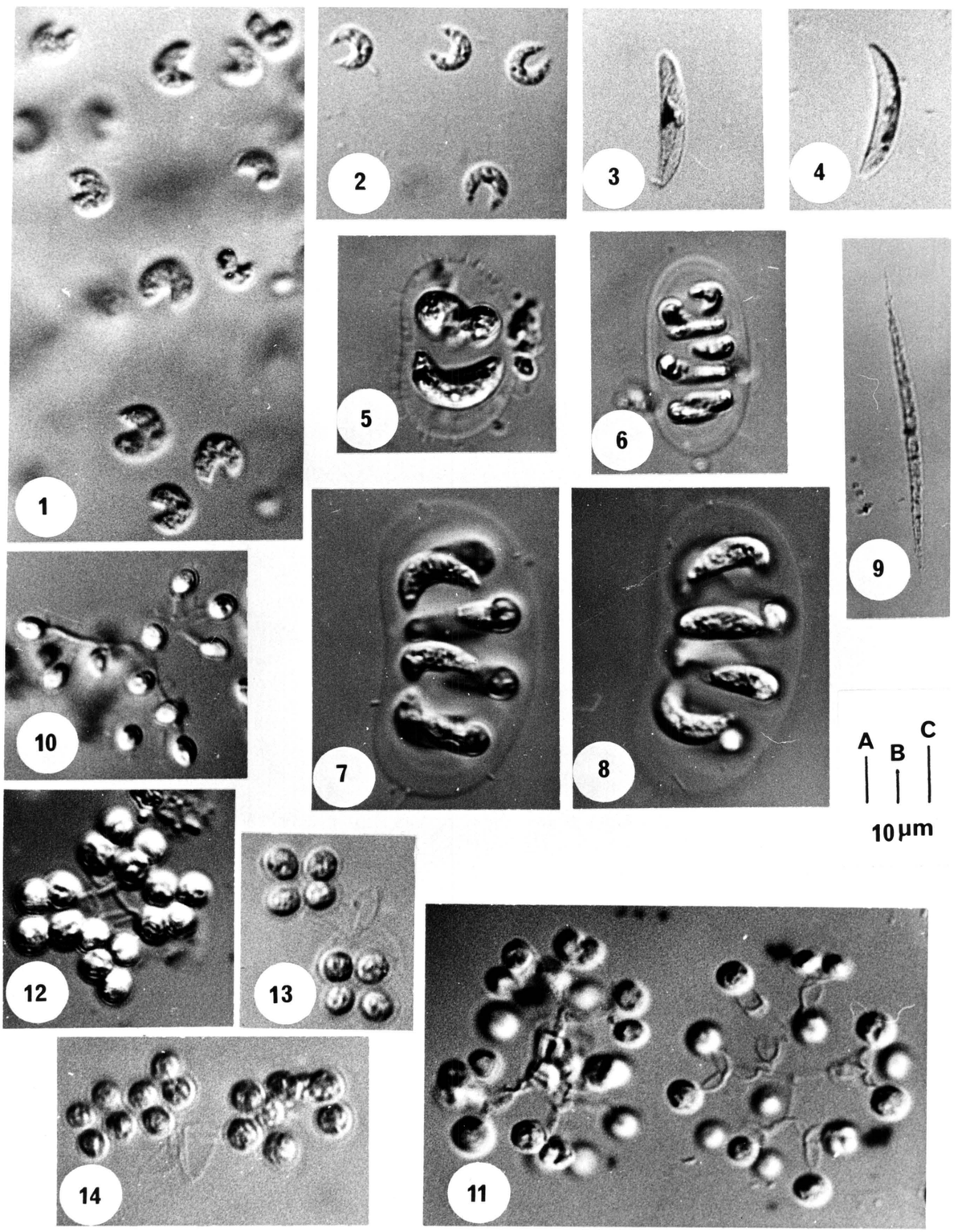

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FIGUUR 60

Fotomikrograwe van

1 - 9. Coelastrum cambricum forma (p. 146).
1. 32-sellige senobium. 2. Op die omtrek van die senobium kan die sentrale stomp= puntige papilagtige lobbe van die selle waargeneem word. 3. Enkele selle van 'n senobium, 'n dogtersenobium kan in die regterkantse sel waargeneem word. 4. In elke sel van die senobium kom 'n dogtersenobium voor.
5 - 9. Variasie in die uitbeelding van die sel= lobbe.

10. C. pseudomicroporum (p. 148).

11, 12. C. reticulatum f. reticulatum (p. 148); verskil= lende fokusinstellings van 'n senobium om die selvorm en aanhangsels wat die selle met mekaar verbind te toon.

1, 3, 4	:	skaal A
2, 5 - 9	:	skaal B
10	:	skaal C
11, 12	:	skaal D

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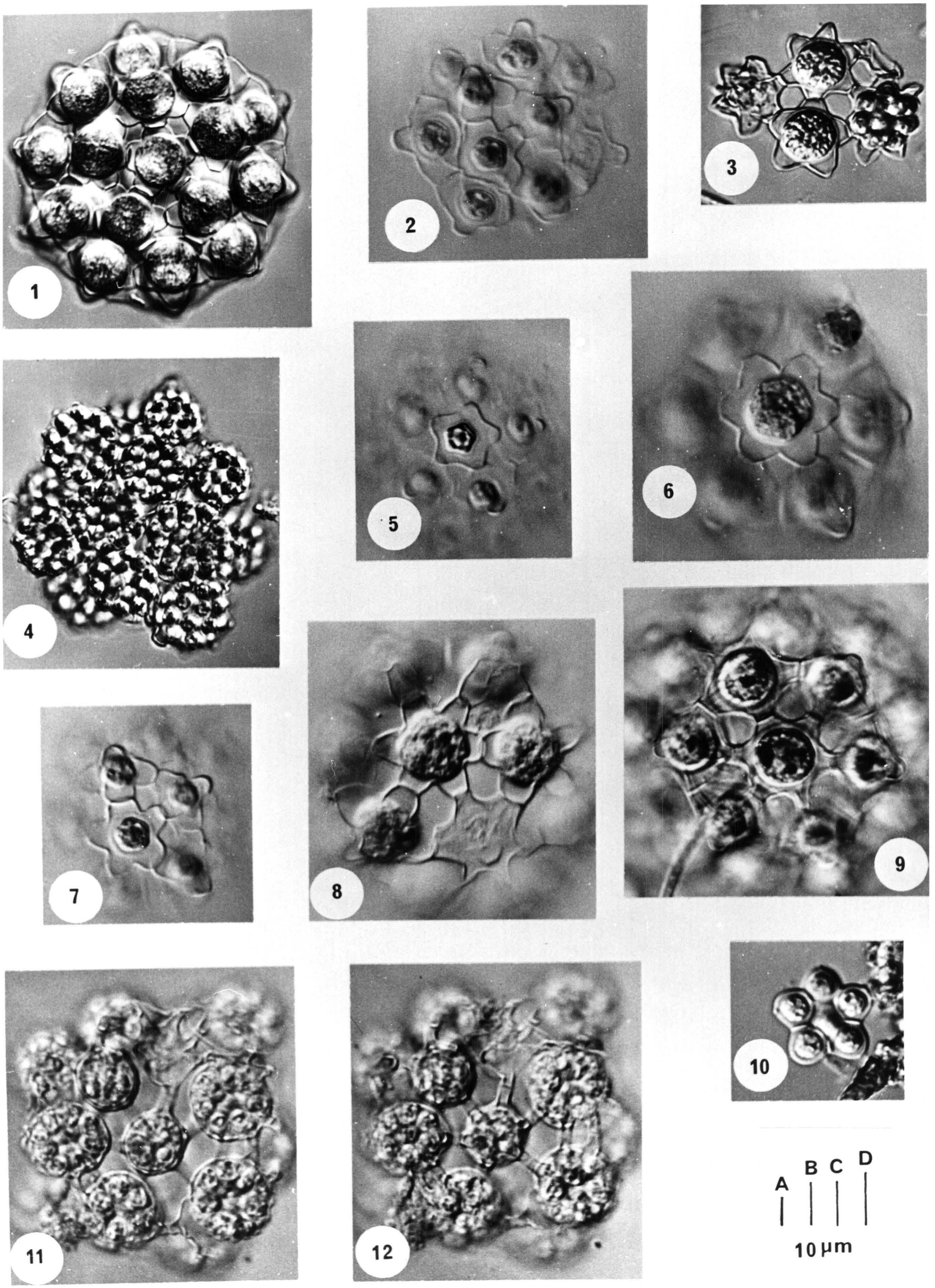

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FIGUUR 61

Fotomikrograwe van

1 - 3. Oocystis lacustris (p. 139).
1. Enkelsel. 2, 3. Senobiums.

4, 5. O. solitaria (p. 141). 4. Senobiums.
5. Enkelsel.

6. Coelastrum morus f. capensis (p. 147); 8-sel=lige senobium met die selle in die vorm van 'n kubus gerangskik.

7 - 9. Crucigenia rectangularis (p. 151).

10. Scenedesmus acutiformis (p. 153).

11, 12. S. brasiliensis (p. 156); selle met oorlangse riwwe.

13. S. dimorphus (p. 157).

14. S. naegelii (p. 158); slegs een van die senobium se binneste selle besit 'n stekel.

15. S. nygaardii (p. 159).

16 - 18. S. obtusus f. disciformis (p. 161).

1 - 5 : skaal A
6 : skaal B
7 - 13, 15 - 18 : skaal C
14 : skaal D

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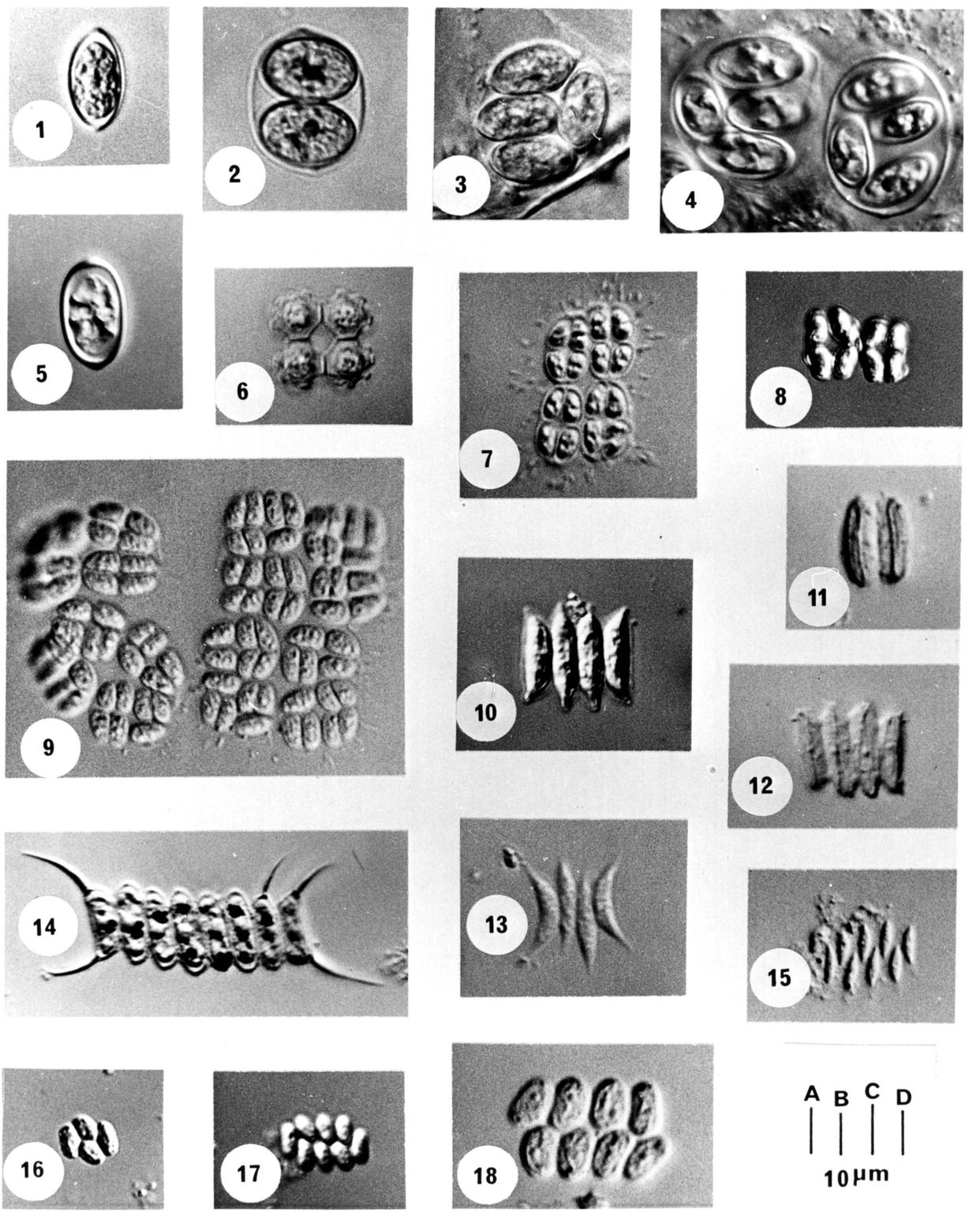

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FIGUUR 62

Fotomikrograwe van

1 - 6, 20. Scenedesmus armatus var. majus (p. 155); die oorlangse rif kan by sommige selle waargeneem word.

7 - 16. S. incrassatulus (p. 158); variasie in sel=vorm en rangskikking van die selle in senobiums.

17, 18. S. quadricaudus var. quadricaudus (p. 163).

19. S. quadricaudus var. quadrispinus (p. 165).

1 - 6	:	skaal A
7 - 16, 19	:	skaal B
17, 18	:	skaal C
20	:	skaal D

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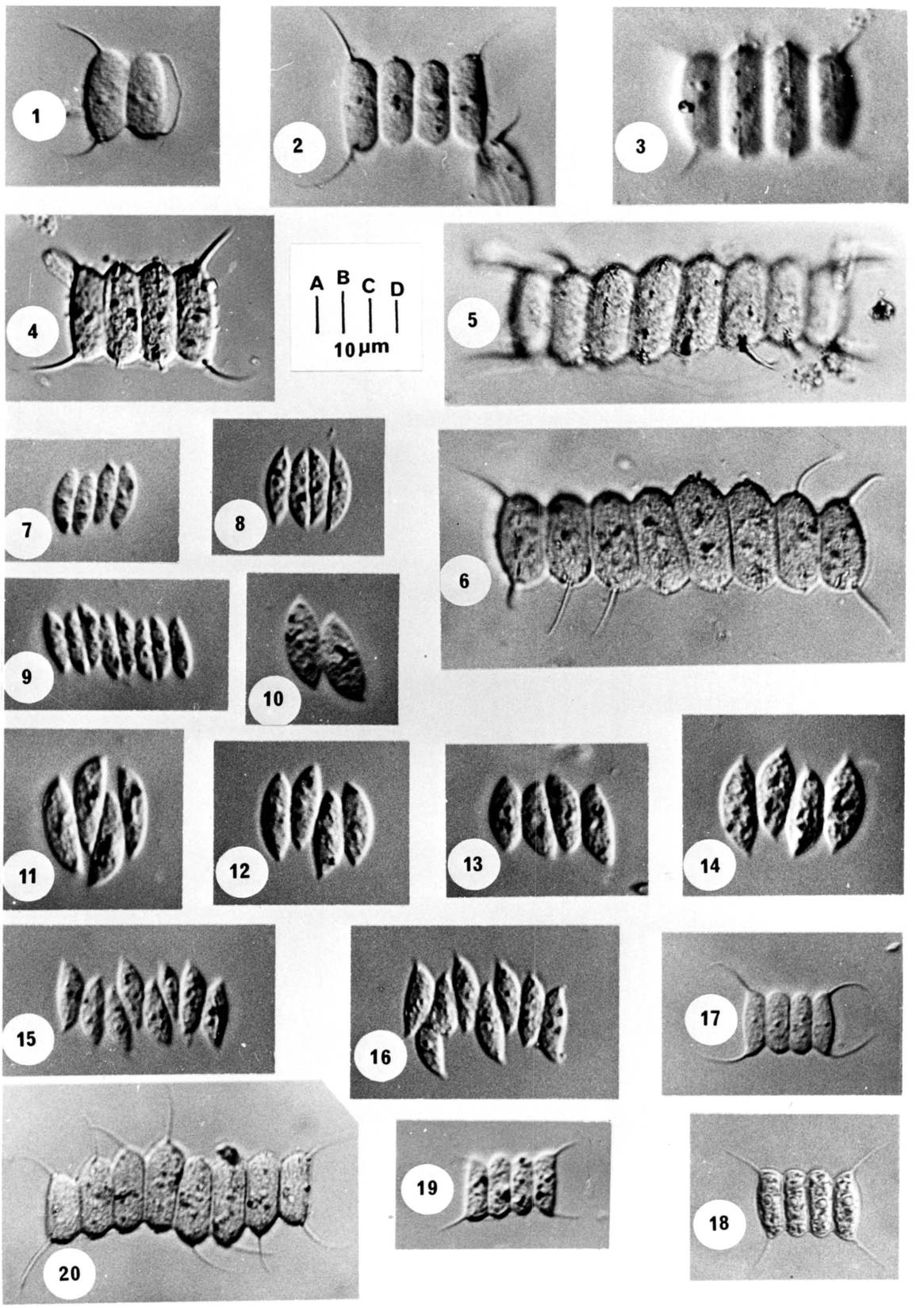

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FIGUUR 63

Fotomikrograwe van

1 - 6. *Scenedesmus obtusus* f. *obtusus* (p. 159).

7. *Pediastrum biradiatum* var. *glabrum* (p. 168).

8. *P. boryanum* var. *boryanum* (p. 168).

9. *P. boryanum* var. *longicorne* (p. 171).

10, 11. *P. duplex* var. *duplex* (p. 172).

12 - 15. *P. integrum* (p. 176).

1 - 6	:	skaal A
7, 9 - 11	:	skaal B
8	:	skaal C
12 - 15	:	skaal D

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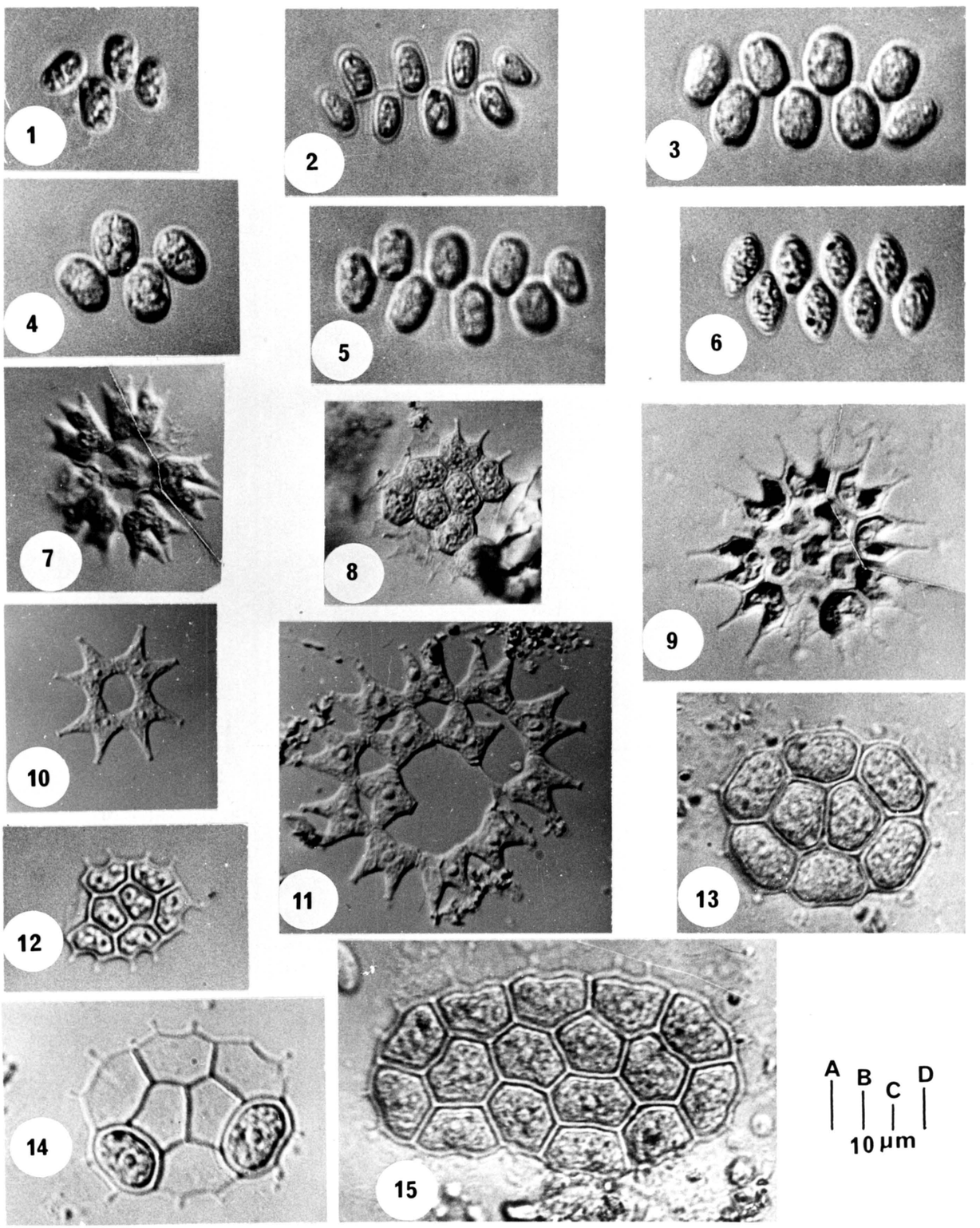

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FIGUUR 64

Fotomikrograwe van

1 - 5. Pediastrum duplex var. asperum (p. 175).

1 - 3. Senobiums wat variasie in selvorm toon.

4, 5. Verskillende fokusinstellings van 'n senobium om ook die riffies op die selwande te toon.

6 - 8. P. tetras (p. 179).

9. Sorastrum americanum (p. 183).

10. S. spinulosum (p. 183).

1	:	skaal A
2 - 5	:	skaal B
6 - 8	:	skaal C
9, 10	:	skaal D

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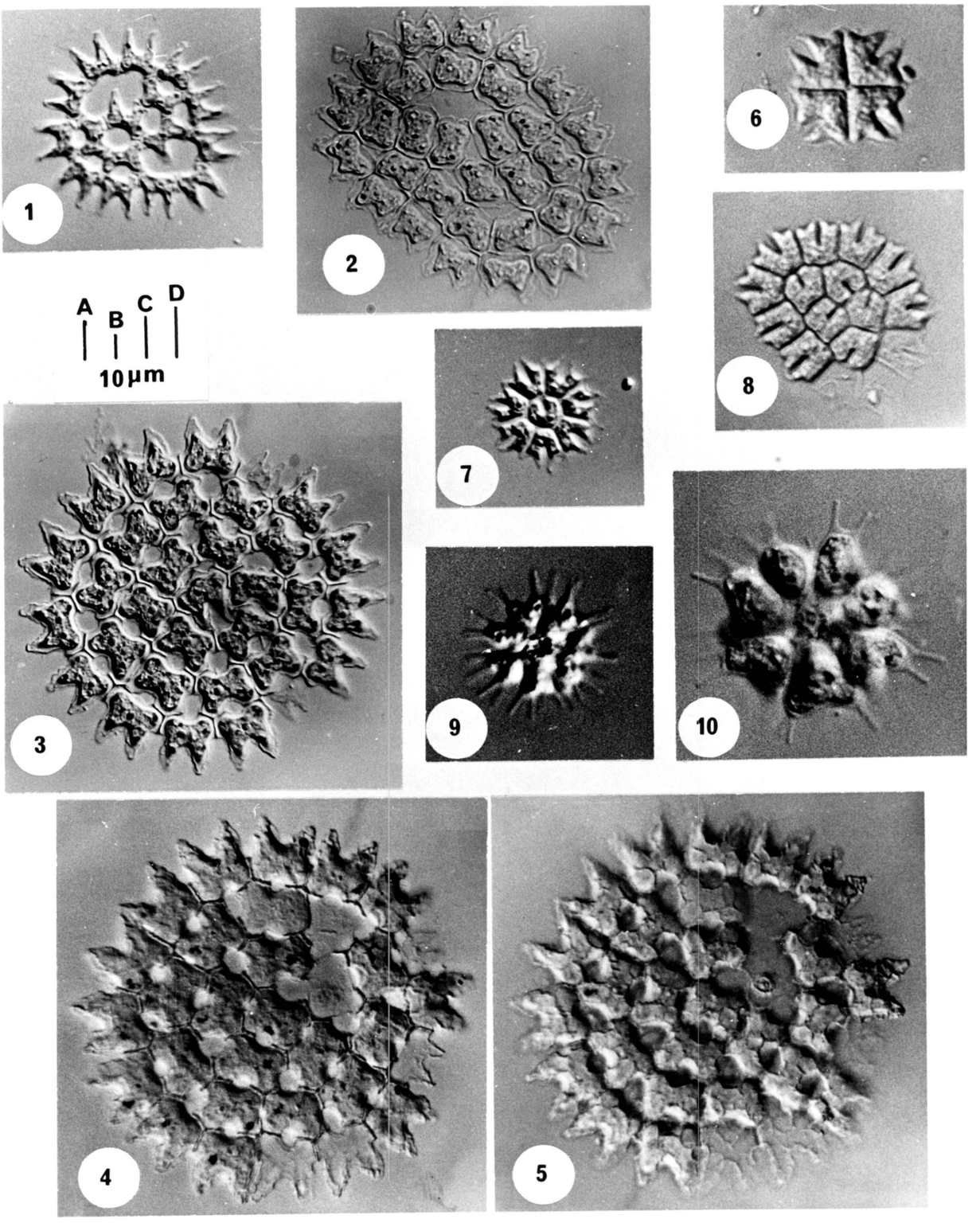

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FIGUUR 65

Fotomikrograwe van

1 - 3. Pediastrum angulosum (p. 166).
1, 2. Senobiums met 128 en 64 selle onder= skeidelik, die openinge in die senobiums is waar selle afgesterf het. 3. Riffies op selwande.

4 - 7. P. simplex (p. 177). 4, 5. Senobiums besit slegs enkele klein perforasies. 6, 7. Seno= biums met groot perforasies.

1 - 3 : skaal A
4 - 7 : skaal B

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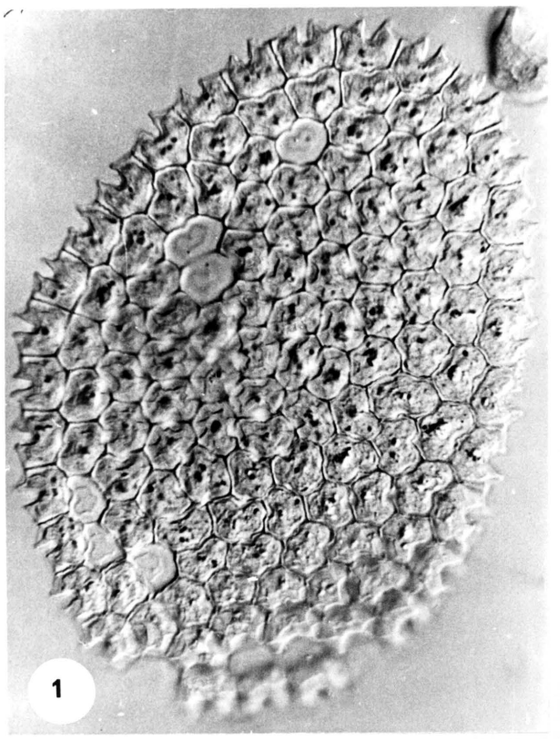

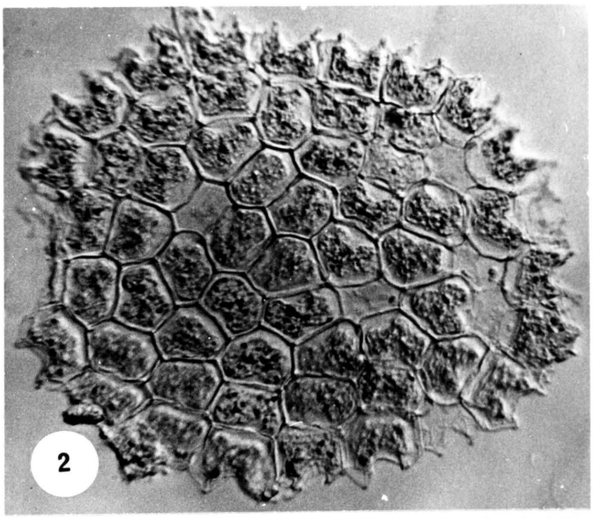

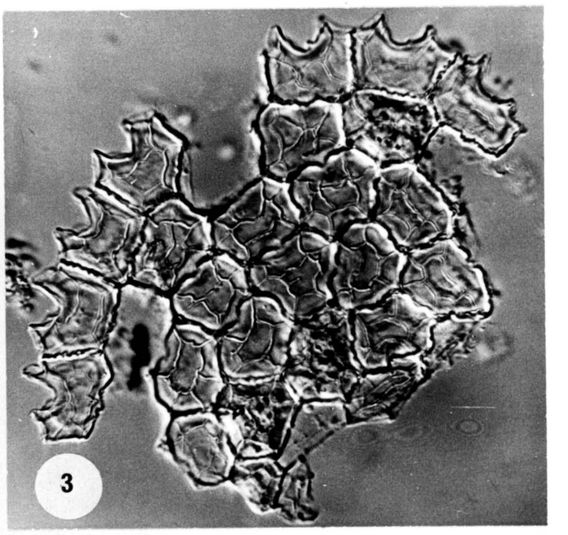

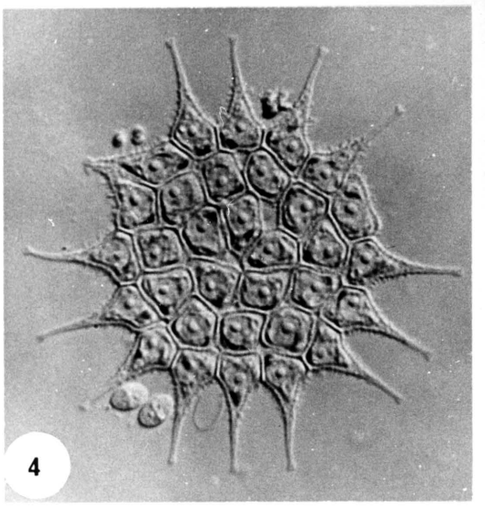

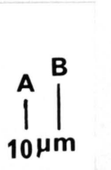

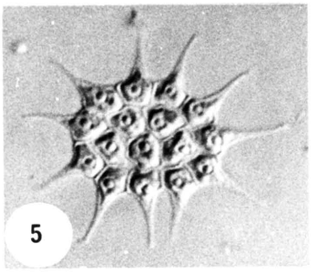

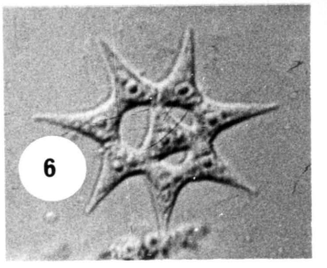

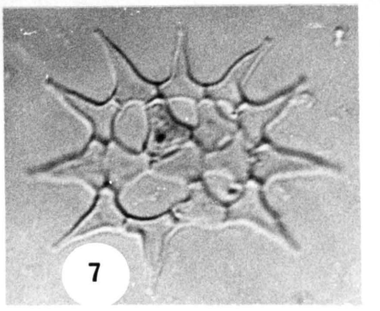

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FIGUUR 66

Aftaselektronmikrograwe van

1 - 5. Coelastrum cambricum forma (p. 146); verskillende vergrotings van senobiums wat die afgeplatte papilagtige sentrale lobbe van die selle en die selwandskulptuur toon.

6. Ankistrodesmus spiralis (p. 131).

1, 2, 4, 6 : skaal = 10 µm

3, 5 : skaal = 1 µm

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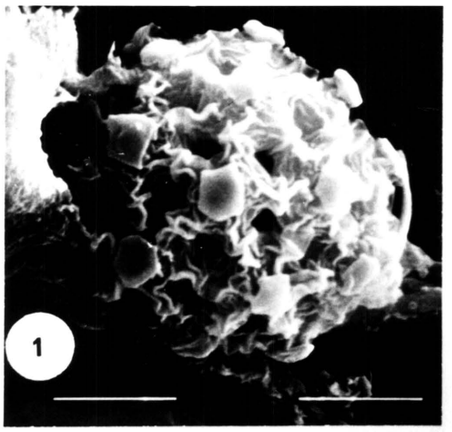

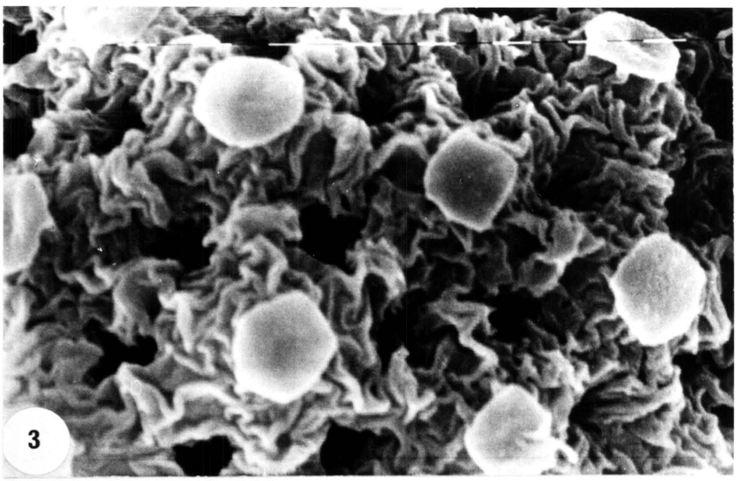

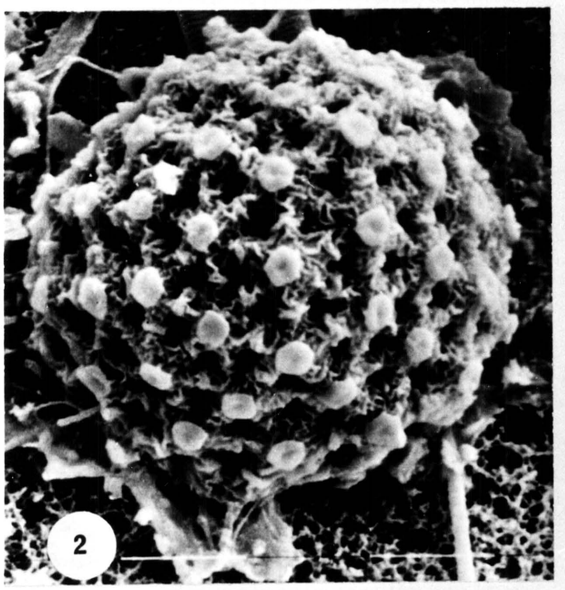

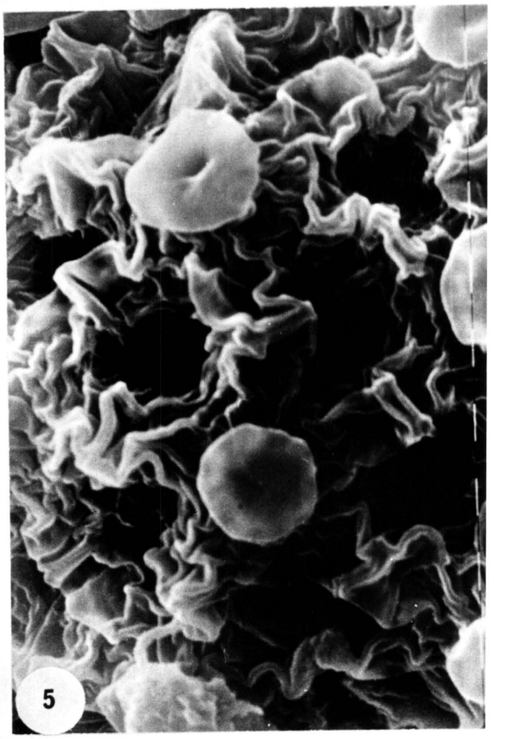

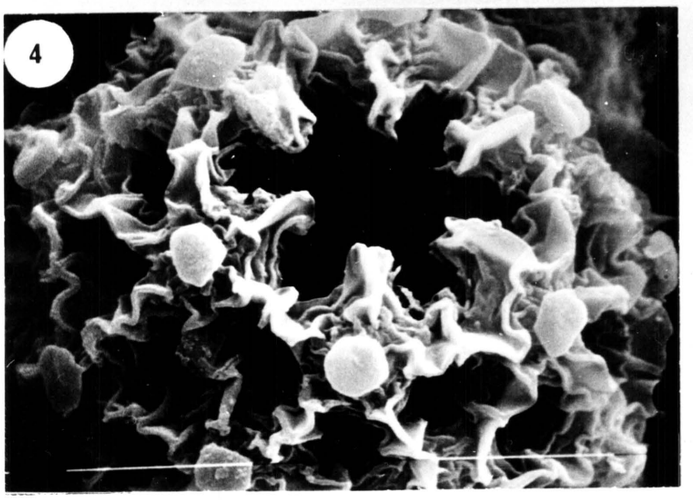

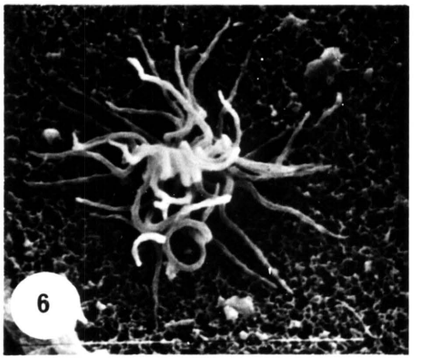

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FIGUUR 67

Aftaselektronmikrograwe van

1, 2. Coelastrum reticulatum f. reticulatum (p. 148). 1. Volwasse senobium, toon die enkelverbindings tussen aangrensende selle en riffies op die selwande. 2. Dogtersenobiums.

3. C. reticulatum f. duplex (p. 149); enkel- en gepaarde verbindings tussen aangrensende selle.

4. Pediastrum tetras (p. 179).

5, 6. P. duplex var. punctatum (p. 176); verskillende vergrotings van 'n senobium om die selvorm en selwandskulptuur te toon.

1 - 6 : skaal = 10 µm

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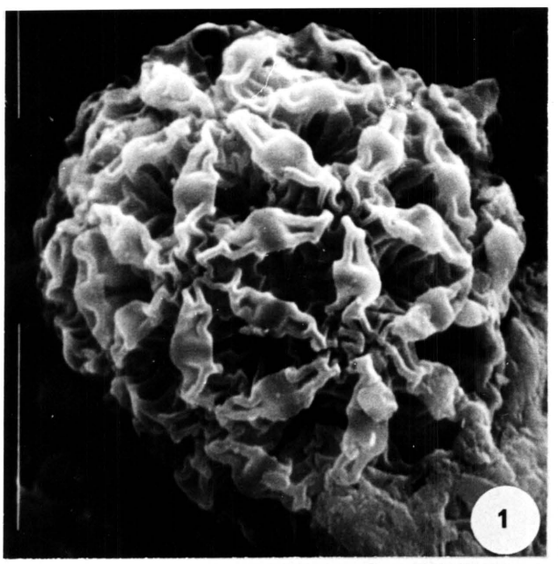

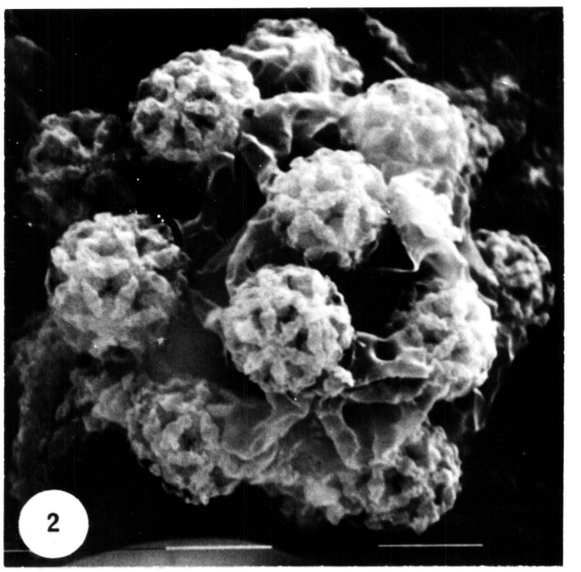

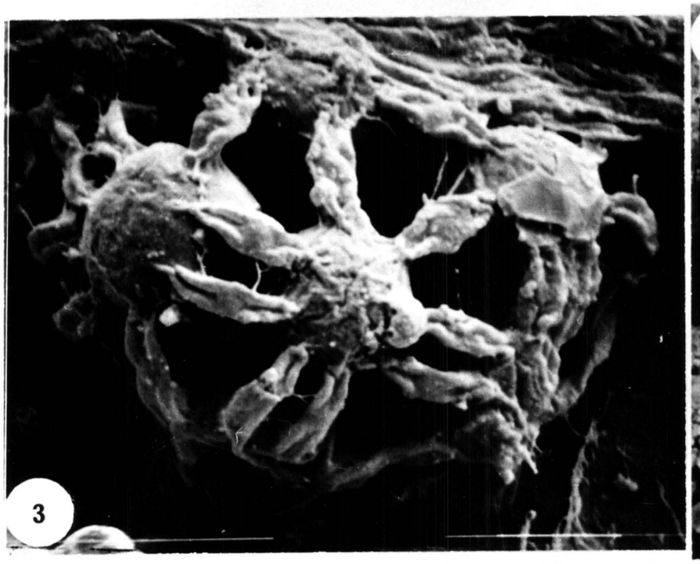

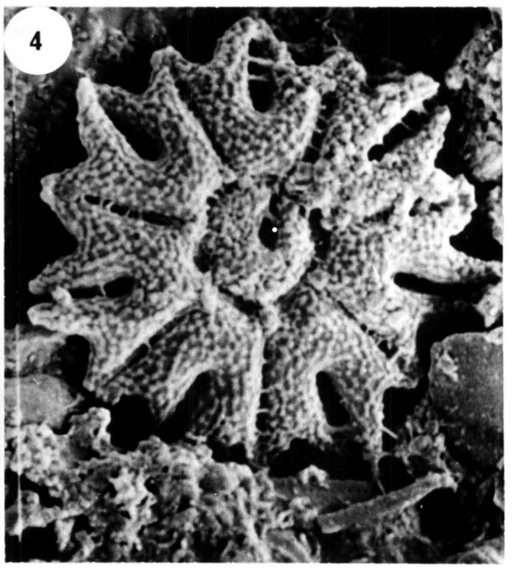

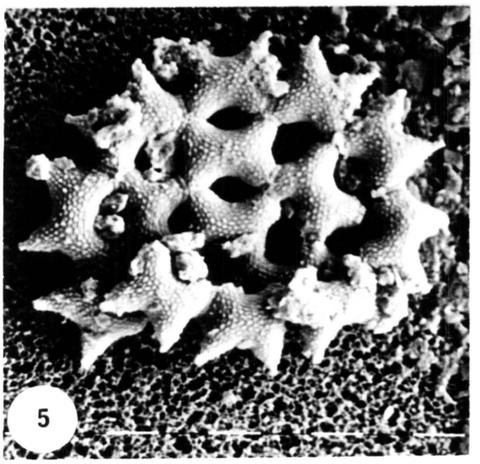

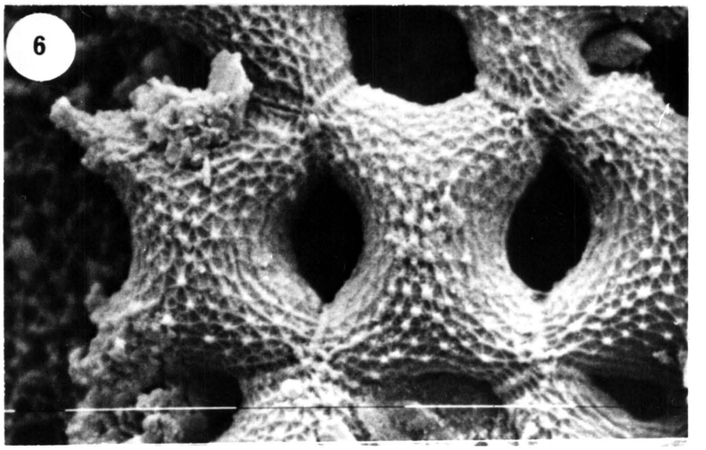

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FIGUUR 68

Aftaselektronmikrograwe van

1, 2. Pediastrum angulosum (p. 166); verskillende vergrotings van senobiums om die riffies op die selwande te toon.

3 - 6. P. duplex var. asperum (p. 175); toon die riffies op die selwande en variasie in selvorm.

7, 8. Ankistrodesmus densus (p. 128).

1 - 8 : skaal = 10 µm

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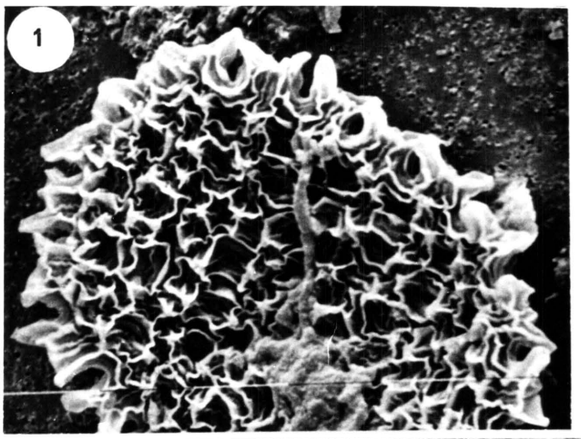

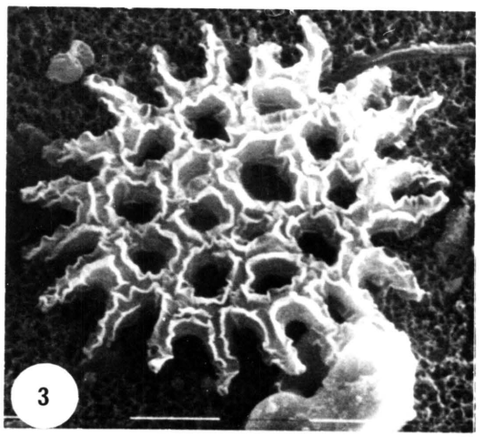

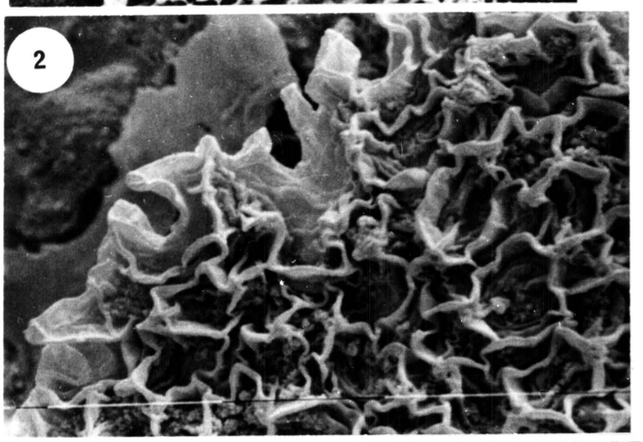

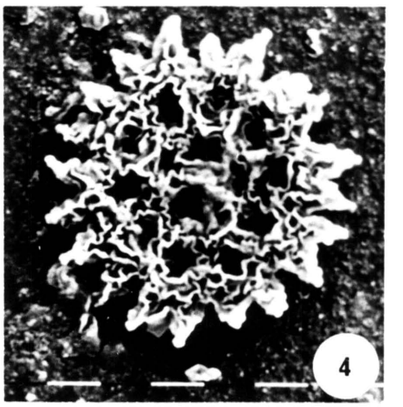

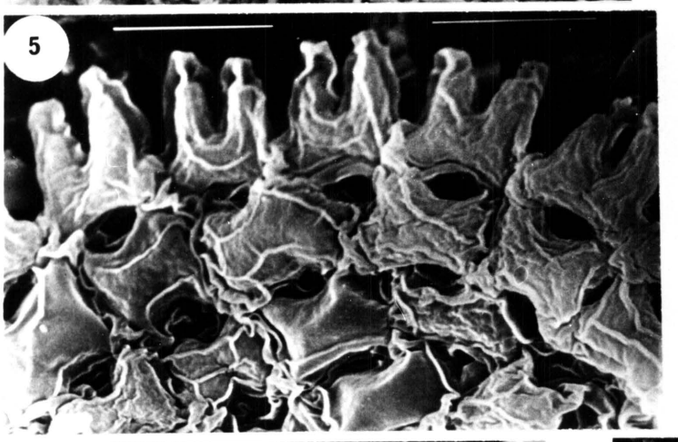

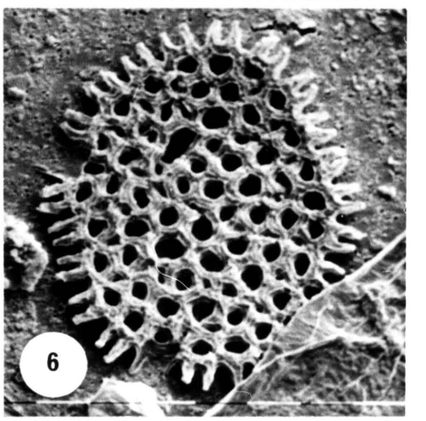

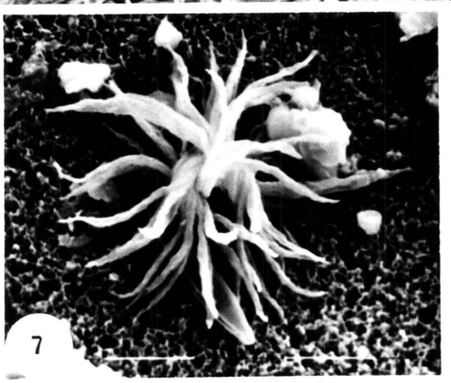

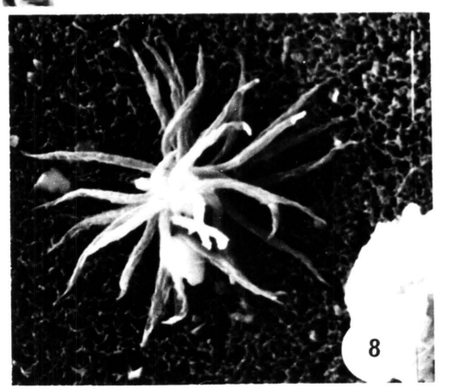

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FIGUUR 69

Aftaselektronmikrograwe van

1 - 4. Ankistrodesmus fusiformis (p. 129).

5. Pediastrum boryanum var. boryanum (p. 168); toon selwandknoppies.

6, 7. P. duplex var. duplex (p. 172); verskillende vergrotings van 'n senobium, selle effens ingekrimp tydens dehidrering.

1 - 7 : skaal = 10 µm

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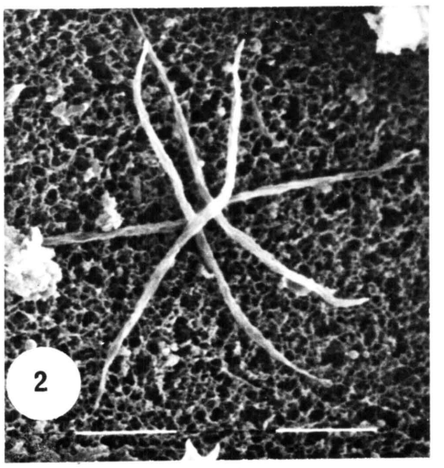

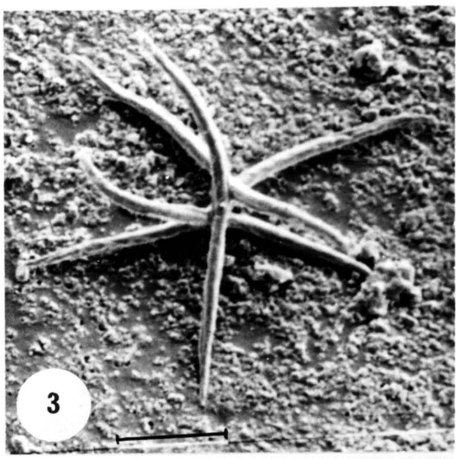

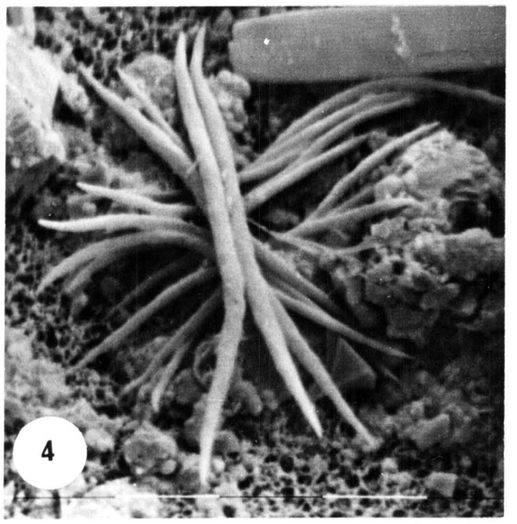

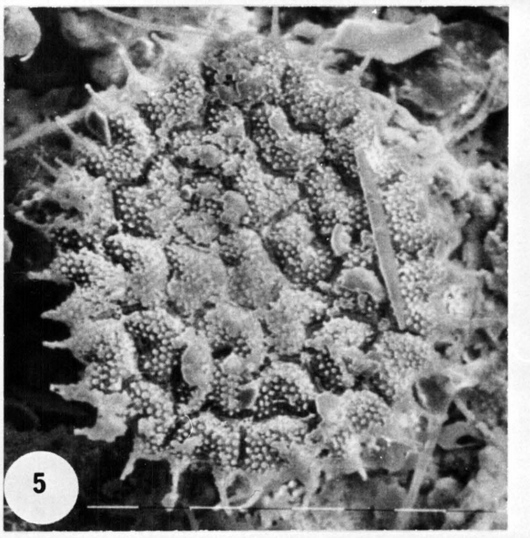

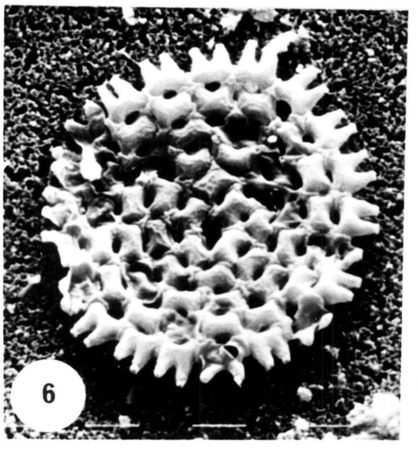

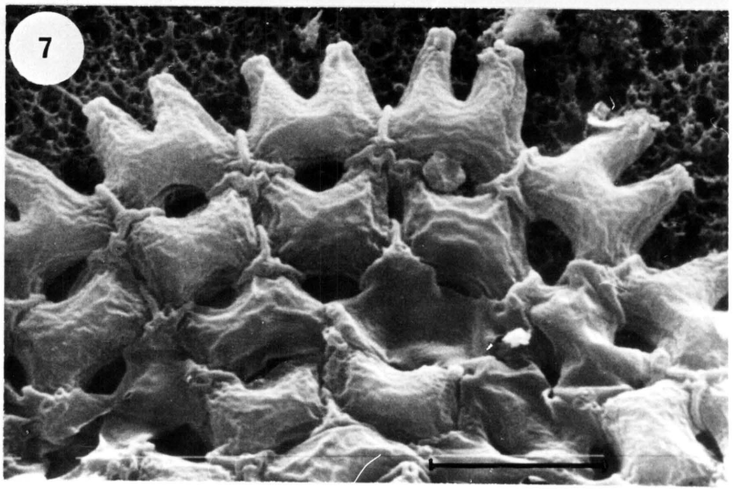

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FIGUUR 70

1. Geminella mutabilis (p. 184).

2. Ulothrix cylindricum (p. 185).

3, 4. Aphanochaete repens (p. 189).

5. Mougeotia punctata (p. 195); sigoot.

6. M. viridis (p. 195); sigoot.

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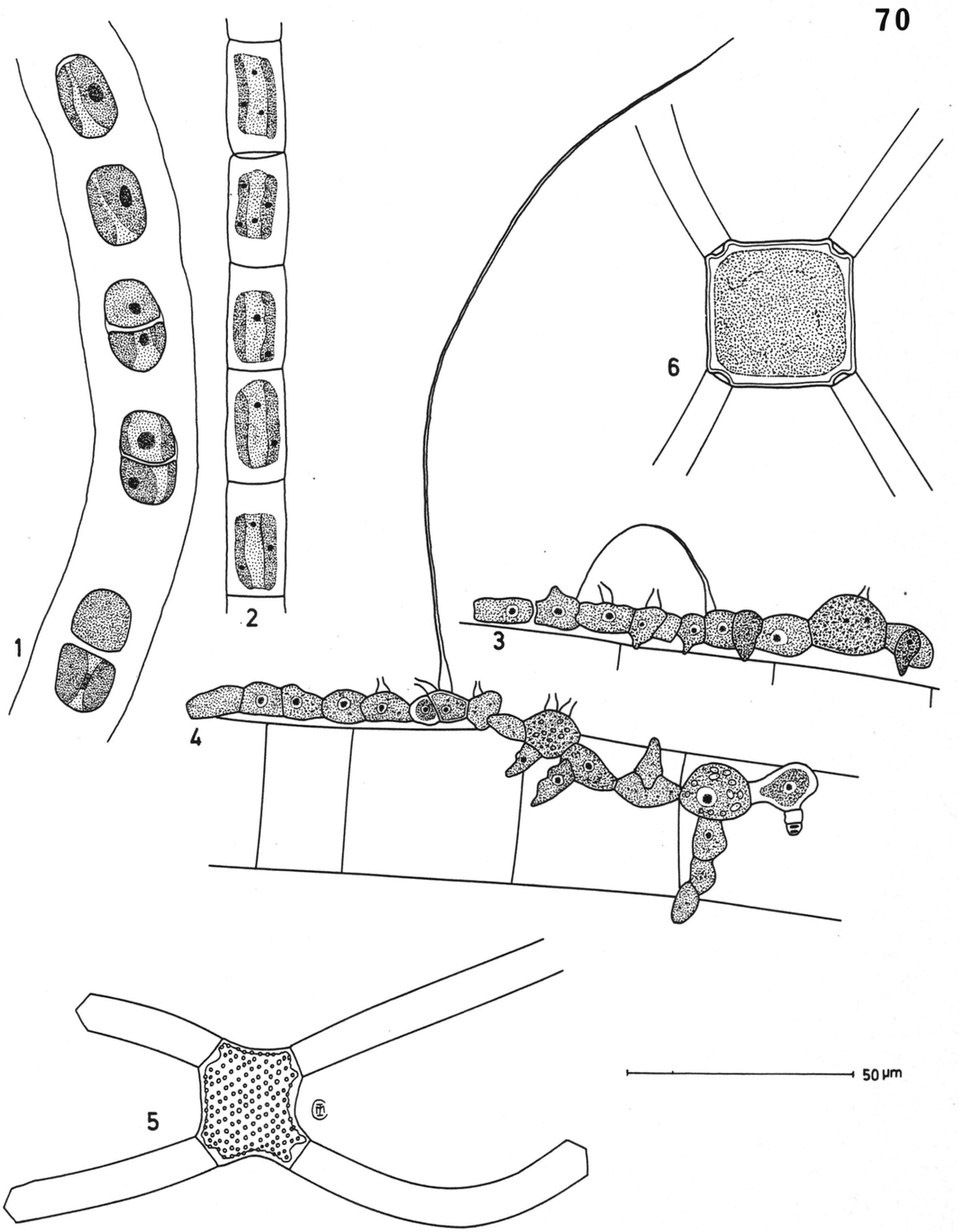

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FIGUUR 71

Fotomikrograwe van

1. *Geminella mutabilis* (p. 184).

2. *Ulothrix cylindricum* (p. 185).

3, 4. *Ulothrix* sp. cf. *U. fimbriata* (p. 185).

5, 6. *U. tenuissima* (p. 185).

7. *U. variabilis* (p. 186).

8. *Microspora* sp. ad *M. elegans* (p. 186).

9 - 12. *M. rufescens* (p. 188).

13. *M. stagnorum* (p. 188).

14, 15. *M. pachyderma* (p. 187).

16. *M. quadrata* (p. 187).

1 - 6, 8 - 16 : skaal A

7 : skaal B

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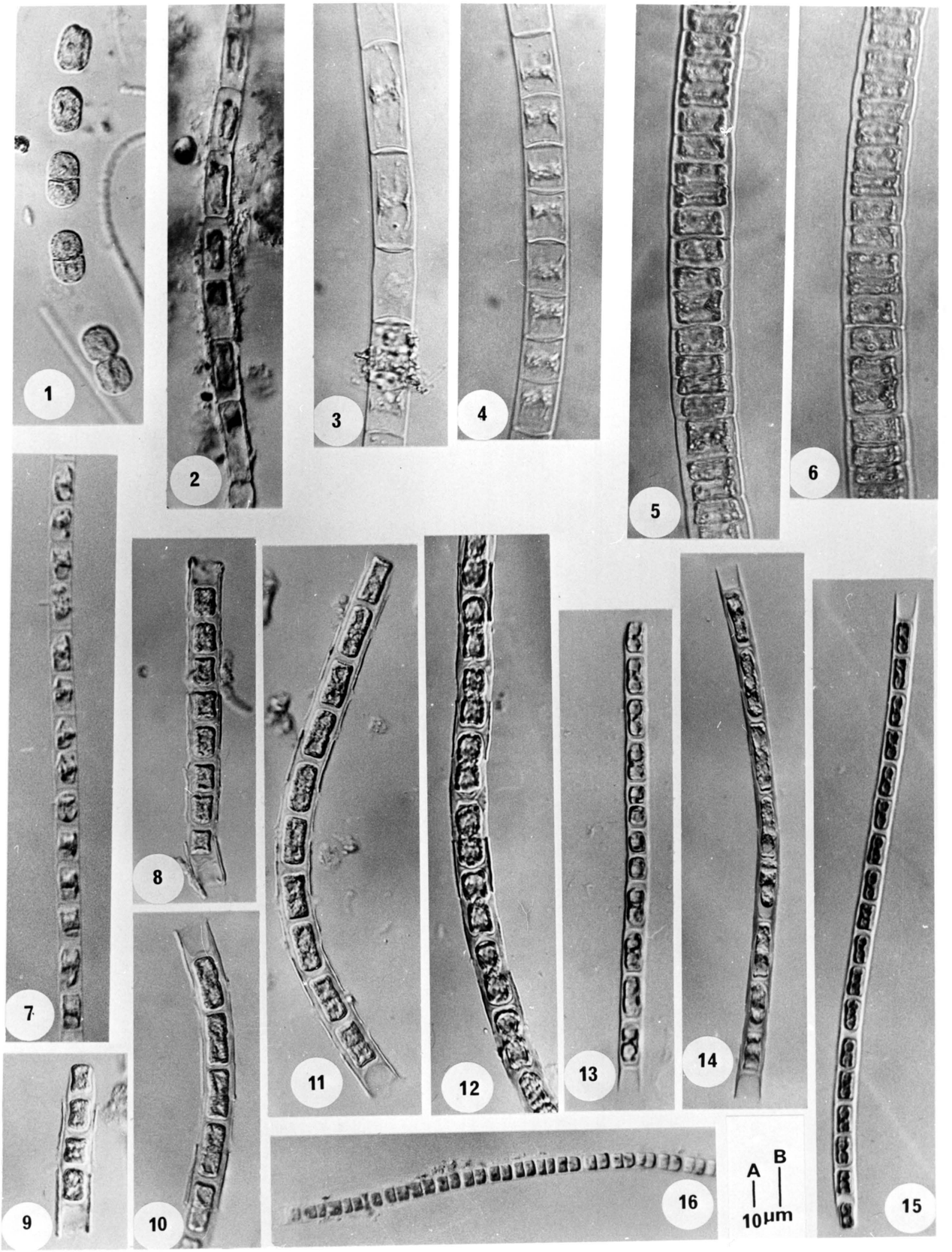

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FIGUUR 72

Fotomikrograwe van

1. Chaetophora pisiformis (p. 189).

2, 3. Aphanochaete repens (p. 189).

4 - 7. Chaetosphaeridium pringsheimii f. conferta (p. 190).

8. Mougeotia punctata (p. 195); sigoot.

9. M. viridis (p. 195); sigoot.

10, 11. M. opelousensis (p. 194); sigote.

1	:	skaal A
2 - 7	:	skaal B
8, 9	:	skaal C
10, 11	:	skaal D

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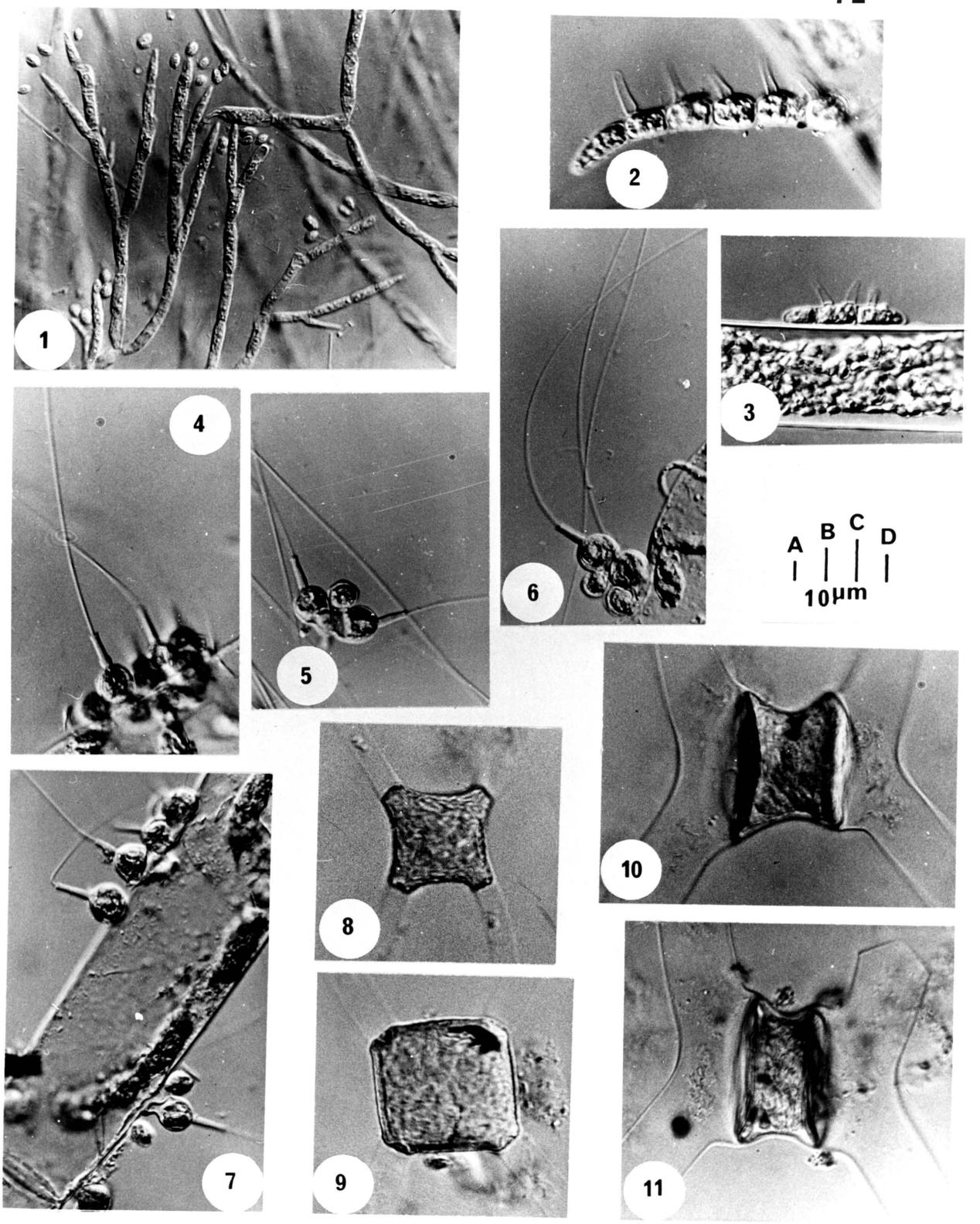

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FIGUUR 73

1 - 3. Oedogonium sp. (p. 192).

4, 5. Spirogyra sp. cf. S. singularis (p. 201).

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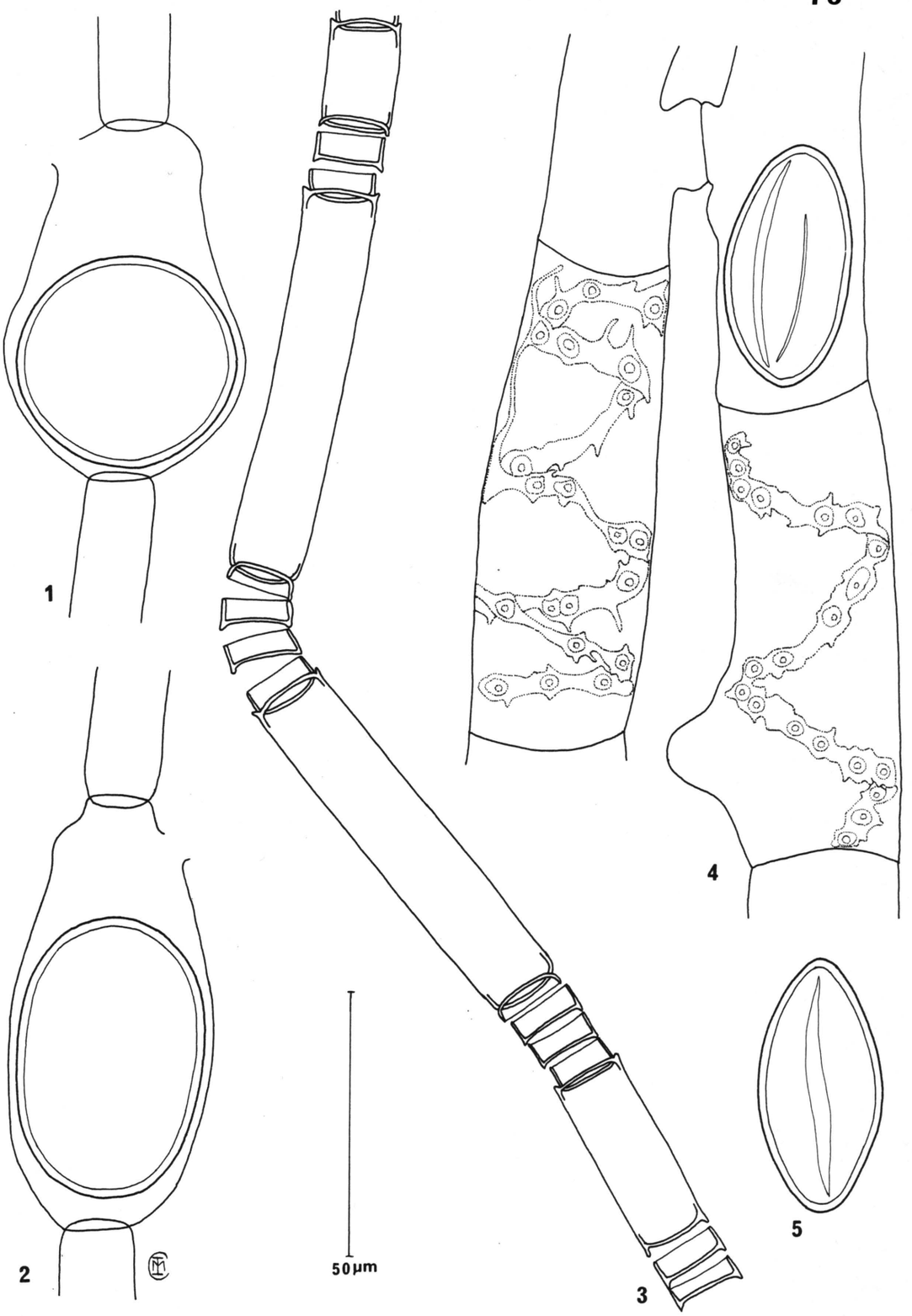

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FIGUUR 74

Fotomikrograwe van

1 - 3. Oedogonium fennicum (p. 191). 1. Oögoniums en anteridiums. 2. Oögonium met sigoot. 3. Anteridiums en jong oögonium.

4, 5. O. varians (p. 192). 4. Oögoniums met sigote. 5. Anteridiums.

6 - 8. Oedogonium sp. (p. 192); oögoniums met sigote.

9 - 13. Spirogyra fragilis (p. 198). 9. Vegetatiewe sel. 10 - 13. Konjugasiestadiums wat konjugasiebuise, versmelting van gamete en sigote toon.

14. S. kuusamoensis (p. 200); sigoot.

1 - 3	:	skaal A
4, 5	:	skaal B
6 - 8	:	skaal C
9 - 14	:	skaal D

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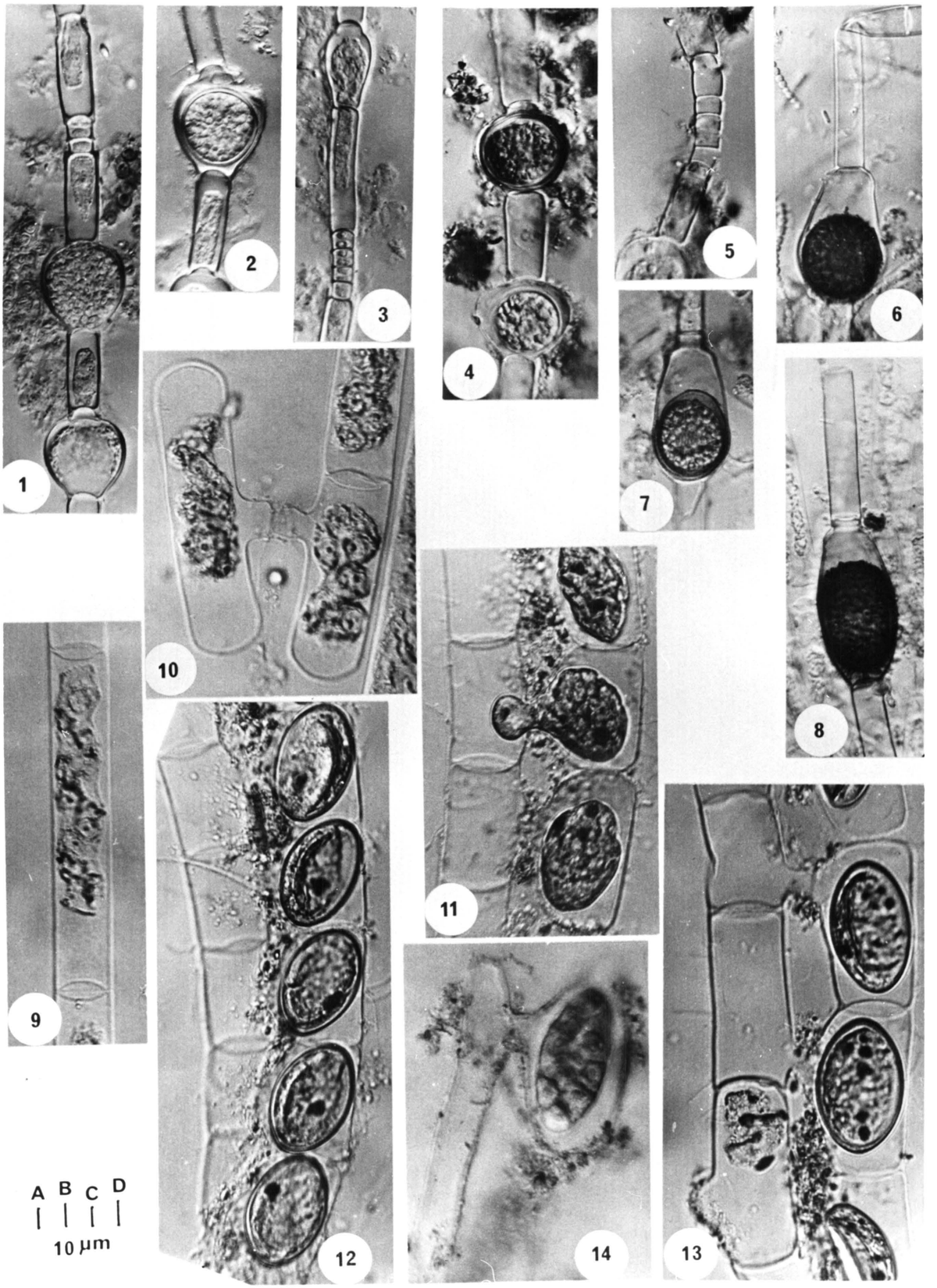

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FIGUUR 75

Fotomikrograwe van

1 - 7. Spirogyra africana (p. 197). 1, 2. Vegetatiewe selle met twee en drie chloroplaste onderskeidelik. 3 - 5. Sigote. 6. Skulptuur van sigootwand. 7. Kiemende sigoot.

8, 9. S. fennica (p. 198). 8. Vegetatiewe selle. 9. Sigote.

10 - 15. S. singularis (p. 200). 10. Vegetatiewe sel. 11 - 15. Konjugasiestadiums wat konjugasiebuise en sigote toon.

1 - 7 : skaal A

8 - 15 : skaal B

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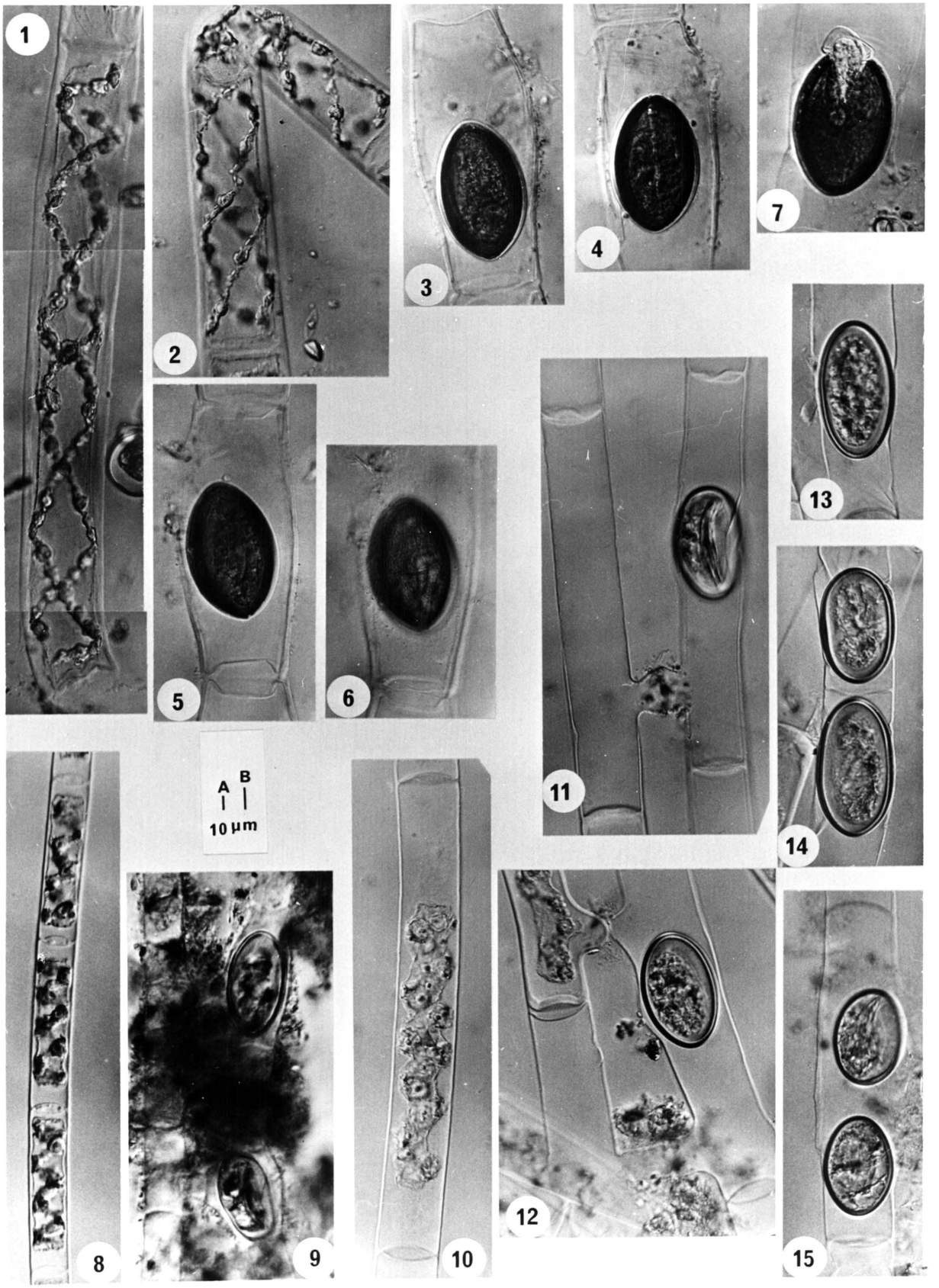

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FIGUUR 76

1 - 9. Fotomikrograwe van Spirogyra gracilis (p. 199). 1, 2. Vegetatiewe selle. 3 - 7. Konjugasie= stadiums wat variasie in die posisie van die konjugasiebuise toon. 7 - 9. Volwasse sigote; variasie in sigootvorm. 9. Die sutuur kan oorlangs oor die sigoot waargeneem word.

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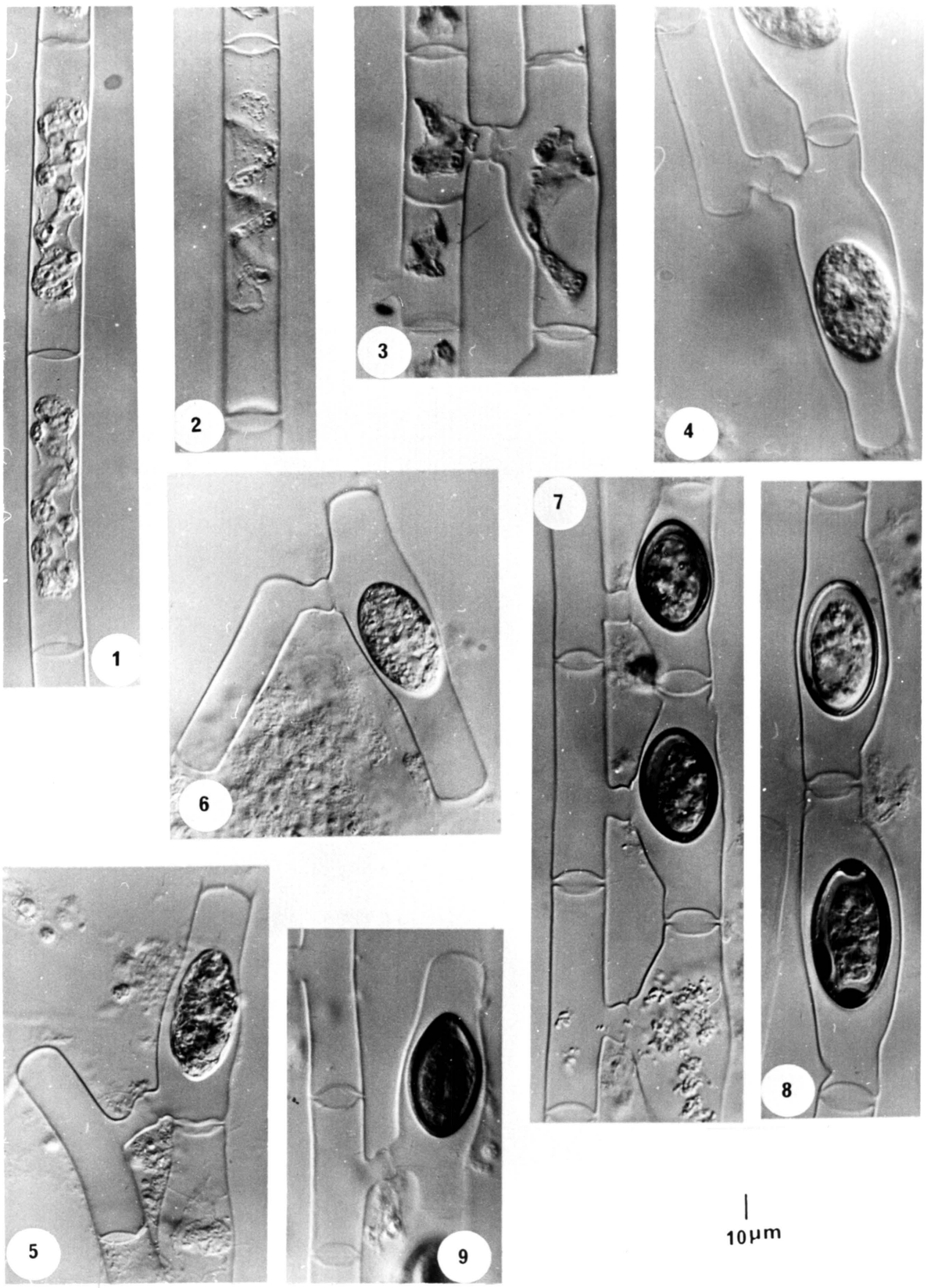

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FIGUUR 77

1 - 13. Fotomikrograwe van Zygnemopsis quadrata (p. 204).

1 - 3. Vegetatiewe selle met chloroplaste.

4 - 7. Konjugasiestadiums; toon sigote van verskillende ouderdomme en dat die gametangiums met sellulose-pektien-verbindings gevul is.

8 - 13. Verskillende fokusinstellings van twee sigote om die sigootvorm en die skulptuur van die mesosporium te toon.

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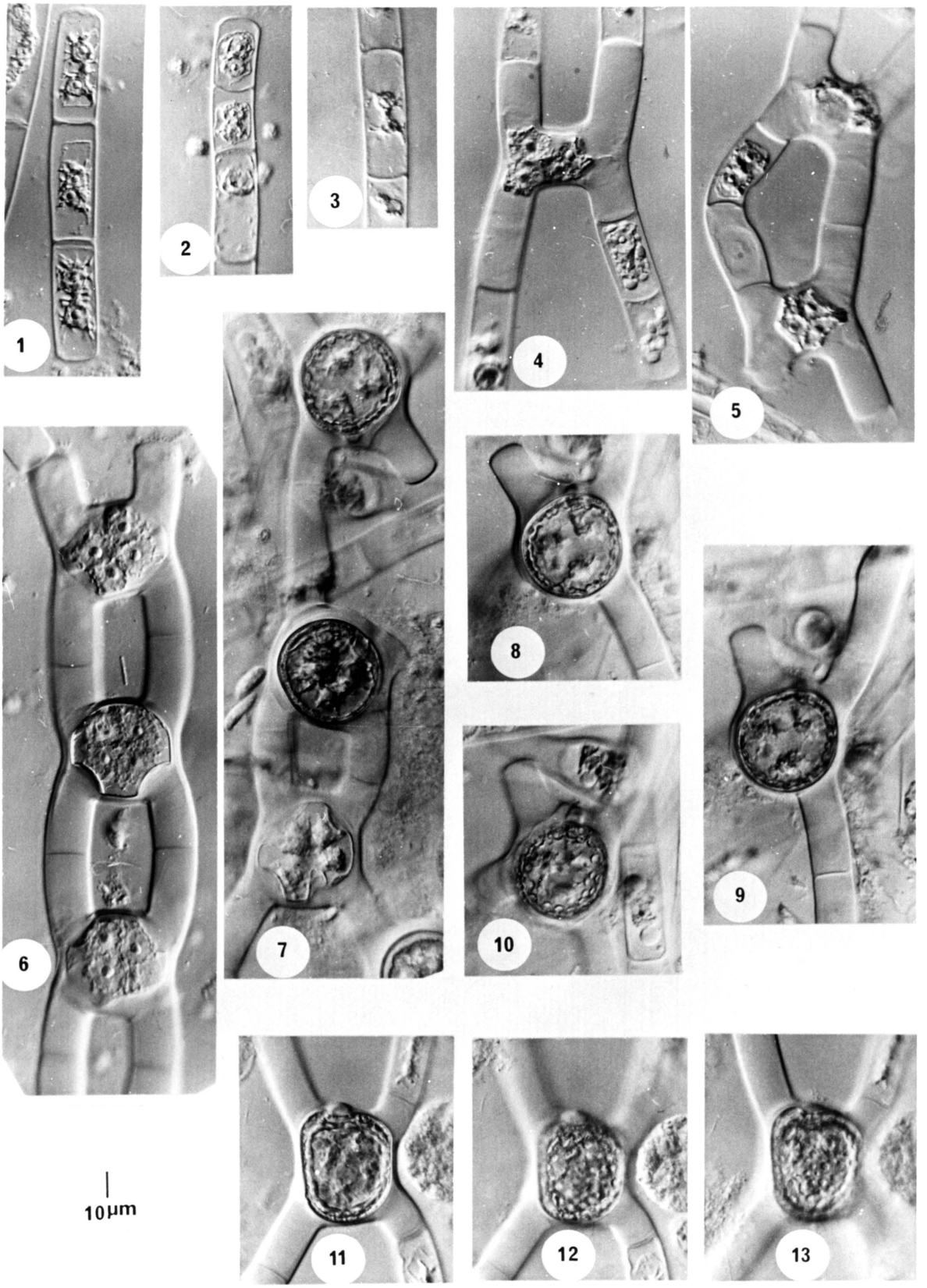

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FIGUUR 78

1, 2. Cylindrocystis brebissonii var. minor (p. 206).

3. C. crassa var. elliptica (p. 209).

4, 5. Mesotaenium endlicherianum var. endlicherianum (p. 209).

6, 7. M. endlicherianum var. grande (p. 210).

8. Netrium digitus var. lamellosum (p. 214). sigoot.

9, 10. Roya anglica (p. 218).

11. R. obtusa var. montana (p. 220).

12. Spirotaenia condensata (p. 220).

13. S. oblonga (p. 222).

14 - 16. ? S. obscura (p. 222).

17, 18. Gonatozygon brebissonii (p. 223).

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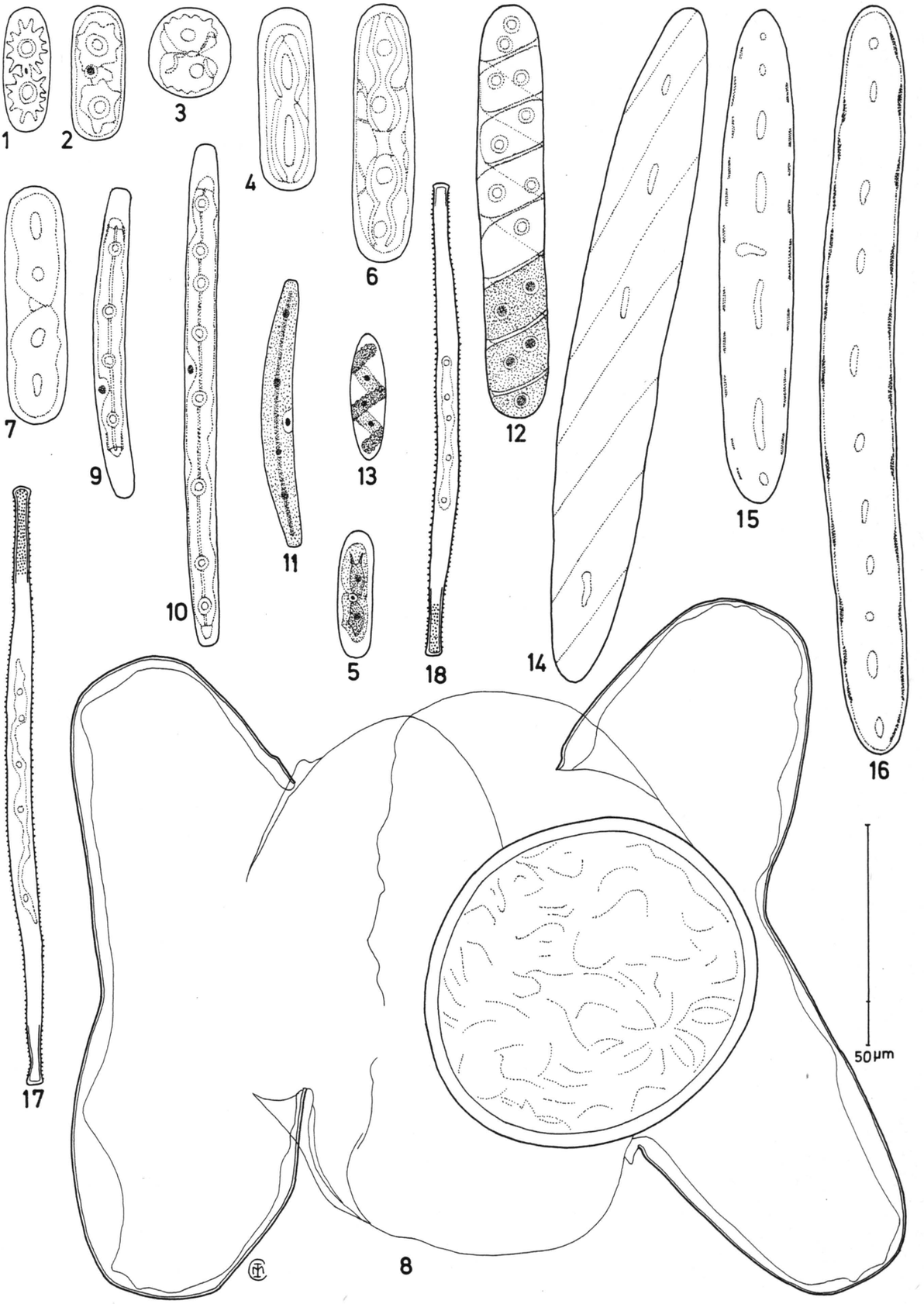
78



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FIGUUR 79

1. Gonatozygon aculeatum var. groenbladii (p. 223).

2. G. kinahanii (p. 225).

3 - 5. G. kinahanii forma (p. 226).
Slymdrade, wat deur die selwandporieë afgeskei word, kan waargeneem word.

6. G. monotaenium var. foersteri forma (p. 228).

1, 3 - 6 : skaal A

2 : skaal B

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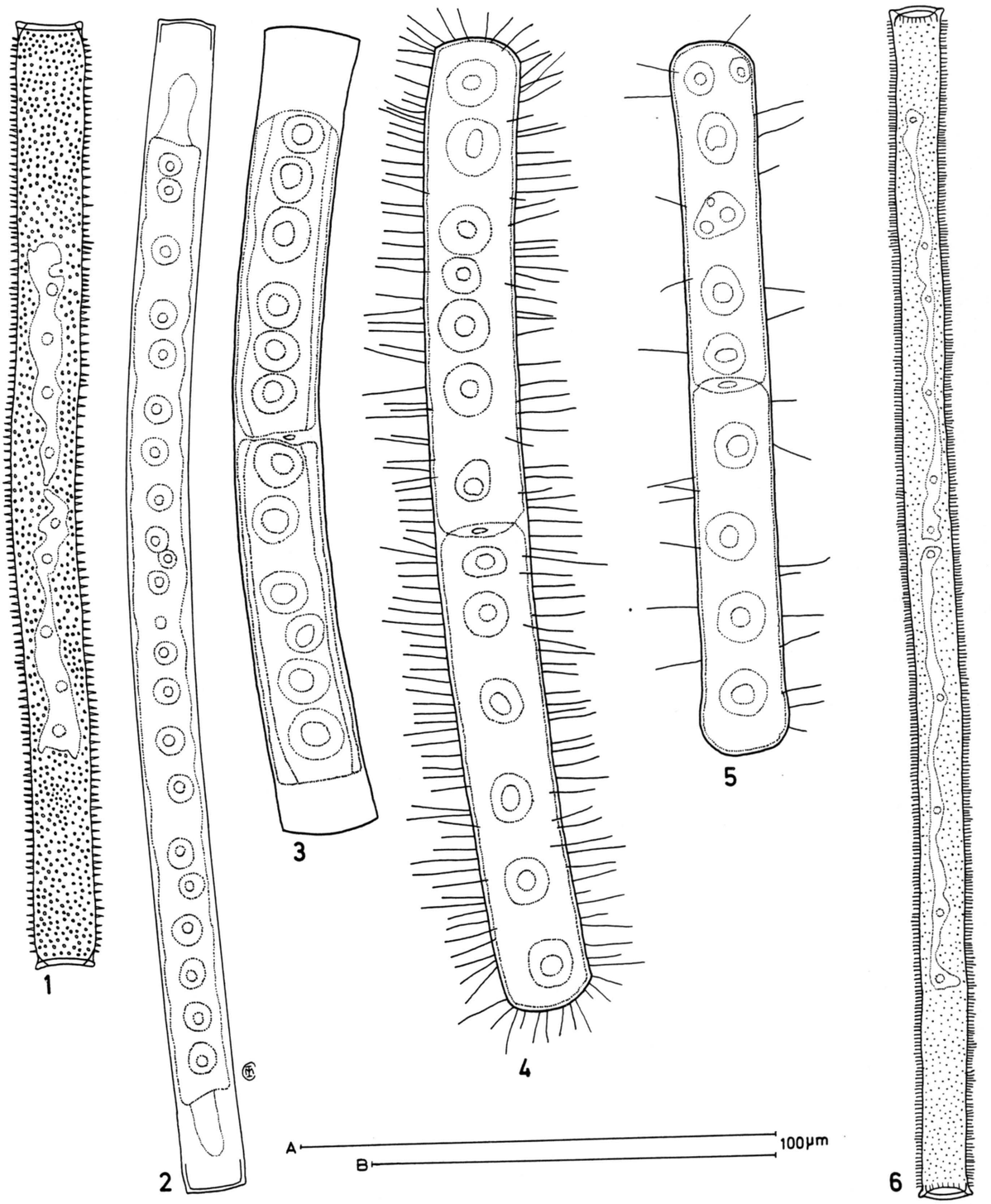

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FIGUUR 80

Fotomikrograwe van

1, 2. Cylindrocystis brebissonii var. brebissonii (p. 205).

3 - 5. C. crassa var. crassa (p. 208).

6 - 10. Mesotaenium endlicherianum var. endlicherianum (p. 209).

11 - 15. M. endlicherianum var. grande (p. 210).

16 - 18. Roya obtusa var. montana (p. 220).
17, 18. Sigote.

19, 20. Spirotaenia condensata (p. 220); verskillende fokusinstellings van 'n sel om die pirenoïede en heliese geaardheid van die chloroplas te toon.

21, 22. ? S. obscura (p. 222).

1 - 15 : skaal A

16 - 22 : skaal B

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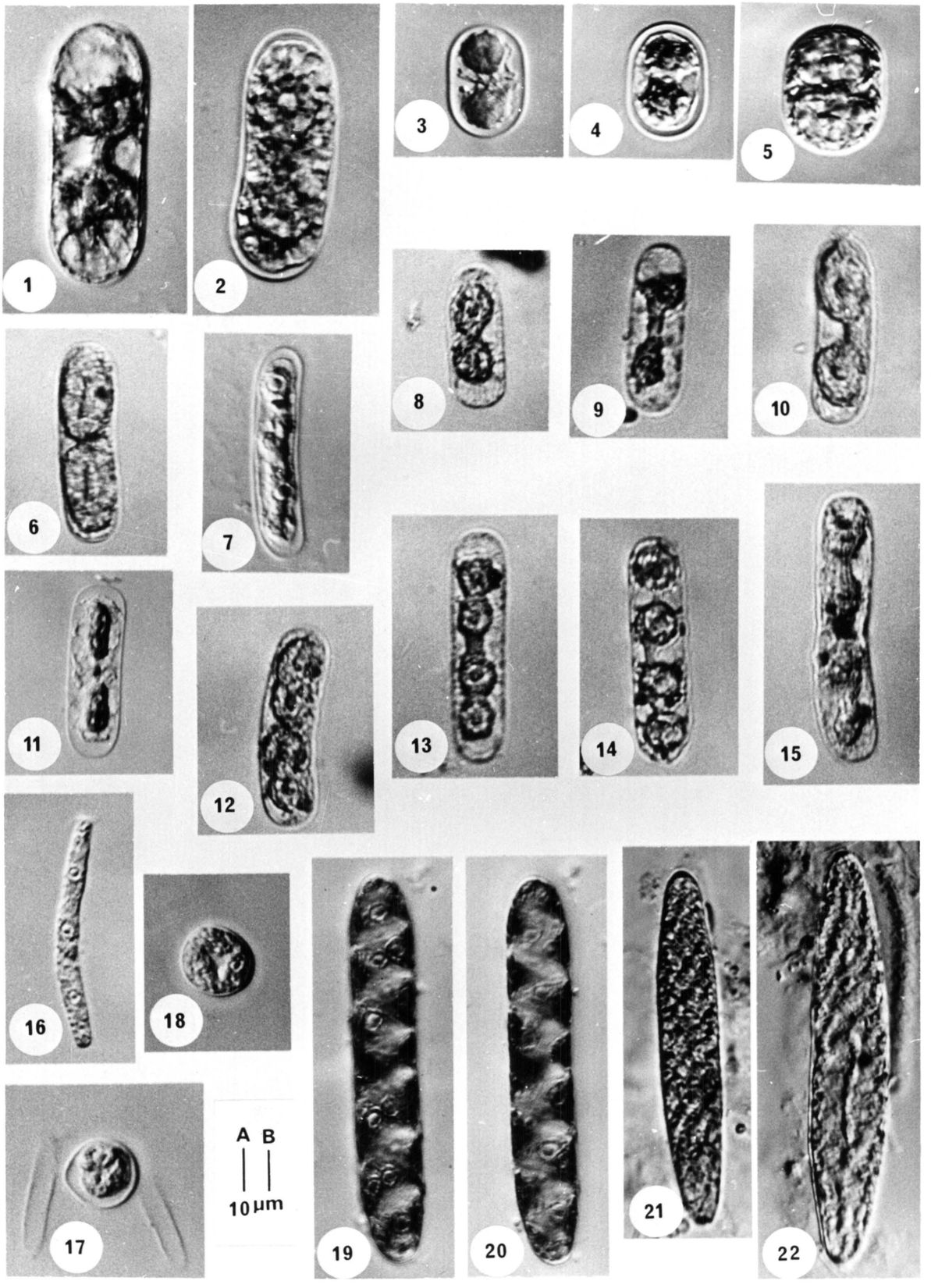

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FIGUUR 81

Fotomikrograwe van

1 - 3. Netrium digitus var. digitus (p. 211).

4 - 10. N. digitus var. lamellosum (p. 214).

10. Sigoot.

11 - 13. N. digitus var. latum (p. 216).

14. N. digitus var. naegelii (p. 216).

15 - 17. N. oblongum (p. 217).

1 - 9, 11 - 17 : skaal A

10 : skaal B

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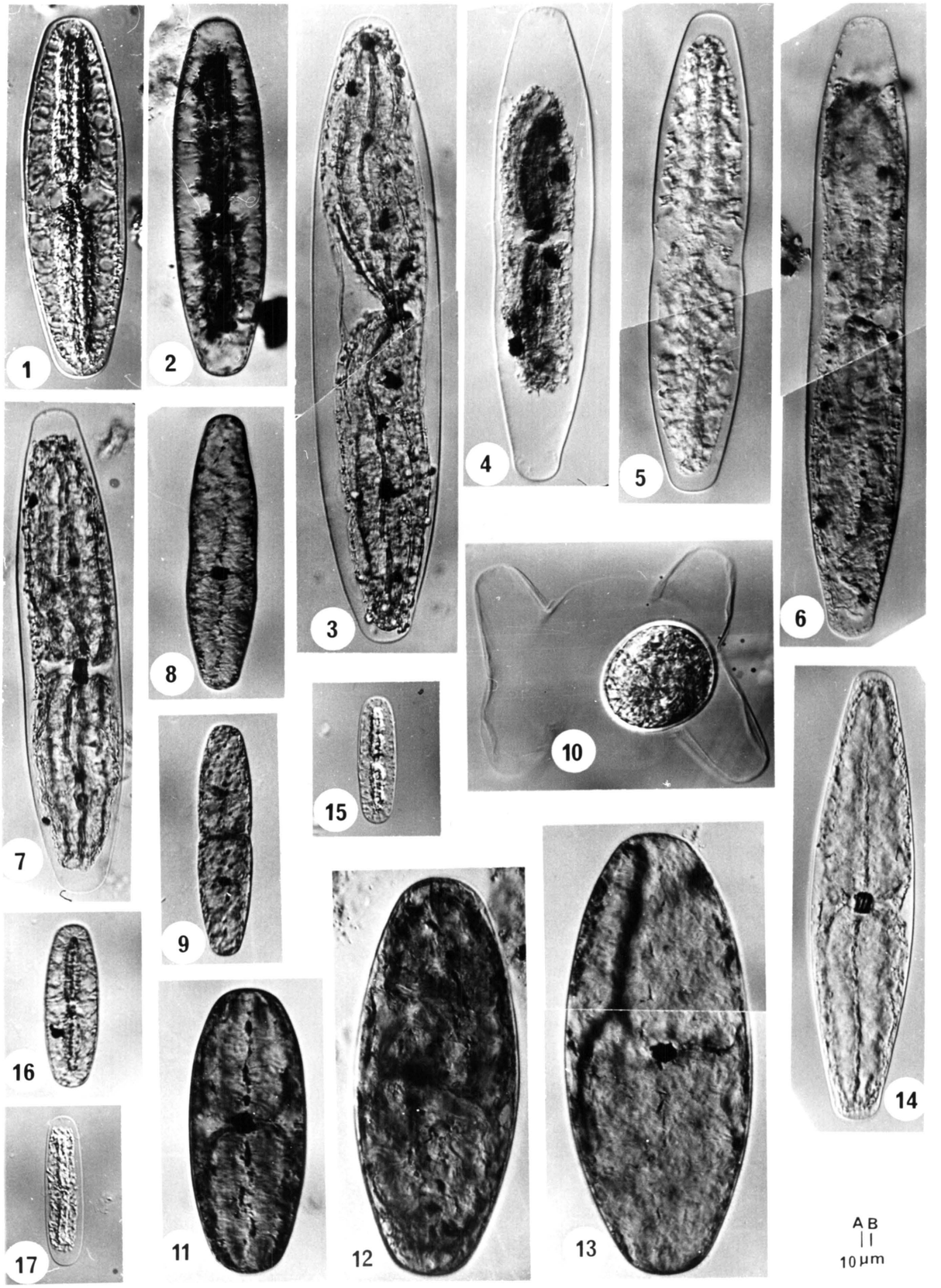

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FIGUUR 82

Fotomikrografwe van

1 - 4. Gonatozygon aculeatum var. groenbladii (p. 223). 2 - 4. Fasekontras beligting van twee selle om die selwandstekeltjies te toon.

5 - 8. G. brebissonii (p. 223). 7, 8. Fasekontras beligting.

9 - 12. G. kinahanii forma (p. 226). 10. Slymdrade, wat deur die selwandporieë afgeskei word, kan waargeneem word.

1 - 4 : skaal A

5 - 8 : skaal B

9 - 12 : skaal C

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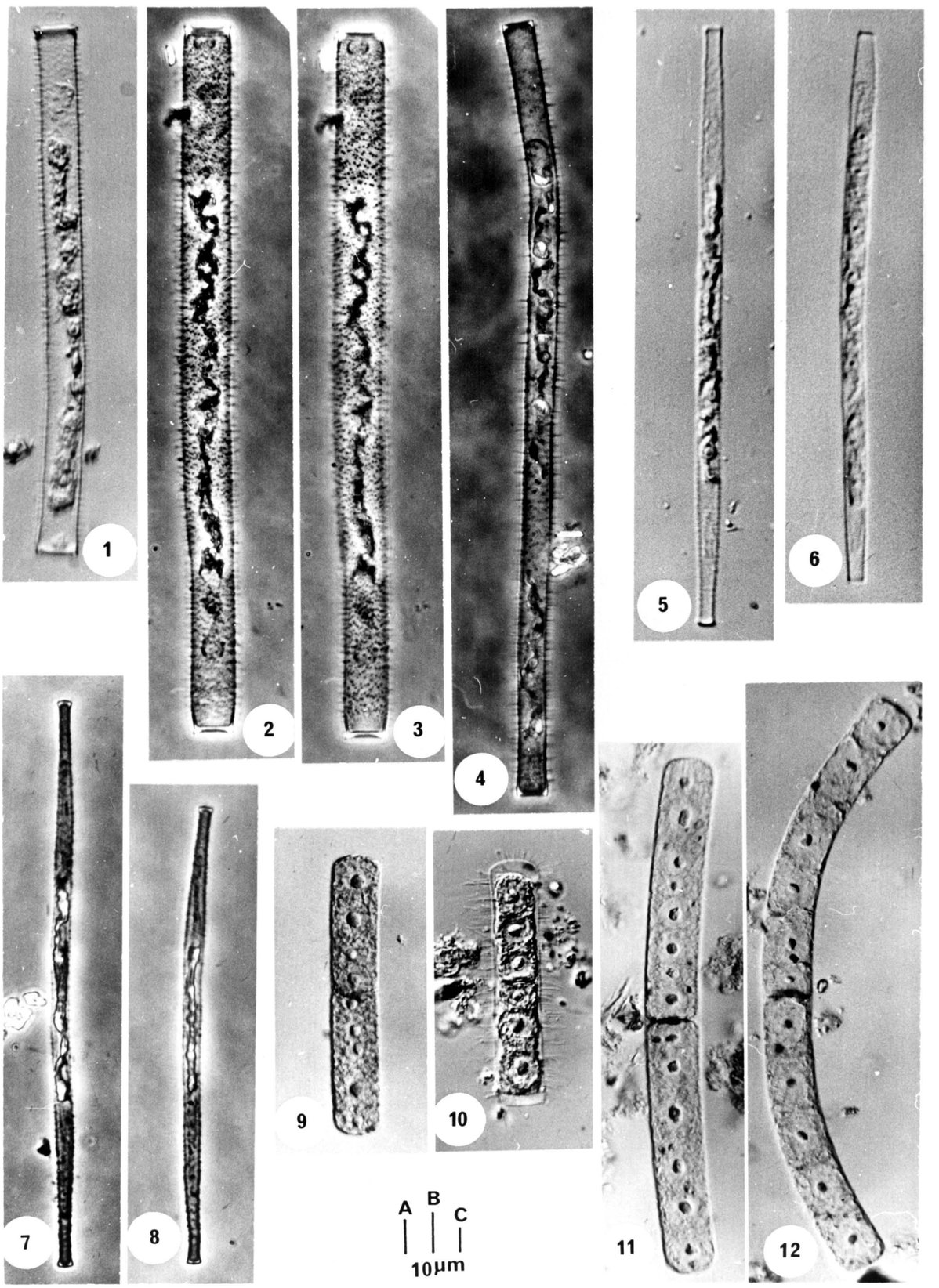

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FIGUUR 83

Fotomikrograwe van

1 - 3. Gonatozygon kinahanii (p. 225).

4 - 7. G. monotaenium var. foersteri forma (p. 228).
6, 7. Verskillende fokusinstellings van 'n sel met fasekontras beligting om die selwandstekeltjies te toon.

8, 9. G. monotaenium var. monotaenium (p. 226).

10. G. pilosum (p. 228).

1 - 3 : skaal A

4 - 10 : skaal B

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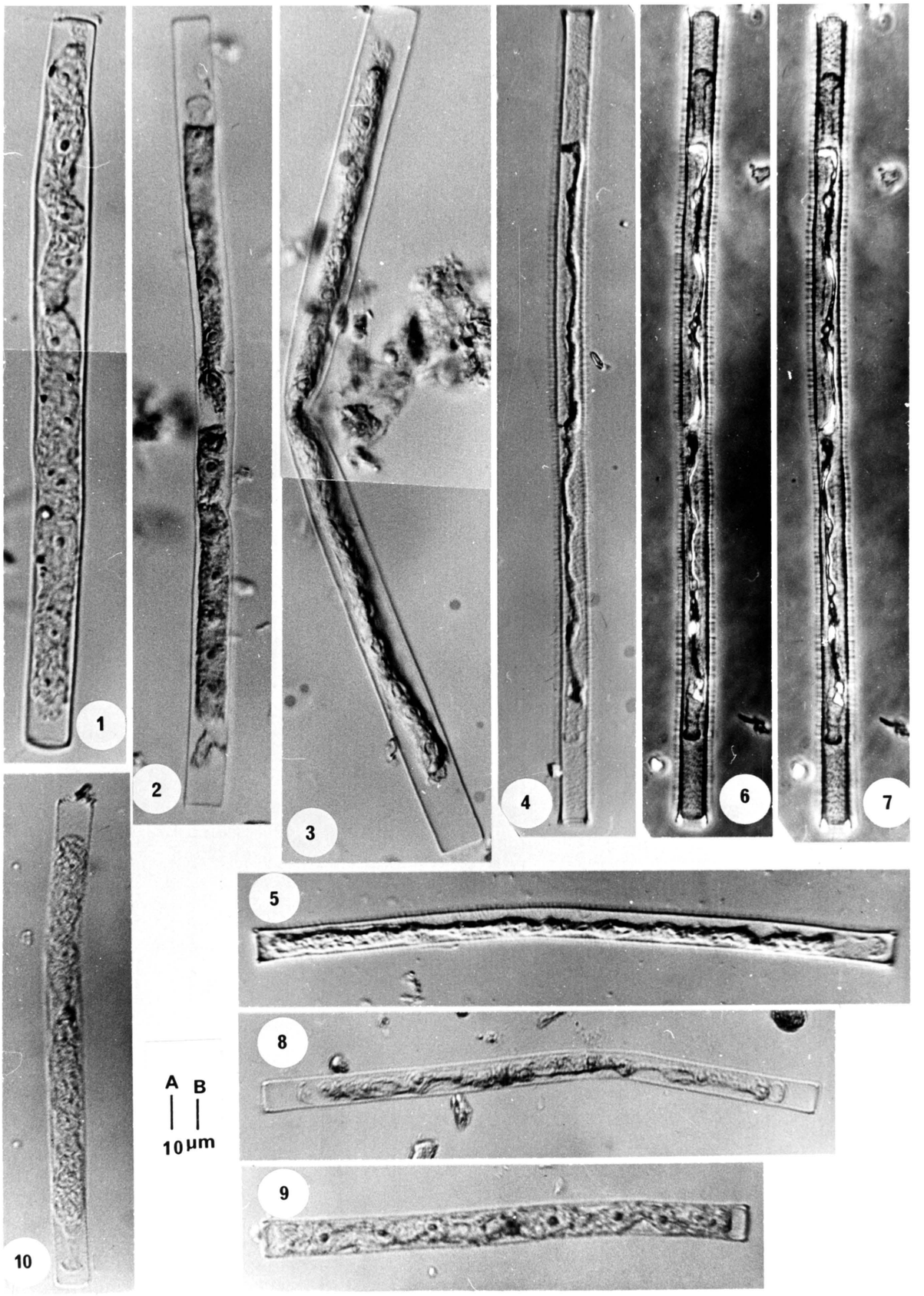

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FIGUUR 84

Aftaselektronmikrograwe van

1. Gonatozygon brebissonii (p. 223); polêre gedeelte van 'n sel.

2, 3. G. monotaenium var. foersteri forma (p. 228); toon die ringvormige selwandverdikking by die selpole en die selwandstekeltjies.

4 - 6. Actinotaenium cucurbita "var. cucurbita f. rotundatum" - variasie (p. 234); selvorm en selwandporieë.

7, 8. A. diplosporum var. americanum (p. 239); selvorm en selwandporieë.

1, 6, 8 : skaal = 1 µm

2 - 5, 7 : skaal = 10 µm

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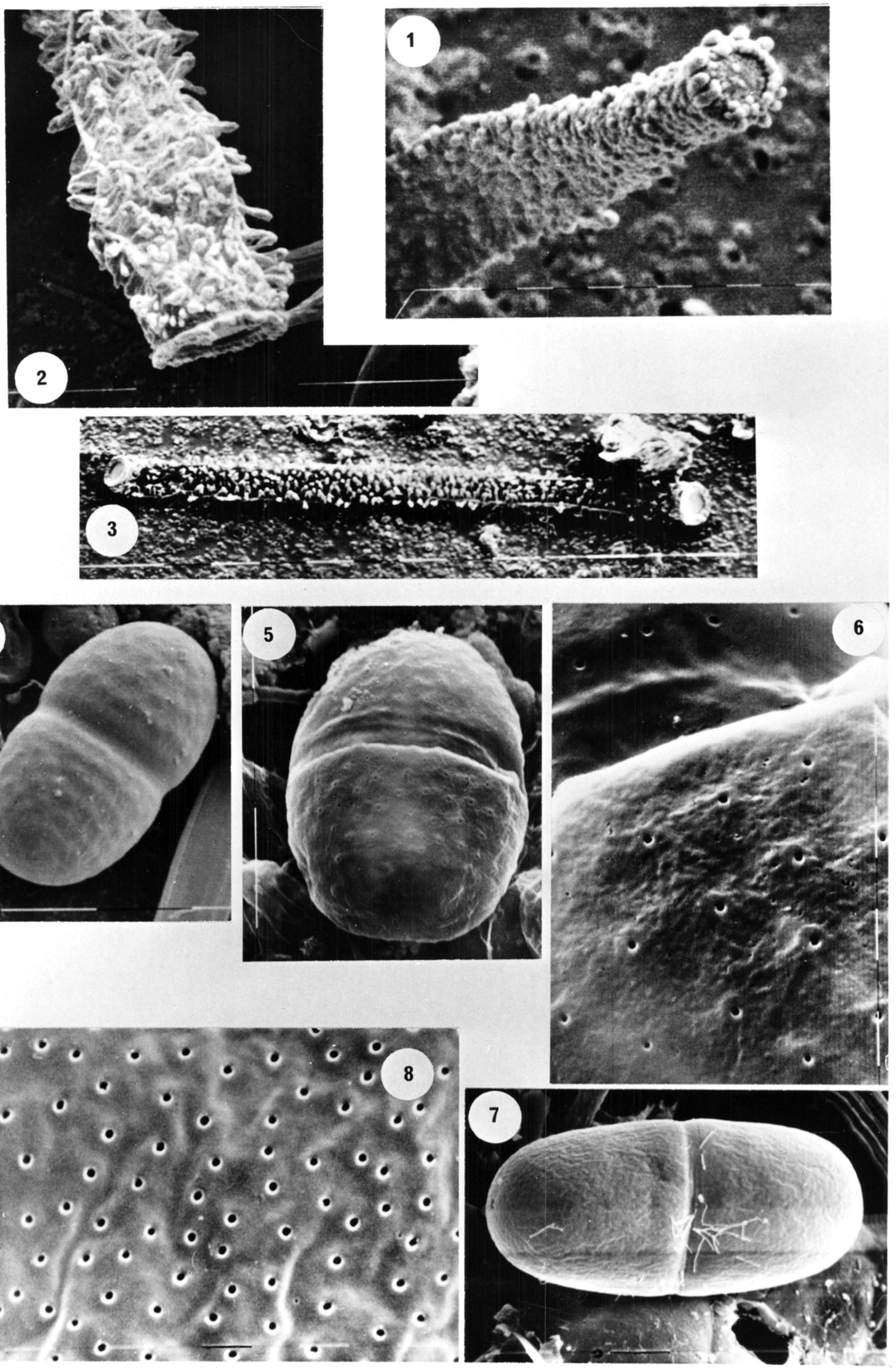

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FIGUUR 85

1, 2. Penium cylindrus (p. 463). 2. Onvolwasse sigoot.

3 - 5. P. margaritaceum (p. 465).

6. P. spinospermum (p. 468).

7. Desmidium baileyi var. baileyi fasie triangularis (p. 428).

8 - 10. D. baileyi var. baileyi fasie quadrangularis (p. 429).

11. D. coarctatum (p. 431).

12. D. pseudostreptonema (p. 432).

13 - 16. Hyalotheca dissiliens (p. 436). 15, 16. Verti= kale aansig (15. "circularis"; 16. "bidentula").

17. Sphaerozosma vertebratum f. quadrata (p. 488).

18. Teilingia granulata (p. 488).

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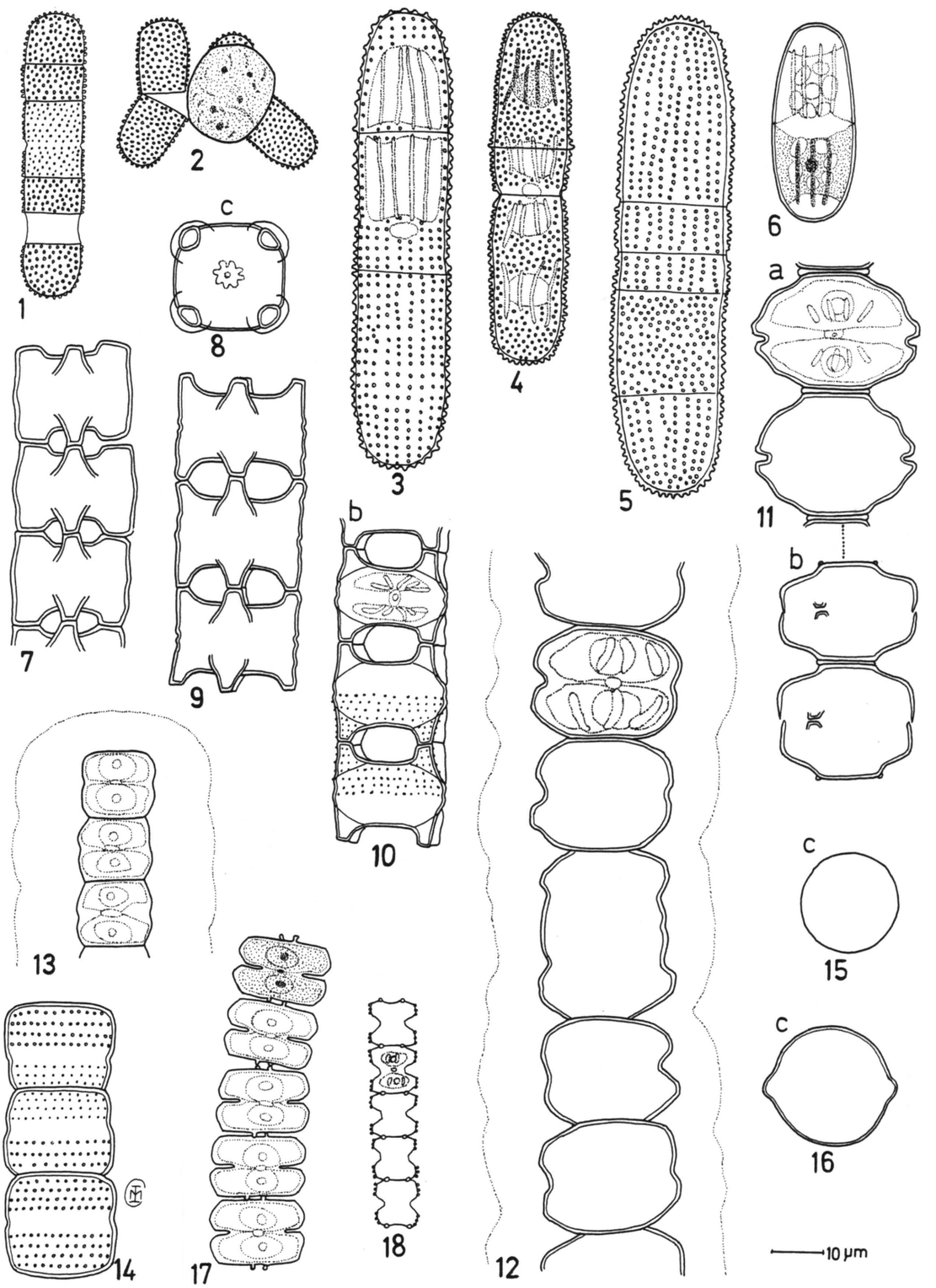

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FIGUUR 86

Fotomikrografe van

1 - 3. Bambusina borreri (p. 240). 1, 2. Verskil= lende fokusinstellings van 'n kolonie om die selvorm en selwandstreping te toon.

4. Desmidium aptogonum var. acutius (p. 427).

5 - 9. D. baileyi var. baileyi fasie triangularis (p. 428). 6 - 8. Verskillende fokusinstellings om selvorm te toon. 9. Vertikale aansig.

10 - 13. D. baileyi var. baileyi fasie quadrangularis (p. 429). 11, 12. Syaansig. 13. Vertikale aansig.

14 - 17. D. baileyi var. coelatum (p. 430). 15, 16. Verskillende fokusinstellings om sel= vorm te toon. 17. Vertikale aansig.

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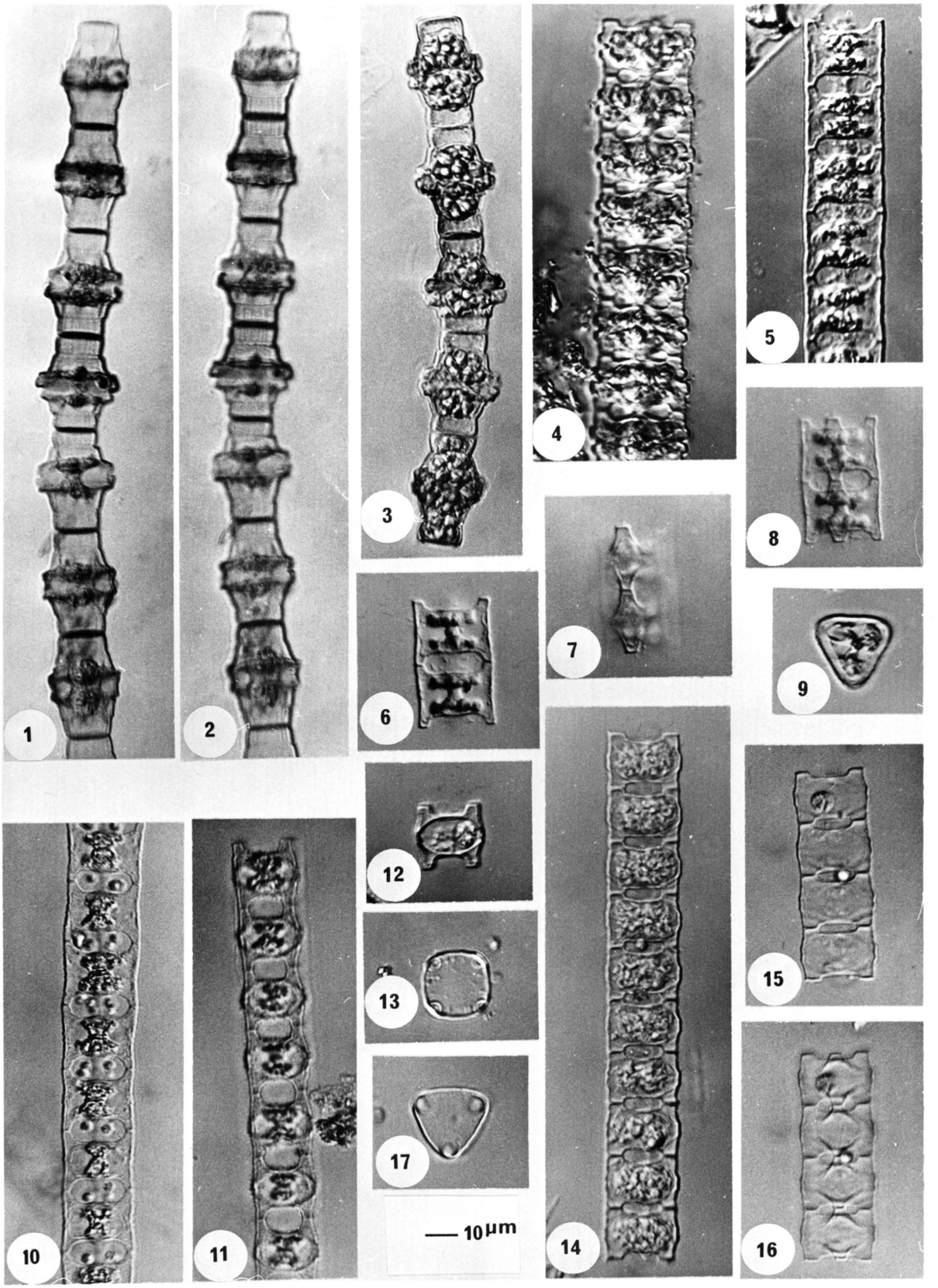

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FIGUUR 87

Fotomikrograwe van

1 - 3. Desmidium coarctatum (p. 431). 3. Syaansig.

4 - 7. D. graciliceps (p. 431). 7. Syaansig.

8 - 15. D. pseudostreptonema fasie triangularis (p. 432). 11, 12. Vertikale aansig. 13 - 15. Sigote.

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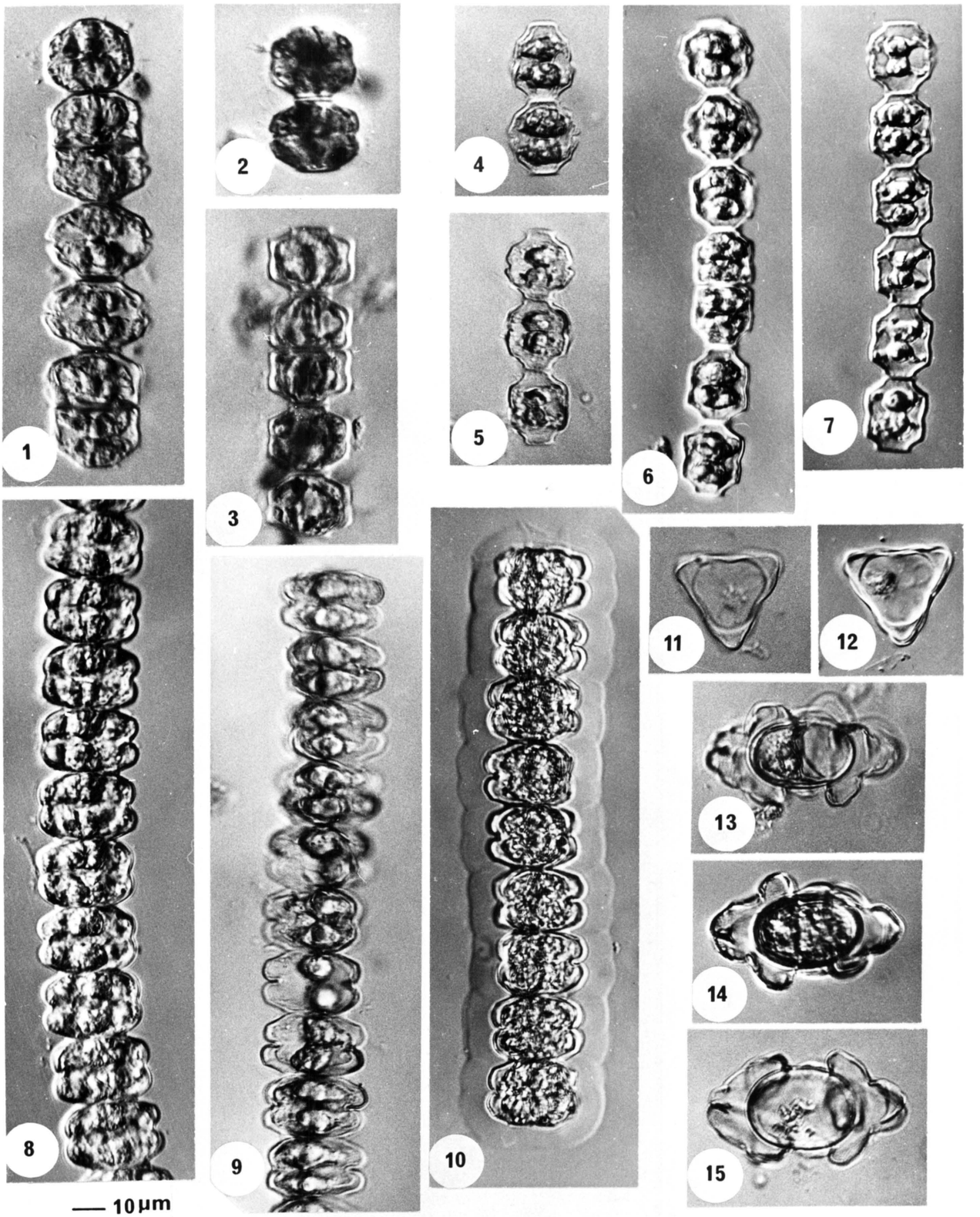

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FIGUUR 88

Fotomikrograwe van

1 - 7. Desmidium swartzii fasie triangularis (p. 433). 2, 3. Verskillende fokusinstel=lings. 6, 7. Vertikale aansig.

8 - 16. D. swartzii fasie quadrangularis (p. 434). 10, 11. Verskillende fokusinstellings. 12 - 14. Vertikale aansig. 15, 16. Sigote.

1 : skaal A

2 - 16 : skaal B

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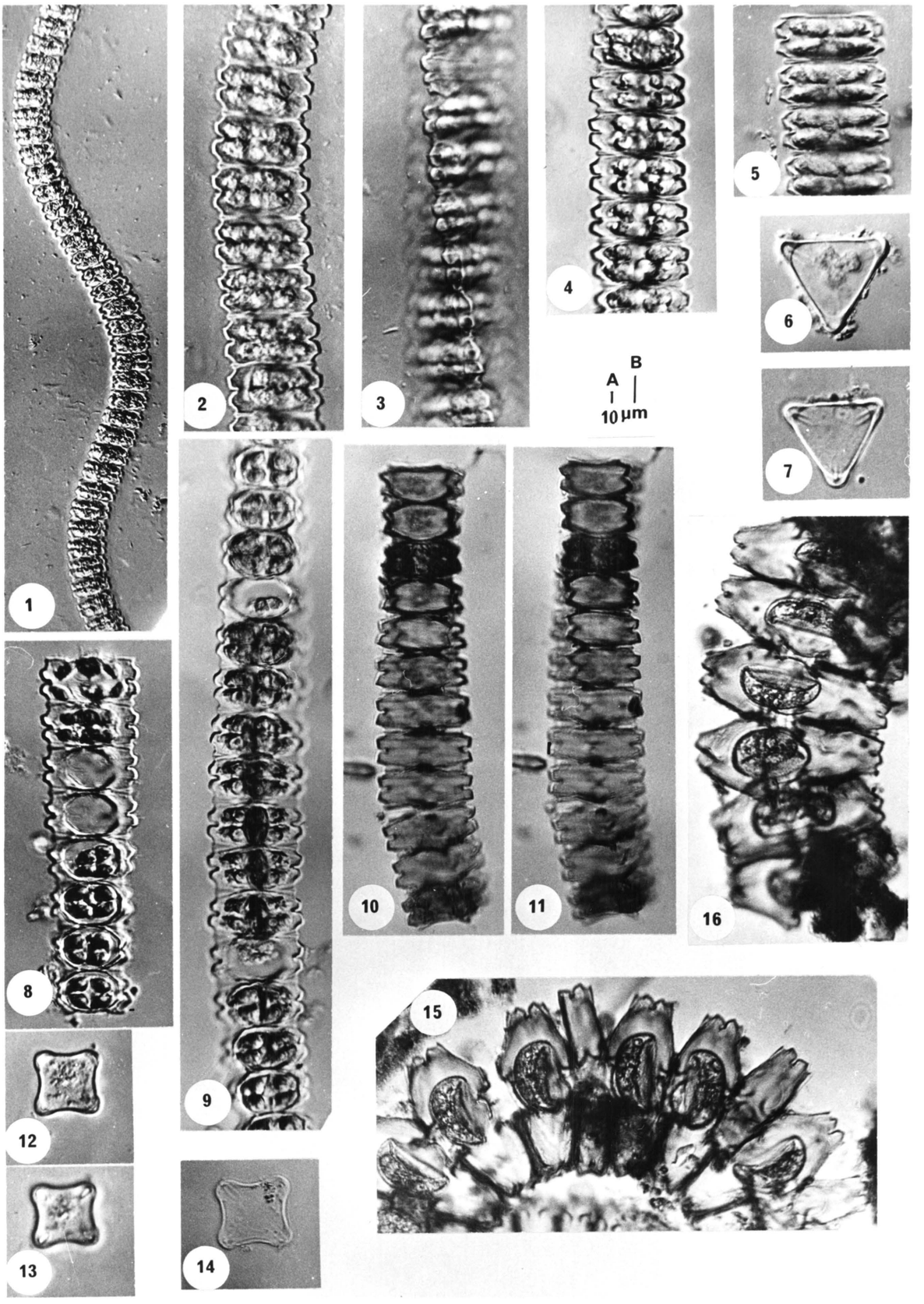

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FIGUUR 89

Fotomikrograwe van

1, 2. Groenbladia undulata var. kriegeri (p. 436).

3 - 6. Sphaerozosma filiformis (p. 485).

7, 8. S. vertebratum f. quadrata (p. 488).

9 - 11. S. laeve var. latum (p. 487).
10, 11. Seldelingstadiums kan waarge=
neem word.

12 - 14. Teilingia granulata (p. 488).

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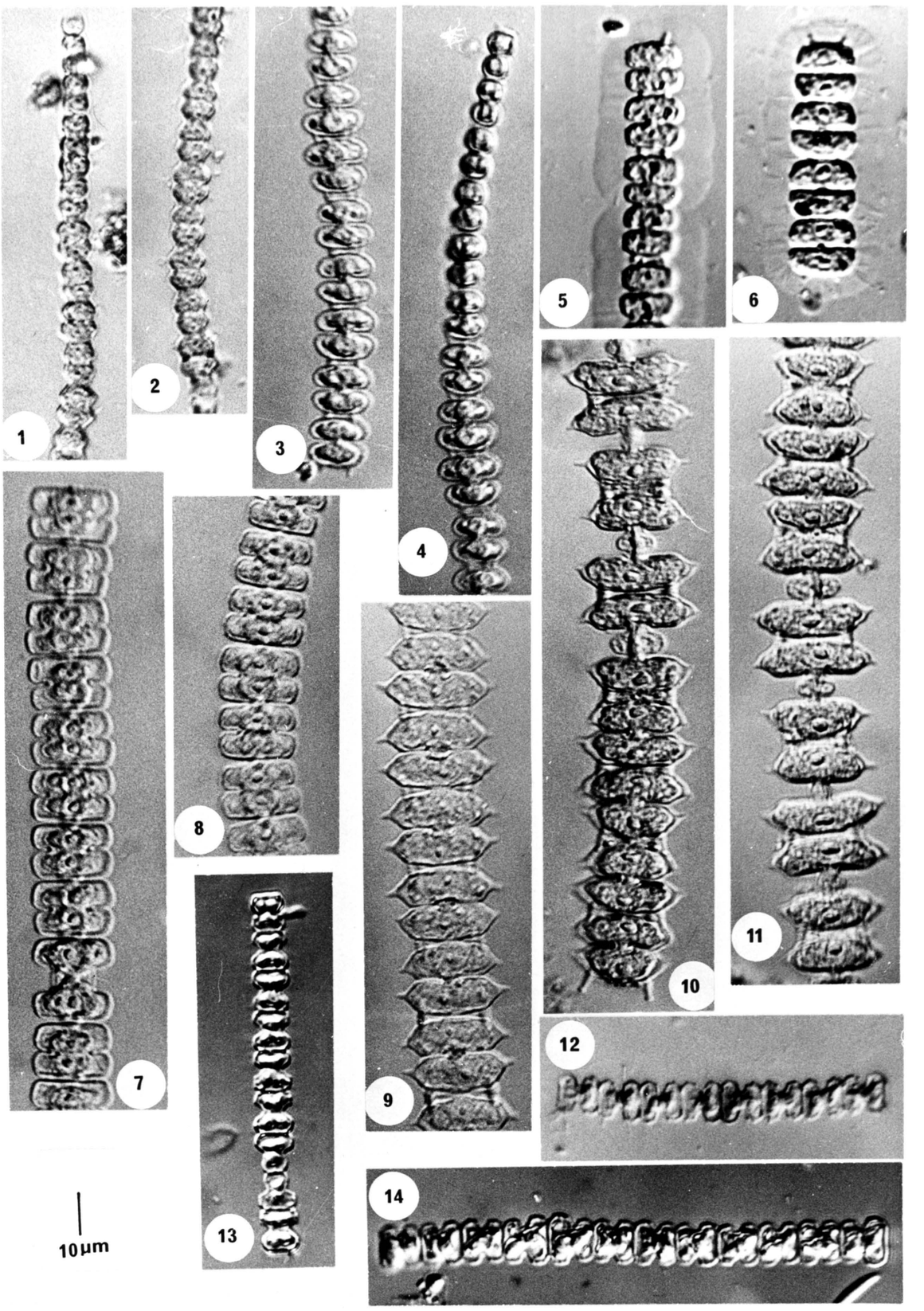

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FIGUUR 90

1 - 16. Fotomikrograwe van Hyalotheca dissiliens (p. 436).
1 - 14. Variasie in selgrootte en selvorm.
2. Seldelingstadium. 4, 5. Gewone en
fasekontras beligting om die geaardheid van
die slymskede te toon. 15, 16. Sigote.

1 - 3, 6 - 16 : skaal A
4, 5 : skaal B

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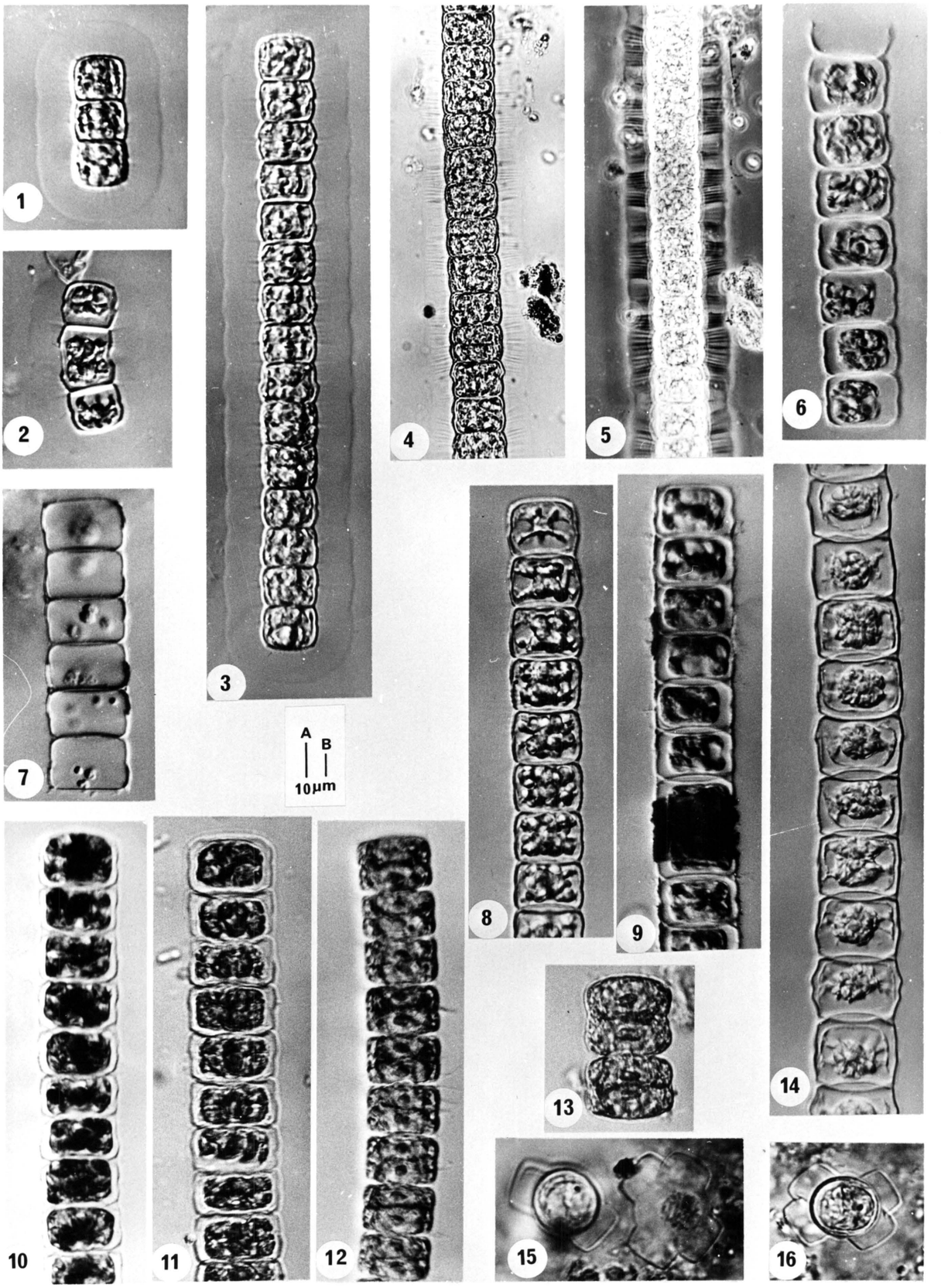

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FIGUUR 91

1 - 4. Fotomikrograwe van Hyalotheca mucosa (p. 439). 3, 4. Verskillende fokusinstellings om selvorm en selwandknoppies te toon.

5 - 7. Aftaselektronmikrograwe van Hyalotheca dissiliens (p. 436); selvorm en selwand= skulptuur. 7. Seldelingstadium.

1 - 4 : skaal A

5 - 7 : skaal = 10 µm

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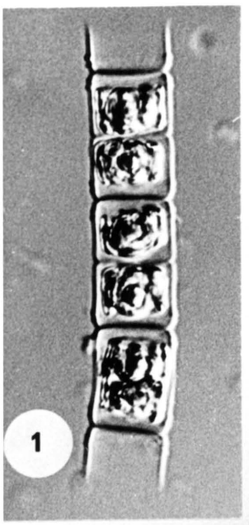
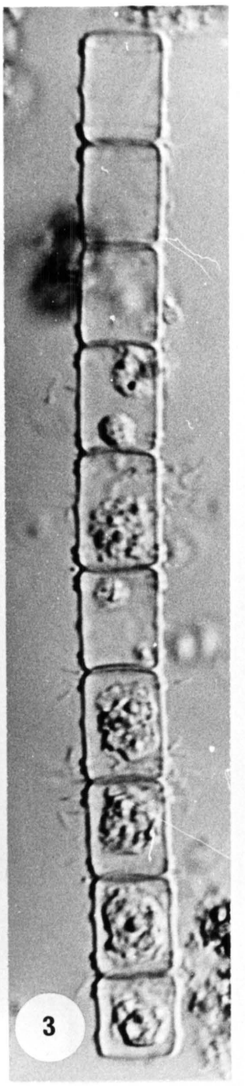
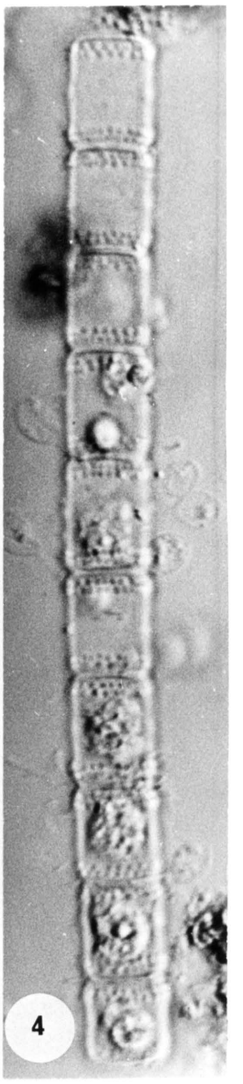
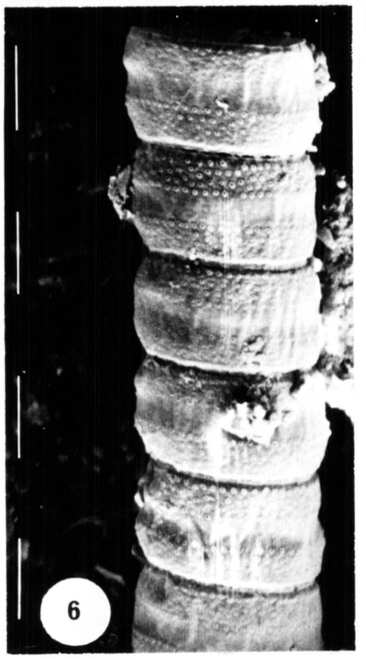
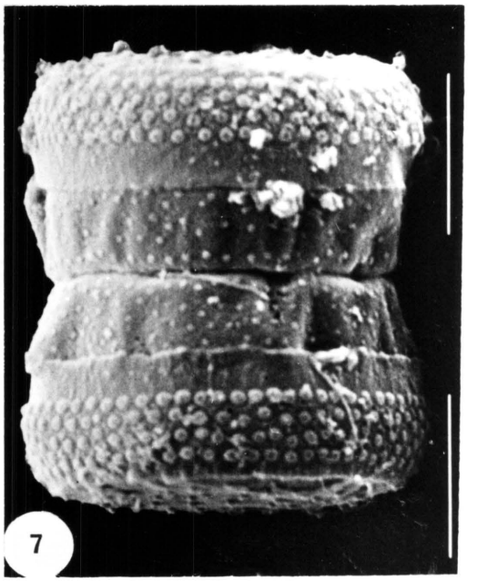


A
10µm









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FIGUUR 92

Aftaselektronmikrograwe van

1, 2. Desmidium aptogonum var. acutius (p. 427); verskillende vergrotings om die selvorm en selwandporieë te toon.

3, 4. D. baileyi var. baileyi fasie quadrangularis (p. 429); verskillende vergrotings om selvorm en selwandporieë te toon.

1, 3 : skaal = 10 µm

2, 4 : skaal = 1 µm

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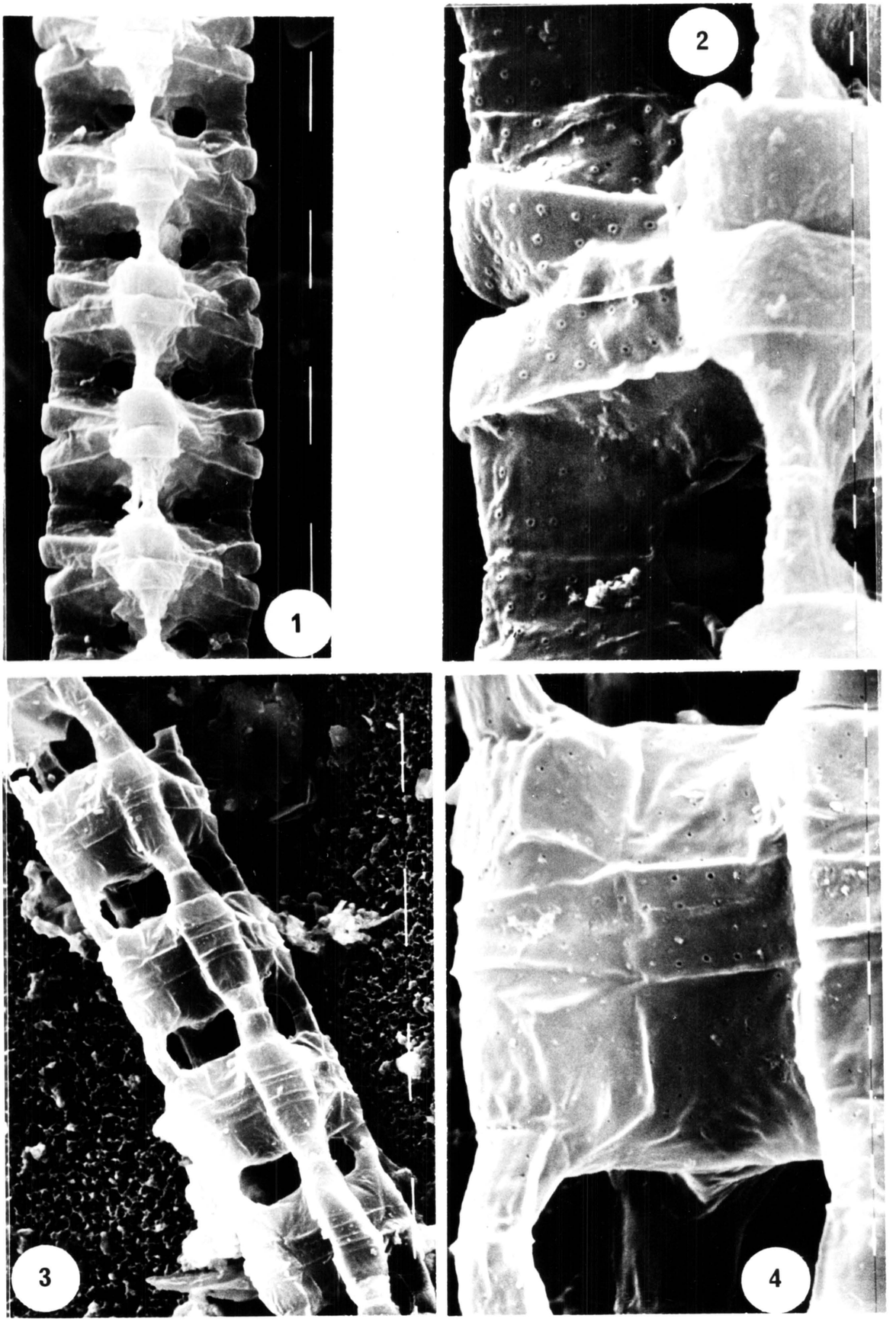

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FIGUUR 93

Aftaselektronmikrograwe van

1 - 6. Desmidium pseudostreptonema fasie triangularis (p. 432). 1. Slymafskeidings op selwande. 2, 5, 6. Verskillende vergrotings om selwand=porieë te toon. 3. Vertikale aansig. 4. Halfsel van binne gesien.

7. D. baileyi var. coelatum (p. 430).

1 - 5, 7 : skaal = 10 µm

6 : skaal = 1 µm

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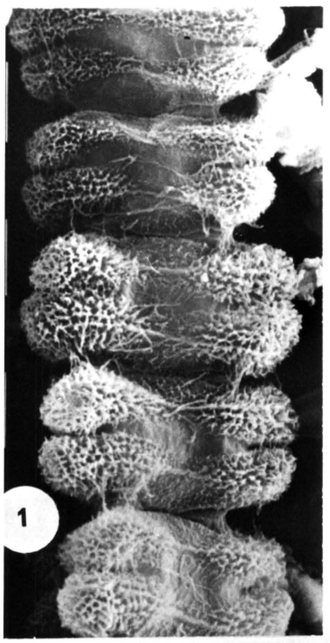

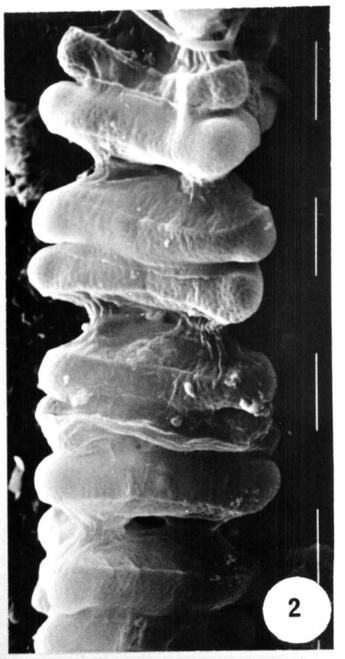

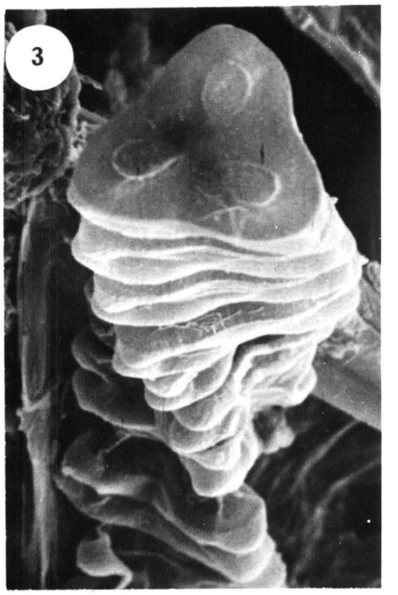

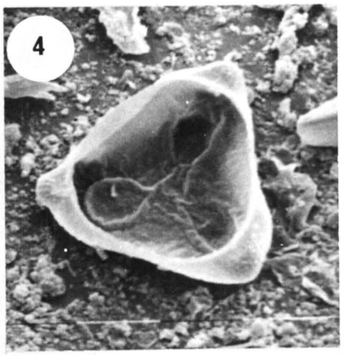

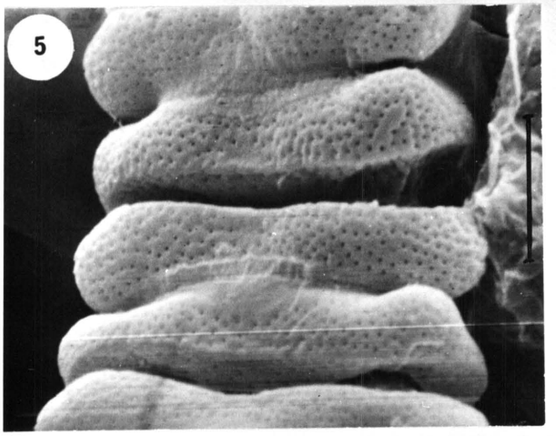

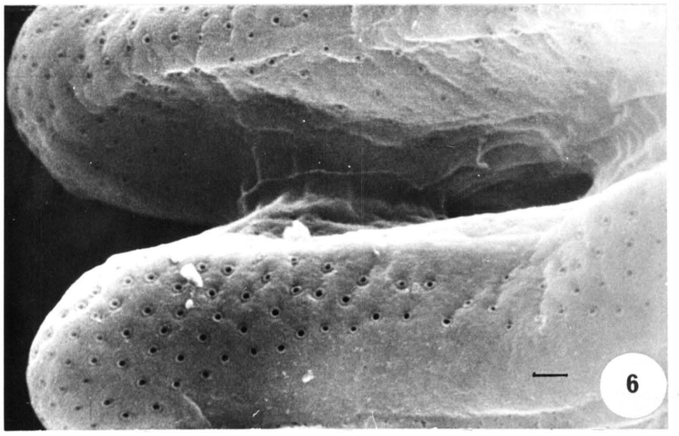

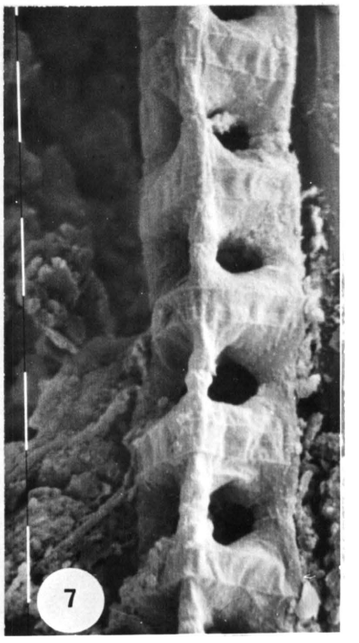

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FIGUUR 94

Aftaselektronmikrograwe van

1 - 3. Desmidium swartzii fasie triangularis (p. 433). 3. Vertikale aansig.

4 - 9. Desmidium swartzii fasie quadrangularis (p. 434). 5. Syaansig. 7. Endsel in vertikale aansig. 8, 9. Halfselle van binne gesien.

1 - 9 : skaal = 10 µm

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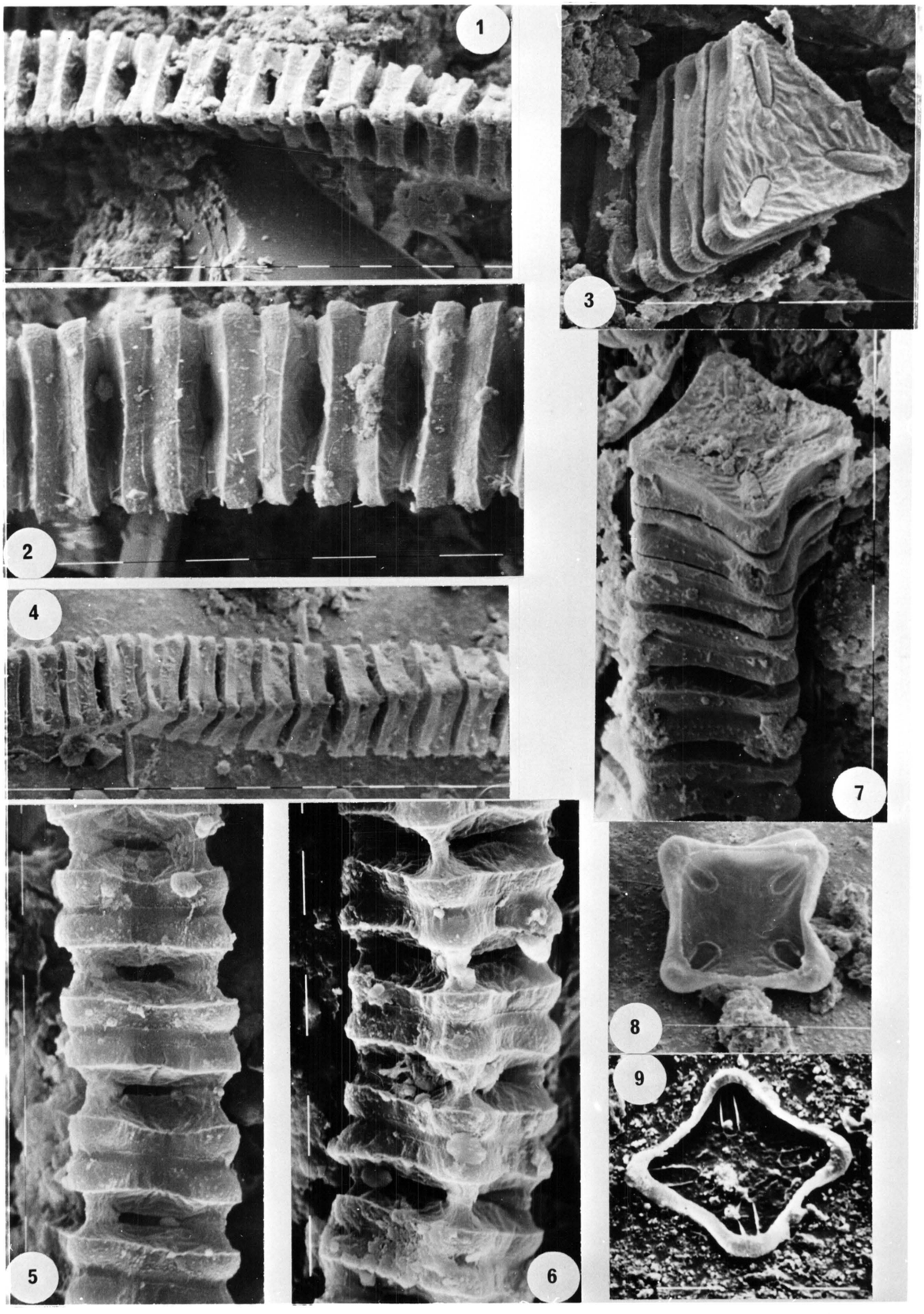

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FIGUUR 95

1, 8. Closterium acerosum var. minus (p. 245).

2. C. costatum (p. 257).

3, 4. C. nematodes var. nematodes f. latum (p. 294).

5. C. pritchardianum forma (p. 304).

6. C. pseudolunula (p. 305).

7. C. regulare forma (p. 308).

9. C. closterioides var. intermedium (p. 252); sigoot.

10 - 12. C. navicula var. navicula (p. 291).

13. C. tumidum (p. 315).

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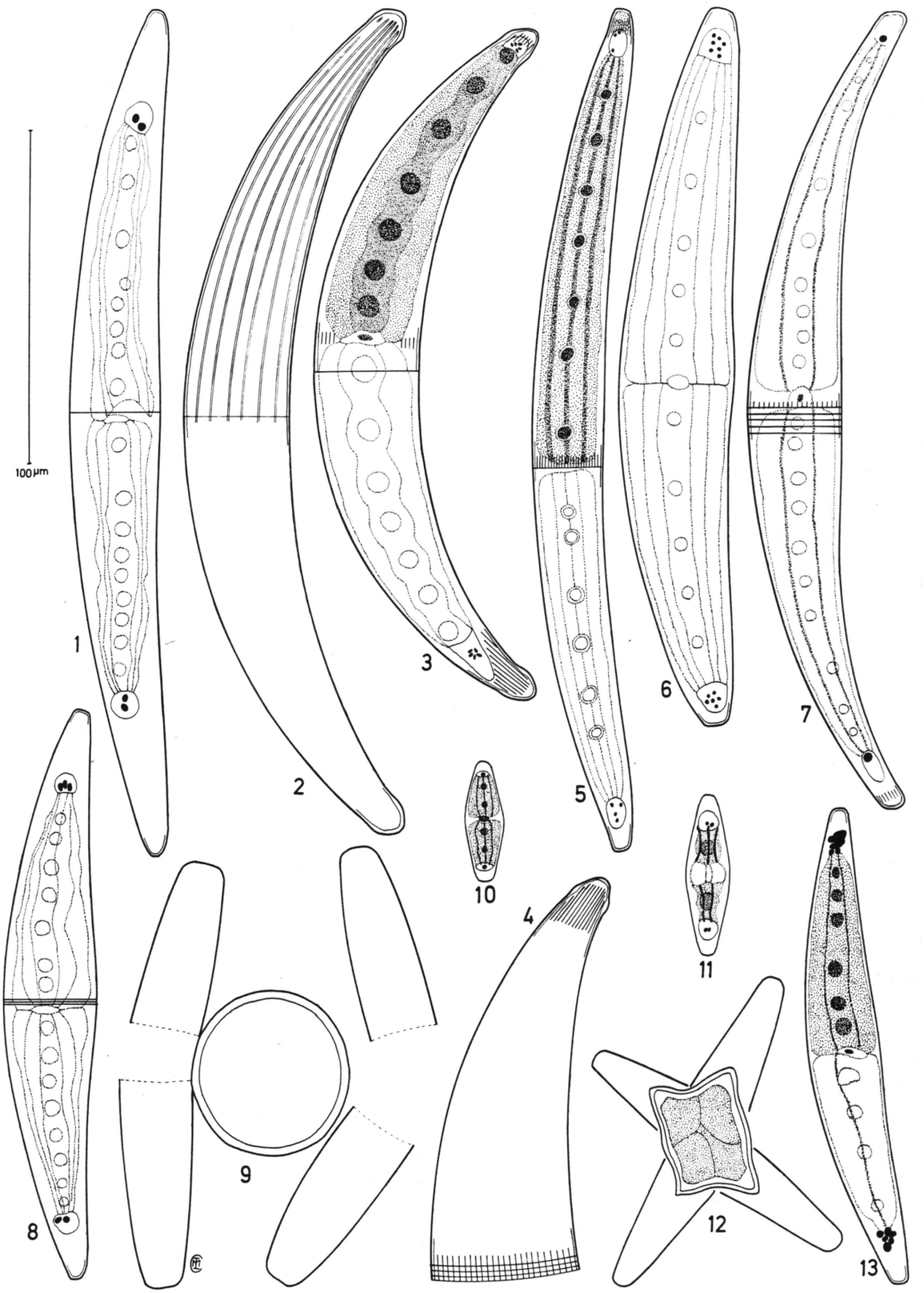

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FIGUUR 96

1. Closterium acutum (p. 246).

2 - 4. C. archerianum var. archerianum (p. 248).

5. C. archerianum var. minus forma (p. 249).

6. C. calosporum (p. 250).

7 - 10. C. cornu (p. 255).

11, 12. C. cynthia var. cynthia (p. 258).

13 - 16. C. cynthia var. latum (p. 260).

17 - 20. C. incurvum (p. 274).

21. C. littorale (p. 283).

22 - 26. C. parvulum var. parvulum (p. 295).

27. C. parvulum var. cornutum (p. 298).

28. C. setaceum (p. 310).

29 - 31. C. venus (p. 317).

1 - 27, 29 - 31 : skaal A

28 : skaal B

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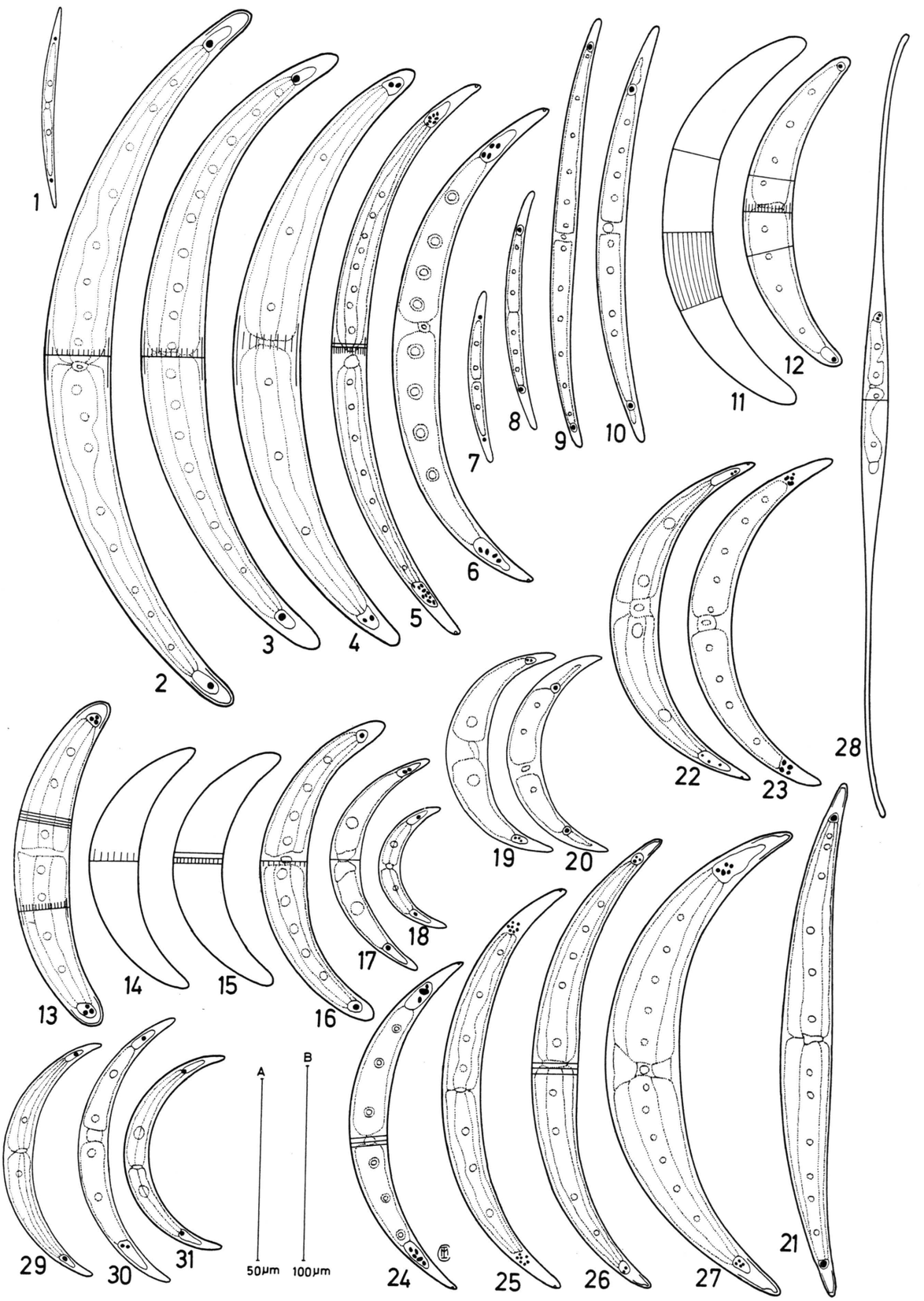

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FIGUUR 97

1 - 3. Closterium dianae var. dianae (p. 261).

4 - 7. C. dianae var. brevius (p. 263).

8 - 13. C. dianae var. minus (p. 264).

14. C. dianae var. pseudodianae (p. 266).

15 - 17. C. dianae var. rectius (p. 267).

18, 19. C. gracile (p. 272).

20. C. praelongum var. brevius (p. 300).

1 - 14, 17 - 20 : skaal A

15, 16 : skaal B

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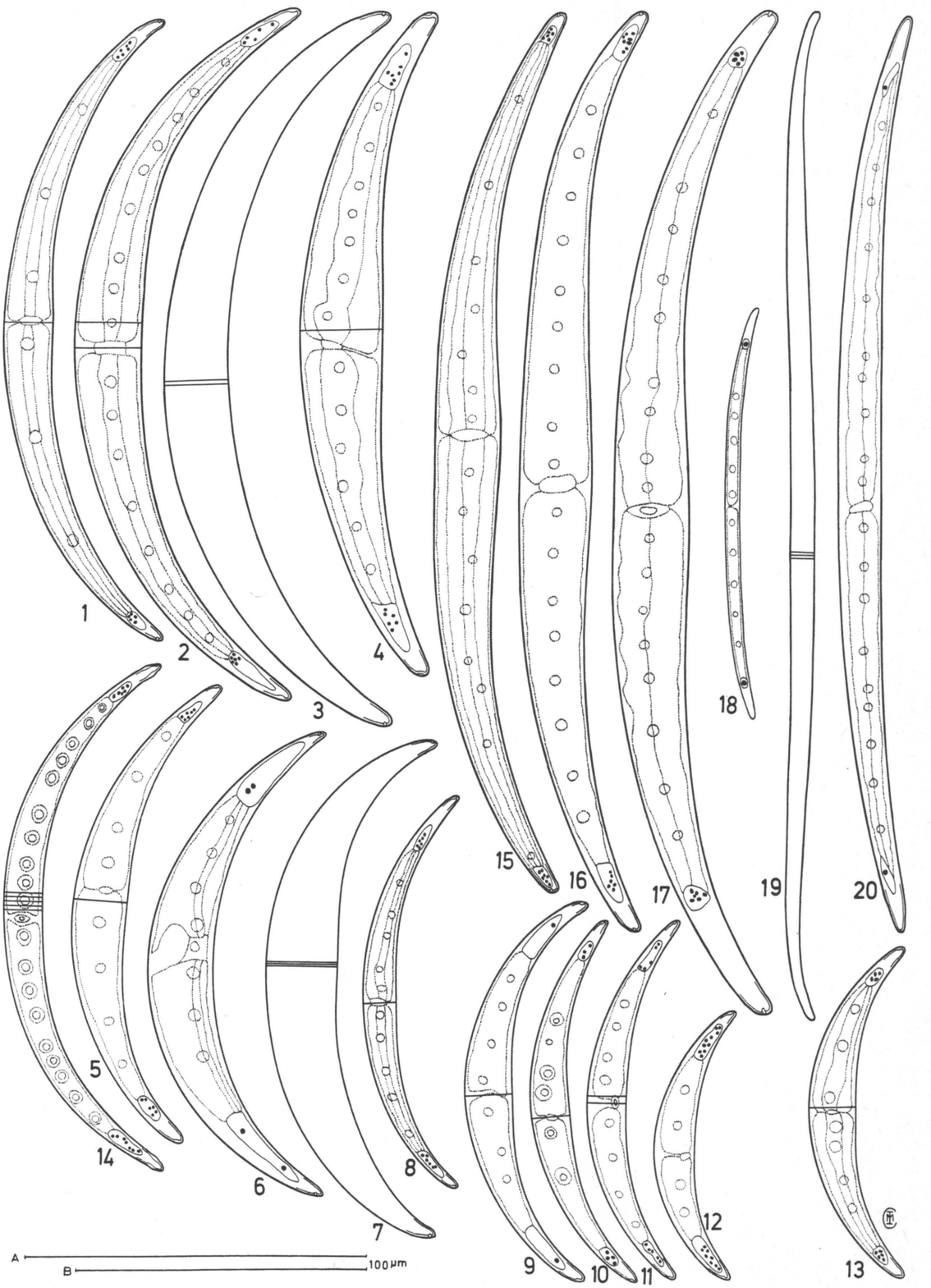

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FIGUUR 98

1, 2. Closterium ehrenbergii var. ehrenbergii (p. 268).

3. C. turgidum var. giganteum (p. 316);
halfsel.

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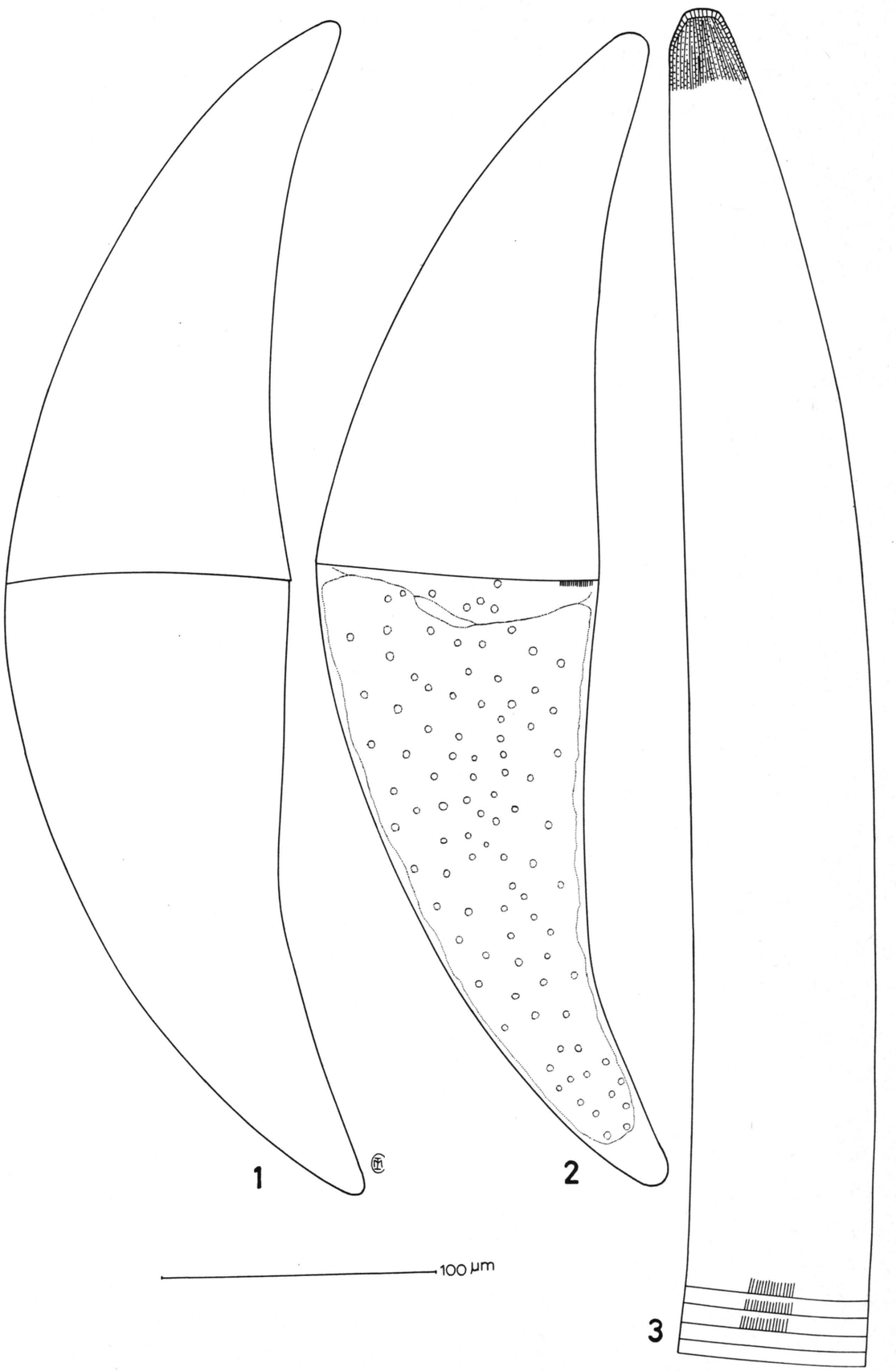

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FIGUUR 99

1 - 3. Closterium ehrenbergii var. atumidum (p. 269).

4 - 6. C. ehrenbergii var. malinvernianum (p. 270).

1 : skaal B

2 - 6 : skaal A

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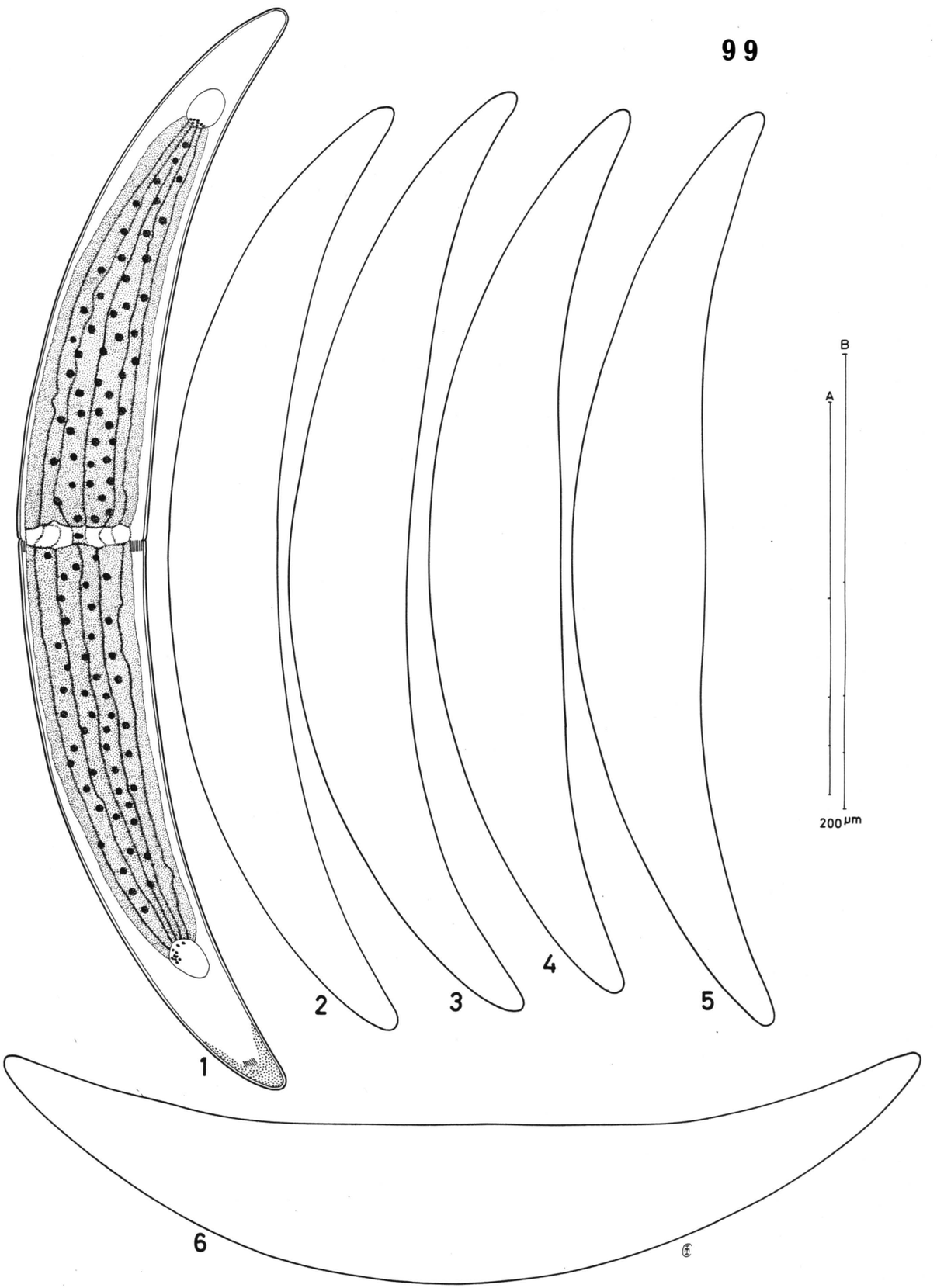

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FIGUUR 100

1 - 3. Closterium lineatum var. lineatum (p. 280).
2. Seldelingstadium. 3. Dubbelsigoot.

4. C. lineatum var. africanum (p. 282).

5 - 8. C. lineatum var. elongatum (p. 282).

1 - 6 : skaal A

7, 8 : skaal B

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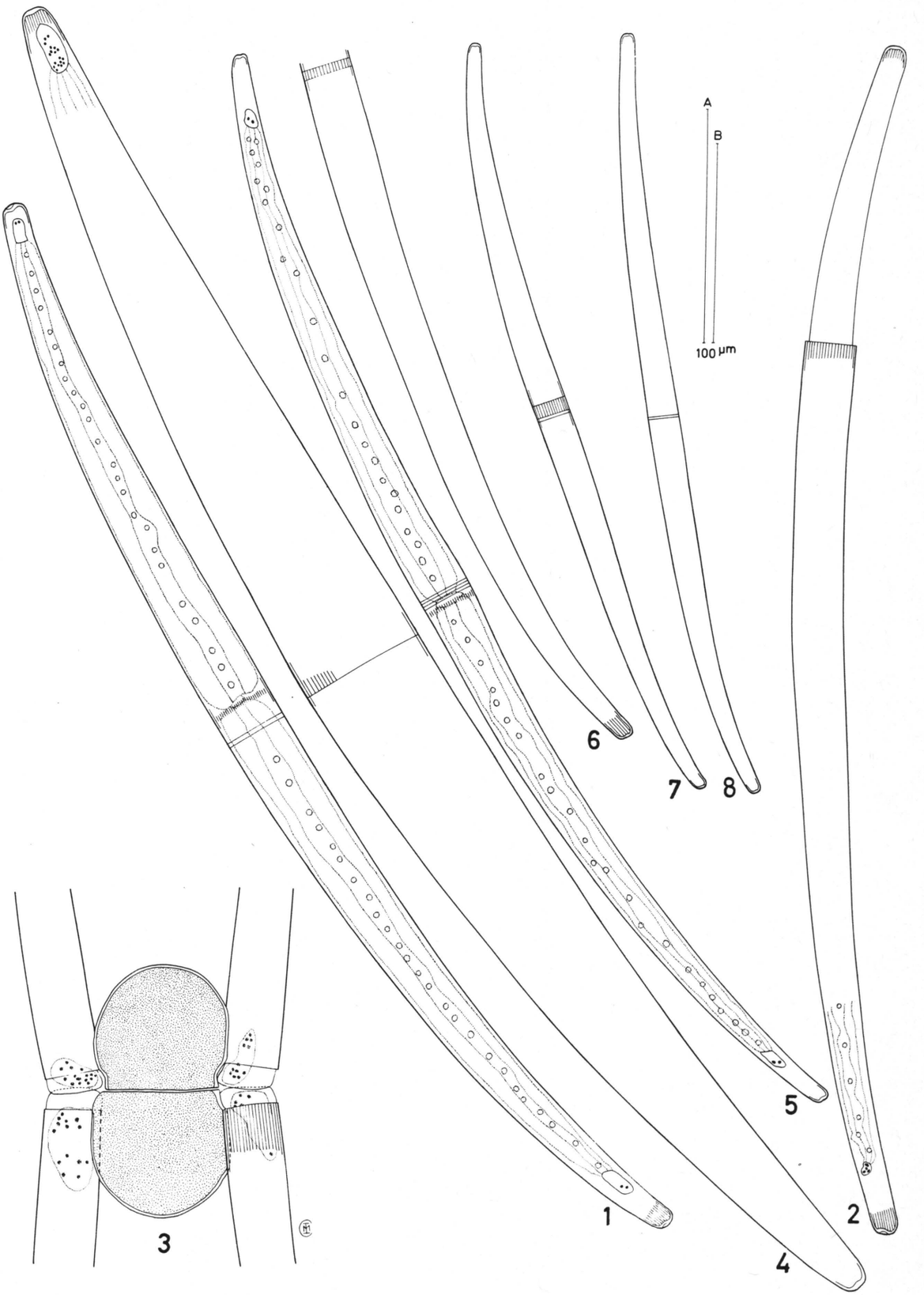

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FIGUUR 101

1 - 3. Closterium moniliferum var. moniliferum (p. 286).

4, 5. C. moniliferum var. submoniliferum (p. 290).

6. C. moniliferum var. moniliferum forma ? (p. 289).

7. C. moniliferum var. concavum forma (p. 289).

8. C. moniliferum var. nasutum (p. 289).

9. C. lunula (p. 284).

1 - 8 : skaal A

9 : skaal B

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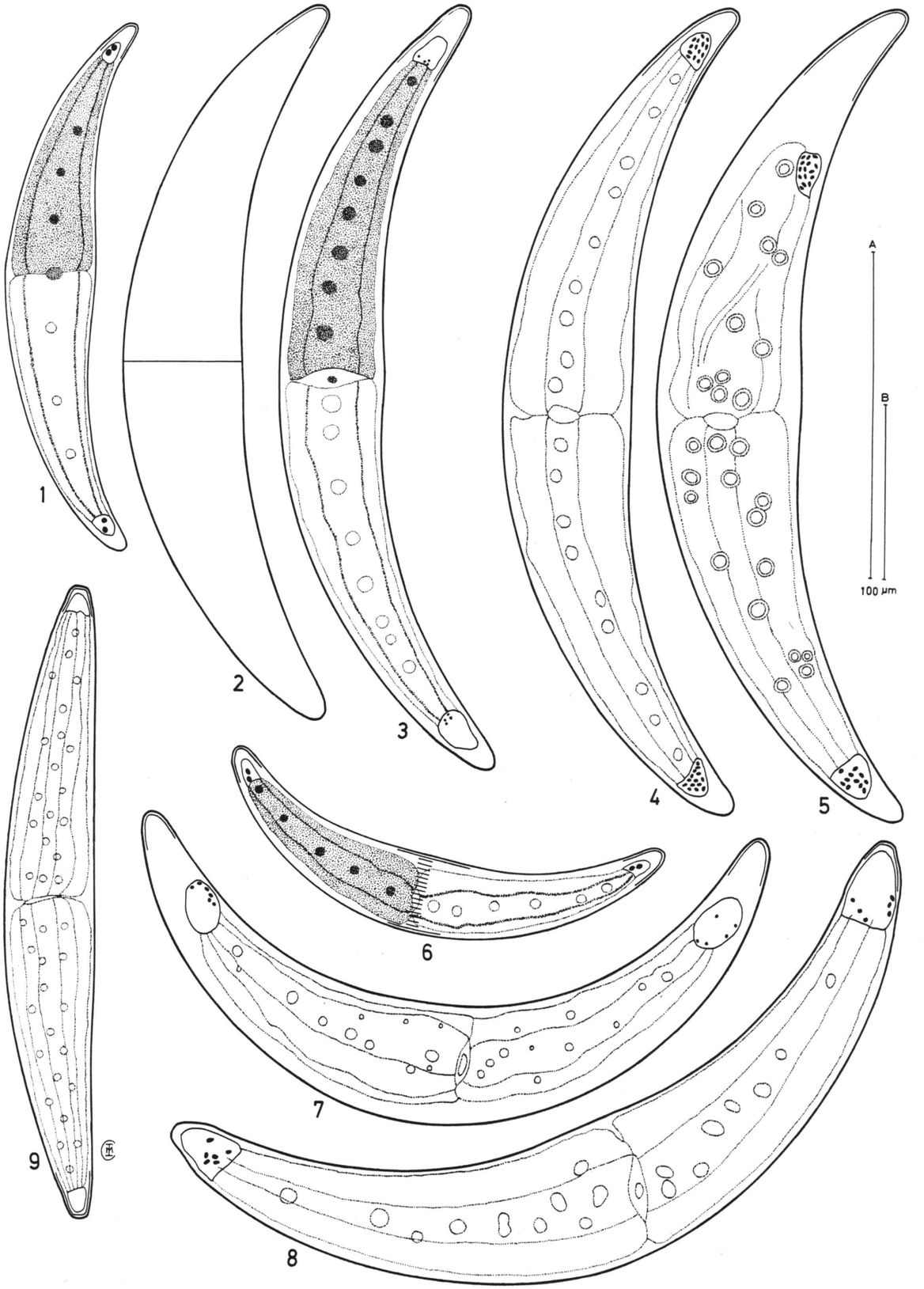

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FIGUUR 102

1. *Closterium lanceolatum* (p. 278).

2. *C. laterale* forma (p. 279).

3, 4. *C. subjuncidiforme* var. *attenuatum* (p. 315).

5. *C. striolatum* (p. 312).

6. *C. lunula* (p. 284).

1 - 5 : skaal A

6 : skaal B

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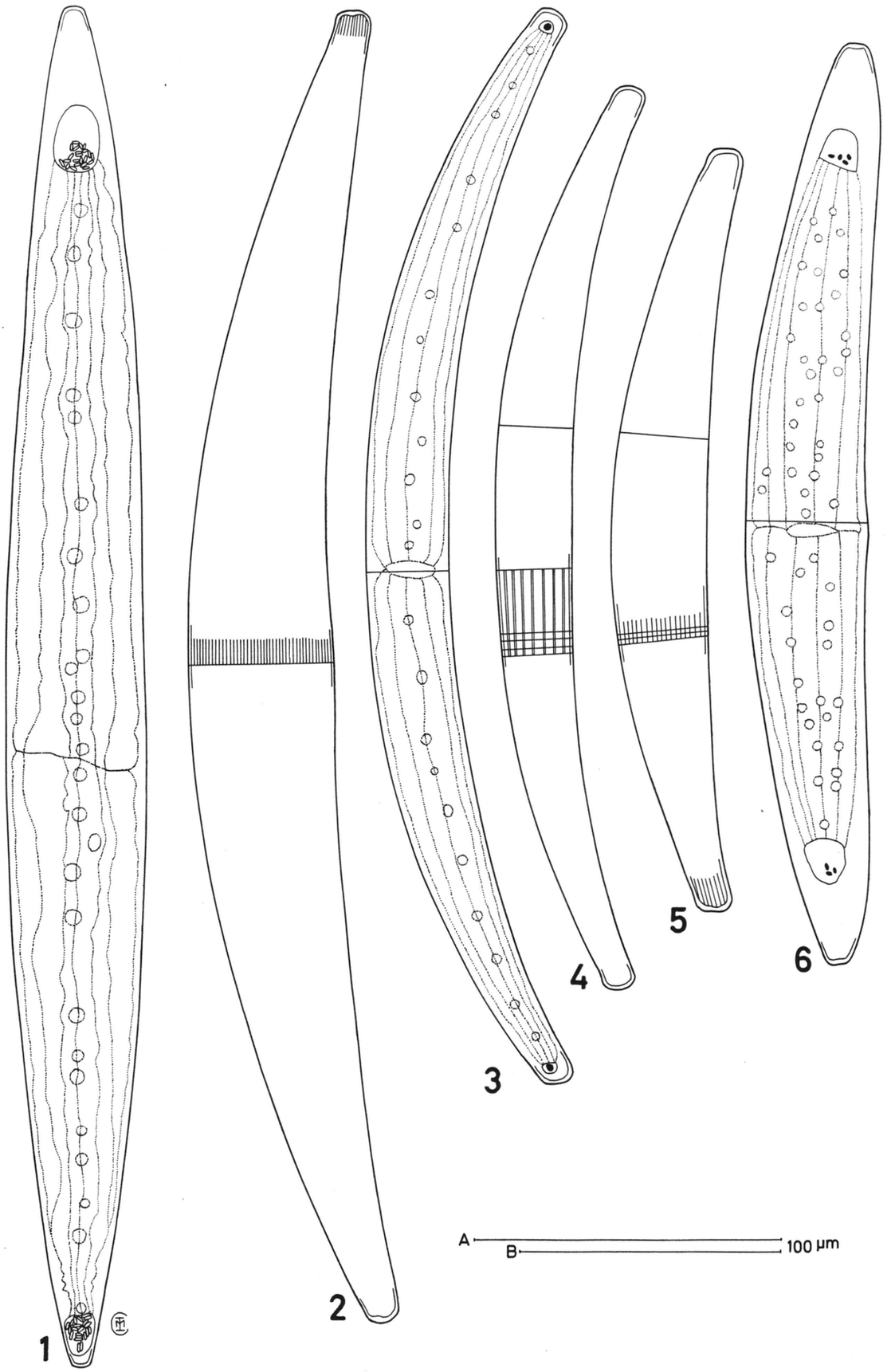

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FIGUUR 103

1 - 12. Closterium ralfsii var. hybridum (p. 306).
11, 12. Anomalieë.

13. C. kuetzingii (p. 276).

14. C. praelongum var. praelongum (p. 299).

15. C. pritchardianum var. pritchardianum (p. 302).

1 - 10 : skaal A
11 - 14 : skaal B
15 : skaal C

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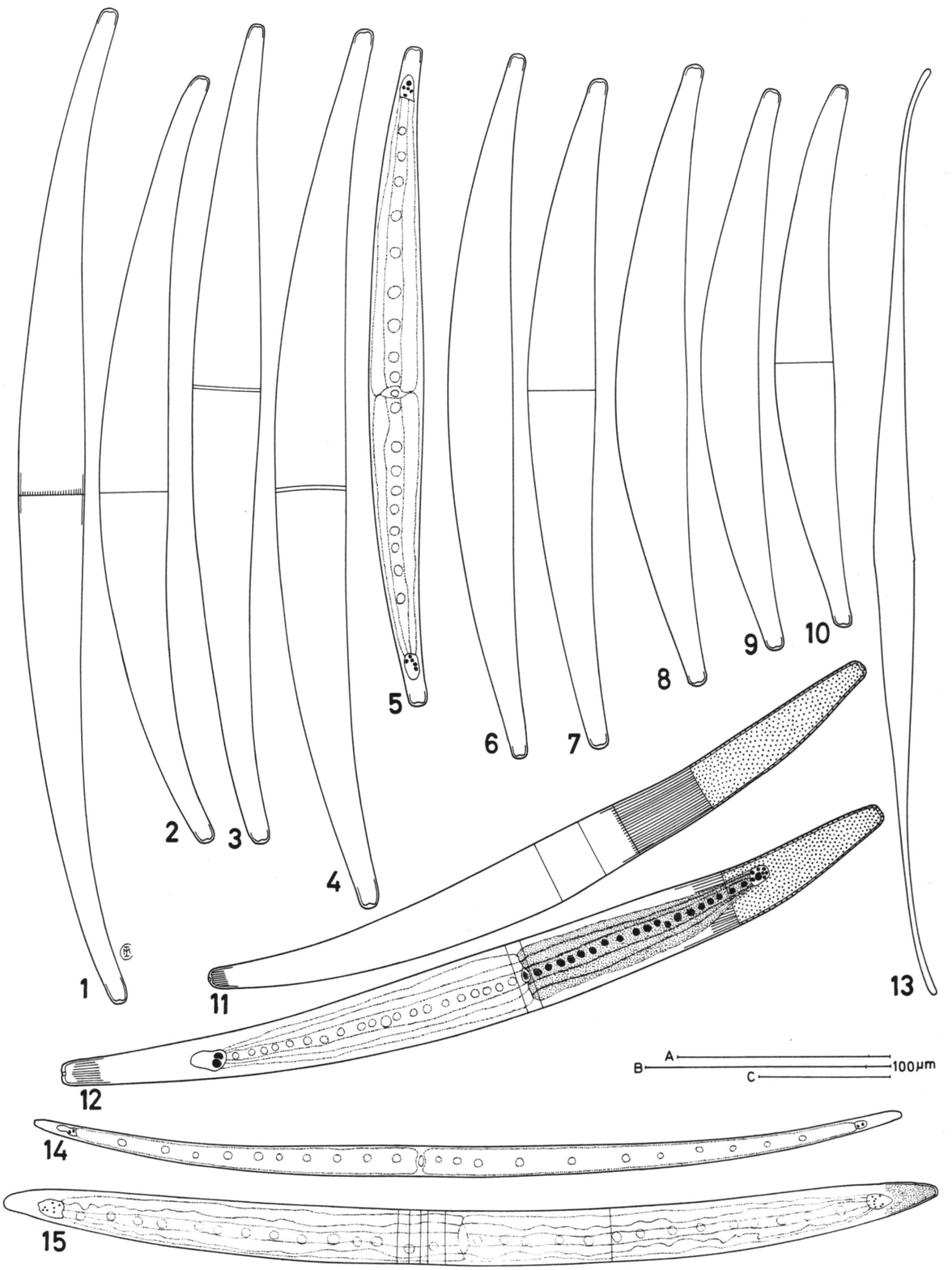

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FIGUUR 104

1 - 12. Closterium rostratum (p. 309).
12. Anomalie.

13. C. kuetzingii forma ? (p. 278).

1 : skaal B

2 - 13 : skaal A

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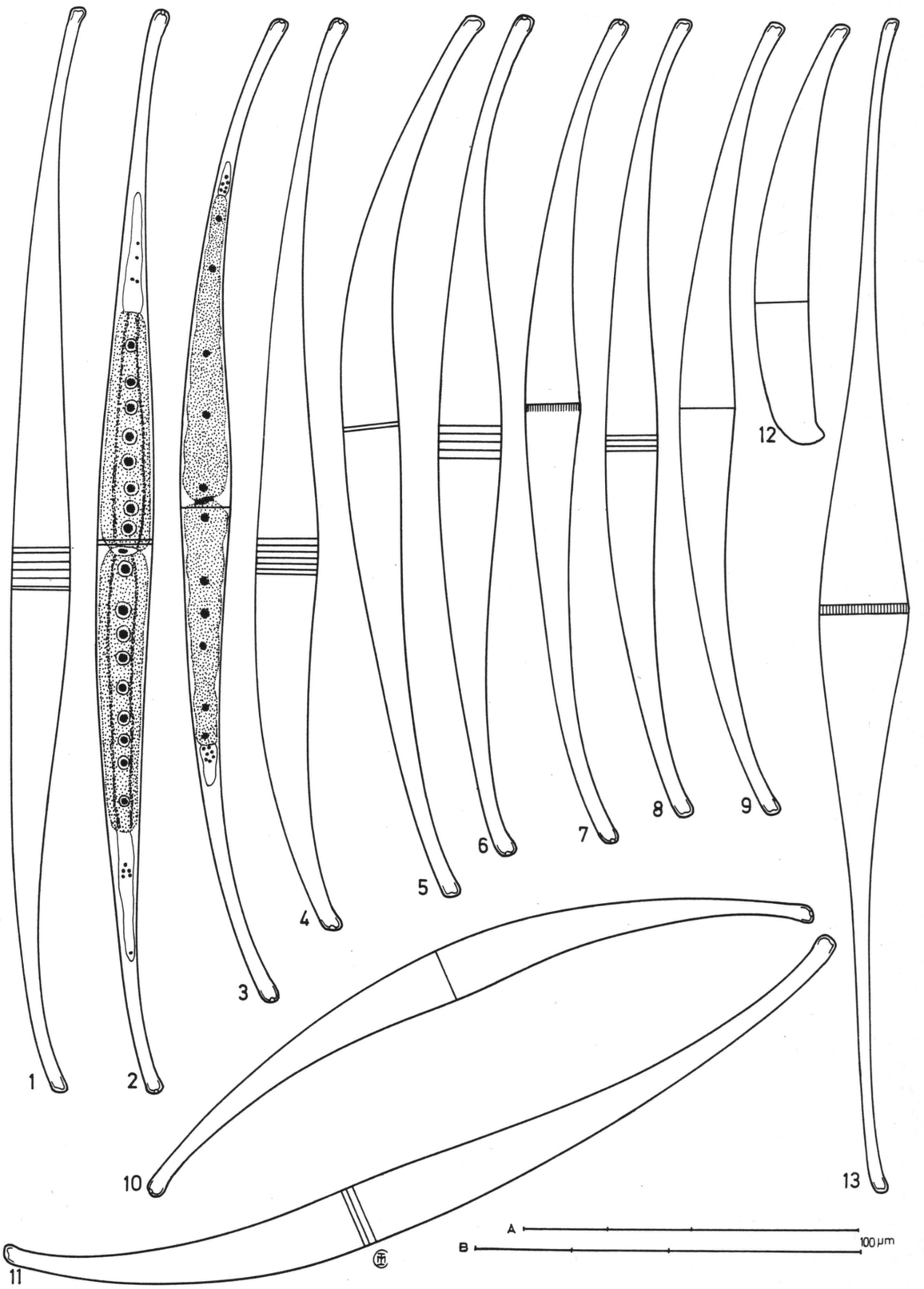

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FIGUUR 105

Fotomikrograwe van

1 - 3. Closterium abruptum var. brevius (p. 242).

4, 5. C. calosporum (p. 250); verskillende fokus= instellings om konjugasie en sigoot te toon.

6 - 8. C. closterioides var. closterioides (p. 251).
8. Chloroplaste met pirenoïede.

9 - 11. C. closterioides var. intermedium (p. 252).
9. Chloroplaste met pirenoïede.
10, 11. Chloroplaste ingesnoer.

12 - 14. C. cornu (p. 255); 12, 13. Gipskristalle abnormaal groot (met pyltjies aangedui).

15, 16. C. gracile (p. 272).

1 - 3	:	skaal A
4, 5	:	skaal B
6 - 11	:	skaal C
12 - 14	:	skaal D
15, 16	:	skaal E

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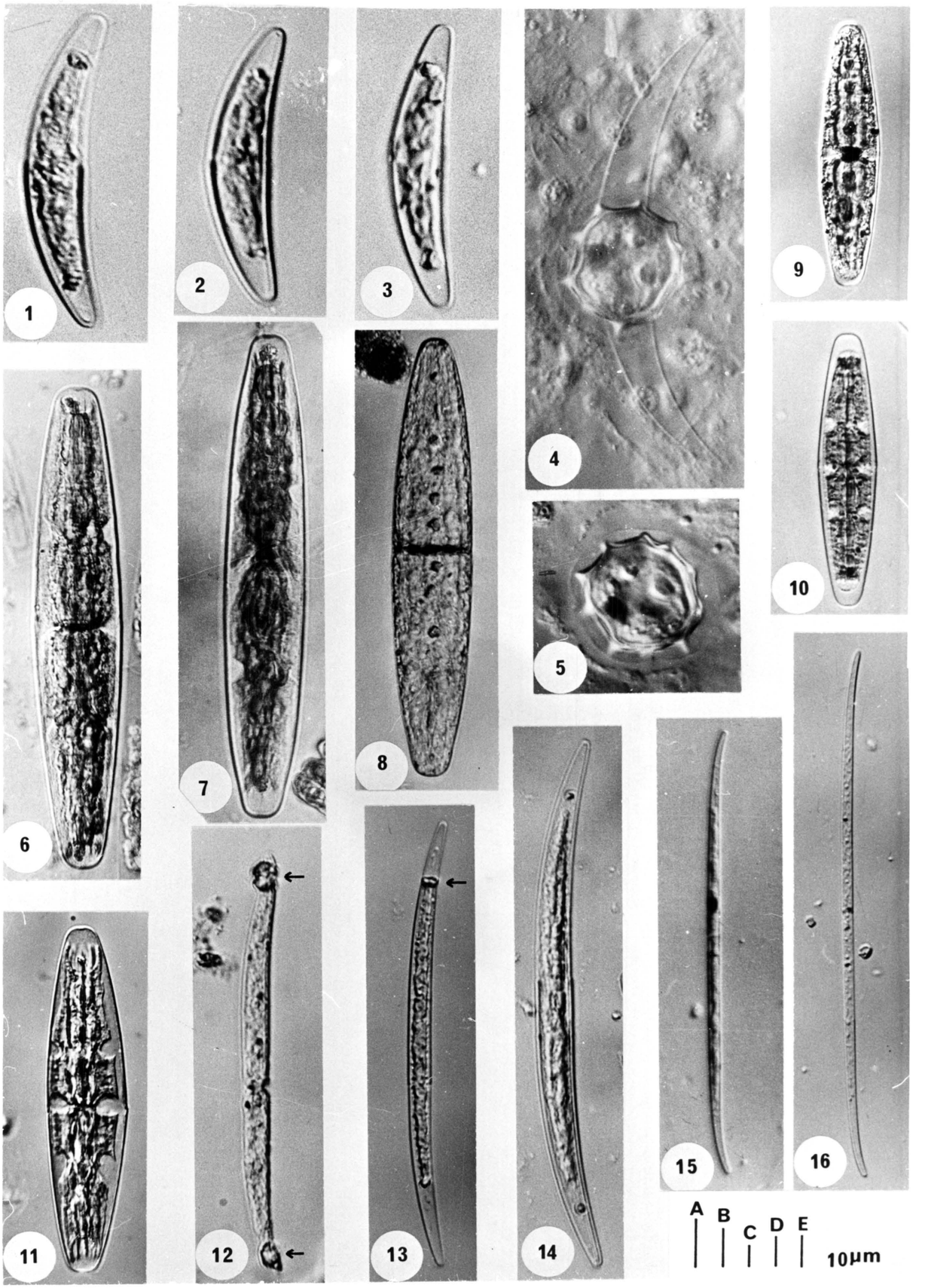

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FIGUUR 106

Fotomikrografe van

1 - 4. Closterium cynthia var. cynthia (p. 258).
1, 2. Variasie in selgrootte.
3, 4. Verskillende fokusinstellings van 'n sel wat die gordelbande en selwandstreping toon.

5 - 8. C. cynthia var. latum (p. 260); variasie in selvorm.

9 - 11. C. dianae var. minus (p. 264).

12. C. dianae var. dianae (p. 261).

13. C. dianae var. brevius (p. 263).

14. C. dianae var. pseudodianae (p. 266).

15. C. dianae var. rectius (p. 267).

1 - 14 : skaal A
15 : skaal B

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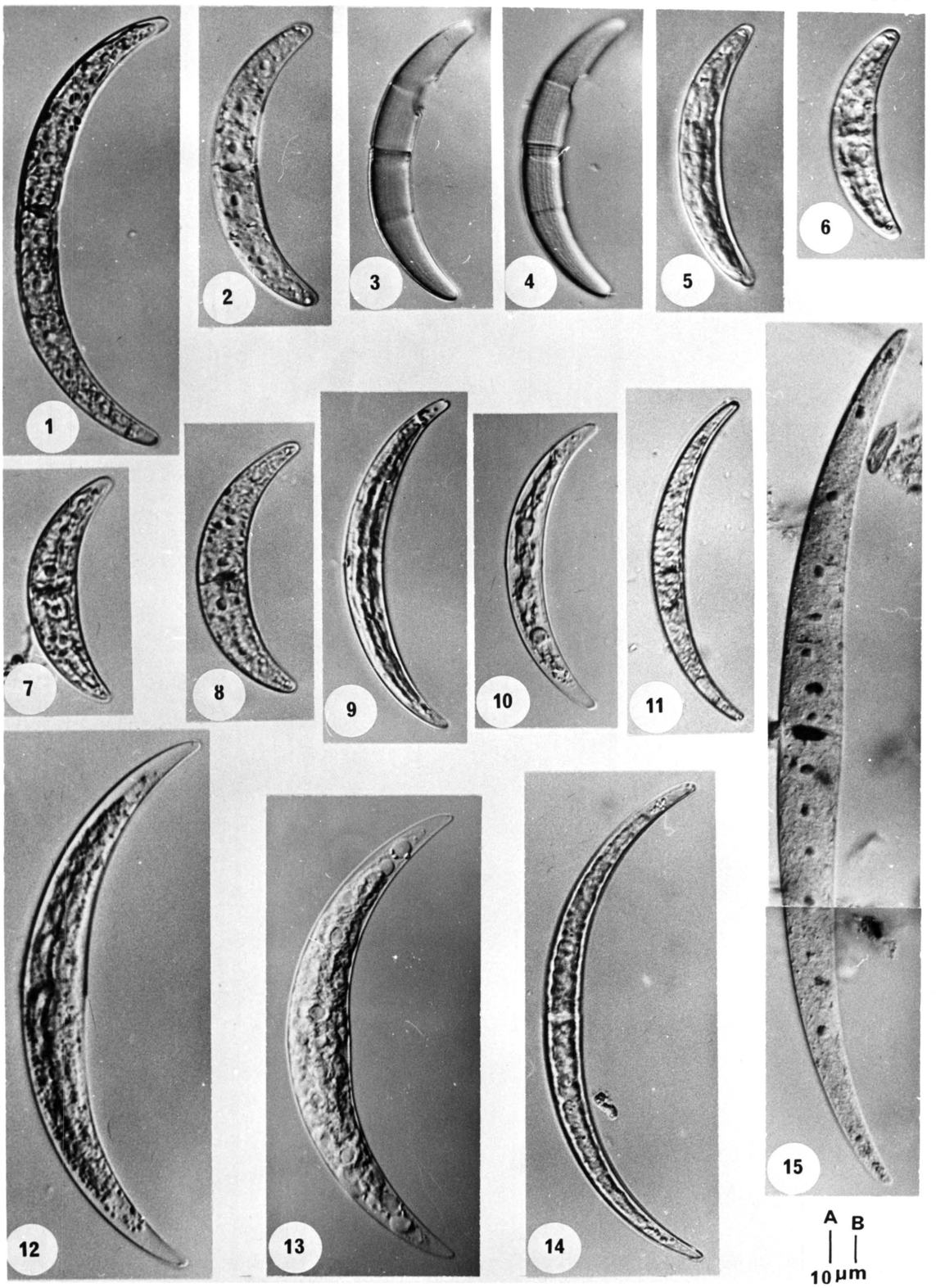

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FIGUUR 107

Fotomikrograwe van

1, 2. Closterium ehrenbergii var. ehrenbergii (p. 268).

3. C. ehrenbergii var. atumidum (p. 269).

4. C. ehrenbergii var. malinvernianum (p. 270).

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FIGUUR 108

Fotomikrograwe van

1, 2. Closterium incurvum (p. 274). 2. Buitengewoon groot gipskristal met pyltjie aangedui.

3 - 6. C. navicula var. navicula (p. 291). 6. Sigoot.

7. C. navicula var. crassum (p. 293).

8. C. pusillum (p. 306).

9 - 11. C. parvulum var. parvulum (p. 295).

12. C. parvulum var. angustum (p. 297).

13. C. parvulum var. obtusum (p. 299).

14, 15. C. venus (p. 317).

1, 2	:	skaal A
3 - 7	:	skaal B
8	:	skaal C
9 - 13	:	skaal D
14, 15	:	skaal E

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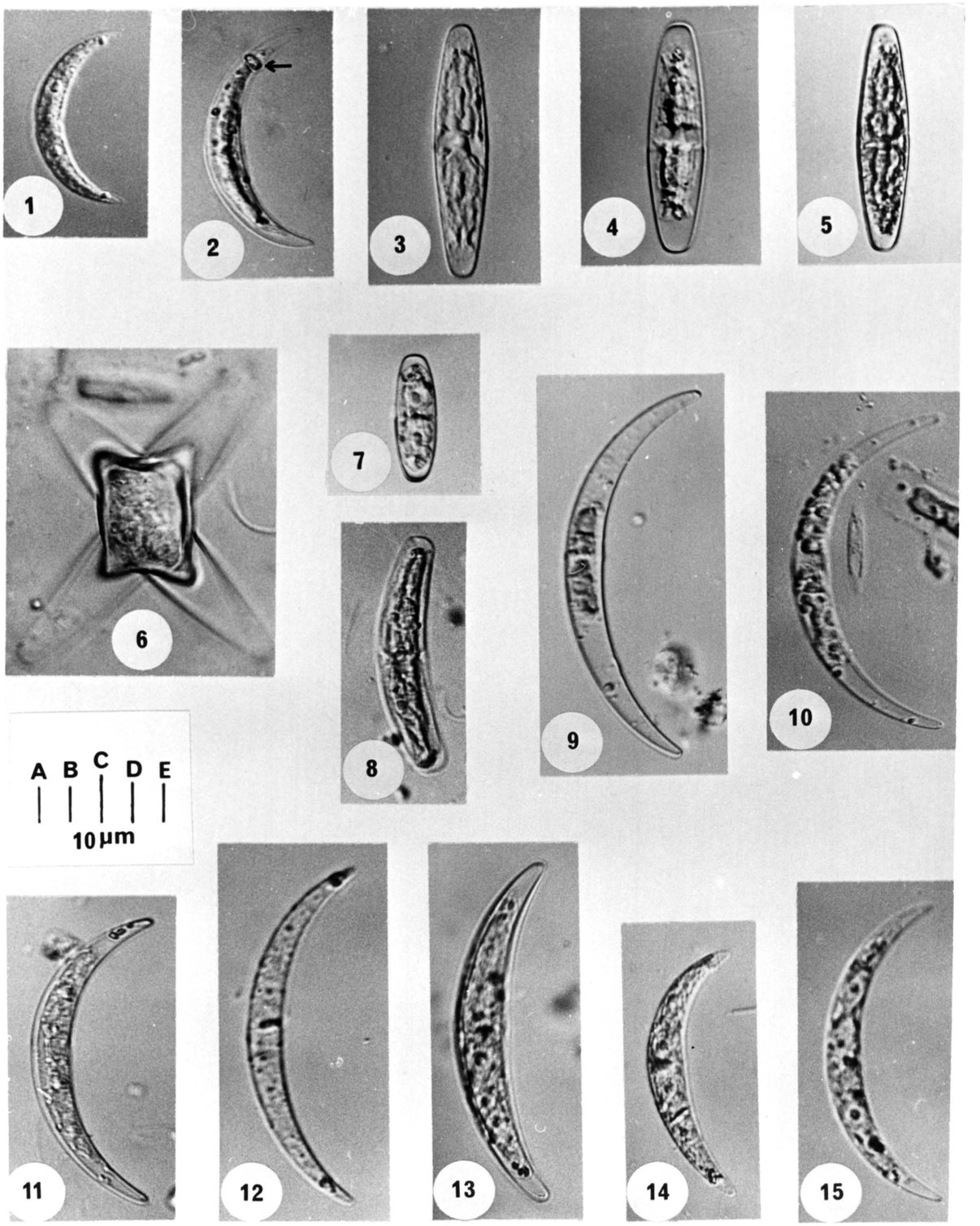

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FIGUUR 109

Fotomikrograwe van

1, 2. Closterium kuetzingii (p. 276); gedeeltes van selle wat vorm van halfsel en selwand=streping toon.

3. C. kuetzingii forma ? (p. 278).

4. C. setaceum (p. 310).

5. C. setaceum forma (p. 312).

6. C. regulare forma (p. 308).

7 - 11. C. rostratum (p. 309). 7, 10, 11. Variasie in selvorm. 8. 'n Buitengewoon sterk gekromde sel. 9. Anomalie.

1, 2, 4, 5 : skaal A

3, 6 - 11 : skaal B

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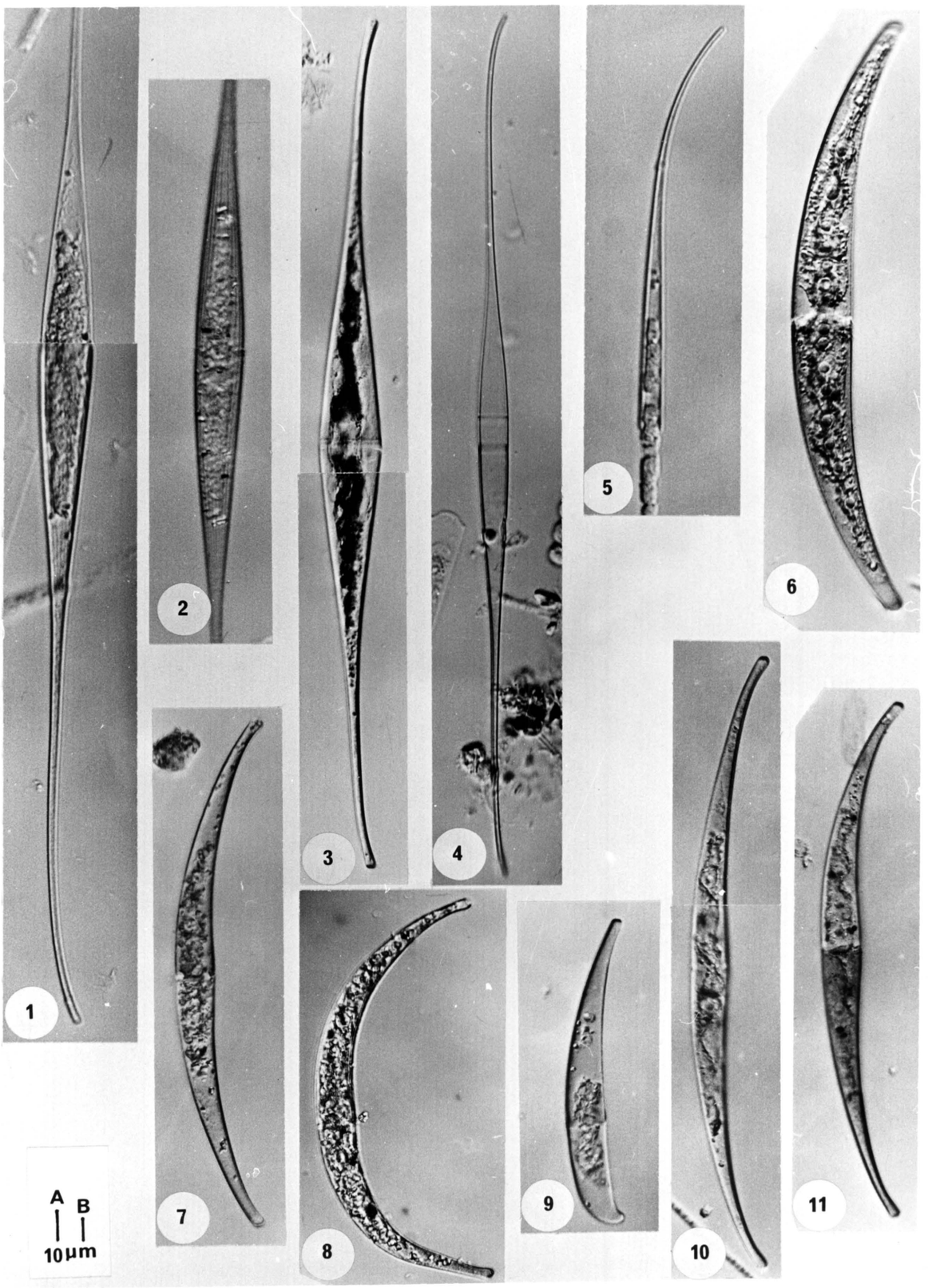

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FIGUUR 110

Fotomikrograwe van

1 - 3. Closterium lineatum var. lineatum (p. 280).
2. Een halfsel nog onvolwasse.
3. Sigote.

4 - 6. C. lineatum var. africanum (p. 282).
4. Sigmoïede vorm.

7 - 11. C. lineatum var. elongatum (p. 282).
10. Selwandstreping. 11. Sigote.

1 - 3, 5 - 11 : skaal A
4 : skaal B

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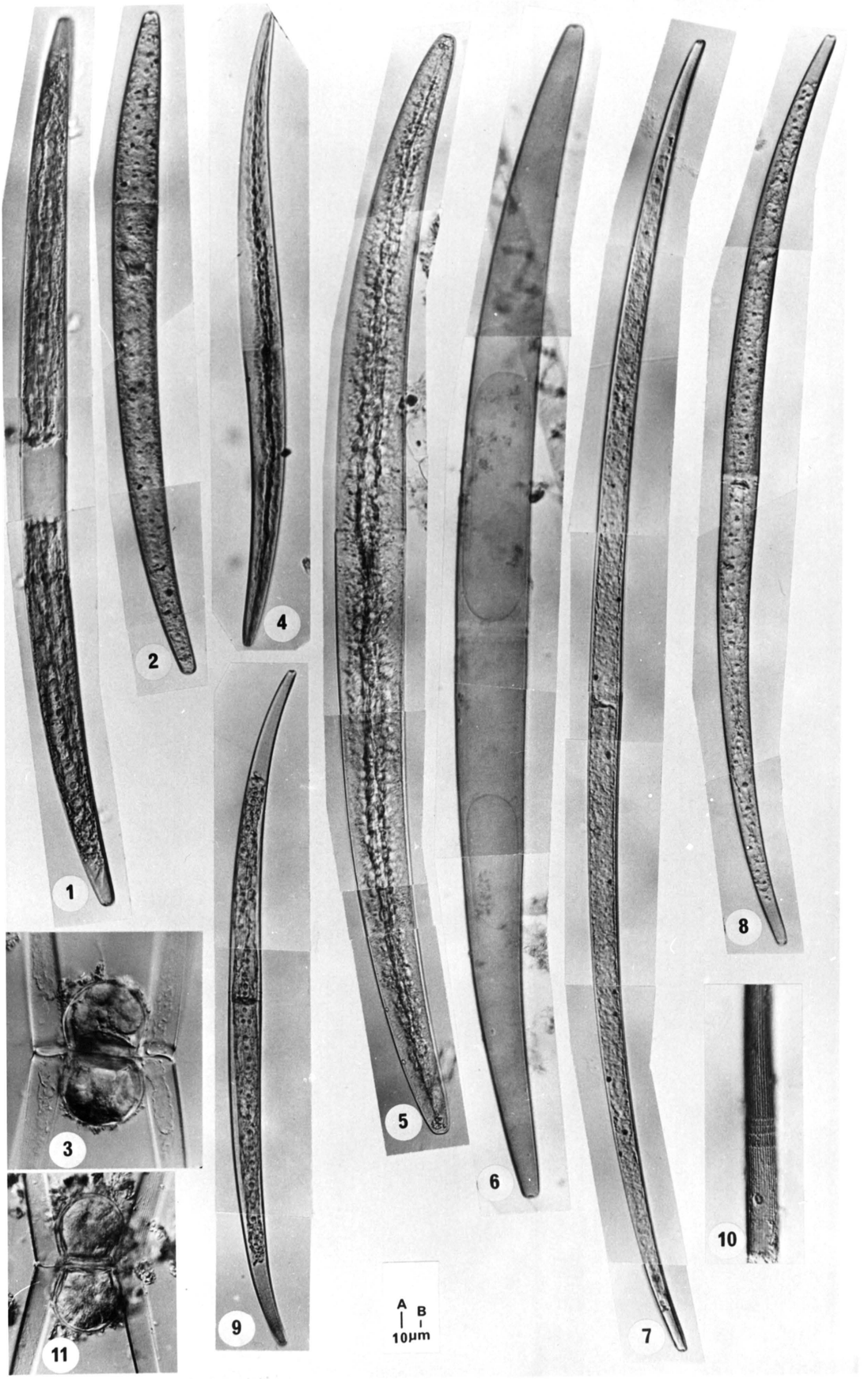

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FIGUUR 111

Fotomikrograwe van

1 - 4. Closterium lunula (p. 284); variasie in selvorm. 2. Verspreidliggende pirenoïede.

5 - 7. C. laterale forma (p. 279). 5. Variasie in die rangskikking van die pirenoïede in die chloroplaste van die twee halfselle. 6, 7. Verskillende vergrotings van 'n sel om die selvorm en selwandstreping te toon.

8. C. praelongum var. praelongum (p. 299).

9 - 11. C. pritchardianum var. africanum (p. 304). 9, 10. Selvorm, chloroplaste en pirenoïede. 11. Selwandstreping.

1 - 5, 7	:	skaal A
6	:	skaal B
8	:	skaal C
9 - 11	:	skaal D

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FIGUUR 112

Fotomikrograwe van

1 - 4. Closterium moniliferum var. moniliferum (p. 286). 1 - 3. Variasie in selvorm. 4. Chloroplaste met 'n groot getal pirenoïede.

5. C. moniliferum var. concavum forma (p. 289).

6. C. moniliferum var. nasutum (p. 289).

7, 8. C. moniliferum var. submoniliferum (p. 290).

9. C. tumidum (p. 315).

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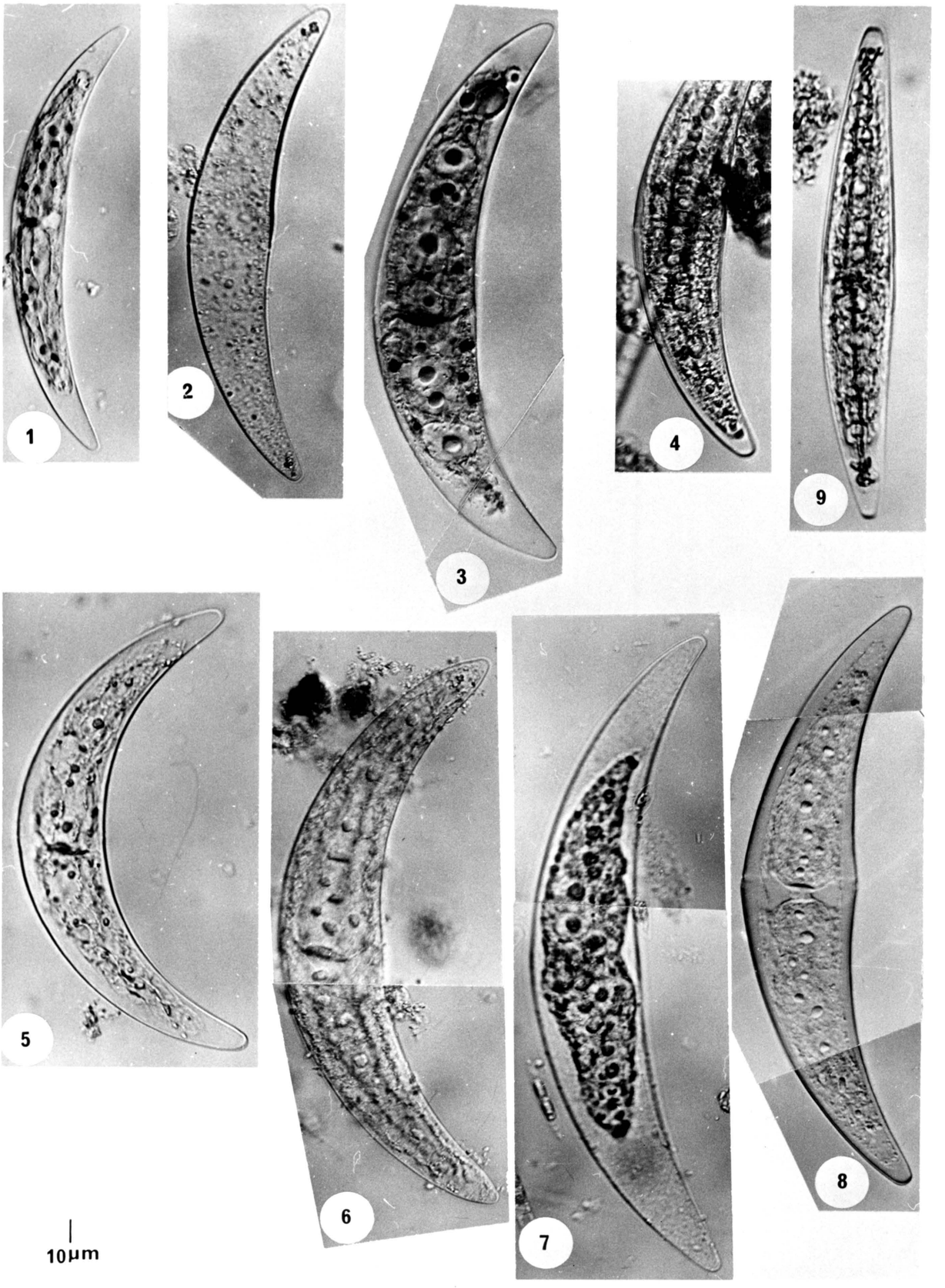

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FIGUUR 113

Fotomikrograwe van

1 - 4. Closterium nematodes var. nematodes f. latum (p. 294). 2, 3. Ringvormige selwandverdikking naby selpole. 3, 4. Selwandstreping.

5 - 7. C. nematodes var. tumidum forma (p. 295). 7. Selwandstreping.

8 - 14. C. striolatum (p. 312). 8, 9. Verskillende fokusinstellings van 'n sel om die chloroplaste met pirenoïede, gordelbande en selwandstreping te toon. 12. Selwandstreping en gordelband by 'n halfsel. 13, 14. Sigote.

1 - 7 : skaal A

8 - 12 : skaal B

13, 14 : skaal C

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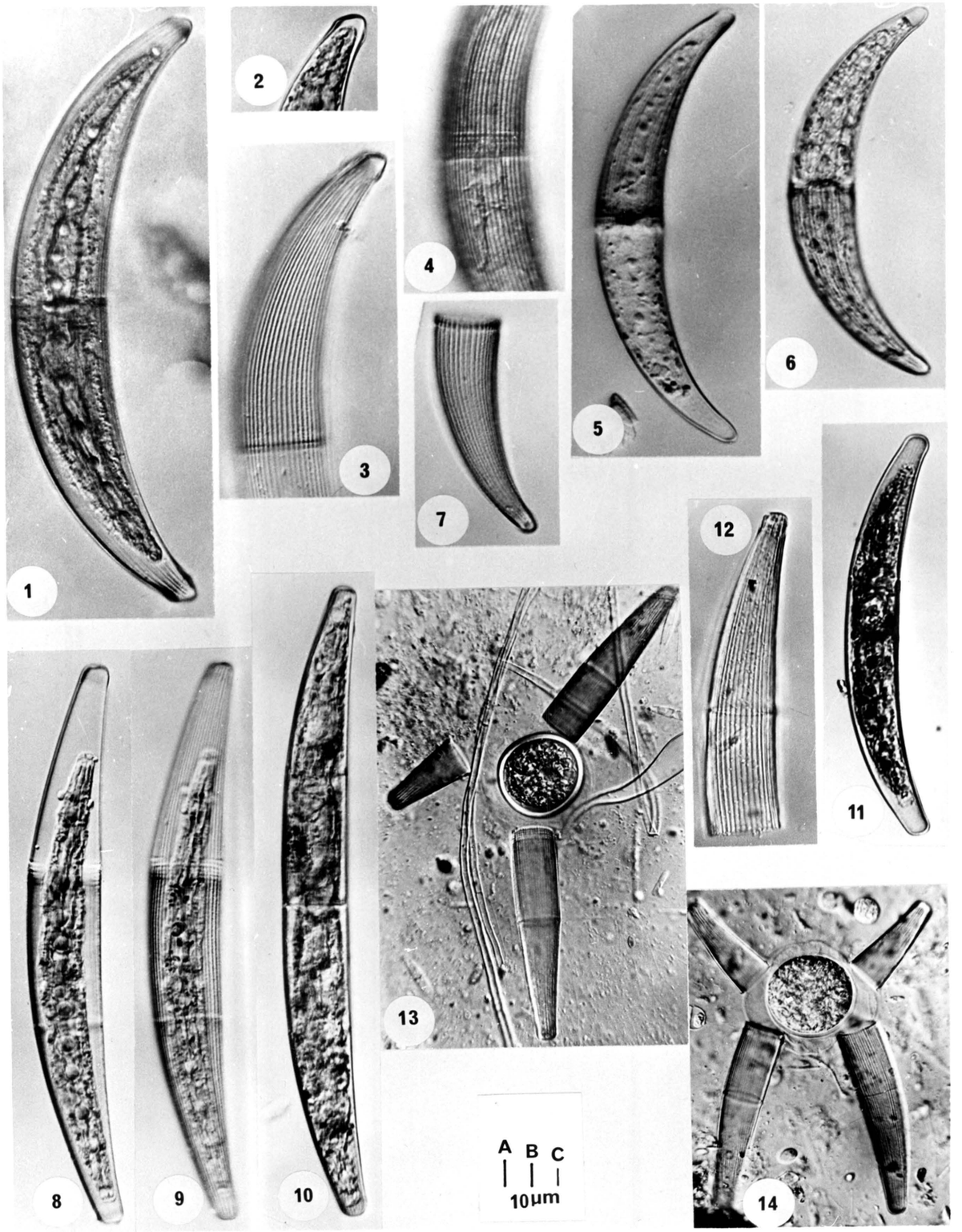

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FIGUUR 114

Fotomikrograwe van

1. Closterium acerosum var. acerosum (p. 243).

2. C. acerosum var. minus (p. 245).

3 - 7. C. pritchardianum var. pritchardianum (p. 302). 4, 6, 7. Verskillende fokusinstellings van selle om 'n deel van die chloroplas met pirenoïede, die selwandstreping en die gestippelde geaardheid van die selwand by die selpool te toon. 5. 'n Eksemplaar waar groter gedeeltes van die selwand gestippel is.

8. C. pritchardianum var. pritchardianum forma (p. 304).

9 - 11. C. turgidum var. giganteum (p. 316). 10. Selwandstreping, polêre gedeelte van sel. 11. Selwandstreping, mediane gedeelte van sel.

1, 2	:	skaal A
3 - 5, 7	:	skaal B
6	:	skaal C
8	:	skaal D
9	:	skaal E
10, 11	:	skaal F

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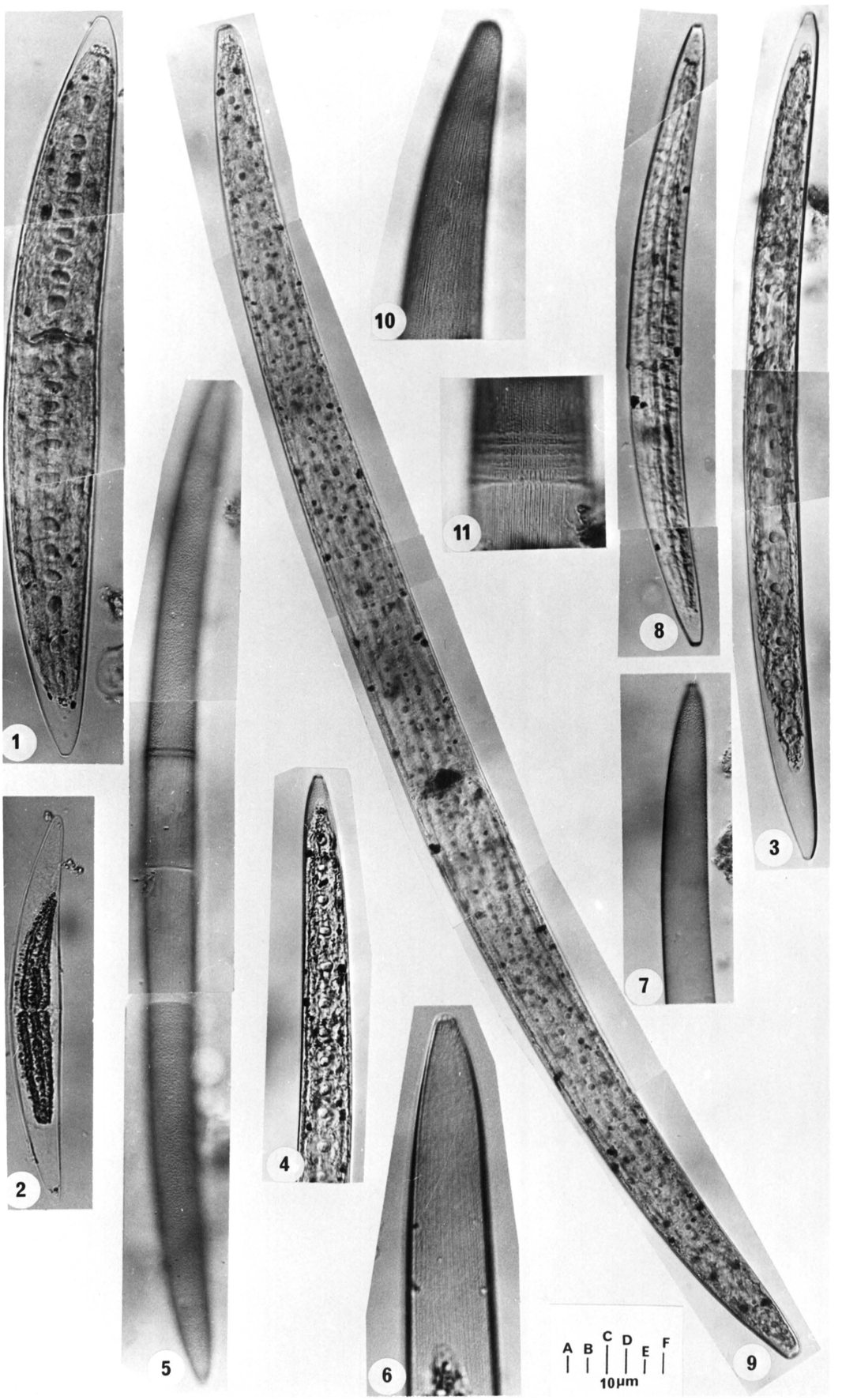

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FIGUUR 115

Fotomikrograwe van

1 - 4. Closterium ralfsii var. hybridum (p. 306).
1, 4. Variasie in selvorm. 2. Selwand=streping. 3. Chloroplaste met pirenoïede.

5 - 8. C. subjuncidiforme var. attenuatum (p. 315).
5 - 7. Variasie in selgrootte.
7, 8. Verskillende fokusinstellings van 'n sel om gordelbande en selwandstreping te toon.

9, 10. C. archerianum var. archerianum (p. 248); selvorm en selwandstreping.

11, 12. C. costatum (p. 257); selvorm en selwand=skulptuur.

1 - 4 : skaal A
5 - 8 : skaal B
9, 10 : skaal C
11, 12 : skaal D

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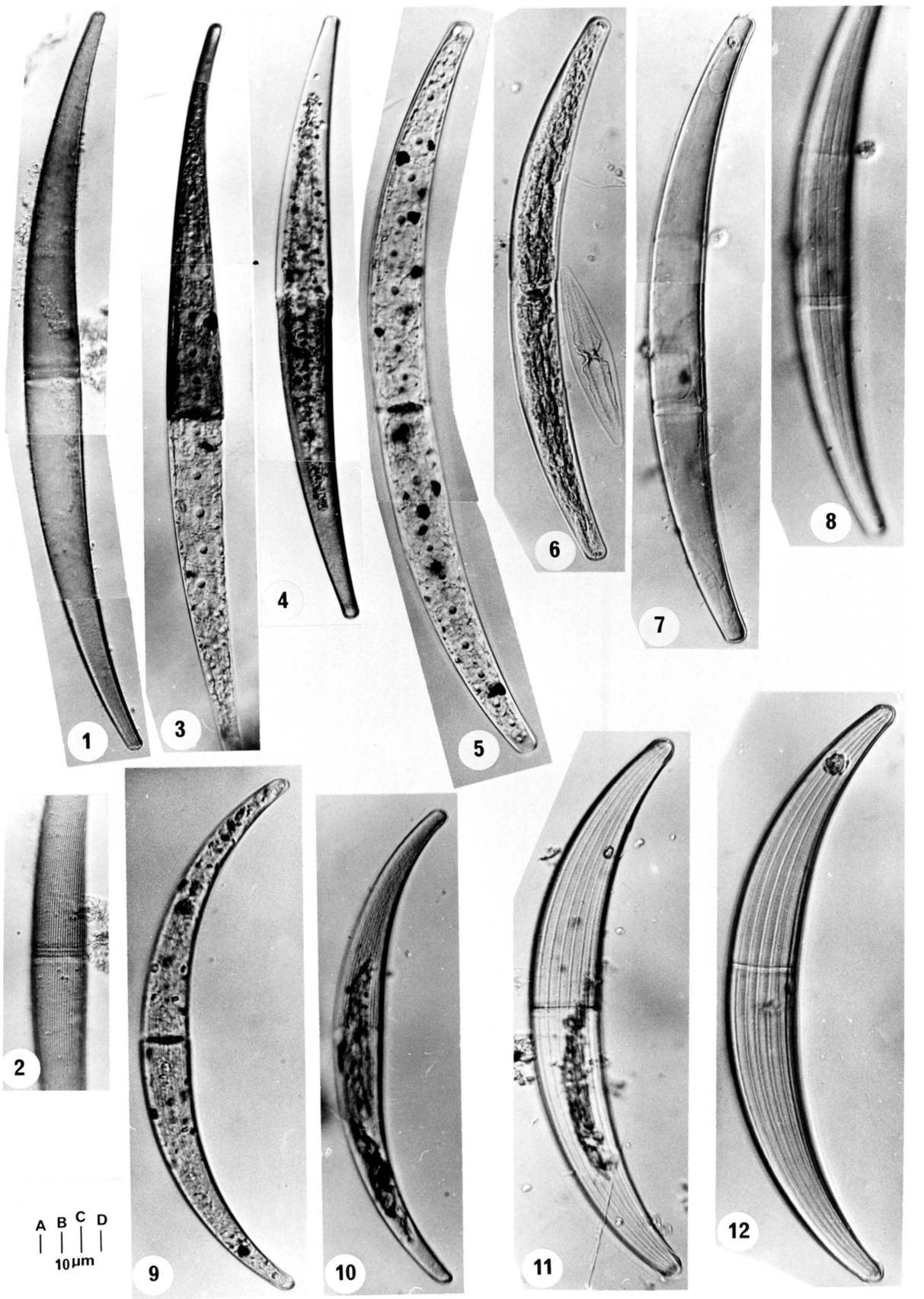

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FIGUUR 116

Aftaselektronmikrograwe van

1 - 3. Closterium archerianum var. archerianum (p. 248). 1. Selvorm. 2, 3. Selwand=streping en -porieë.

4, 5. C. costatum (p. 257); selwandstreping.

1, 4, 5 : skaal = 10 µm

2, 3 : skaal = 1 µm

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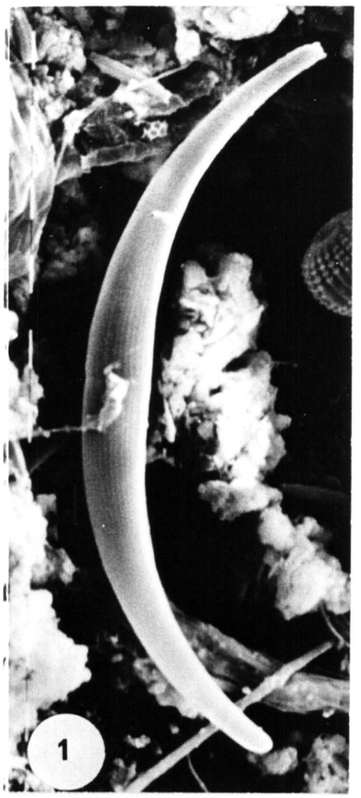
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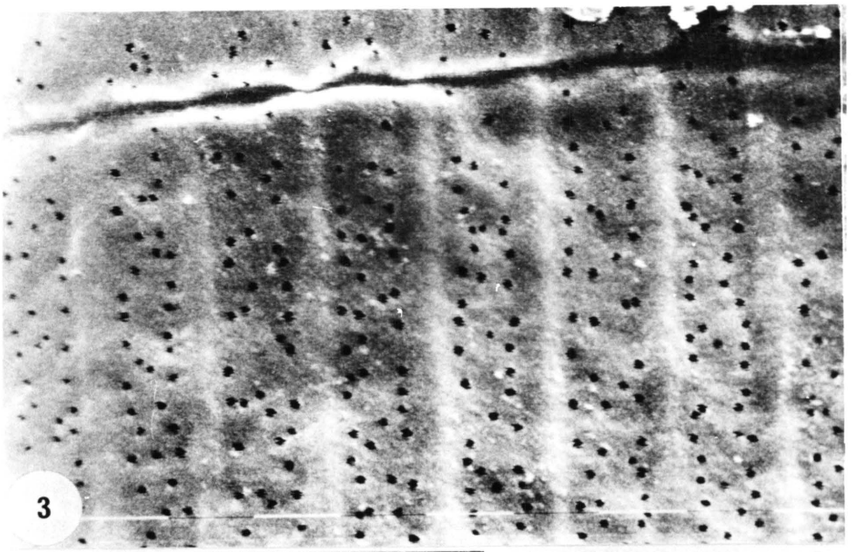
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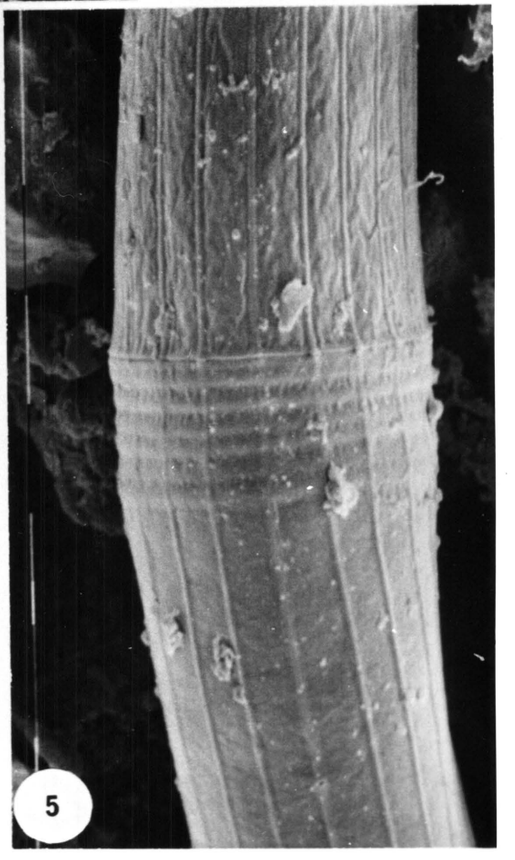
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FIGUUR 117

Aftaselektronmikrograwe van

1, 2. Closterium kuetzingii (p. 276).
1. Halfselle. 2. Selwandstreping.

3, 4. C. lunula (p. 284); selwandskulptuur.

1, 3 : skaal = 10 µm

2, 4 : skaal = 1 µm

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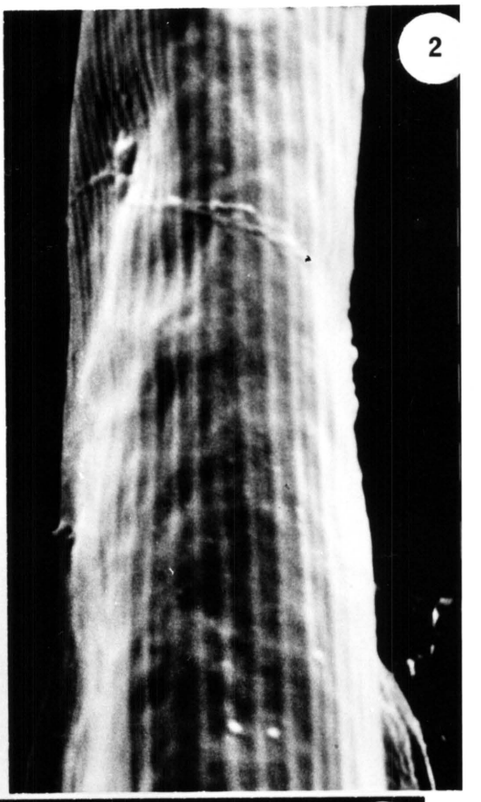
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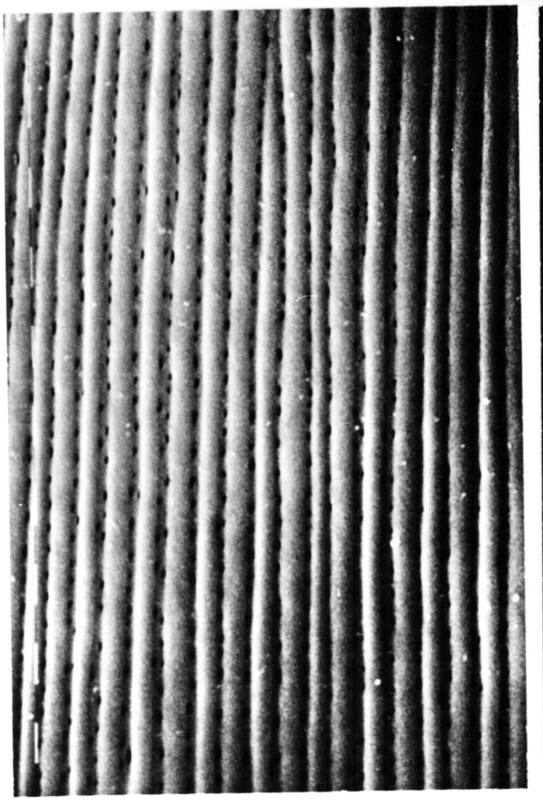
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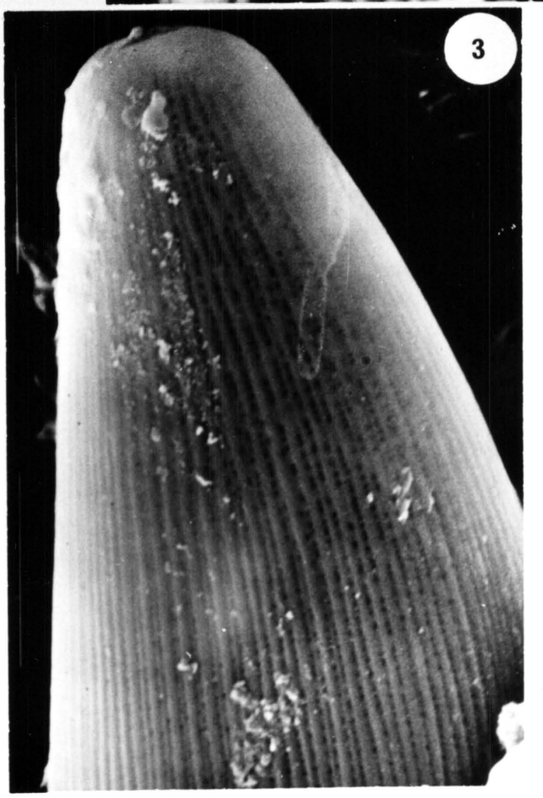
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FIGUUR 118

Aftaselektronmikrograwe van

1 - 5. Closterium laterale forma (p. 279).

1. 'n Halfsel om die vorm te toon.

2 - 4. Riffies wat selwandstreping vorm afwisselend meer of minder opgehewe.

2. Naat waar halfselle bymekaar aansluit.

4. Selwandporieë aangrensend aan riffies.

5. Riffies fyner en ewe sterk uitgebeeld.

6. C. cynthia var. cynthia (p. 258); selwand=streping.

1 - 3, 5, 6 : skaal = 10 µm

4 : skaal = 1 µm

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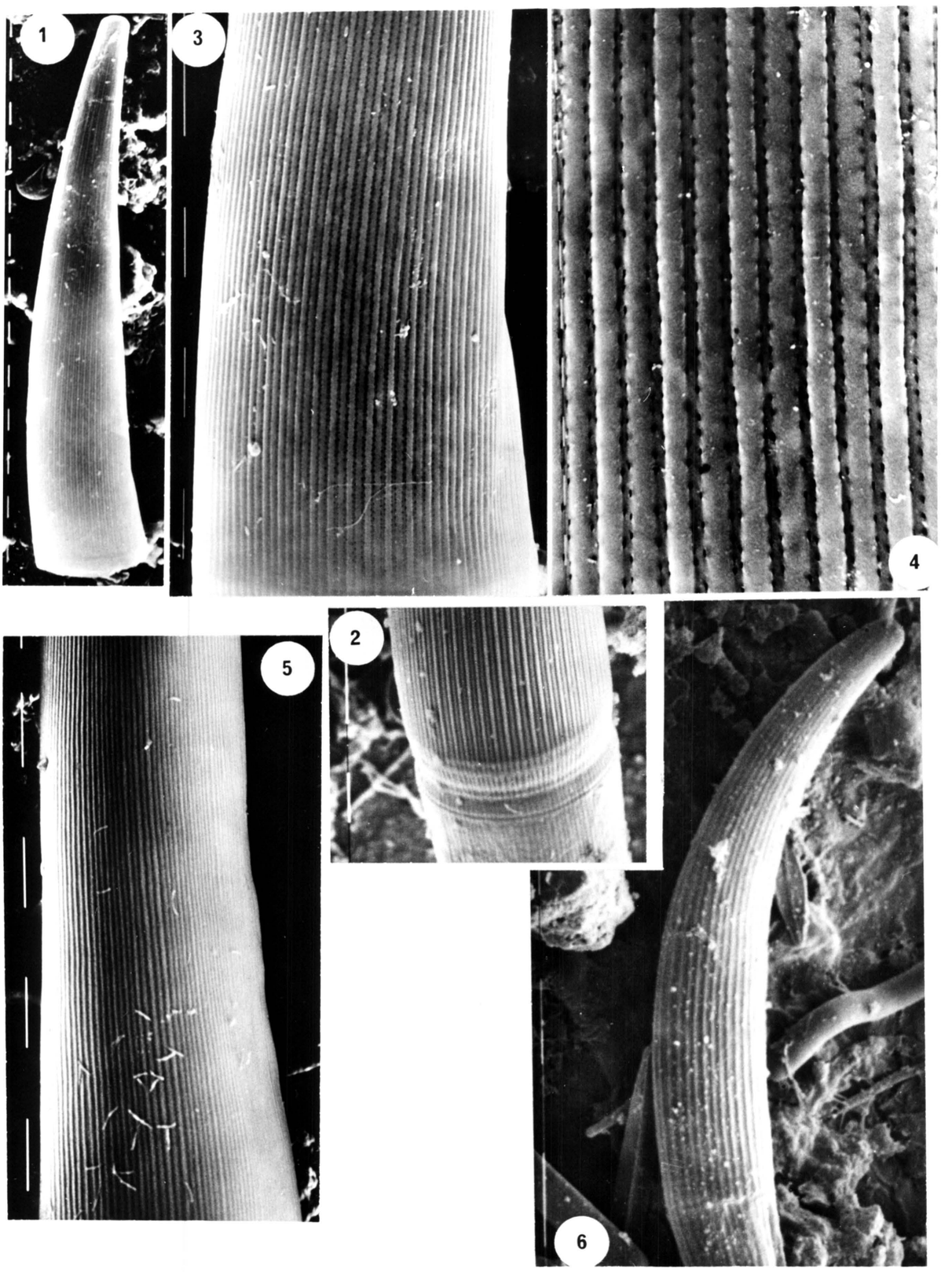

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FIGUUR 119

Aftaselektronmikrograwe van

1. Closterium lineatum var. lineatum (p. 280); selwandstreping.

2, 3. C. lineatum var. elongatum (p. 282). 2. Streek waar sommige van die riffies wat die selwandskulptuur uitmaak onderbreek is. 3. Selwandskulptuur.

4, 5. C. rostratum (p. 309). 4. 'n Buitengewoon sterk gekromde eksemplaar. 5. Selwand= streping.

1 - 5 : skaal = 10 µm

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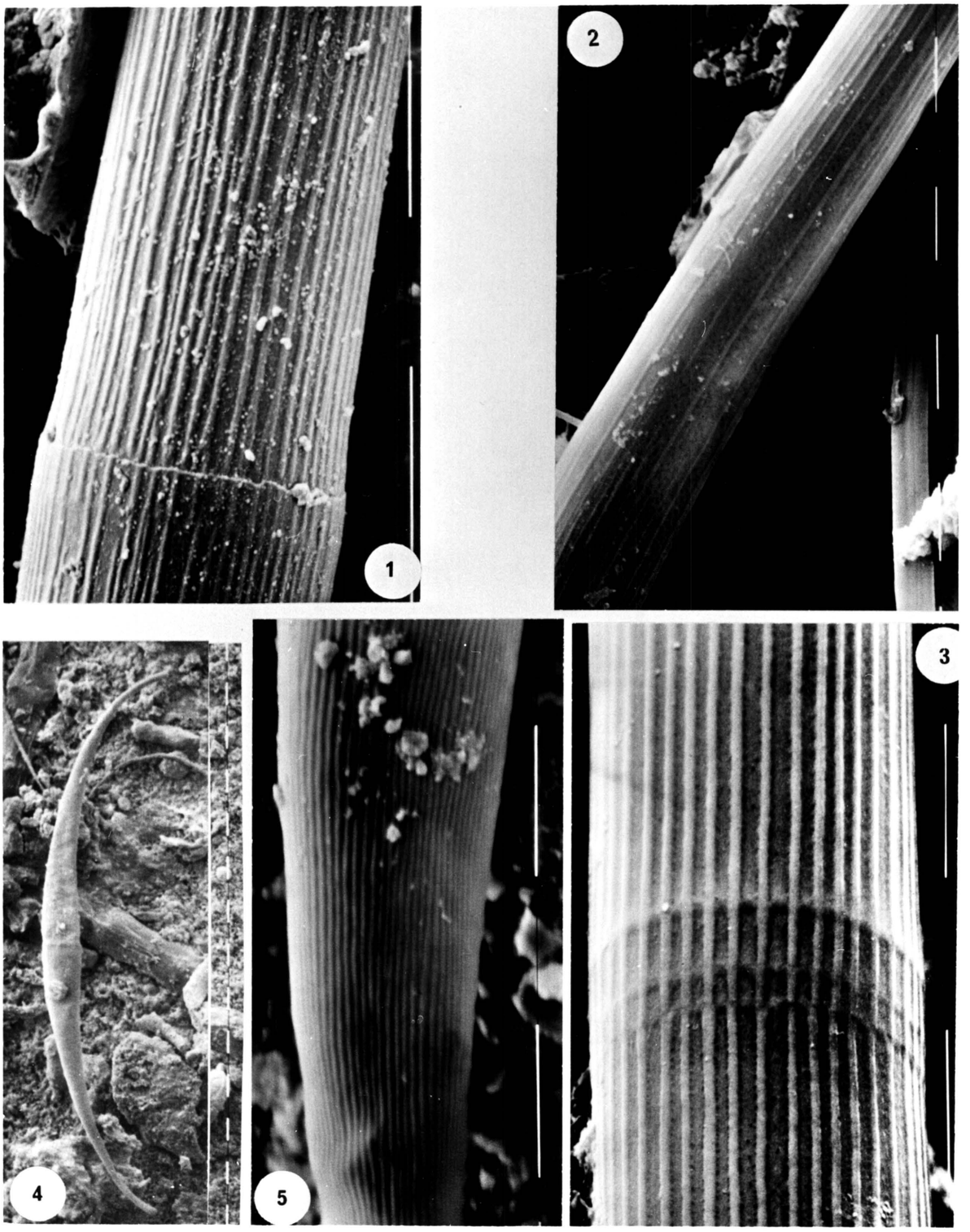

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FIGUUR 120

1 - 4. Aftaselektronmikrograwe van Closterium nematodes var. nematodes f. latum (p. 294); selvorm en selwandskulptuur.

1 - 3 : skaal = 10 µm

4 : skaal = 1 µm

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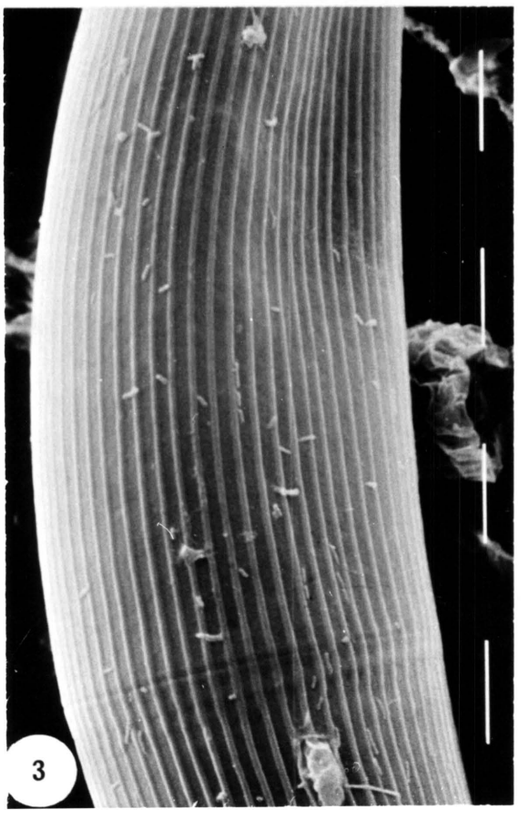

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FIGUUR 121

1 - 4. Aftaselektronmikrograwe van
Closterium striolatum (p. 312);
selvorm, gordelbande en selwandstreping.

1 - 4 : skaal = 10 µm

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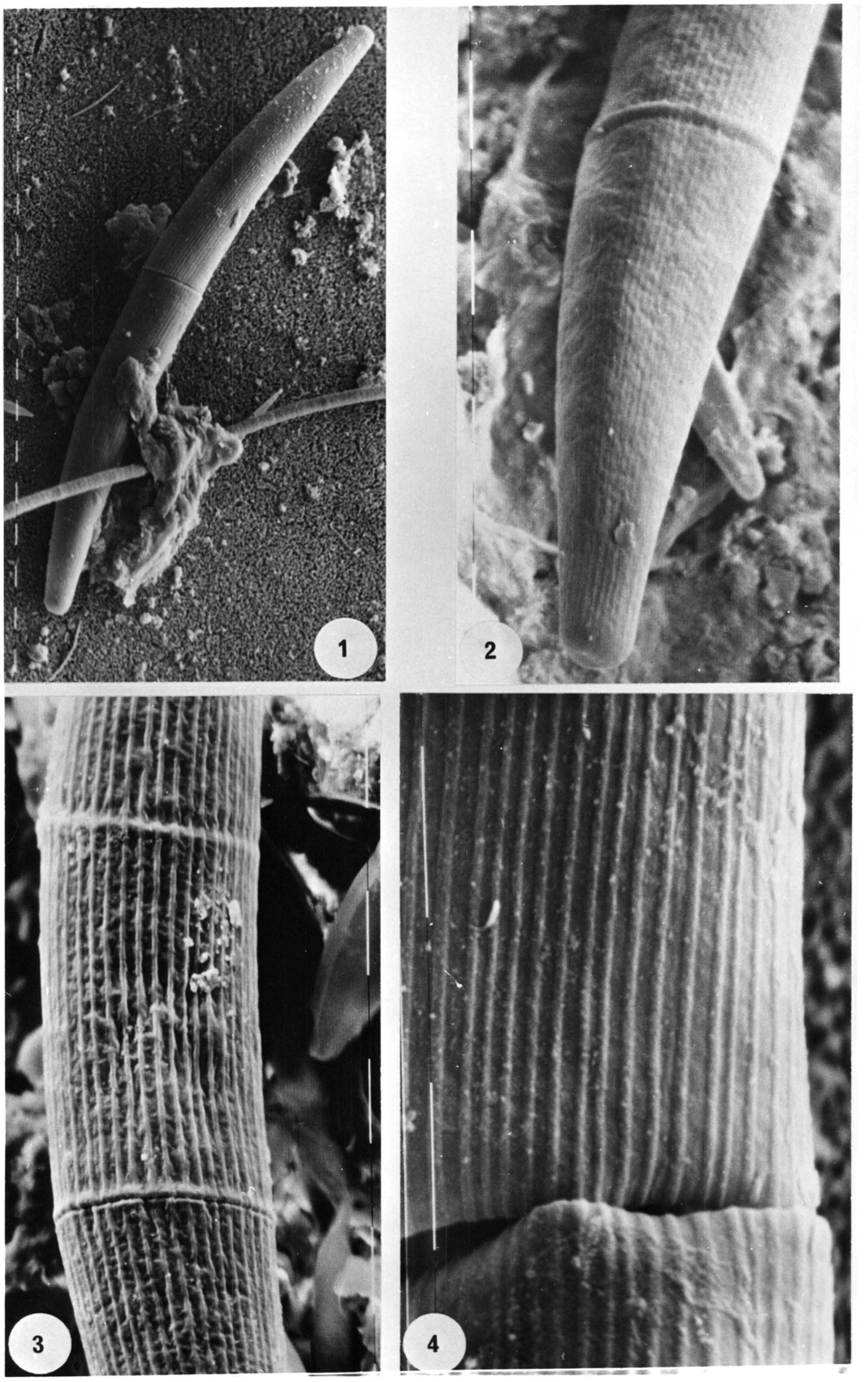

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FIGUUR 122

1 - 5. Aftaselektronmikrograwe van Closterium subjuncidiforme var. attenuatum (p. 315). 2, 3. Verskillende vergrotings om die selwandstreping te toon. 4, 5. Verskillende vergrotings om die selwandstreping en die uitbeelding van die selpool te toon.

1 - 5 : skaal = 10 µm

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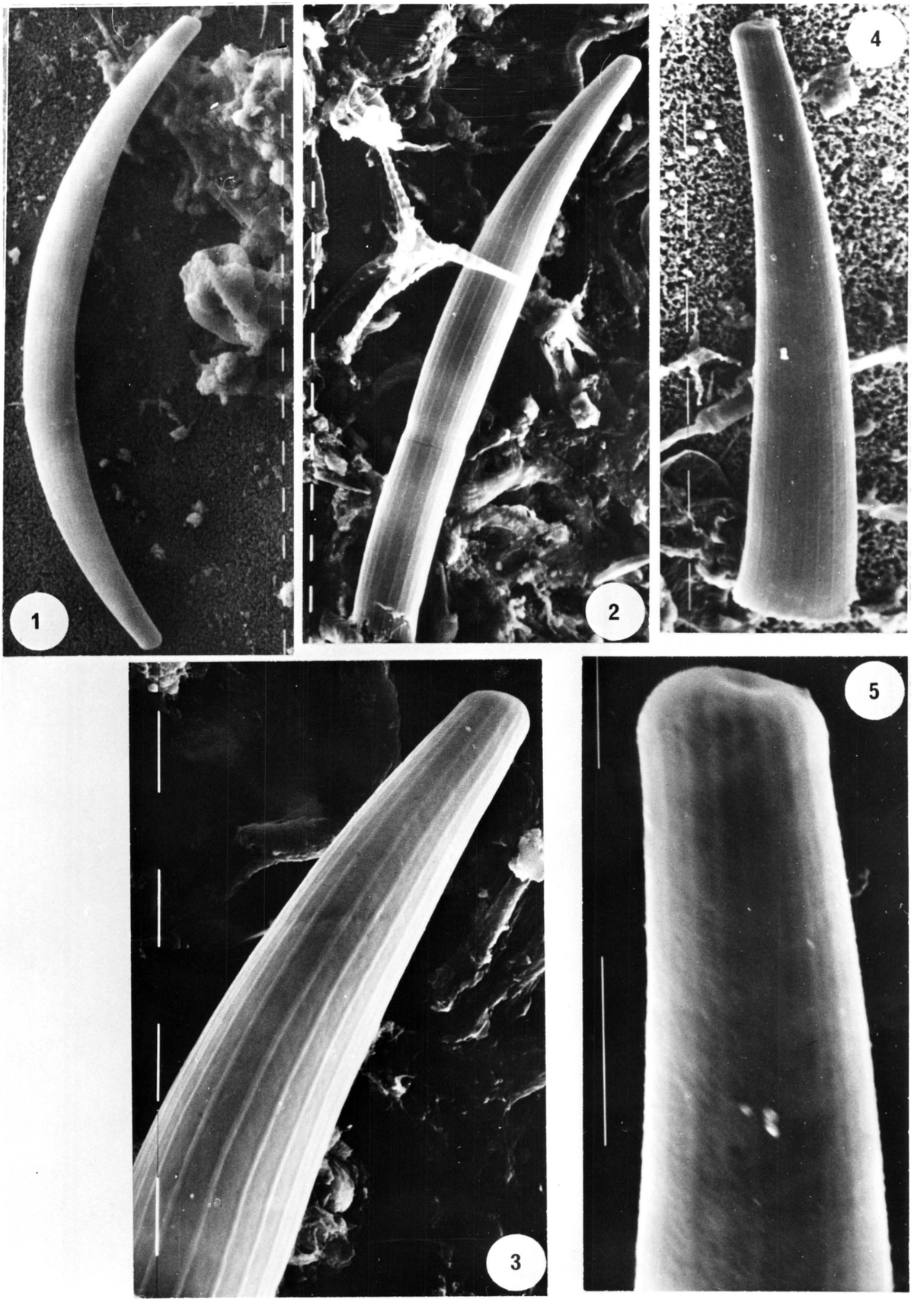

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FIGUUR 123

1 - 5. Aftaselektronmikrograwe van Closterium turgidum var. giganteum (p. 316).
1, 2. Halfselle wat variasie in die uitbeelding van die selpole toon.
3. Naat waar halfselle bymekaar aansluit en ringvormige selwandstroke wat as gevolg van seldelings ontstaan het. 4, 5. Selwand= streping en rangskikking van porieë.

1, 2 : skaal = 100 µm
3 - 5 : skaal = 1 µm

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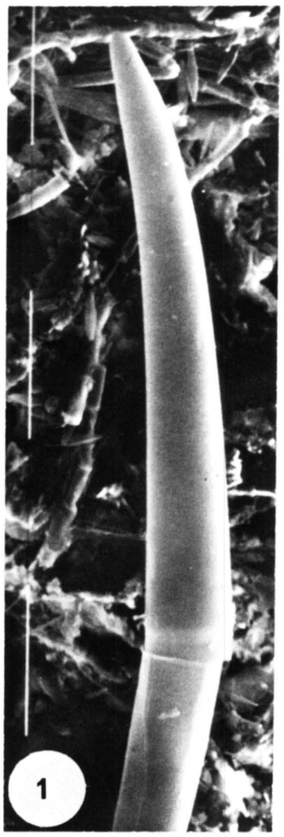

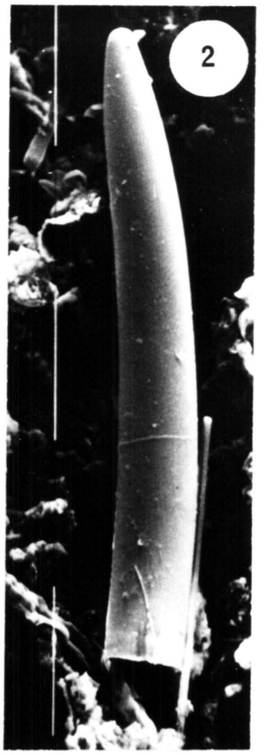

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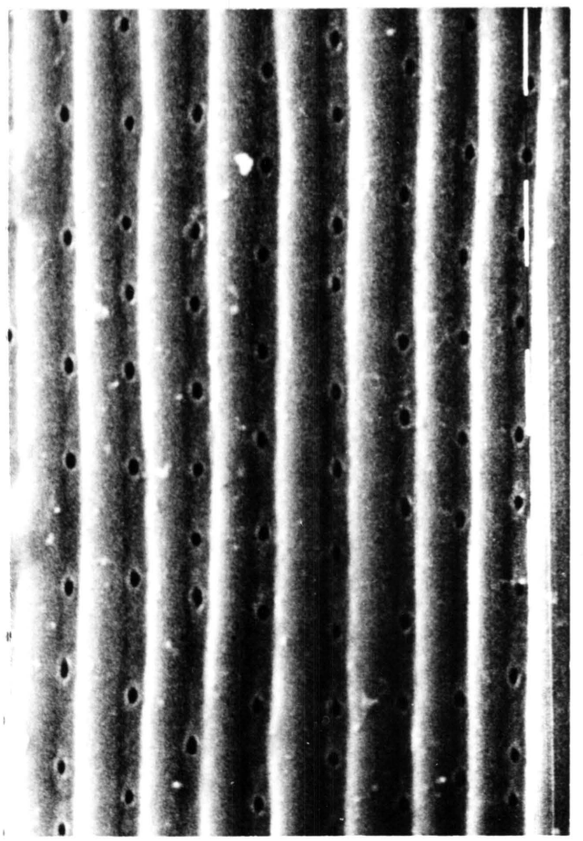

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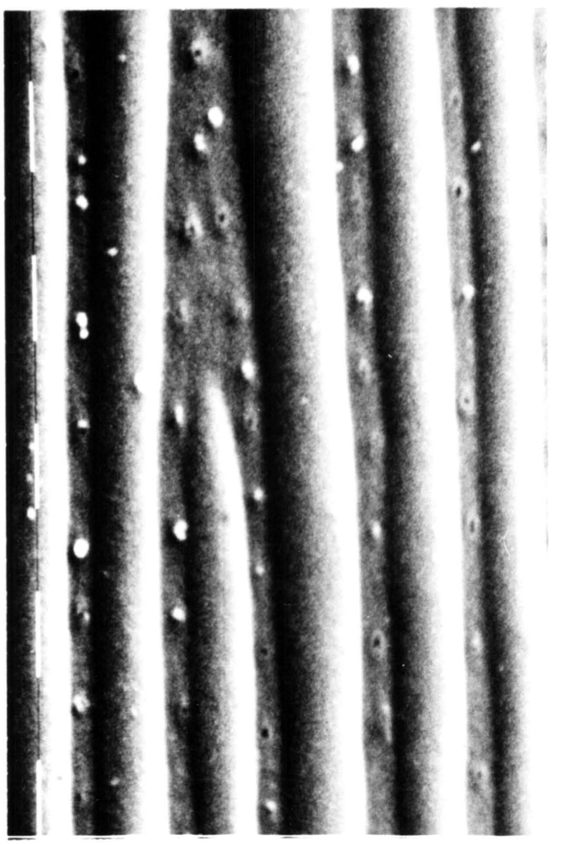

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FIGUUR 124

Aftaselektronmikrograwe van

1, 2. Closterium turgidum var. giganteum (p. 316); selwandskulptuur by selpool.

3, 4. C. ralfsii var. hybridum (p. 306); selvorm en selwandstreping.

5, 6. C. regulare forma (p. 308); selvorm en selwandstreping.

1, 3 - 6 : skaal = 10 µm

2 : skaal = 1 µm

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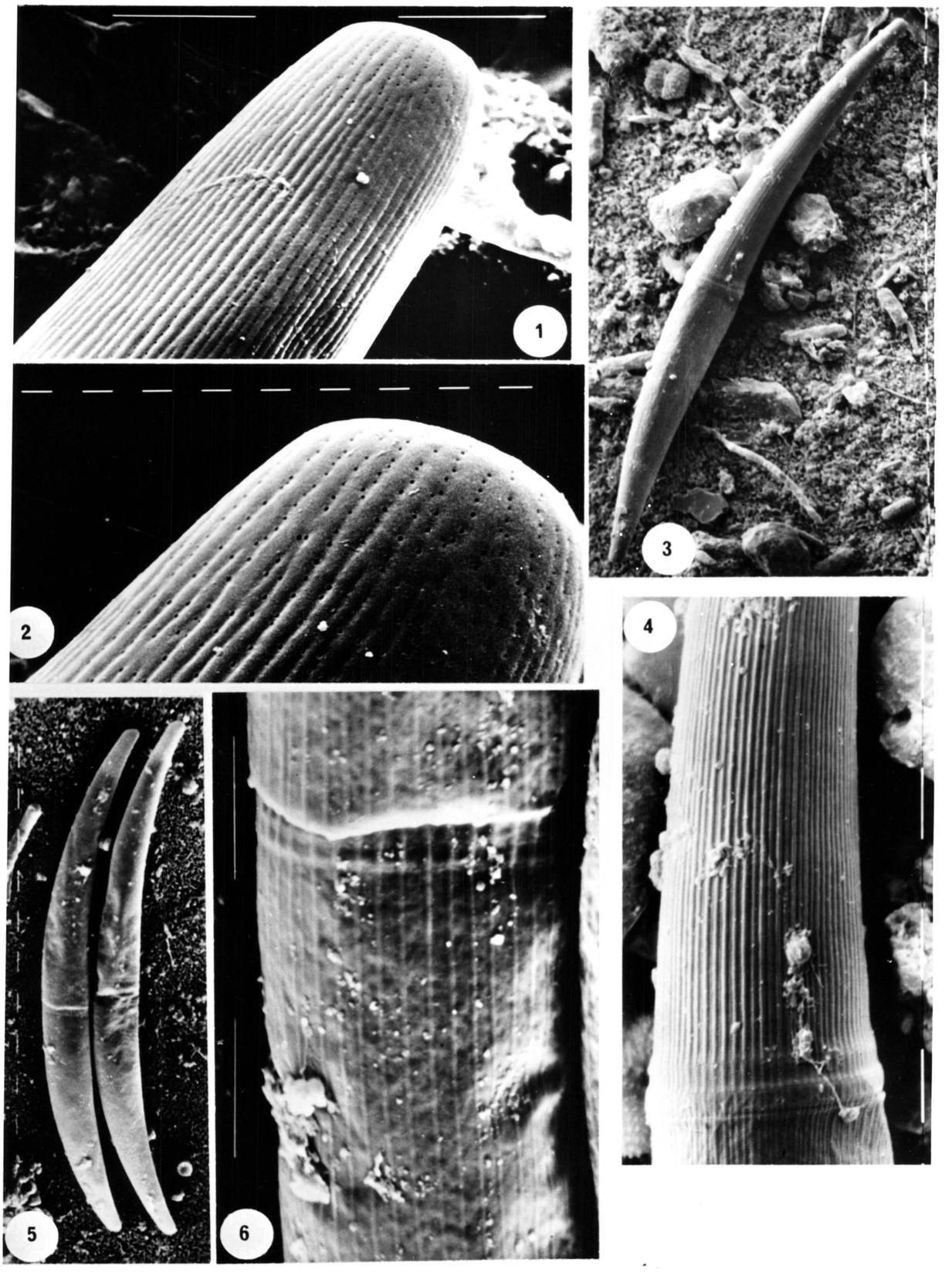

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FIGUUR 125

Fotomikrograwe van

1, 2. Actinotaenium cruciferum (p. 230).

3 - 6. A. cucurbita "var. cucurbita"-variasie (p. 232).

7 - 12. A. cucurbita "var. cucurbita f. rotundatum"-variasie (p. 234). 12. Sigoot.

13 - 16. A. cucurbita "var. attenuatum"-variasie (p. 235). 16. Sel in vertikale aansig.

17 - 21. A. cucurbitinum f. minutum (p. 238). 21. Sel in vertikale aansig.

22. A. cucurbitinum f. cucurbitinum (p. 237).

23, 24. A. diplosporum var. americanum (p. 239).

25 - 28. A. rufescens forma (p. 240). 27, 28. Verskillende fokusinstellings van 'n sel om die selwandskulptuur te toon.

1, 2 : skaal A

3 - 28 : skaal B

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FIGUUR 126

1 - 3. Actinotaenium cruciferum (p. 230).

4, 5. A. cucurbita "var. cucurbita"-variasie (p. 232).

6 - 9. A. cucurbita "var. cucurbita f. rotundatum"-variasie (p. 234). Sigoot.

10. A. cucurbita "var. attenuatum"-variasie (p. 235).

11. A. cucurbitinum f. minutum (p. 238).

12. Cosmarium anceps (p. 322).

13 - 16. C. asymmetricum (p. 323).

17. C. connatum var. minutum (p. 331).

18. C. impressulum var. crenulatum (p. 351).

19. C. laeve var. laeve (p. 352).

20. C. laeve var. octangulare (p. 354).

21. C. laeve var. rotundatum (p. 355).

22, 23. C. moniliforme var. moniliforme (p. 363).

24. C. norimbergense (p. 366).

25. C. phaseolus var. subbireme forma? (p. 376).

26. C. regnellii var. minimum (p. 395).

27. C. retusiforme var. africanum (p. 398).

28 - 32. C. subcostatum var. subcostatum f. minus (p. 409).

33. C. tatricum var. minus (p. 415).

34. C. tinctum var. intermedium (p. 418).

35. C. onychonema var. africanum (p. 370).

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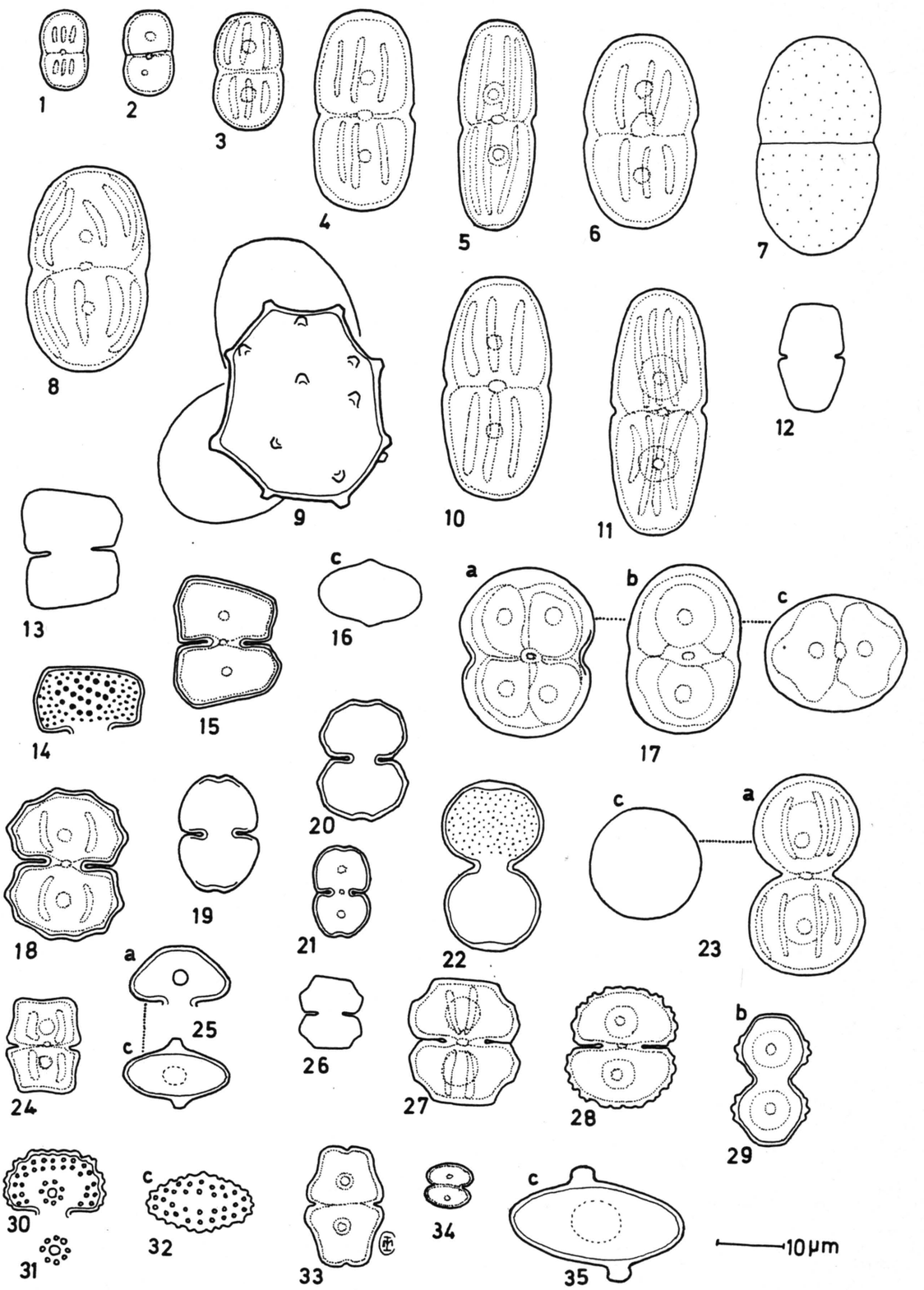

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FIGUUR 127

1. *Cosmarium beatum* forma 1 (p. 324).

2 - 7. *C. contractum* var. *minutum* (p. 333).

8. *C. corbula* forma (p. 334).

9. *C. davidsonii* (p. 336).

10. *C. davidsonii* forma (p. 337).

11. *C. granatum* var. *granatum* (p. 346).

12. *C. laeve* var. *laeve* (p. 352).

13 - 15. *C. ortostichum* var. *pumilum* (p. 370). 15. Sigoot.

16. *C. portianum* (p. 377).

17. *C. pseudonitidulum* var. *rotundatum* (p. 382).

18. *C. pseudoprotuberans* var. *pseudoprotuberans* (p. 382).

19, 20. *C. pseudoprotuberans* var. *angustius* (p. 383).

21. *C. retusiforme* var. *incrassatum* (p. 399).

22 - 24. *C. subcrenatum* forma (p. 410).

25. *C. tetragonum* var. *ornatum* (p. 416).

26, 27. *C. trilobulatum* var. *abscissum* (p. 423).

28 - 30. *C. favum* var. *norrisii* (p. 344).

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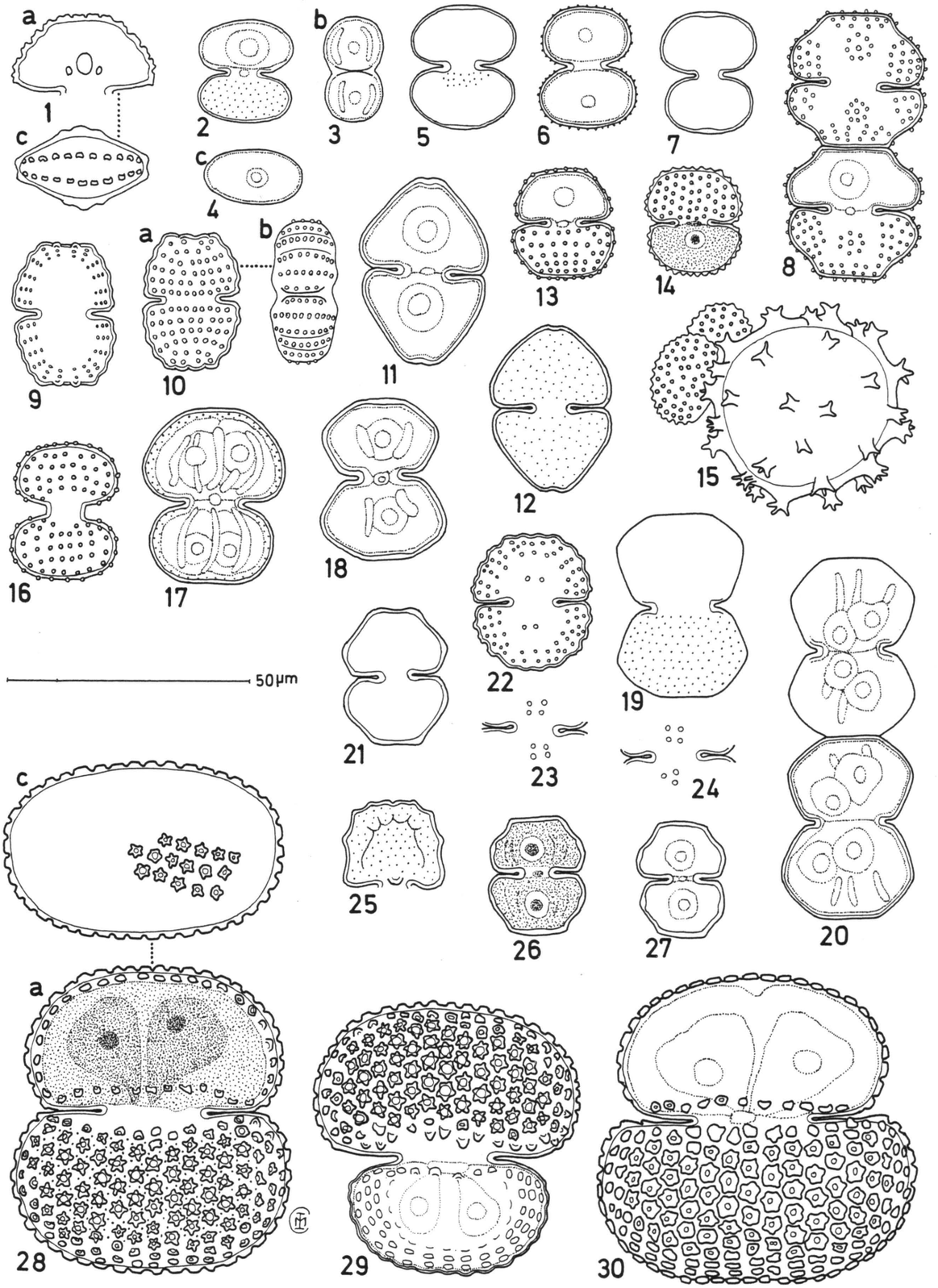

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FIGUUR 128

1 - 4. Cosmarium amoenum var. intumescens (p. 321).
3, 4. Sigote.

5. C. binum (p. 325); sigoot.

6 - 8. C. quadrum var. distentum forma (p. 392).

9 - 16. C. connatum var. connatum (p. 329).

17 - 19. C. coronatum var. indentatum (p. 335).

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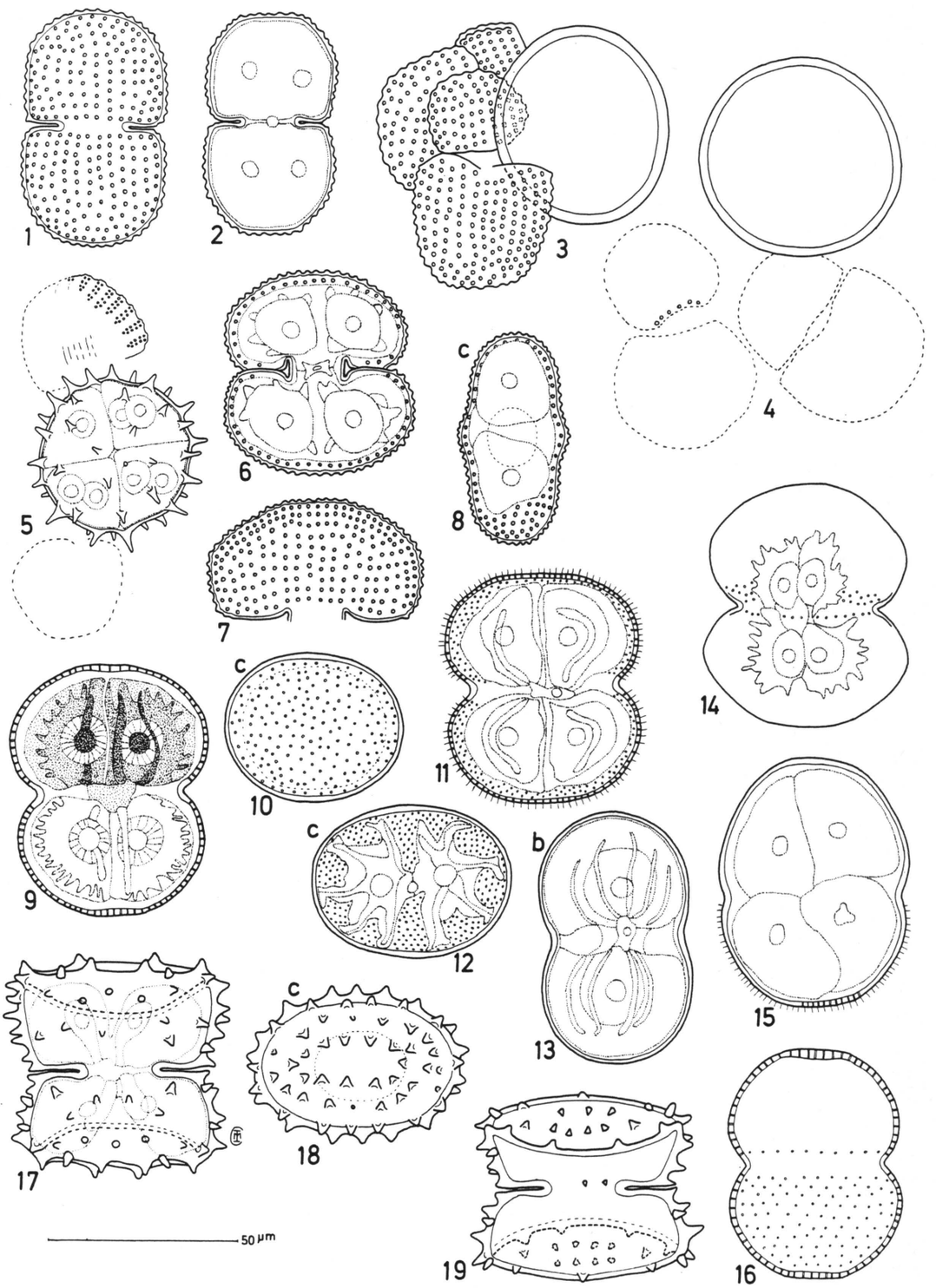

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FIGUUR 129

1 - 4. Cosmarium eickeri f. eickeri (p. 341).

5, 6. C. eickeri f. ornatum (p. 343).

7, 8. C. stigmosum var. biundatum (p. 405).

9 - 11. C. varsoviense var. tirolense (p. 423).

12. C. formosulum var. hyperevolutum (p. 345).

13, 14. C. hornavanense var. undulatum (p. 351).
14. Sigoot.

15. C. lundellii var. borgei (p. 356).

16, 17. C. margaritatum f. minus (p. 361).

18. C. rectangulare var. rectangulare (p. 393).

19 - 21. C. rectangulare var. hexagonum (p. 394).

22 - 27. C. subtumidum (p. 412).

28. C. taxichondrum var. emarginatum forma (p. 416).

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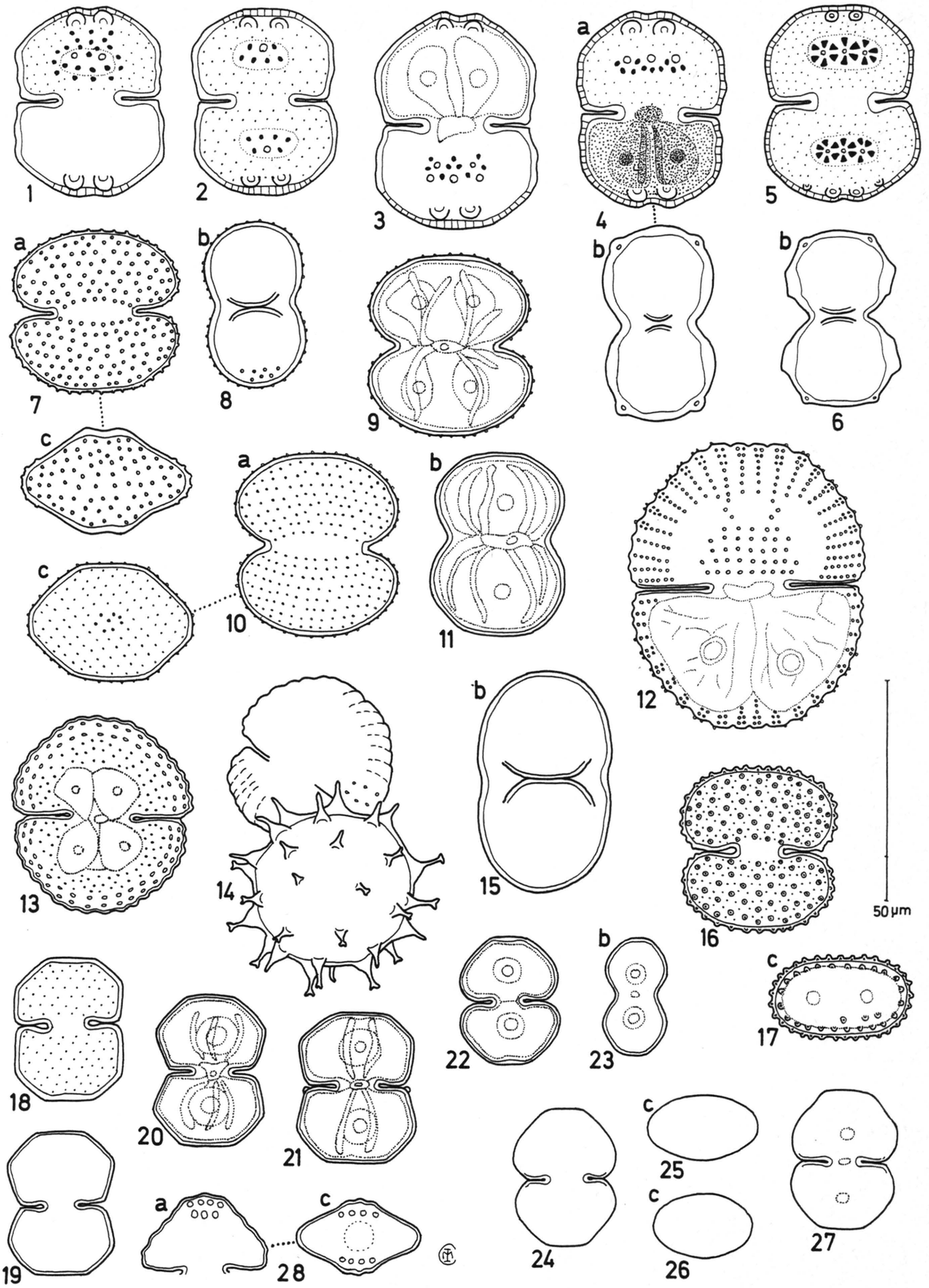

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FIGUUR 130

1 - 7. Cosmarium fuellebornei var. connatiforme (p. 345).

8. C. lundellii var. lundellii (p. 356).

9. C. obtusatum var. ? beanlandii (p. 369).

10 - 13. C. subauriculatum (p. 408).

14. C. tatricum var. novizelandicum (p. 415).

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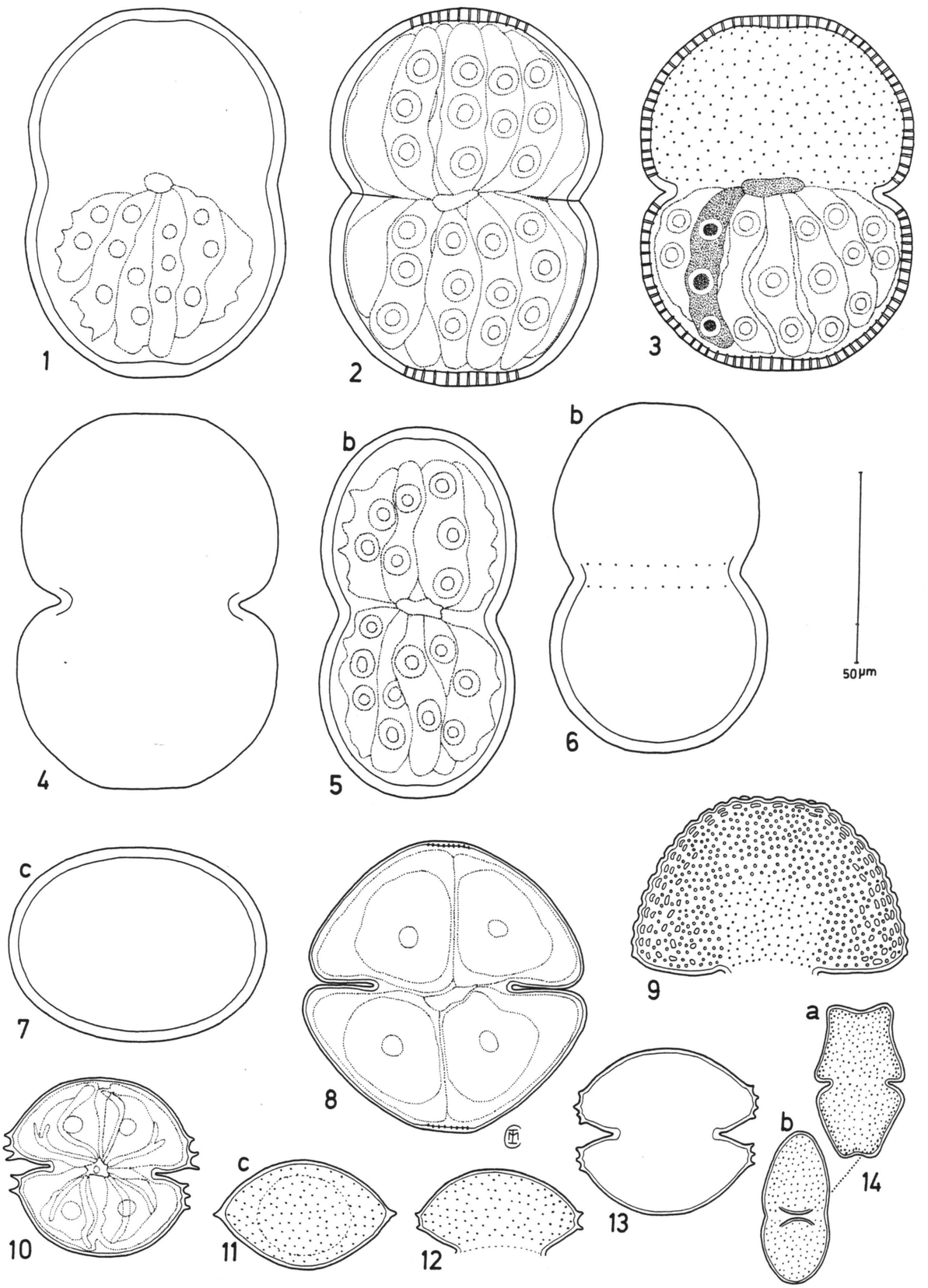

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FIGUUR 131

1. Cosmarium pseudopyramidatum var. pseudopyramidatum (p. 384).

2. C. pseudopyramidatum var. extensum (p. 385).

3 - 5. C. pseudopyramidatum var. rotundatum (p. 387). 5. Sigoot.

6, 7. C. pseudopyramidatum var. rotundatum forma? (p. 387). 7. Sigoot.

8, 9. C. salisburii (p. 400).

10 - 15. C. trachypleurum var. natalensis f. natalensis (p. 419).

16, 17. C. trachypleurum var. natalensis f. minus (p. 420).

18. Cosmarium sp. A. (p. 425).

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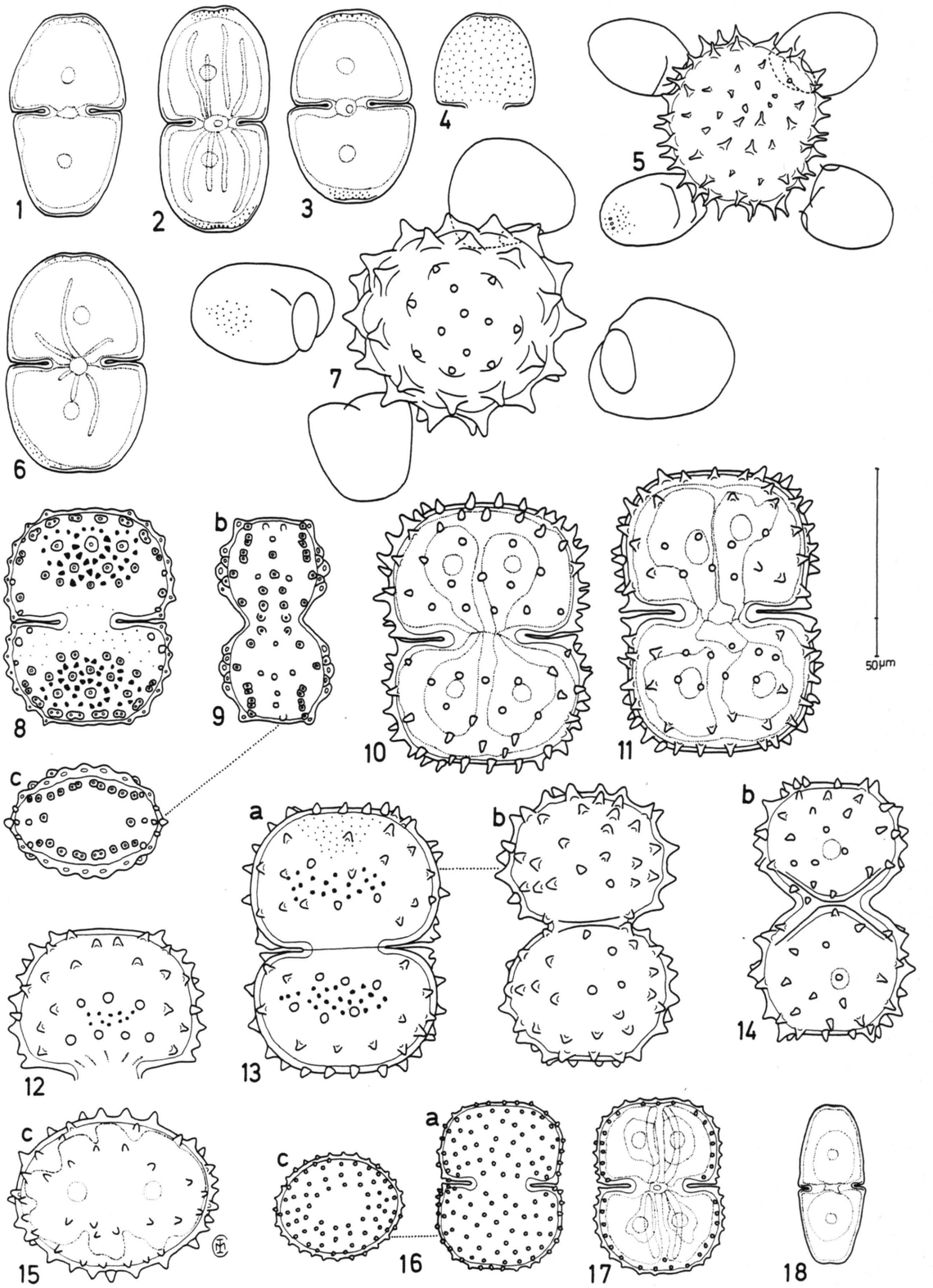

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FIGUUR 132

1, 2. Cosmarium thomassonii (p. 417).
1 b', b''. Verskillende fokusinstellings van sel in syaansig.

3 - 6. C. magnificum var. minus (p. 357).

7, 8. C. decoratum var. decoratum (p. 338).

9. C. pardalis forma (p. 373).

10. C. sulcatum var. compressum forma (p. 414).

11 - 13. C. thwaitesii var. penioides forma (p. 418).

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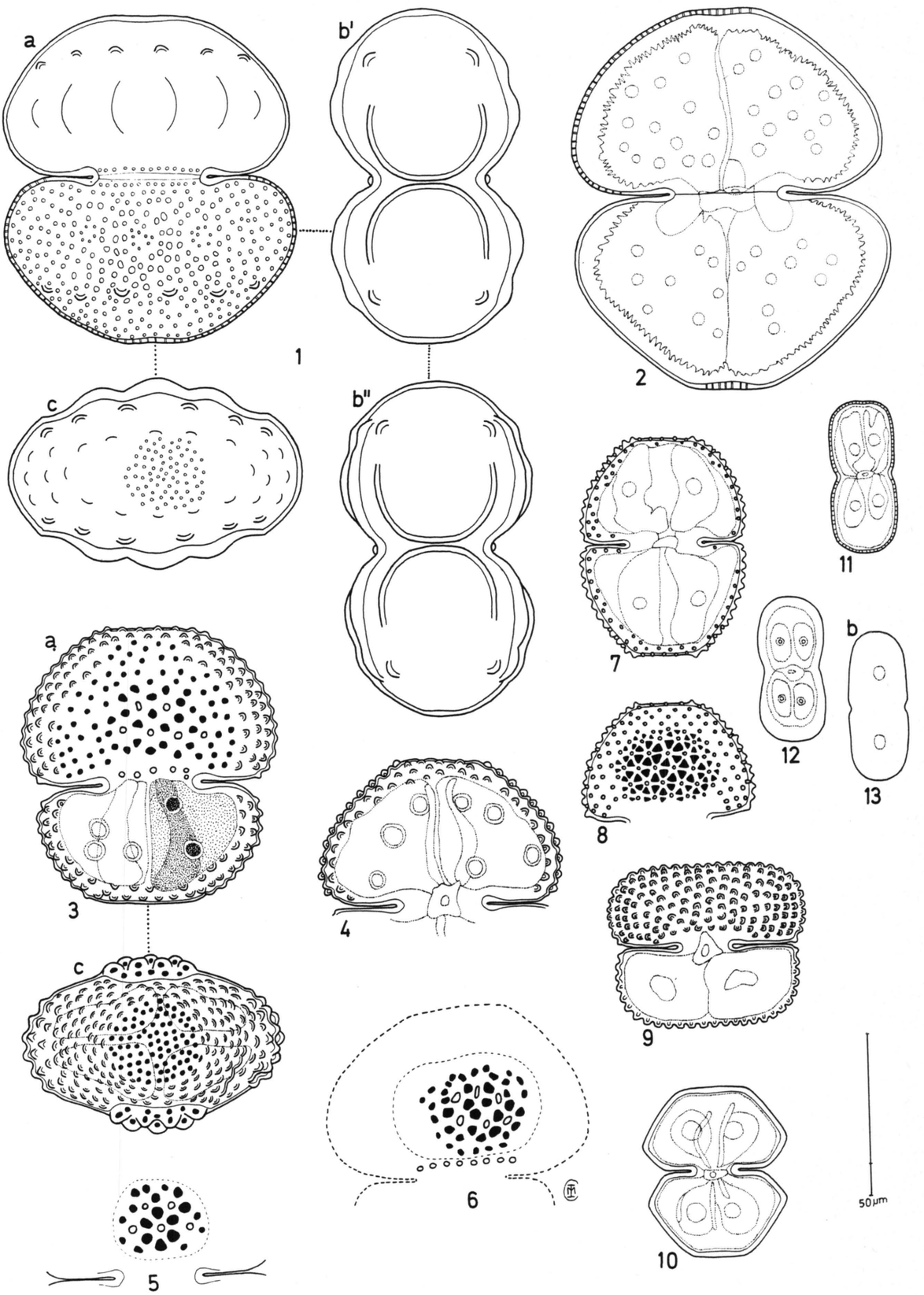

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FIGUUR 133

1 - 3. *Cosmarium askenasyi* var. *askenasyi* f. *undulatum* (p. 323).

4. *C. askenasyi* forma (p. 323).

5, 6. *C. capense* (p. 328).

7. *C. pachydermum* var. *aethiopicum* (p. 371).

8. *C. pachydermum* var. *minus* (p. 372).

9 - 15. *C. patelliforme* var. *minus* (p. 373).

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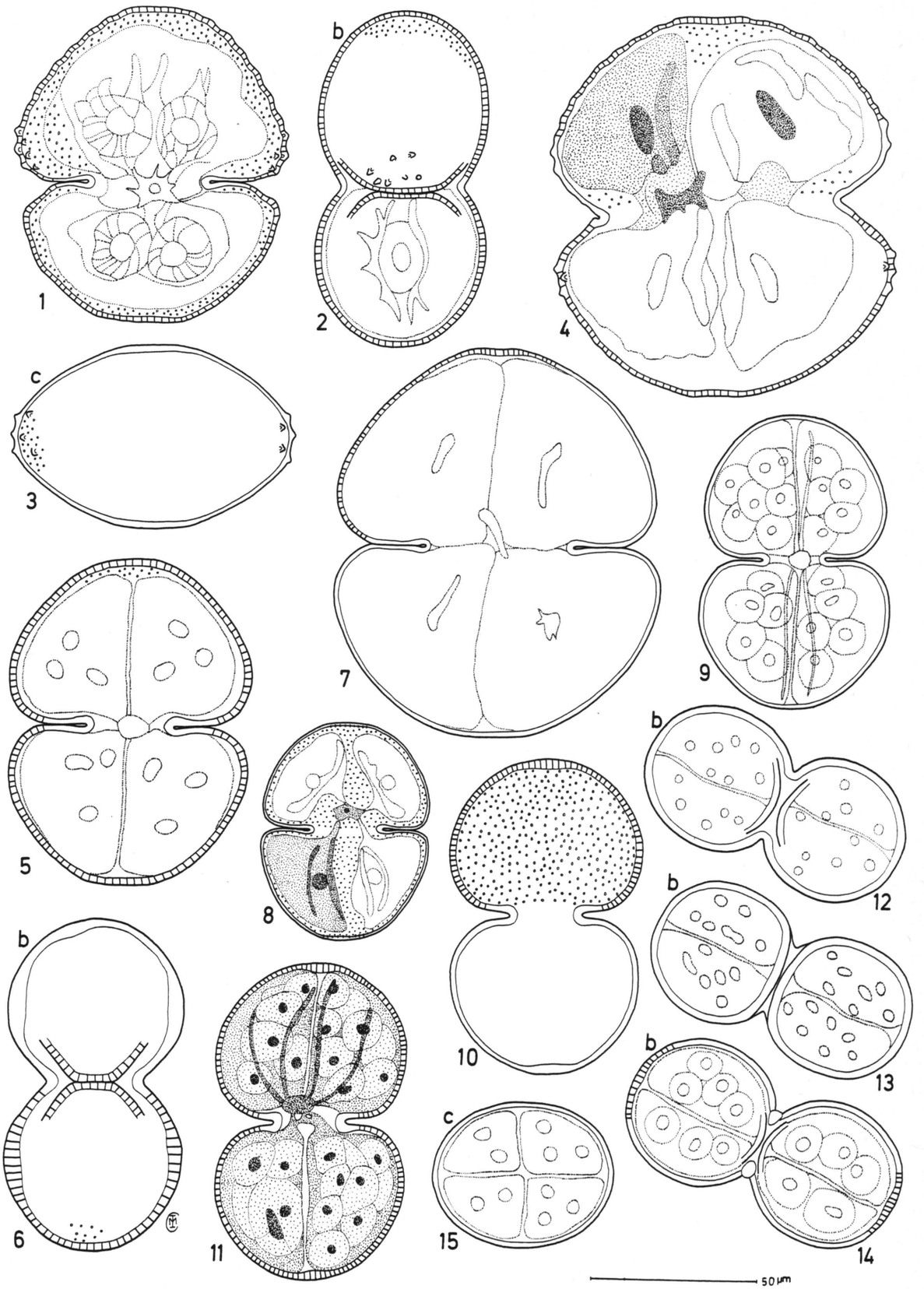

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FIGUUR 134

1. *Cosmarium lundellii* var. *nyassae* (p. 357).

2 - 5. *C. monodii* (p. 365).

6 - 9. *C. pyramidatum* var. *pyramidatum* (p. 388).

10, 11. *C. pyramidatum* var. *convexum* (p. 389).

12. *C. pyramidatum* var. *elongatum* (p. 390).

13 - 16. *C. pyramidatum* var. *maximum* (p. 390).

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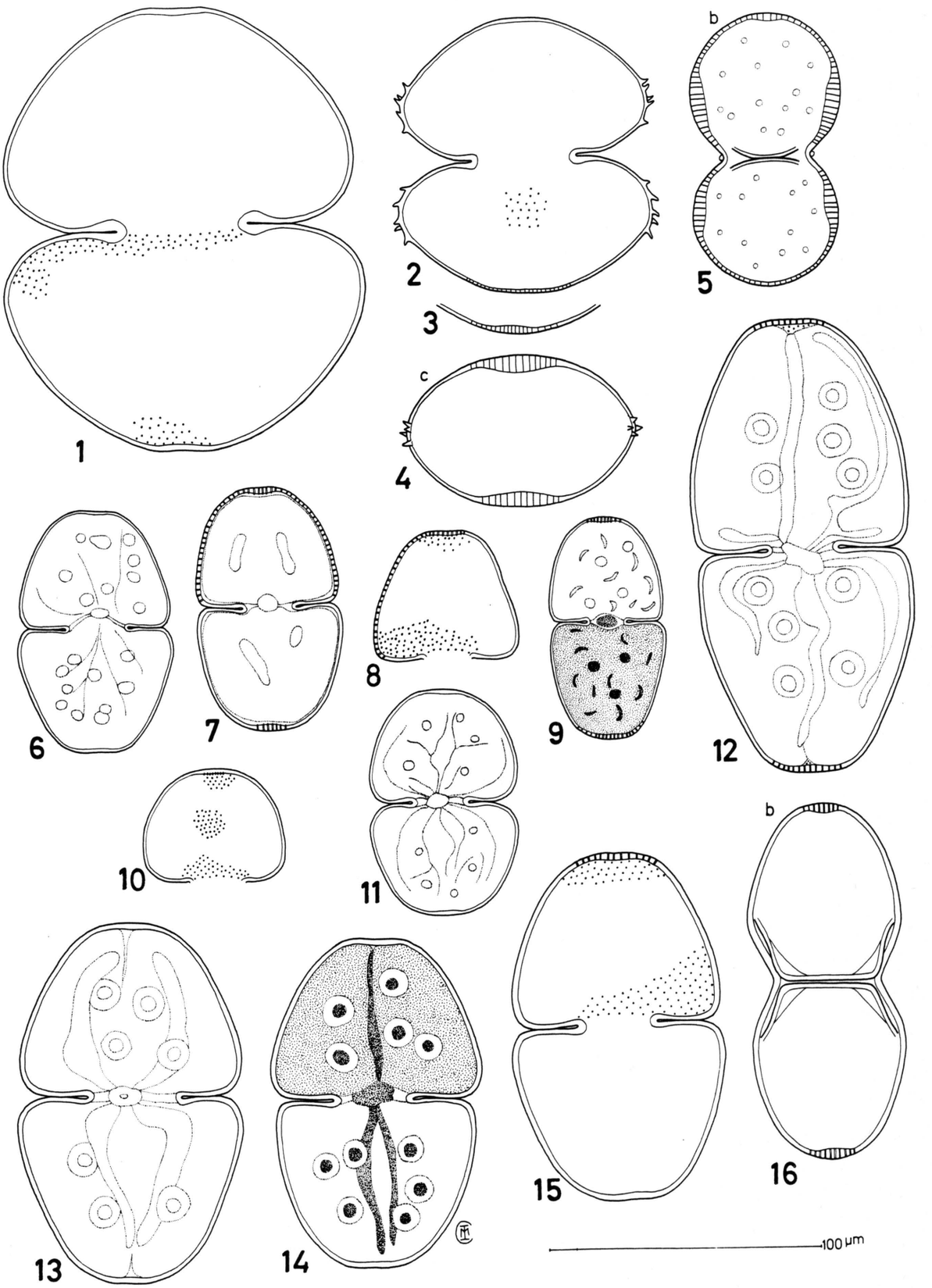

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FIGUUR 135

1, 2. Cosmarium stappersii f. stappersii (p. 403).

3 - 6. C. stappersii f. dilatatum (p. 404).

7. C. stappersii forma? (p. 405).

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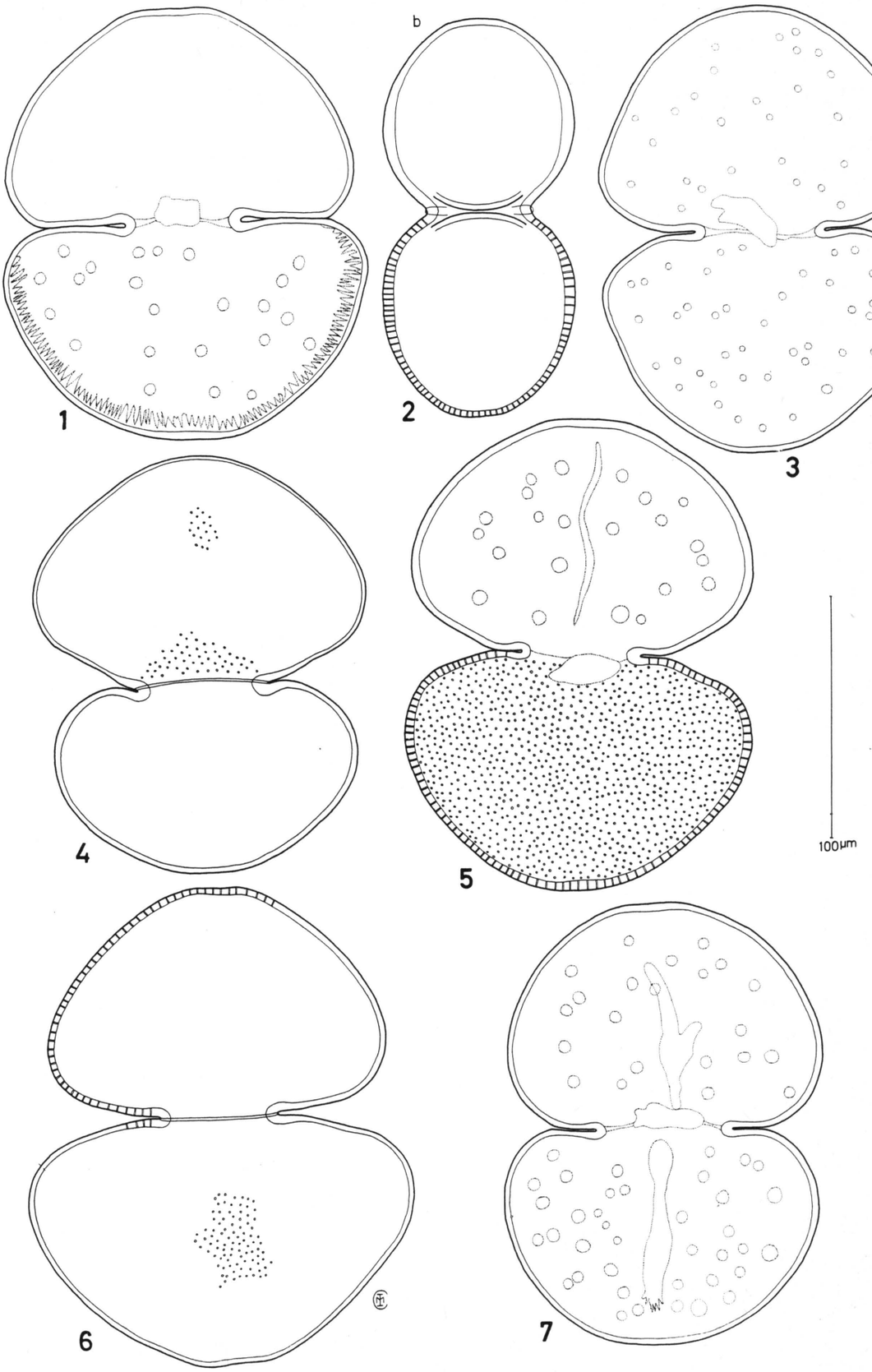

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FIGUUR 136

Fotomikrograwe van

1, 2. Cosmarium amoenum var. amoenum (p. 320).

3 - 8. C. amoenum var. intumescens (p. 321).
6, 7. Vertikale aansig. 8. Sigoot.

9 - 11. ? C. aversiforme (p. 324). 11. Vertikale aansig.

12 - 20. C. binum (p. 325). 18, 19. Vertikale aansig.
20. Sel skuins van kant gesien.

21 - 23. C. lundellii var. borgei (p. 356). 22, 23.
22, 23. Verskillende fokusinstellings van 'n sel in syaansig.

1 - 8, 12 - 33 : skaal A
9 - 11 : skaal B

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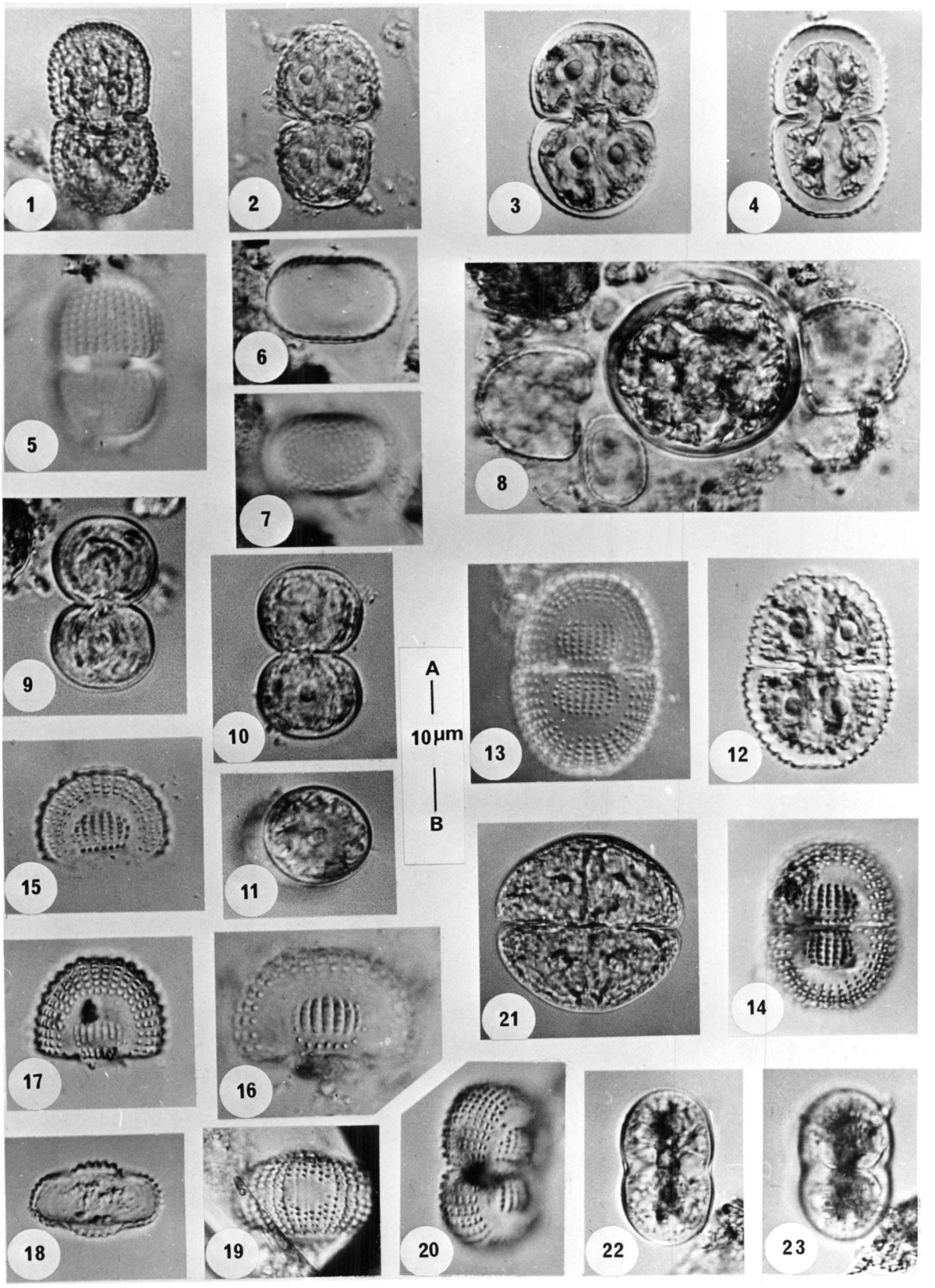

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FIGUUR 137

Fotomikrograwe van

1. *Cosmarium anceps* (p. 322).

2 - 4. *C. asymmetricum* (p. 323).

5, 6. *C. impressulum* var. *crenulatum* (p. 351).

7 - 10. *C. contractum* var. *minutum* (p. 333).
9. Syaansig. 10. Vertikale aansig.

11 - 14. *C. laeve* var. *laeve* (p. 352).

15. *C. phaseolus* var. *minus* (p. 375).

16. *C. phaseolus* var. *elevatum* (p. 374).

17 - 19. *C. laeve* var. *octangulare* (p. 354).
19. Syaansig.

20. *C. regnesii* (p. 396).

21 - 24. *C. tatricum* var. *minus* (p. 415).
24. Syaansig.

25. *C. sexangulare* var. *minus* (p. 401).

26, 27. *C. trifossum* (p. 421).

28, 29. *C. tithophorum* var. *depressum* (p. 419).
Verskillende fokusinstellings van 'n sel in vooraansig om die papilagtige uitstulping in elke halfsel te toon.

30 - 33. *C. beatum* forma 2 (p. 325).
31 - 33. Verskillende fokusinstellings van 'n sel in vooraansig om die selvorm en sel=wandskulptuur te illustreer.

1 - 15, 17 - 29 : skaal B
16 : skaal B
30 - 33 : skaal C

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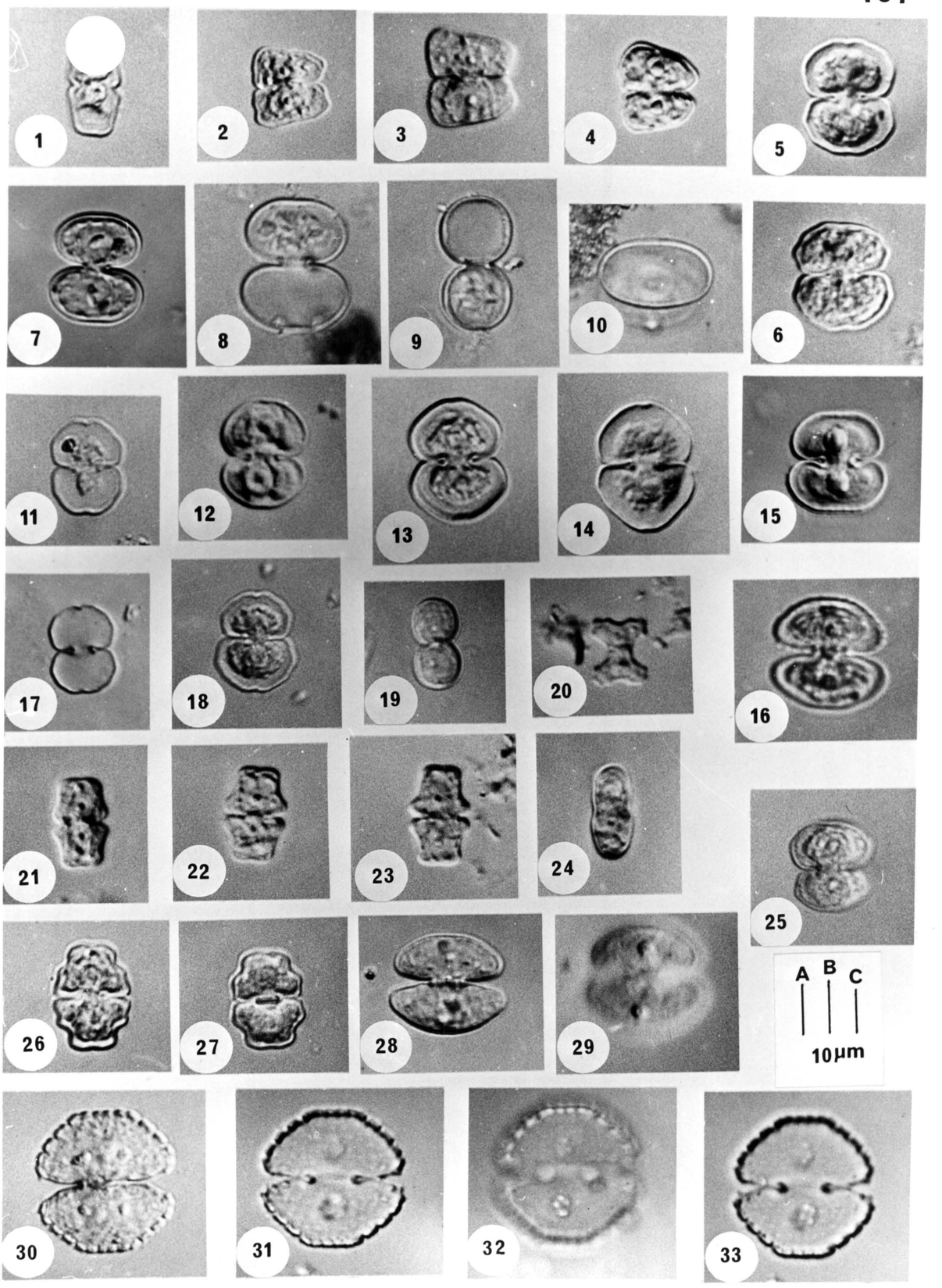

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FIGUUR 138

Aftaselektronmikrograwe van

1, 2. Cosmarium amoenum var. amoenum (p. 320); verskillende vergrotings om die selwand-skulptuur te toon.

3. C. amoenum var. intumescens (p. 321).

4 - 6. C. asymmetricum (p. 323); selwandskulptuur.

1, 3 : skaal = 10 µm

2, 4 - 6 : skaal = 1 µm

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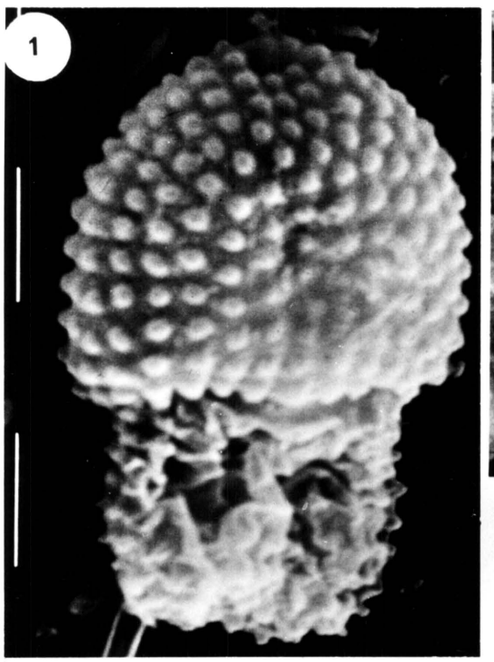

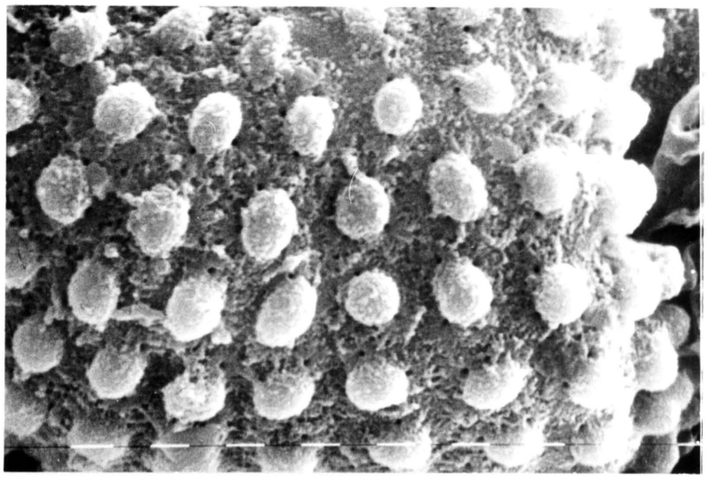

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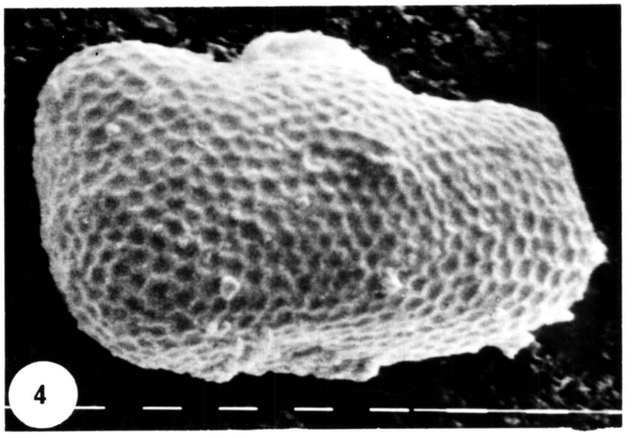

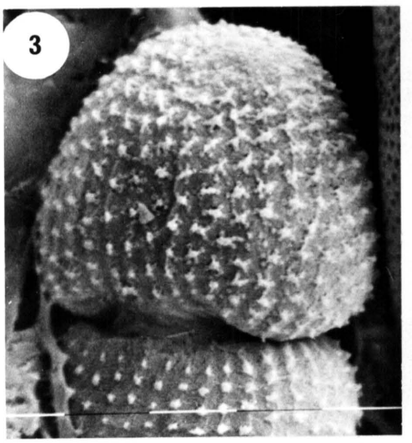

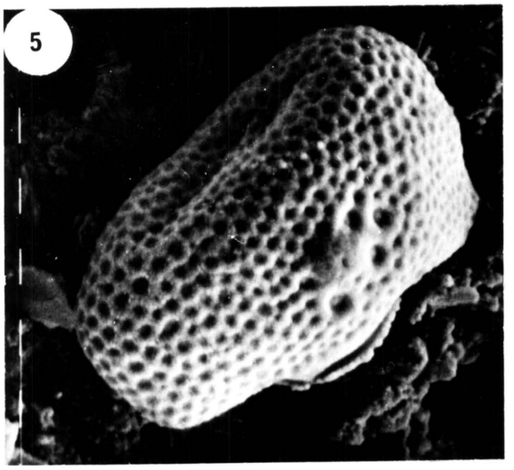

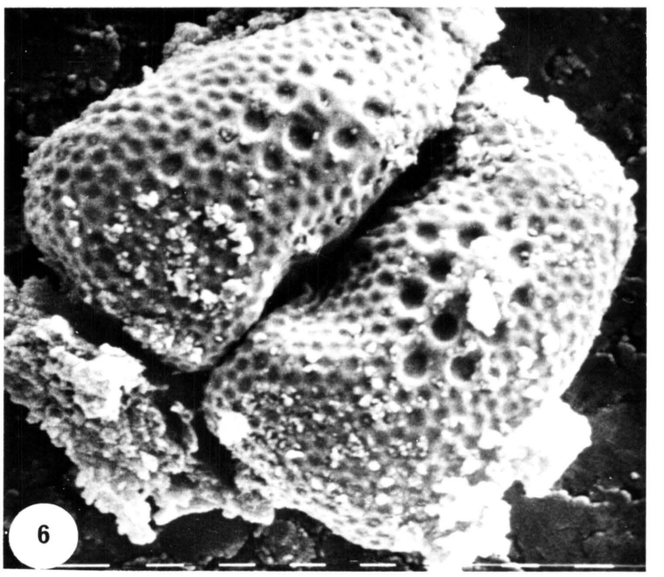

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FIGUUR 139

1 - 6. Aftaselektronmikrograwe van Cosmarium binum (p. 325). 1, 2, 5. Vooraansig van halfselle om selwandksulptuur te toon, kleiner eksemplare besit minder vertikale riwwe as groter eksemplare. 3, 4. Sel skuins van bo gesien om selwandskulptuur en verspreiding van porieë in selwand te toon. 6. Sel skuins van kant gesien.

1 - 3, 5, 6 : skaal = 10 µm

4 : skaal = 1 µm

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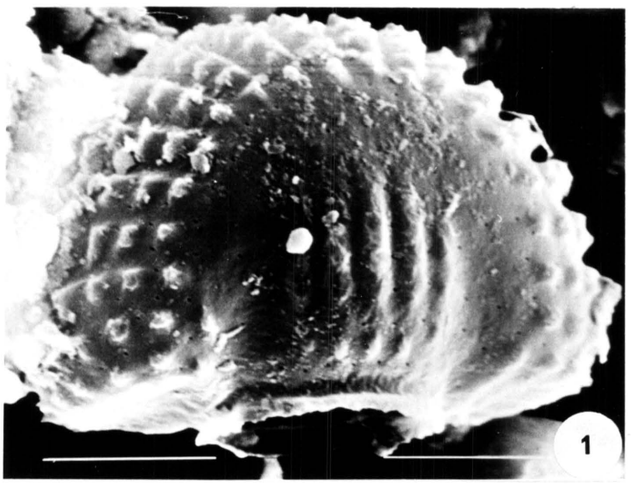

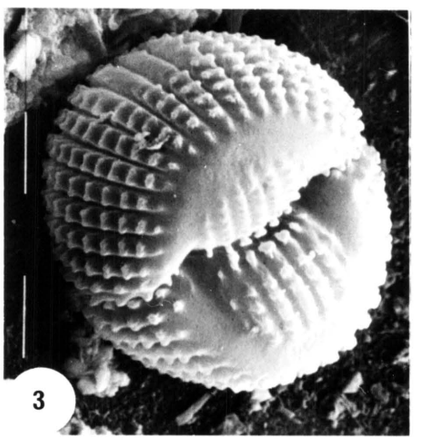

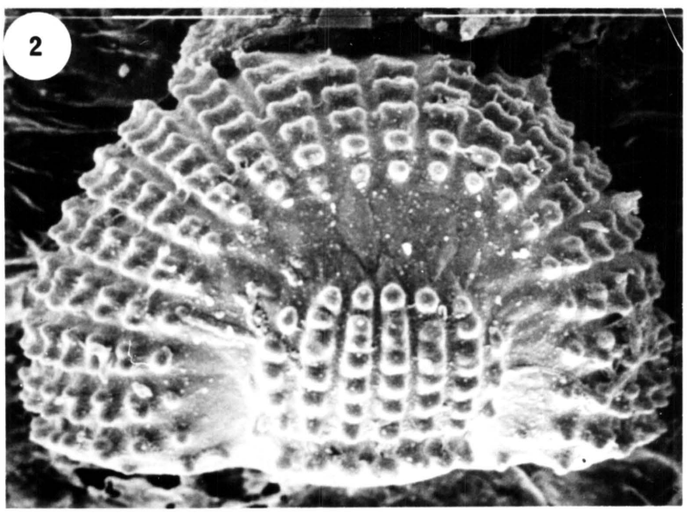

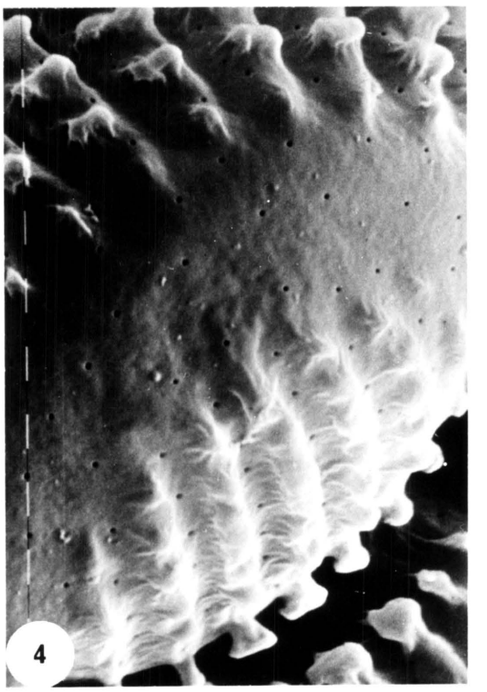

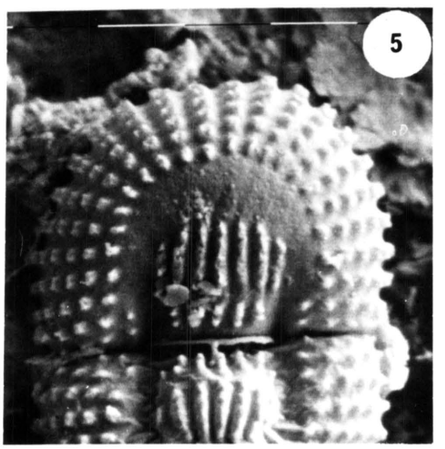

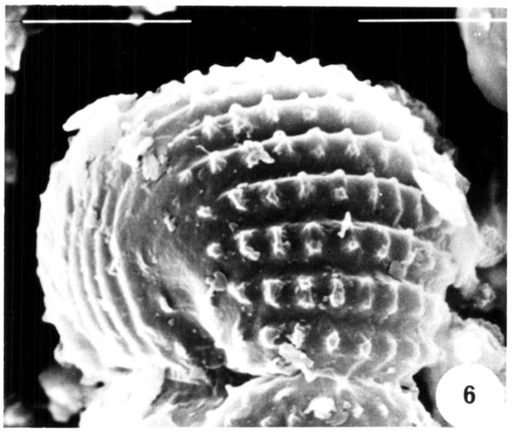

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FIGUUR 140

Fotomikrograwe van

1 - 13. Cosmarium connatum var. connatum (p. 329).
1 - 8. Selle in vooraansig om variasie in selvorm en sinusdiepte te toon.
9, 10. Syaansig. 11, 12. Vertikale aansig.
13. Seldelingstadium.

14. C. connatum var. minus (p. 331).

15 - 17. C. connatum var. minutum (p. 331).
17. Vertikale aansig.

18 - 22. C. pseudoconnatum (p. 380). 21, 22. Verskil= lende fokusinstellings van 'n sel in vertikale aansig om die vorm en selwandskulptuur te toon.

1 - 14, 18 - 22 : skaal A

15 - 17 : skaal B

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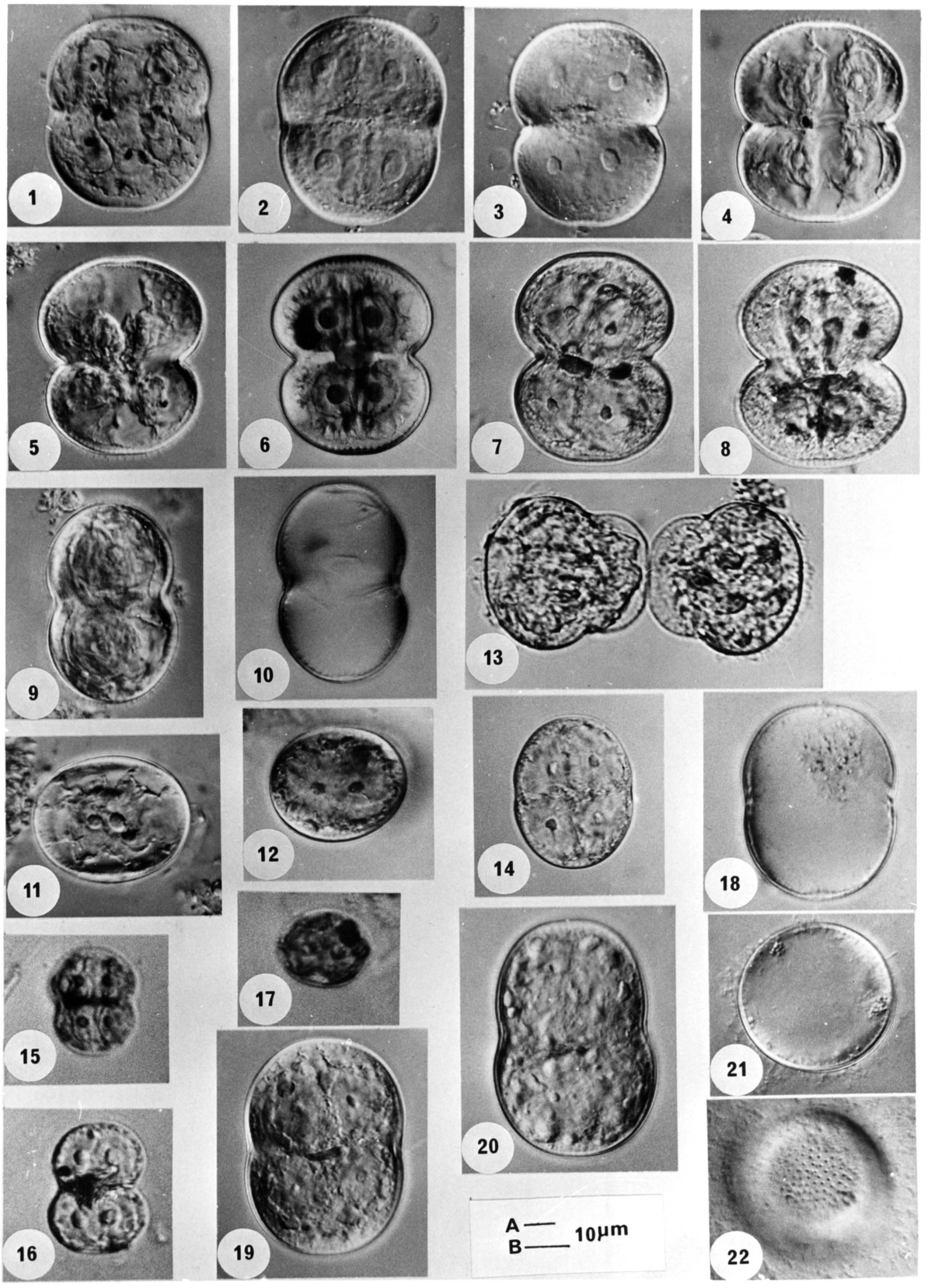

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FIGUUR 141

Aftaselektronmikrograwe van

1 - 5. Cosmarium connatum var. connatum (p. 329); selwandskulptuur.

6. C. pseudoconnatum (p. 380); halfsel gedeeltelik van binne gesien.

1 - 3, 5, 6 : skaal = 10 µm

4 : skaal = 1 µm

(Fig. 141: 3 goedgunstiglik afgestaan deur M.C. Steynberg.)

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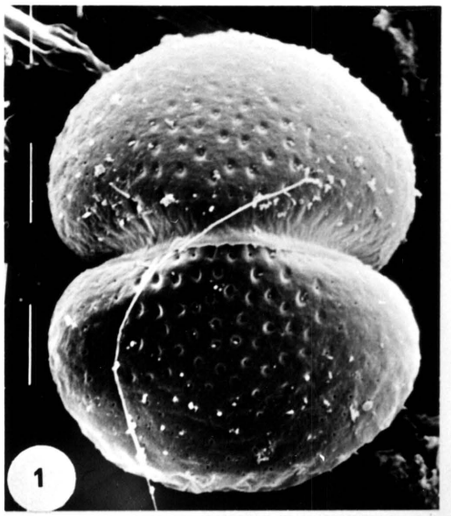

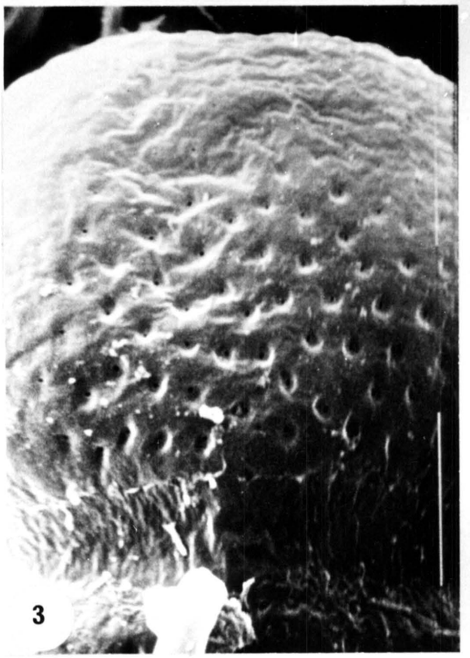

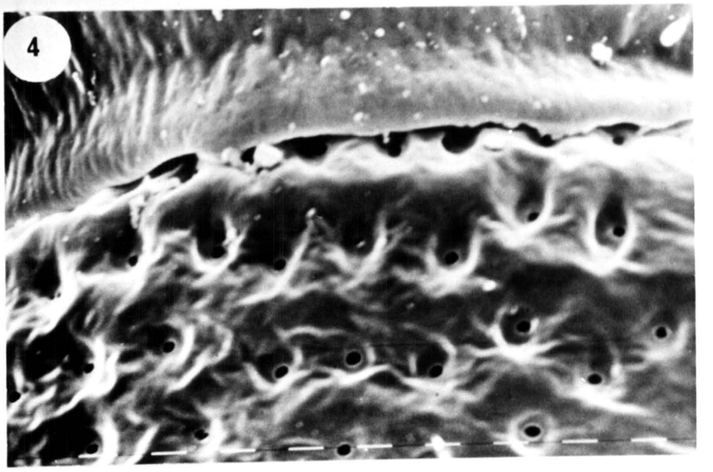

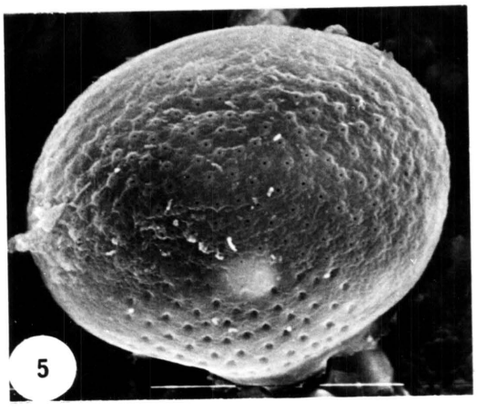

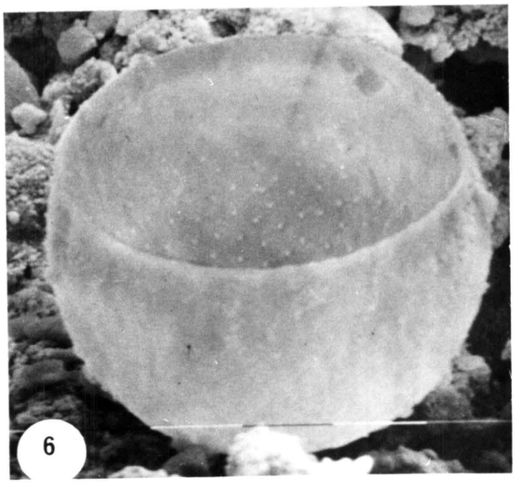

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FIGUUR 142

Fotomikrograwe van

1 - 4. Cosmarium conspersum var. sublatum forma (p. 332).

5 - 14. C. coronatum var. indentatum (p. 335). 5 - 8. Verskillende fokusinstellings van 'n sel in vooraansig om die vorm en selwandskulptuur te toon. 9 - 11. Verskillende fokusinstellings van 'n halfsel in vooraansig om die vorm en selwandskulptuur te toon. 12, 13. Verskillende fokusinstellings van 'n halfsel in vertikale aansig. 14. Basale aansig van halfsel.

15 - 19. C. decoratum var. decoratum (p. 338). 15, 16. Verskillende fokusinstellings van 'n sel om die selwandknoppies, chloroplaste en pirenoïede te toon. 17, 18. Verskillende fokusinstellings van 'n halfsel om die vorm en selwandskulptuur te toon. 19. 'n Besonder lang sel; selwandskulptuur.

20 - 22. C. decoratum var. galpinii (p. 340). 20. Selwandskulptuur. 21. 22. Verskillende fokusinstellings van 'n sel in vooraansig.

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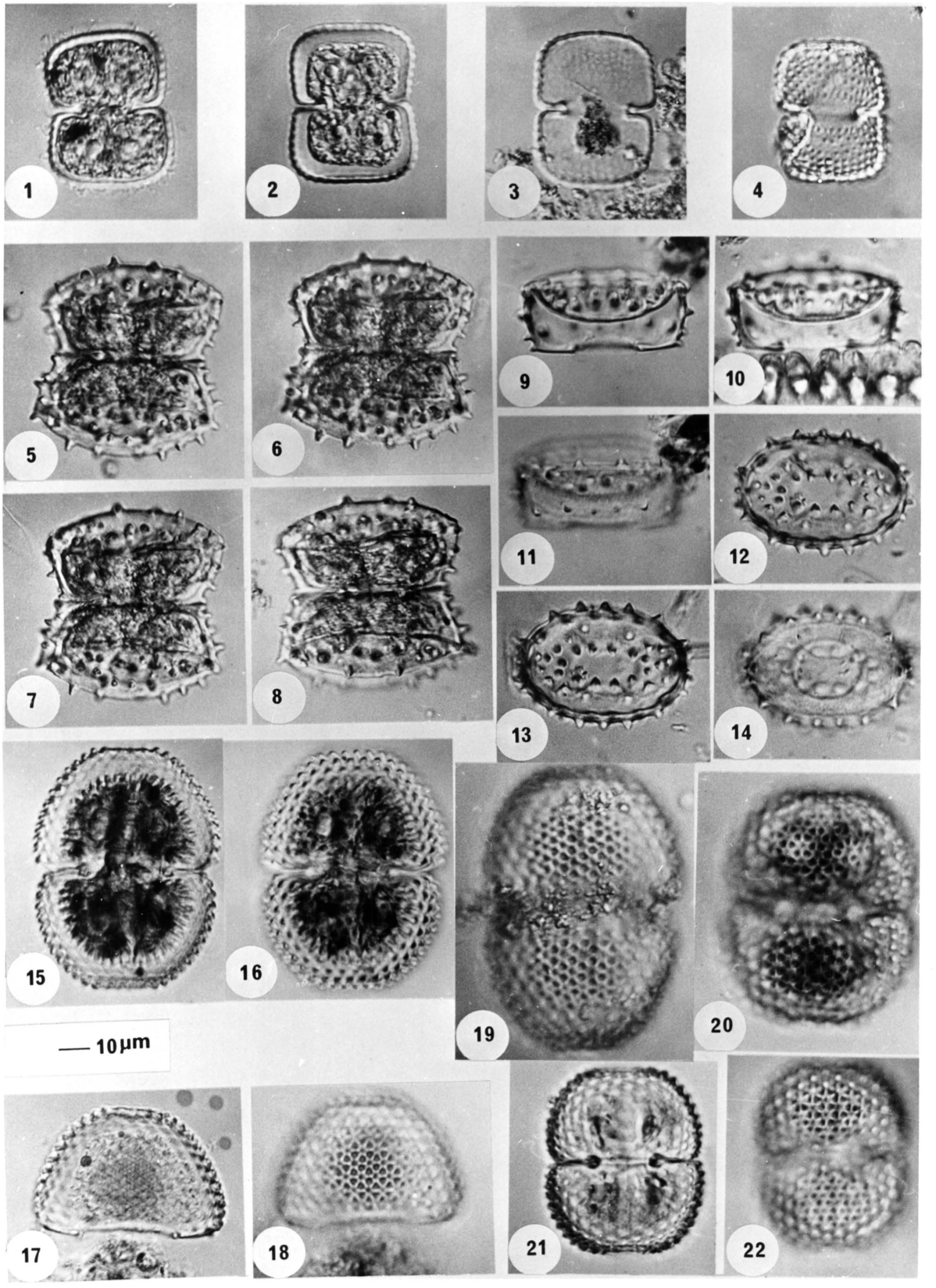

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FIGUUR 143

Fotomikrografwe van

1, 2. Cosmarium decoratum var. galpinii (p. 340); verskillende fokusinstellings van 'n sel in syaansig.

3 - 10. C. eickeri f. eickeri (p. 341).
3 - 6. Selle in vooraansig. 3. Mediane gedeelte van apikale rand afgeplat.
4. Apikale rand van onderste halfsel uitge= rand. 5. Apikale rand van albei halfselle. uitgerand. 6. Drie subapikale knoppies by onderste halfsel. 7. Hol geaardheid van subapikale selwandknoppies waarneembaar in boonste halfsel. 8. Selwandskulptuur.
9, 10. Selle in syaansig.

11 - 17. C. eickeri f. ornatum (p. 343).
11 - 14. Verskillende fokusinstellings van 'n sel in vooraansig om die selvorm en sel= wandskulptuur te toon. 15. Sel met vier subapikale selwandknoppies in boonste halfsel. 16, 17. Verskillende fokus= instellings van 'n sel in syaansig.

18 - 22. C. favum var. norrisii (p. 344).
18 - 20. Selle in vooraansig. 18. Chloro= plaste met pirenoïede. 19, 20. Verskillende fokusinstellings van 'n inhoudlose sel om die selvorm en selwandskulptuur te toon, selwand kleurloos. 21, 22. Verskillende fokusinstel= lings van 'n sel met 'n donkergeelbruin selwand om die selwandskulptuur te toon; dit ver= teenwoordig moontlik 'n seldelingstadium.

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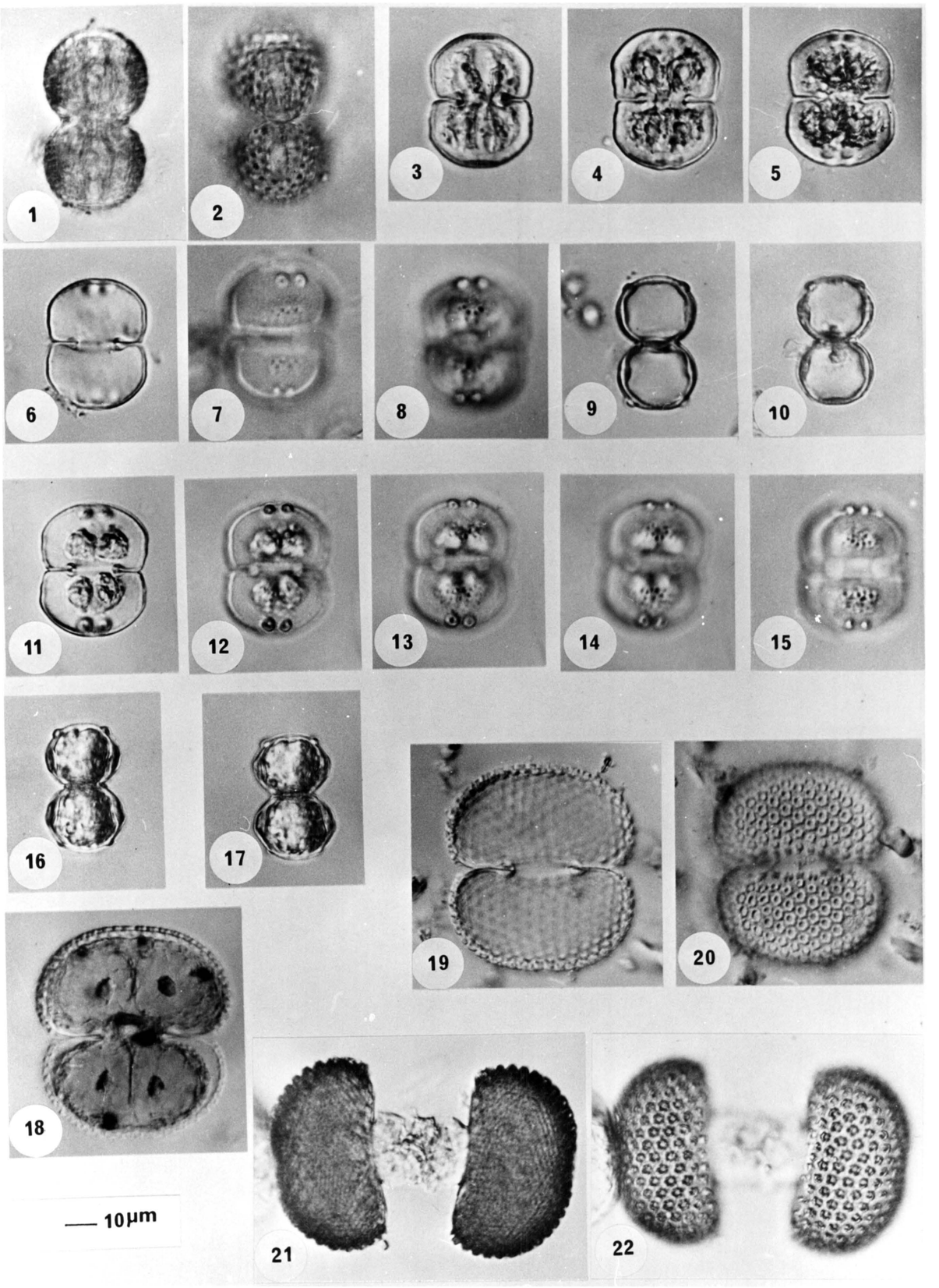

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FIGUUR 144

Aftaselektronmikrograwe van

1 - 3. Cosmarium askenasyi f. undulatum (p. 323).
1. Sel skuins van voor gesien.
2. Vertikale en basale aansigte van halfselle. 3. Vertikale aansig van halfsel.
Die vertikale aansigte toon die golwings op die omtrek van die halfselle.

4, 5. C. conspersum var. sublatum forma (p. 332); selwandskulptuur, verstopte porieë kan tussen die selwandknoppies waargeneem word.

6, 7. Cosmarium sp. cf. C. cucumis (p. 335); selwandskulptuur.

1 - 7 : skaal = 10 µm

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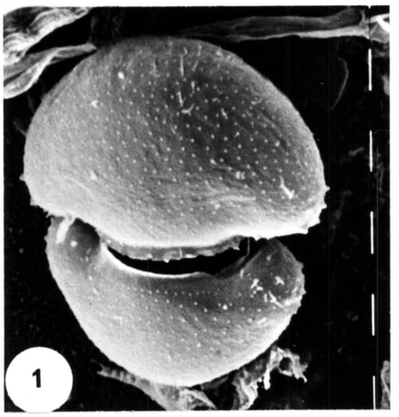

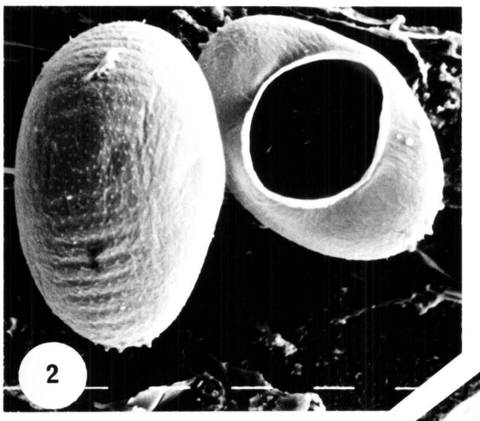

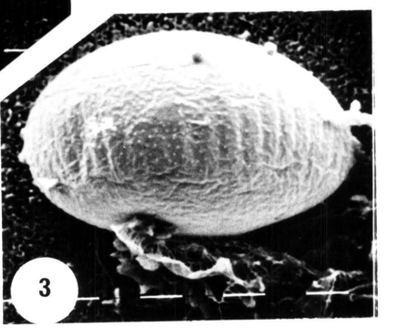

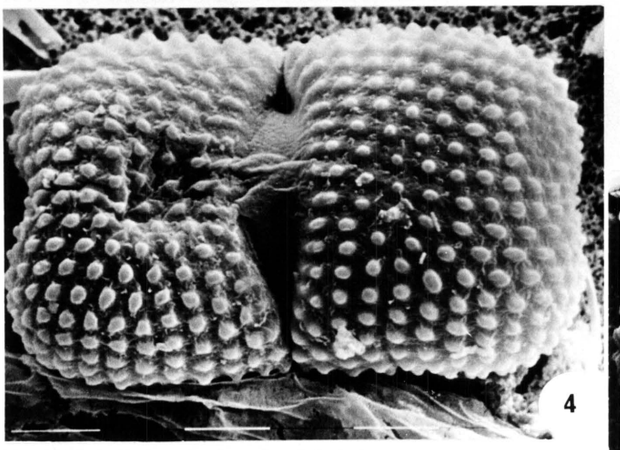

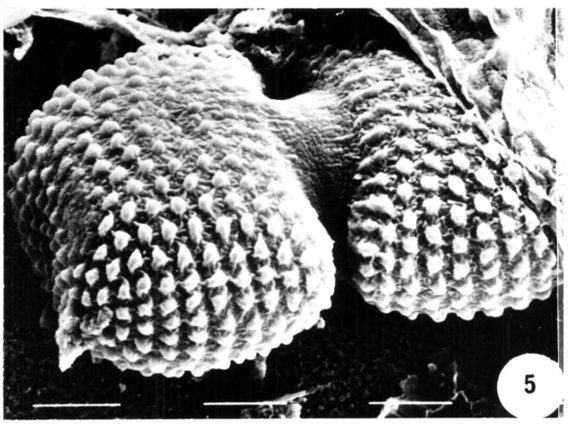

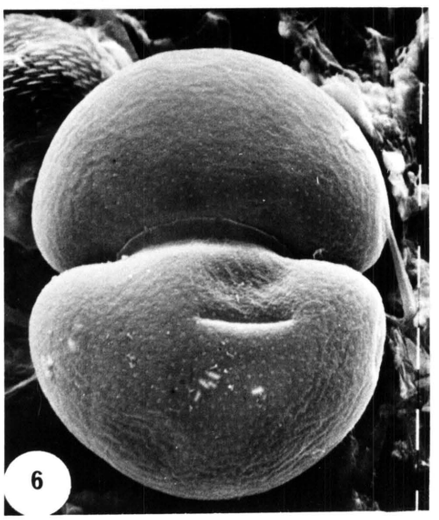

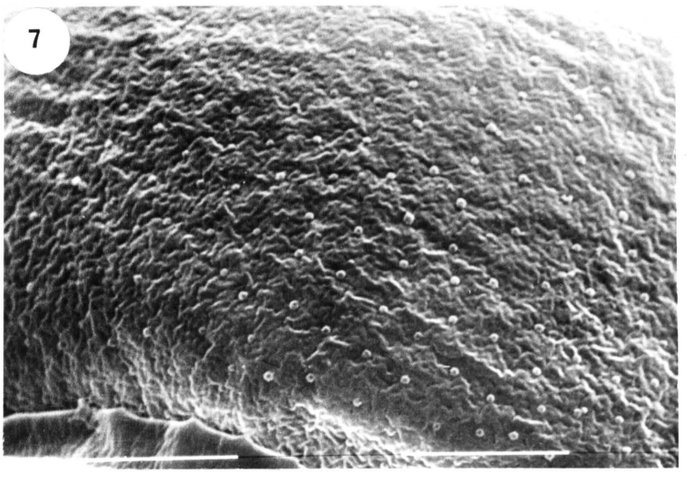

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FIGUUR 145

1 - 6. Aftaselektronmikrograwe van Cosmarium decoratum var. decoratum (p. 338); selwandskulptuur. 1 - 4. Verskillende vergrotings van twee selle in vooraansig. 5, 6. Verskillende vergrotings van 'n gedeelte van 'n sel skuins van kant gesien.

1, 3, 5 : skaal = 10 µm

2, 4, 6 : skaal = 1 µm

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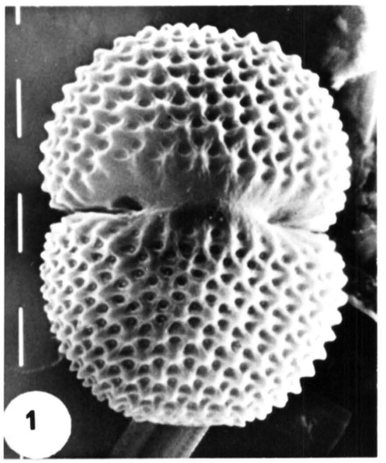

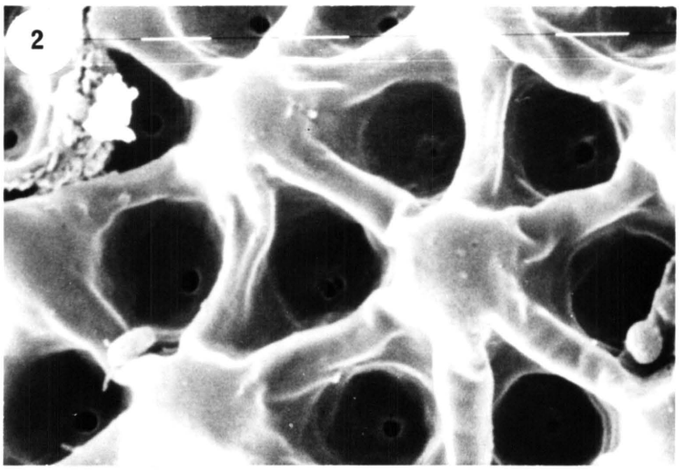

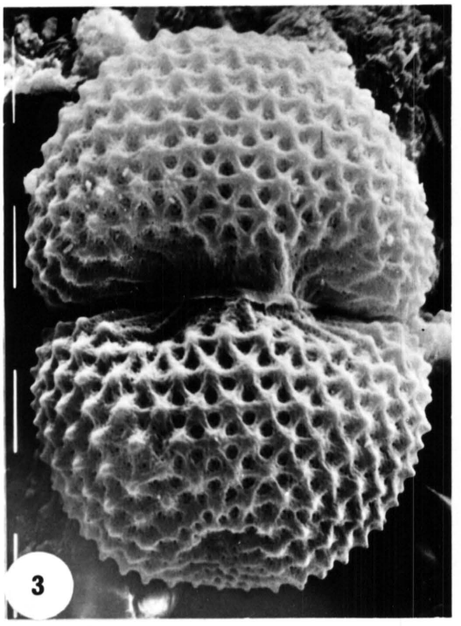

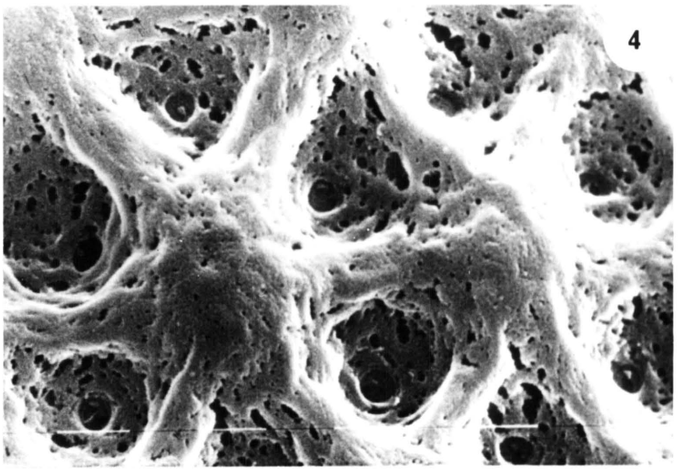

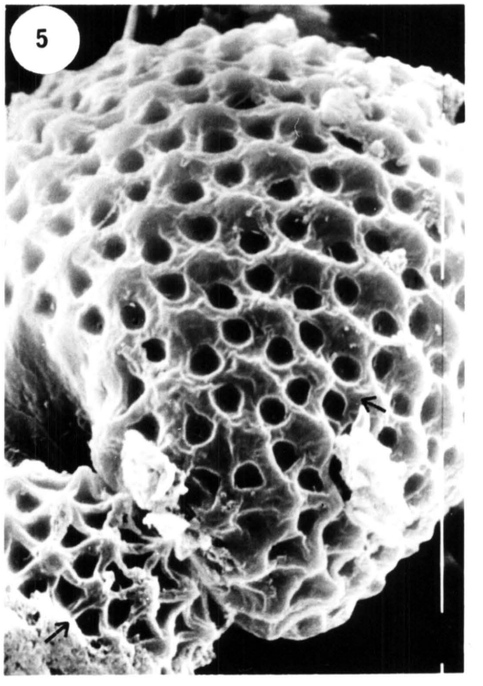

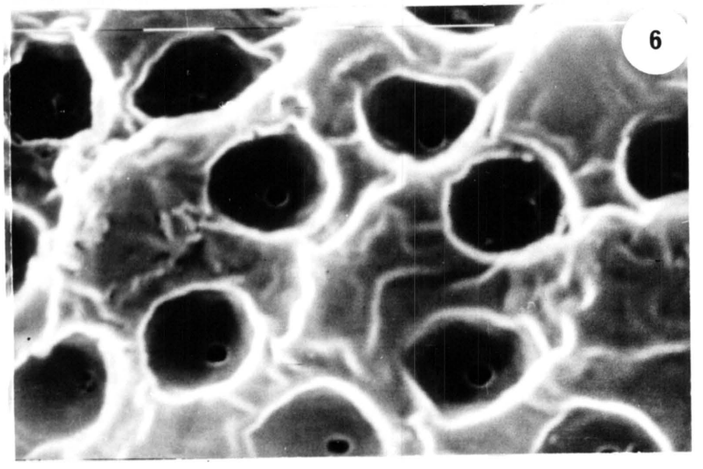

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FIGUUR 146

Aftaselektronmikrograwe van

1 - 3. Cosmarium decoratum var. decoratum (p. 338). 1. Gedeelte van 'n halfsel skuins van bo gesien. 2. Gedeelte van 'n halfsel in vertikale aansig. 3. Halfsel skuins van onder gesien.

4 - 6. C. formosulum var. hyperevolutum (p. 345); verskillende vergrotings om die sel= wandskulptuur te toon.

1, 3, 4 : skaal = 10 µm

2, 5, 6 : skaal = 1 µm

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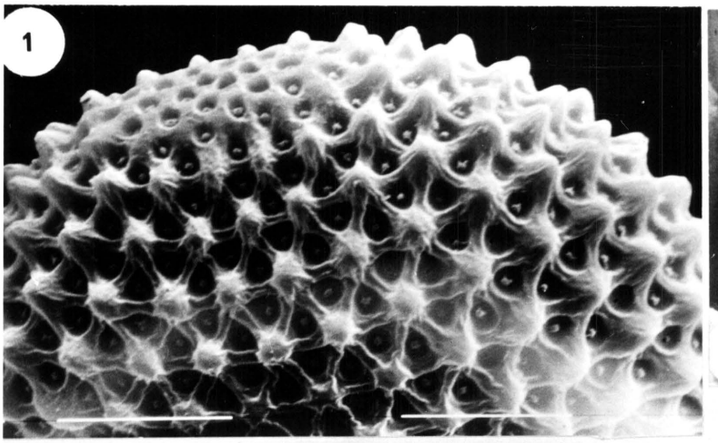

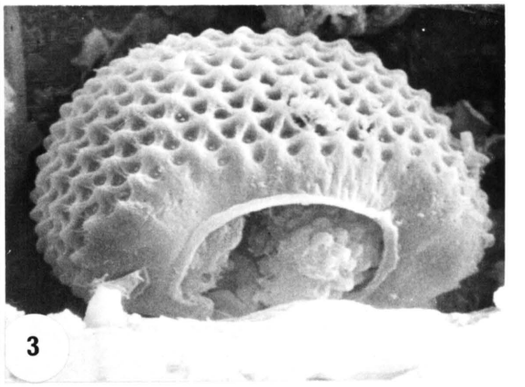

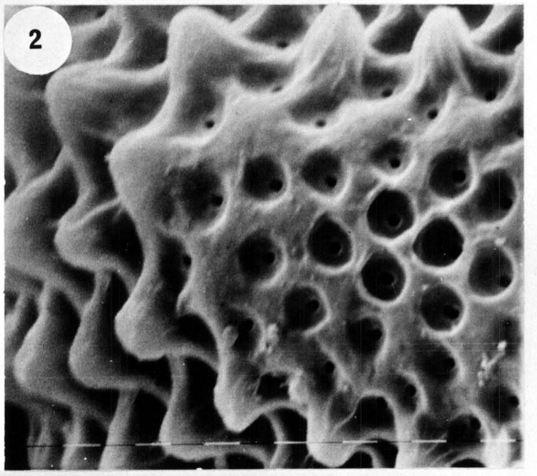

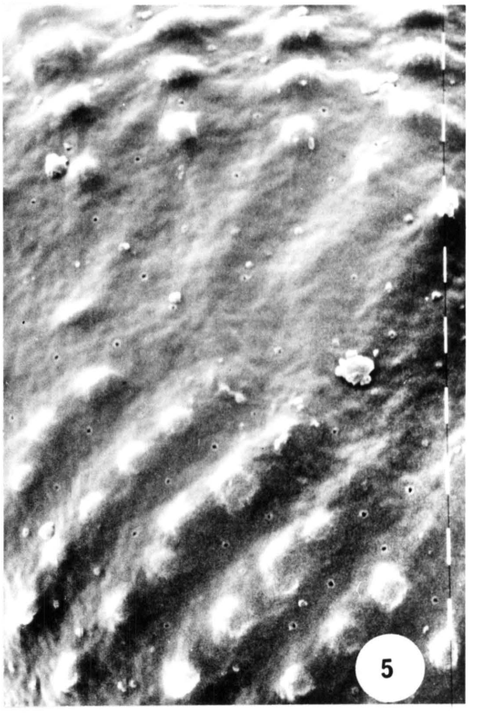

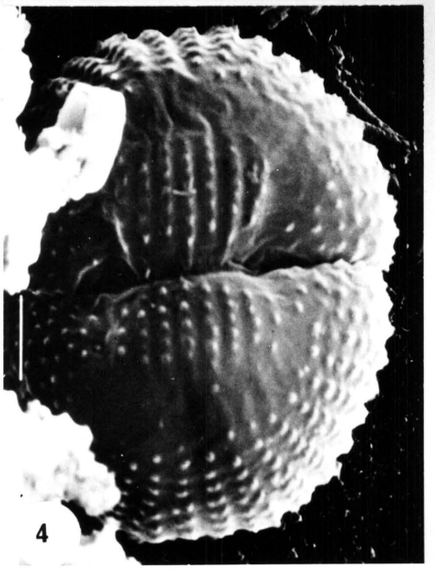

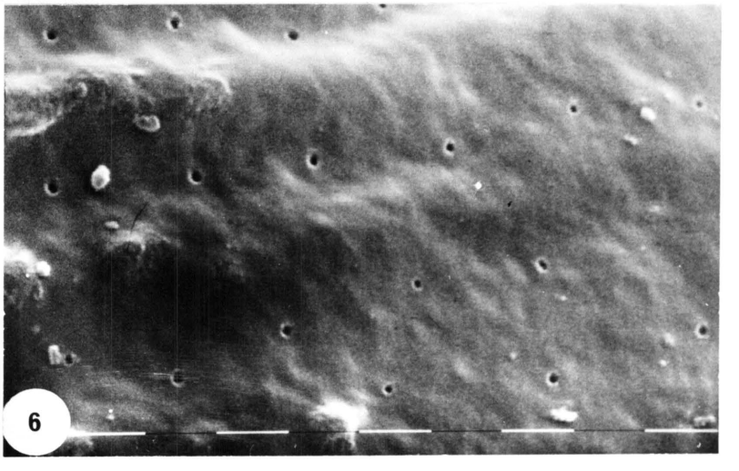

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FIGUUR 147

1 - 6. Aftaselektronmikrograwe van Cosmarium decoratum var. galpinii (p. 340); selwandskulptuur. 1 - 3. Verskillende vergrotings van selle in vooraansig. 4. Papilagtige uitbeelding van selwandknoppies. 5, 6. Apikale vlak van halfselle.

1, 3, 5 : skaal = 10 µm

2, 4, 6 : skaal = 1 µm

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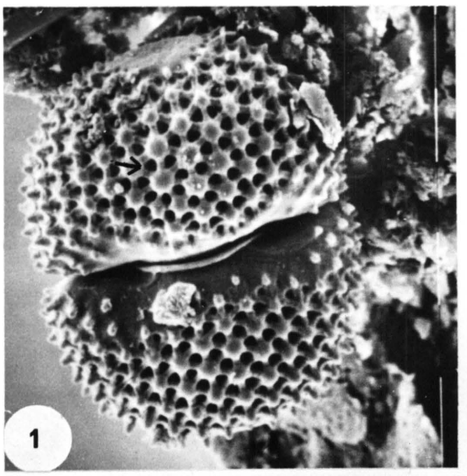
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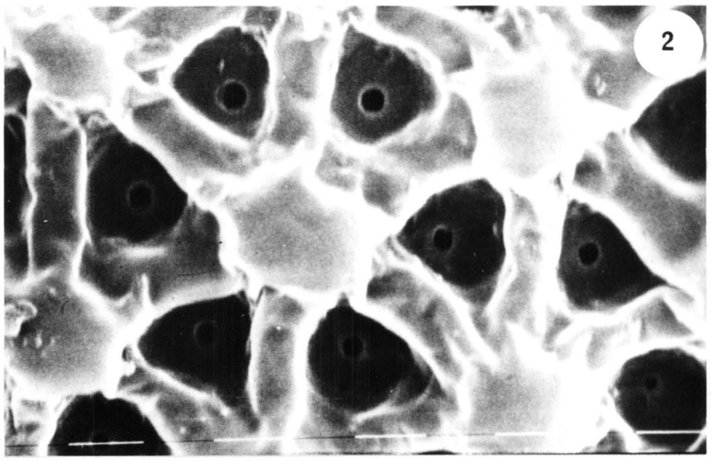
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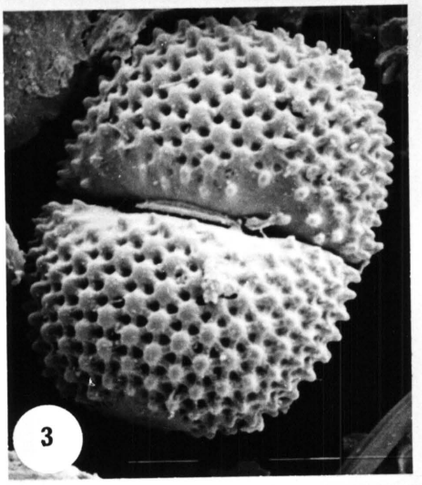
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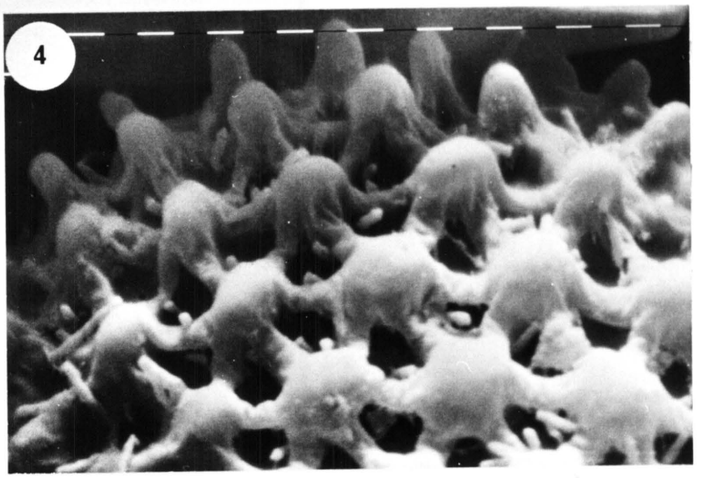
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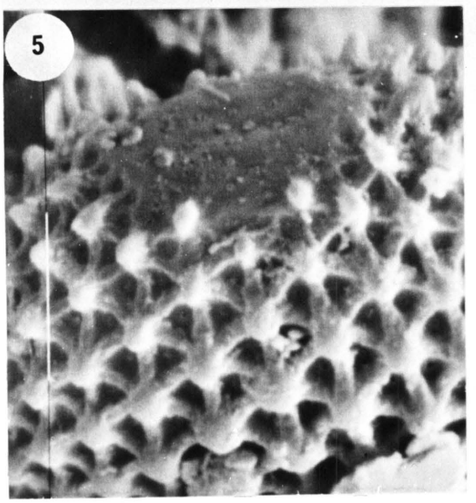
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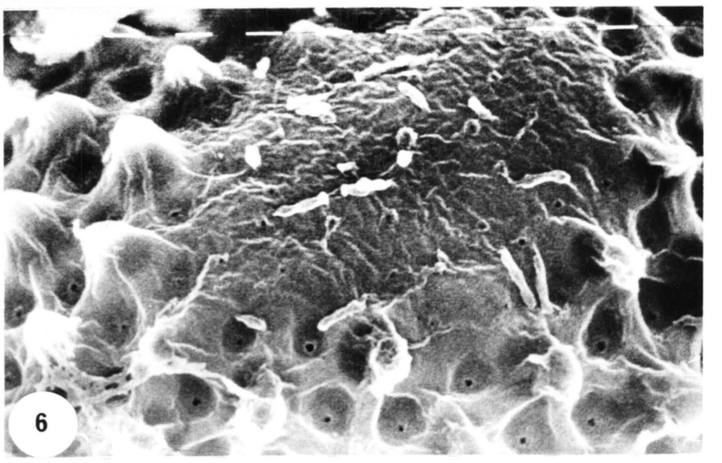
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FIGUUR 148

1 - 6. Aftaselektronmikrograwe van Cosmarium eickeri f. eickeri (p. 341); selwandskulptuur.

1 - 3. Vooraansig. 4. Skuins-syaansig.

5, 6. Skuins-vertikale aansig.

1 - 6 : skaal = 10 µm

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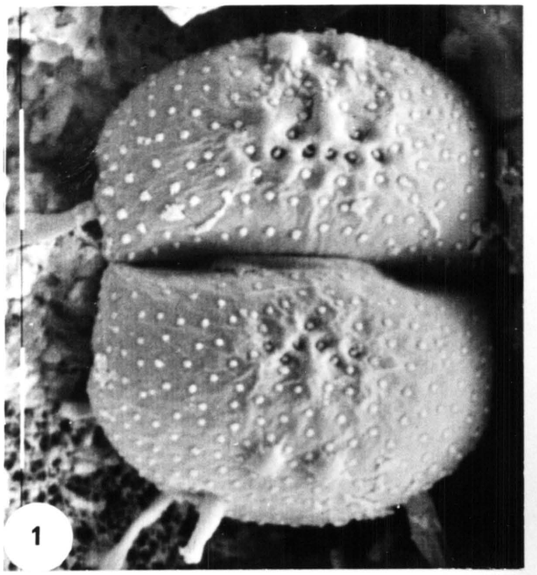

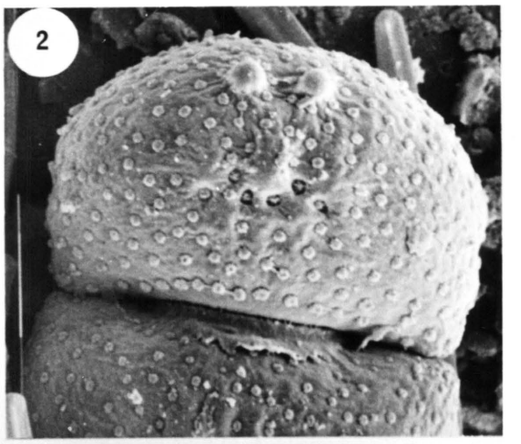

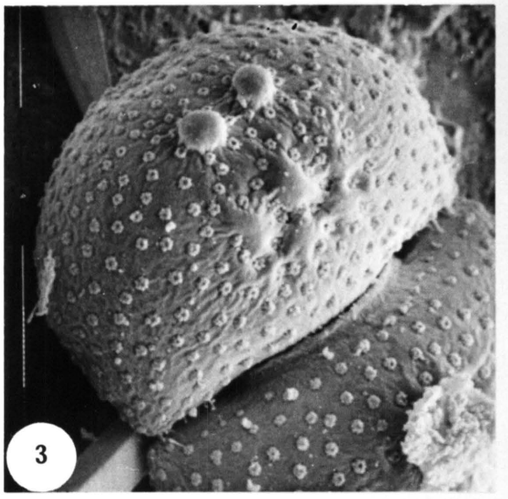

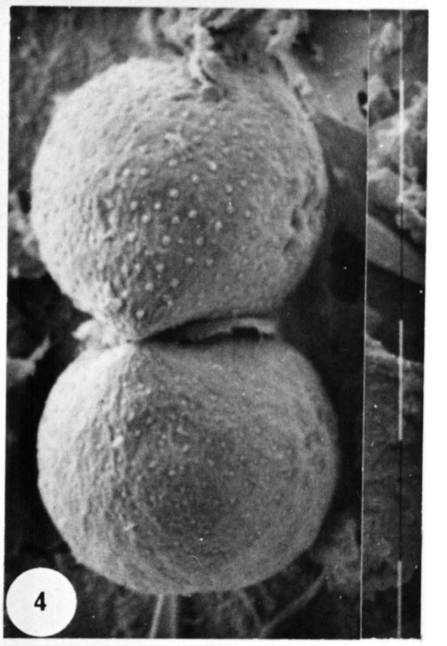

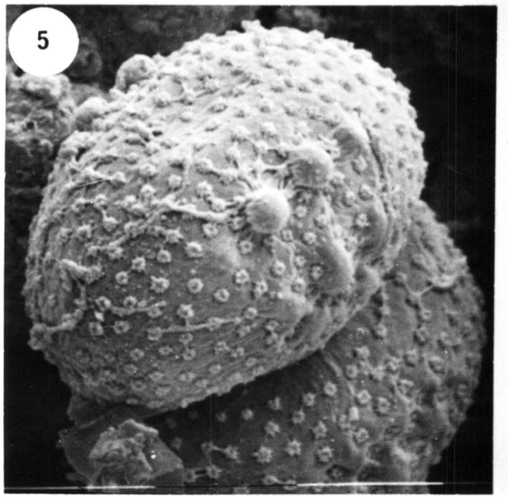

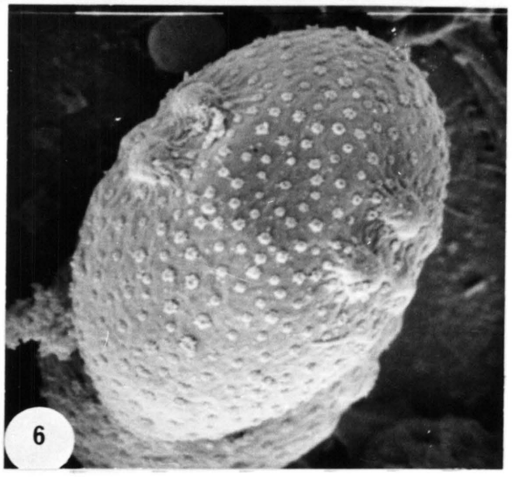

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FIGUUR 149

1 - 6. Aftaselektronmikrograwe van Cosmarium favum var. norrisii (p. 344). 1 - 3. Selle skuins van voor, skuins van die kant en skuins van bo gesien om die selwandskulptuur op die voorkant, sykant en apikale vlak van die sel te toon. 4. Selwandskulptuur in die omgewing van die istmus, vooraansig van sel. 5. Selwandskulptuur sterker vergroot. 6. Eksemplaar met groter selwandknoppies en porieë.

1 - 4, 6 : skaal = 10 µm

5 : skaal = 1 µm

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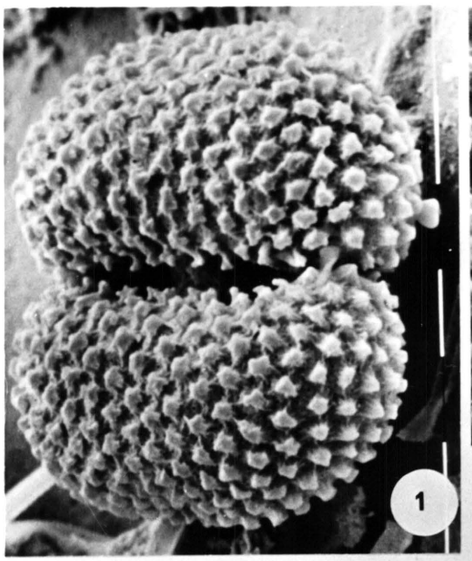

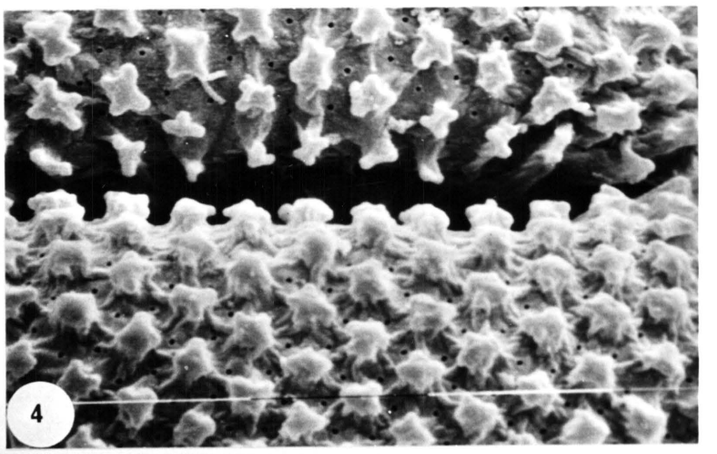

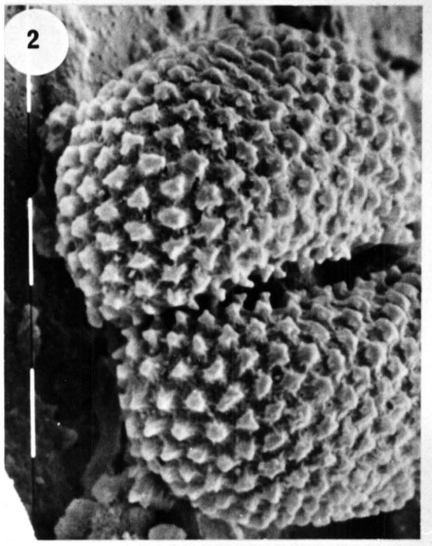

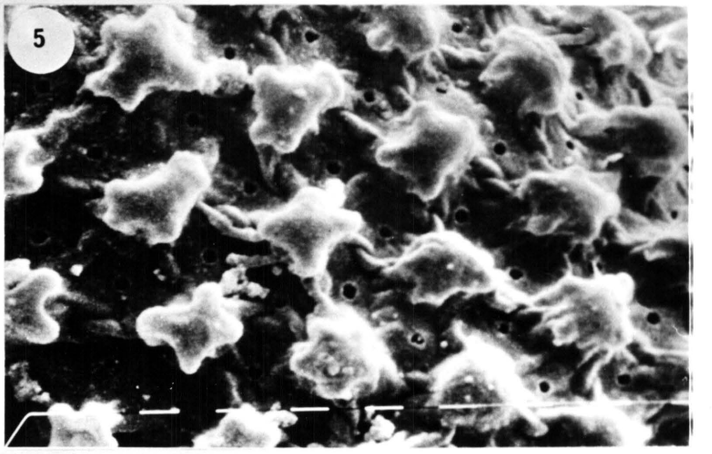

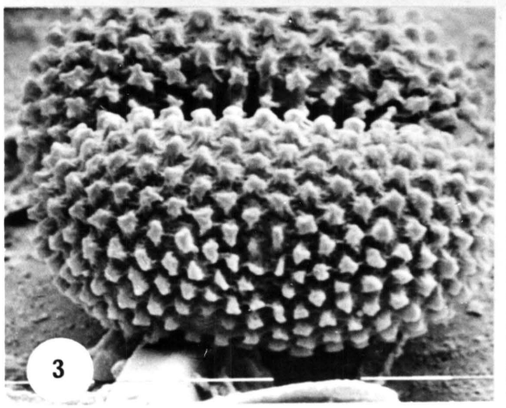

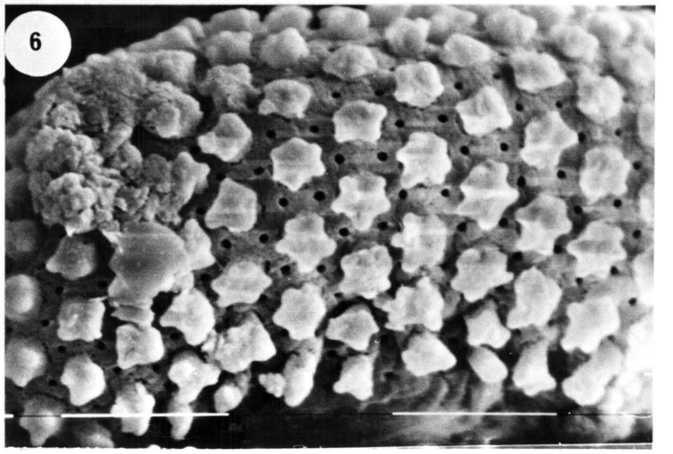

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FIGUUR 150

Fotomikrograwe van

1 - 3. Cosmarium formosulum var. hyperevolutum (p. 345); verskillende fokusinstellings van 'n sel in vooraansig om die selvorm en selwandskulptuur te toon.

4 - 9. C. magnificum var. minus (p. 357).
4, 5. Verskillende fokusinstellings van 'n sel in vooraansig. 5. Selwandskulptuur van die sentrale gebied van 'n halfsel.
6, 7. Verskillende fokusinstellings van 'n halfsel om selwandskulptuur te illustreer.
7. Die pyltjie dui die reeks selwand=knoppies bokant die istmus aan.
8, 9. Vertikale aansig van onvolwasse en volwasse halfselle van 'n sel.

10 - 22. C. margaritatum f. minus (p. 361).
10 - 15. Selle in vooraansig, toon variasie in selvorm en grootte.
15 - 17. Verskillende fokusinstellings van 'n sel om die rangskikking van die knoppies op die selwand te toon.
18, 19. Verskillende fokusinstellings van 'n halfsel met hol selwandknoppies.
20. Vertikale aansig. 21, 22. Verskillende fokusinstellings van 'n sel in sy=aansig.

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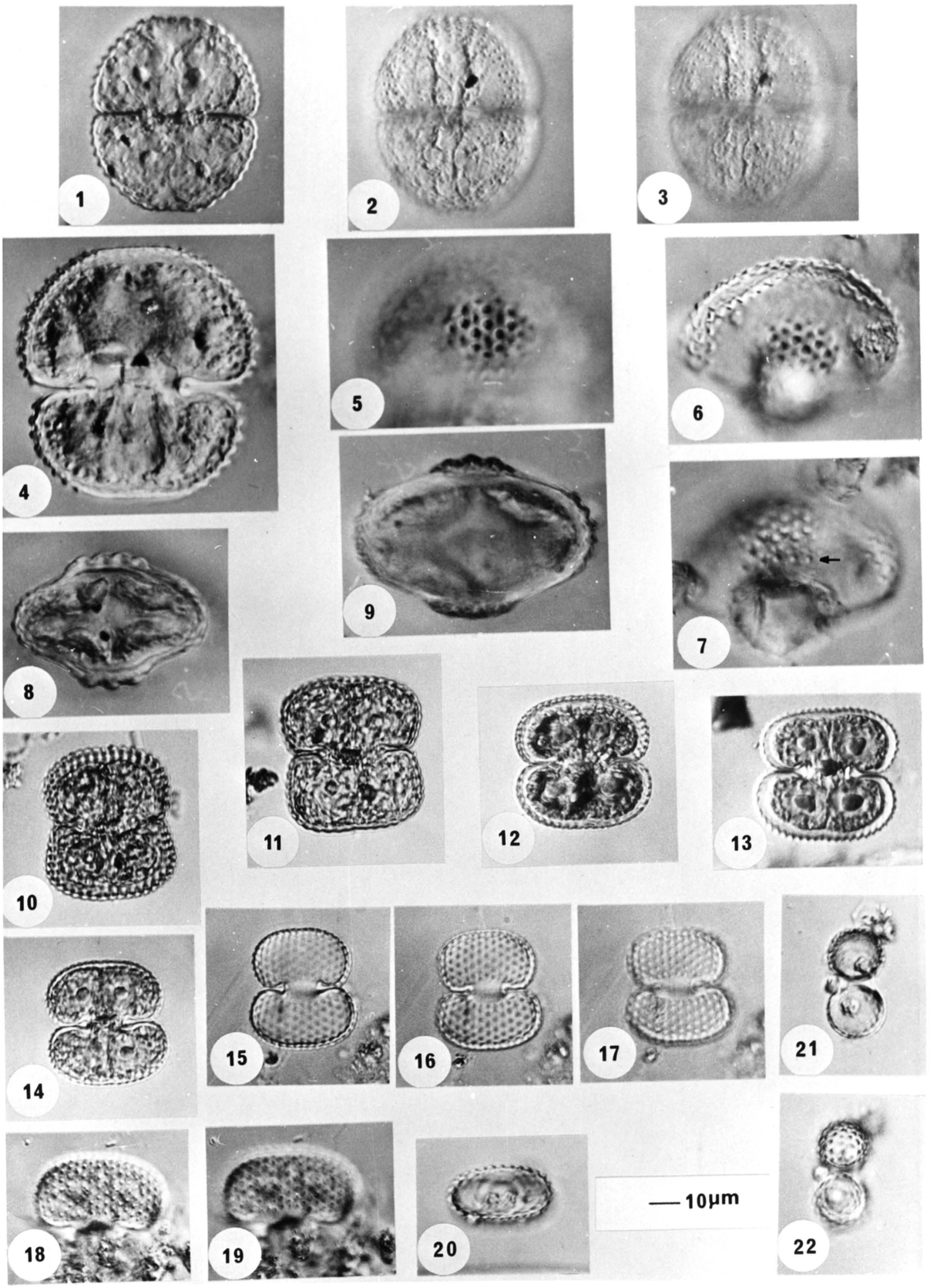
150



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FIGUUR 151

1 - 6 Aftaselektronmikrograwe van Cosmarium magnificum var. minus (p. 357). 1, 2. Selwandskulptuur van sentrale gebied bokant istmus. 3, 4. Selwand= skulptuur aangrensend aan sentrale versiering en op sykant van halfsel; die sentrale gebied aan die voorkant van die halfsel is as gevolg van beskadiging platgedruk. 5. Die selwandinduikings op die sentrale gebied van 'n halfsel (links) is dieper as dié op die aangrensende gedeelte (middel) en sykante (regs). 6. Op die apikale vlak van 'n halfsel kom net induikings in die selwand en geen knoppies voor nie.

1, 3 - 6 : skaal = 10 µm
2 : skaal = 1 µm

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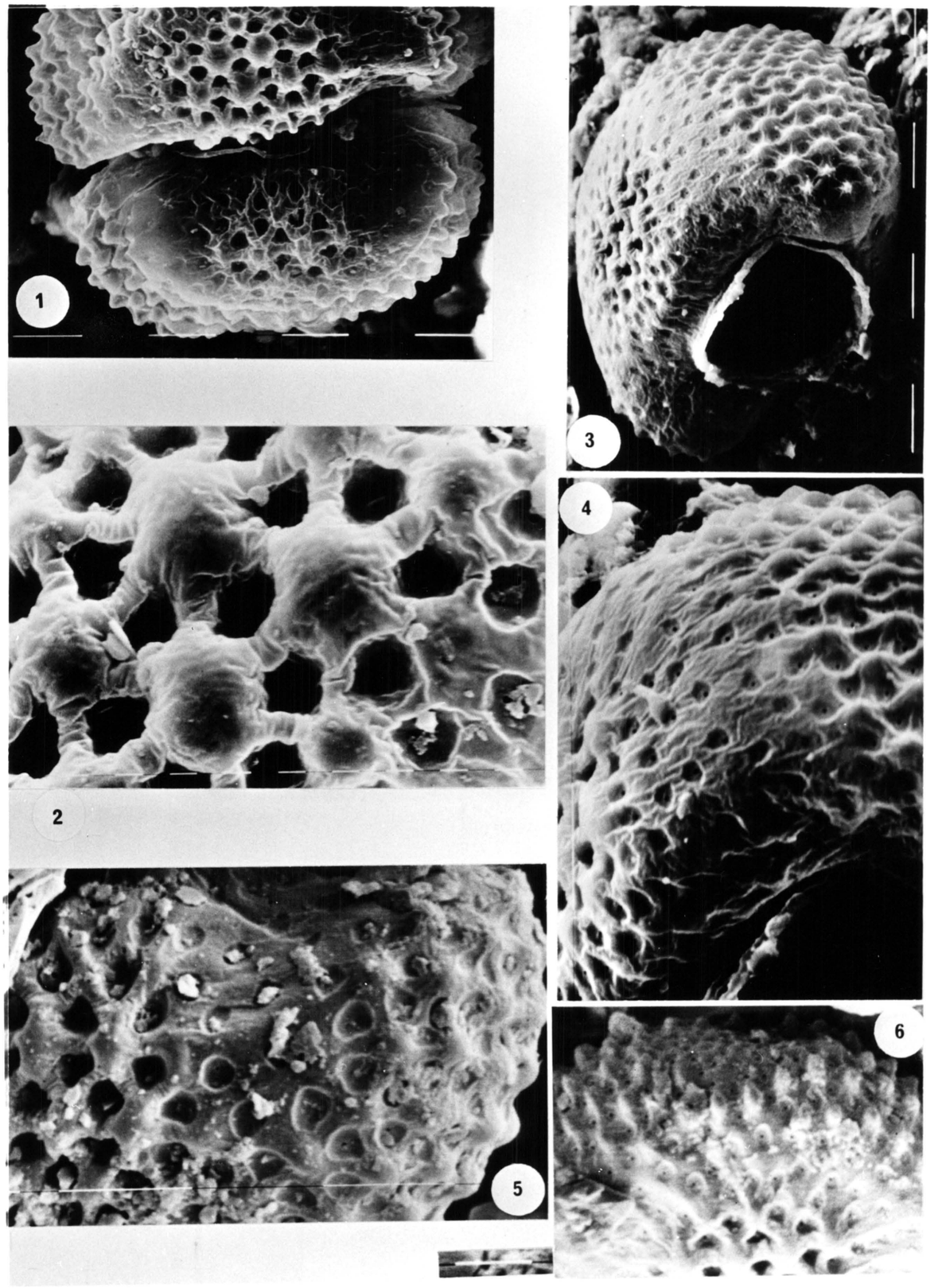

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FIGUUR 152

Aftaselektronmikrograwe van

1. Cosmarium ortostichum var. pumilum (p. 370); sigoot.

2 - 4. C. margaritatum var. margaritatum f. minus (p. 361).

5, 6. C. reniforme (p. 397).

1 - 3, 5, 6 : skaal = 10 µm
4 : skaal = 1 µm

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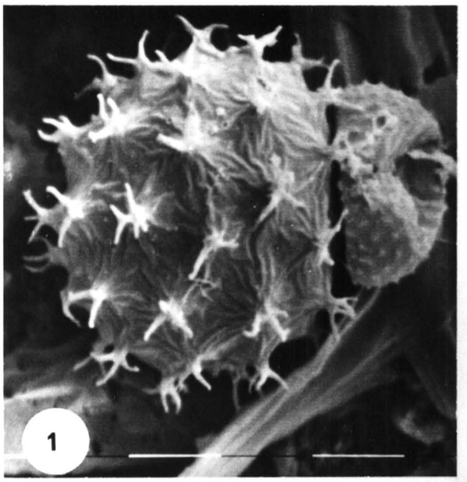

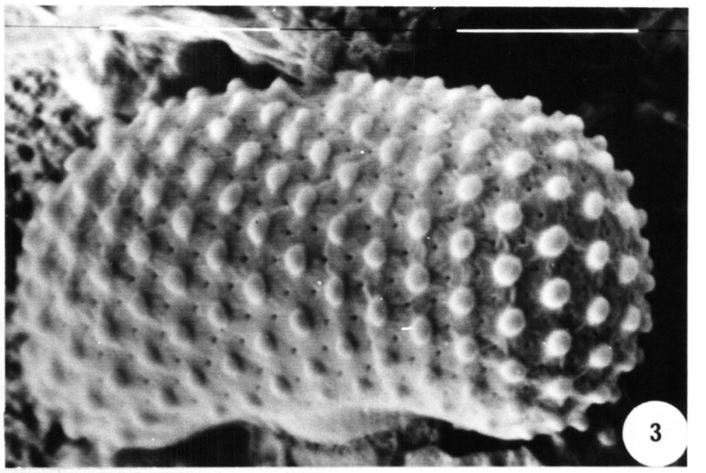

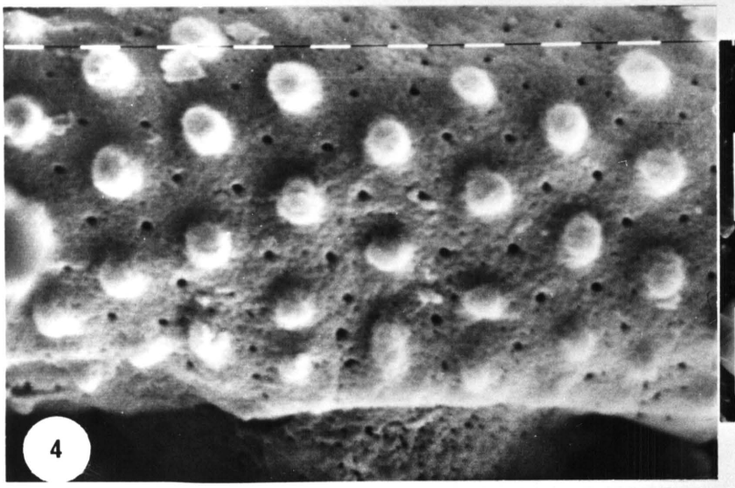

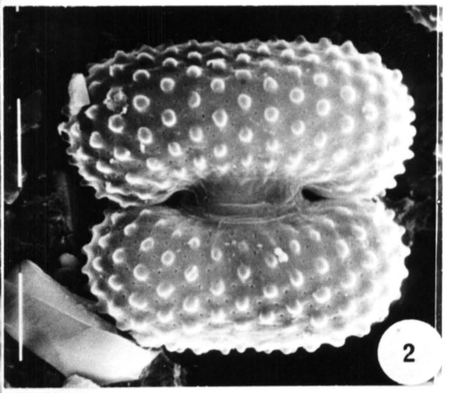

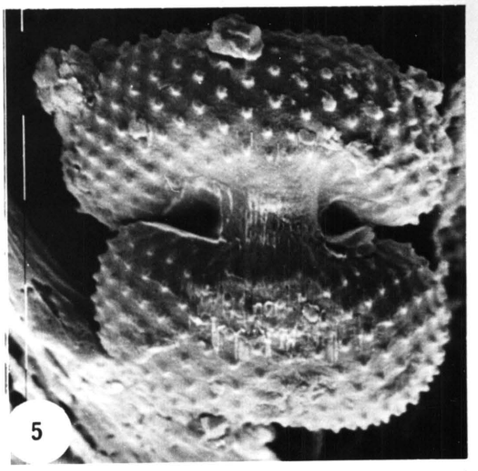

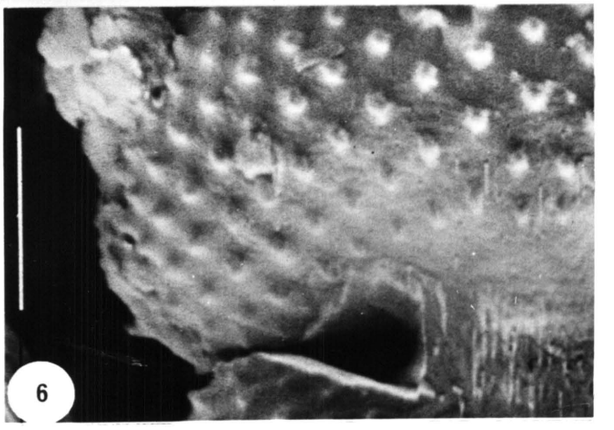

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FIGUUR 153

Fotomikrograwe van

1 - 4. Cosmarium mansangense var. mansangense (p. 359). 1, 2. Vooraansig. 3, 4. Verskillende fokus= instellings van 'n sel in syaansig.

5 - 10. C. mansangense var. africanum (p. 359). 5 - 7. Vooraansig. 7, 8. Verskillende fokus= instellings van 'n sel. 9, 10. Syaansig.

11 - 16. C. mansangense var. africanum forma (p. 360). 13, 14. 'n Sel in voor- en syaansig onder= skeidelik. 15, 16. Verskillende fokusinstel= lings van 'n sel.

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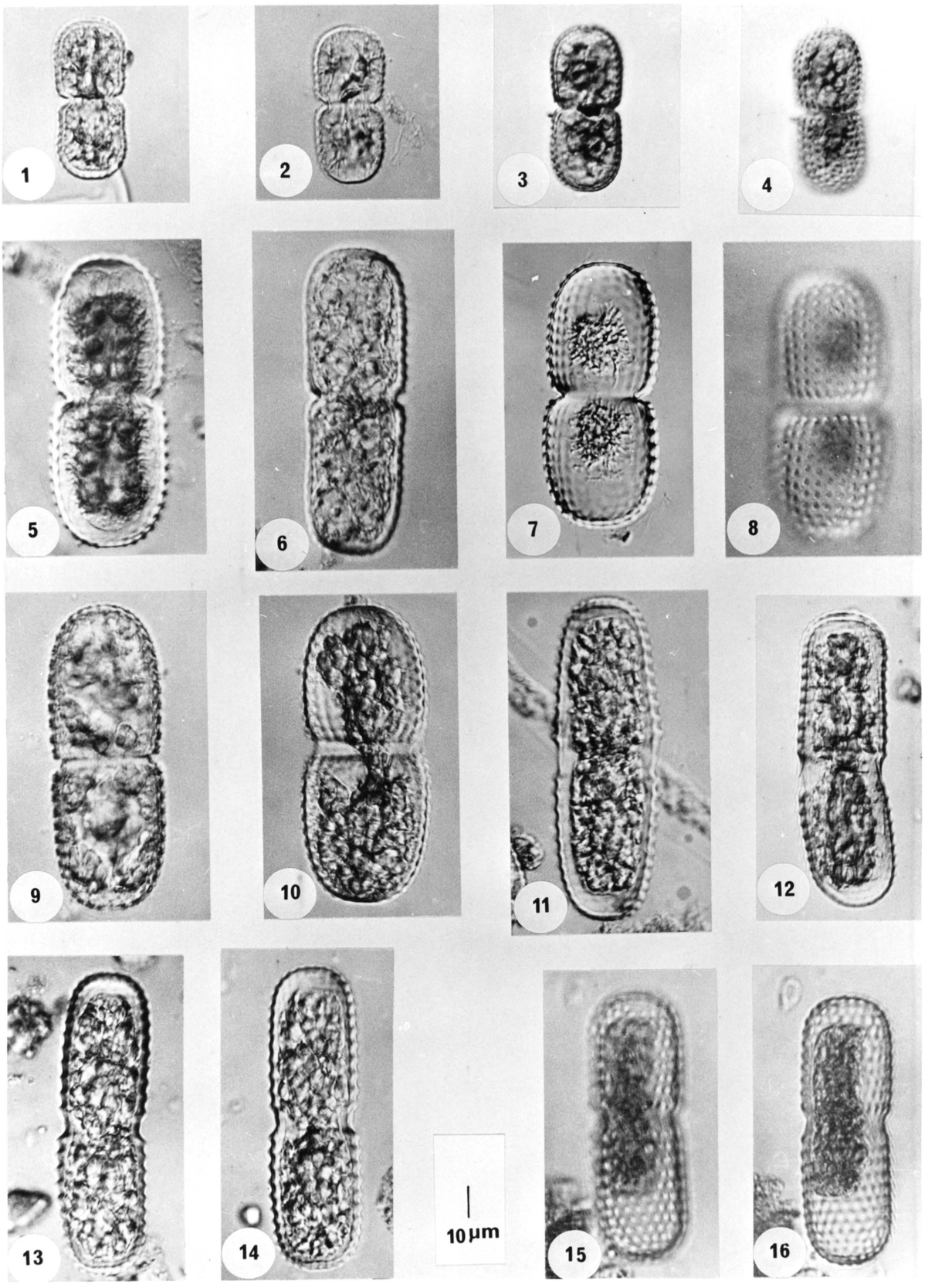

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FIGUUR 154

1 - 6. Aftaselektronmikrograwe van Cosmarium mansangense var. africanum (p. 359). 1, 2. Vooraansig. 2, 3. Verskillende vergrotings van 'n sel. 4 - 6. Verskillende vergrotings van 'n sel meer in syaansig gesien. 5. Vertikale reekse sel= wandknoppies kom van links na regs voor. 6. Gepaarde selwandknoppies aan weerskante van die istmus.

1, 2, 4 : skaal = 10 µm
3, 5, 6 : skaal = 1 µm

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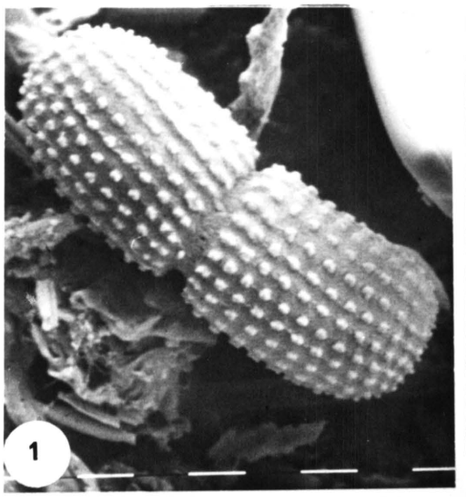

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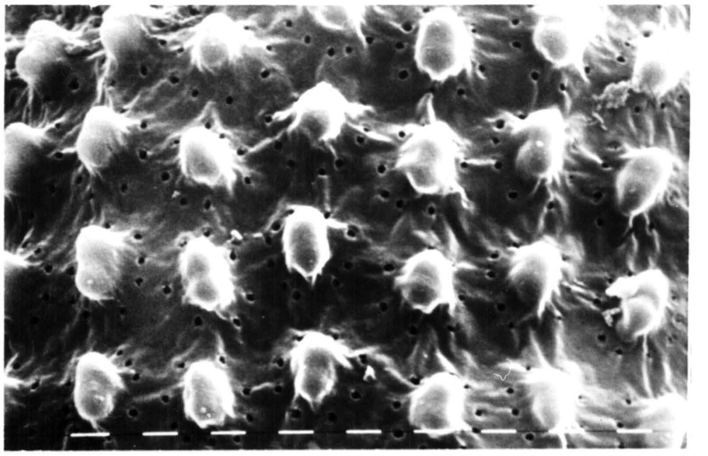

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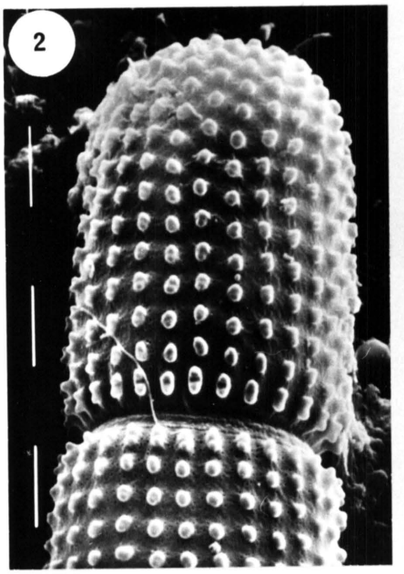

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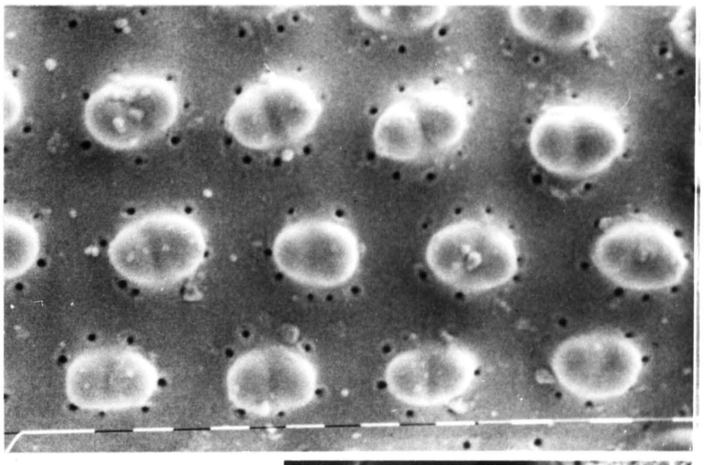

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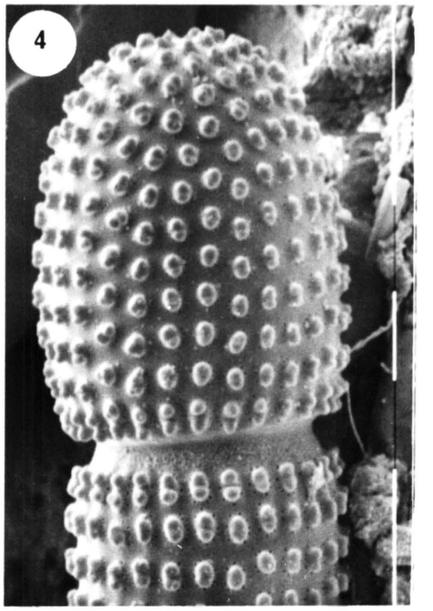

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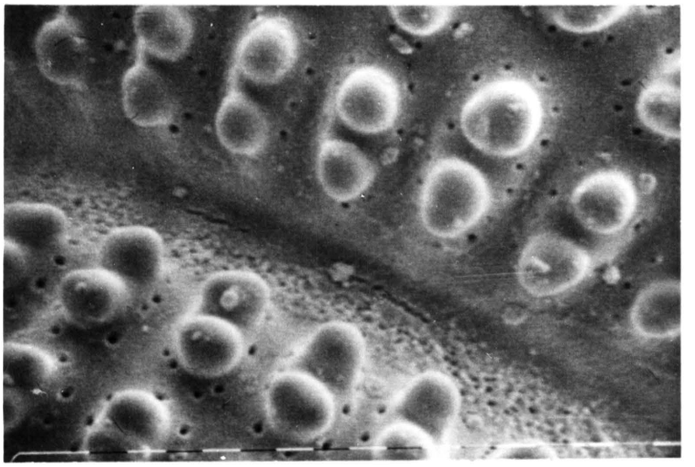

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FIGUUR 155

Aftaselektronmikrograwe van

1, 2. Cosmarium mansangense var. mansangense (p. 359); verskillende vergrotings van 'n sel.

3 - 6. C. onychonema var. africanum (p. 370).
3 - 5. Vooraansig. 6. Vertikale aansig.

1, 3 - 6 : skaal = 10 µm
2 : skaal = 1 µm

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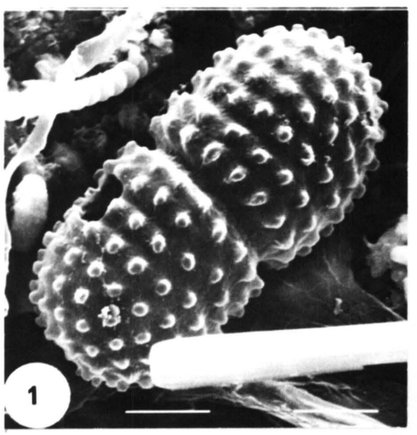
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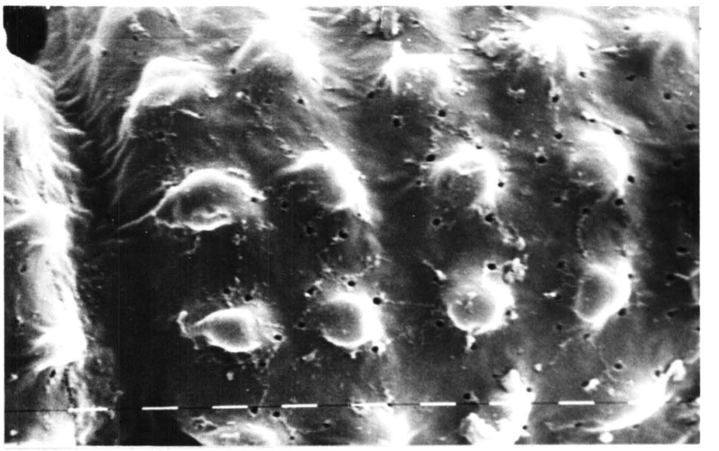
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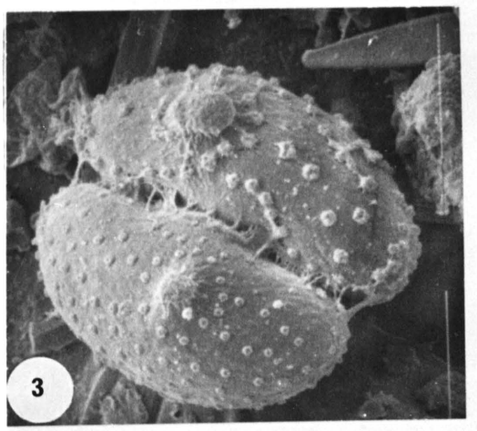
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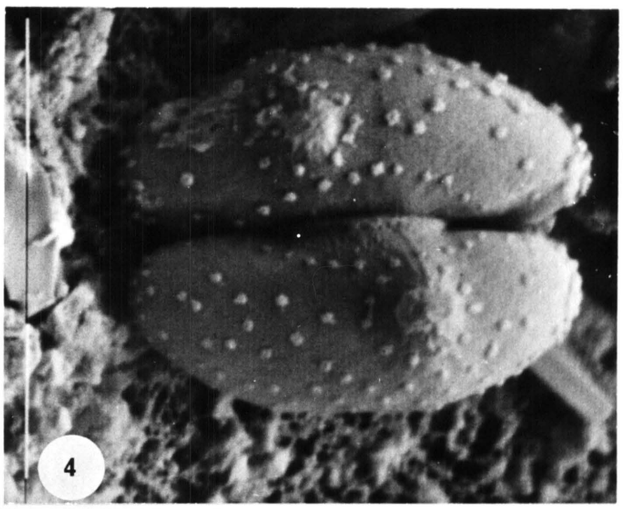
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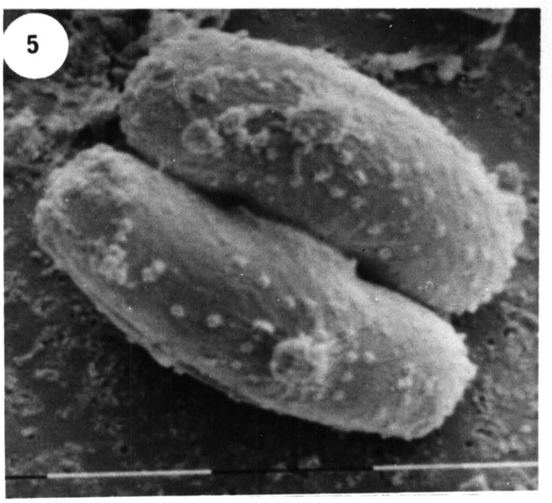
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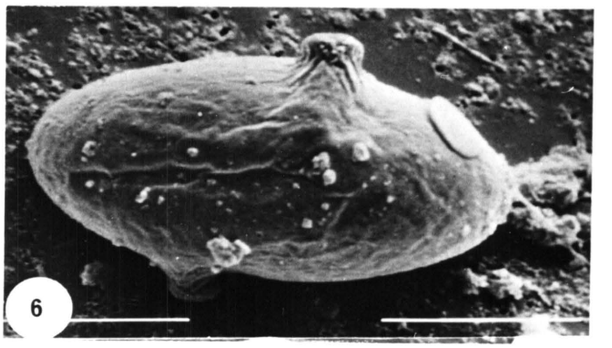
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FIGUUR 156

Fotomikrograwe van

1, 2. Cosmarium obtusatum var. obtusatum (p. 367).

3 - 7. C. obtusatum var. beanlandii (p. 369).
4, 5. Verskillende fokusinstellings van 'n sel in vooraansig. 6, 7. Verskillende fokusinstellings van 'n sel in vertikale aansig om die selwandskulptuur te toon.

8 - 19. C. patelliforme var. minus (p. 373).
8 - 13. Selle in vooraansig om variasie in selvorm te toon. 11, 12. Verskillende fokusinstellings van 'n sel om die chloroplaste te toon.
9, 10, 13. Pirenoïede kan waargeneem word.
14, 15. Verskillende fokusinstellings van 'n halfsel om chloroplaslobbe te toon.
16, 17. Syaansig. 17, 18. Verskillende fokusinstellings van 'n sel om die chloroplaste te toon. 19. Vertikale aansig; selwandskulptuur.

1 - 7 : skaal A

8 - 19 : skaal B

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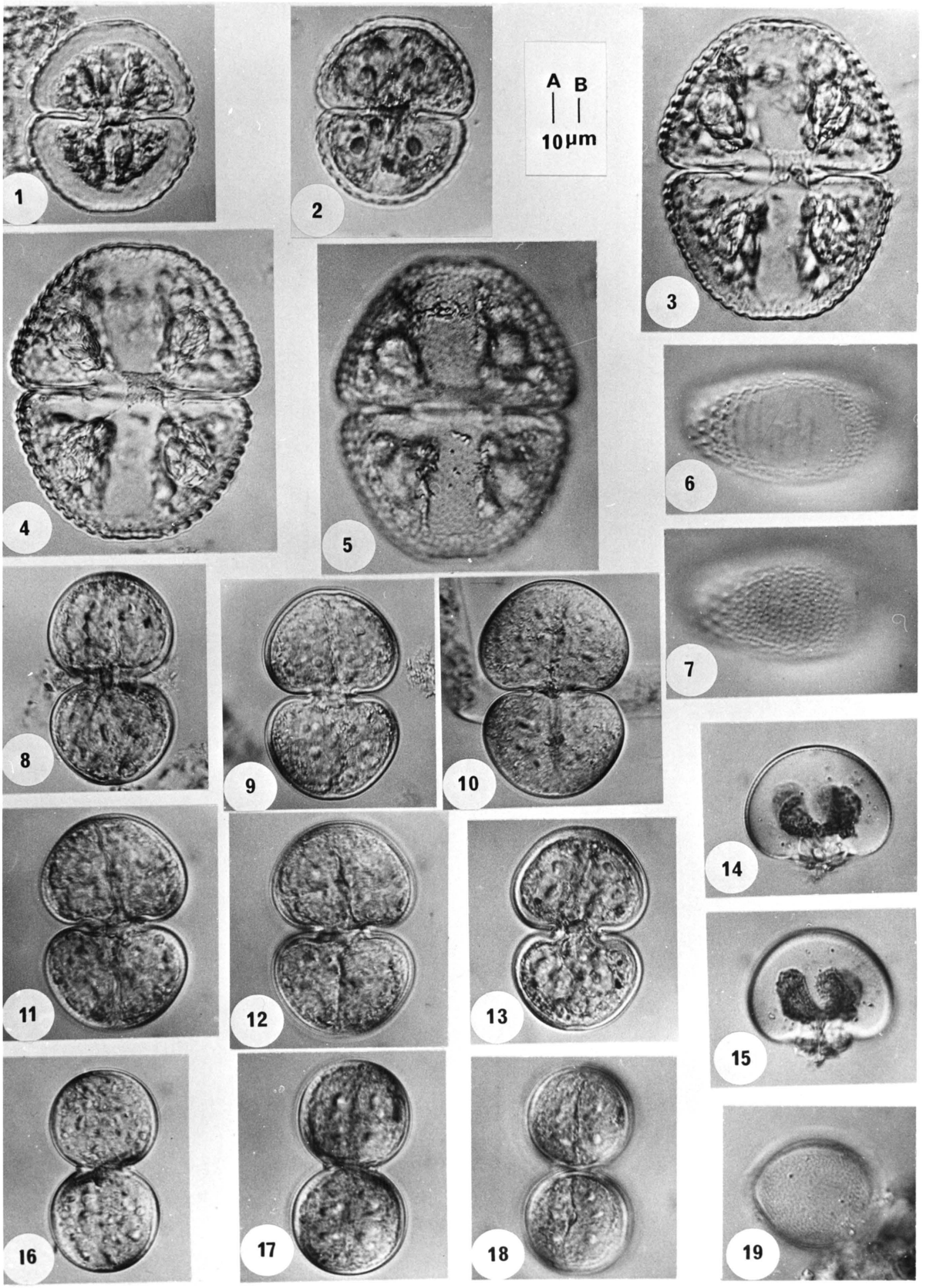

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FIGUUR 157

Fotomikrograwe van

1 - 3. Cosmarium pardalis (p. 372). 1, 2. Verskillende fokusinstellings van 'n sel.

4, 5. C. pardalis forma (p. 373); verskillende fokus= instellings van 'n sel om die selvorm en die reekse hol selwandknoppies te toon.

6 - 8. C. pseudopyramidatum var. pseudopyramidatum (p. 384); variasie in selvorm en -grootte.

9 - 11. C. pseudopyramidatum var. extensum (p. 385). 10, 11. Verskillende fokusinstellings van 'n sel om die selvorm en selwandskulptuur te toon.

12 - 15. C. pseudopyramidatum var. maximum (p. 386); variasie in selvorm.

16 - 19. C. pseudopyramidatum var. rotundatum (p. 387). 16 - 18. Variasie in selvorm. 19. Syaansig.

20 - 22. C. pseudopyramidatum var. rotundatum forma? (p. 387).

1 - 5 : skaal A

6 - 22 : skaal B

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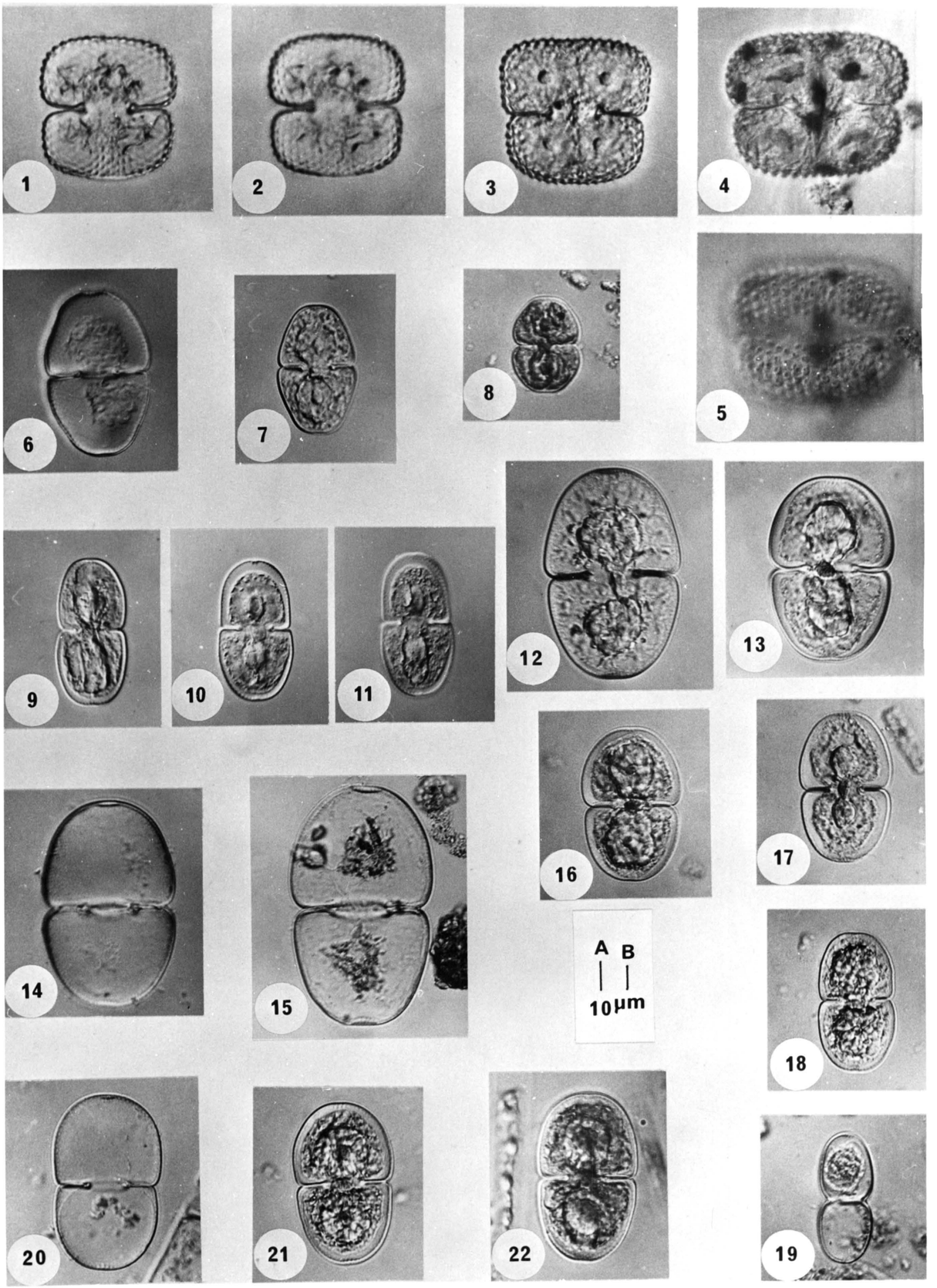

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FIGUUR 158

Fotomikrograwe van

1 - 4. Cosmarium pyramidatum var. pyramidatum (p. 388); variasie in selvorm.

5 - 9. C. pyramidatum var. convexum (p. 389). 7, 8. Verskillende fokusinstellings van 'n halfsel om die vorm en selwandskulptuur te toon. 9. Syaansig.

10 - 12. C. pyramidatum var. elongatum (p. 390). 10, 12. Die verspreidliggende pirenoïede kan waargeneem word.

13 - 15. C. pyramidatum var. maximum (p. 390).

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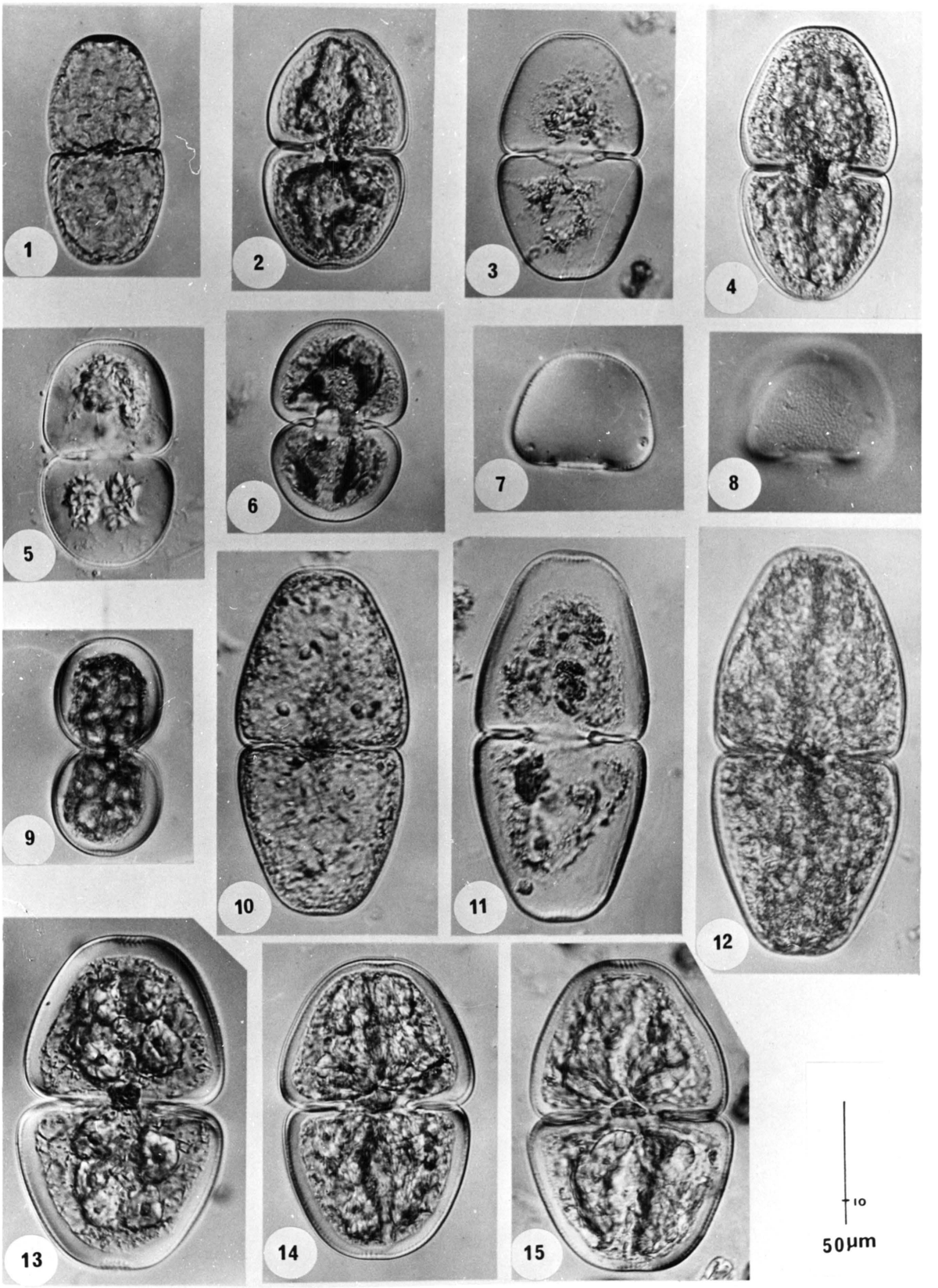

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FIGUUR 159

Fotomikrograwe van

1 - 4. Cosmarium pyramidatum var. maximum (p. 390).
1, 2. Verskillende fokusinstellings van 'n halfsel in vooraansig om die vorm en selwand=skulptuur te toon. 3, 4. Verskillende fokusinstellings van 'n sel in syaansig.

5 - 8. C. quadrum var. quadrum (p. 391).
7, 8. Verskillende fokusinstellings van 'n sel in vooraansig om die selvorm en reekse selwandknoppies te toon.

9 - 13. C. quadrum var. distentum forma (p. 392).
9 - 12. Selle in vooraansig om selvorm en selwandskulptuur te illustreer.
13. Vertikale aansig.

14 - 16. C. quadrum var. sublatum (p. 393).
15, 16. Verskillende vergrotings van 'n sel om die selwandskulptuur te toon.

17 - 19. C. pachydermum var. minus (p. 372).

1 - 8, 14, 15	:	skaal A
9 - 13	:	skaal B
16	:	skaal C
17 - 19	:	skaal D

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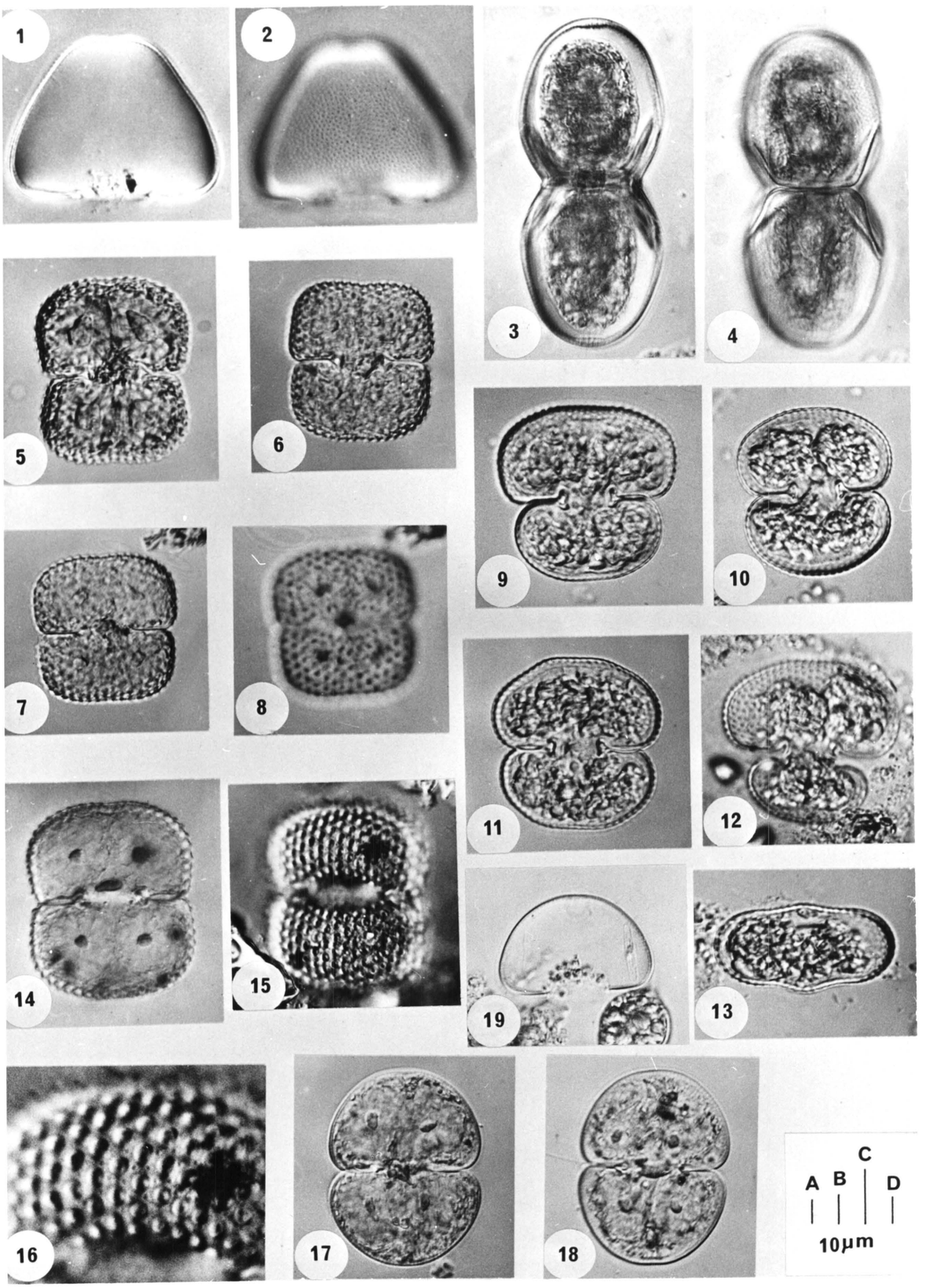

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FIGUUR 160

Aftaselektronmikrograwe van

1 - 3. Cosmarium granatum var. granatum (p. 346); die selwandskulptuur bestaan uit 'n netwerk van vlak induikings met enkele verspreid= liggende porieë.

4 - 6. C. pardalis forma (p. 373).

1, 4 : skaal = 10 µm

2, 3, 5, 6 : skaal = 1 µm

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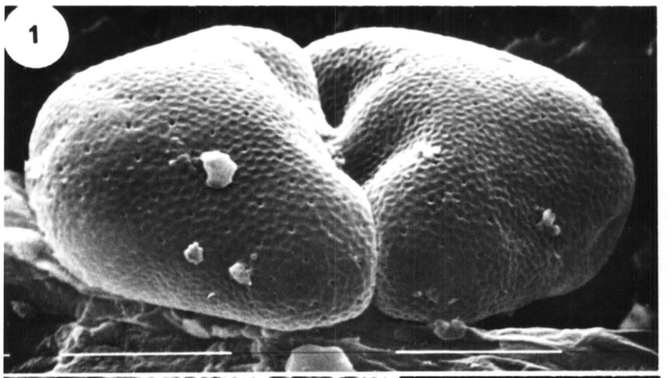

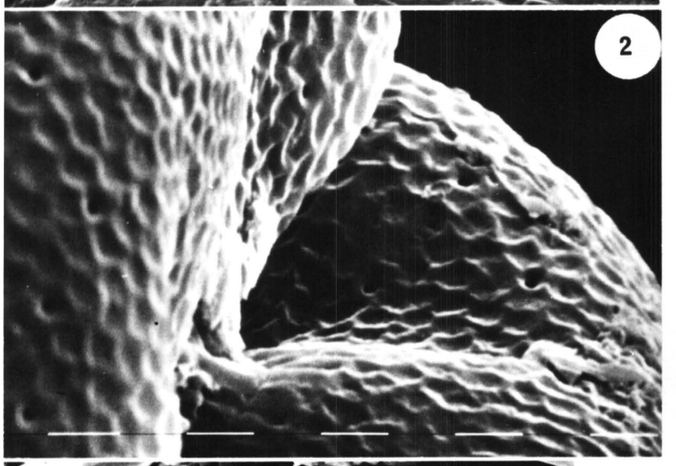

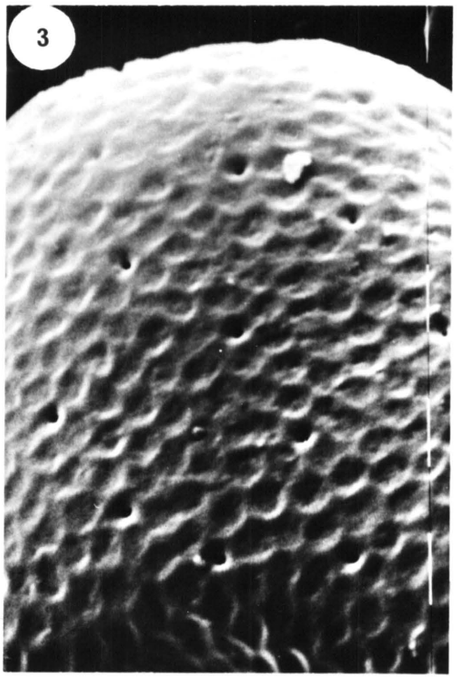

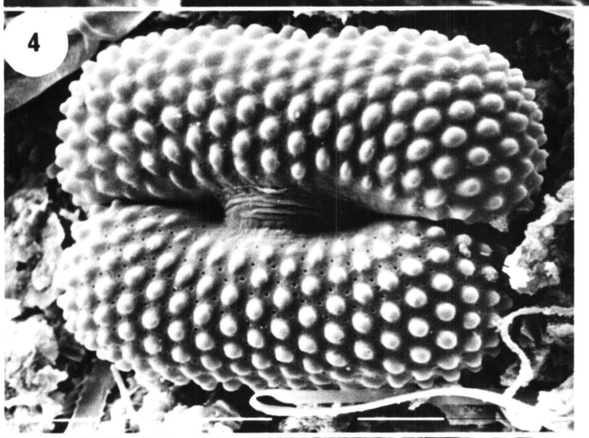

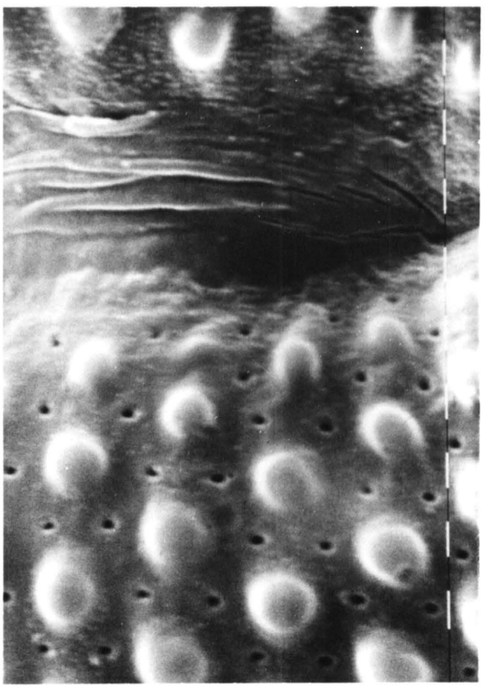

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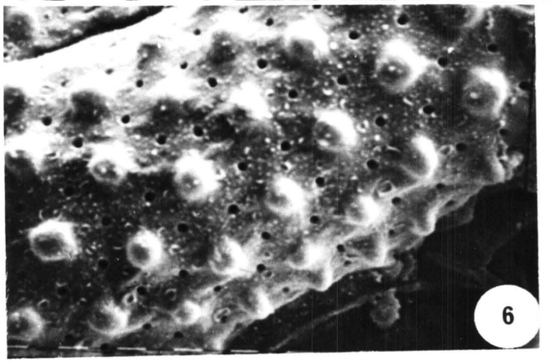

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FIGUUR 161

Aftaselektronmikrogrewe van

1, 2. Cosmarium pseudopyramidatum var. pseudopyramidatum (p. 384).

3. C. pseudopyramidatum var. maximum (p. 386).

4, 5. C. pseudopyramidatum var. rotundatum (p. 387).

1, 3 - 6 : skaal = 10 µm

2 : skaal = 1 µm

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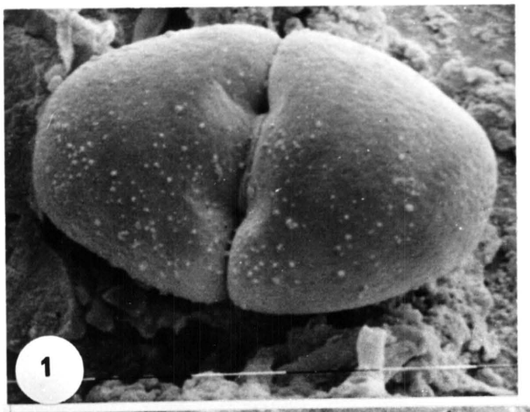
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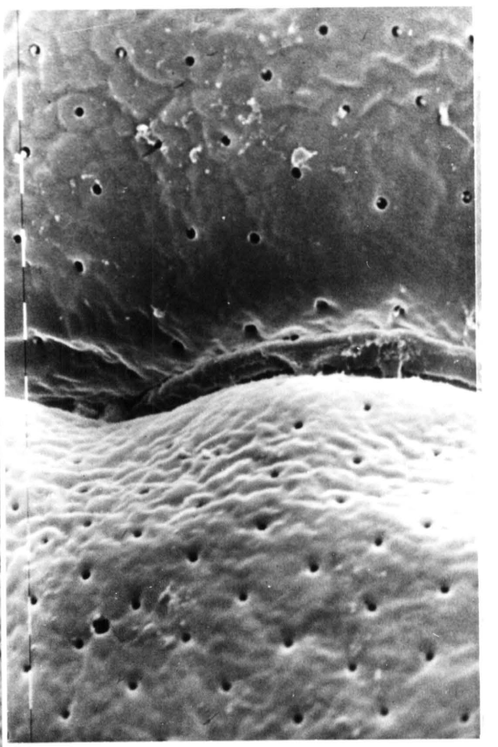

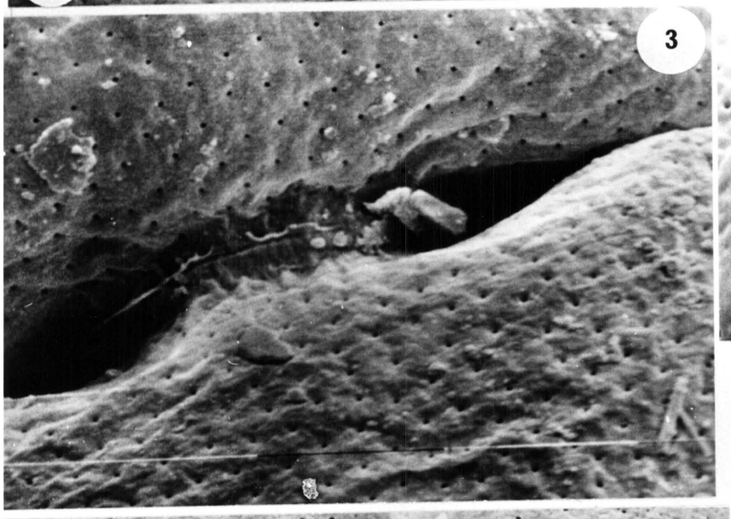
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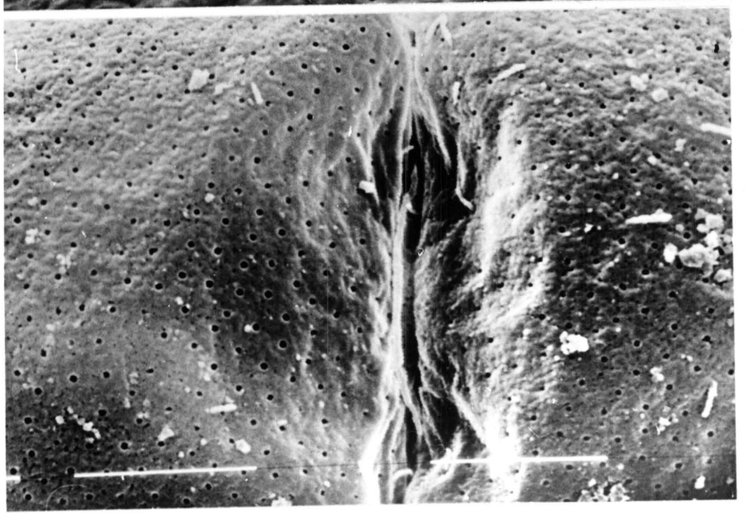

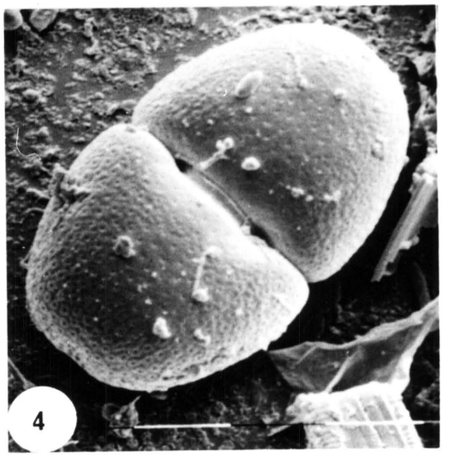
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FIGUUR 162

Aftaselektronmikrograwe van

1. Cosmarium pyramidatum var. pyramidatum (p. 388).

2, 3. C. pyramidatum var. convexum (p. 389).

4, 5. C. pyramidatum var. maximum (p. 390).

1 : skaal = 1 µm

2 - 5 : skaal = 10 µm

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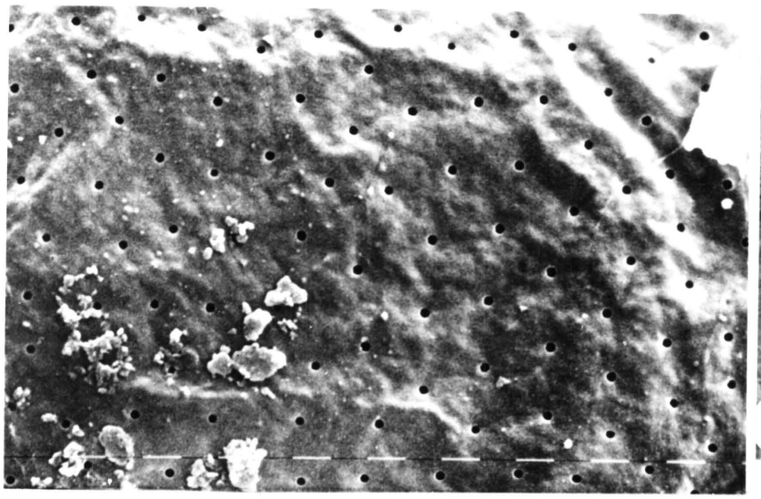

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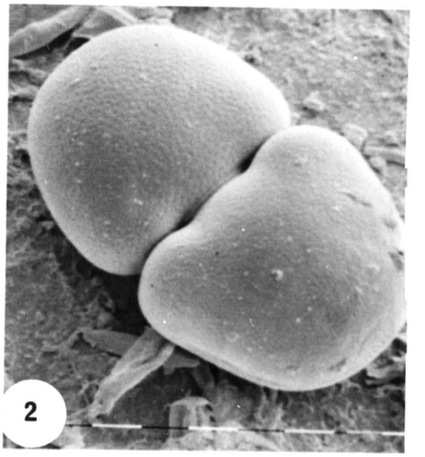

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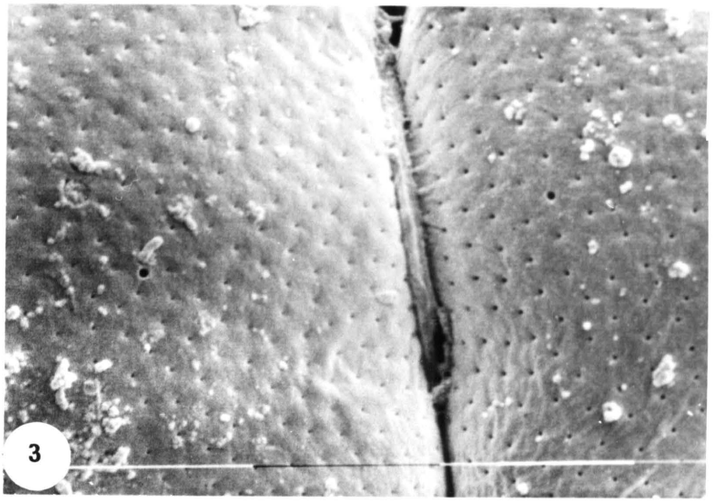

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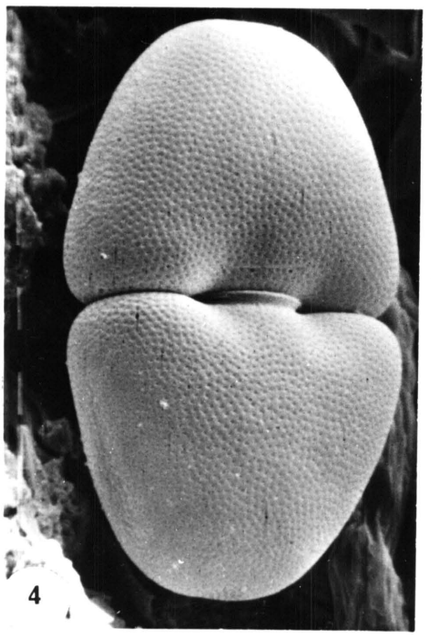

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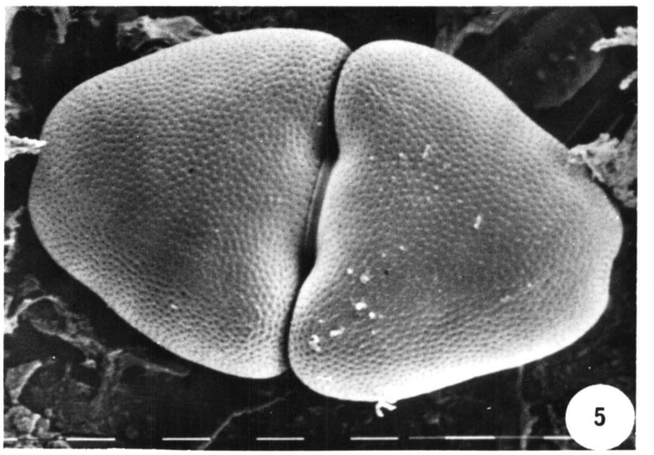

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FIGUUR 163

Aftaselektronmikrograwe van

1 - 5. Cosmarium portianum (p. 377); verskillende aansigte en vergrotings om selwandskulptuur te illustreer; by hierdie Transvaalse eksemplare ontbreek selwandknoppies op die sentrale ge= deelte van die apikale vlak. 4, 5. Porieë in die selwand kan waargeneem word.

6. C. subbalteum (p. 408).

1 - 3, 6. : skaal = 10 µm

4, 5 : skaal = 1 µm

(Fig. 163.6 goedgunstig afgestaan deur M.C. Steynberg.)

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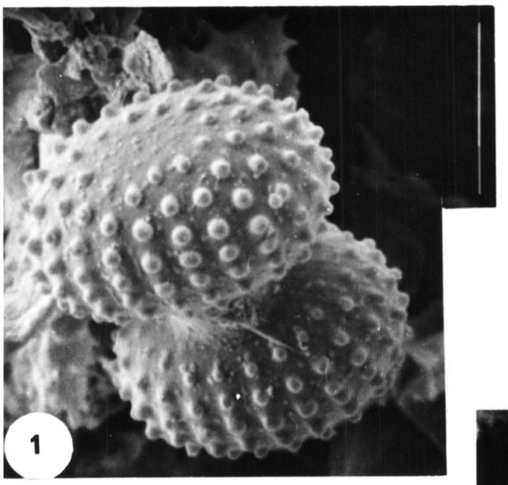

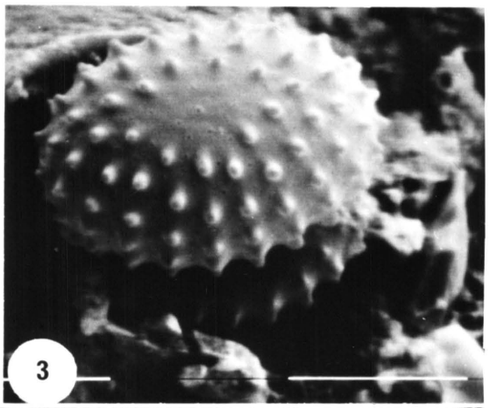

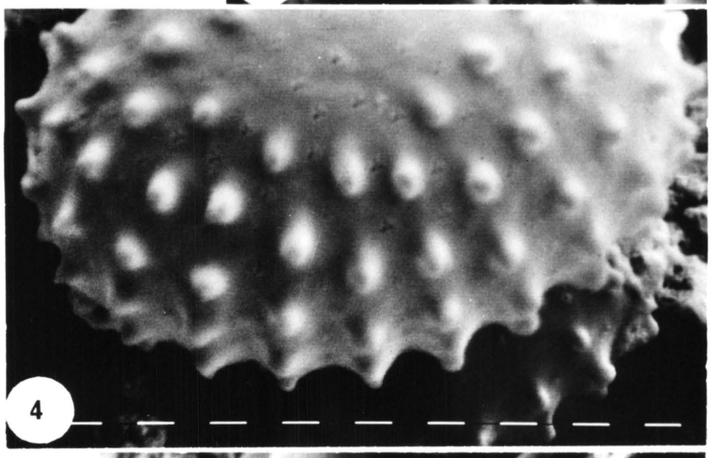

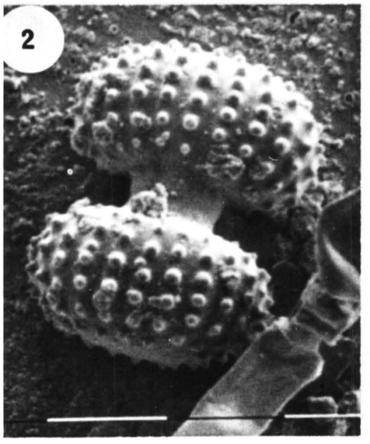

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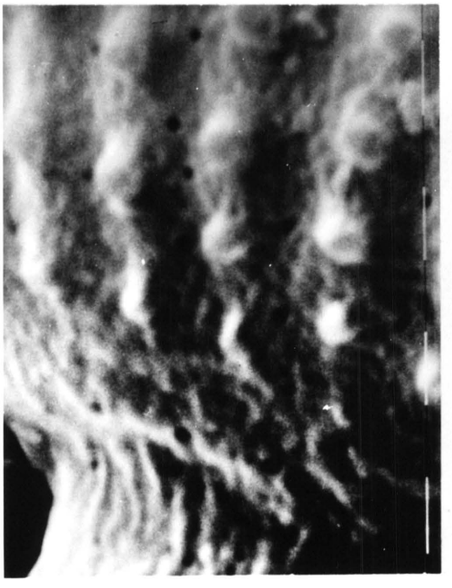

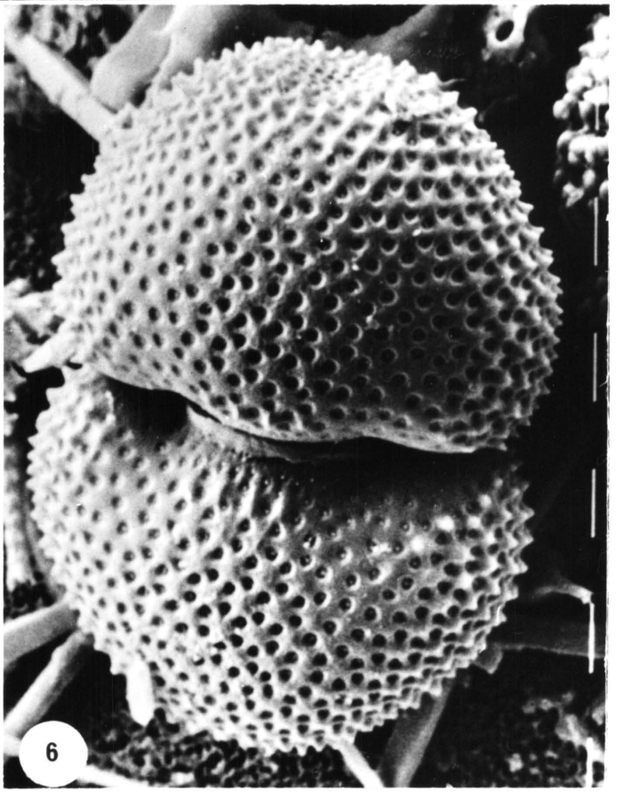

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FIGUUR 164

Aftaselektronmikrograwe van

1 - 6. Cosmarium salisburii (p. 400).
1, 2. Skuins-vooraansig. 3 - 5. Halfselle skuins van bo gesien. 6. Basale aansig van halfsel. 1, 2, 5. Slymafskeidings, wat soos fyn knoppies vertoon, dui die posisie van porieë in die selwand aan.

7. C. subbalteum (p. 408); die onderste halfsel toon slymafskeidings waar porieë in die selwand voorkom.

1 - 3, 5, 6 : skaal = 10 µm
4 : skaal = 1 µm
7 : skaal = 6,66 µm

(Fig. 164.7 goedgunstig afgestaan deur M.C. Steynberg)

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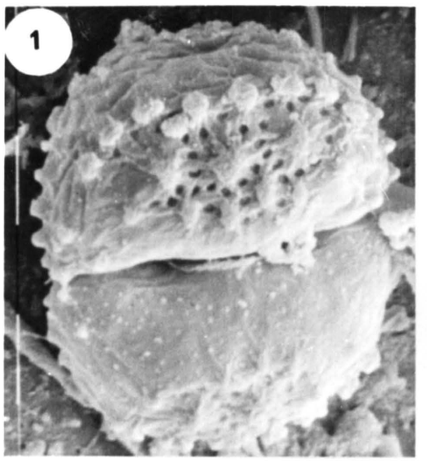

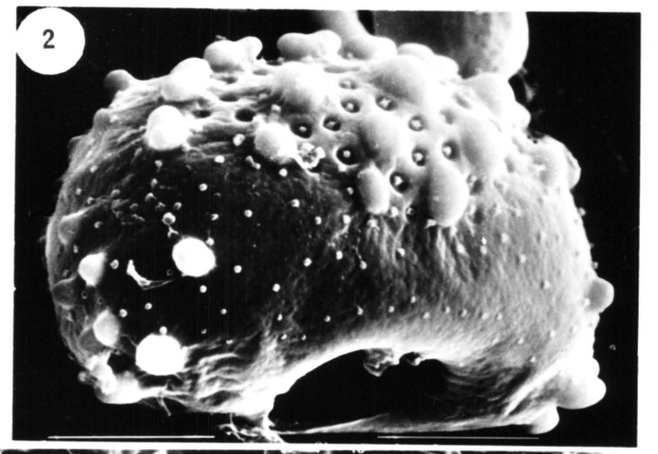

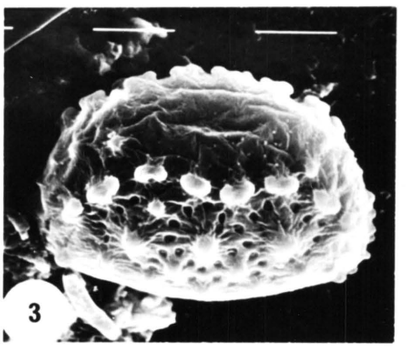

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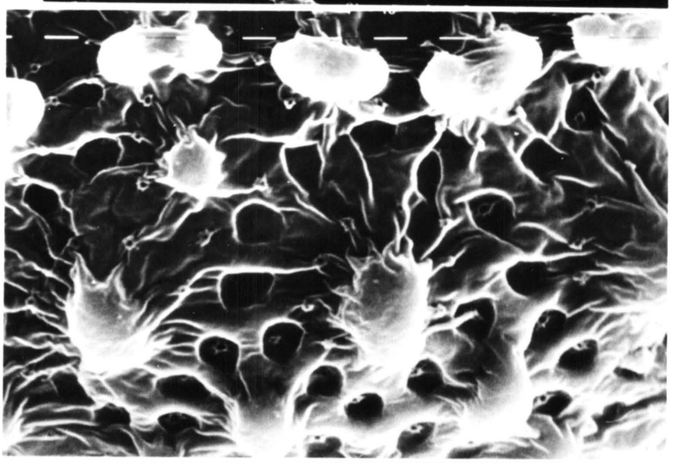

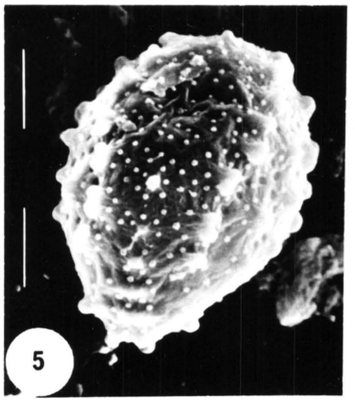

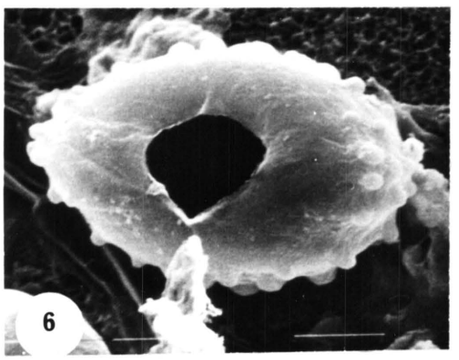

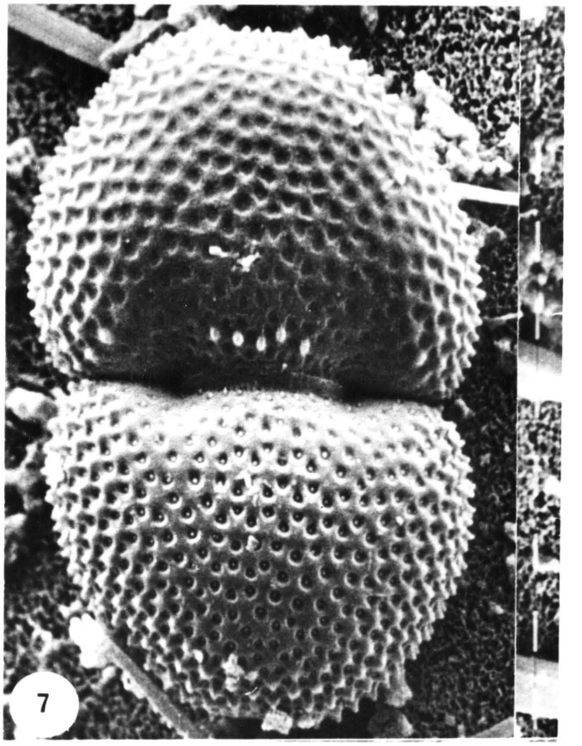

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FIGUUR 165

Fotomikrograwe van

1 - 8. Cosmarium askenasyi var. askenasyi f. undulatum (p. 323). 1 - 5. Selle in voor=aansig; variasie in vorm van halfselle. 6, 7. Syaansig. 8. Vertikale aansig.

9. C. askenasyi forma (p. 323).

10 - 18. C. pseudarmatum (p. 379); vooraansig. 11 - 14. Verskillende fokusinstellings van twee selle om selvorm en selwandskulptuur te toon. 15 - 18. Verskillende fokusinstel=lings van 'n halfsel om die selwandskulptuur te illustreer.

1 - 9 : skaal A

10 - 18 : skaal B

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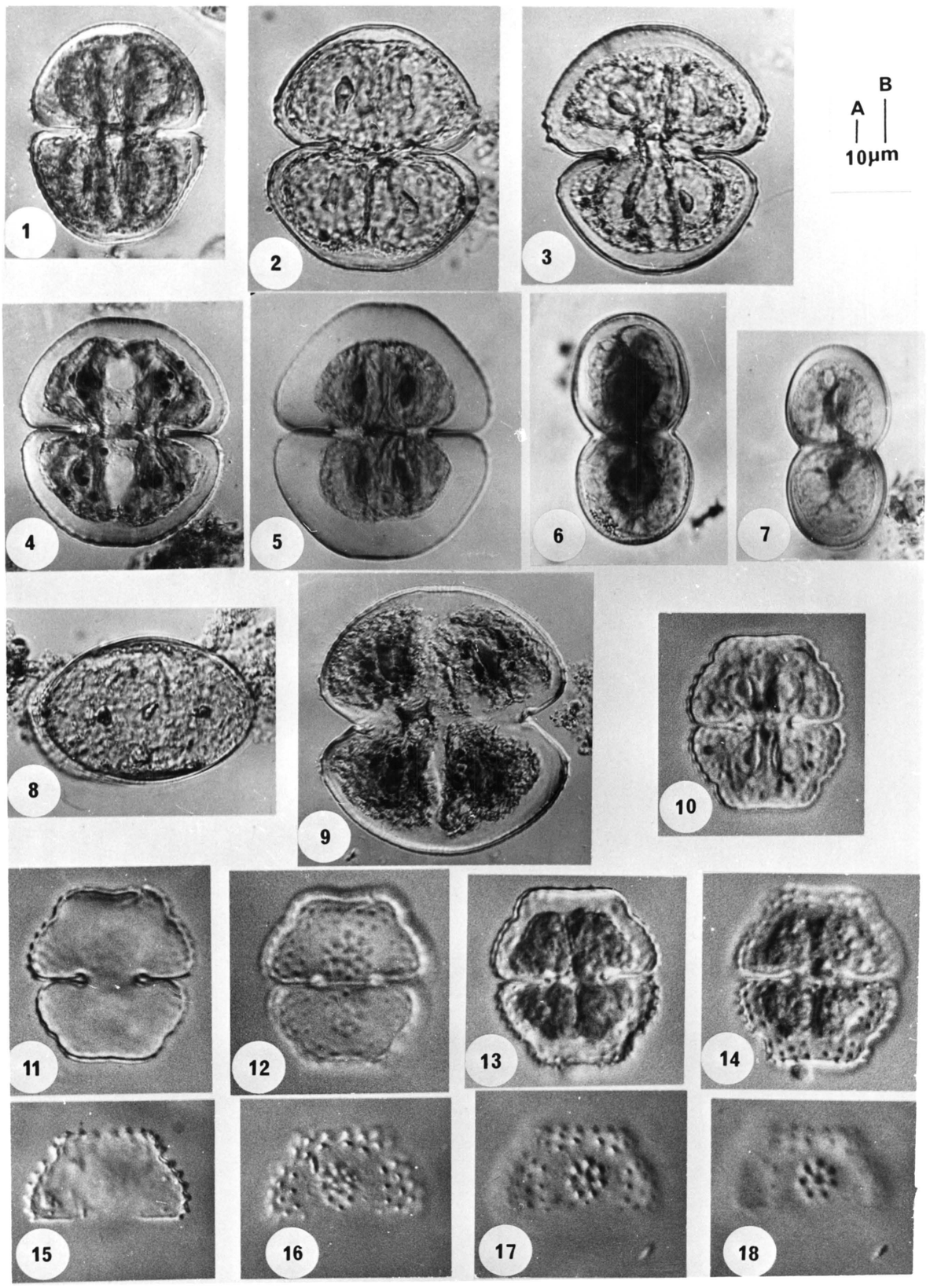

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FIGUUR 166

Fotomikrograwe van

1 - 4. Cosmarium capense (p. 328). 1 - 3. Vooraansig. 4. Syaansig.

5 - 9. C. capense forma? (p. 328). 5, 6. Verskillende fokusinstellings van 'n sel om ook die selwand=skulptuur te toon.

10 - 14. C. monodii (p. 365). 10, 11. Vooraansig. 12. Syaansig. 13, 14. Vertikale aansig; die prominente selwandverdikkings van die sentrale gebied van 'n halfsel kan duidelik waargeneem word.

15, 16. Cosmarium sp. B (p. 426).

1 - 14 : skaal A

15, 16 : skaal B

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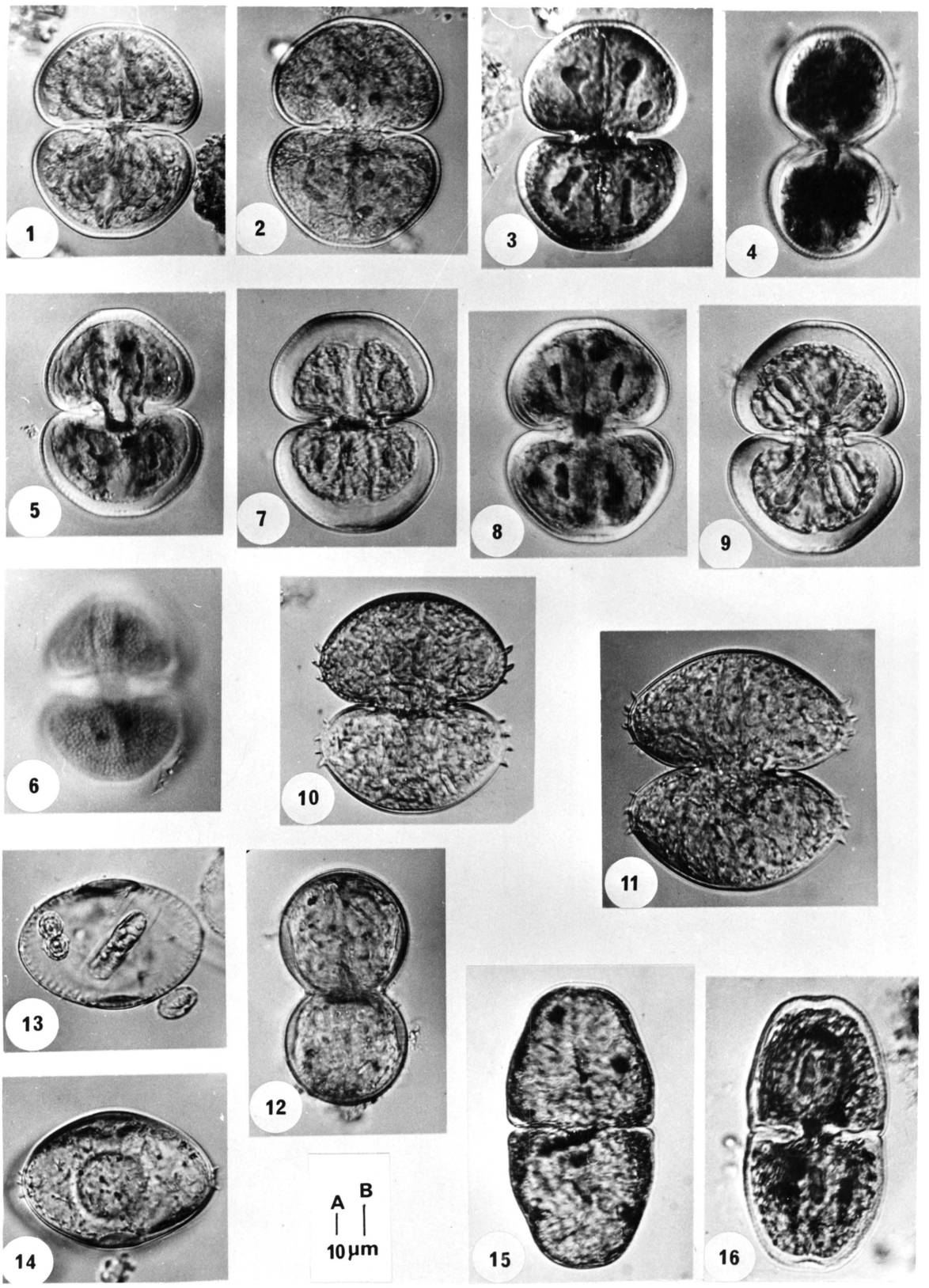

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FIGUUR 167

Fotomikrograwe van

1 - 4. Cosmarium contractum var. cracoviense (p. 332). 1 - 3. Vooraansig. 4. Syaansig.

5 - 7. C. corbula forma (p. 334).

8, 9. C. davidsonii forma (p. 337).

10 - 12. C. davidsonii (p. 336).

13 - 15. C. granatum var. granatum (p. 346).

16 - 18. C. granatum var. mirificum (p. 348).

19. C. granatum var. nordstedtii (p. 349).

20 - 22. C. hammeri (p. 350). 22. Anomaliese onderste halfsel.

23 - 25. C. hornavanense var. undulatum (p. 351); variasie in vorm van halfselle.

26, 27. C. pseudonitidulum (p. 381).

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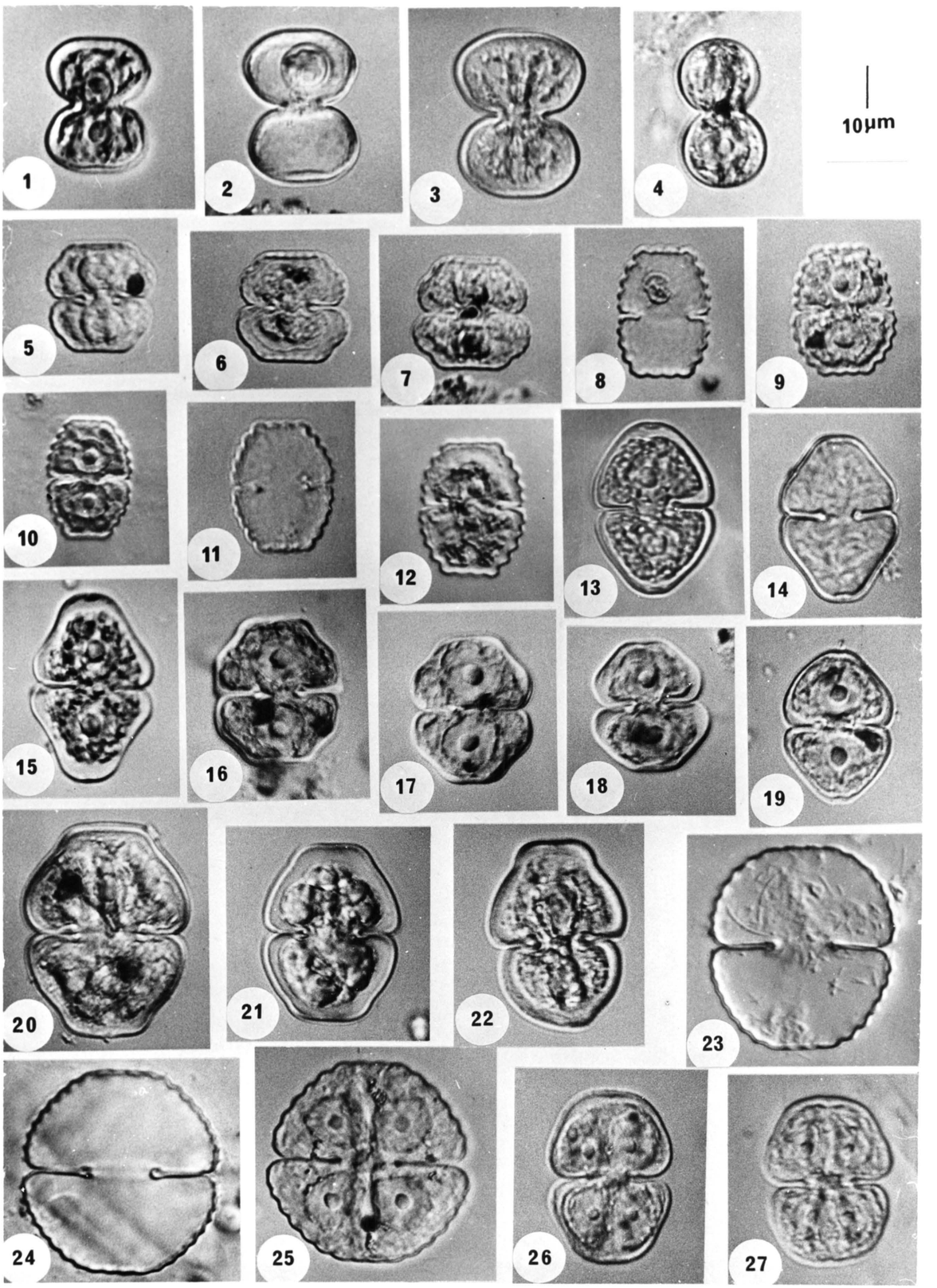

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FIGUUR 168

Fotomikrograwe van

1 - 8. Cosmarium fuellebornei var. connatiforme (p. 345). 1 - 6. Vooraansig; variasie in sinusdiepte en gevolglik variasie in vorm van halfselle. 7, 8. Syaansig.

9 - 14. Cosmarium sp. cf. C. cucumis (p. 335). 9 - 12. Vooraansig. 9, 10. Verskillende fokusinstellings van 'n sel om die selvorm en verspreidliggende porieë in die selwand te toon. 13, 14. Syaansig; variasie in sinusdiepte.

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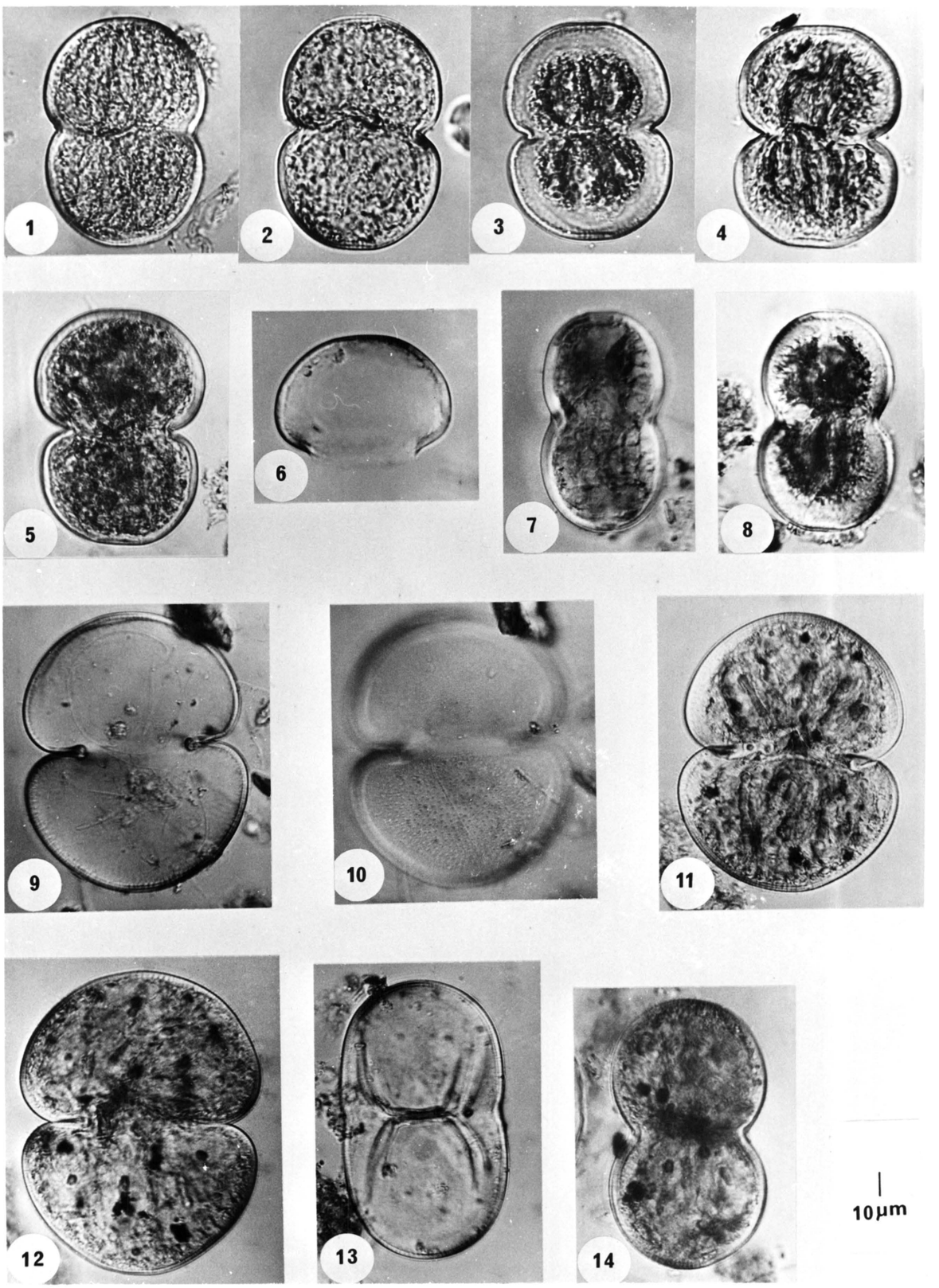

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FIGUUR 169

Fotomikrograwe van

1, 2. Cosmarium moniliforme var. moniliforme (p. 363).

3 - 5. C. moniliforme f. elongatum (p. 365). 3, 4. Vooraansig. 5. Syaansig.

6 - 8. C. multituberculatum (p. 366).

9, 10. C. pokornyanum (p. 376).

11 - 14. C. onychonema var. africanum (p. 370). Verskillende fokusinstellings van twee selle in vooraansig om ook die papille te toon.

15 - 19. C. ortostichum var. pumilum (p. 370); vooraansig. 16 - 19. Verskillende fokus= instellings van twee selle om ook die rang= skikking van die selwandknoppies te toon.

20 - 25. C. portianum (p. 377). 20 - 23. Vooraansig. 24, 25. Syaansig.

26 - 28. C. rectangulare var. hexagonum (p. 394).

1 - 25 : skaal A

26 - 28 : skaal B

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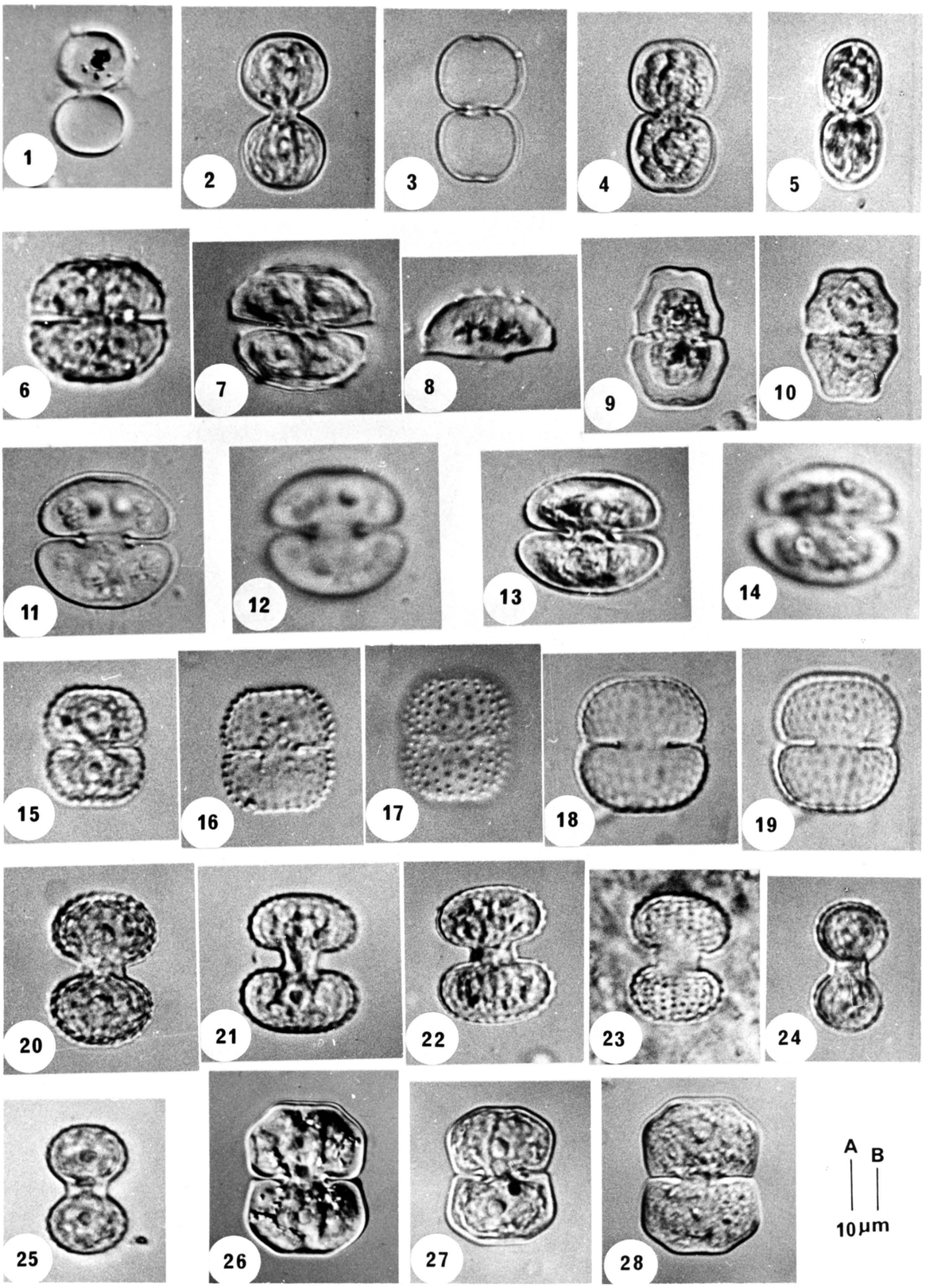

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FIGUUR 170

Fotomikrograwe van

1 - 4. Cosmarium pseudoprotuberans var. pseudoprotuberans (p. 382).

5. C. pseudoprotuberans var. angustius (p. 383).

6 - 8. C. reniforme (p. 397).

9, 10. C. repandum (p. 398).

11 - 13. C. retusiforme var. africanum (p. 398).

14. C. retusiforme var. incrassatum (p. 399).

15 - 18. C. subcrenatum forma (p. 410).
17, 18. Verskillende fokusinstellings van 'n sel.

19, 20. C. subprotumidum var. subprotumidum (p. 410).

21, 22. C. subprotumidum var. gregorii (p. 411).

23. Cosmarium sp. A (p. 425).

1 - 5, 11 - 14	:	skaal A
6 - 8	:	skaal B
9, 10	:	skaal C
15 - 22	:	skaal D
23	:	skaal E

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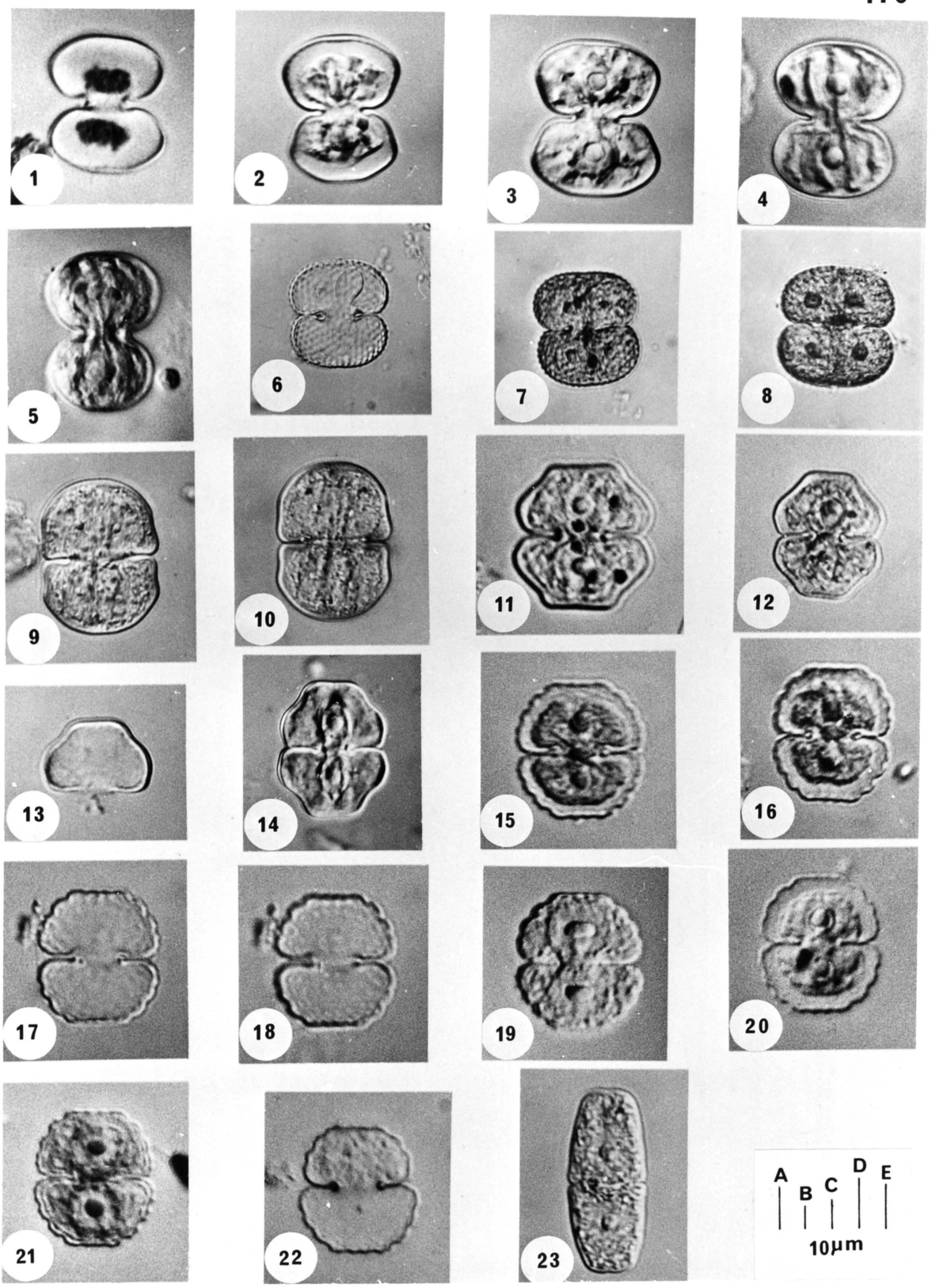

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FIGUUR 171

Fotomikrograwe van

1 - 5. Cosmarium speciosum var. biforme (p. 402). 1, 2. Verskillende fokusinstellings van 'n sel om die chloroplaste met pirenoïede en die vertikale reekse selwandknoppies (Fig. 171: 2, teenoor pyltjie) te toon. 3 - 5. Verskillende fokusinstellings van 'n sel wat die selvorm en radiale reekse selwandknoppies toon.

6 - 9. C. speciosum var. simplex (p. 403). 6, 7. Verskillende fokusinstellings van 'n sel in vooraansig om die selvorm en selwandskulptuur te toon. 8, 9. Verskillende fokusinstellings van 'n sel in syaansig.

10, 11. C. subauriculatum (p. 408).

12 - 14. C. subspeciosum var. validius (p. 412). 12, 13. Verskillende fokusinstellings van 'n sel om die radiale reekse selwandknoppies te toon.

15 - 17. C. sulcatum var. compressum forma (p. 414); variasie in pirenoïedgrootte.

18 - 21. C. tetragonum var. ornatum (p. 416); vooraansig 18, 19. Verskillende fokusinstellings van twee selle om chloroplaste en pirenoïede te toon. 20, 21. Selwandskulptuur; die pyltjie (Fig. 171: 21) dui die basale papil bokant die istmus aan.

1 - 5, 10 - 17 : skaal A 6 - 9 : skaal B
18 - 21 : skaal C

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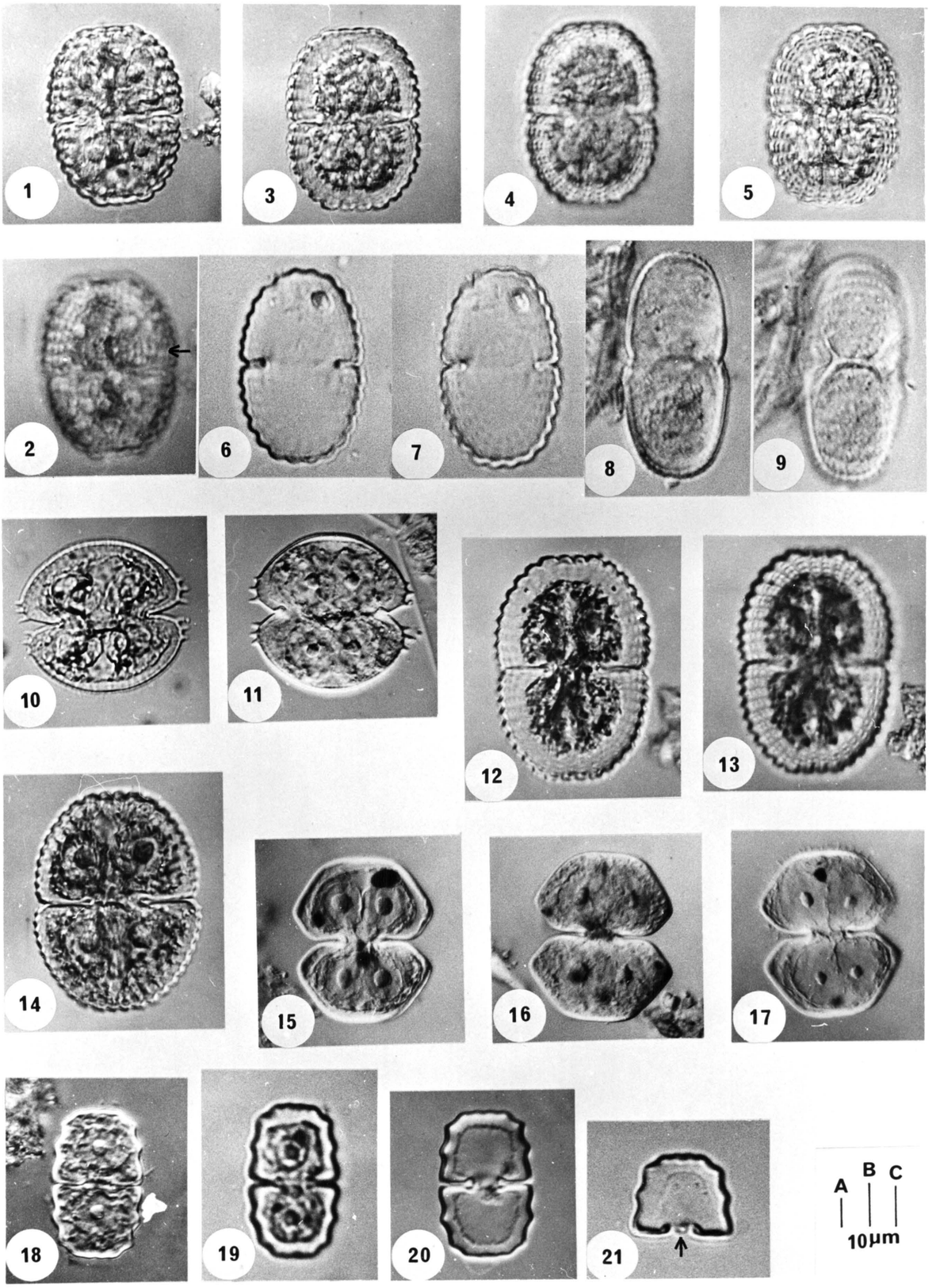

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FIGUUR 172

Fotomikrograwe van

1 - 7. Cosmarium stappersii f. stappersii (p. 403).
1 - 6. Selle in vooraansig om variasie in selgrootte en vorm van halfselle te toon.
7. Syaansig.

8 - 13. C. stappersii f. dilatatum (p. 404).
12, 13. Verskillende fokusinstellings van 'n sel om ook die selwandskulptuur te toon.

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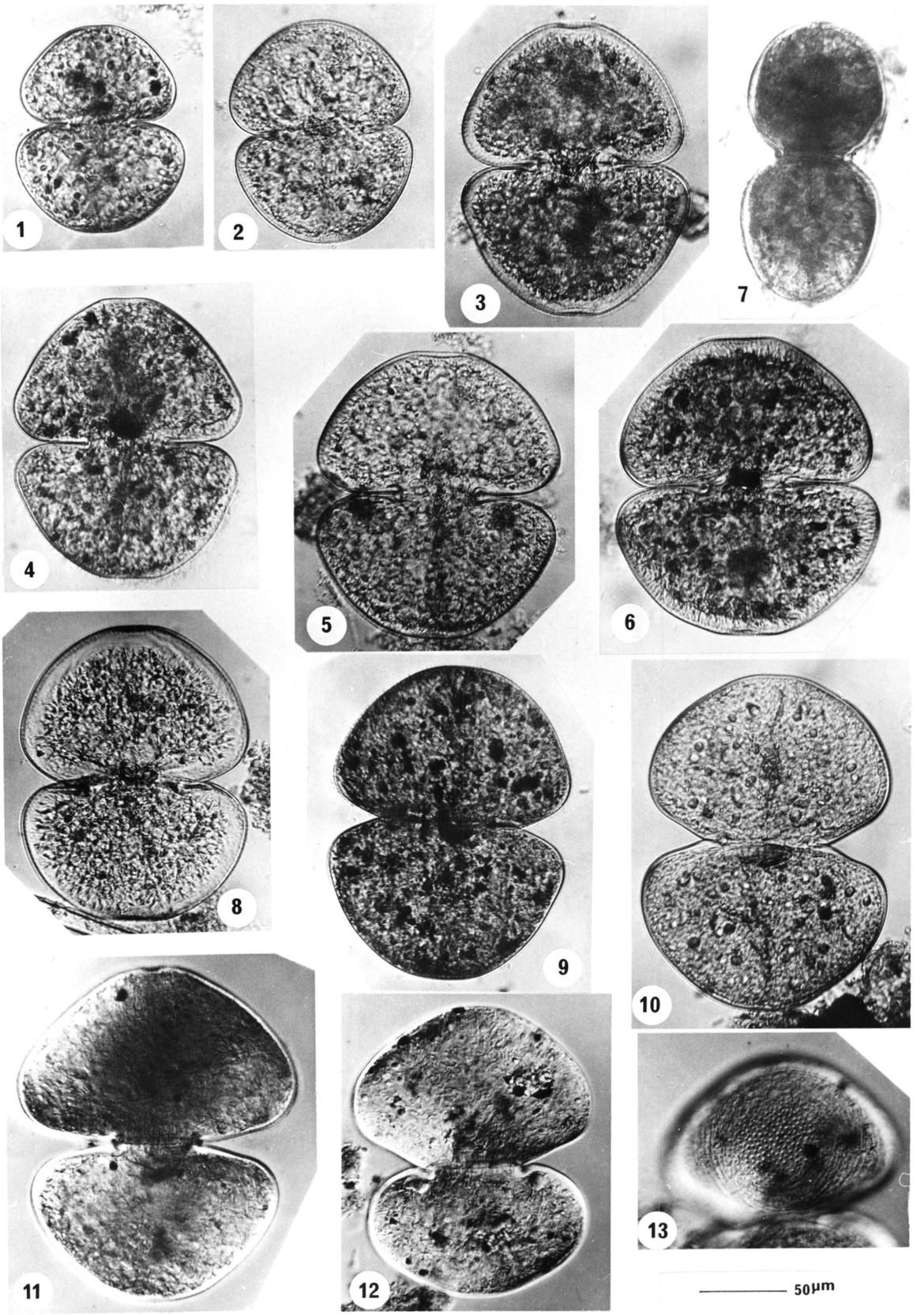
172



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FIGUUR 173

Fotomikrograwe van

1, 2. Cosmarium lundellii var. nyassae (p. 357). 2. Porieë in selwand.

3. C. stappersii forma? (p. 405).

4 - 8. C. subbalteum (p. 408). 4 - 6. Vooraansig; variasie in selvorm. 4, 5. Verskillende fokusinstellings van 'n sel om die selwand=skulptuur te toon. 7, 8. Voor- en syaansig onderskeidelik van 'n sel wat 'n seldeling=stadium verteenwoordig.

1 - 3 : skaal A

4 - 8 : skaal B

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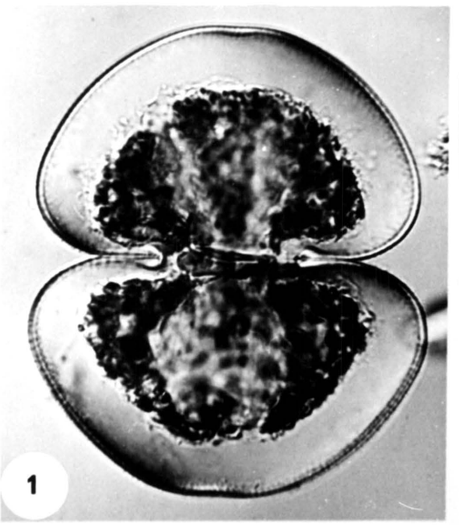
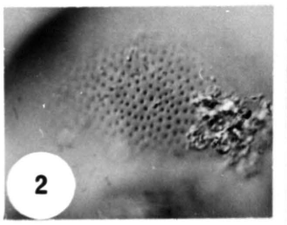
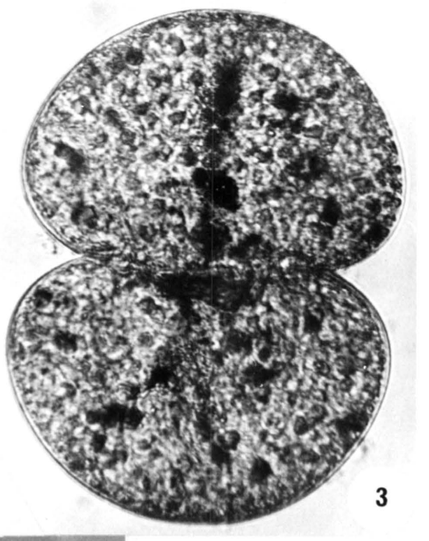
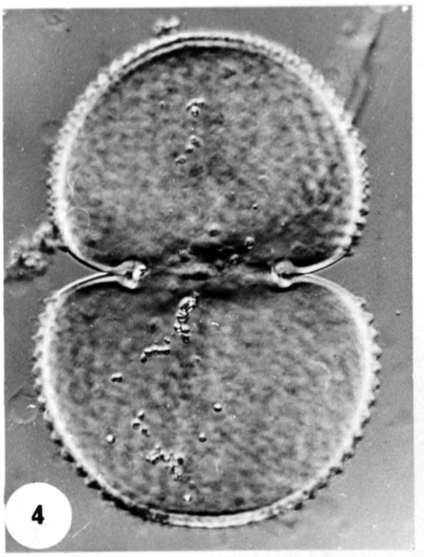
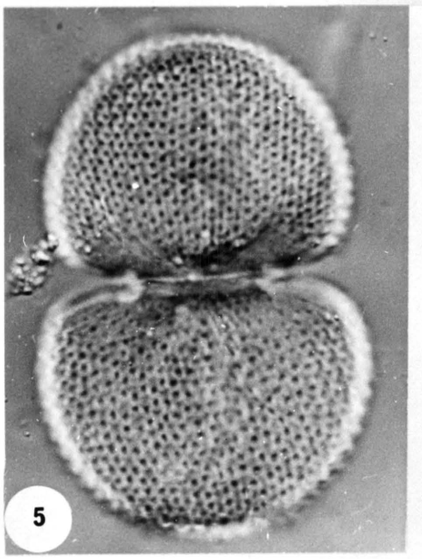


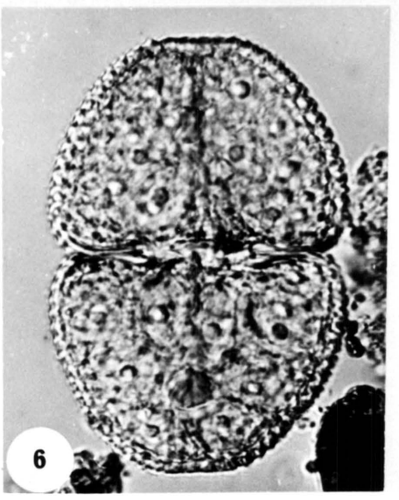


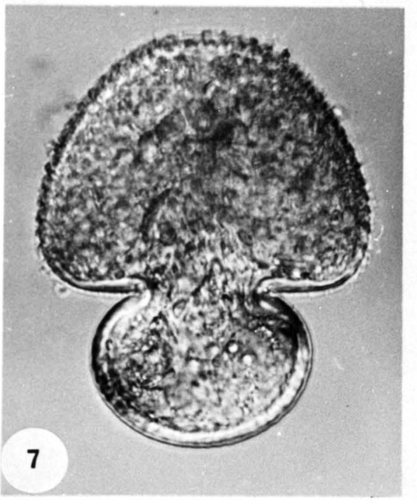


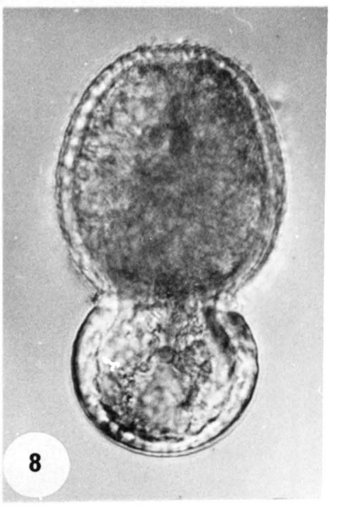




A B
10 µm







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FIGUUR 174

Fotomikrograwe van

1 - 8. Cosmarium stigmosum var. biundatum (p. 405). 1 - 3. Vooraansig. 4 - 8. Vertikale aansig. 4, 5. Verskillende fokusinstellings van 'n sel.

9 - 19. C. striolatum var. nordstedtii f. glyptodermum (p. 406). 9 - 11. Vooraansig. 10, 11. Verskillende fokusinstellings van 'n sel om die selvorm en die rangskikking van die selwandknoppies te toon. 12 - 16. Syaansig. 12 - 15. Verskillende fokusinstellings van 'n sel om die selwandskulptuur, en veral die holgeaardheid van die selwandknoppies, te illustreer. 17, 18. Verskillende fokusinstellings van 'n sel in vertikale aansig. 19. Basale aansig van 'n halfsel.

1 - 8 : skaal A

9 - 19 : skaal B

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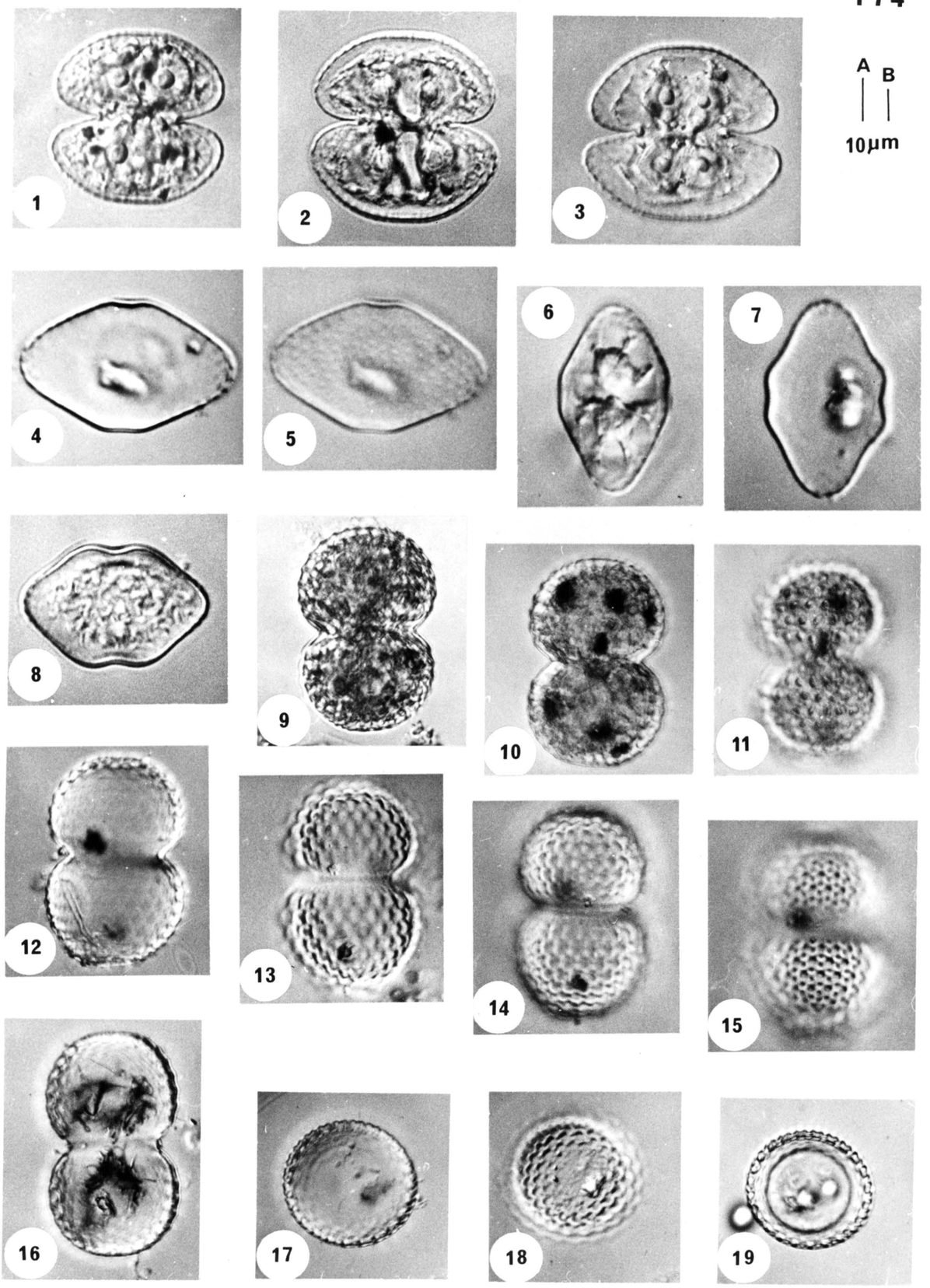

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FIGUUR 175

Fotomikrograwe van

1 - 7. Cosmarium subtumidum (p. 412). 1 - 3. Voor=aansig. 4, 5. Syaansig. 6, 7. Verskillende fokusinstellings van 'n sel in vertikale aansig om die vorm en selwandskulptuur te toon.

8 - 10. C. trilobulatum var. trilobulatum (p. 422).

11, 12. C. trilobulatum var. abscissum (p. 423).

13 - 23. C. varsoviense var. tirolense (p. 423). 13 - 18. Selle in vooraansig om variasie te toon. 19, 20. Syaansig. 21 - 23. Verti=kale aansig. 22, 23. Verskillende fokusinstel=lings van 'n sel.

1 - 12 : skaal A

13 - 23 : skaal B

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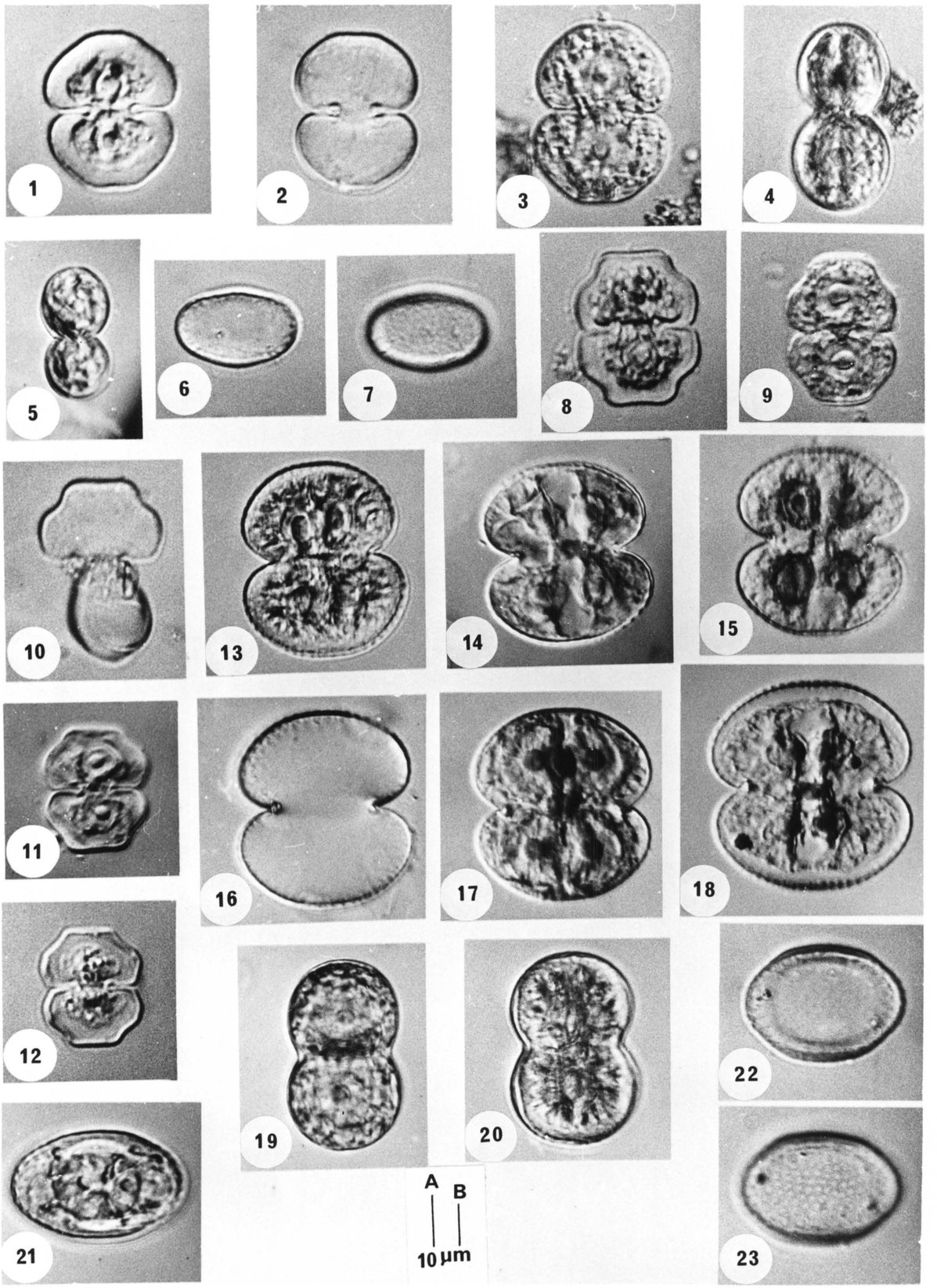

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FIGUUR 176

Fotomikrograwe van

1 - 10. Cosmarium thomassonii (p. 417).
1 - 6. Verskillende fokusinstellings van 'n sel in vooraansig, syaansig en vertikale aansig onderskeidelik om die selvorm in die verskillende aansigte en die selwandskulptuur te toon. 7, 8. Verskillende fokusinstellings van 'n sel in vooraansig, die pyltjies (Fig. 176: 8) dui sommige van die verspreidliggende pirenoïede aan. 9. Syaansig van die sel (Fig. 176: 7). 10. Vooraansig.

11. C. pachydermum var. aethiopicum (p. 372).

12 - 16. C. thwaitesii var. penioides forma (p. 418).
12, 13, 15. Vooraansig. 14, 16. Syaansig van selle in figuur 176: 13 en 176: 15 onderskeidelik.

1 - 11 : skaal A

12 - 16 : skaal B

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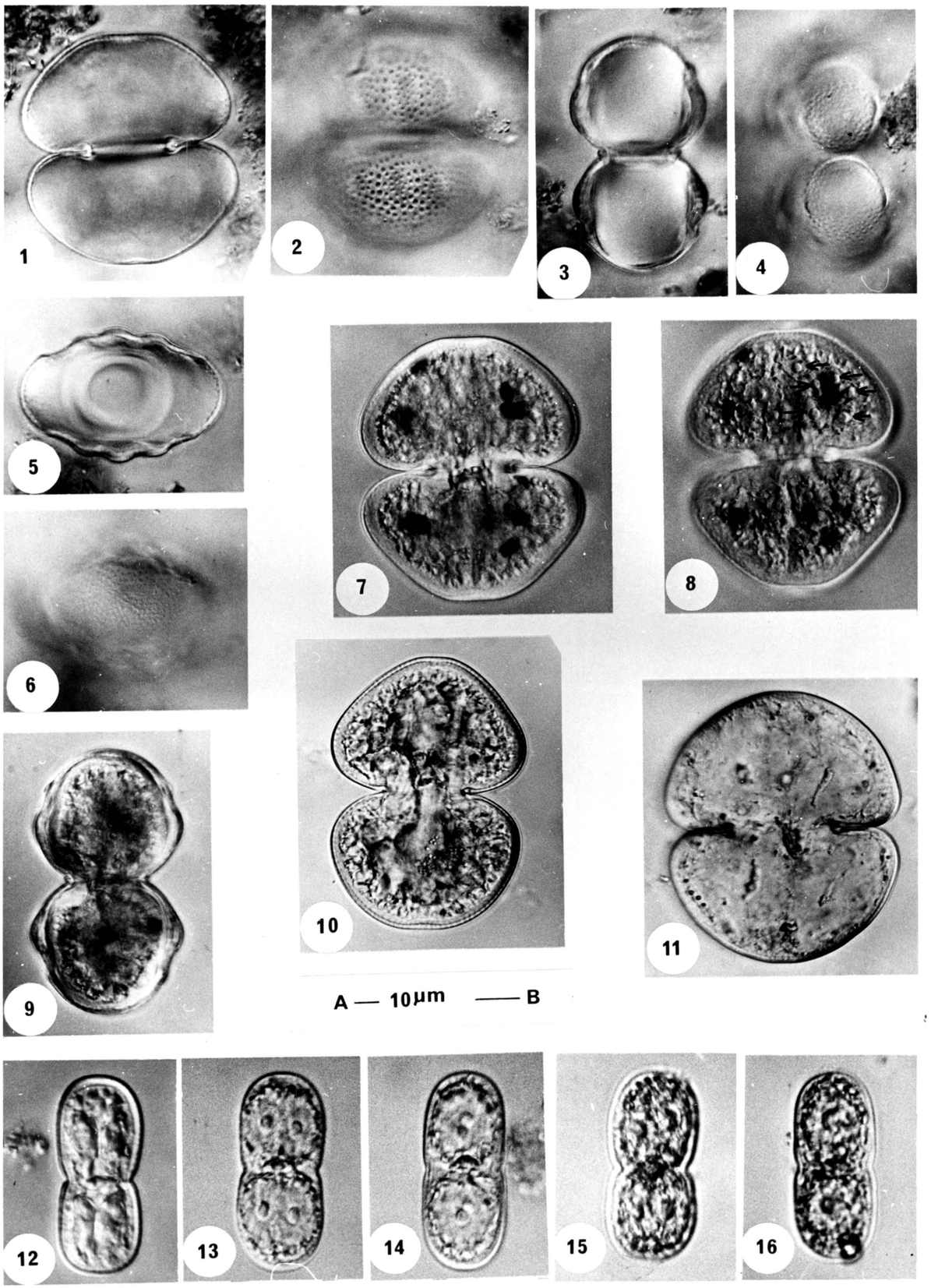

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FIGUUR 177

Fotomikrograwe van

1 - 17. Cosmarium trachypleurum var. natalensis f. natalensis (p. 419). 1 - 5. Selle in voor=aansig om selvorm en geaardheid van selwand=stekels te toon. 6, 7. Vooraansig om sel=wandskulptuur te toon. 8 - 11. Syaansig. 10, 11. Verskillende fokusinstellings van 'n sel. 12 - 17. Verskillende fokusinstel=lings van drie selle in vertikale aansig om selwandskulptuur te toon.

18. C. tatricum var. novizelandicum (p. 415).

19 - 21. C. tatricum var. skujae (p. 415). 19, 20. Vooraansig. 21. Syaansig.

1 - 17 : skaal A

18 - 21 : skaal B

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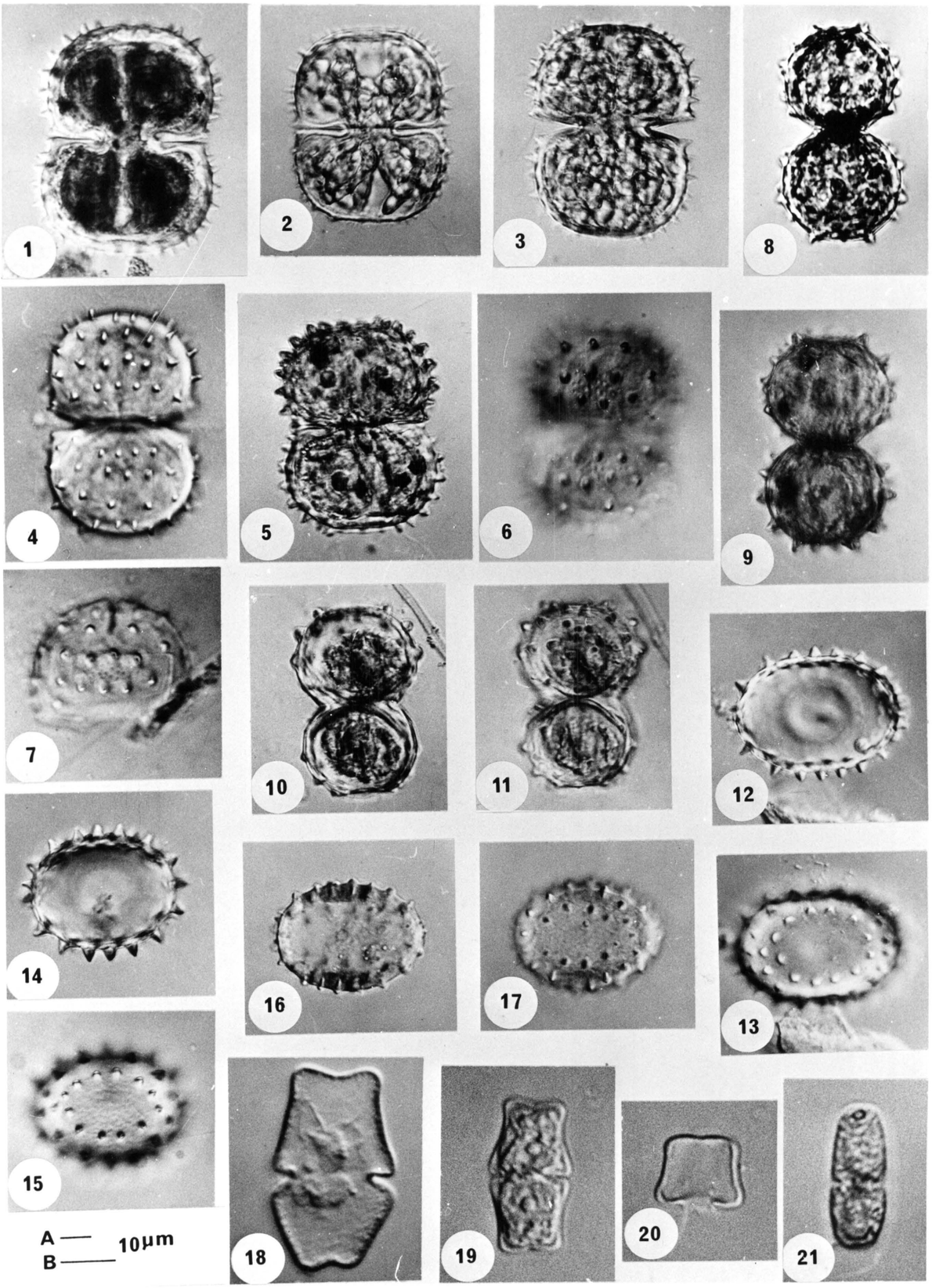

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FIGUUR 178

Fotomikrograwe van

1 - 9. Cosmarium trachypleurum var. natalensis f. minus (p. 420). 1 - 6. Verskillende fokusinstellings van selle in vooraansig om die selvorm en rang=skikking van die selwandstekeltjies te toon. 7. Syaansig. 8, 9. Verskillende fokusinstel=lings van 'n sel in vertikale aansig.

10 - 15. C. trachypleurum var. subspinosum (p. 421). 10 - 13. Vooraansig. 10 - 12. Verskillende fokusinstellings van 'n halfsel om die selwand=skulptuur te toon. 14, 15. Verskillende fokusinstellings van 'n sel in vertikale aansig.

16 - 20. C. salisburii (p. 400). 16 - 18. Vooraansig. 17. Subapikale selwandknoppies. 18. Selwandskulptuur. 19, 20. Verskillende fokusinstellings van 'n sel in vertikale aansig.

1 - 15 : skaal A
16 - 20 : skaal B

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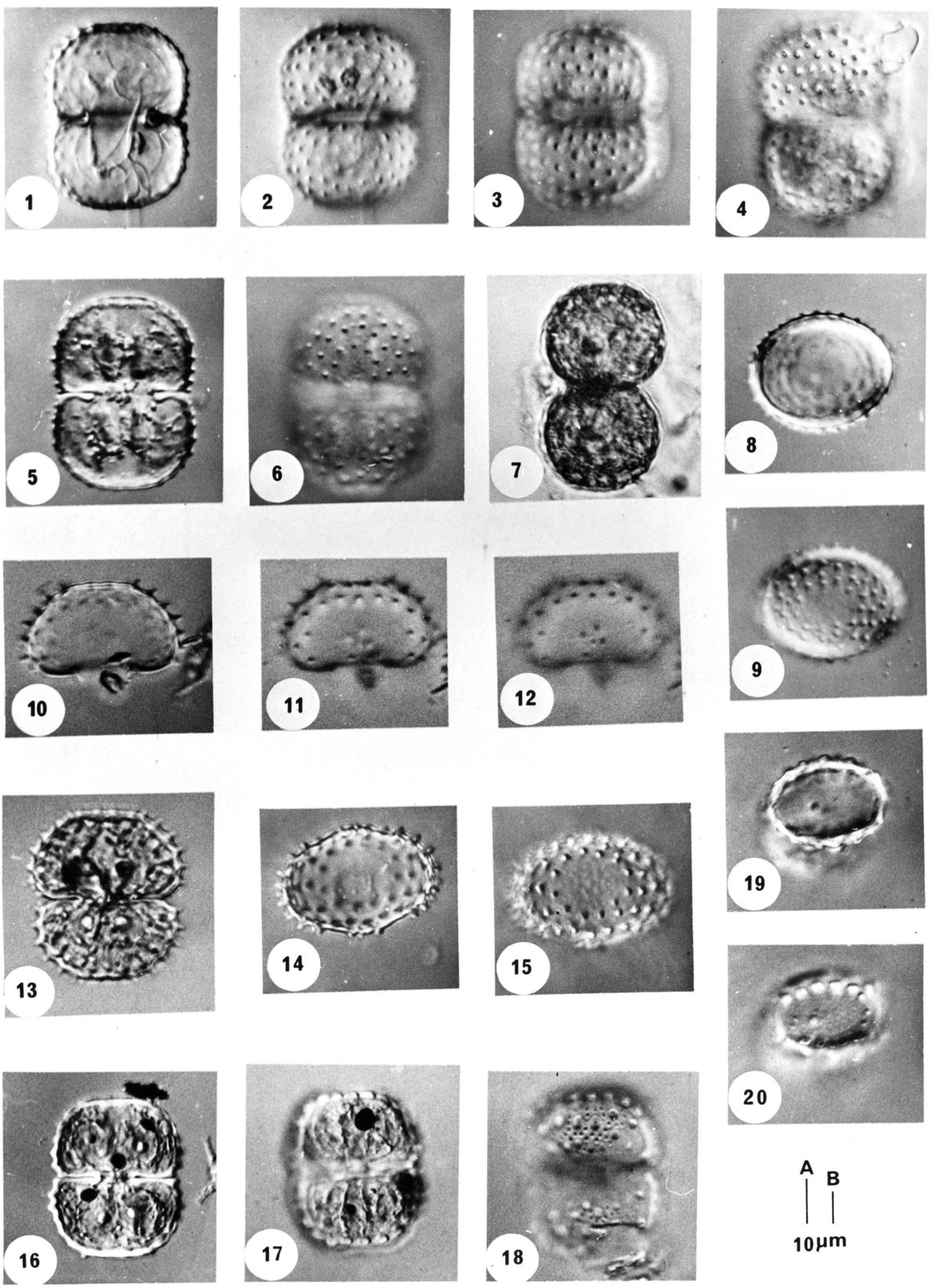

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FIGUUR 179

Fotomikrograwe van

1. Cosmarium vexatum (p. 424).

2 - 4. C. vexatum forma (p. 425).

5 - 10. C. debaryi var. maximum forma (p. 337). 5, 6, 10. Vooraansig. 7, 8. Voor- en sy=aansig van 'n sel. 9. Anomalie. Die pyltjies dui pirenoïede aan (Fig. 179: 5).

11 - 16. Cosmarium sp. C (p. 426); vooraansig. 11, 13, 14. Variasie in vorm van halfselle. 11, 12. Verskillende fokus=instellings van 'n sel om die radiale reekse selwandknoppies te toon. 14, 15. Verskil=lende fokusinstellings van 'n sel om die selwandskulptuur te toon; onderste halfsel anomalies. 16. Vertikale reekse selwand=knoppies op sentrale gebied van halfselle.

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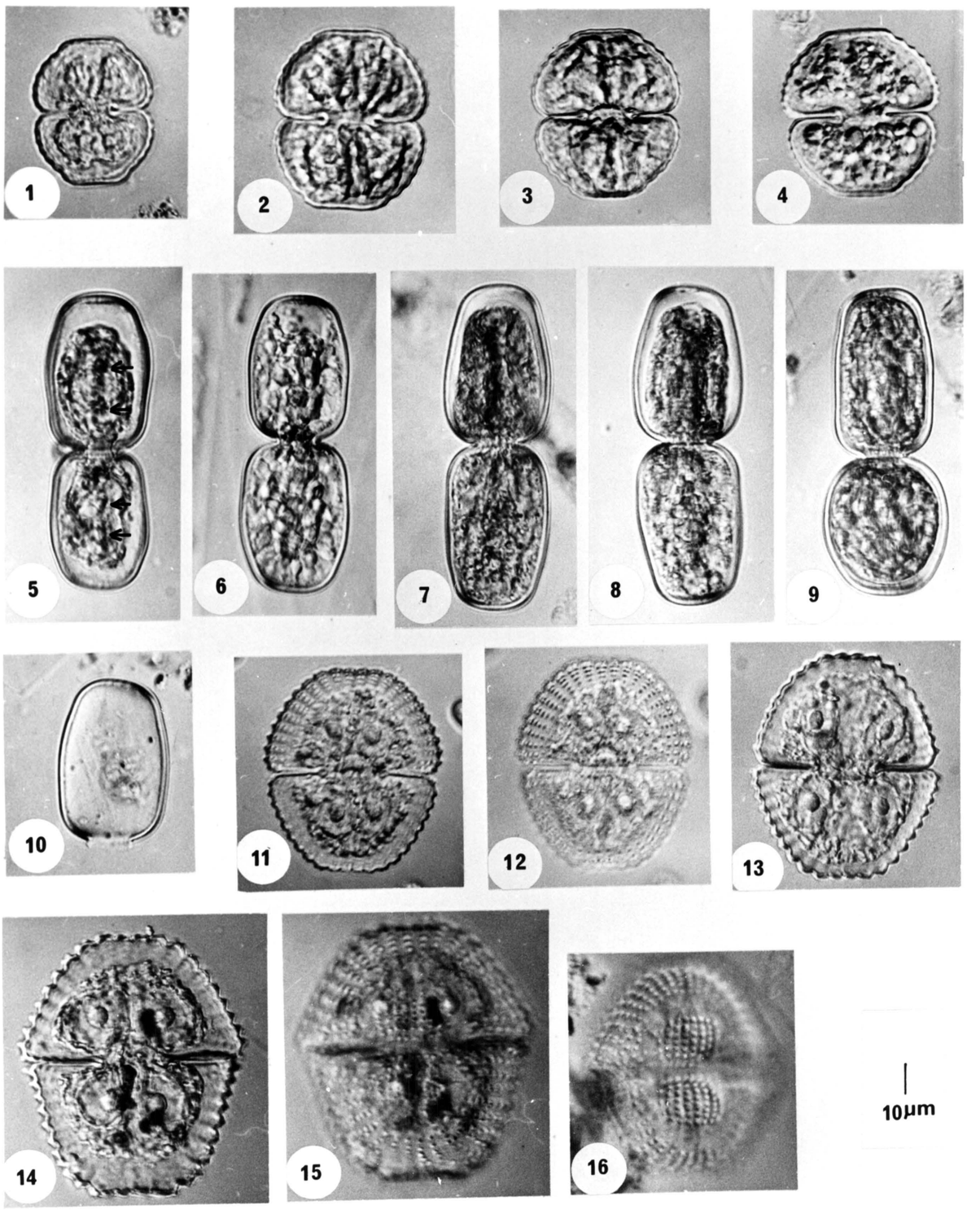

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FIGUUR 180

Aftaselektronmikrograwe van

1 - 4. Cosmarium davidsonii (p. 336); verskillende vergrotings om die rangskikking van die selwandknoppies en porieë te toon, die knoppies nader aan die omtrek van die sel is tweelobbig en elkeen vertoon soos twee knoppies wat naby mekaar geleë is.

5, 6. C. fuellebornei var. connatiforme (p. 345).
6. Verspreidliggende porieë.

1, 2, 5, 6 : skaal = 10 µm
3, 4 : skaal = 1 µm

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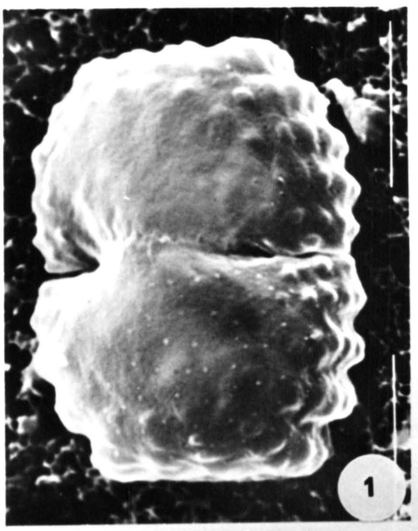

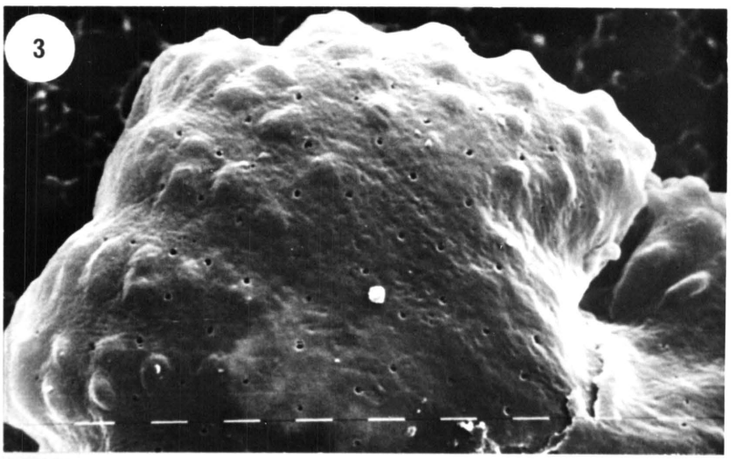

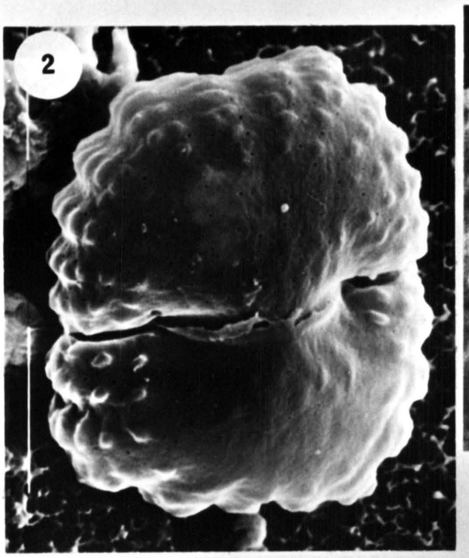

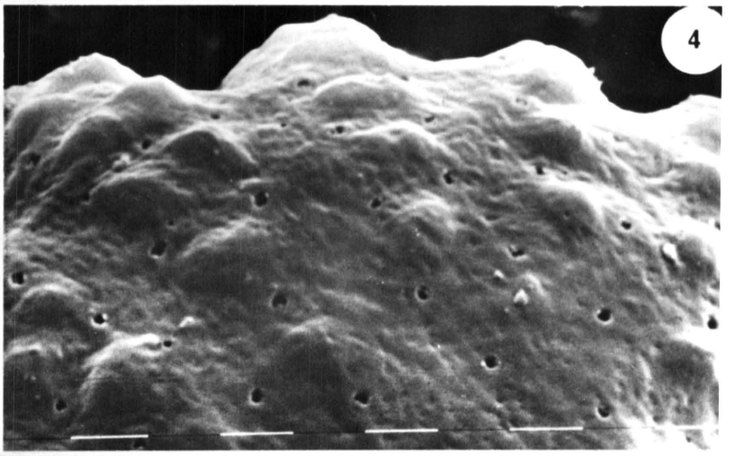

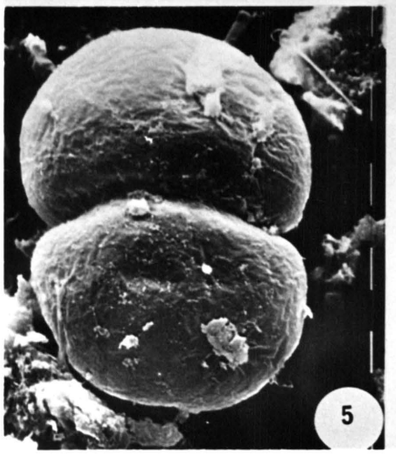

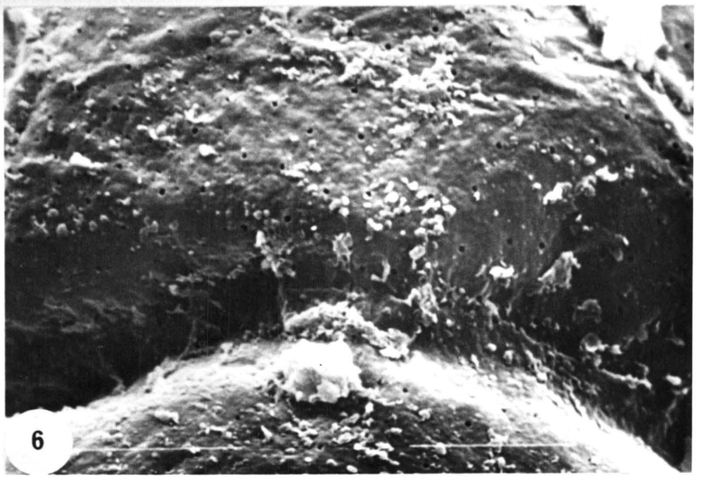

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FIGUUR 181

Aftaselektronmikrografe van

1, 2. Cosmarium monodii (p. 365). 1. Gedeelte van sel in vooraansig. 2. Skulptuur van sentrale selwandverdikking bokant istmus, die dunner gedeelte van die selwand het inmekaargekrimp.

3, 4. C. varsoviense var. tirolense (p. 423). 3. Die porieë kom in klein uitstulpings van die selwand voor.

5. C. subauriculatum (p. 408).

6. C. trachypleurum var. subspinosum (p. 421); rangskikking van selwandstekels en porieë.

1 - 6 : skaal = 10 µm

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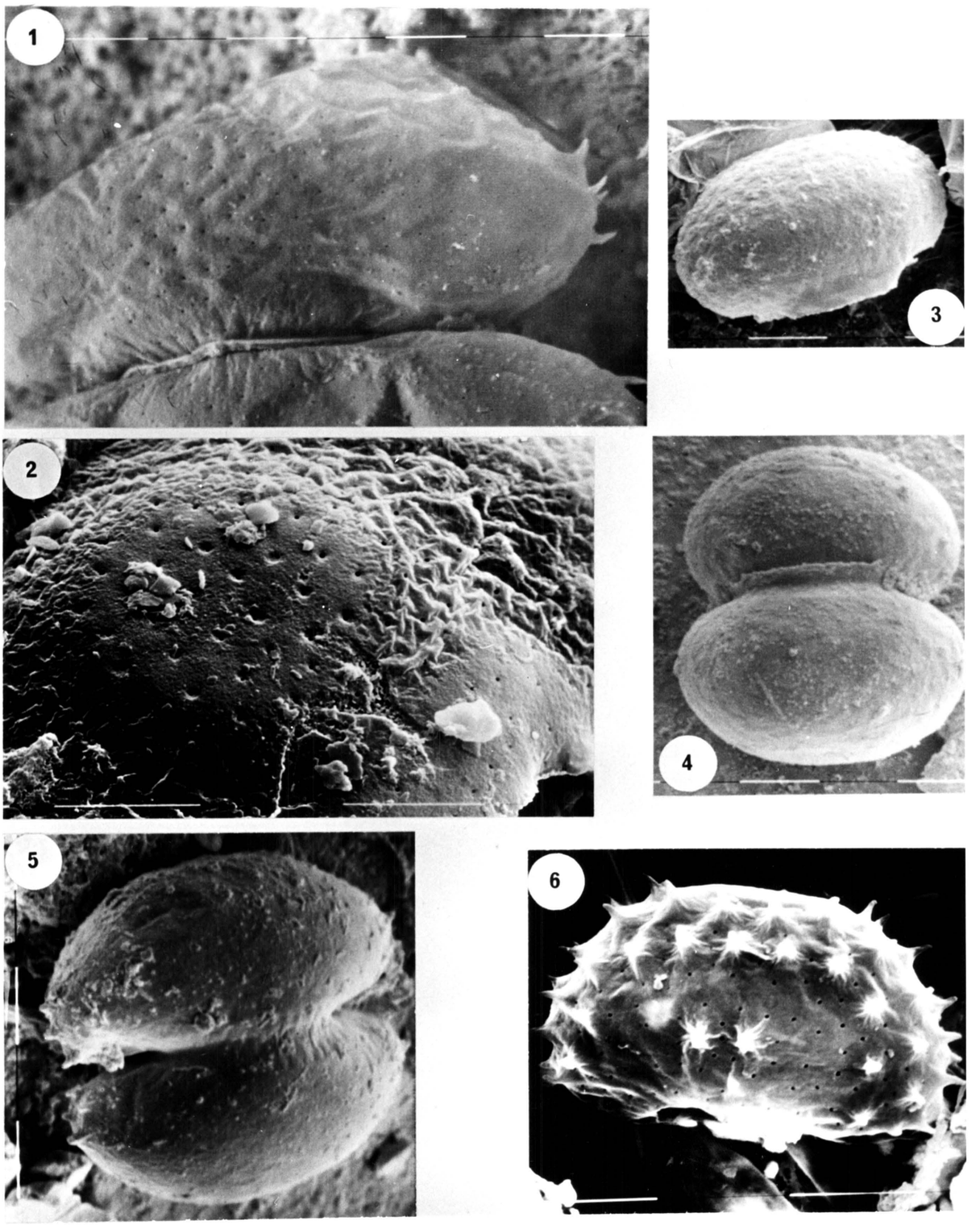

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FIGUUR 182

Aftaselektronmikrograwe van

1 - 5. Cosmarium pseudarmatum (p. 379).
1 - 4. Vooraansig; verskillende vergrotings om selwandskulptuur te illustreer. In die selwandinduikings van die sentrale versiering kom sirkelvormige struktuurtjies voor wat soos porieë vertoon (Fig. 182: 4, met pyltjie aangedui). 5. Halfsel skuins van bo gesien.

6. C. stigmosum var. biundatum (p. 405).

1, 2, 5, 6 : skaal = 10 µm

3, 4 : skaal = 1 µm

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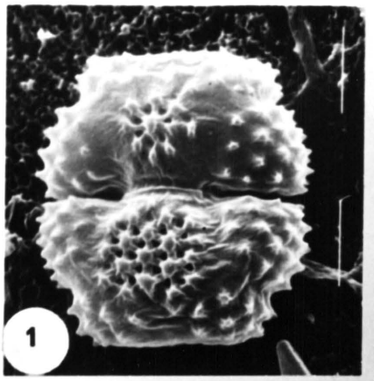

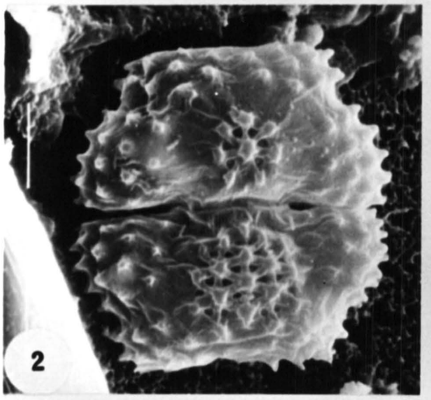

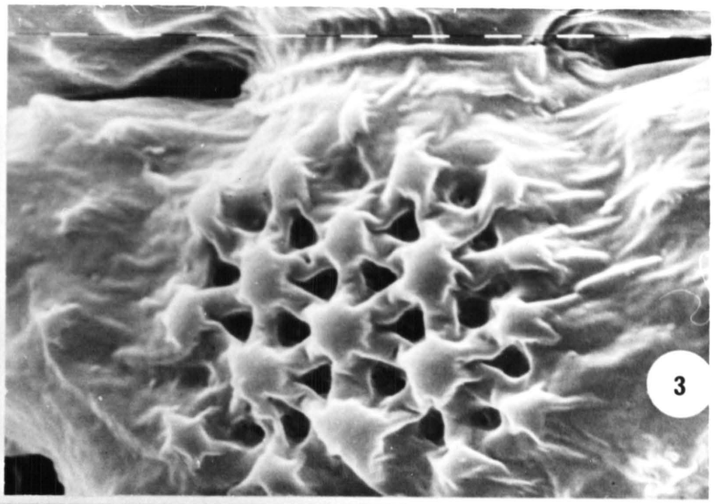

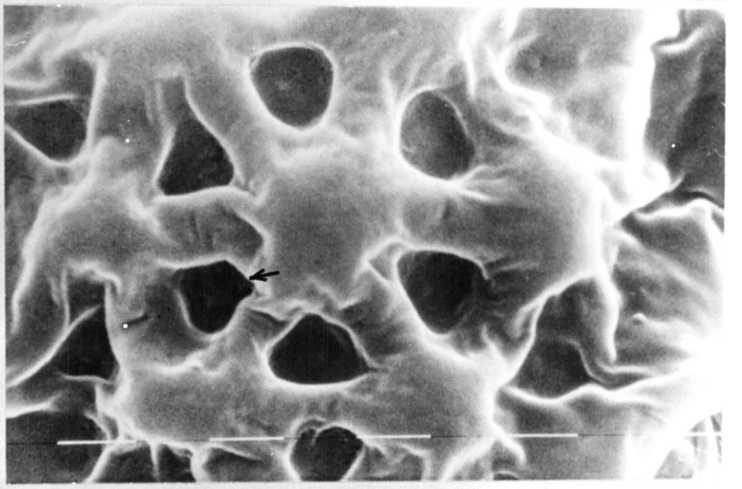

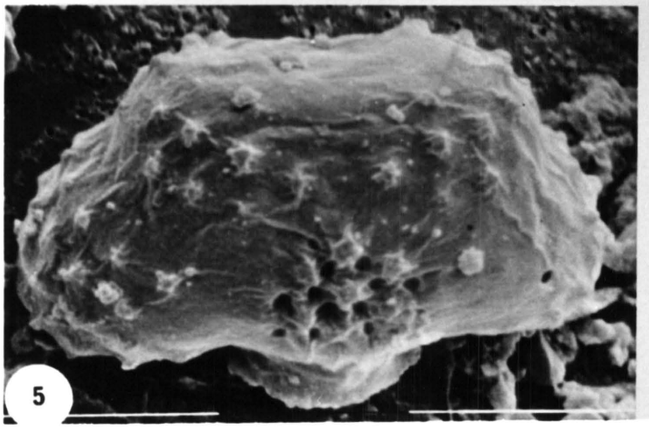

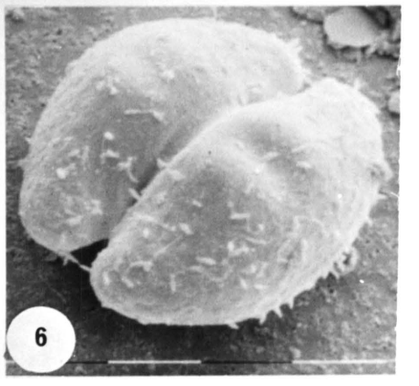

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FIGUUR 183

1 - 7. Aftaselektronmikrograwe van Cosmarium striolatum var. nordstedtii f. glyptodermum (p. 406).
1 - 6. Selwandskulptuur. 1 - 3. Vooraansig.
4. Vertikale aansig. 5. Syaansig.
6. Basale aansig van halfsel.
7. Twee konjugerende selle met 'n sigoot.

1, 2, 5 - 7 : skaal = 10 µm

3, 4 : skaal = 1 µm

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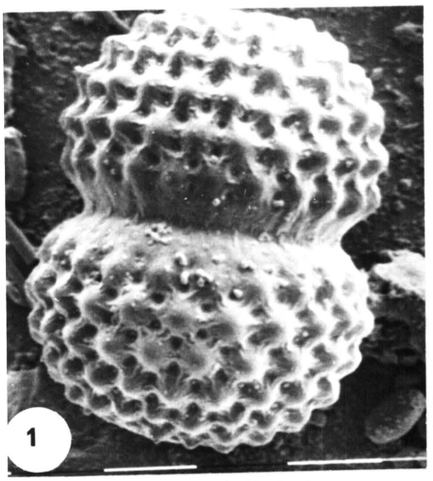

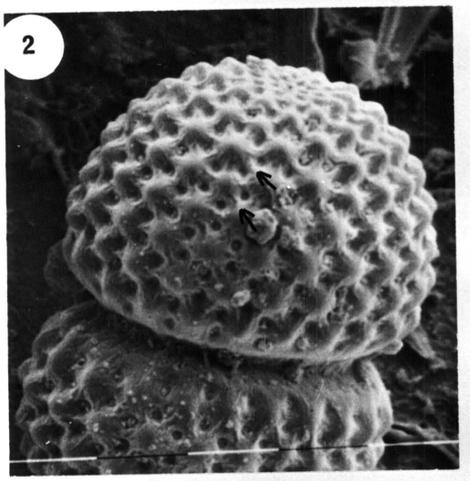

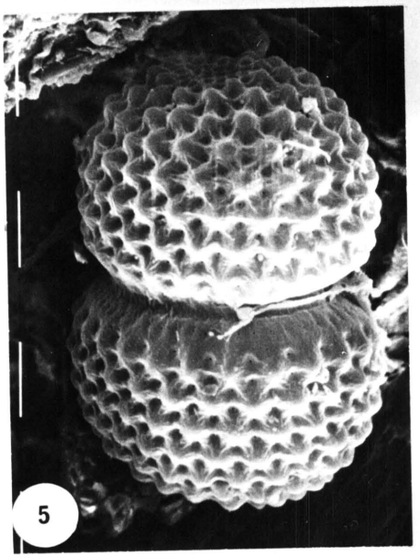

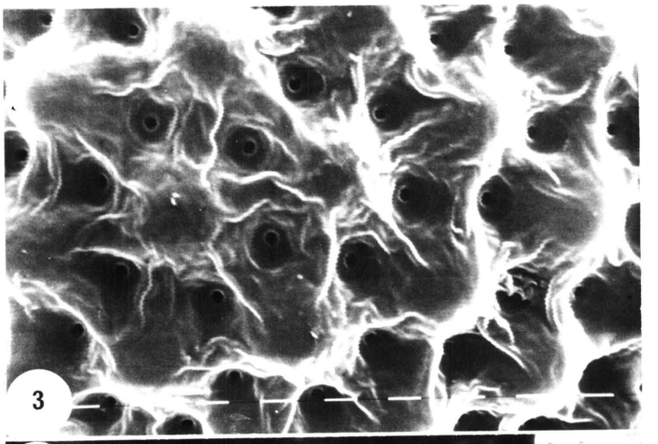

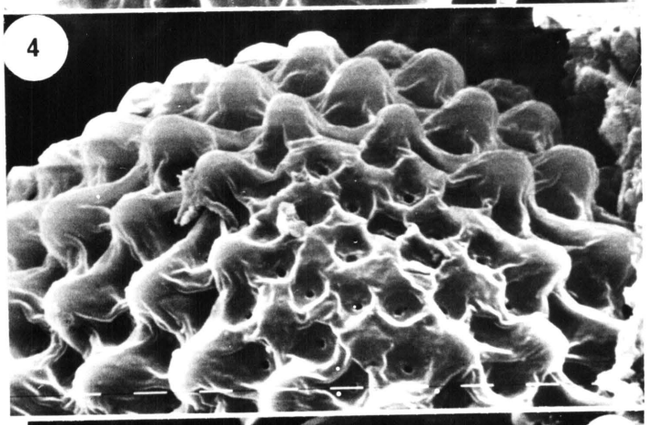

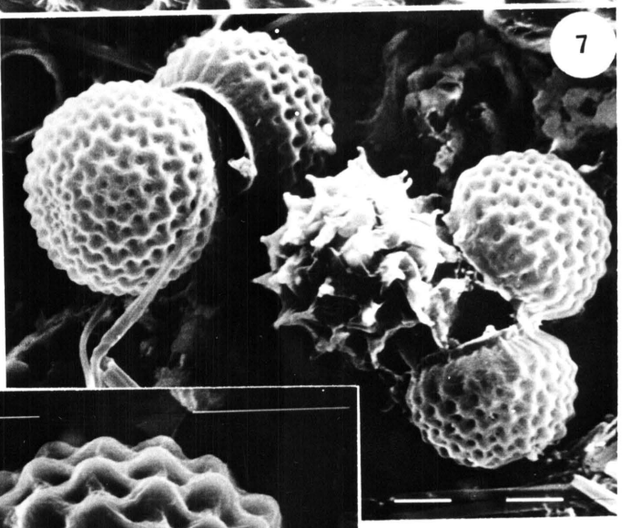

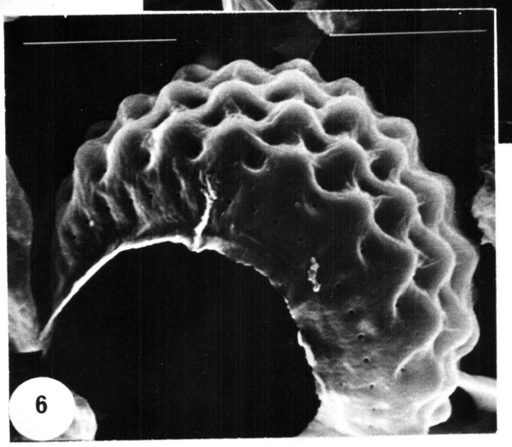

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FIGUUR 184

Aftaselektronmikrograwe van

1 - 4. Cosmarium tetragonum var. ornatum (p. 416); selwandskulptuur. 1, 2, 4. Selle min of meer van voor gesien. 3. Sel skuins van kant gesien.

5, 6. C. stappersii f. stappersii (p. 403).

1 - 3, 5, 6 : skaal = 10 µm

4 : skaal = 1 µm

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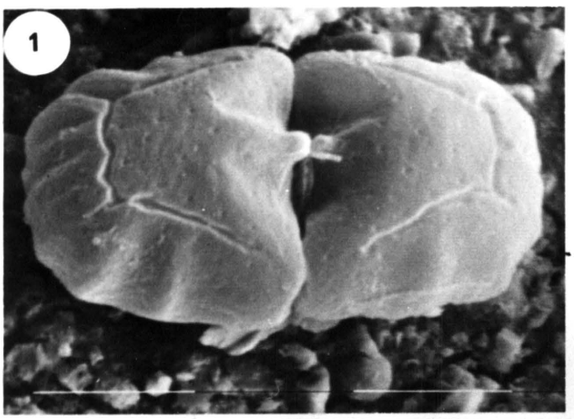

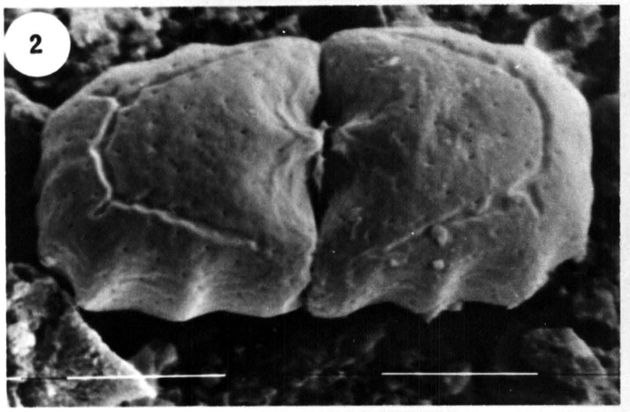

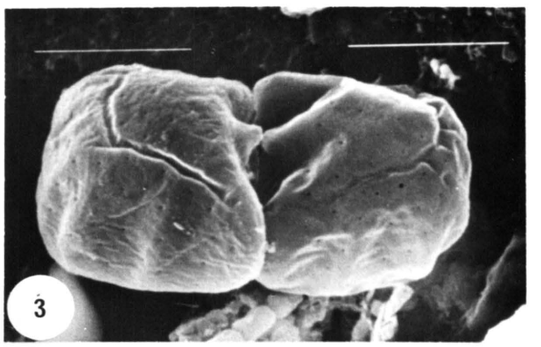

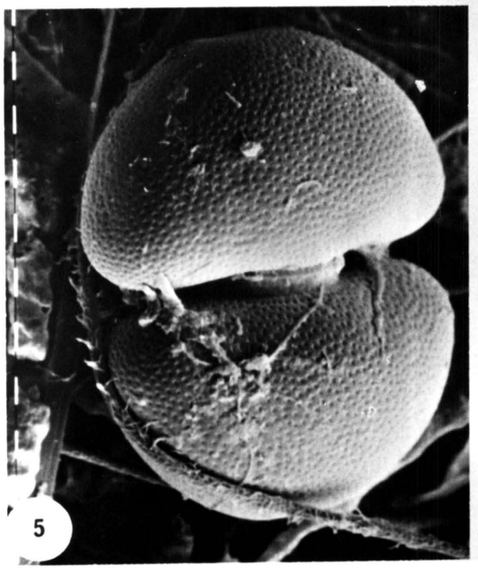

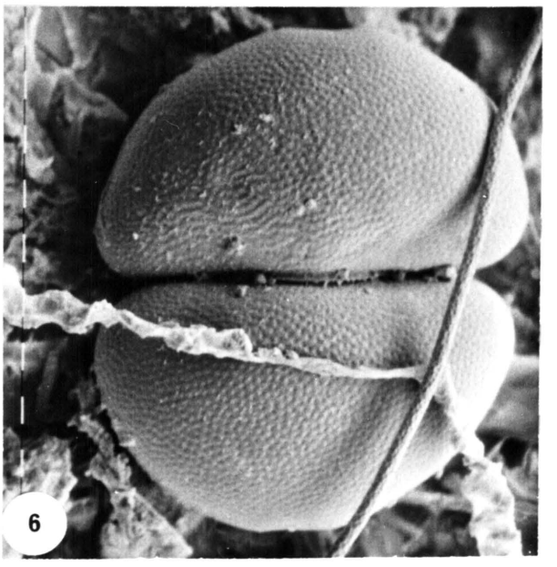

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FIGUUR 185

Aftaselektronmikrograwe van

1. Cosmarium stappersii f. stappersii (p. 403); porieë in selwand.

2 - 7. C. subspeciosum var. validius (p. 412). 2 - 5. Verskillende vergrotings van halfselle min of meer in vooraansig gesien om die rangskikking van die selwandknoppies en porieë te toon. 6, 7. Verskillende vergrotings van 'n halfsel min of meer in vertikale aansig gesien.

1 - 4, 6 : skaal = 10 µm

5, 7 : skaal = 1 µm

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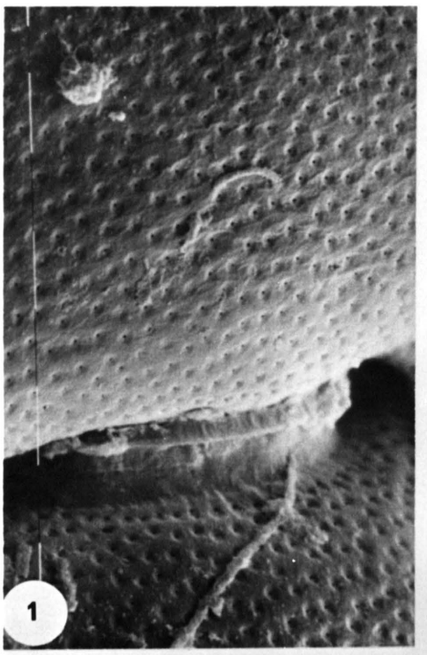

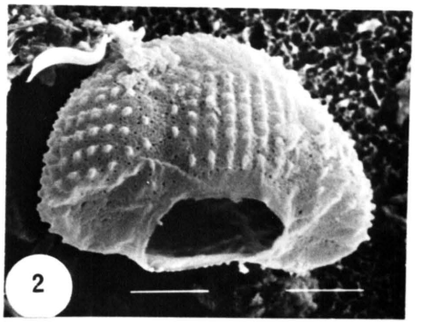

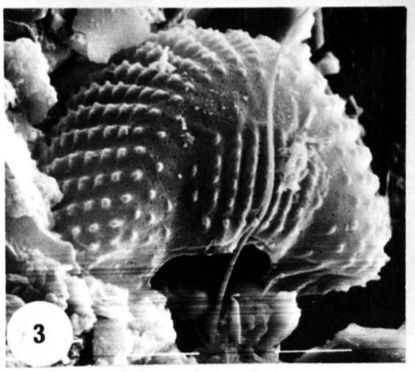

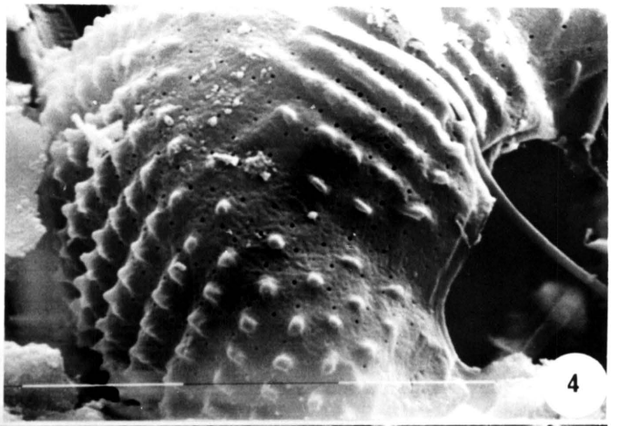

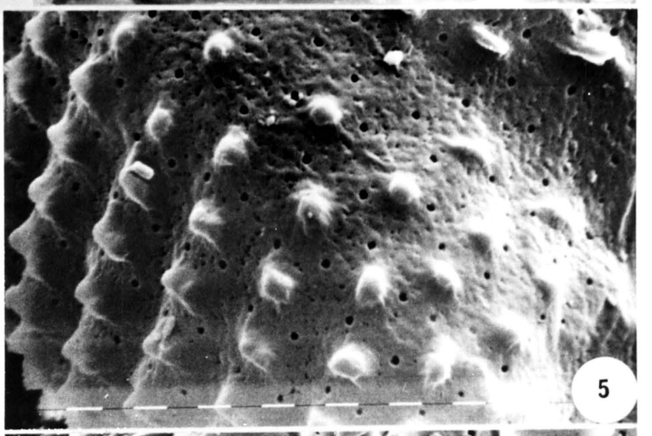

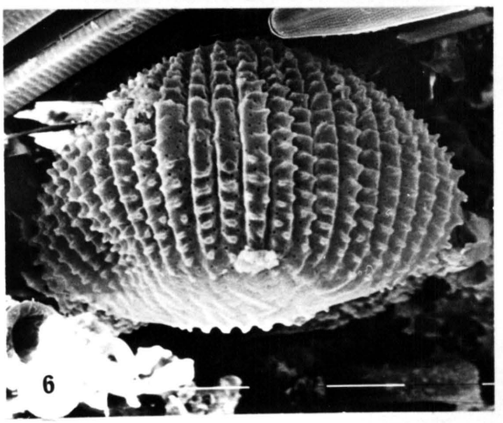

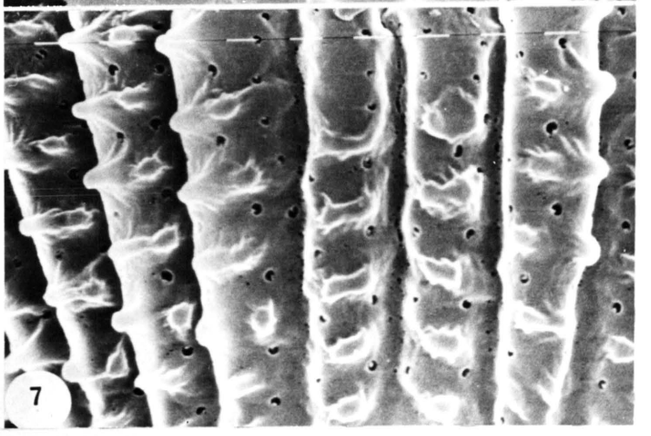

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FIGUUR 186

1 - 7. Aftaselektronmikrograwe van Cosmarium trachypleurum var. natalensis f. natalensis (p. 419) om die selwandskulptuur te illus= treer. 1, 2, 4. Vooraansig.
3, 5. Selle skuins van kant gesien.
6. Sel skuins van bo gesien.
7. Vertikale aansig.

1 - 7 : skaal = 10 µm

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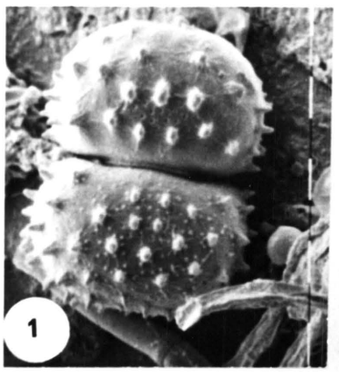

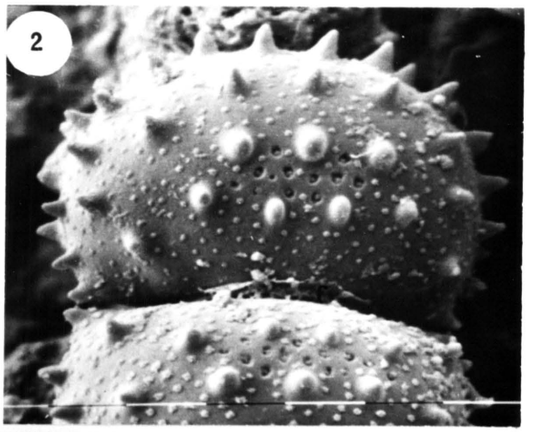

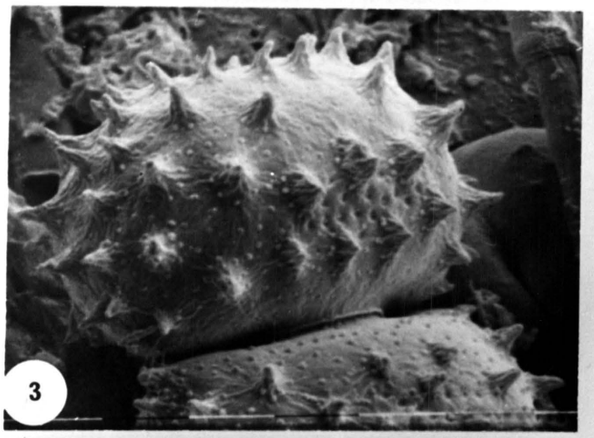

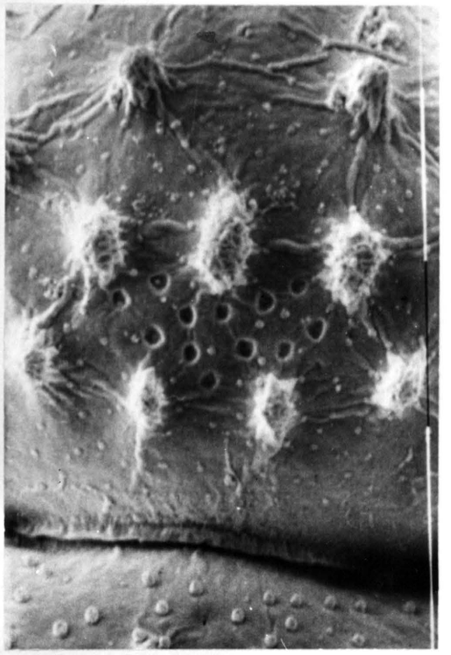

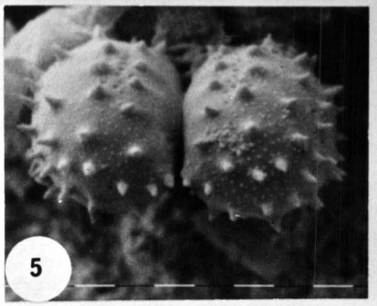

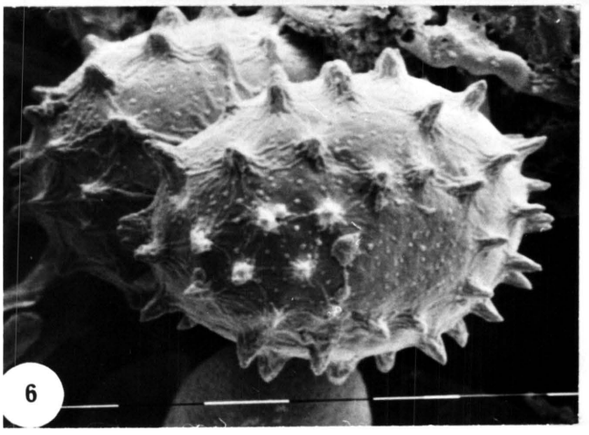

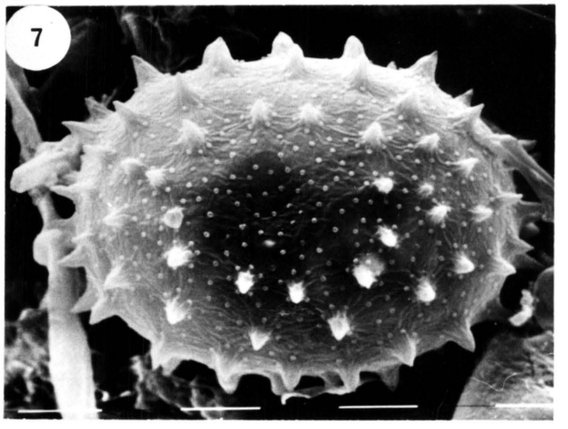

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FIGUUR 187

1 - 6. Aftaselektronmikrograwe van Cosmarium sp. C (p. 426). 1 - 3. Selle min of meer in vooraansig gesien. 4. Vertikale riwwe met selwandknoppies aan weerskante van istmus; porieë hoofsaaklik in groewe. 5. Radiale riwwe oor selomtrek met gepaarde of dubbele reekse selwandknoppies. 6. Verspreid= liggende porieë in selwand.

1 - 3 : skaal = 10 µm

4 - 6 : skaal = 1 µm

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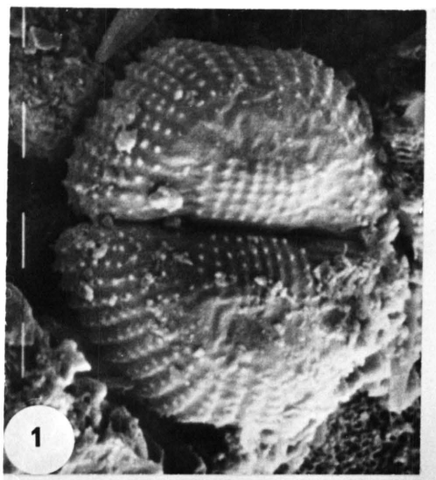
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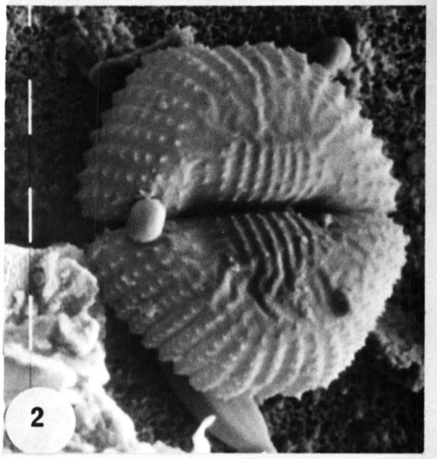
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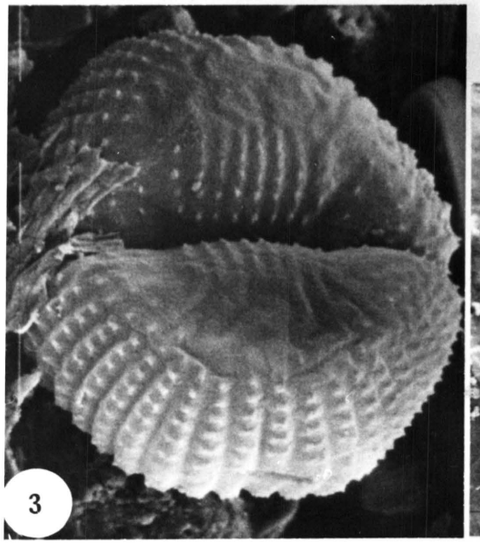
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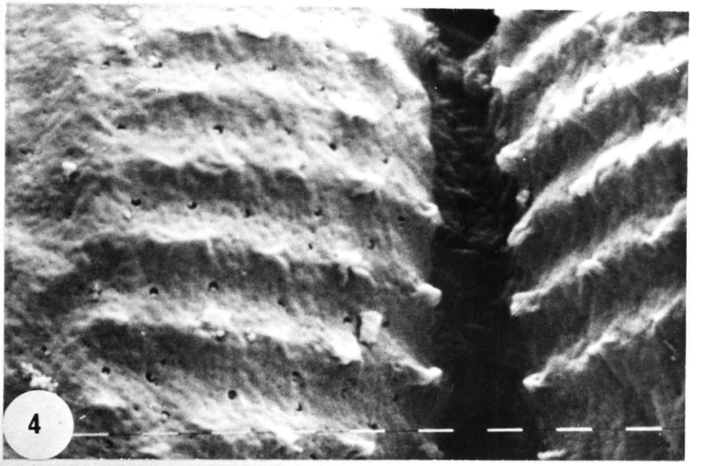
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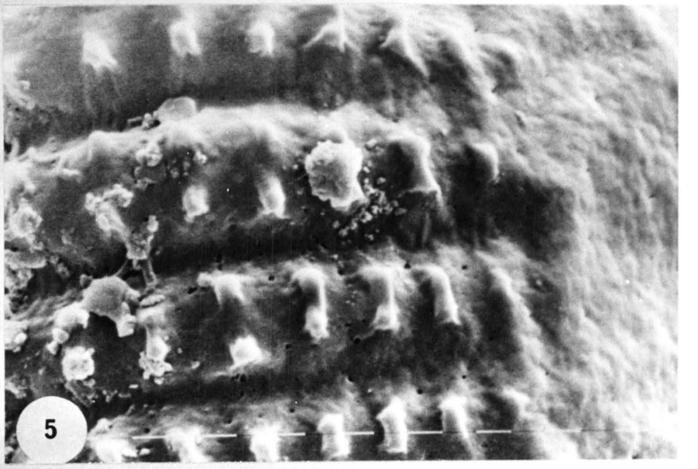
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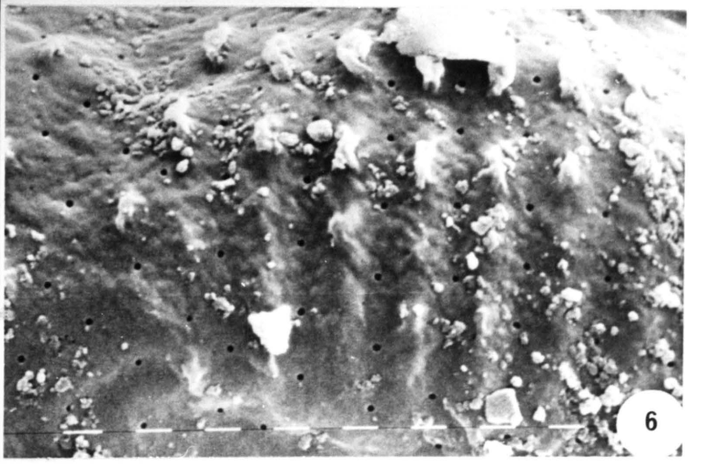
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FIGUUR 188

1. Micrasterias radians (p. 454).

2 - 12. M. crux-melitensis f. evoluta (p. 443); variasie in uitbeelding van polêre en laterale lobbe. 10. Smal vergroeiings kom tussen polêre en/of laterale lobbe voor.

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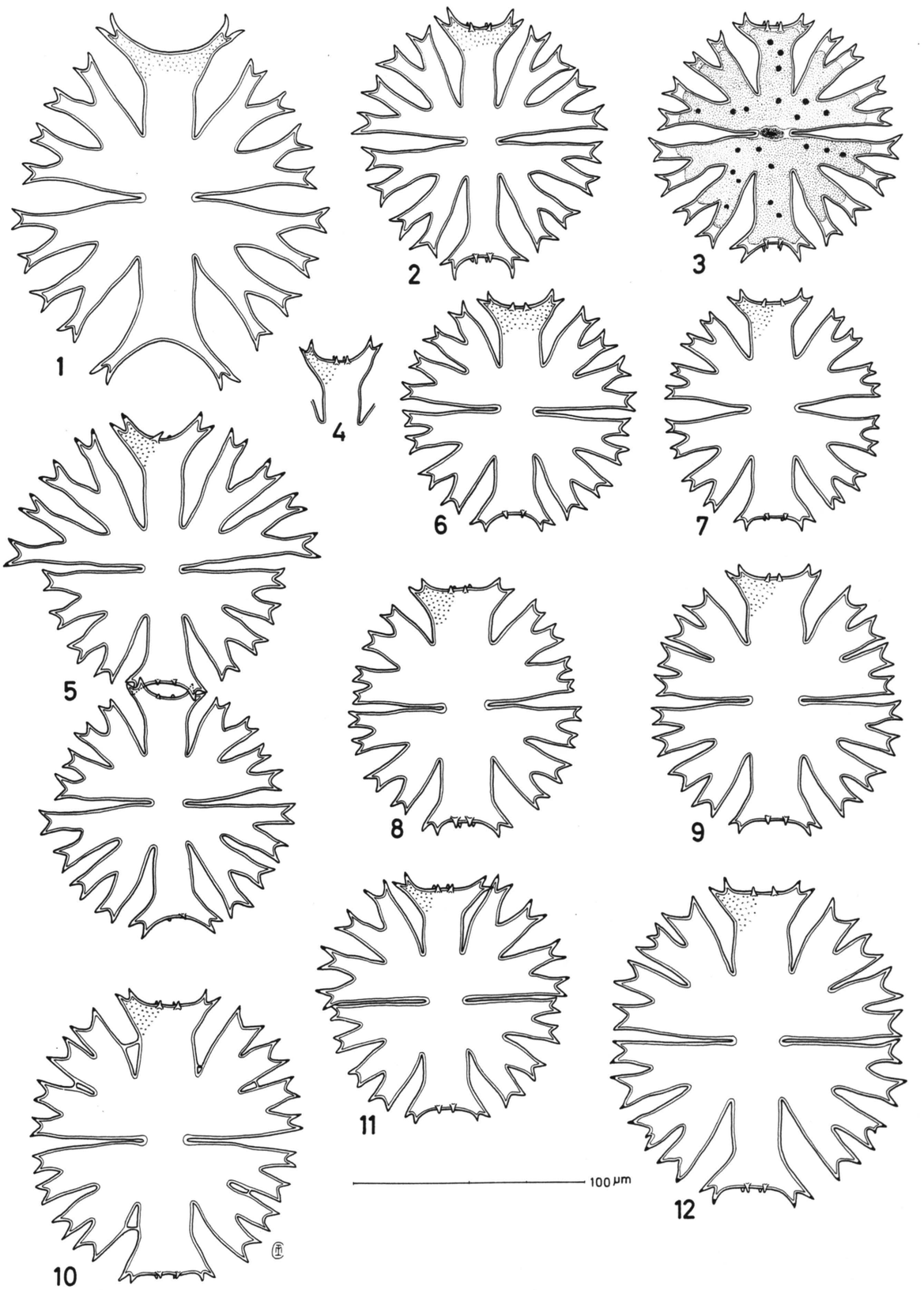

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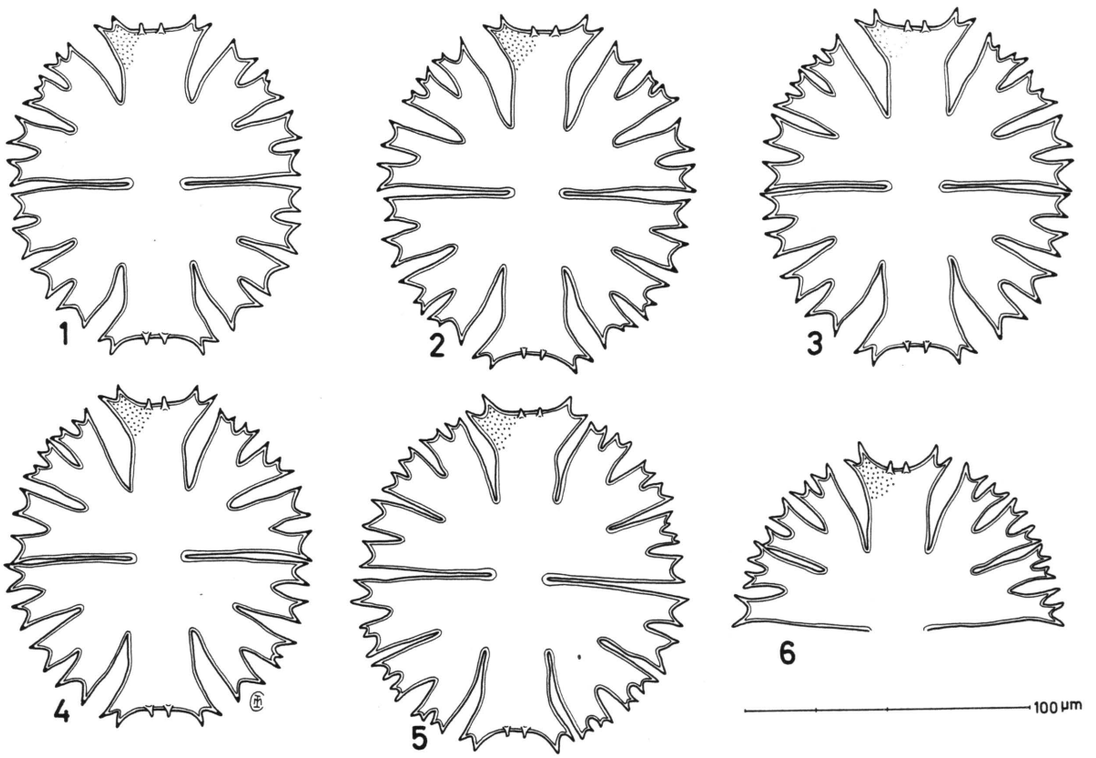
189



FIGUUR 189

1 - 4. Micrasterias crux-melitensis f. evoluta (p. 443); anomalieë.

5, 6. M. novae-terrae (p. 451).

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FIGUUR 190

1 - 4. Micrasterias denticulata var. angulosa (p. 447); 1 - 3. Variasie in selvorm. 2. Anomaliese polêre lob in boonste halfsel. 4. Sigoot.

1 - 3 : skaal A

4 : skaal B

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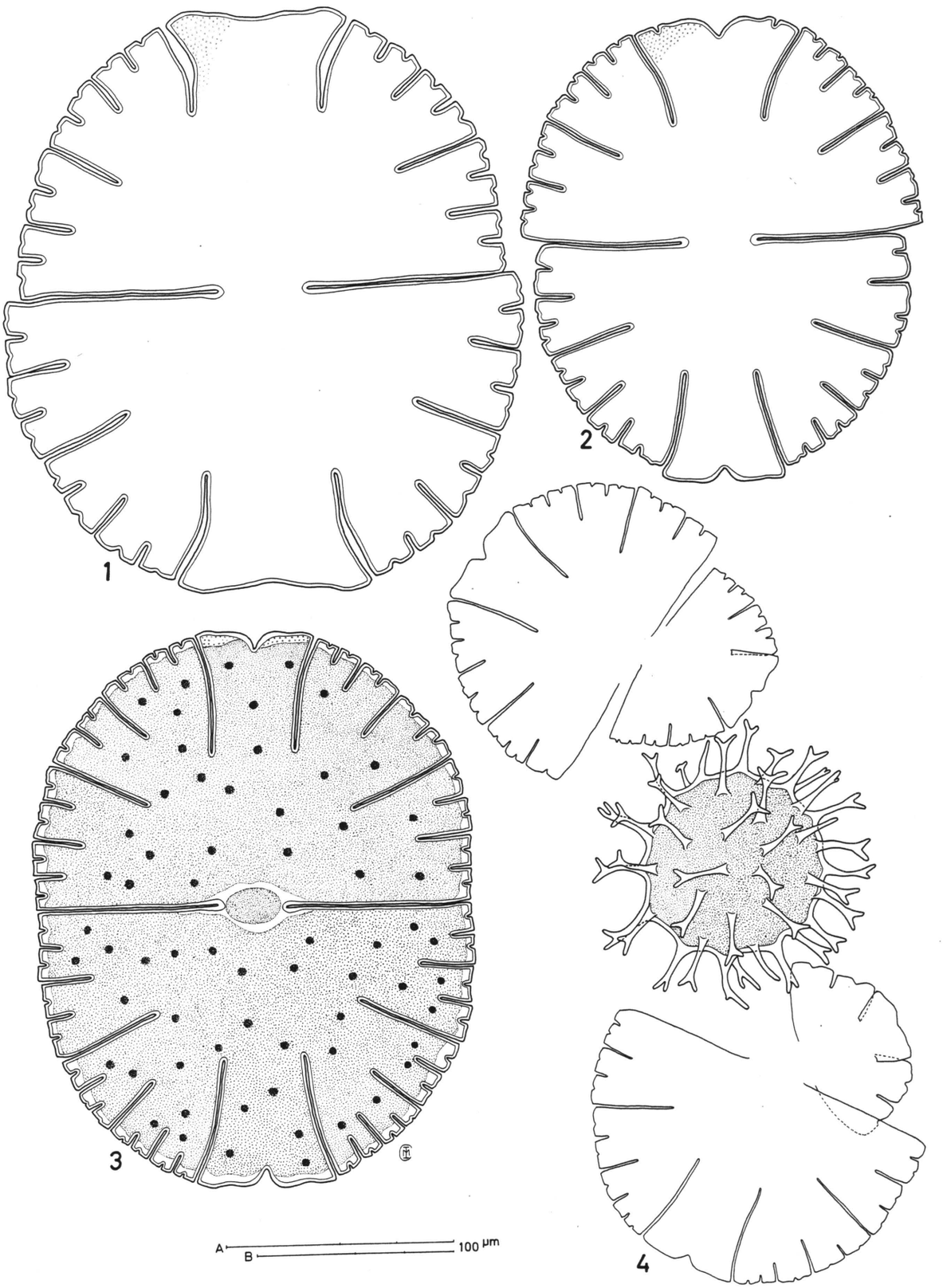

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FIGUUR 191

1 - 4. Micrasterias denticulata var. angulosa (p. 447); variasie in selvorm en uitbeelding van laterale lobbe.

5. M. pinnatifida var. incudiformis (p. 453).

6, 7. M. papillifera var. glabra (p. 453).
7. Onvolwasse halfsel.

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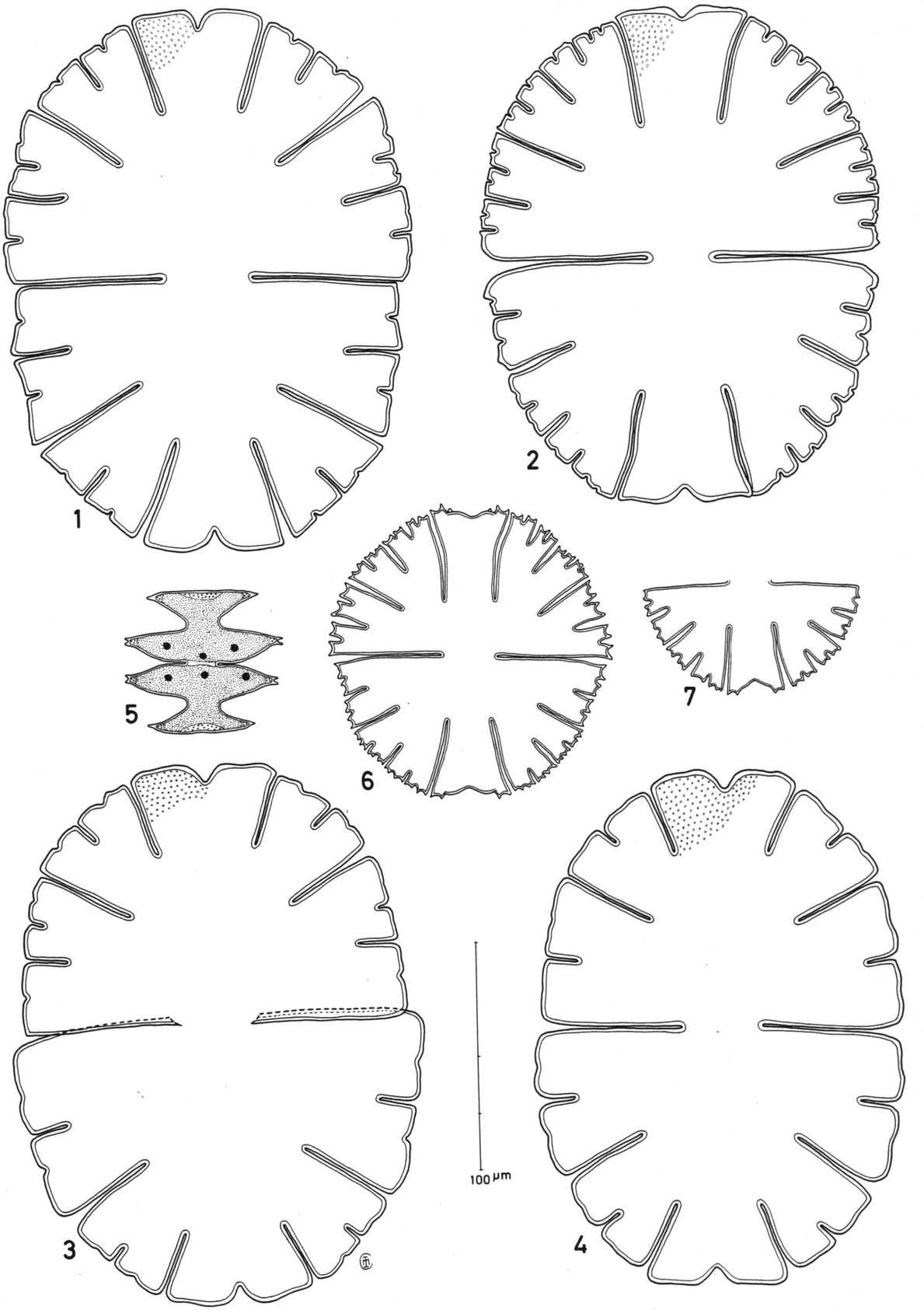

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FIGUUR 192

1. Micrasterias denticulata var. angulosa (p. 447); onderste halfsel anomalies.

2, 3, 5. M. thomasiana var. notata (p. 455).
3. Anomalie.

4, 6. M. thomasiana var. thomasiana (p. 455).
4. Die selwandskulptuur vertoon baie grof, moontlik as gevolg van slymafskeidings deur die porieë.

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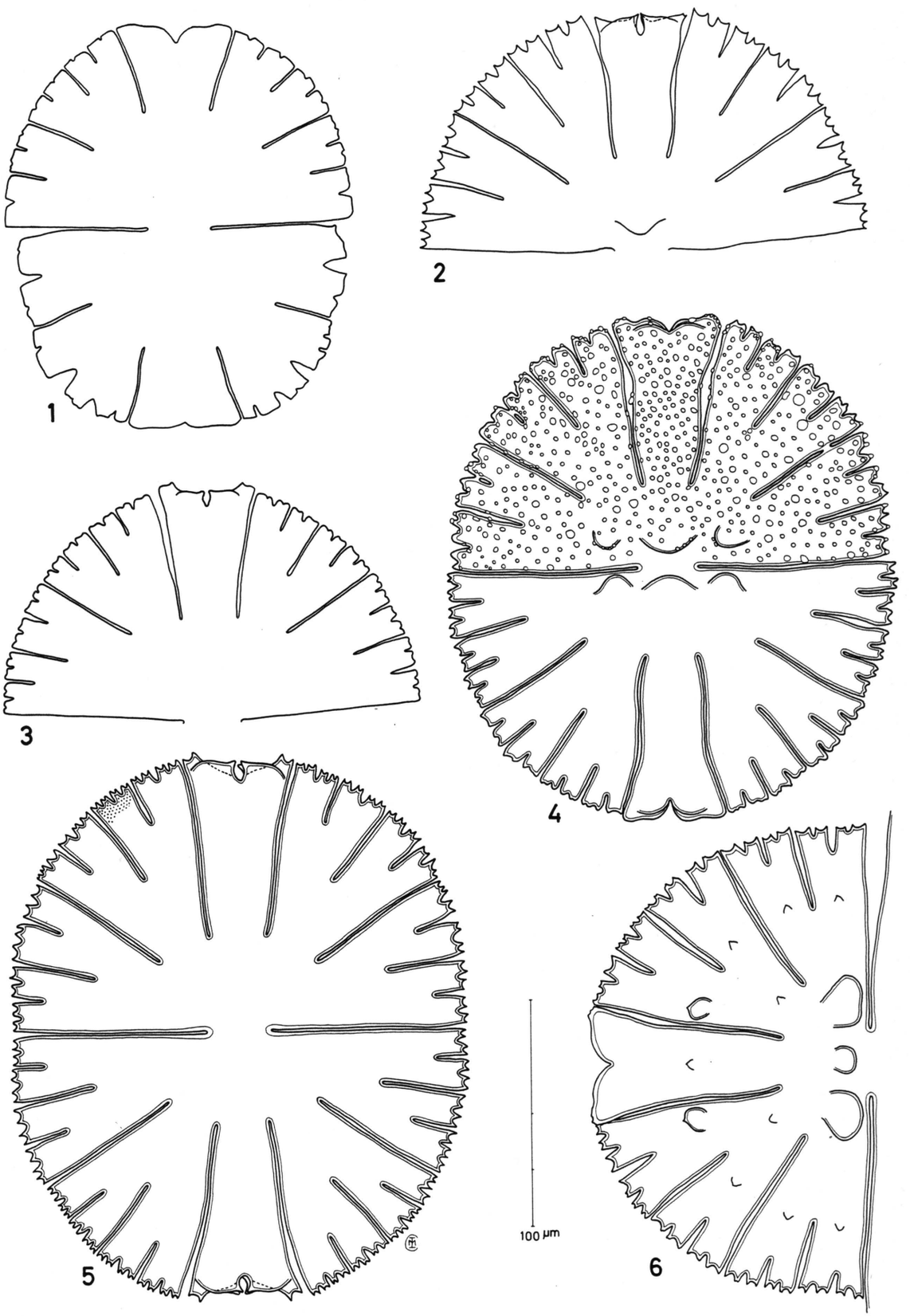
192



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FIGUUR 193

1 - 4. Micrasterias nylstromica (p. 452); variasie in die uitbeelding van die polêre lobbe kom voor. 1. By die polêre lob van die onderste halfsel word slymafskeidings deur die selwand=porieë aangedui (pyltjie).

5. M. tropica (p. 457); halfsel.

6. M. mahabuleshwarensis var. mahabuleshwarensis (p. 449); halfsel.

7. M. mahabuleshwarensis var. ampullacea (p. 450).

8, 9. M. americana (p. 441). 9. Onvolwasse halfsel.

1, 2 : skaal A

3 - 9 : skaal B

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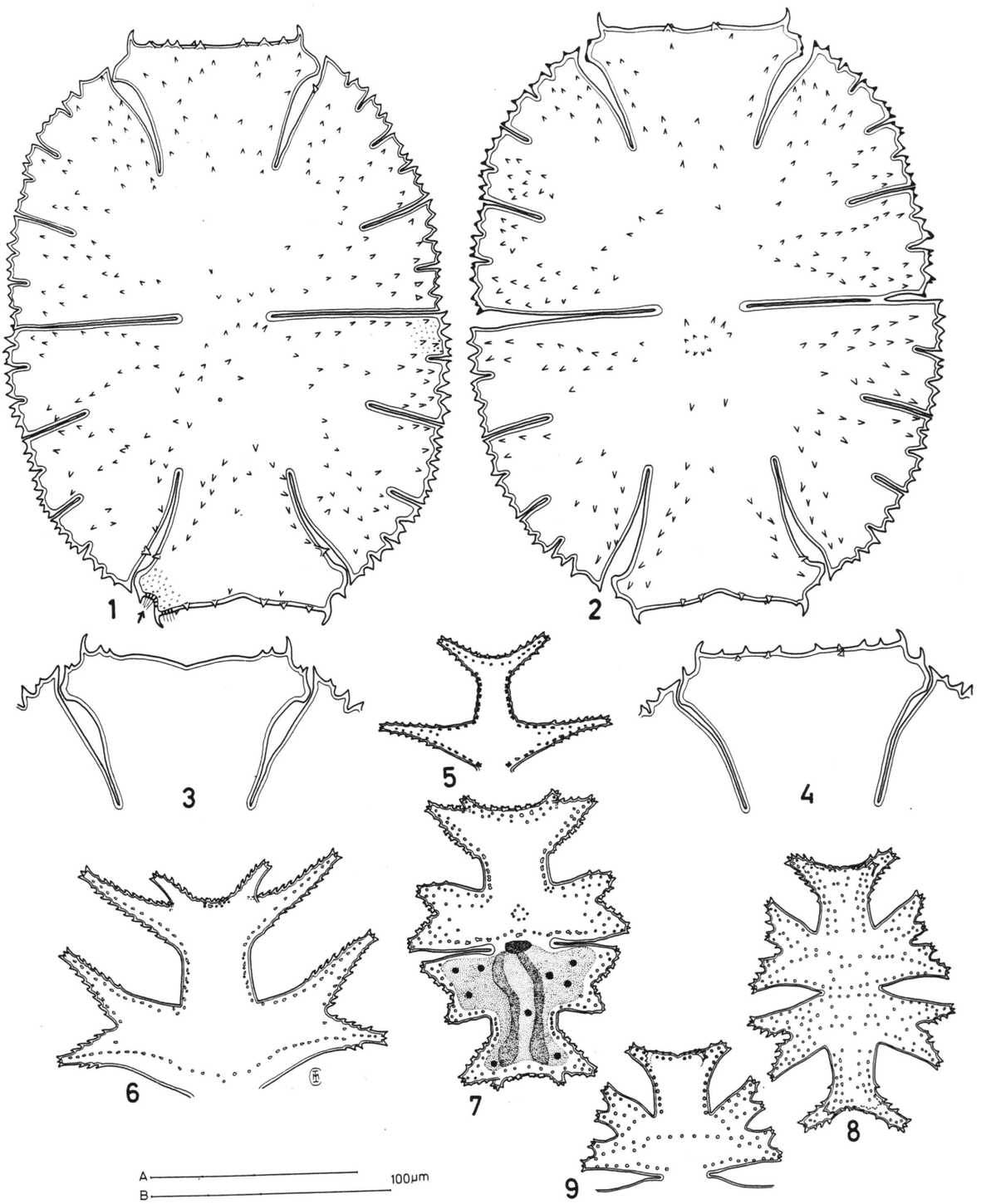

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FIGUUR 194

1. Micrasterias truncata var. pusilla (p. 462).

2, 3, 4, 6, 9. M. truncata var. truncata (p. 457).
3, 5. Anomalieë.

4, 8, 10. M. truncata var. africana (p. 459).
10. Sigoot.

7. M. truncata var. bahusiensis forma (p. 461); anomaliese halfsel.

1 - 9 : skaal A

10 : skaal B

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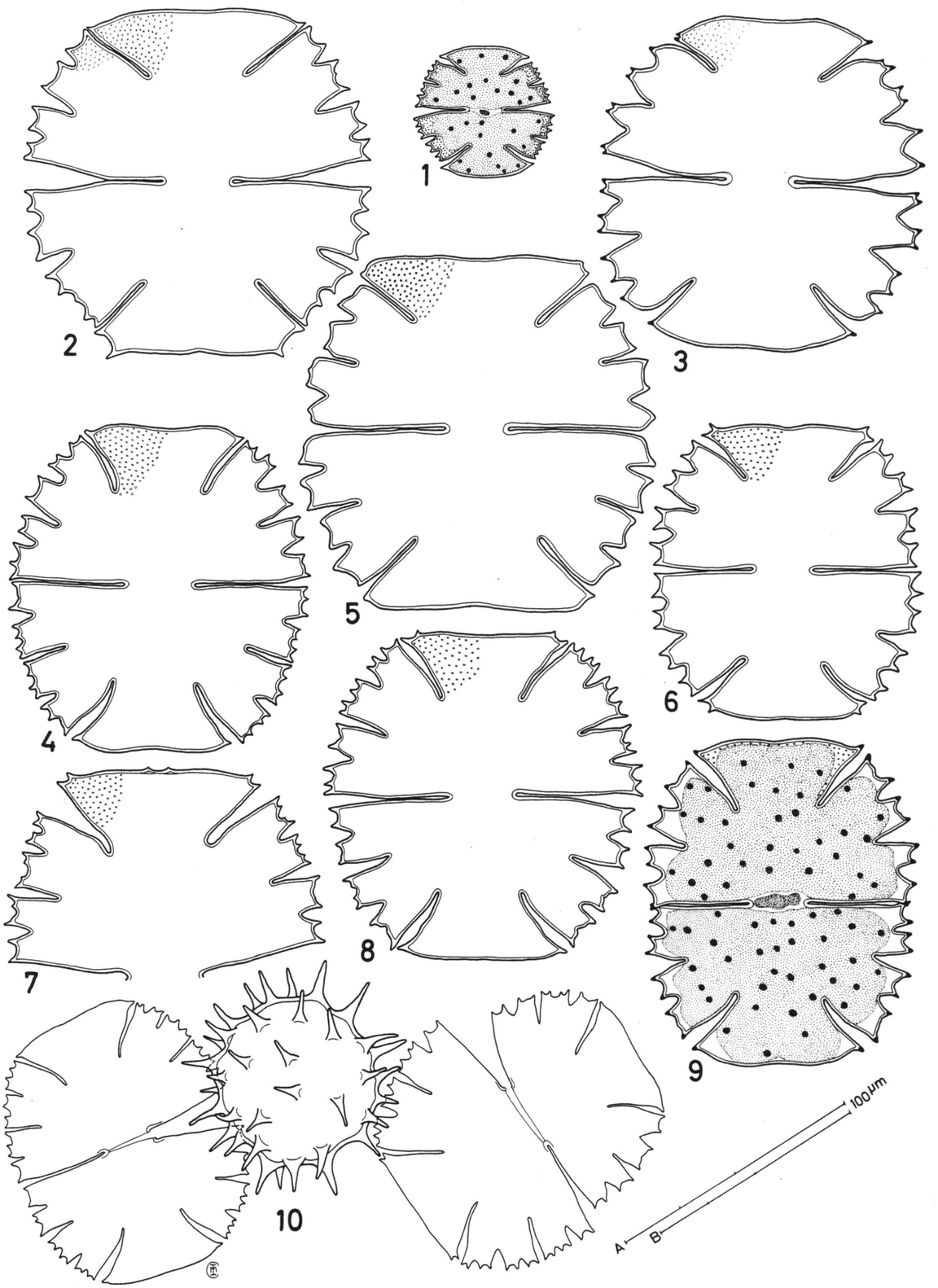
194



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FIGUUR 195

1. Micrasterias truncata var. bahusiensis forma (p. 461).

2, 6, 7. M. truncata var. africana (p. 459).
2. Anomaliese polêre lob.

3 - 5. M. truncata var. truncata (p. 457).
3. Anomaliese onderste halfsel.
4. Anomalie, veral polêre lob van boonste halfsel wat lobbetjies besit.

8. M. foliacea (p. 449).

9, 11, 12. M. decemdentata var. decemdentata (p. 445).

10, 13. M. decemdentata var. africana (p. 446).

14. M. truncata var. turgida (p. 462).

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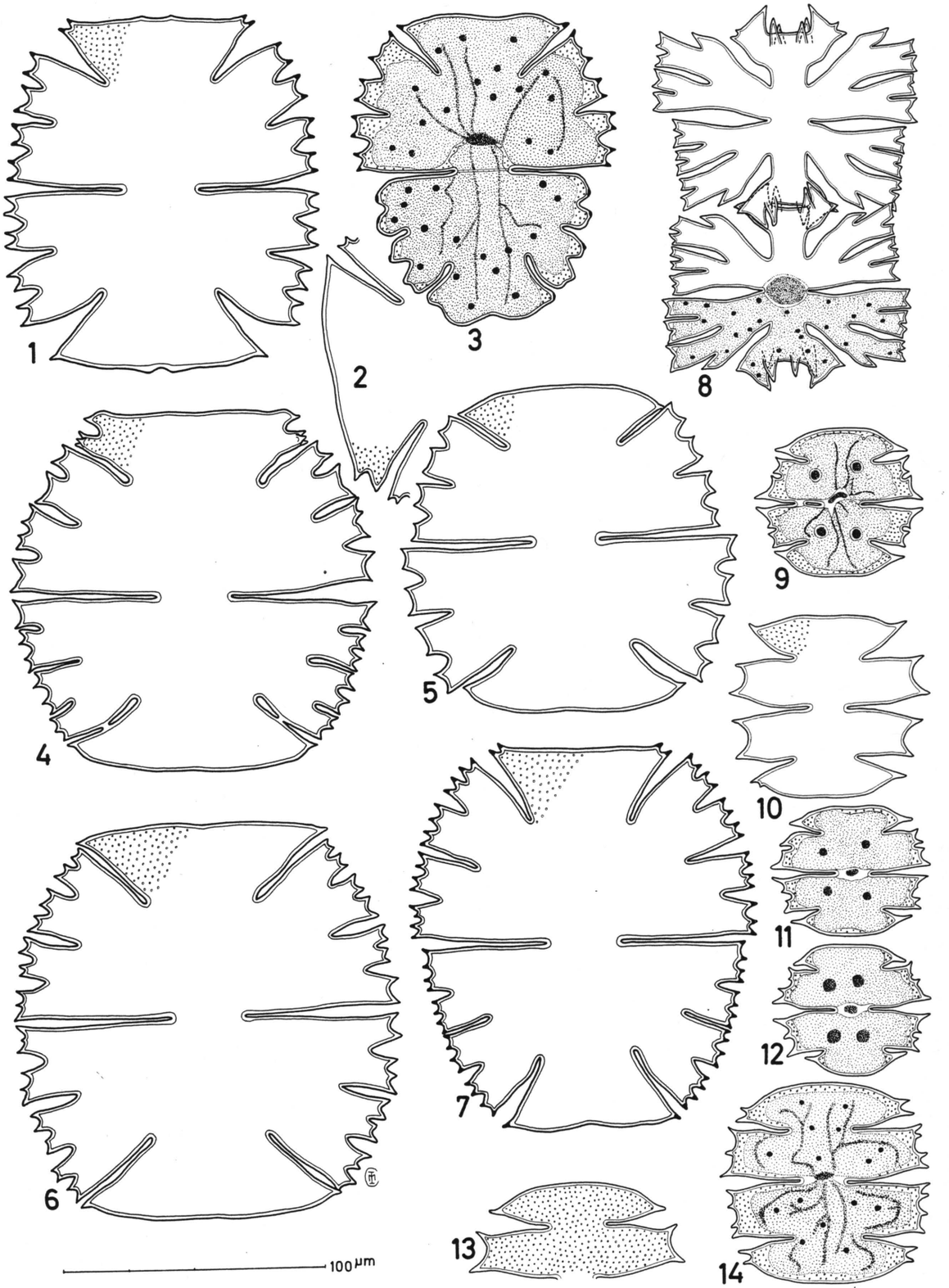

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FIGUUR 196

Fotomikrograwe van

1 - 3. Micrasterias americana (p. 441).

4 - 6. M. apiculata (p. 442). 6. Rangskikking van selwandstekeltjies.

7. M. mahabuleshwarensis var. mahabuleshwarensis (p. 449); halfsel.

8. M. mahabuleshwarensis var. ampullacea (p. 450).

9. M. pinnatifida var. incudiformis (p. 453).

10 - 12. M. tropica (p. 457). 10, 11. Verskillende fokusinstellings van 'n sel om die selvorm en selwandskulptuur te toon. 12. Halfsel wat rangskikking van selwandsteketjies toon.

1 - 3	:	skaal A
4	:	skaal B
5 - 7	:	skaal C
8, 10 - 12	:	skaal D
9	:	skaal E

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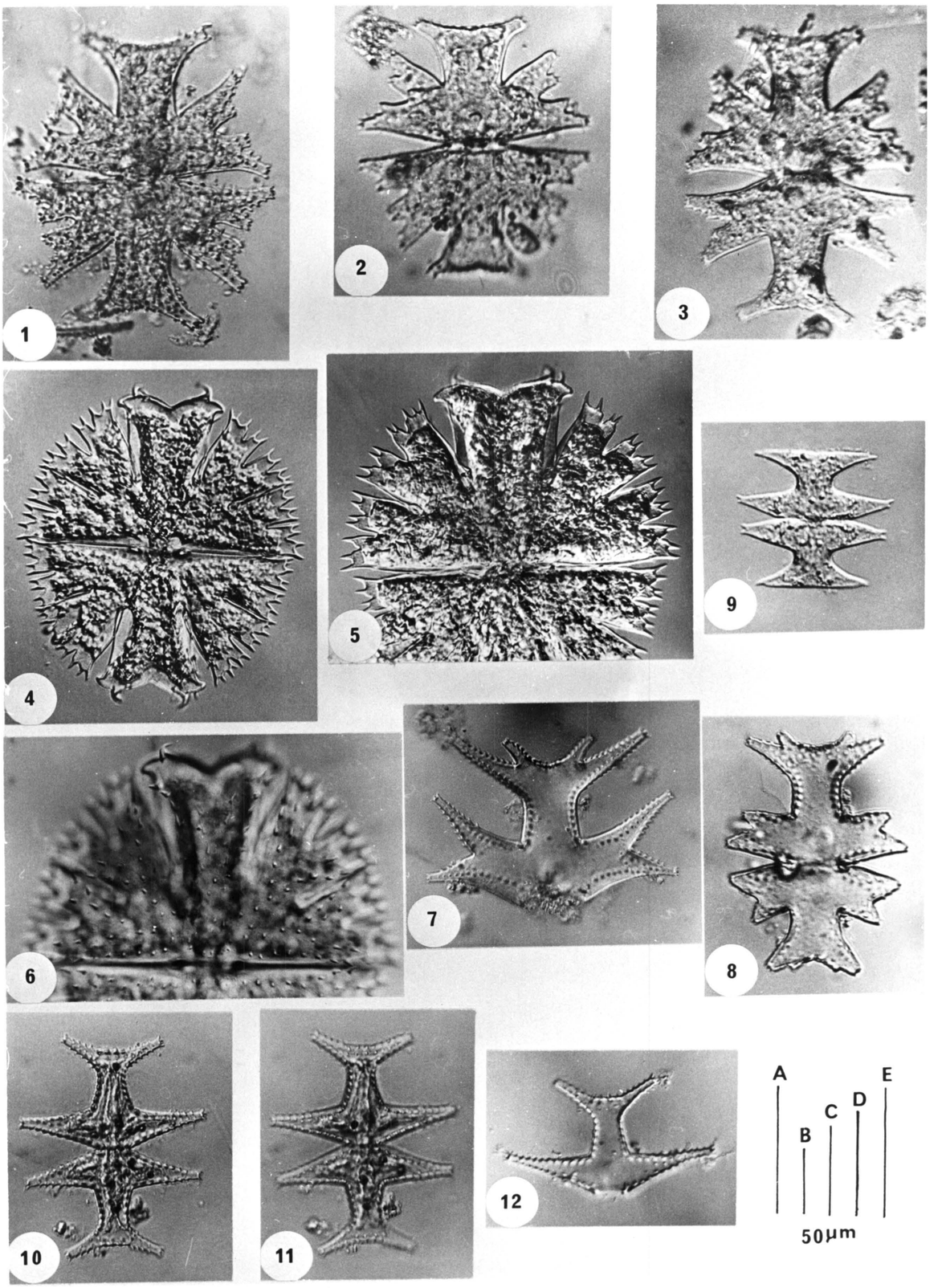

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FIGUUR 197

Fotomikrograwe van

1 - 9. Micrasterias crux-melitensis f. evoluta (p. 443).

10, 11. M. novae-terrae (p. 451).

12, 13. M. radians (p. 454). 13. Halfsel.

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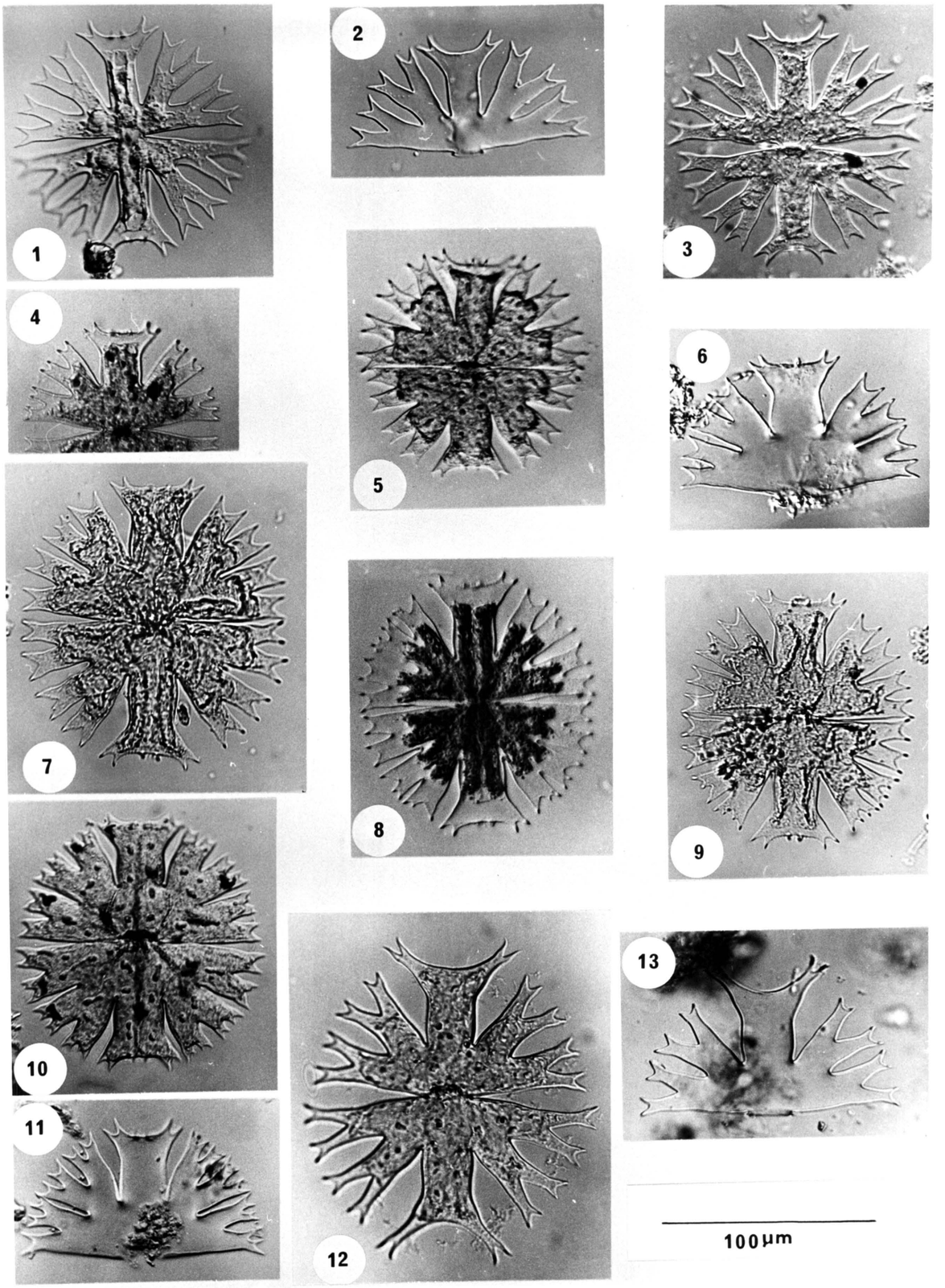

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FIGUUR 198

1 - 9. Fotomikrograwe van Micrasterias denticulata var. angulosa (p. 447).

1 - 8. Variasie in selvorm.

8, 9. Verskillende fokusinstellings van 'n sel om ook die selwandskulptuur te toon.

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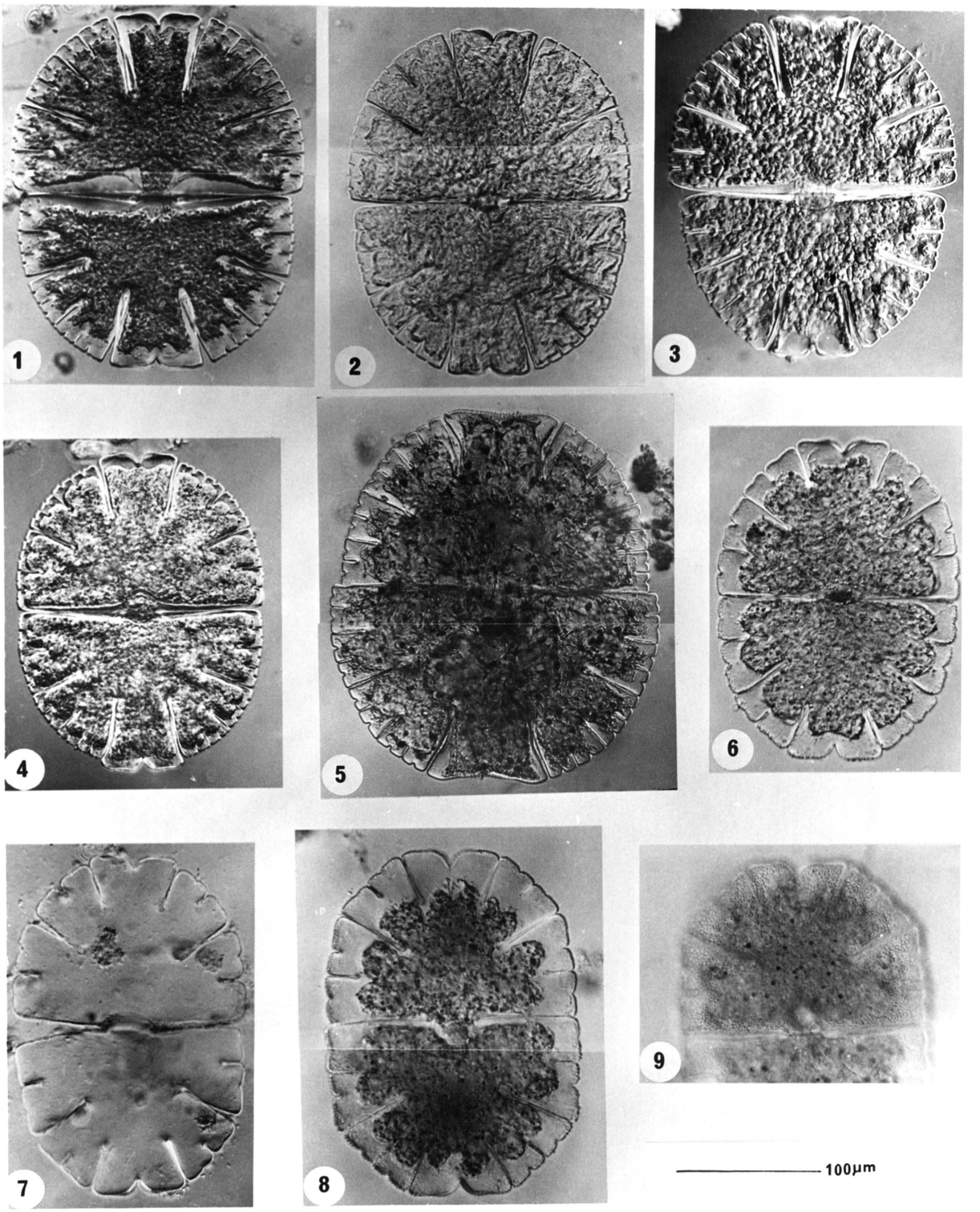

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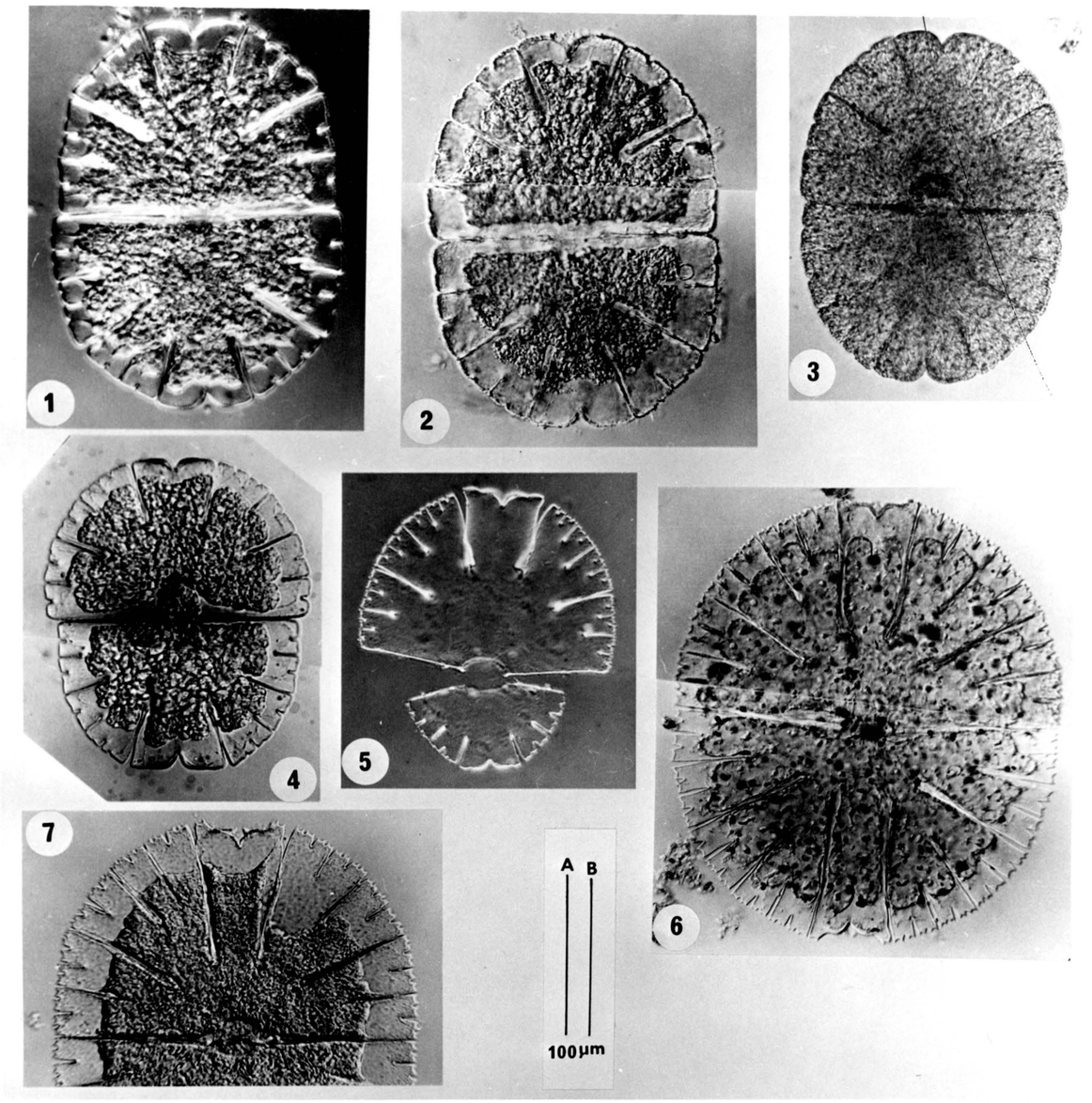

FIGUUR 199

Fotomikrograwe van

1 - 5. Micrasterias denticulata var. angulosa (p. 447). 5. Seldelingstadium.

6, 7. M. thomasiana var. notata (p. 455).

1 - 4, 6, 7 : skaal A
5 : skaal B

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FIGUUR 200

Fotomikrograwe van

1, 2. Micrasterias nylstromica (p. 452).

3. M. papillifera var. glabra (p. 453), seldelingstadium.

4 - 7. M. thomasiana var. thomasiana (p. 455). 4. Seldelingstadium. 5 - 7. Verskillende fokusinstellings van 'n sel om die selwand= skulptuur te toon.

1, 2, 4 - 7 : skaal A
3 : skaal B

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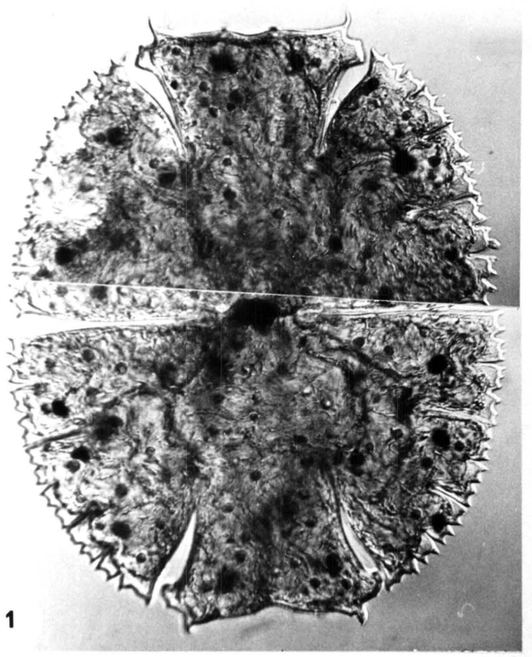
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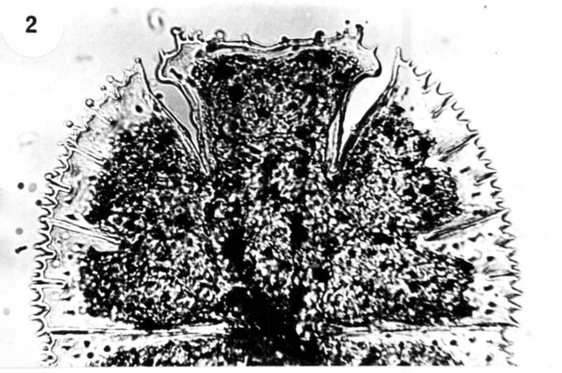
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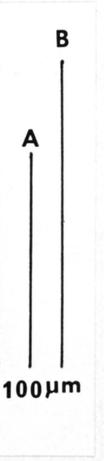

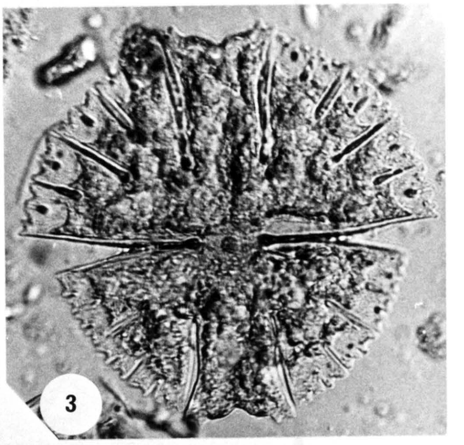
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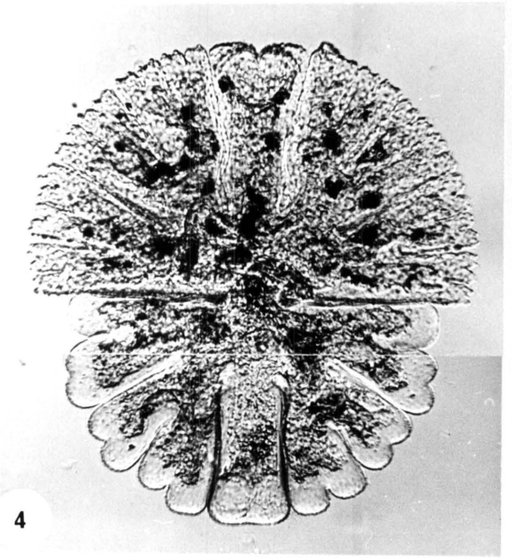
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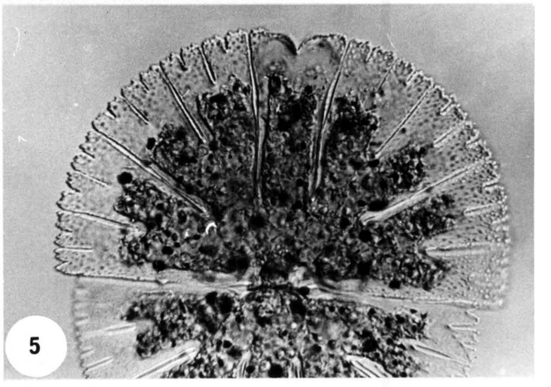
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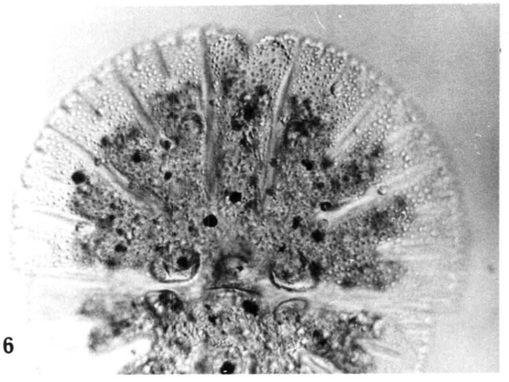
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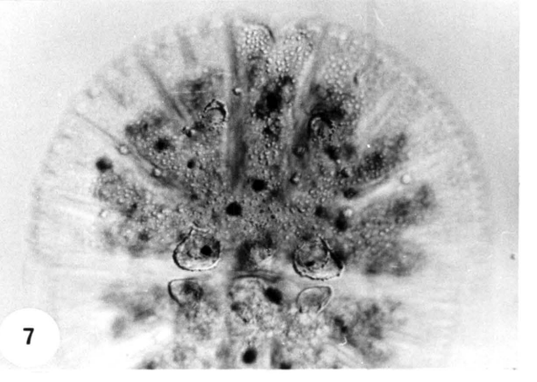
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FIGUUR 201

Fotomikrograwe van

1 - 3. Micrasterias decemdentata var. decemdata (p. 445).

4 - 11. M. decemdentata var. africana (p. 446); variasie in uitbeelding van polêre en laterale lobbe van selle.

12 - 16. M. truncata var. turgida (p. 462).

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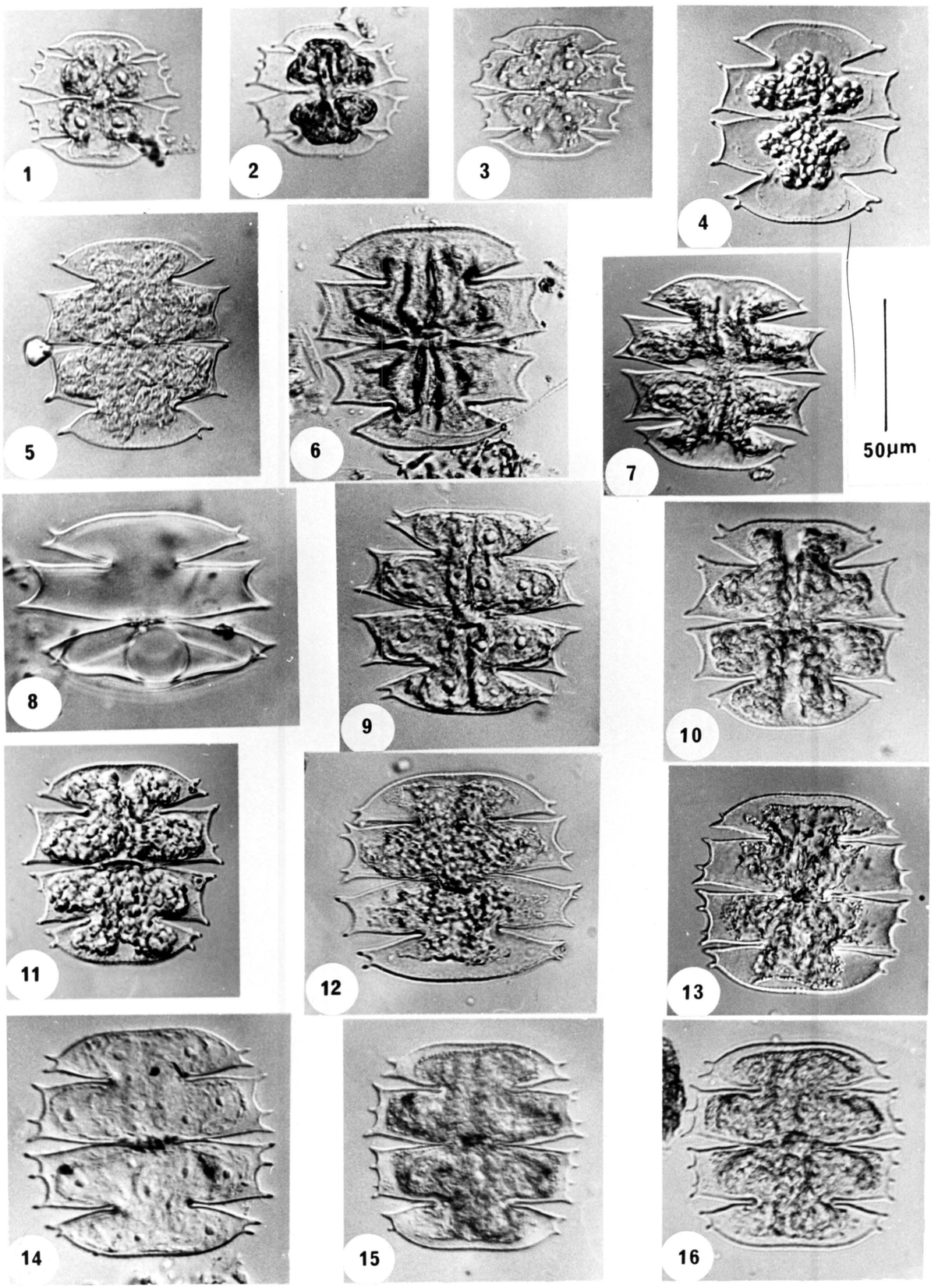

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FIGUUR 202

Fotomikrograwe van

1 - 10. Micrasterias truncata var. truncata (p. 457). 1. Halfsel. 5, 8, 9. Anomalieë.

11. M. truncata var. bahusiensis (p. 461).

12. M. truncata var. africana (p. 459); sigoot.

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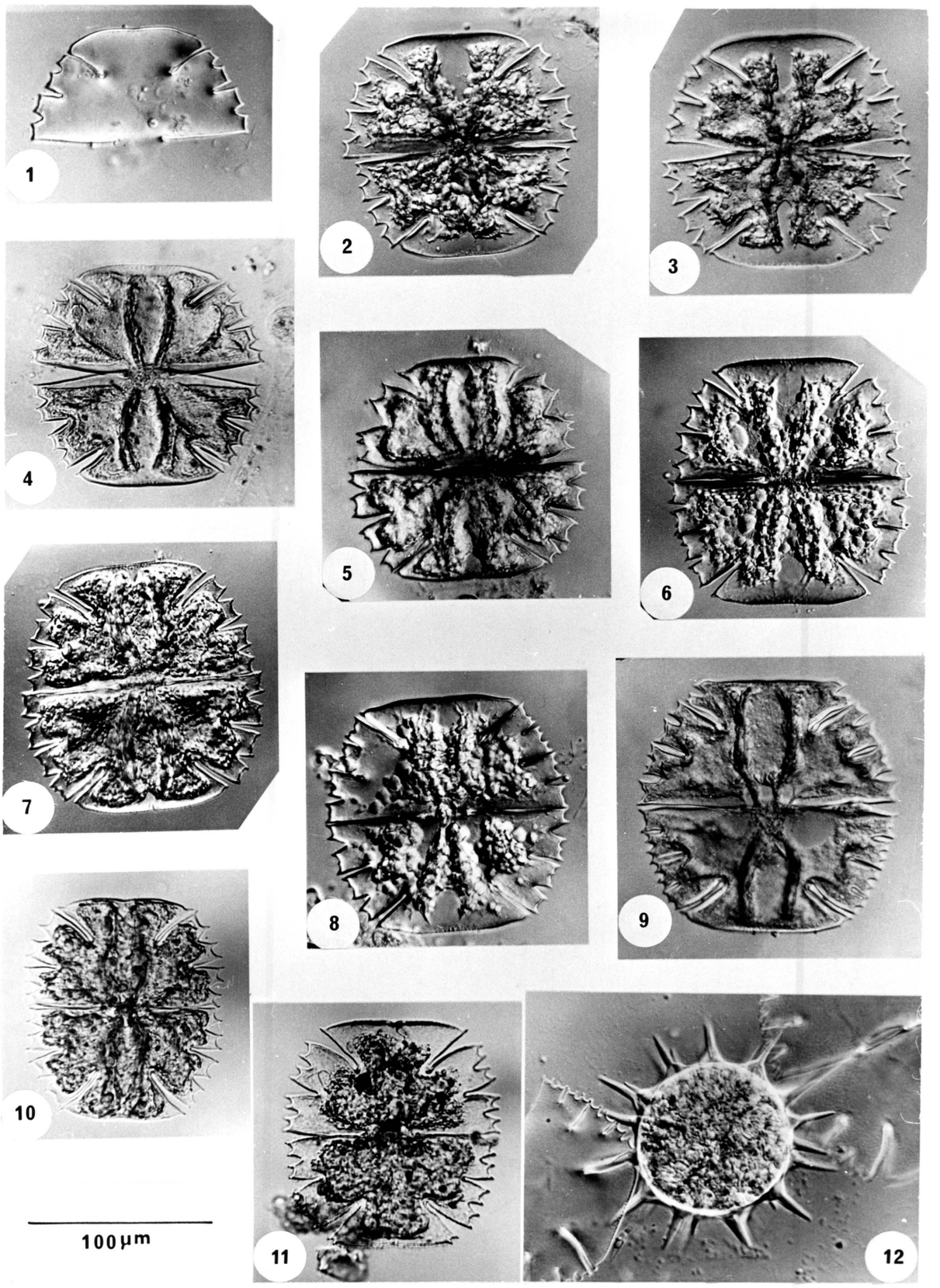

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FIGUUR 203

1 - 11. Fotomikrograwe van Micrasterias truncata var. africana (p. 459). 1 - 7. Variasie in uitbeelding van polêre lobbe. 8 - 10. Seldelingstadiums. 11. Sigoot.

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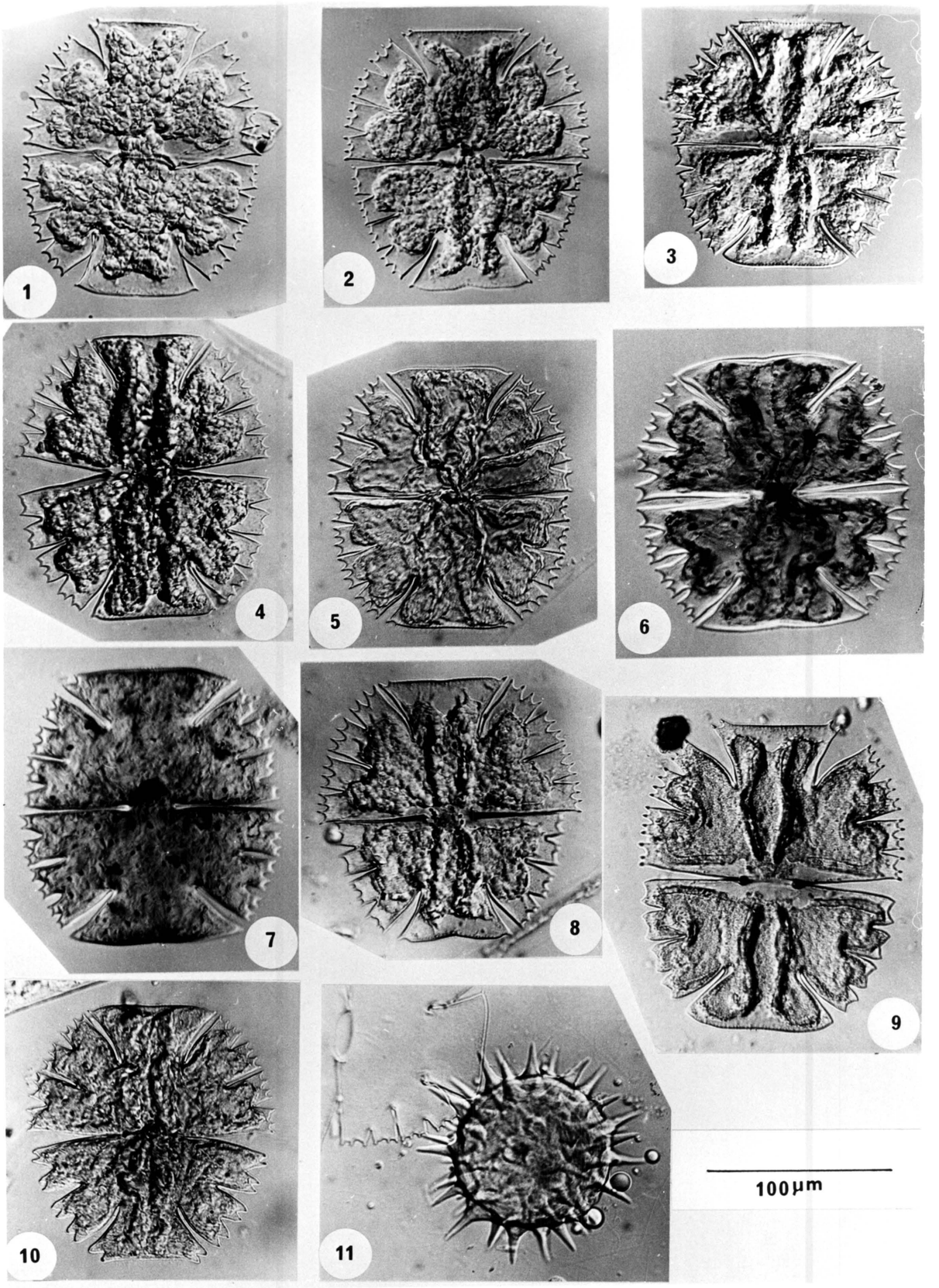

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FIGUUR 204

Aftaselektronmikrograwe van

1, 2. Micrasterias apiculata (p. 442); rangskikking van selwandstekeltjies.

3 - 5. M. crux-melitensis f. evoluta (p. 443).

6, 7. M. decemdentata var. africana (p. 446).
7. Basale aansig van halfsel.

1 - 7 : skaal = 10 µm

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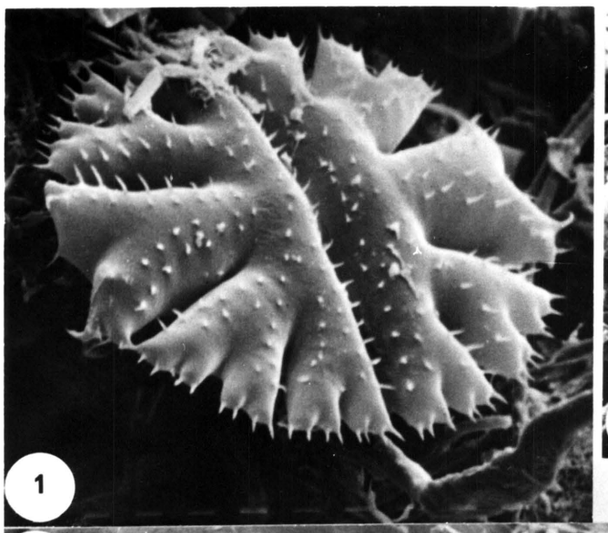

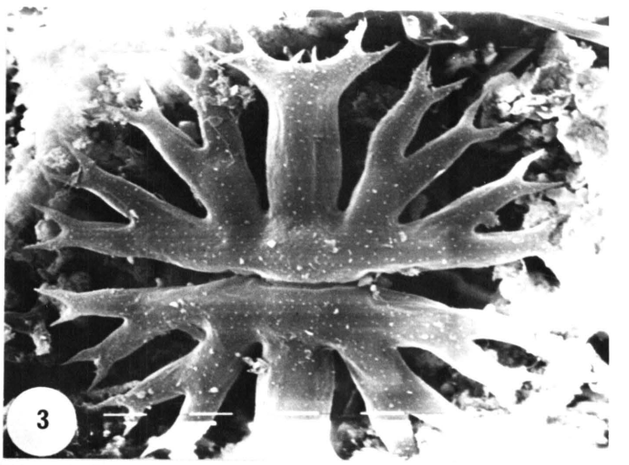

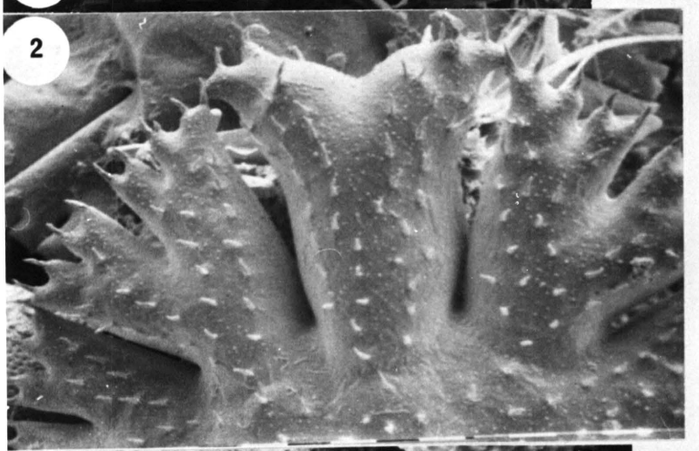

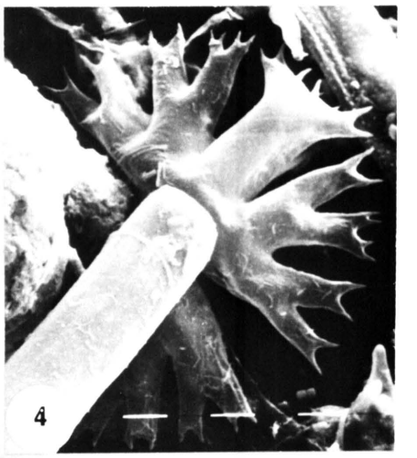

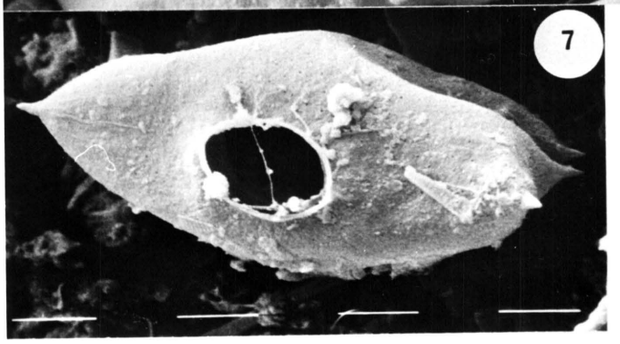

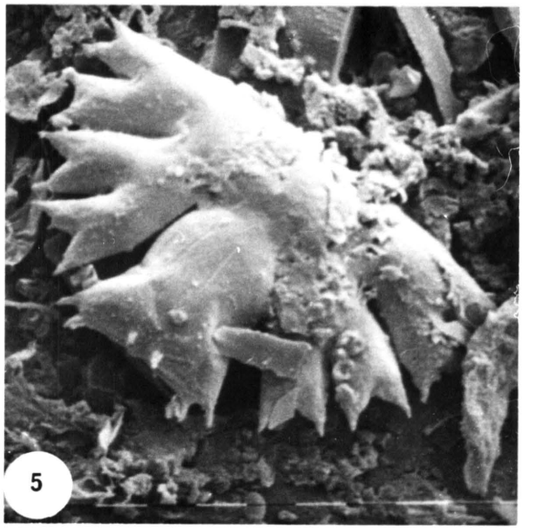

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FIGUUR 205

Aftaselektronmikrograwe van

1 - 6. Micrasterias denticulata var. angulosa (p. 447). 1. Vooraansig. 2. Halfsel skuins van bo gesien. 3. Syaansig. 4. Gedeelte van 'n polêre lob; die posisie van die porieë word deur slymafskeidings, wat soos knoppies vertoon, aangedui. 5, 6. Verskillende vergrotings van eksemplare van lokaliteit 71.

7. M. nylstromica (p. 452); gedeelte van 'n halfsel om die rangskikking van die sel= wandstekeltjies te toon.

1 - 3, 5 - 7 : skaal = 10 µm
4 : skaal = 1 µm

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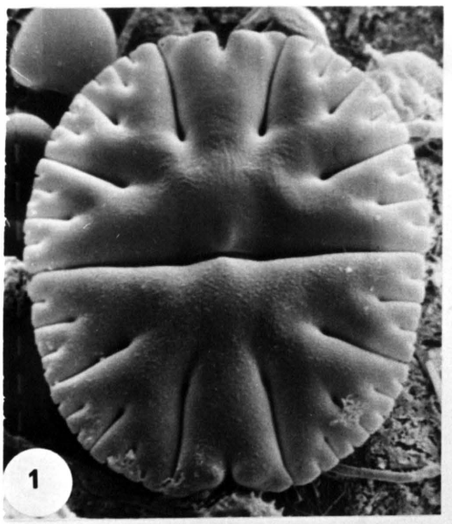

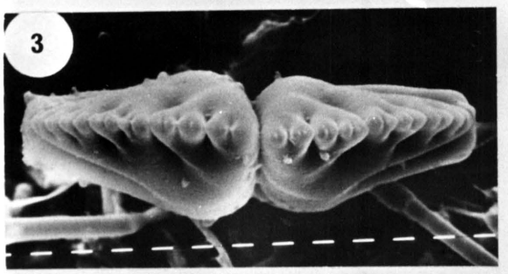

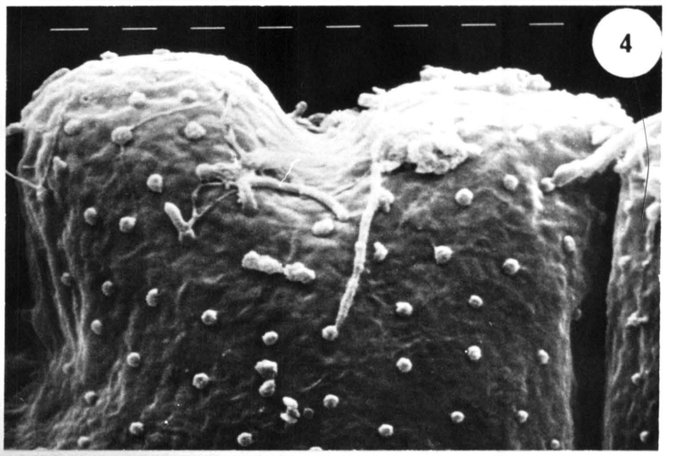

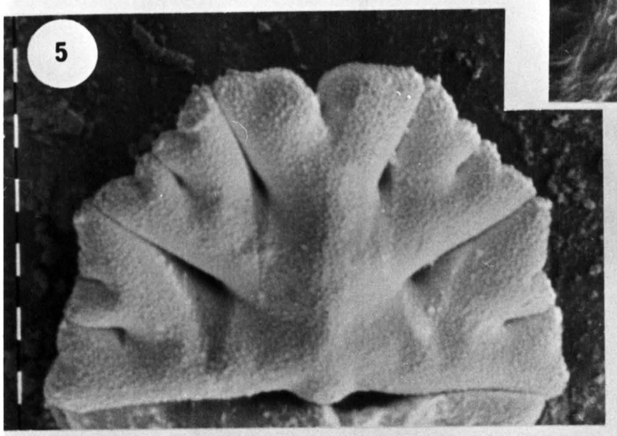

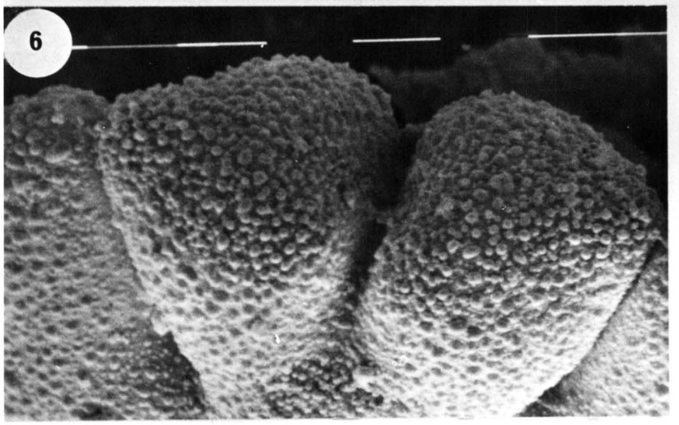

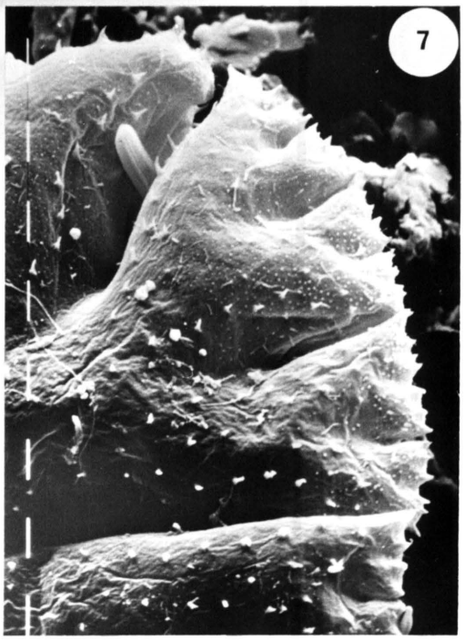

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FIGUUR 206

Aftaselektronmikrograwe van

1. Micrasterias nylstromica (p. 452).

2 - 4. M. papillifera var. glabra (p. 453).
3, 4. Verskillende vergrotings van 'n sel.

5, 6. M. radians (p. 454).

1 - 6 : skaal = 10 µm

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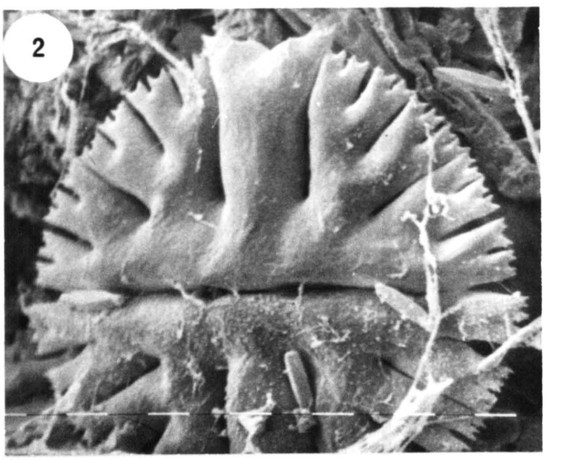
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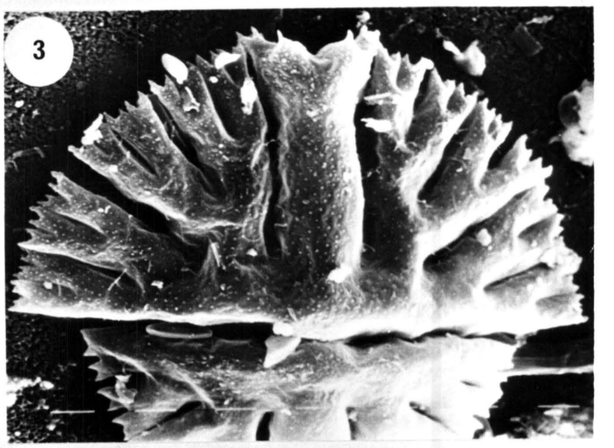
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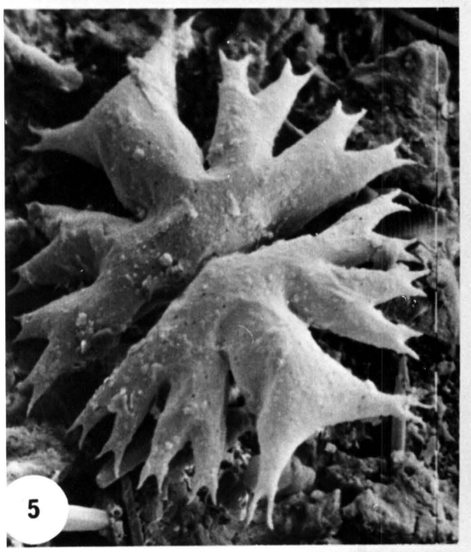
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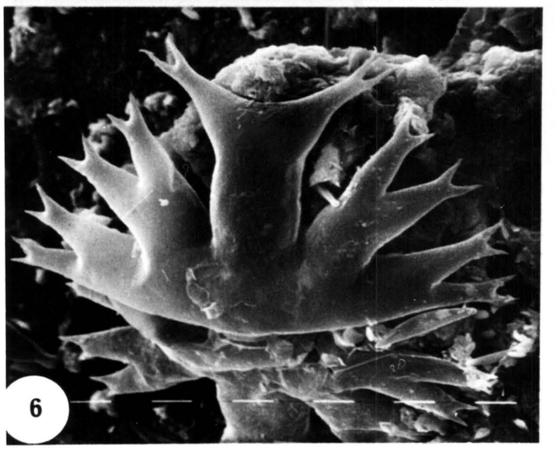
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FIGUUR 207

Aftaselektronmikrograwe van

1. Micrasterias thomasiana var. thomasiana (p. 455).

2 - 4. M. tropica (p. 457). 2. Sel skuins van voor gesien. 3, 4. Halfselle van voor en skuins van bo onderskeidelik gesien om selwand= skulptuur te toon.

1 - 4 : skaal = 10 µm

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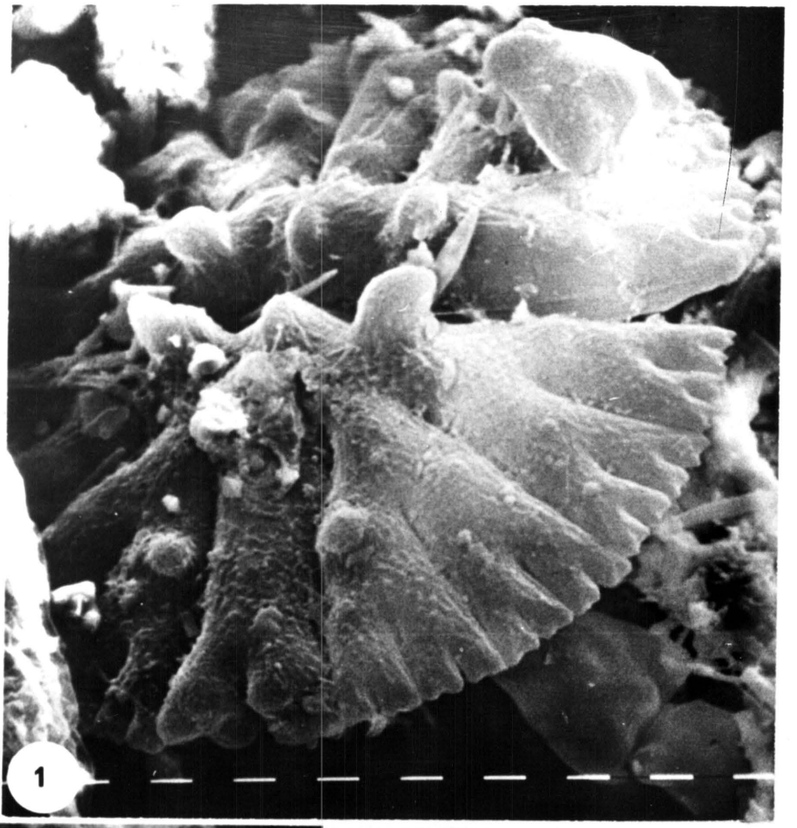
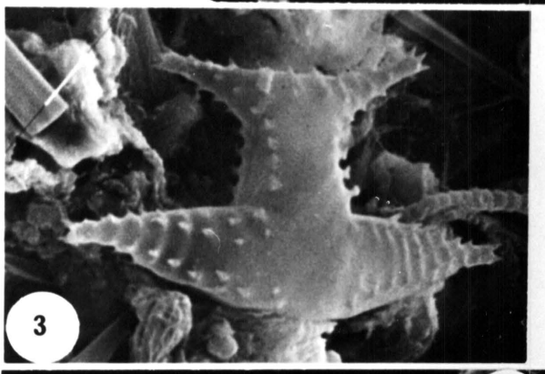
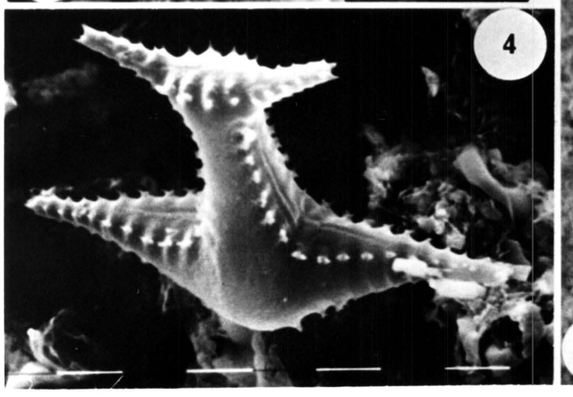
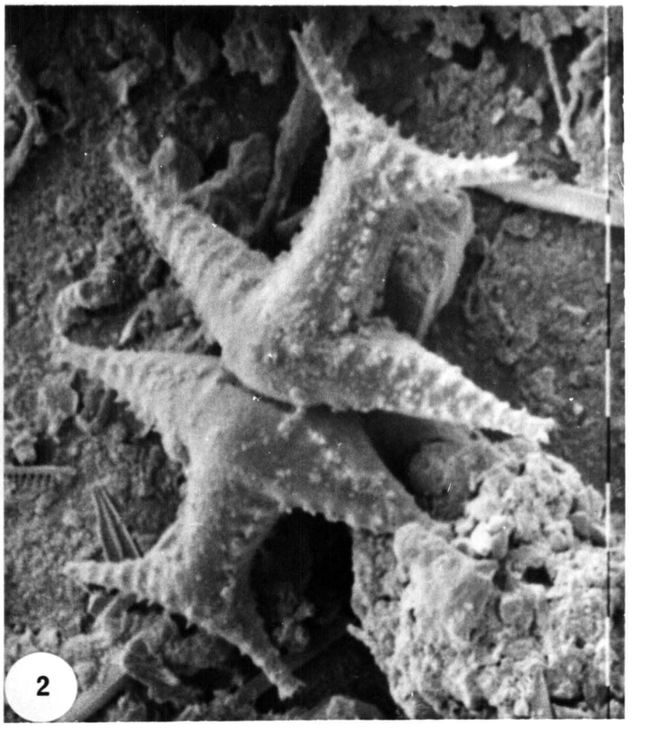
207









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FIGUUR 208

Aftaselektronmikrograwe van

1 - 5. Micrasterias truncata var. truncata (p. 457). 1. Slymafskeidings deur selwandporieë. 4. Vertikale aansig.

6. M. truncata var. africana (p. 459).

1 - 6 : skaal = 10 µm

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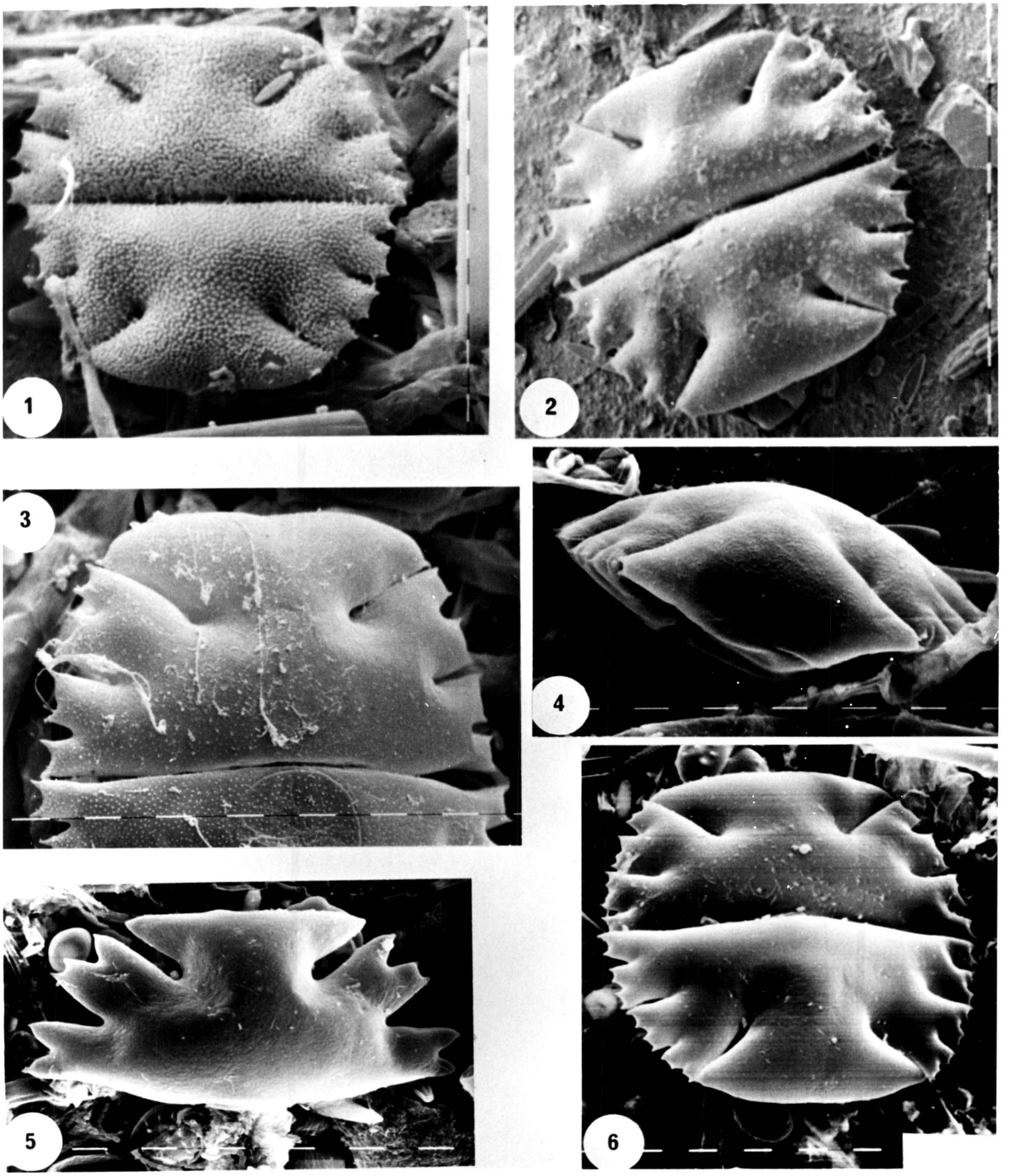

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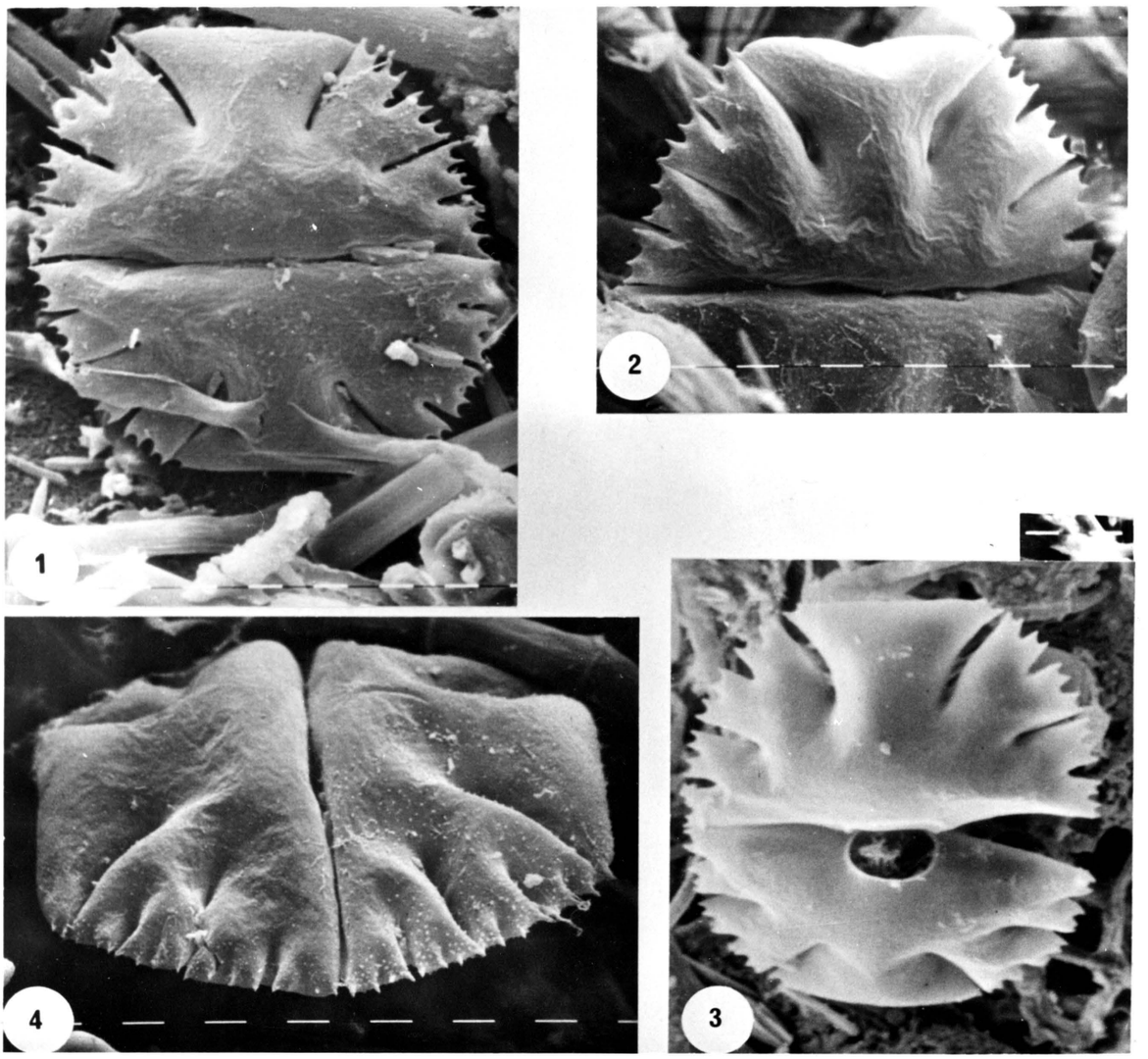

FIGUUR 209

1 - 4. Aftaselektronmikrograwe van Micrasterias truncata var. africana (p. 459).
4. Sel skuins van kant gesien.

1 - 4 : skaal = 10 µm

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FIGUUR 210

Fotomikrograwe van

1 - 6. Penium cylindrus (p. 463); verskillende eksemplare om die morfologie te toon. 1, 6. Chloroplaste met pirenoïede. 2, 4. Seldelingstadiums. 3. Selwandskulptuur. 4, 5. Verskillende fokusinstellings van 'n sel.

7 - 18. P. margaritaceum (p. 465). 7 - 10. Verskillende eksemplare om chloroplaste en pirenoïede te toon. 11, 12. Verskillende fokusinstellings van 'n sel waar die selwandknoppies in een van die gordelbande verspreidliggend en in die ander in oorlangse reekse gerangskik is. 13, 14. Verskillende fokusinstellings van 'n sel waar die selwandknoppies in oorlangse reekse gerangskik is. 15, 16. Verskillende fokusinstellings van 'n sel waar die selwandknoppies verspreidliggend gerangskik is. 17, 18. Verskillende fokusinstellings van 'n halfsel waar die selwandknoppies verspreidliggend (polêre gebied) en in oorlangse reekse gerangskik is.

1 - 6 : skaal A
7 - 18 : skaal B

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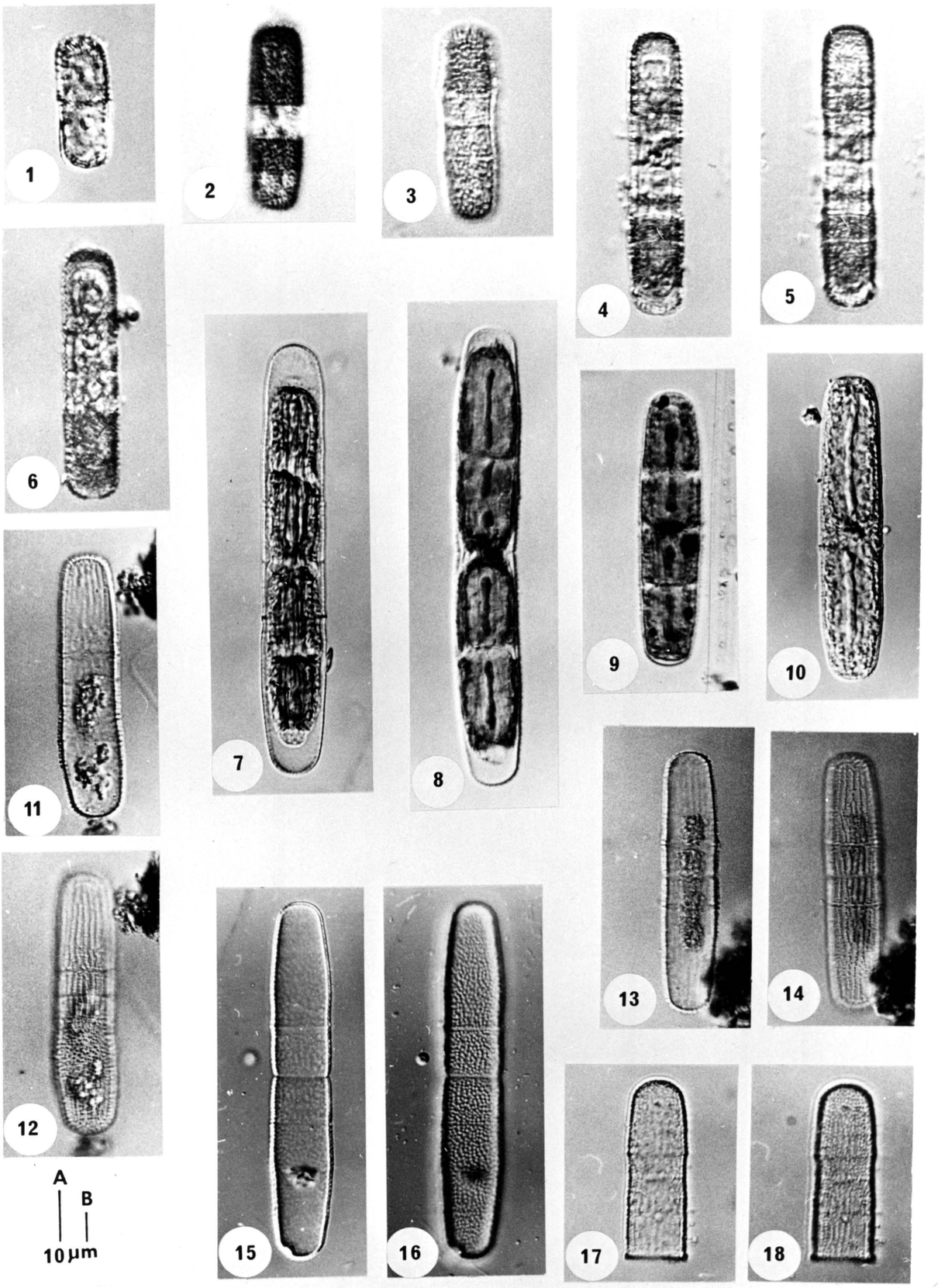

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FIGUUR 211

Fotomikrograwe van

1 - 7. Penium margaritaceum forma (p. 467). 1, 5. Eksemplare met een en twee chloro= plaste per halfsel onderskeidelik. 1 - 4, 6, 7. Verskillende fokusinstellings van drie selle om die selvorm en selwand= skulptuur te toon.

8, 9. P. silvae-nigrae (p. 467); verskillende fokusinstellings van 'n sel om die selvorm en streping van die selwand te toon.

10 - 13. P. spinospermum (p. 468); verskillende eksemplare om die selvorm en chloroplaste te toon.

14 - 16. P. spirostriolatum (p. 469). 14. Selvorm en chloroplaste. 15, 16. Verskillende fokusinstellings om die selwandskulptuur te toon.

1 - 7 : skaal A
8 - 13 : skaal B
14 - 16 : skaal C

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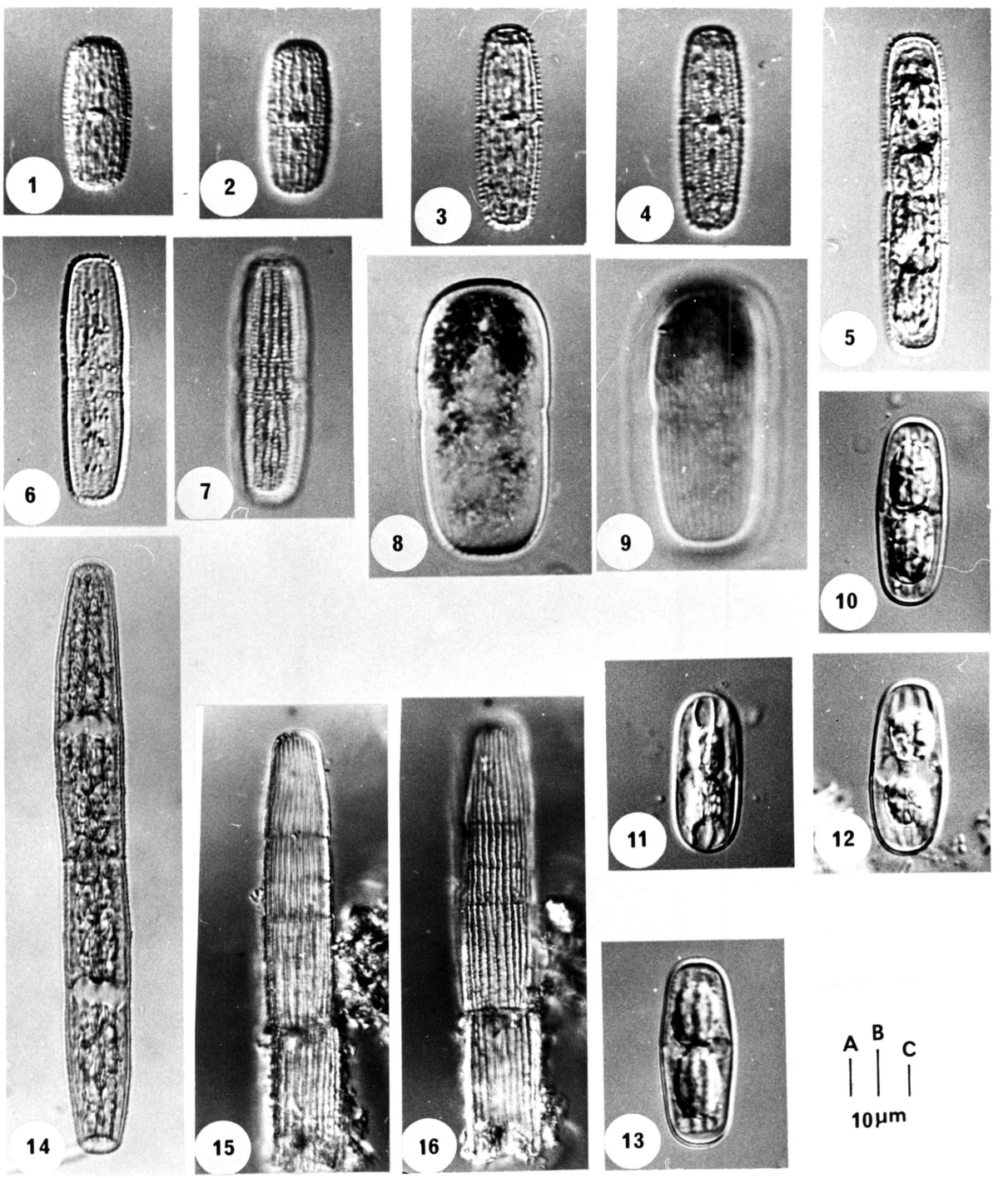

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FIGUUR 212

Aftaselektronmikrograwe van

1, 2. Penium cylindrus (p. 463); verskillende vergrotings van 'n sel om die selwandskulptuur te toon.

3 - 6. P. silvae-nigrae (p. 467); verskillende vergrotings van 'n sel om die selwandskulptuur te toon. 4, 5. Gedeeltes van die boonste halfsel. 6. Gedeelte van die onderste halfsel.

1, 2, 4 - 6 : skaal = 1 µm

3 : skaal = 10 µm

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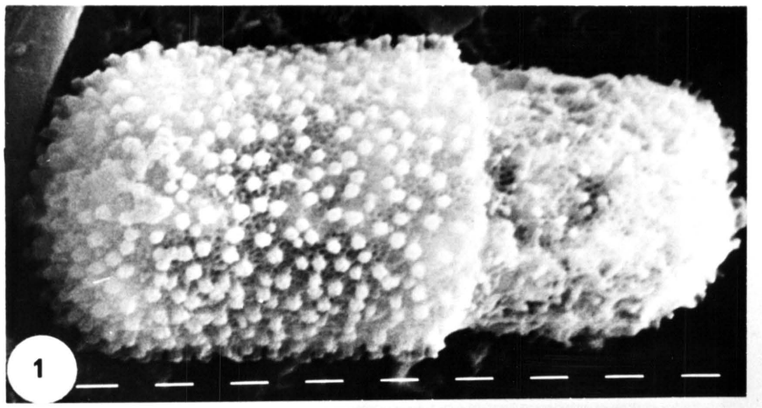
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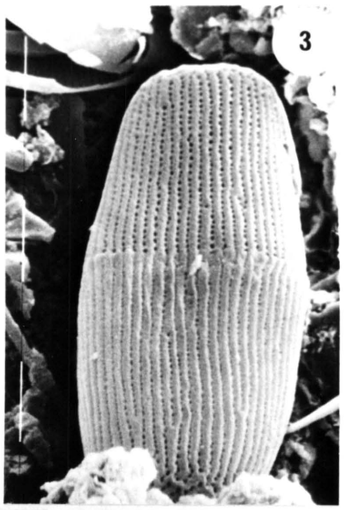
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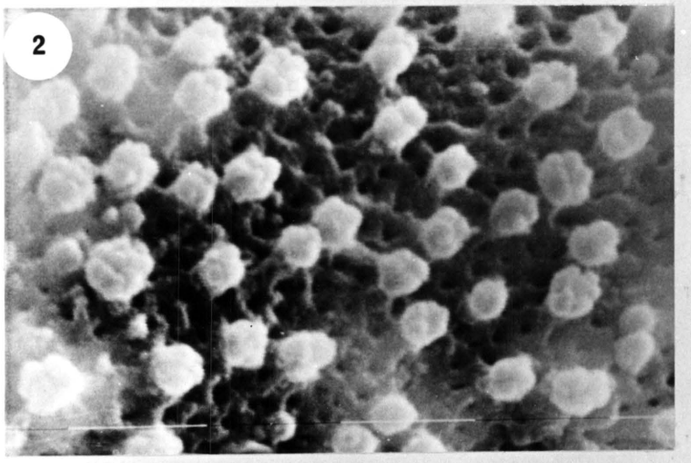
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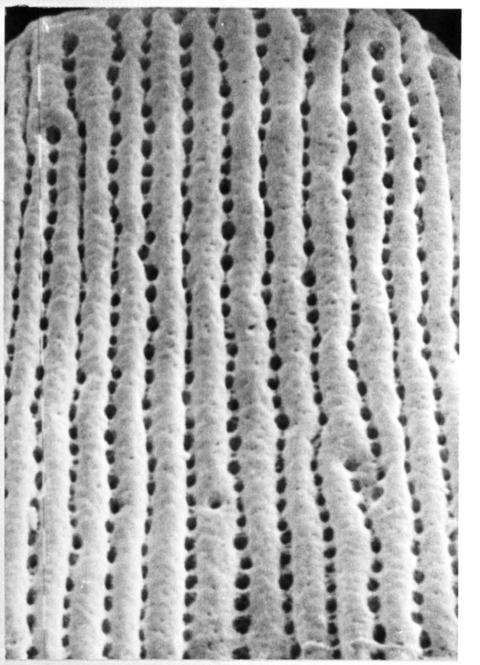
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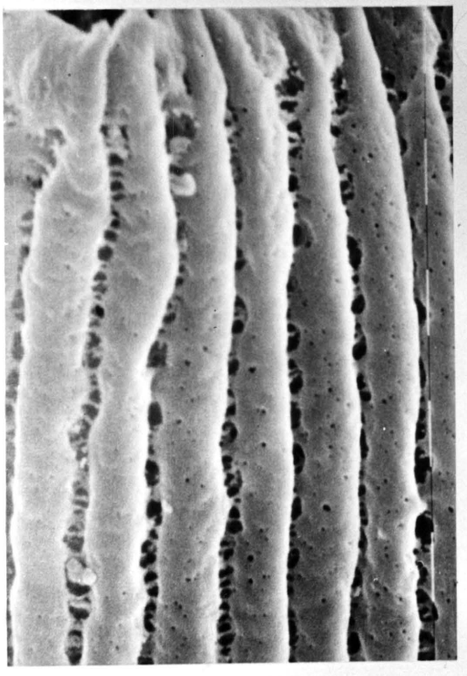
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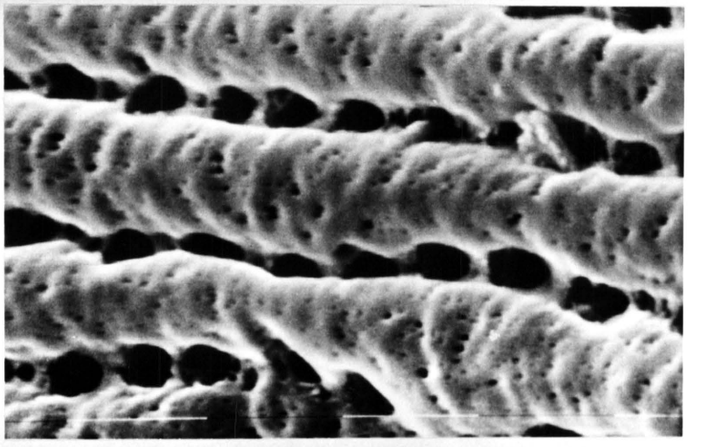

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FIGUUR 213

1 - 5. Aftaselektronmikrograwe van Penium margaritaceum (p. 465). 1, 2. Selwandskulptuur van 'n eksemplaar waar die selwandknoppies in oorlangse reekse gerangskik is. 3 - 5. Eksemplare waar die selwandknoppies verspreidliggend voorkom.

1, 2, 5 : skaal = 1 µm

3, 4 : skaal = 10 µm

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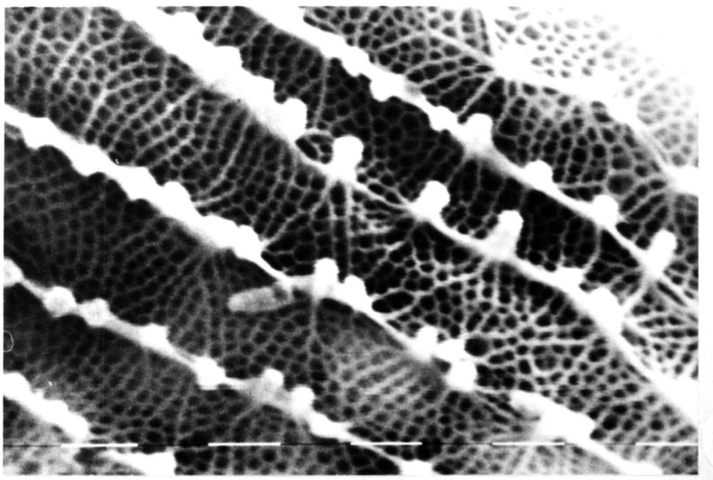

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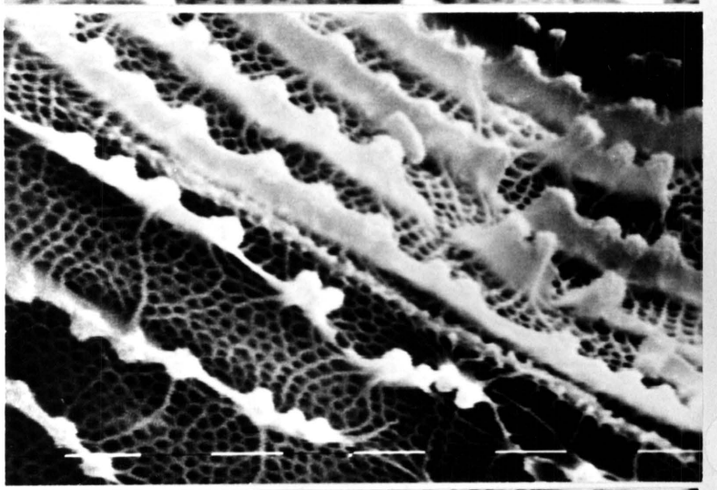

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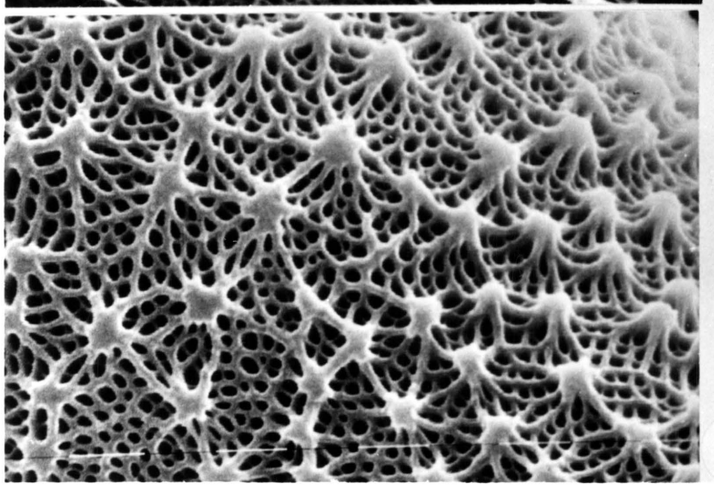

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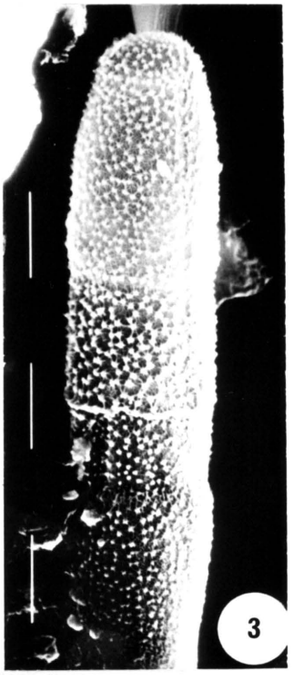

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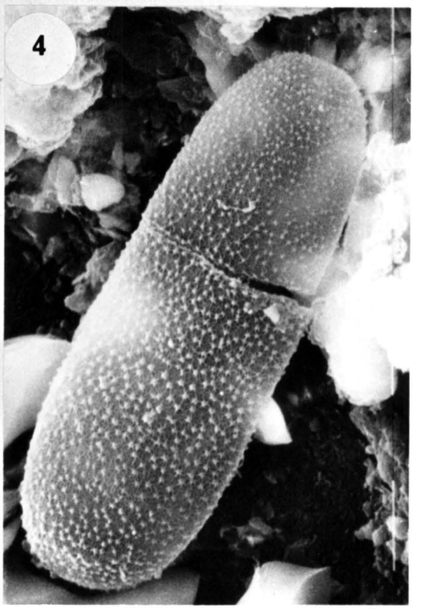

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FIGUUR 214

1 - 3. Pleurotaenium coroniferum forma (p. 470).

4, 5. P. ehrenbergii (p. 472).

6, 7. P. trabecula var. transvaalense (p. 481).

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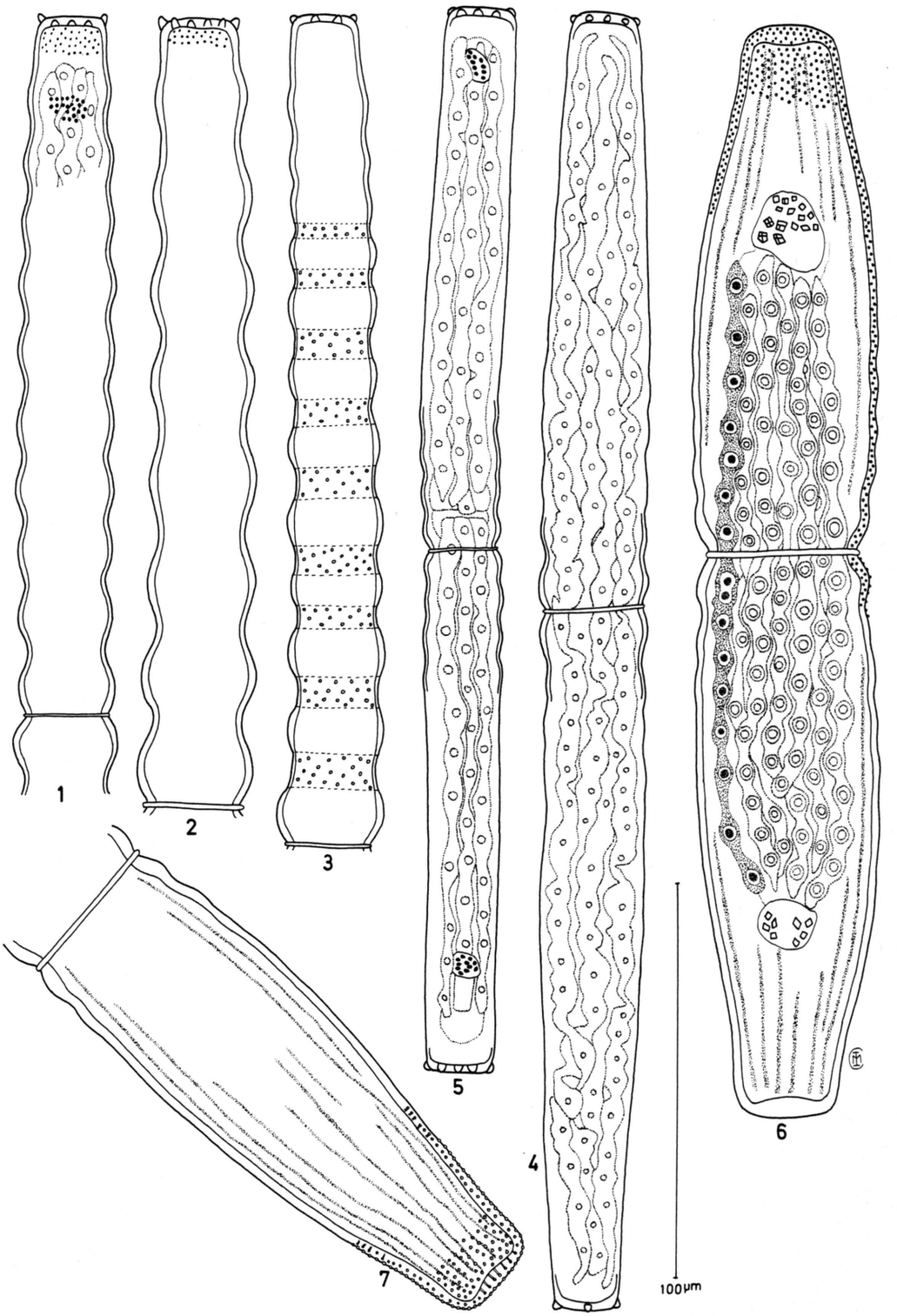

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FIGUUR 215

1 - 3. Pleurotaenium cylindricum var. stuhlmannii (p. 471). 2. Halfsel. 3. Onderste halfsel anomalies.

4. P. subcoronulatum var. subcoronulatum (p. 479); halfsel.

5. P. subcoronulatum var. detum (p. 479).

1 - 3 : skaal A

4, 5 : skaal B

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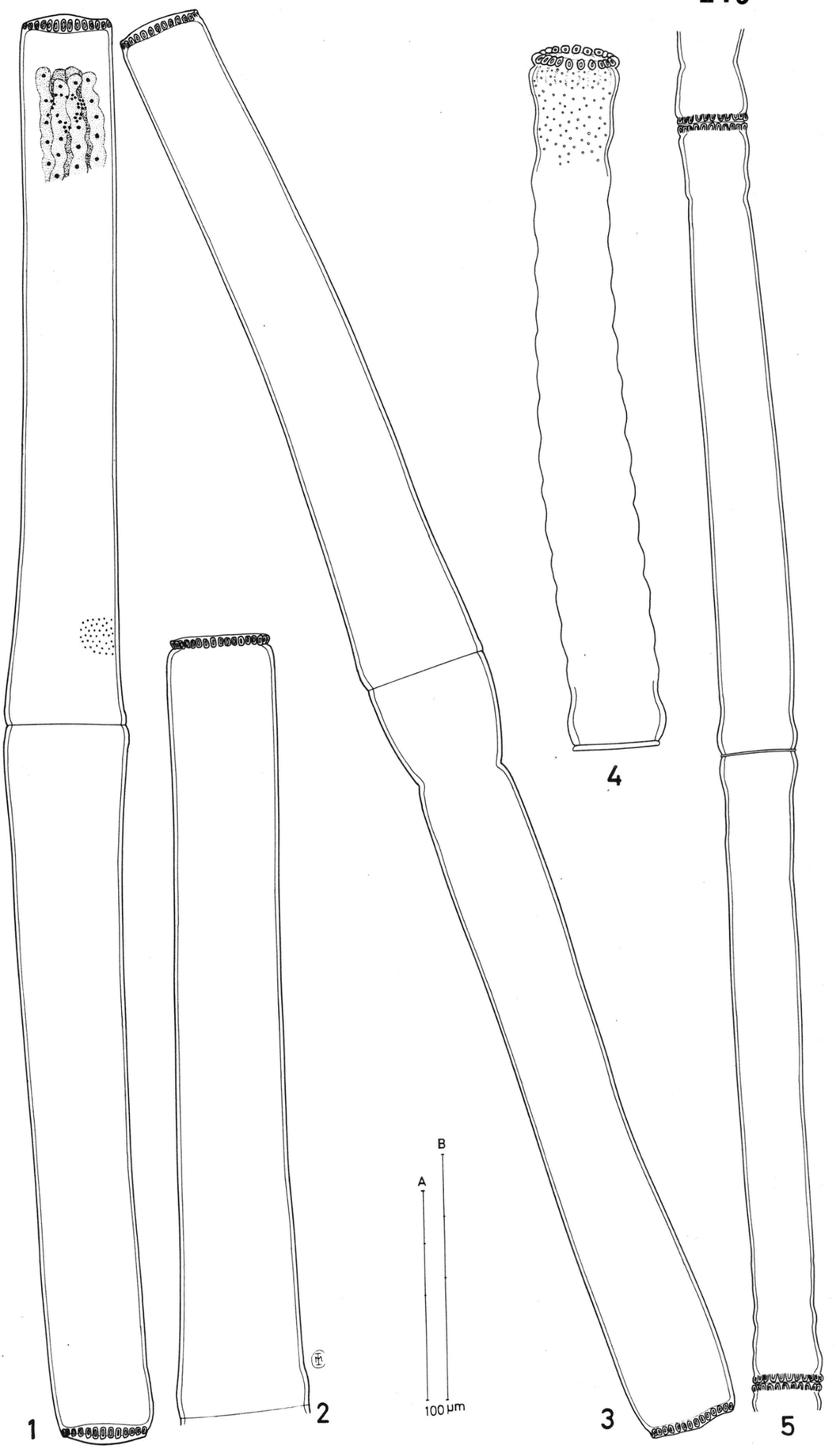

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FIGUUR 216

1 - 3. *Pleurotaenium truncatum* var. *farquharsonii* f. *transvaalense* (p. 483). 3. Halfsel.

4 - 6. *P. truncatum* var. *mattieae* (p. 484). 4. Halfsel.

7. *P. truncatum* var. *truncatum* (p. 482).

8. *P. eugeneum* (p. 474).

1, 3, 5, 7 : skaal A
2, 6, 8 : skaal B
4 : skaal C

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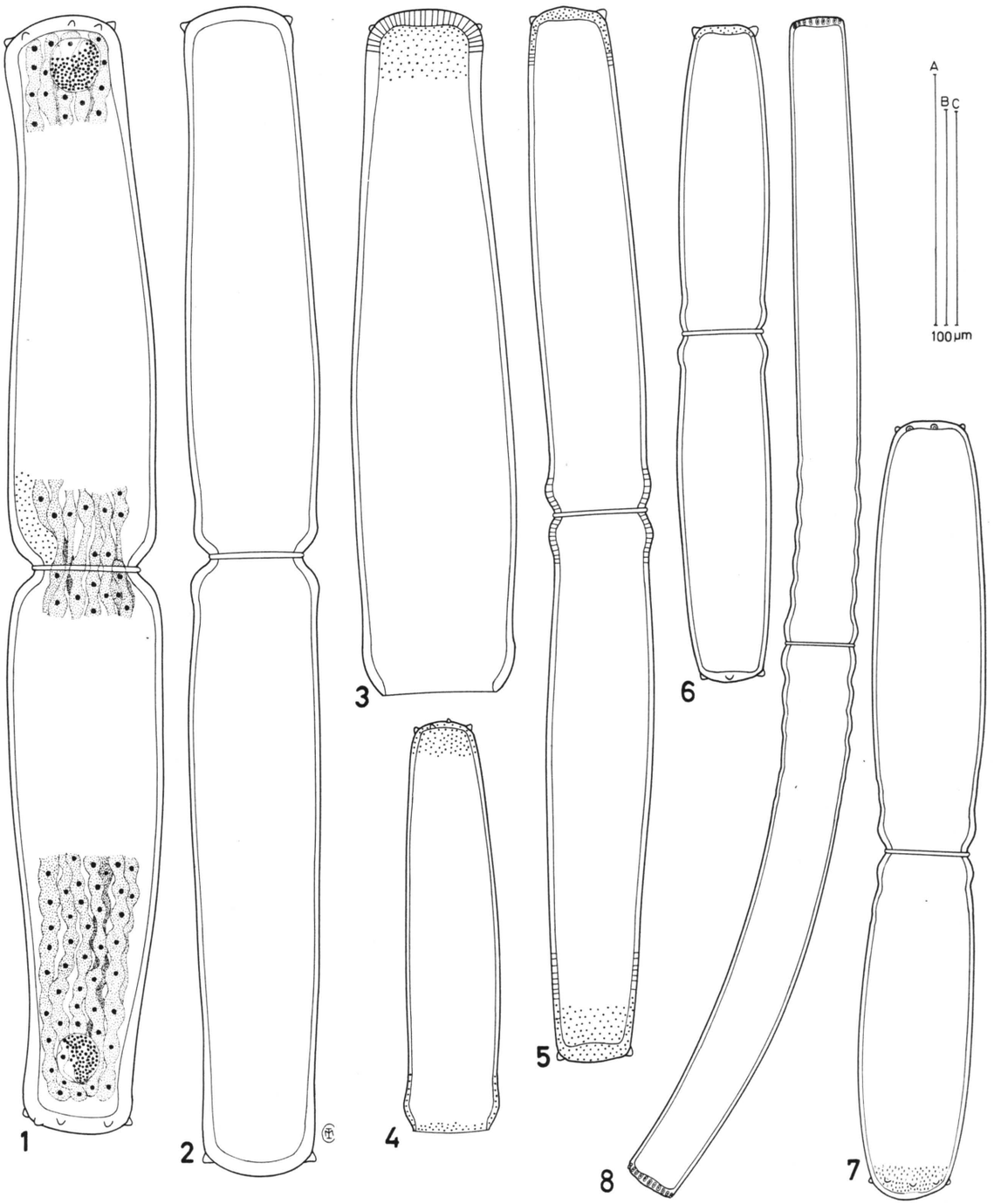

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FIGUUR 217

Fotomikrograwe van

1 - 5. Pleurotaenium coroniferum forma (p. 470); halfselle. 4, 5. Verskillende fokusinstel= lings van 'n halfsel om die skulptuur van die dunner gedeeltes van die selwand te toon.

6. P. truncatum var. farquharsonii f. transvaalense (p. 483).

7, 8. P. verrucosum var. galpinii (p. 484); verskillende fokusinstellings van 'n halfsel.

1 - 5, 7, 8 : skaal A

6 : skaal B

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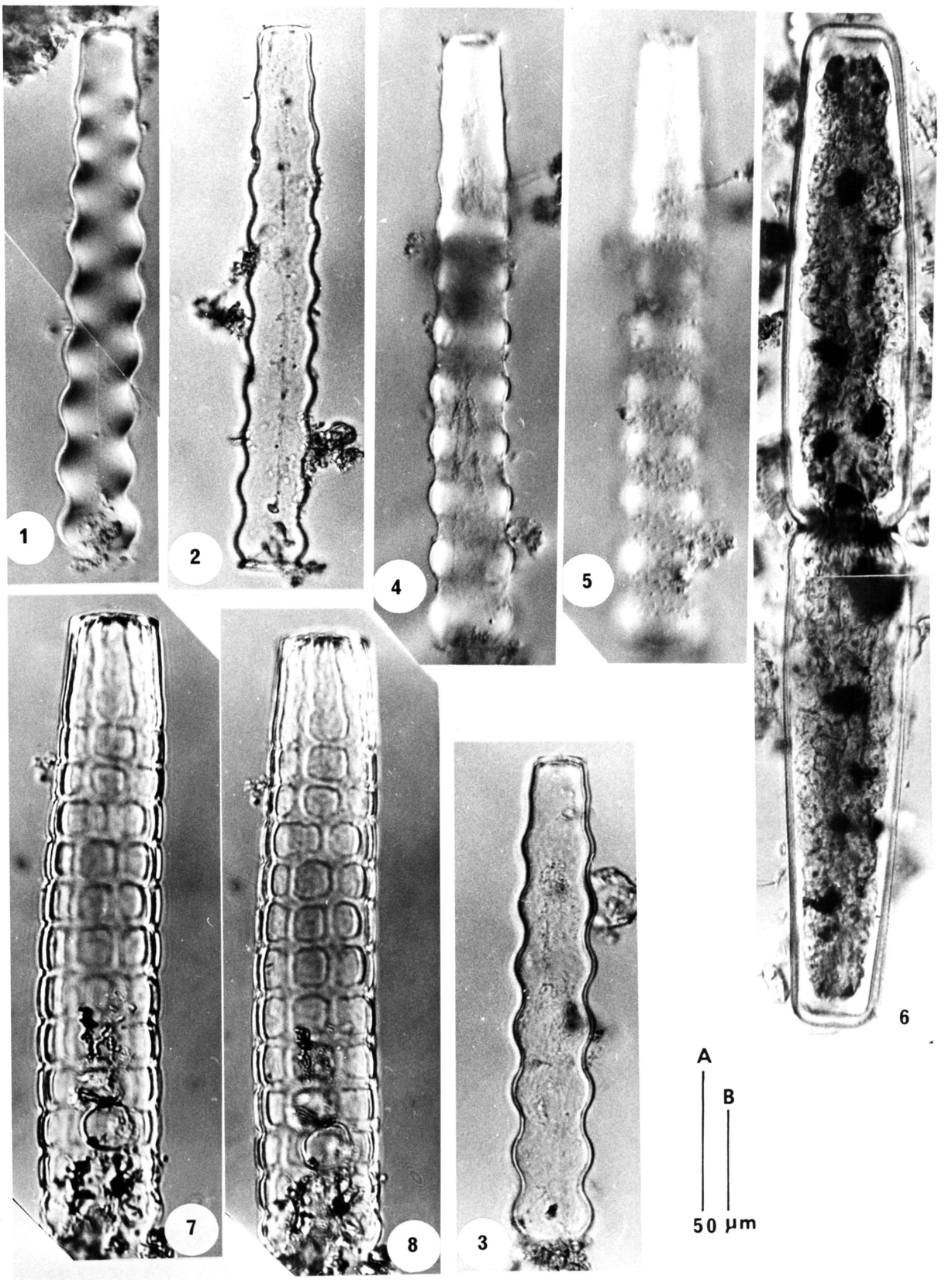

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FIGUUR 218

Fotomikrograwe van

1, 2. Pleurotaenium cylindricum var. stuhlmannii (p. 471).

3, 4, 6, 8 P. maximum (p. 475). 6. Polêre gedeelte van 'n sel om dié selwandskulptuur te toon.

5. P. rectum (p. 478).

7. P. trabecula var. crassum (p. 480).

1, 2 : skaal A

3 - 5, 7, 8 : skaal B

6 : skaal C

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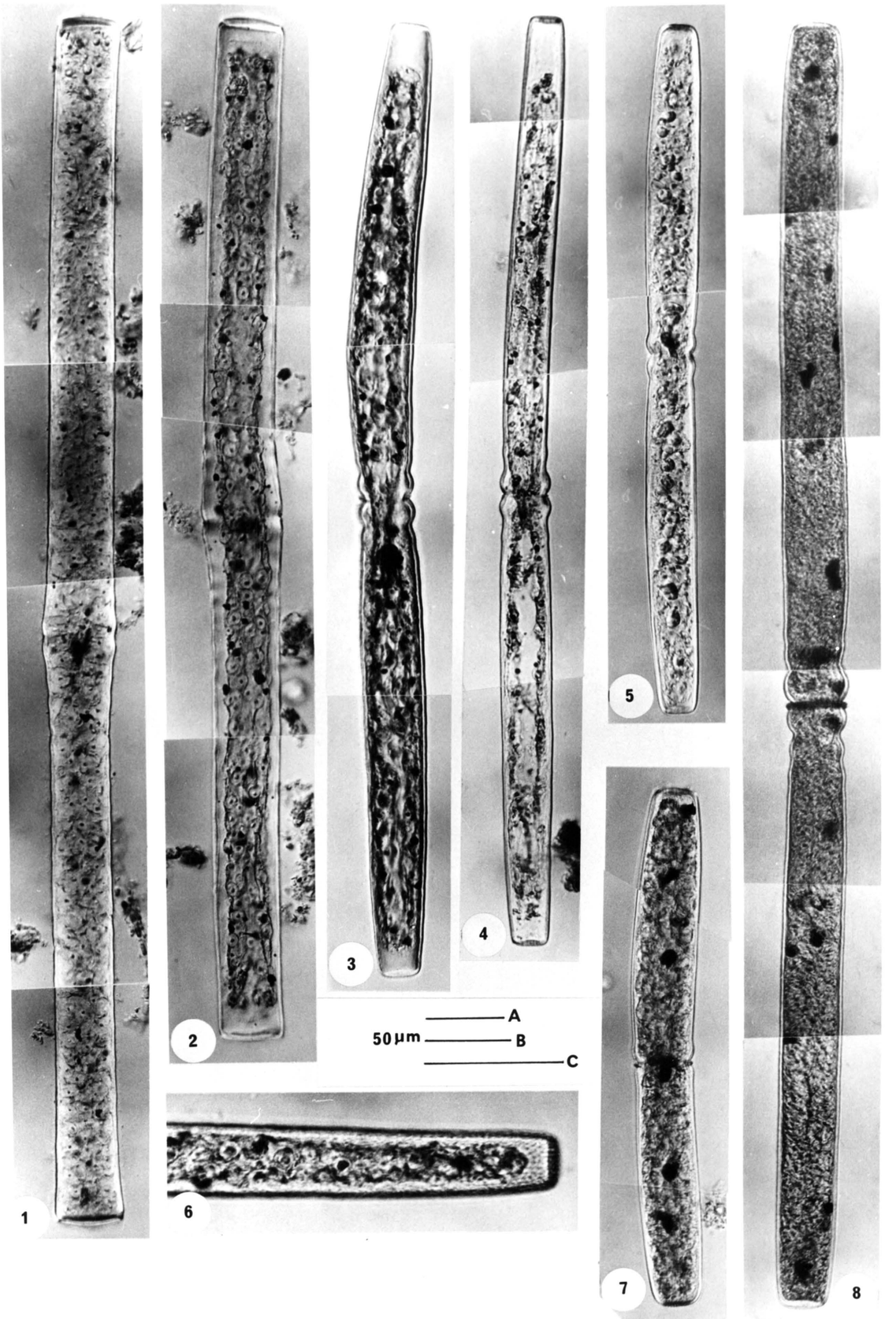

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FIGUUR 219

Fotomikrograwe van

1 - 5. Pleurotaenium ehrenbergii (p. 472).
5. Sigoot.

6, 7. P. eugeneum (p. 474); verskillende fokus=instellings van die polêre gedeelte van 'n sel om die knoppies by die selpool te toon.

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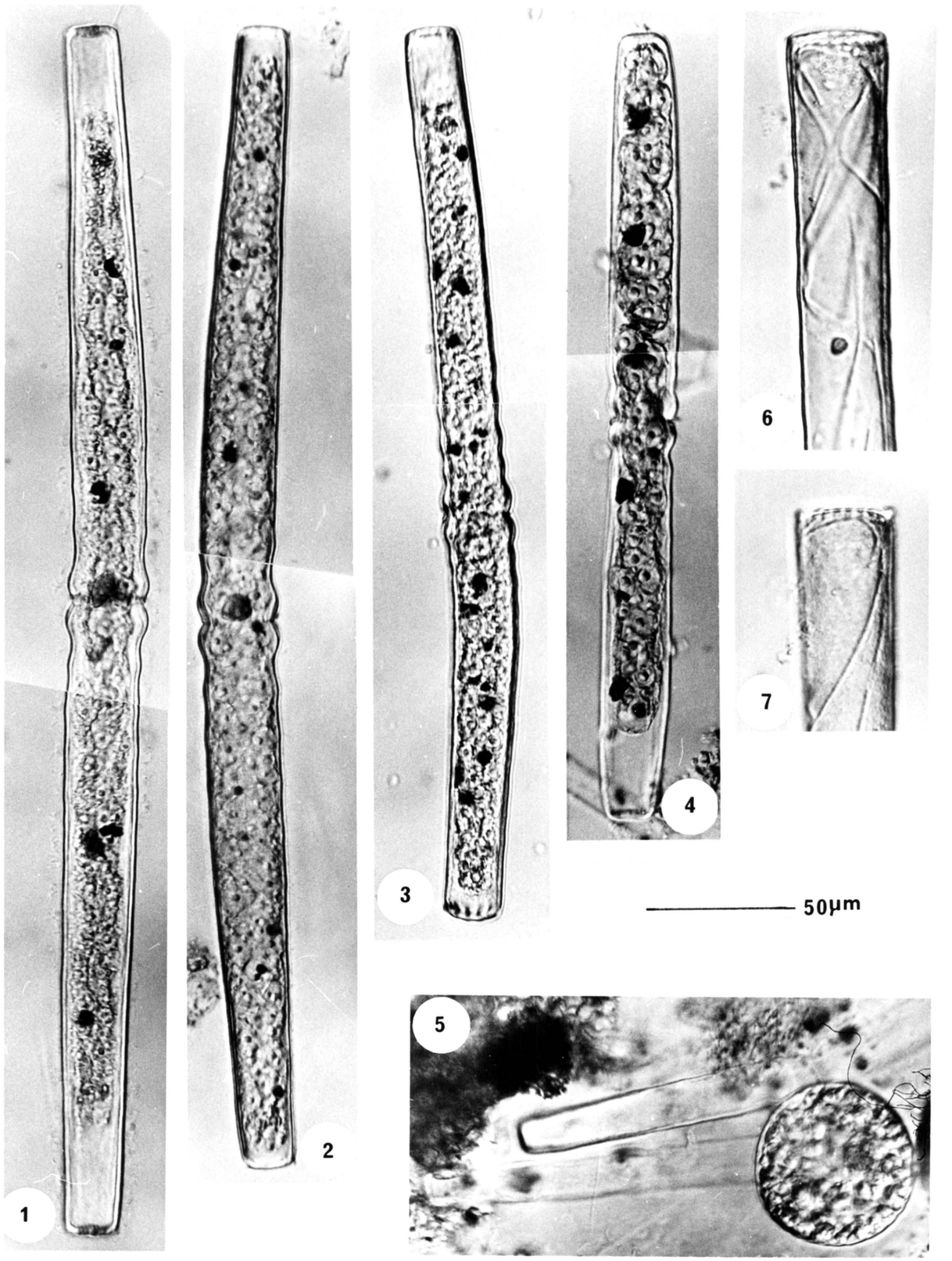

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FIGUUR 220

Fotomikrograwe van

1, 2. Pleurotaenium rectum (p. 478).

3 - 5. P. subcoronulatum var. subcoronulatum (p. 479); 'n halfsel en verskillende fokusinstellings van die polêre gedeelte daarvan om die knoppies by die selpool te toon.

6 - 9. P. trabecula var. transvaalense (p. 481).
6, 7. Gewone en fase-kontras beligting onderskeidelik van 'n sel om die oorlangse plooie van die selwand te toon.
6, 8, 9. Verskillende eksemplare om die morfologie van die sel te toon.

1, 3 - 5 : skaal A
2 : skaal B
6 - 9 : skaal C

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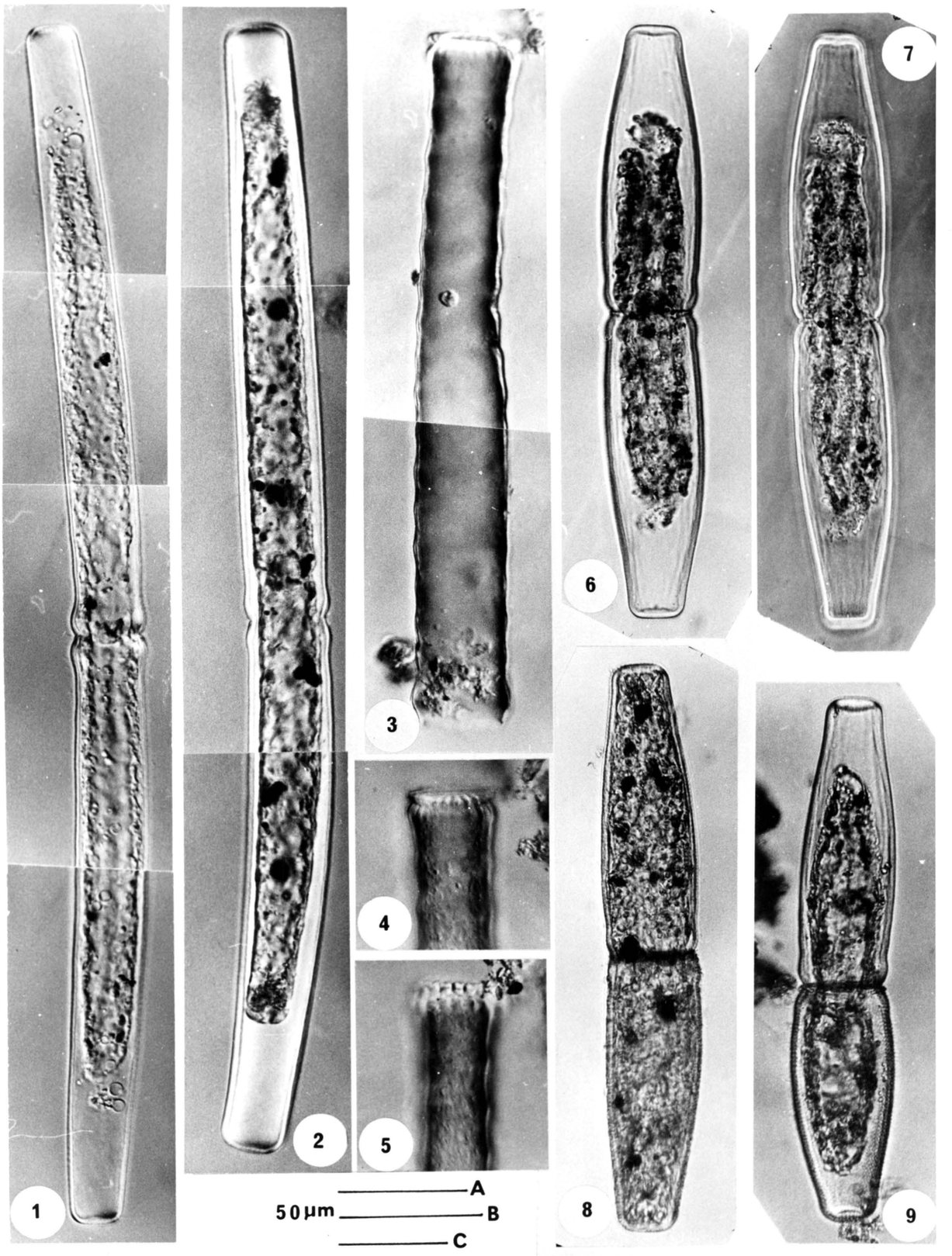

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FIGUUR 221

Fotomikrograwe van

1, 3, 4. *Pleurotaenium ovatum* (p. 476).

2. *P. truncatum* var. *crassum* (p. 483).

5, 6. *P. truncatum* var. *mattieae* (p. 484).
6. Halfsel.

1 : skaal A

2 - 4 : skaal B

5, 6 : skaal C

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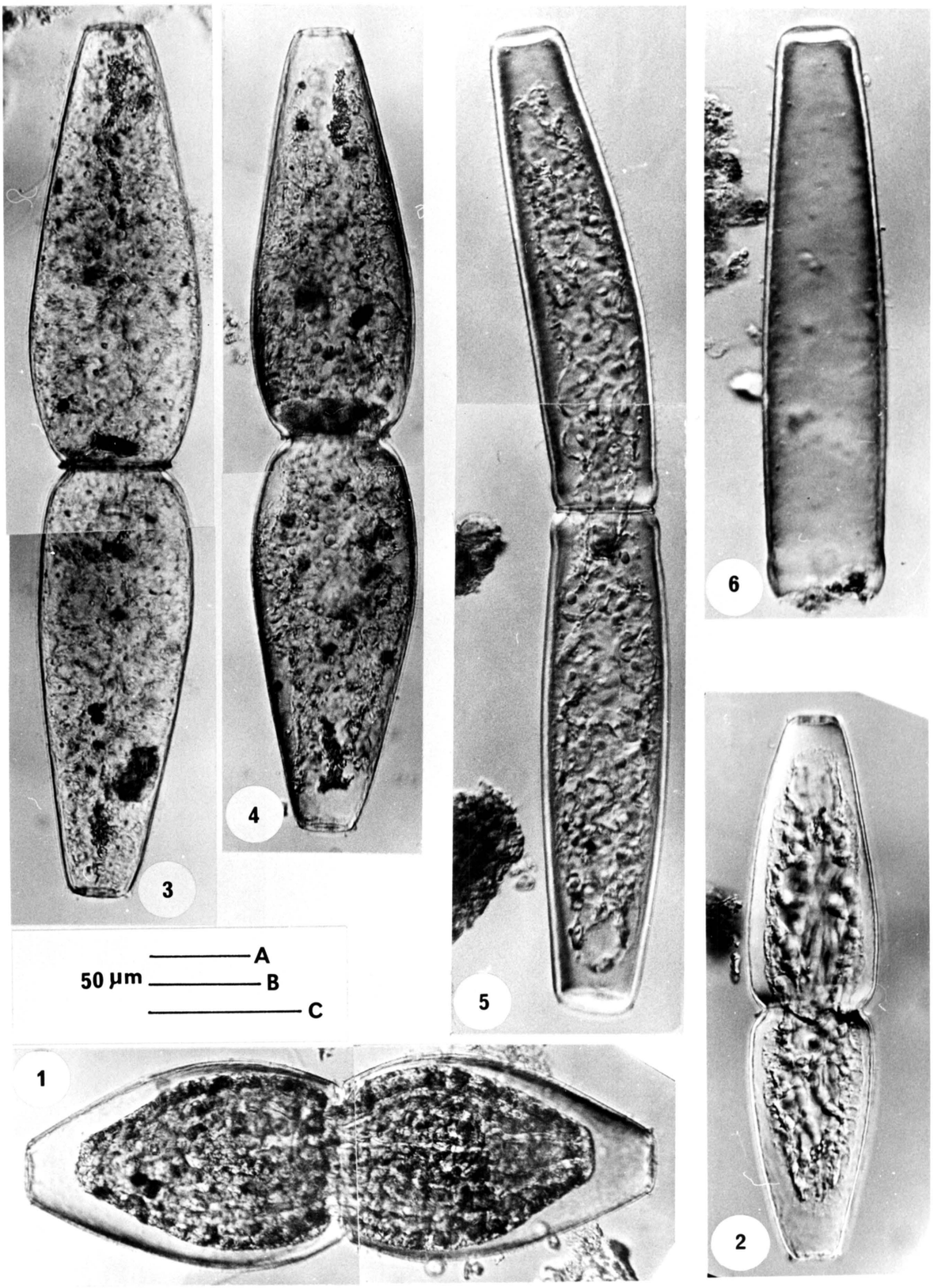

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FIGUUR 222

Aftaselektronmikrograwe van

1 - 4. Pleurotaenium coroniferum forma (p. 470); verskillende vergrotings om die vorm van die halfselle en selwandskulptuur te toon.

5, 6. P. cylindricum var. stuhlmannii (p. 471). 5. Halfsel. 6. Polêre knoppies.

1 - 4, 6 : skaal = 10 µm

5 : skaal = 100 µm

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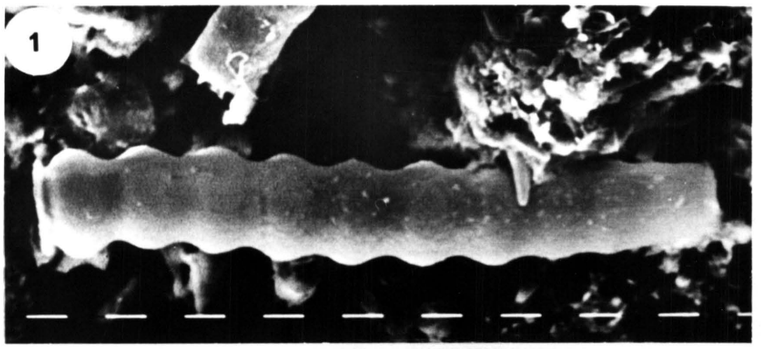
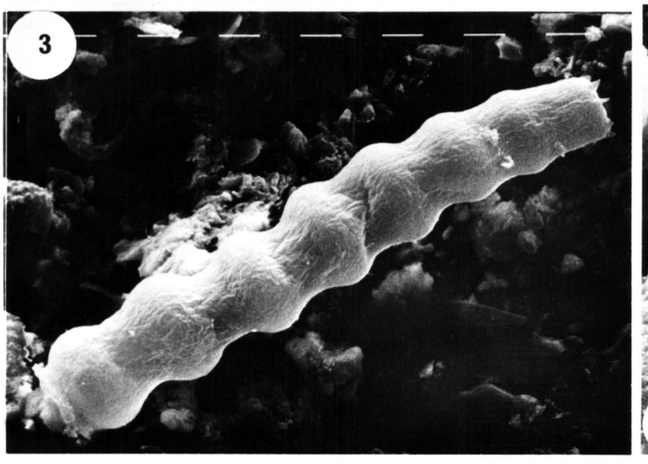
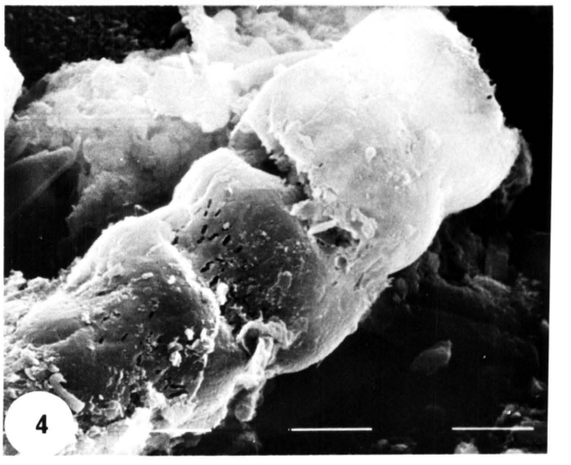
222







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FIGUUR 223

1 - 6. Aftaselektronmikrograwe van Pleurotaenium ehrenbergii (p. 472). 1. Polêre gedeelte van sel met die kransvormig gerangskikte knoppies van die selpool. 2. Basale gedeelte van 'n halfsel, slymafskeiding deur selwandporieë. 3, 4. Verskillende vergrotings van selle om die morfologie van die halfselle en selpool te toon. 5, 6. Verskillende vergrotings van 'n halfsel waar die afskeidings deur die selwandporieë 'n besondere vorm besit.

1 - 5 : skaal 10 µm

6 : skaal 1 µm

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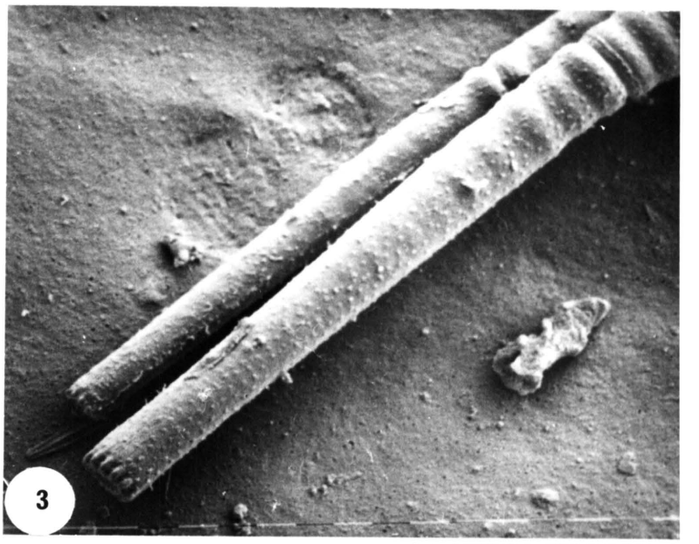

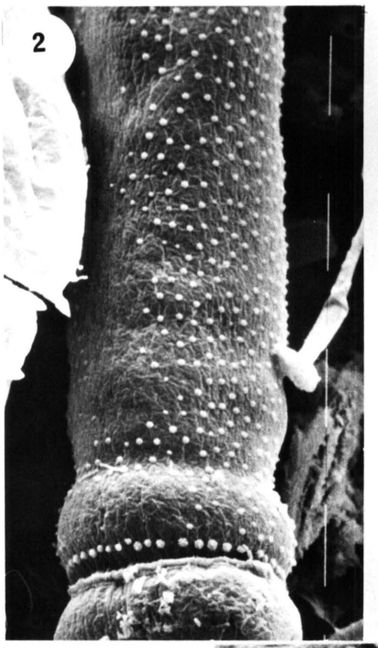

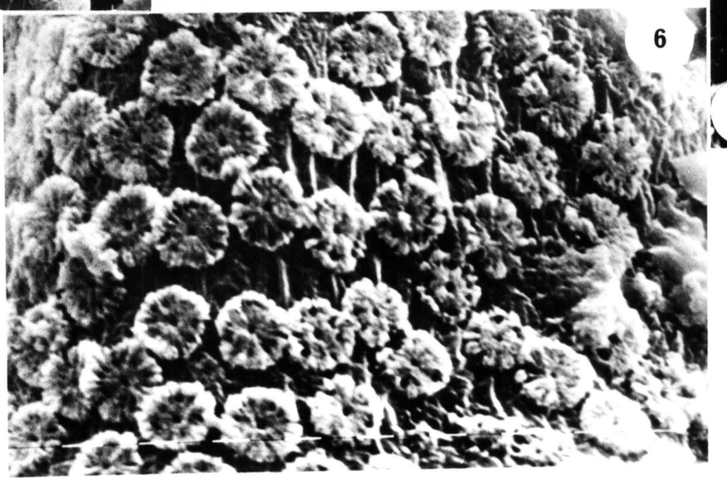

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FIGUUR 224

Aftaselektronmikrograwe van

1. Pleurotaenium eugeneum (p. 474); morfologie van 'n selpool.

2. P. raciborskii var. engleri (p. 477).

3. P. maximum (p. 475); morfologie van 'n selpool.

4 - 8. P. trabecula var. transvaalense (p. 481); verskillende vergrotings om die selvorm, selwandskulptuur en die oorlangse plooie te toon.

1 - 8 : skaal = 10 µm

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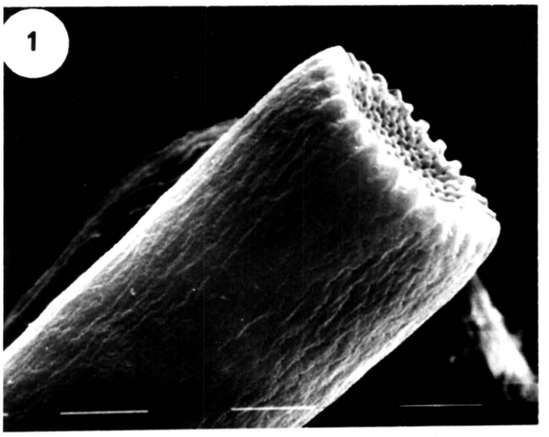

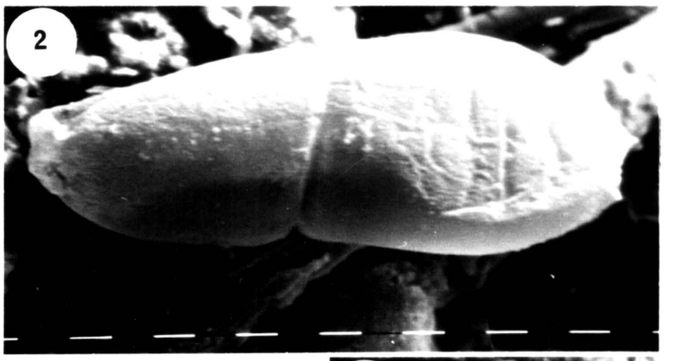

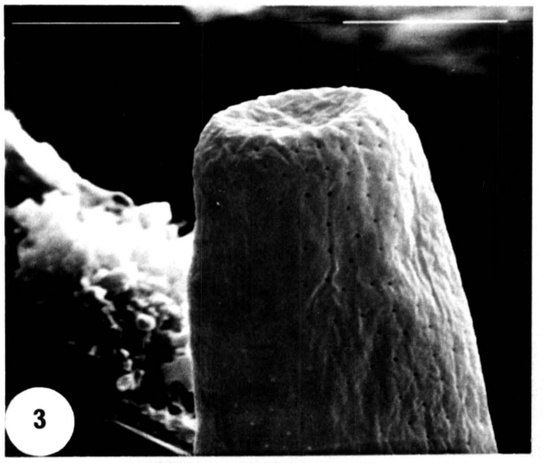

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FIGUUR 225

Aftaselektronmikrograwe van

1 - 4. Pleurotaenium ovatum (p. 476); selvorm en morfologie van selpole.

5, 6. P. truncatum var. farquharsonii f. transvaalense (p. 483).

7. P. truncatum var. mattieae (p. 484); halfsel.

1 : skaal = 100 µm

2 - 7: skaal = 10 µm

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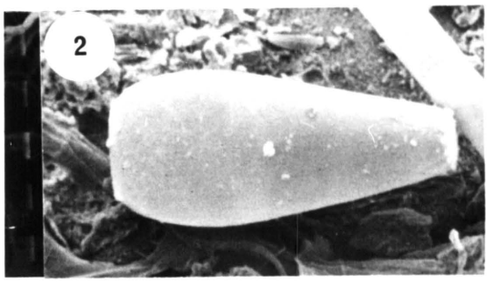

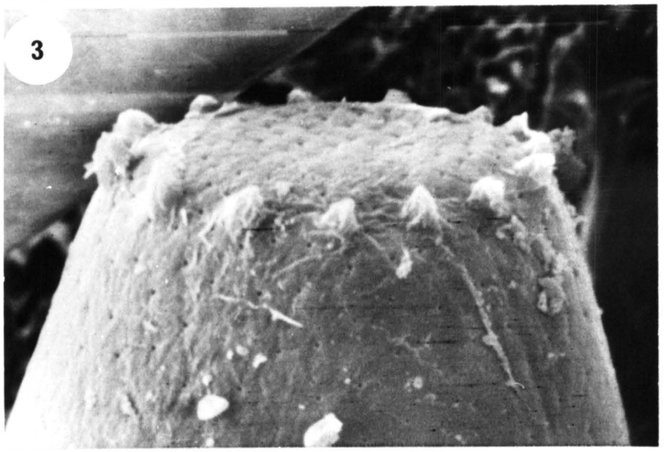

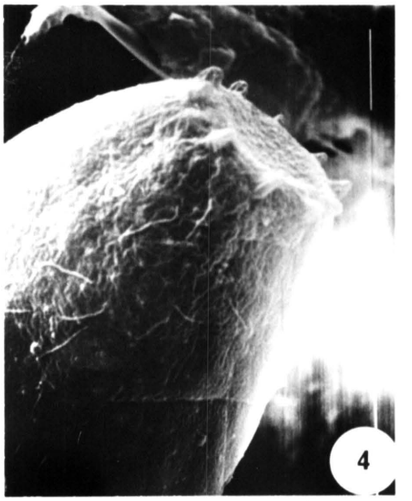

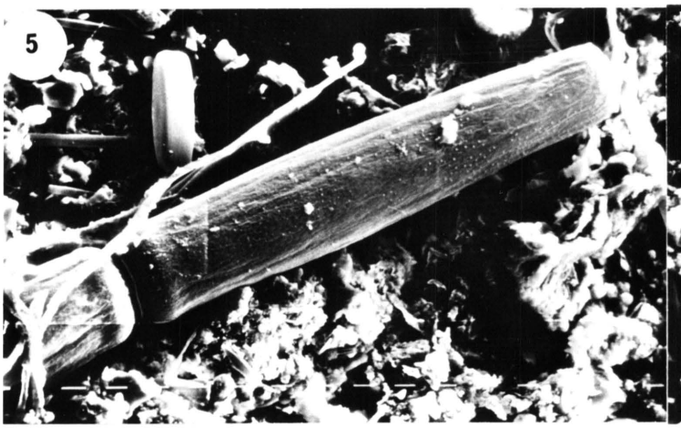

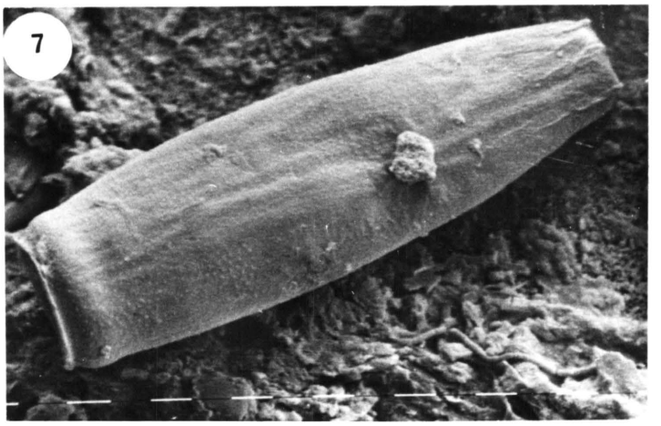

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FIGUUR 226

Aftaselektronmikrograwe van

1 - 4. Pleurotaenium verrucosum var. galpinii (p. 484); selwandskulptuur en morfologie van selpole.

5, 6. Triplastrum spinulosum (p. 490); verskillende vergrotings om die selvorm en die uitbeelding van 'n selpool te toon.

1, 3 - 5 : skaal = 10 µm

2, 6 : skaal = 1 µm

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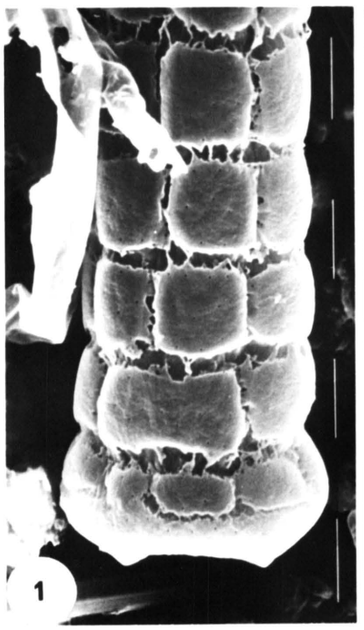
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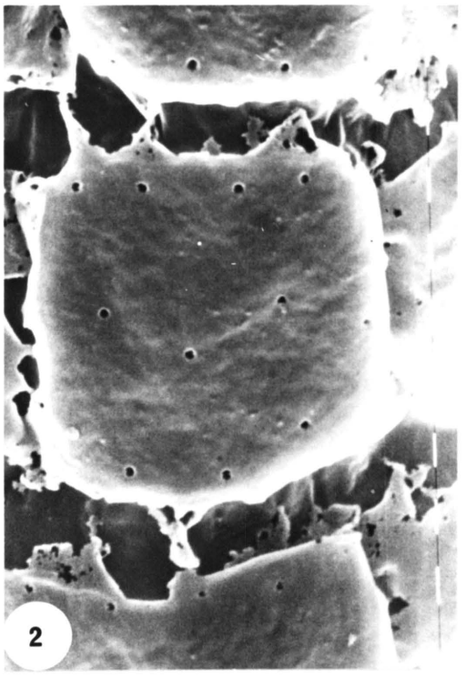
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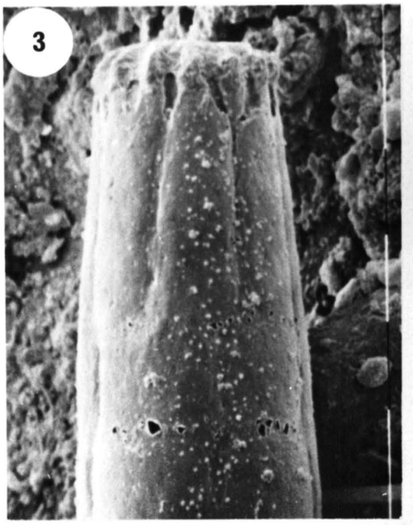
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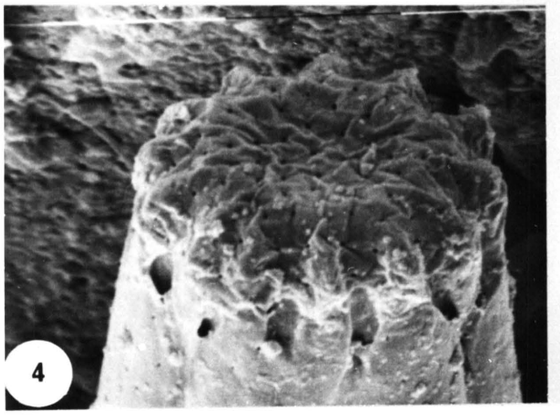
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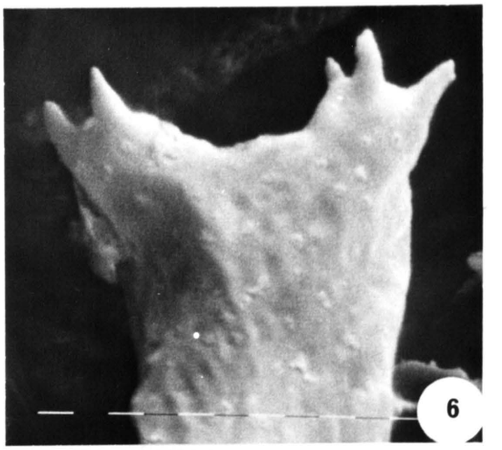
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FIGUUR 227

1 - 4. Fotomikrograwe van Pleurotaenium raciborskii var. engleri (p. 477); morfologie van die sel en chloroplaste. 1, 2. Verskillende fokus= instellings van 'n sel om ook die riwwe van die chloroplaste te toon.

5 - 7. Lyntekeninge van P. raciborskii var. engleri om die morfologie van die sel en chloroplaste te toon.

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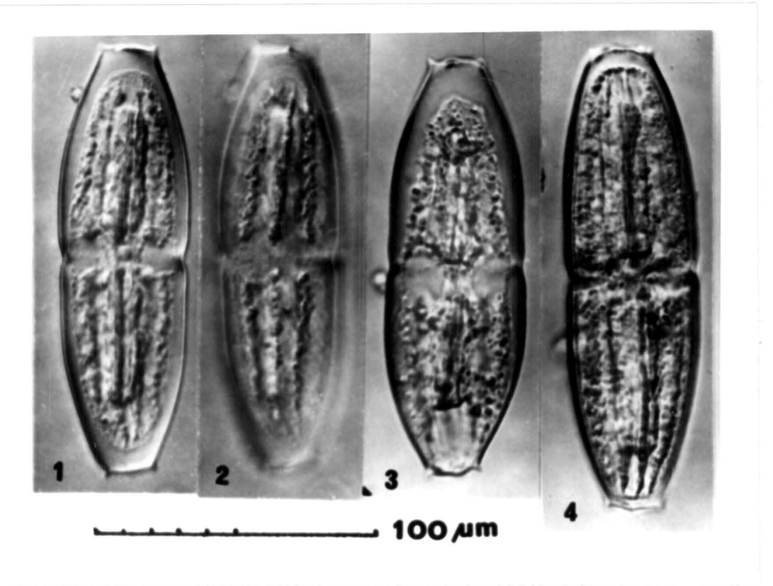

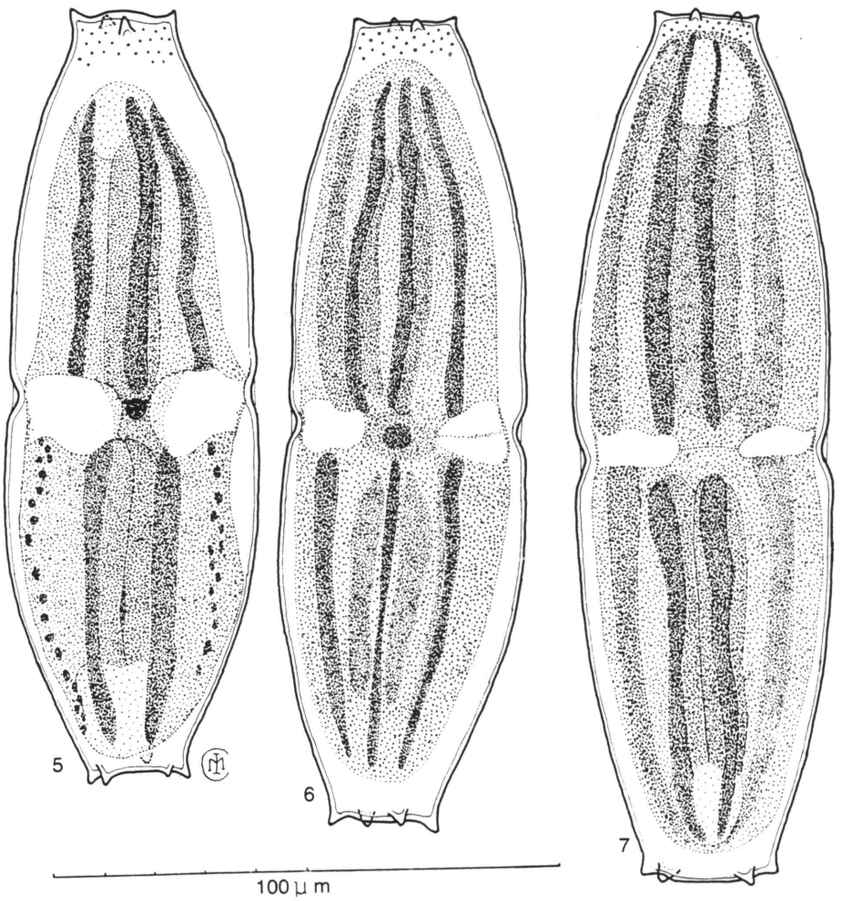

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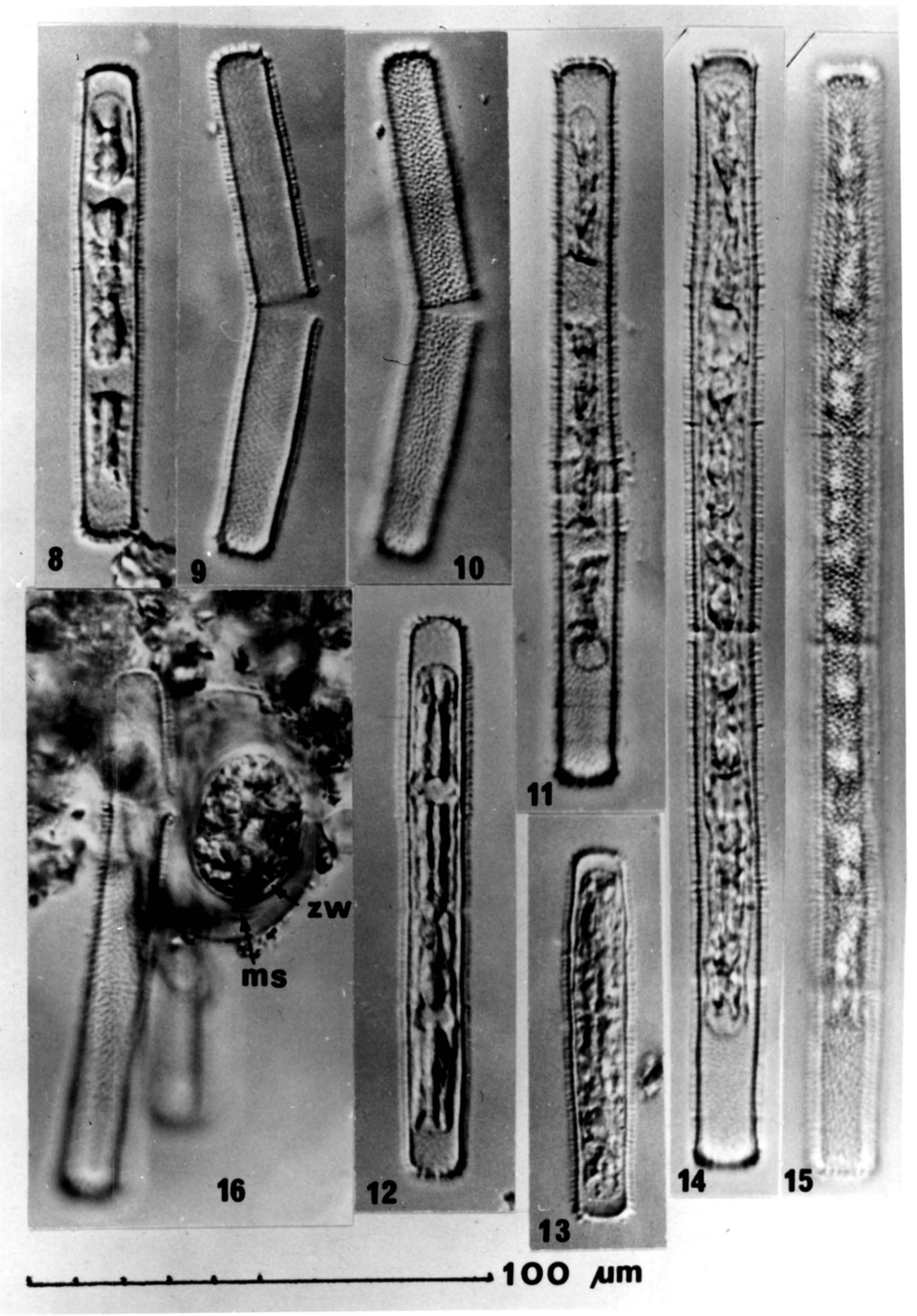

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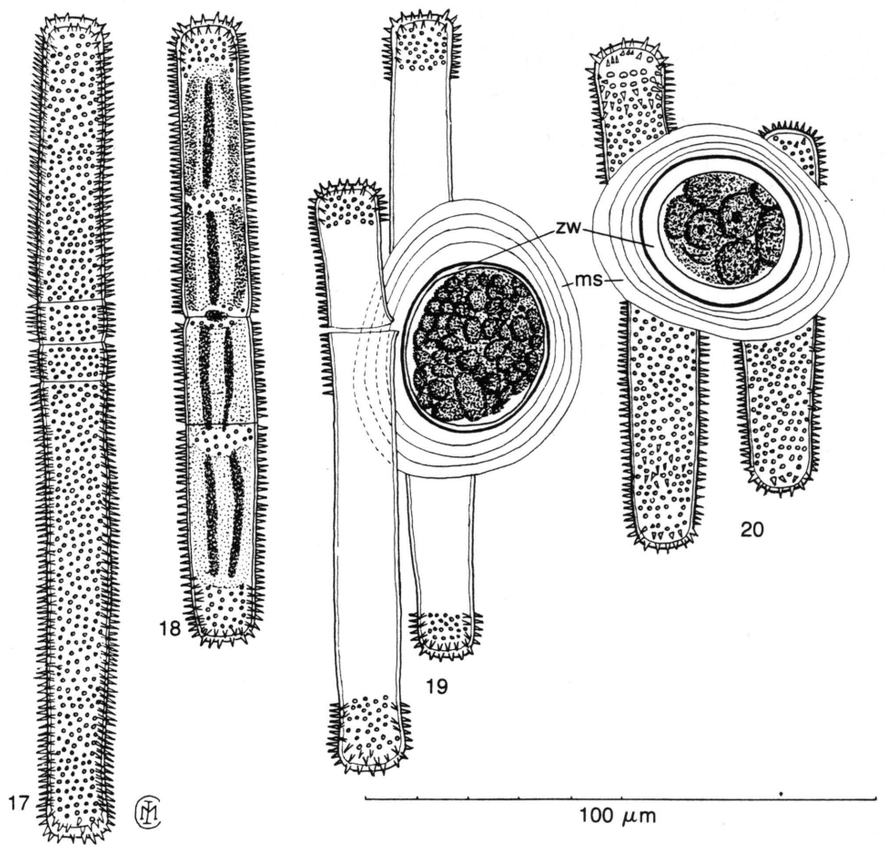

FIGUUR 227 (vervolg)

8 - 16. Fotomikrograwe van Penium gonatozygiforme (p. 464). 8, 9, 11 - 14. Verskillende eksemplare wat die morfologie van die sel en chloroplaste toon. 9, 10, 14, 15. Verskil= lende fokusinstellings van twee selle om die selwandstekeltjies te toon. 16. Konjugerende selle met sigoot.

17 - 20. Lyntekeninge van P. gonatozygiforme.
17, 18. Morfologie van sel en chloroplaste.
19, 20. Konjugerende selle met sigote.

ms, slymskede; zw, sigootwand

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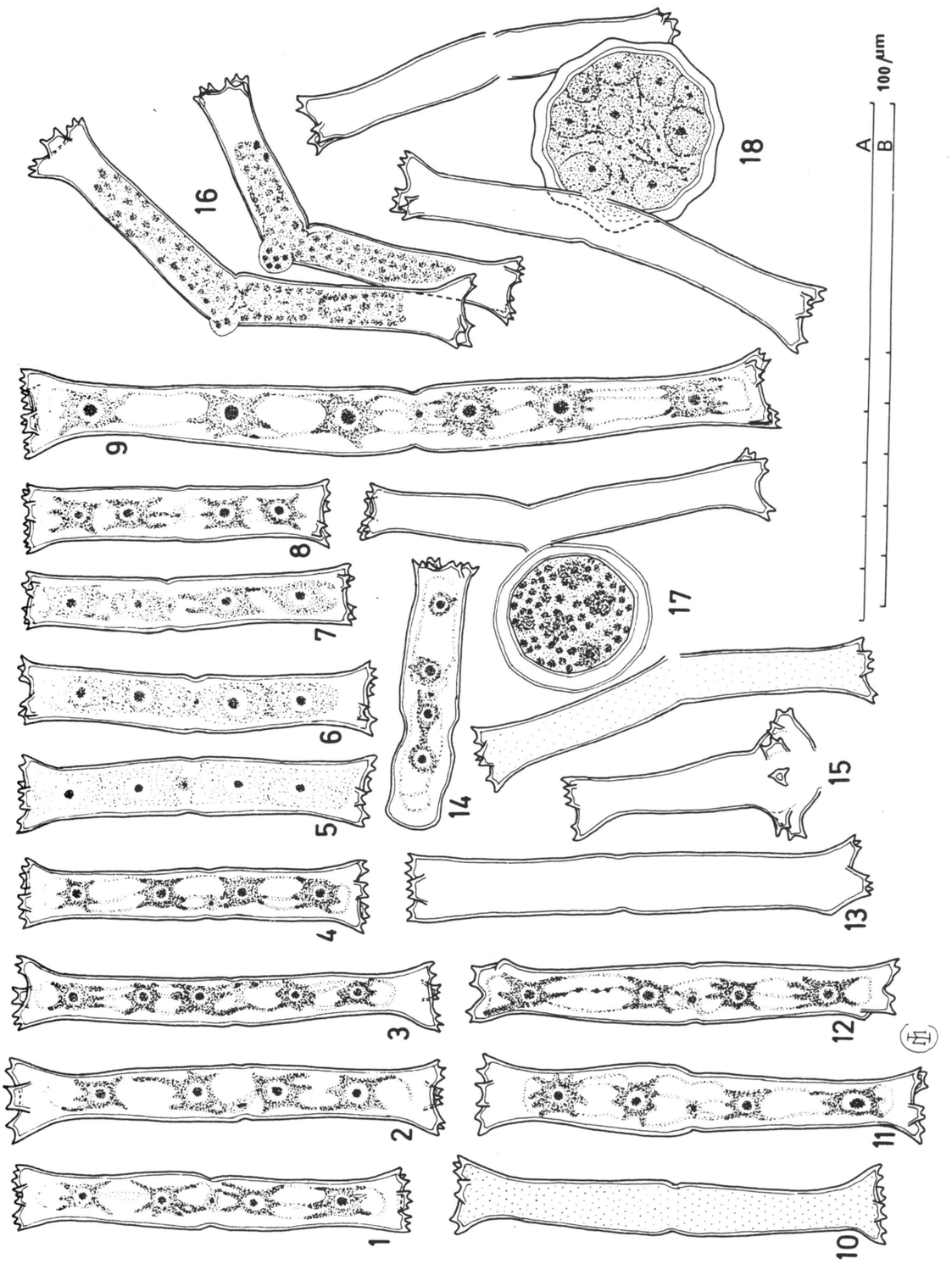

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FIGUUR 228

1 - 18. Lyntekeninge van Triplastrum spinulosum (p. 490). 1 - 8, 10. Verskillende selle om die getal polêre lobbetjies en hul stekelgetal, asook die getal chloroplaste per halfsel te toon. 9. 'n Besondere groot sel. 11. Asimmetriese sel met een drie=lobbige en een vierlobbige pool. 12. Ano=maliese sel waar een polêre lobbetjie in elke halfsel swak ontwikkel, effens subapi=kaal en sonder stekeltjies is. 13. Sel waar die pool van een halfsel anomalies is. 14. Sel waarvan een halfsel korter en sonder lobbetjies is. 15. Anomaliese half=sel waarvan die basis opgeswel is en 'n krans van agt lobbetjies besit. 16. Konjugerende selle met uitstulpings. 17. Konjugerende selle, sigoot onvolwasse. 18. Konjugerende selle met 'n volwasse sigoot.

1 - 4, 9 - 12, 15 - 17 : skaal B
5 - 8, 13, 14, 18 : skaal A

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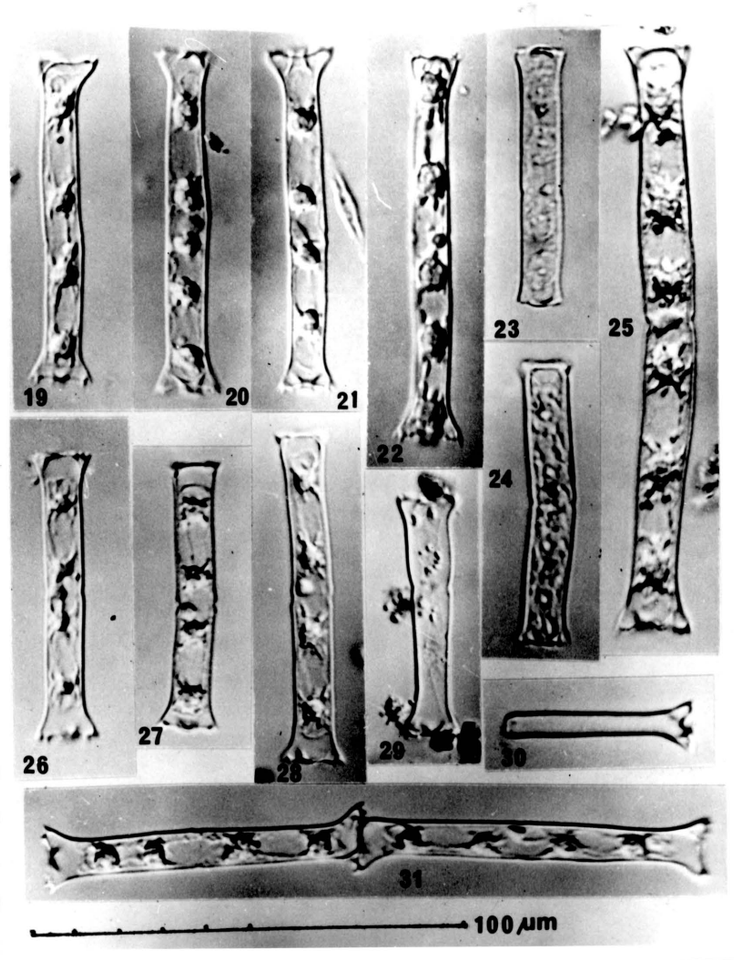

FIGUUR 228 (vervolg)

19 - 36. Fotomikrograwe van Triplastrum spinulosum (p. 490). 19 - 24, 26 - 28. Verskillende selle om die mor= fologie van die pole en chloroplaste te toon. 25. 'n Buitengewone groot sel. 29, 30. Anomalieë. 31. Twee selle wat nadat seldeling plaasgevind het aanmekaar vasgeheg gebly het. 32. Twee selle voor konjugasie waar die grense van die omhullende slym deur partikels wat daaraan vassit aangedui word. 33. Konjugerende selle met uitstulpings. 34 - 36. Konjugerende selle met sigote in verskil= lende stadiums van ontwikkeling.

32 : skaal A 33 - 36 : skaal B

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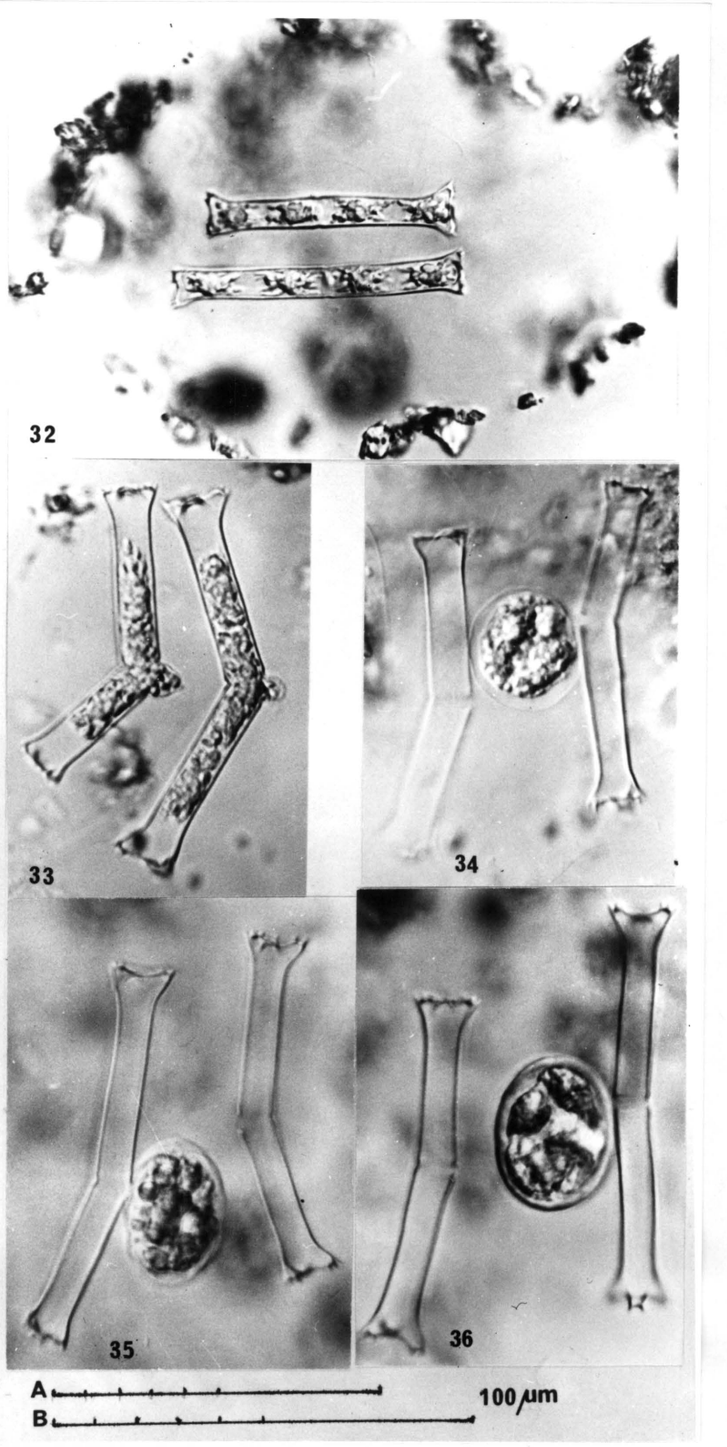

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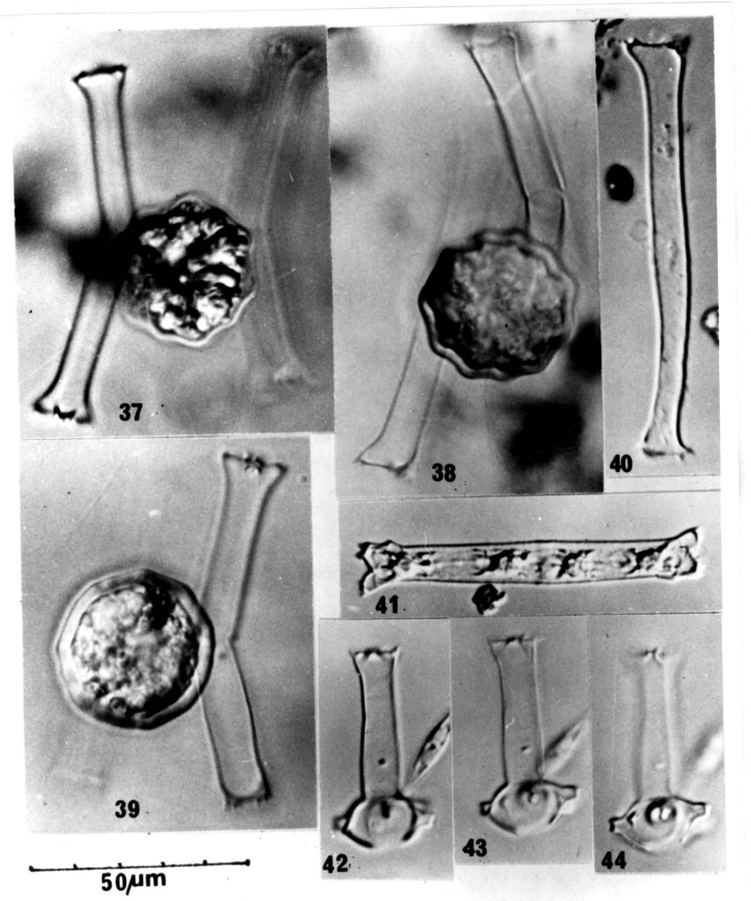

FIGUUR 228 (vervolg)

37 - 44. Fotomikrograwe van Triplastrum spinulosum (p. 490). 37. Onvolwasse sigoot. 38, 39. Volwasse sigote. 40. 'n Asimmetriese sel. 41. Sel met anomaliese pole. 42 - 44. Verskillende fokusinstellings van 'n anomaliese halfsel met opgeswelde basis wat 'n krans van agt lobbetjies besit.

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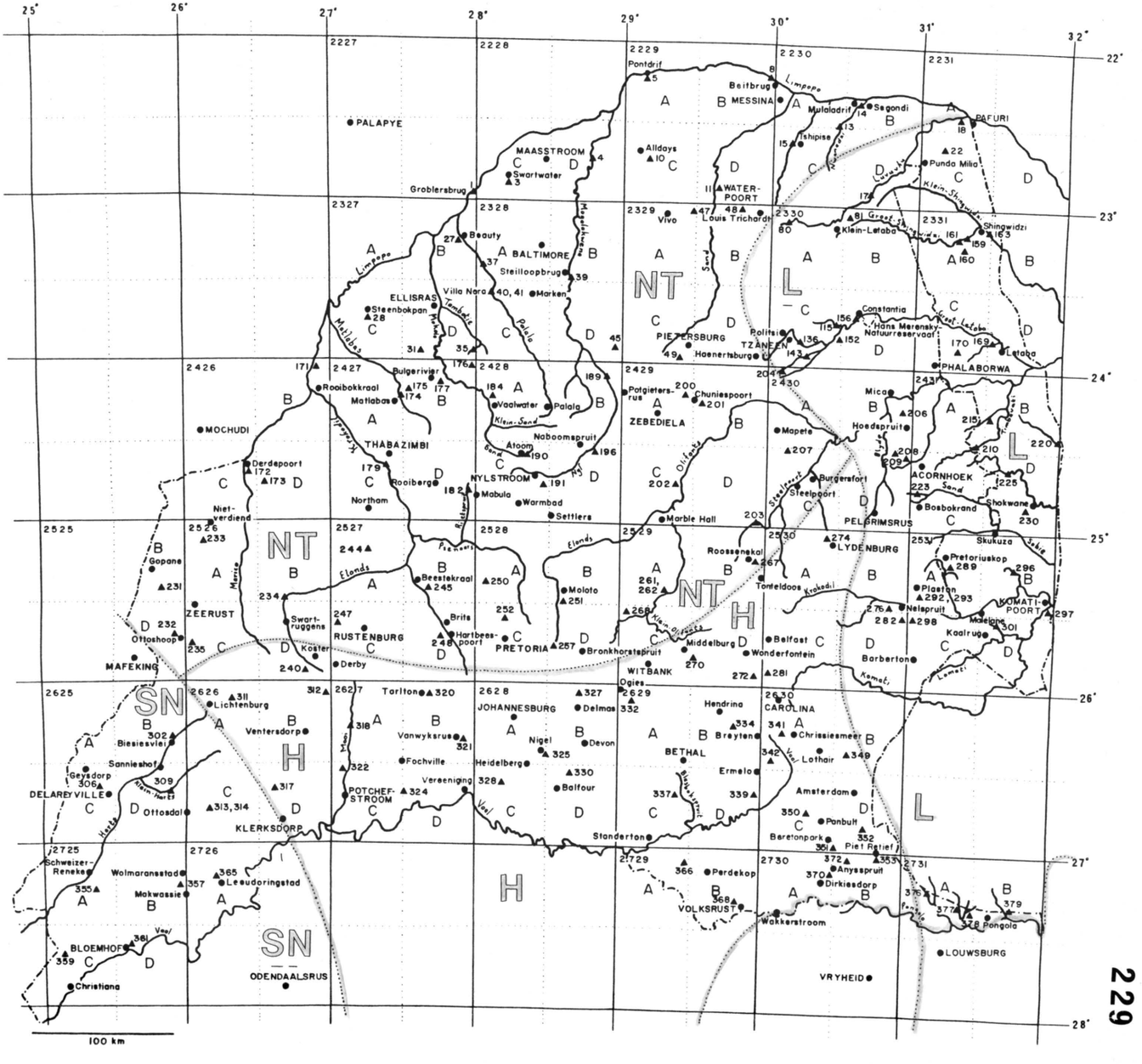

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FIGUUR 229

Kaart van Transvaal wat die grense van die vier klimaat= streke aandui.

H, Hoëveld; L, Laeveld; NT, Noord-Transvaal; SN, Noordelike steppe

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