V. 2831. Kny. Botanische Wandtafeln

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Catalogue No.	Published No.	Title	Artist	Description
2831 (4)	IV	Spirogyra.	Meyn, W.A. (lith)	Conjugation
2831 (12)	XII	Pinus Laricio	Meyn, W.A. (lith)	Section of portion of leaf.
2831 (22)	XXII	Mucor mucedo	Meyn, W.A. (lith)	Branching mycelium with developing gnoidiophores. From a side-culture
2831 (23)	XXIII	Mucor mucedo	Meyn, W.A. (lith)	1) Vertical section of upper part of gonidangium showing the individual spores inside; 2) Columella from a ruptured gonidangium with remains of spiky membrane at the base and with ripe spores; 3) and 4) Germination of gonidia; 5) Conjugation of gametes. Partially formed zygote attached to suspensors; 6) Section of zygote with suspensors attached; 7) Germinating zygote still attached to suspensor-cells. The outer dark-brown exosporium is ruptured, and through the endosporium a germ-tube is put forth. The first branch is not very long, the second bears a young gonidangium

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2831 (24)	XXIV	Puccinia Graminis	Meyn, W.A. (lith)	1) Germinating teleutospore. The promycelium of the upper cell is broken, that of the under cell has formed at its upper end three cells, each of which has sent out a sterigma. The upper sporidium is not quite ripe. The second has fallen from the sterigma, the third just beginning to develop; 2) Portion of epidermis from the under surface of leaf of Berberis vulgaris with two germinating sporidia. The germ-tube of the sporidium to the left is as yet very short. Its end rests upon the epidermal cell, but has not penetrated the wall. The germ-tube of the sporidium on the right has penetrated the epidermal cell; 3) Aecidiospore germinating on the epidermis of a leaf of rye; 4) Germinating uredospore twenty-four hours after sowing from a slide-culture; 5) Section of portion of stem of Triticum through a rust-spot. Growing together are two perfectly-ripe uredospores with one nearly-ripe teleutospore
2831 (25)	XXV	Puccinia Graminis	Meyn, W.A. (lith)	Transverse section of leaf of Berberis vulgaris attacked by Puchinia graminis. From under side breaks forth an Aecidium-cup. In the basal part the abstriction of new spores from the basidia continues while from the outer part ripe spores are breaking off. On the upper side two ripe spermogonia have burst through.
2831 (32)	XXXII	Eurotium Repens	Laue, E. (lith)	1) Fully-developed conidiophore. The sterigmata, which cover the large upper part of the club-shaped swelling, bear chains-some short, some long-of conidia; 2) Ripe conidium before germination; 3) and 4) Germinating conidia; 5) Spirally -rolled filament. The beginning of the formation of the ascocarp; 6) Further developed ascocarp of Eurotium Aspergillus. The upper spirals are contracted together; 7) Young ascocarp with covering filaments; 8) Optical longitudinal section of young perithecium, the spiral ascogyne still unbranched. From the inside of the wall of the ascocarp the formation of tissue, which fills up the spaces between the asci, is just beginning; 9)More advanced condition of perithecium of Eurotium Aspergillus glaucus in optical longitudinal section. The formation of the "filling-up tissue" is complete. The ascogonium is beginning to form side-branches from its septate cells

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2831 (34)	XXXIV	Penicillium crustaceum.	Meyn, W.A. (lith)	1) Portion of a much-branched and reproductive mycelium with two conidiophores, of which one ***(a)*** is still very young, the other ***(b)*** is fully developed; (a) Shows the beginnning of basidia and abstriction of spores; (b) Same, well advanced; 2) Conidia ready to germinate; 3) Conidium germinating; 4) Sexual organs, which have entwined and fused (ascogonium and pollinodium), of a thick septate mycelium; 5) More advanced condition of young perithecium; 6) Still older condition of fruit (perithecium). The ascogone inside the false parenchymatous covering is clearly visible
2831 (35)	XXXV	Penicillium crustaceum	Meyn, W.A. (lith)	1) Transverse section of a large fruit-body (perithecium) which was grown in a culture nine weeks after finishing the resting condition; 2) Portion of a still developing, already septate, ascogone, with two asci and a delicate filamentous shoot; 3) Chain of spore-mother-cells (asci) still attached to the septate cell of the mother-axis, but which has freed itself from the neighbouring cells. Progressive basipetal spore-formation is going on; 4) Ascospores in different stages of formation
2831 (39)	XXXIX	Primula Elatior	Meyn, W.A. (lith)	Dimorphous heterogony. 1) Vertical section of a short-styled form of flower; 1a) Upper part of style with stigma, from same flowerform; 1b) Stigmatic papillae ofshort-styled form; 1c) Dry pollen of short-styled form, seen from above; 1d) Same, seen from side; 1e) Same, after soaking in water; 2) Vertical section of long-styled form of flower; ovary and style not cut, but seen from outside; 2a) Upper Part of style with stigma of long-styled flower; 2b) Stigmatic papillae of long-styled flower; 2c) Dry pollen seen from above; 2d) Same, seen from side; 2e) Same, laid in water
2831 (40)	XL	Lythrum Salicaria	Meyn, W.A. (lith)	Trimorphous heterogony. Three forms of flower in median vertical section. Styles and stigmas not cut. 1) Long-styled form; 2) Middle-styled form; 3) Short-styled form

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2831 (41)	XLI	Claviceps purpurea. Development of Sclerotium.	Meyn, W.A. (lith)	1) Young ovary attacked by Sphacelia and covered with conidia-bearing felt. Both the feathery styles of the grass are withered; 2) Partilly-ripe ergot-grain at the top part; the very much shrunk ovary with conidia-bearing surface; 3) upper part of unripe ergot-grain in median section
2831 (42) [2 copies?]	XLII	Claviceps purpurea	Meyn, W.A. (lith)	1) Portion of sclerotium in Sphacelia Stage. The upper part shows conidia abstracted from loose mycelial strands; the lower part- the false parenchyma of Sclerotium – full of reserve food-substances; 2) Two ripe, and one germinating, conidia. The germtube has abstracted another unripe conidium to the side
2831 (43) [2 copies?]	XLIII	Claviceps purpurea	Meyn, W.A. (lith)	1) Sclerotium lying horizontally on sand with upright stromata. At the base of the stromata bunches of pale filamentous rhizoids are seen; 2) Head of stroma in median section; 3) Head of stroma in profile
2831 (44)	XLIV	Claviceps pururea	Meyn, W.A. (lith)	1) Median section of perithecium with asci; 2) Nearly ripe ascus; 3a) - 3b) Two ascopores germinating
2831 (51)	LI	Pinus sylvestris	Laue, E. (lith)	Transverse section of secondary wood
2831 (52)	LII	Pinus sylvestris	Laue, E. (lith)	Vertical radial section of secondary wood
2831 (53)	LIII	Pinus sylvestris	Laue, E. (lith)	Vertical tangential section of secondary wood
2831 (71)	LXXI	Gyalecta cupularis	Laue, E. (lith)	Portion of discocarp in section

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2831 (84)	LXXXIV	Marchantia polymorpha	Meyn, W.A. (lith)	1) Median longitudinal section of growing shoot; 2) Stoma from growing shoot seen from above; 3) Section through an air-cavity with stoma. From the lower surface spring the short chains of assimilating cells
2831 (85)	LXXXV	Marchantia polymorpha	Laue, E. (lith)	1) Portion of thallus with antheridia-bearing shoot arising at the first forking of the upper shoot; 2) Almost median section of shoot bearing antheridia. Towards the centre is a ripe antheridium; other antheridia are seen, the youngest towards the edge; 3) Transverse section of a part of stalk of antheridia-bearing shoot; 4) Median longitudinal section of a young antheridia-bearing shoot; 5) Short piece of a rhizoid with spiral thickening on wall
2831 (86)	LXXXVI	Marchantia polymorpha	Laue, E. (lith)	1) Edge of a very young antheridial shoot, cut cut vertically to the upper surface with mother-cell of antheridium ***a***; 2) Later Stage; 3)-7) More fully-developed stages of young antheridium in longitudinal section. Figs. 3,4,6 show how, through the growth and division of the neighbouring tissue, the antheridium becomes sunk in a cavity; 8)-10) Transverse section of young antheridium in different stages of development; 11) Nearly-ripe antheridium in longitudinal section; 12) Nearly-ripe antheridium in transverse section; 13) Two spermatozoids with vesicle

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2831 (87) [2 copies?]	LXXXVII	Marchantia polymorpha. Section of shoot bearing Archegonia	Meyn, W.A. (lith)	1) Portion of nearly median section of shootbearing archegonia. Of the four archegonia, that next the stalk is not open, the second is mature, the third and fourth are probably alreadyfertilized. Behind the archegonia is seen part of the protecting lamella. In the upper part are five large cells with brown oil-bodies. Smaller oil-cells are seen in the stalk; 2) Outer edge of young archegonial shoot with young archegonia. At b is the terminal edge-cell with the latest segments. The youngest archegonium at a1 has cut off the stalk-cell. In the older archegonium a2 the end cell has divided by three longitudal walls (only two seen in figure); 3) Later stage. The centre-cell has cut off the top cover-cell; 4) Later stage. By the formation of the first cross-walls of the three peripheral cells at the same height as the cross-wall formed in the central cell, the division into venter and neck is accomplished; 5) Later stage, in longitudinal section. In the cells of the venter and neck there are seen more cross-walls. The separation of the central cell and ventral canal-cell is completed; 6) Transverse section of young archegonium. The first two of the three excentric longitudinal walls are formed; 7) Transverse section of a slightly older archegonium. The three excentric longitudinal walls are completed; 8) Transverse section of a young archegonium, about the same condition as fig. 5 The three peripheral cells have divided by longitudinal walls; 9) Half-developed archegonium in longitudinal section. The transverse divisions of the wall of venter and neck are more advanced. In the neck-canal-cells are seen four nuclei; 10) Archegonium immediately before ripening, seen from the outside. Central cell, venter and neck-canal-cells distinctly seen through the transparent walls; 11) Perfectly-ripe archegonium, venter and neck-canal-cells are disorganised. The mucilage which fills the neck and is passing out at apex, permits the rapidly moving spermatozoids to reach the central cell (ovum); 12) Transverse section of wall of venter of fully-sized archegonium; 13) Transverse section of wall of neck of fully-ripe archegonium; 14) Portion of end of rhizoid; 15) Transverse section of same

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2831 (88) [2 copies?]	LXXXVIII	Marchantia polymorpha	Laue, E. (lith)	1) Portion of plant with shoots bearing sporogonia; 2) Fruiting head, seen from above; 3) Same, seen from underside. Ripe, dehiscing sporogonium seen lying between the protecting lamellae; 4) Young sporogonium, first wall(a) at right angles to length of archegonium; 5) Sporogonium at later stage; the capsule-wall is already cut off from the contents; 6) Young sporogonium surrounded by archegonium and perigonium. The contents have divided up into elaters and spore-mother-cells; 7) Ripe sporogonium dehiscing. At the base of the stalk the ruptured perigonium is recognisable; 8) Ripe spores and elater; 9) Cells from the wall of the ripe capsule with annular thickenings
2831 (93)	XCIII	Aspidium Filix-mas	Meyn, W.A. (lith)	Aspidium Filix-mas. Section of pinna showing sorus and indusium. Some sporangia are open, others closed.
2831 (95)	XCV	Aspidium Filix-ma	Laue, E. (lith)	Aspidium Filix-mas. Later stage in development of sporangium. 1) Young sporangium. The tapetal layer divided by periclinal walls is now formed of two layers of cells. The division of the archesporium is more advanced. Optical longitudinal section; 2) From the disintegration of tapetal cells is formed the epiplasm. The mother-cells of the spores have become spherical. The wall of capsule shown in optical longitudinal section. The spore-mother-cells represented whole; 3) The Spore-capsule in a further stage of development; seen from above. The annulus protrudes here slightly, more distinctly in fig. 2; 4a) and 4b) Half-ripe spore-capsule, seen from opposite side; 5) - 7) Group of spore-mother-cells

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2831 (98)	XCVIII	Aspidium Filix-mas		Aspidium Prothallus & Antheridia. 1) Branched prothallus without archegonia. Antheridia present; 2) Three young antheridia from margin of a young male prothallus. In (a) the hemispherical mother-cell is undivided; in (b) the lower ring-cell and the super-posed bell-shaped cell are separated; in (c) the lid-cell is seperated from the upper ring-cell; 3) Young antheridium in which the lower ring-cell has become separate. The stage show here is between 2a and 2b; 4) Ripe sessile antheridium; 5) Ripe stalked antheridium; 6) Sessile antheridium immediatley after opening; 7) Empty antheridium, seen from above; 8) Spermatozoid
2831 (99)	XCIX	Aspidium Filix-mas.	Meyn, W.A. (lith)	Aspidium development of archegonium. 1) Youngest stage of archegonium. The first horizontal wall has divided it into a lower and an upper cell; 2) The upper cell of the former figure has divided into two superposed cells by a new transverse wall. Of the outer cells, one is visible undergoing longitudinal division, which leads to the separation of the four neck-cells; 3) The four neck-cells of a young archegonium, seen from the surface of the prothallus; 4) The four neck-cells have divided by walls at right angles to the surface of the prothallus. Of the two rows which are seen in the figure, each contains four cells. The cells belonging to the right-hand row are slightly longer, and cause the curvature of the neck-canal. The cell which has grown into the middle of the canal has divided. The egg and the canal-cells are separated by the ventral canal-cell with a slightly concave wall. The section is through the cushion of the prothallus; 5) Further development of an archegonium. The canal-cell contains two nuclei. The left row of cells of the slightly-bent neck are for, and the right hand row five, in numbers; 6) Neck-canal, seen from above, in optical section; 7) Nearly mature archegonium bent to the left. Left row of neck-cells five, the right row seven, in number. The canal/cells show four nuclei; 8) Ripe archegonium; 9) Unfertilized archegonium

Note: Catalogue Number refers to the *Royal Botanic Garden Edinburgh, Catalogue of Diagrams, 1904*. Glasgow, HMSO, 1904.