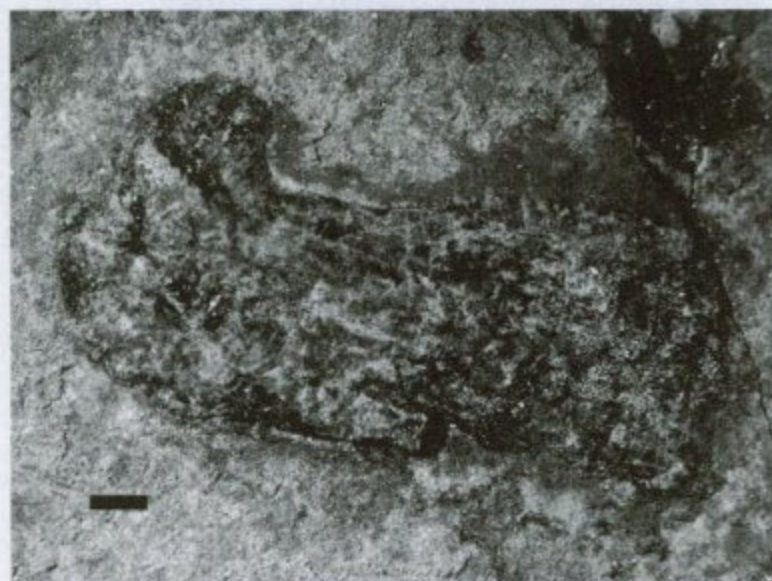
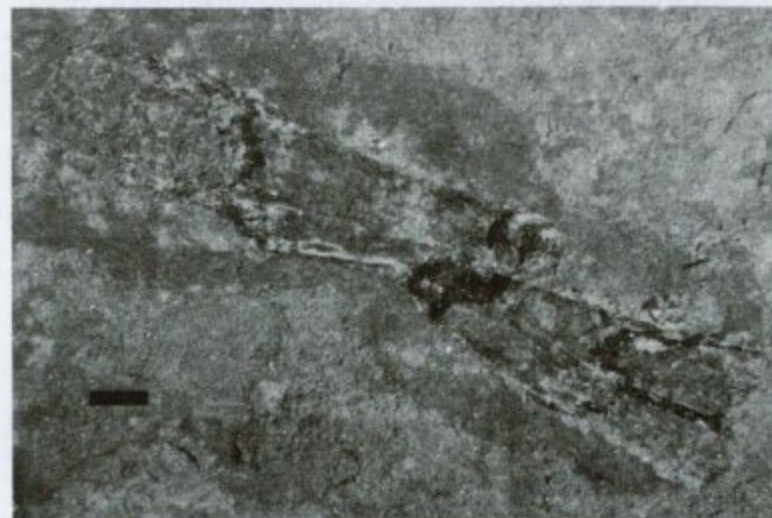


A

B



C



*Acanthodes gracilis*. A – the skull fragment with an orbit and both lower jaws with associated branchiostegal rays and poorly preserved elements (probably segments of gill arches), the supraorbital (above the orbit) and infraorbital (behind the orbit) sensory lines are preserved; M 4227; Kundratice, Doly; black scale line equals 5 mm; B – the articular with the preglenoid process; M 4402; Košťálov, Kovářův mlýn; black scale line equals 1 mm; C – both (left and right) mentomandibulars; M 4402; Košťálov, Kovářův mlýn; black scale line equals 1 mm.

All photographs by the author





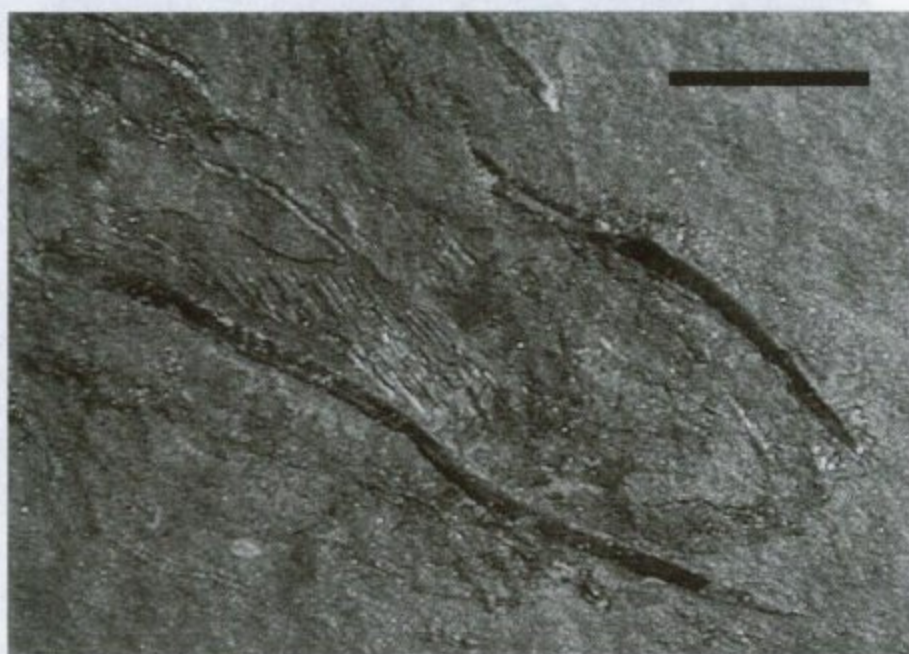
A



B



C

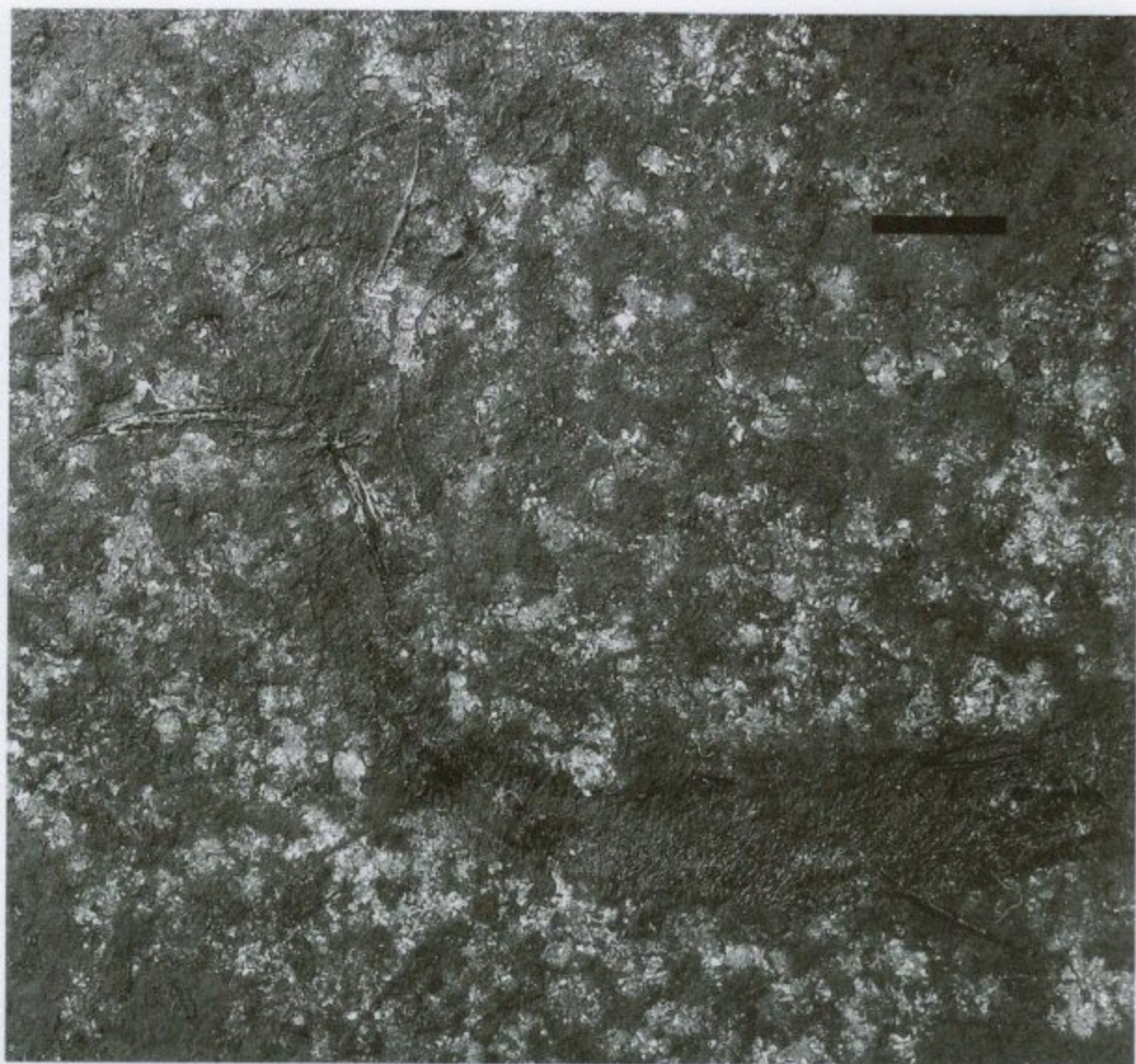


D

*Acanthodes gracilis*. A – the head with the incomplete orbit formed by the intensively sculptured circumorbitals and with dorsally and frontally situated shield of tesserae (estimated length of the specimen is 340 mm); M 1937; Košťálov; black scale line equals 5 mm; B – the incomplete head of the young specimen in ventral view, the better preserved mandibular bone is in lateral view, branchiostegal rays are dispersed; M 4394 Rybnice, Hrádecký potok; black scale line equals 5 mm; C – a detail of the posterior part of the head with both mandibular bones and by the articulated gill rakers indicated gill arches (measured total specimen length is 100 mm); M 4413; Košťálov, za hospodou; black scale line equals 1 mm; D – the incomplete head in ventral view with both mandibular bones and series of arranged branchiostegal rays; M 4468; Rybnice, Hrádecký potok; black scale line equals 5 mm.

*Acanthodes gracilis*. A – the dispersed head of the very young specimen (estimated length is 63 mm) covered by thin layer of sediment, both mandibular bones, otoliths, and both branches of one branchial arch (indicated by rows of articulated gill rakers) are visible in ventral view; M 4491; Kunderatice, Doly; black scale line equals 5 mm; B – the dispersed head of the subadult specimen (estimated length is 152 mm) covered by thin layer of sediment, both mandibular bones, circumorbitals (both inner and outer surface are preserved), tesserae, and sensory lines of the head (supraorbital, infraorbital, and quadratojugal) are visible in dorsal view; M 4493; Košťálov, za hospodou; black scale line equals 5 mm.





A

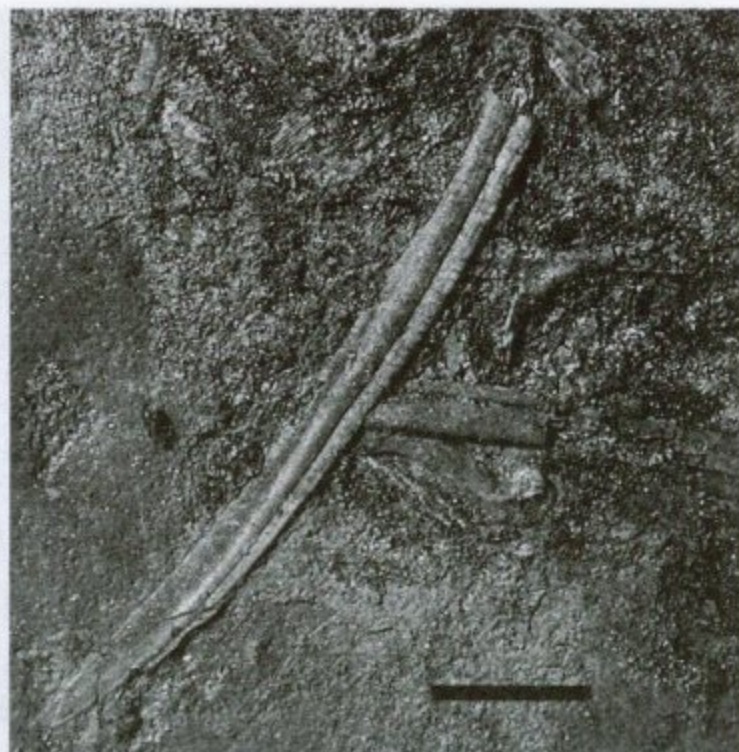


B

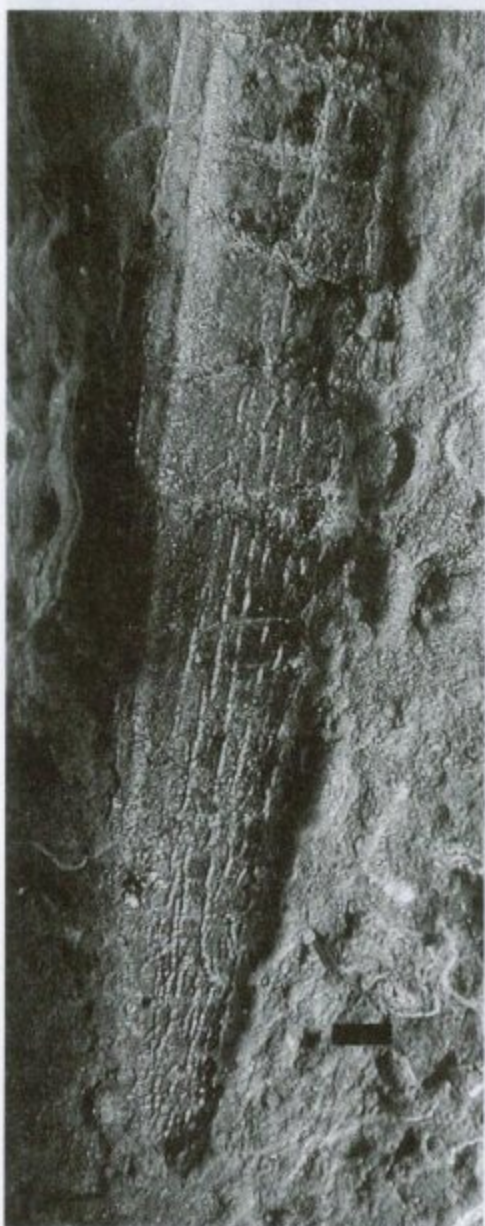




A



B



C

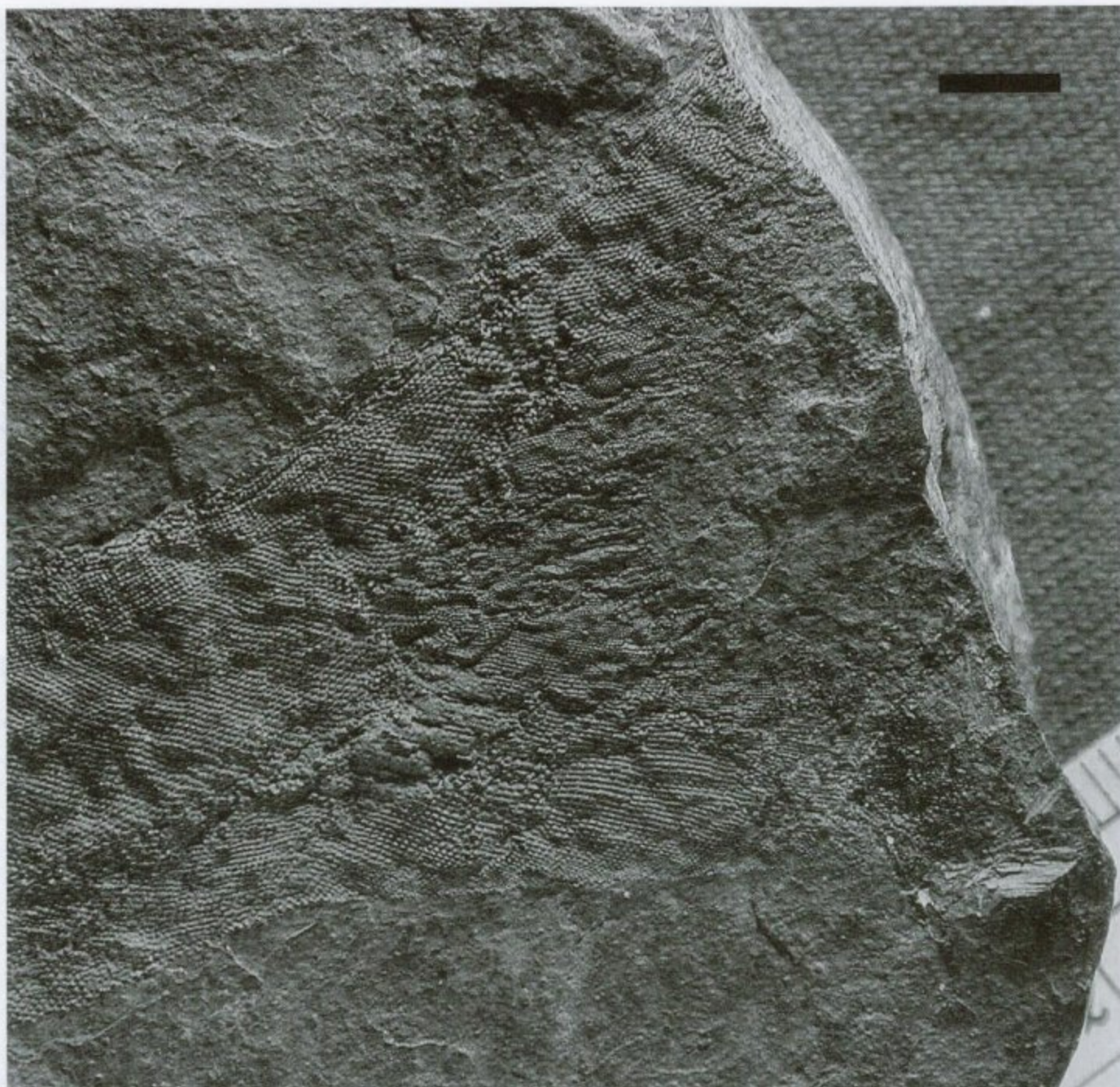


D

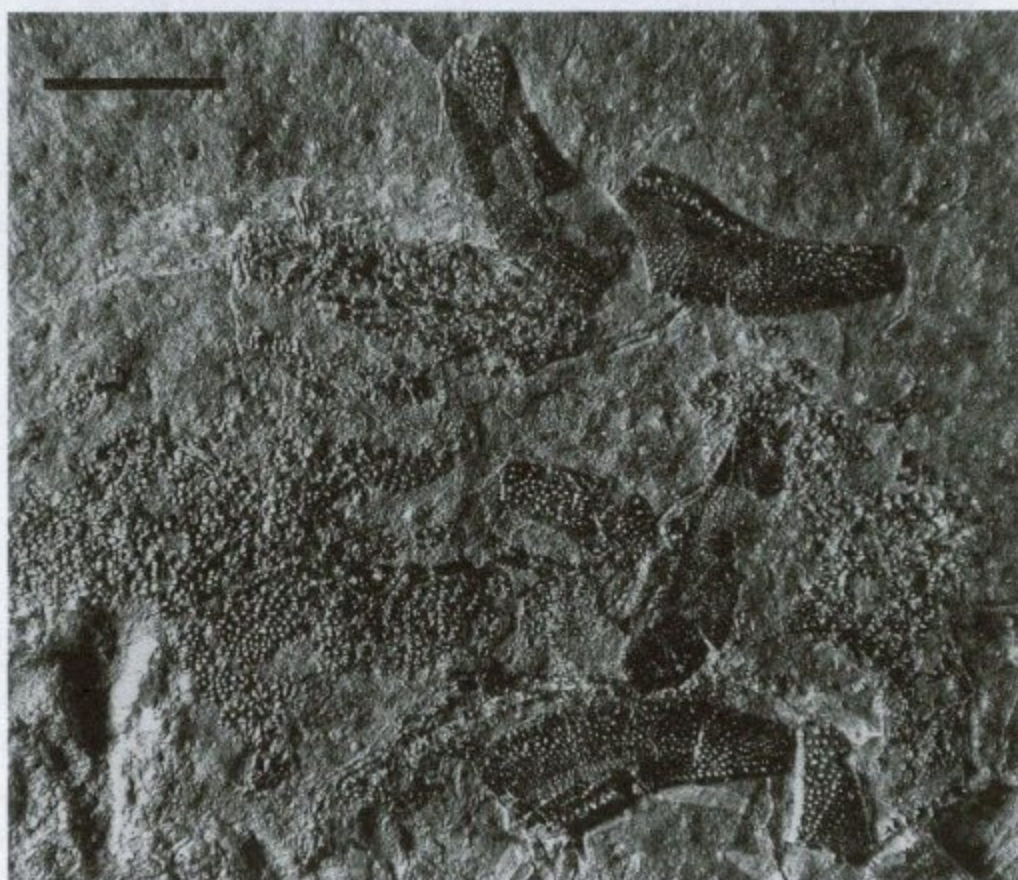
*Acanthodes gracilis*. A – the pectoral girdle articulated with the pectoral fin spine and the row of the dermatrichia, articulated gill rakers are below the pectoral fin spine; M 4245; Padochov; black scale line equals 1 mm; B – the pectoral fin spines with disarticulated and incomplete pectoral girdle; M 4435; Rybnice, Hrádecký potok; black scale line equals 10 mm; C – the distal part of the pectoral fin spine with semiparallel striae; MHK 63 639; Rybnice, Hrádecký potok; black scale line equals 1 mm; D – the posterior part of body with the anal fin consist of tiny scales and supported by the almost straight anal fin spine, the imprint of the proximal termination of the dorsal fin spine is situated above; M 2180; Košťálov; black scale line equals 5 mm.



A



B

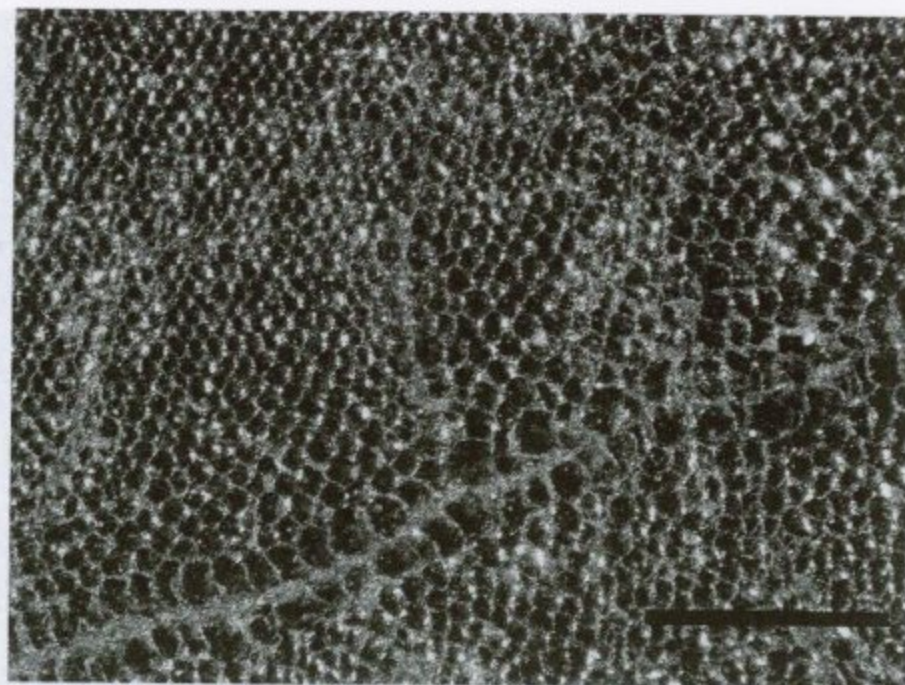


*Acanthodes gracilis*. A – caudal fin without distal tips of both lobes and with four well preserved short radialia (compare with Fig. 20); M 2180; Košťálov; Rudník Horizon; black scale line equals 5 mm; B – the dorsal part of the head between the orbits (formed by sculptured circumorbitals) with partly preserved originally compact surface of tesserae and fragments of both supraorbital sensory canals; M 1937; Košťálov; black scale line equals 5 mm.

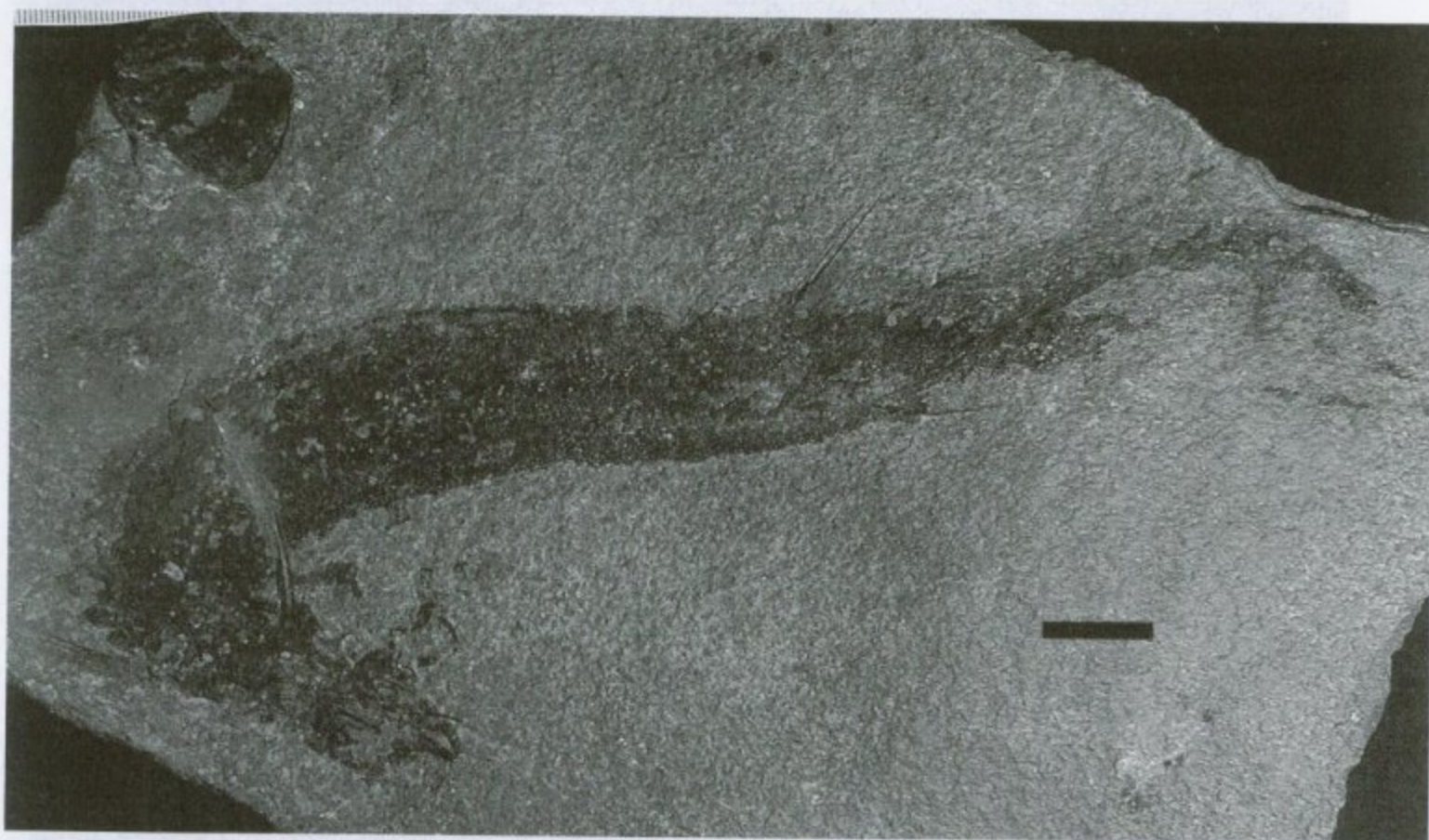




A



B



C



D

A – *Acanthodes gracilis*; the ventral fin spine inserted in the body (natural position), the ventrolateral sensory line (light row) and the small fin (tiny dark scales behind the fin spine); M 2180; Košťálov; black scale line equals 1 mm; B – *Acanthodes gracilis*; the secondary sensory line of the trunk (vertical, in the middle) derived from the main lateral sensory line (oblique, near the bottom); M 4461; Košťálov, za hospodou; black scale line equals 1 mm; C – *Acanthodes gracilis*; the almost complete specimen (estimated total length is 300 mm); M 1933; Košťálov (Libštát locality on the original label is false); black scale line equals 20 mm; D – *Acanthodes* sp.; rows of articulated gill rakers imitate gill arches traces; M 4259; Padochov; black scale line equals 1 mm.



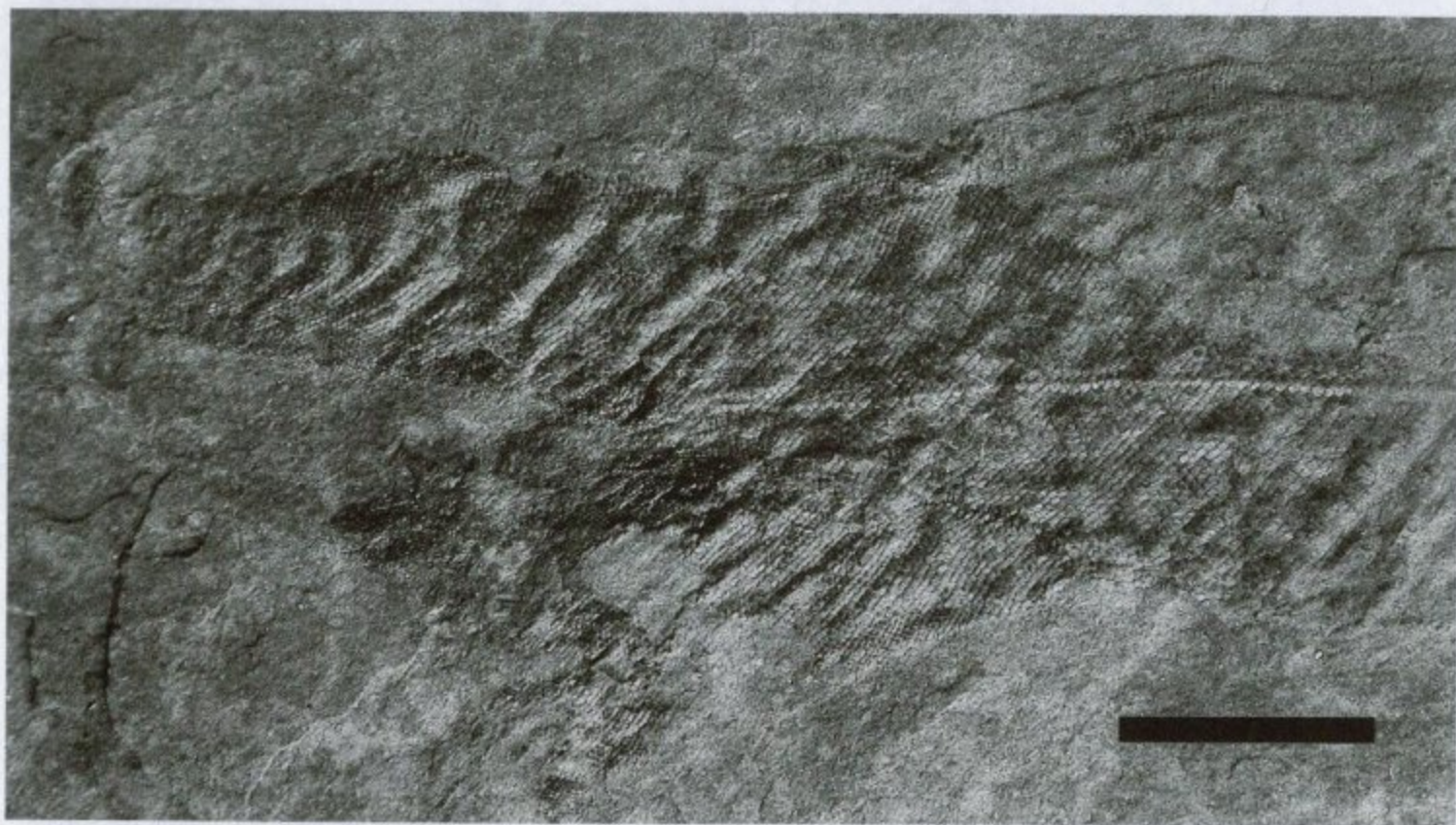
A



B

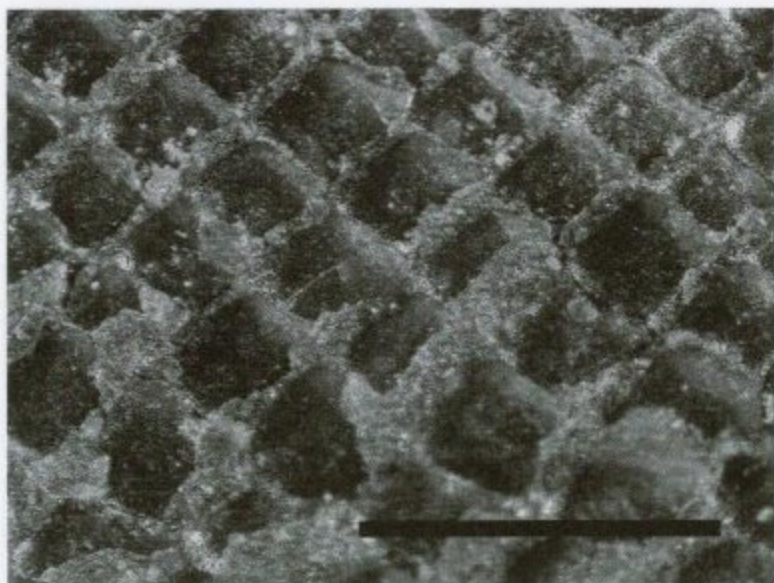


C



*Acanthodes* sp. A – head and anterior part of body with pectoral and ventral fin spines, main lateral and ventrolateral sensory lines, orbit, mandibular bone, and articulated gill rakers in the position of gill arches; M 4483; Kundratice, Doly; black scale line equals 5 mm; B – mandibular bone; lateral view; M 4471; Kundratice, Doly; black scale line equals 1 mm; C – posterior part of the body with lateral sensory line, caudal fin with Heyler's zones; M 4484; Košťálov, Kovářův mlýn; black scale line equals 5 mm.

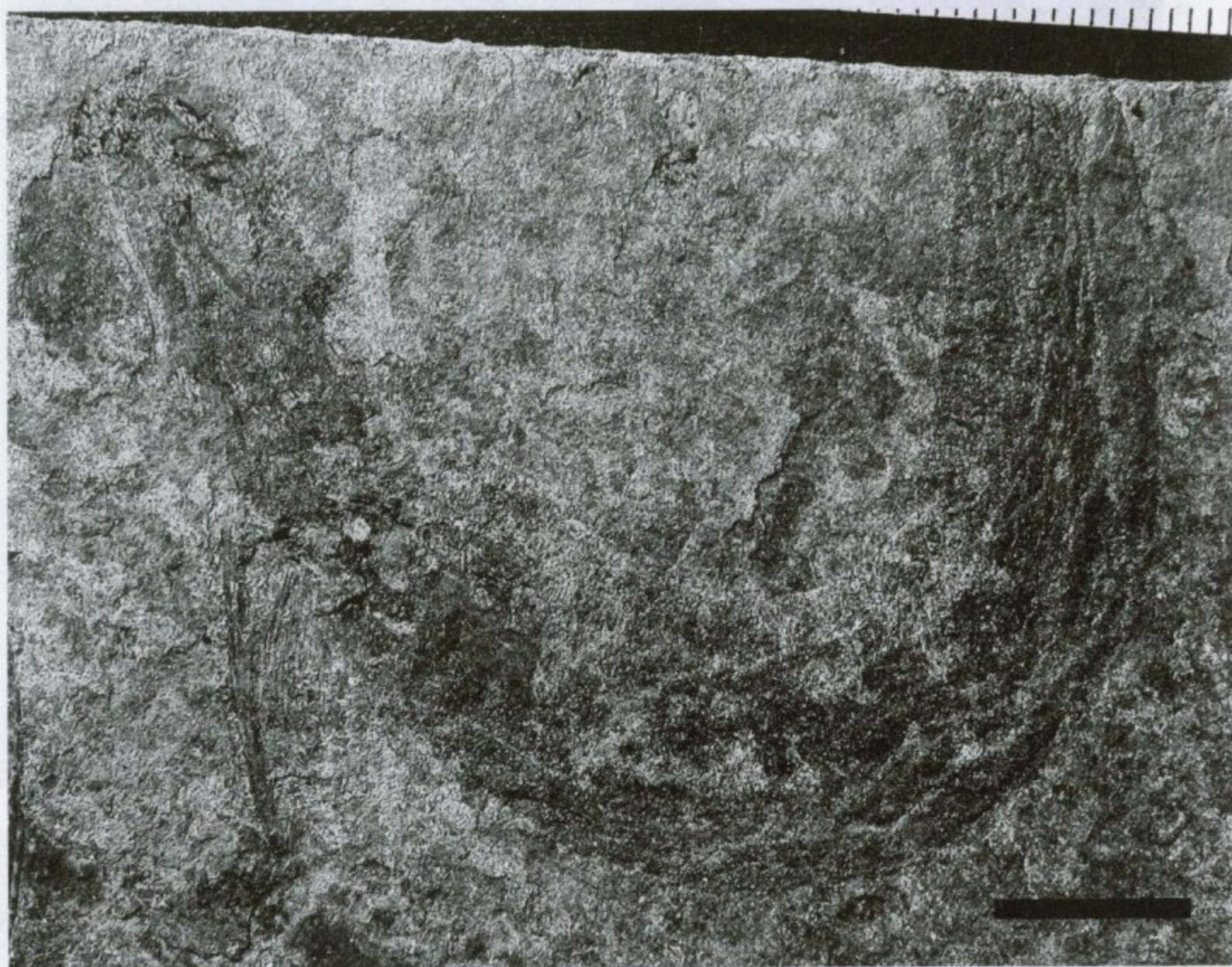




A



B



C

A – *Acanthodes* sp.; scales from the posterior part of body, some posterior spiny projections (right) and delicately pitted crowns are visible; M 4464; Rybnice, Hrádecký potok; black scale line equals 1 mm; B – *Acanthodes* sp.; scales with the central hollow, the small ones come from one of the posterior fins (probably anal one) behind the spine, the larger ones come from the body (some of them are without the hollows); anterior is to the right; M 4485/C; Košťálov, za hospodou; black scale line equals 1 mm; C – *Acanthodes stambergi* n. sp.; the whole holotype (from the snout up to the proximal parts of the anal and dorsal fin spines) with extremely long dermatotrichia of the pectoral fin; MHK 63 762/A; Kladoruby, Dolní pepřík; black scale line equals 1 mm.



A



B



*Acanthodes gracilis*. A – the head and the pectoral region of the body (estimated length of the specimen is 205 mm); MHK 63 797; Kladoruby, Dolní pepřík; black scale line equals 10 mm; B – two specimens of the similar age (estimated length are 165 and 182 mm), the right one with posterior part of the gill chamber, the left one with strongly deformed head, both specimens show pectoral region with shoulder girdles, pectoral fin spines, short dermatichia, and ventrolateral sensory lines which unite in the ventral scaly shield into the anteriorly situated unpaired ventral sensory lines; M 4245; Padochov.





A



B

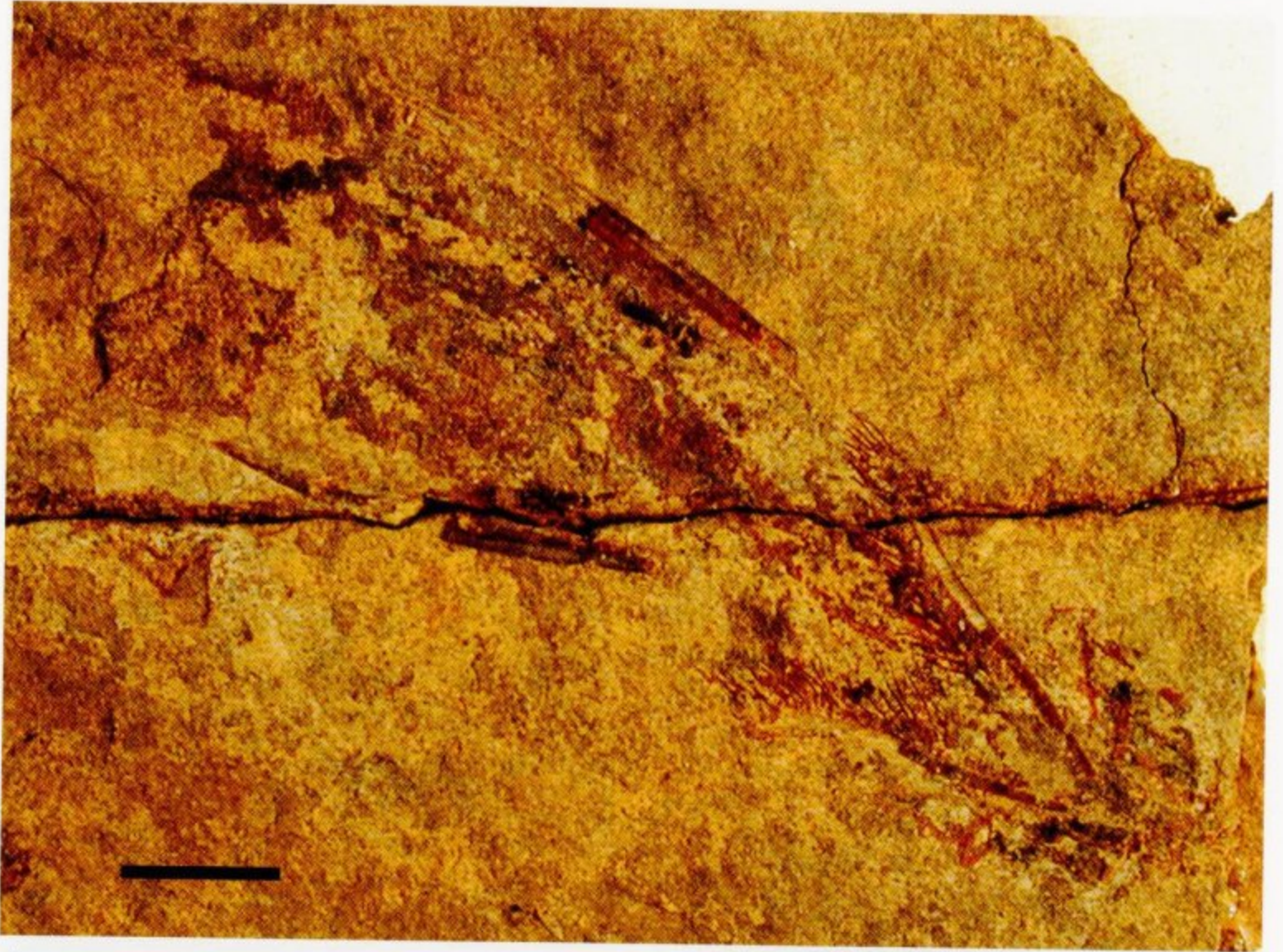
C



*Acanthodes gracilis*. A – the detail of the gill arches which are indicates by articulated gill rakers; M 4245; Padochov; black scale line equals 1 mm; B – fragment of the head and branchial system of the young specimen (estimated total length is 77 mm); M 4351; Padochov; black scale line equals 1 mm; C – the head and the anterior part of body (without squamation) of the very young specimen; for comparison see Fig. 6; M 4282; Padochov; black scale line equals 5 mm.

*Acanthodes gracilis*. A – the head and the anterior part of body, young specimen from the ventral view (estimated total length is 113 mm); M 4291; Kladoruby, Dolní pepřík; black scale line equals 5 mm; B – the head and pectoral structures (the incomplete orbits and jaws with dominant mandibular bones and poorly preserved segments of the meckelian cartilage; the pectoral fin spine in association with the shoulder girdle); MHK 63 809; Kladoruby, Dolní pepřík; black scale line equals 5 mm; C – the detail of both pectoral fin spines and both pectoral girdles of the very young specimen (Pl. 10C), short fragments of ventrolateral sensory lines are visible close to anterior spine margin; for comparison see Fig. 13; M 4282; Padochov; black scale line equals 1 mm.



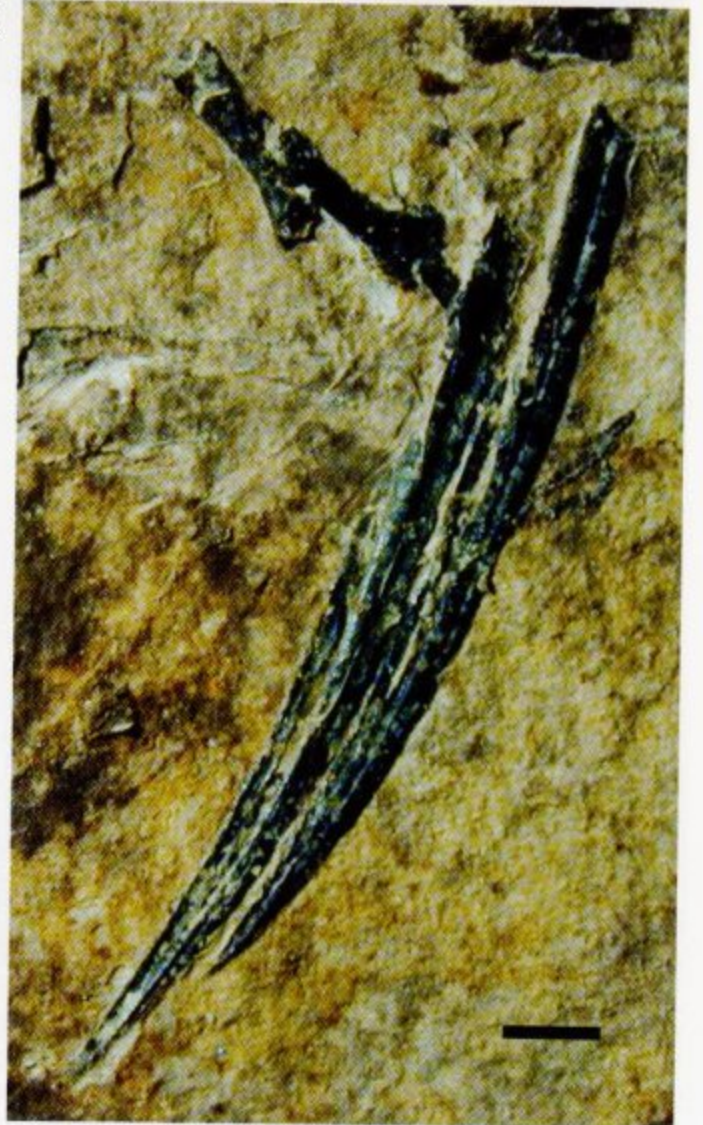


A

B



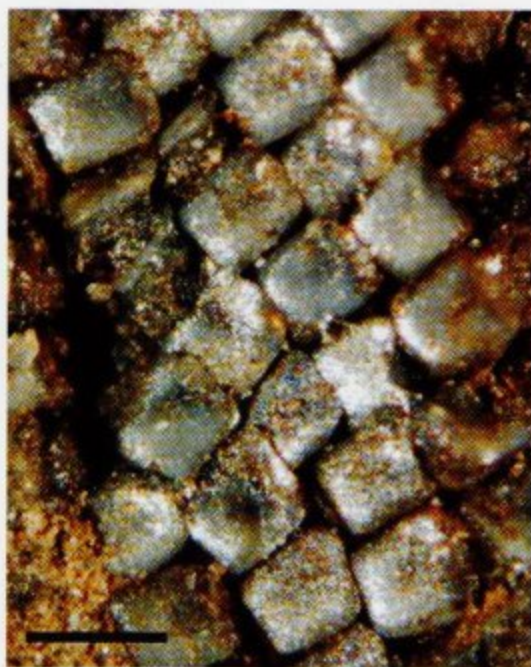
C



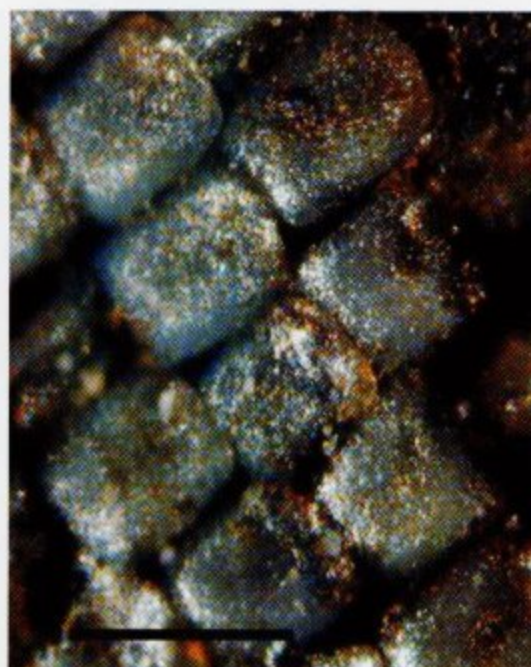




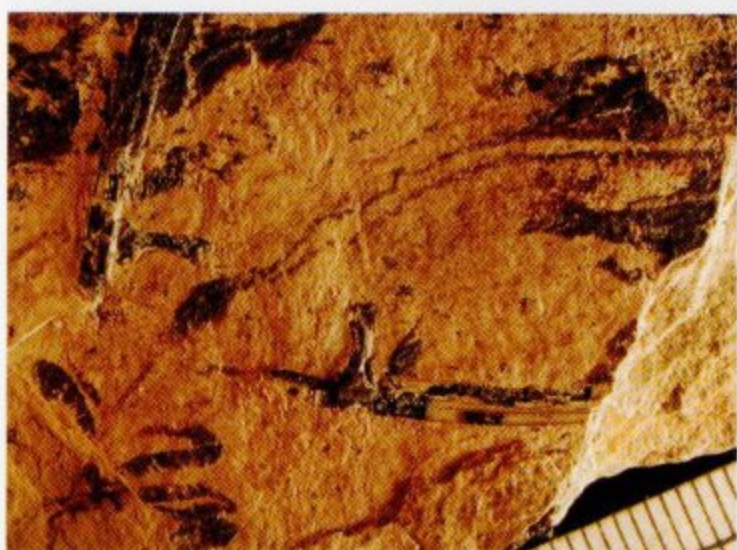
A



B



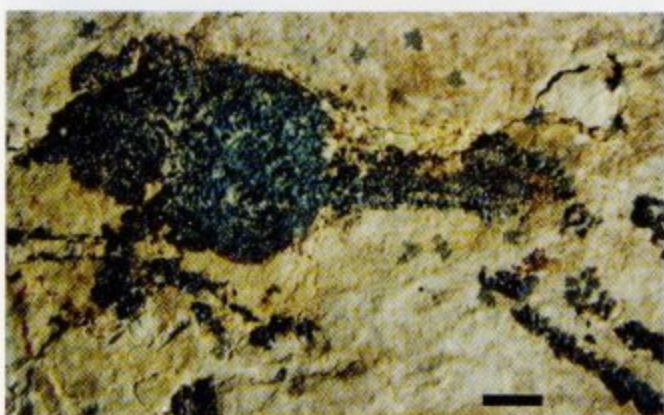
C



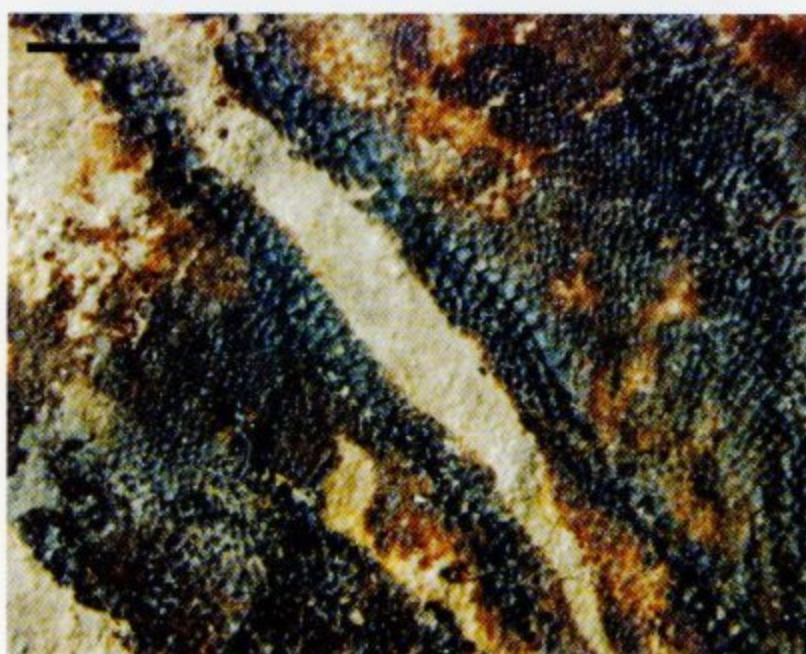
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E



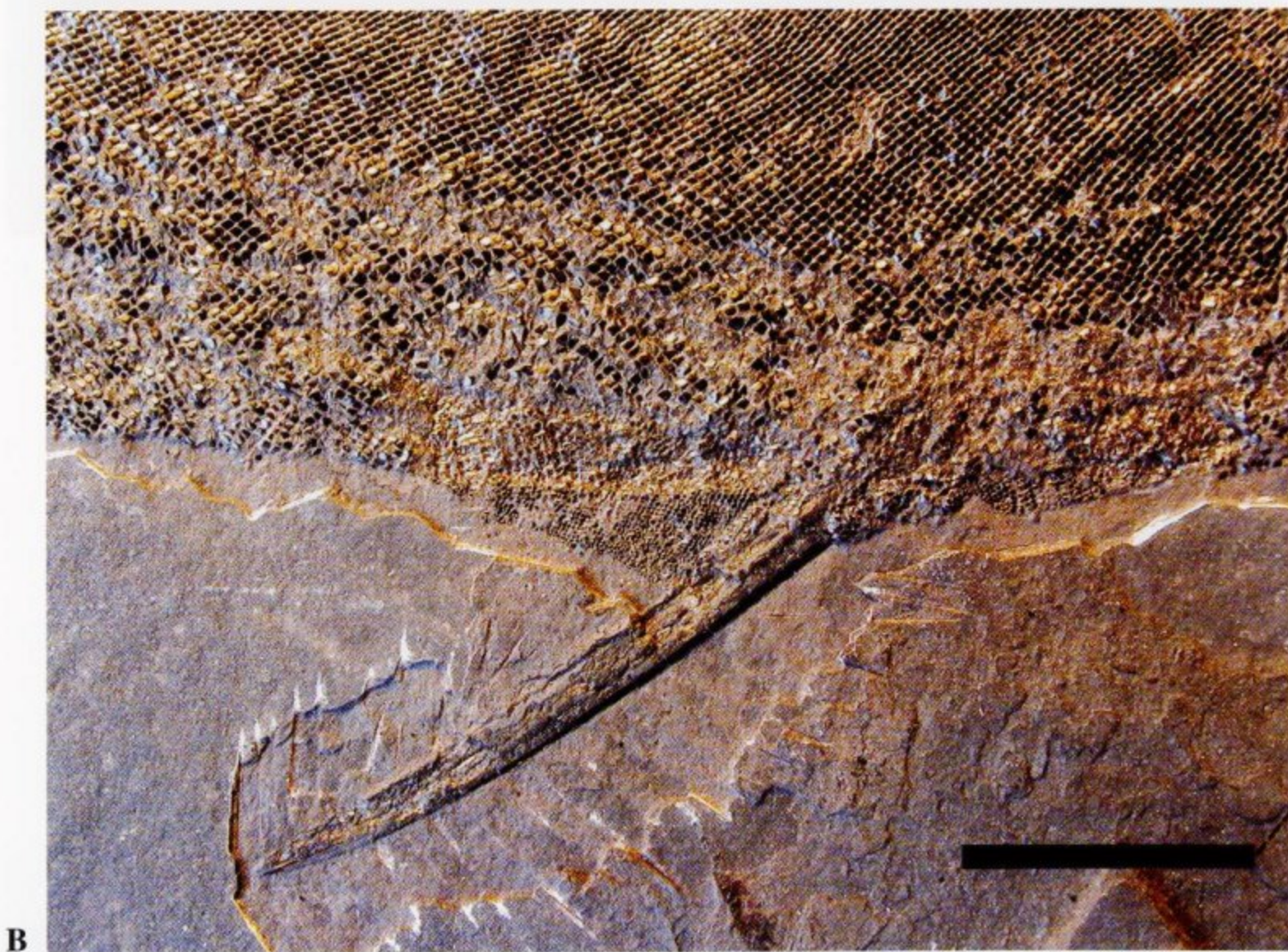
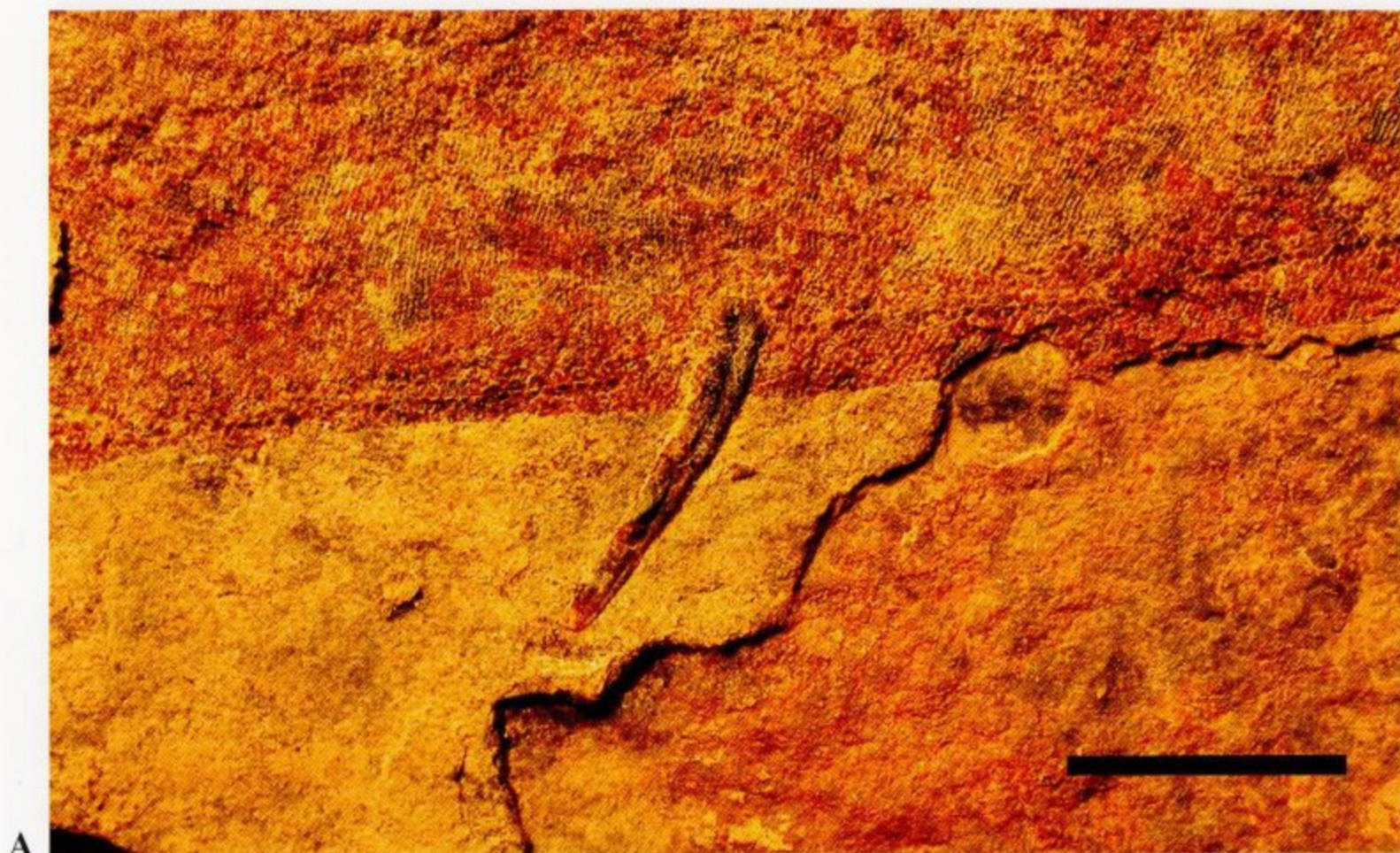
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G

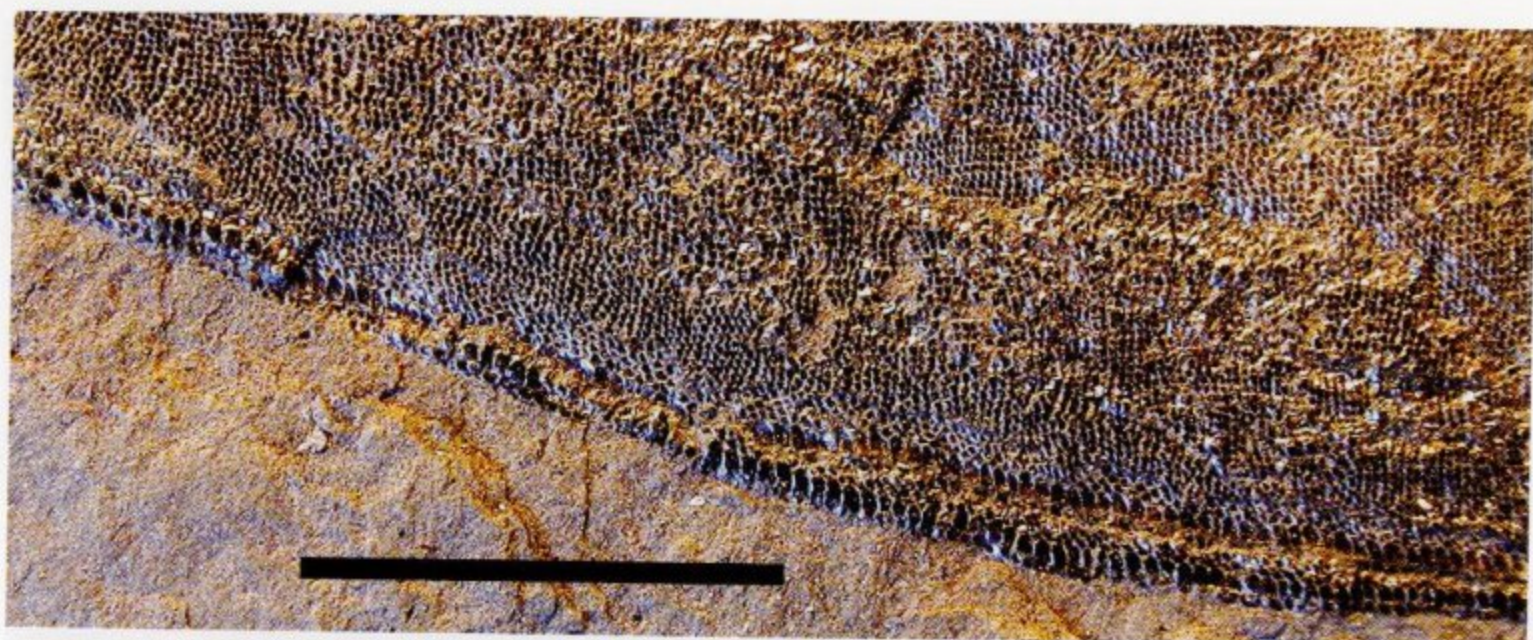
*Acanthodes gracilis*. A – the ventral fin spine of the juvenile specimen crossing two incomplete parallel ventrolateral sensory lines; M 4282; Padochov; black scale line equals 1 mm; B – the overlapping delicately pitted scales in the natural rows coming from the region behind the pectoral area; M 4436; Rybnice, Hrádecký potok; black scale line equals 1 mm; C – detail of the pitted scale crowns from the region behind the pectoral area; M 4436; Rybnice, Hrádecký potok; black scale line equals 1 mm; D – pectoral region, the paired ventrolateral sensory line ends in the small ventral scale shield (between the pectoral fin spines) and unpaired ventral sensory line continues anteriorly, the pectoral fin spines, pectoral girdles and gills are also visible; M 4245/1 (smaller specimen); Padochov; E – pectoral region, the paired ventrolateral sensory line (see detail in Pl. 12G) ends in the larger ventral scale shield (upper left corner, see detail in Pl. 12F), the pectoral fin spines and the pectoral girdles are also visible; M 4245/2 (larger specimen); Padochov; black scale line equals 5 mm; F – the ventral scale shield (detail from the Pl. 12E) and paired ventrolateral sensory line (lower right corner); M 4245/2 (larger specimen); Padochov; black scale line equals 1 mm; G – paired ventrolateral sensory line in the anterior beginning of the squamation, detail from the Pl. 12E; M 4245/2 (larger specimen); Padochov; black scale line equals 1 mm.





*Acanthodes gracilis*. A – ventral part of the body with the ventrolateral sensory line near the ventral border and the ventral fin spine in the middle (estimated total specimen length is 205 mm); MHK 63 797; Kladoruby, Dolní pepřík; black scale line equals 5 mm; B – the anal fin spine and the short part of the anal fin which is formed by tiny scales; a low rim of the tiny scales is preserved also in front of the anal fin spine (estimated total specimen length is 152 mm); M 4493; Košťálov, za hospodou; black scale line equals 5 mm.

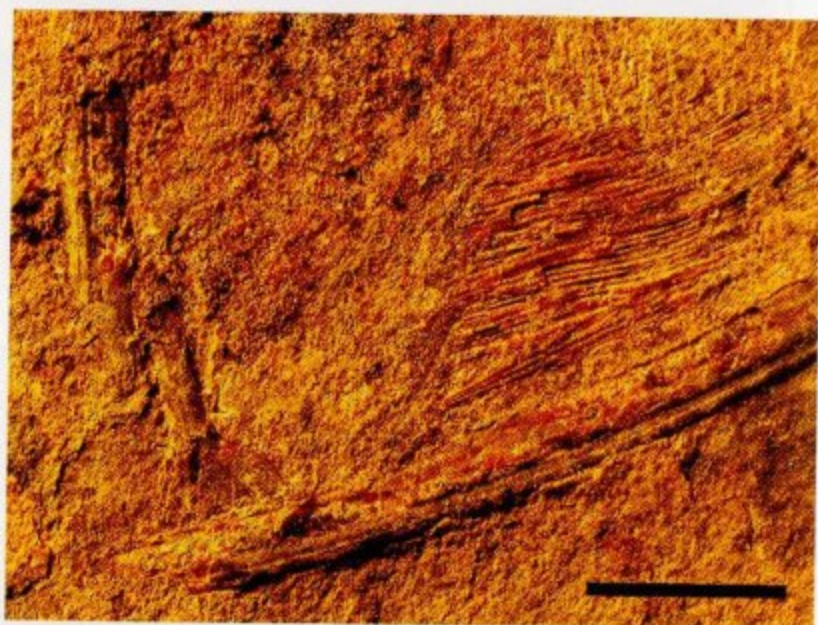




A



B



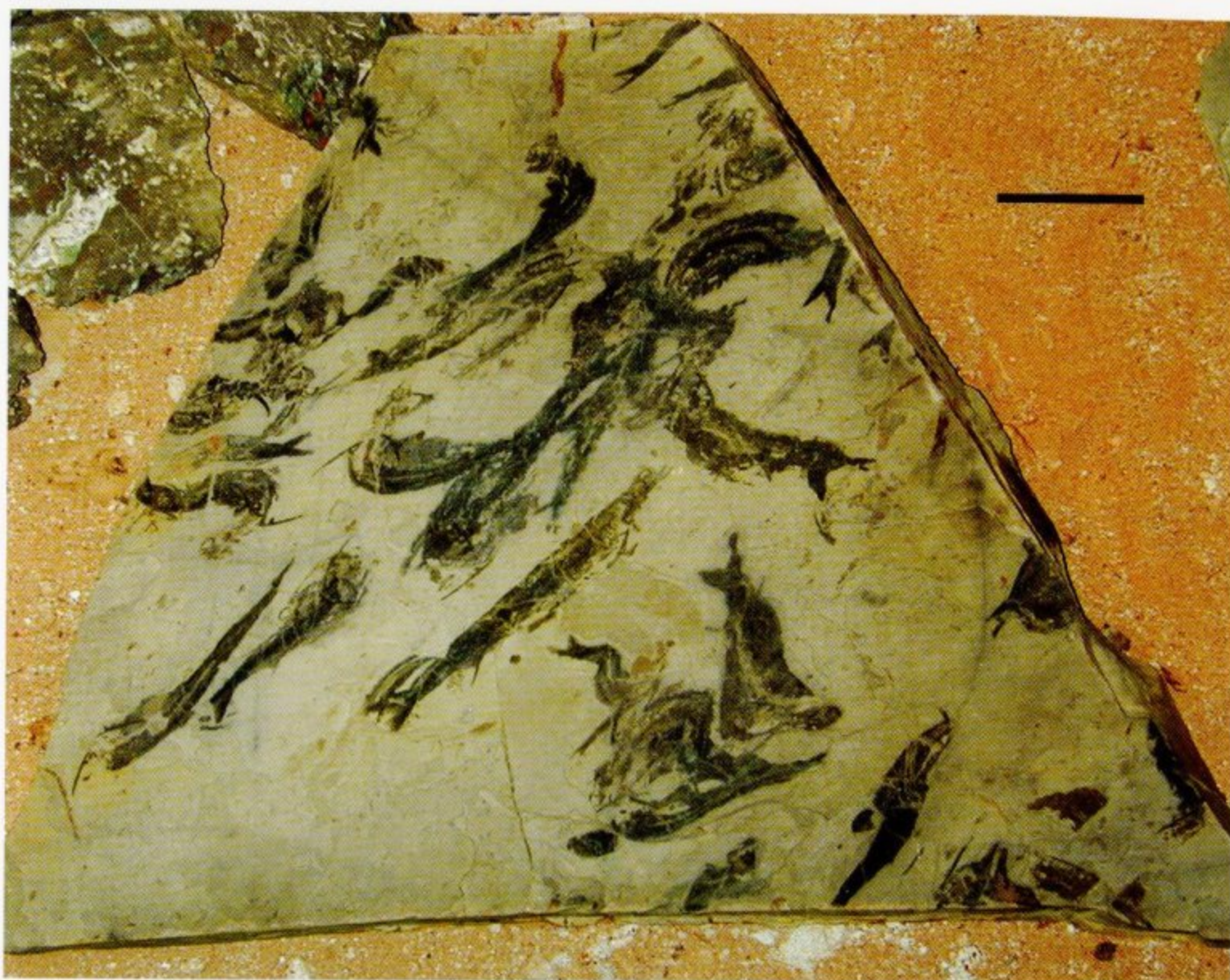
C



D

A – *Acanthodes gracilis*; ventral part of the body between the ventral and anal (missing) fin spines; both ventrolateral sensory lines flank the ventral border of the body; M 4477; Košťálov, za hospodou; black scale line equals 5 mm; B – *Acanthodes gracilis*; both ventrolateral sensory lines terminating in the ventral scale shield (estimated total specimen length is 167 mm); M 4477; Košťálov, za hospodou; black scale line equals 1 mm; C – *Acanthodes stambergi* n. sp.; pectoral region with proximal parts of both fin spines, scapulocoracoid, and proximal parts of the long dermatichia; MHK 63 762/B (syntype); Kladoruby, Dolní pepřík; black scale line equals 5 mm; D – *Acanthodes stambergi* n. sp.; head, gill region, and pectoral region; MHK 63 762/A (holotype); Kladoruby, Dolní pepřík; black scale line equals 5 mm.





A



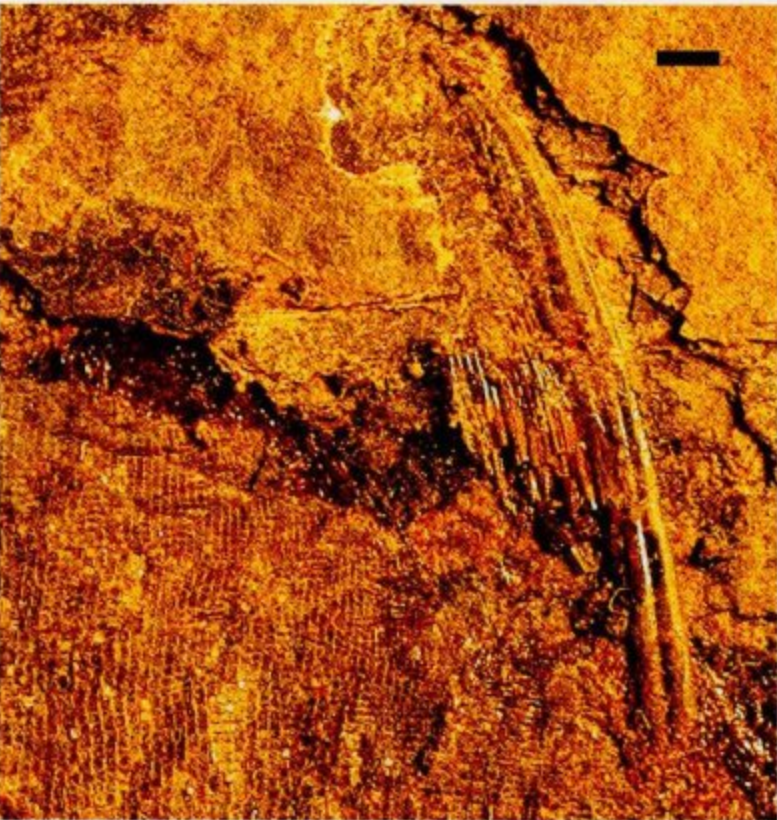
B

*Acanthodes* sp. A – accumulation of circa 45 specimens (most of them are represented by small fragments) on the bedding surface of the carbonate flag; unnumbered sample from the Town Museum of Nová Paka; Vrchlabí; black scale line equals 100 mm; B – incomplete head of a young specimen with circumorbitals, mandibular bones, symmetrically arranged branchiostegal rays, labyrinth fillings, short rows of articulated gill rakers, fragments of sensory lines of the head; M 4274; Padochov; black scale line equals 1 mm.

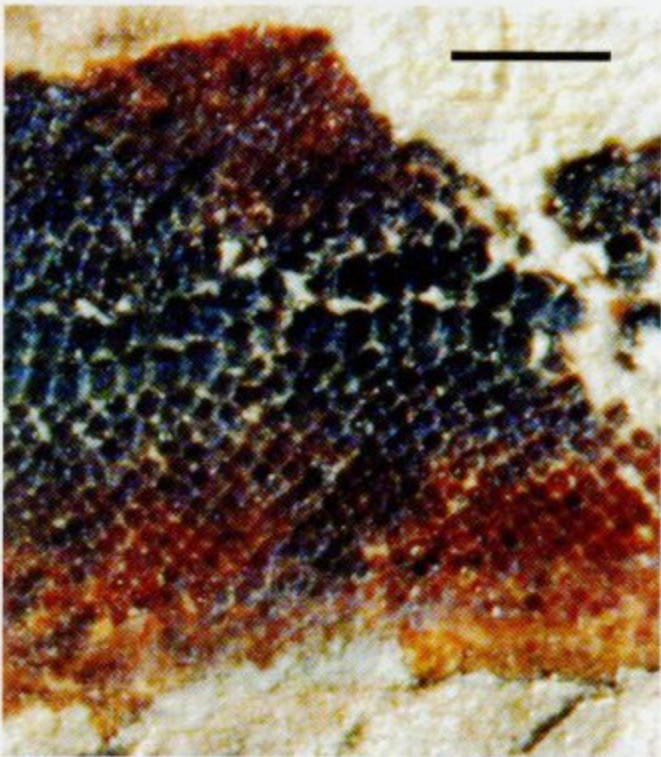




A



B



C



D

*Acanthodes* sp. A – one of the best preserved lower jaws, mandibular bone with weakly “ossified” articular, mentomandibular is missing; MHK 63 752; Kladoruby, Dolní pepřík; black scale line equals 1 mm; B – dorsal fin with dorsal fin spine and robust dermatotrichia; MHK 63 799; Kladoruby; black scale line equals 1 mm; C – ventrolateral sensory line and surrounding scales from the anterior slender (hornlike) protrusion of the squamation; M 4249; Padochov; black scale line equals 0.5 mm; D – axial lobe of the caudal fin with well preserved HEYLER’s zones; MHK 63 764/1; Kladoruby; black scale line equals 1 mm.