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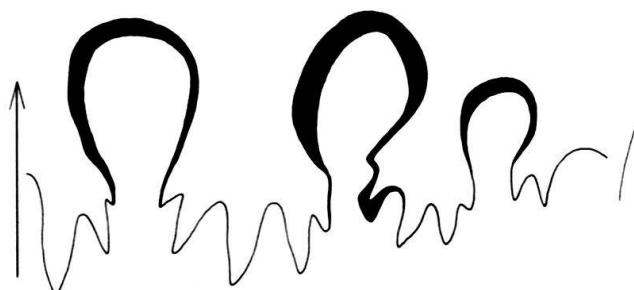


Fig. 26. Suture line ($\times 6$) of *Ussurites* sp. indet. at $D = 24$ mm. USNM 438373.

Ussurites detwilleri n. sp.

Plate 7, Figure 1

Description. Inner whorls evolute, rounded and ribbed. Further development shows increasing spacing of radial ribs which gradually fade on outer whorls. Whorl section simultaneously changes into an ovoid outline. Umbilical margin is then well individualized and slightly convex flanks gently converge towards the permanently broadly arched venter. Striation visible on what is left of outer test. At $D = 37$ mm, $H = 38\%$, $W = 34\%$ and $U = 36\%$. Suture line not known.

Discussion. Though suture line could not be obtained, shell shape and presence of striae make attribution to *Ussurites* very likely. Ribbed inner whorls are the chief difference when compared with *U. arthaberi* WELTER, *U. muskwa* McLEARN, *U. hara* DIENER and *U. kingi* DIENER. This difference equally applies to *U. sp. indet.* which is additionally much more evolute and compressed.

Species named for K. DETWILLER of the Bureau of Land Management, Winnemucca, Nev.

Figured specimens. Holotype USNM 438372.

Occurrence. Loc. HB 225 (1), Bloody Canyon, northern Humboldt Range. *Caurus* Zone, Lower Anisian.

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REFERENCES

- ARTHABER, G. v. 1911: Die Trias von Albanien. Beitr. Paläont. (Geol.) Österr.-Ungarn u. Orient 24, 169–277.
- ASSERETO, R. 1974: Aegean and Bithynian: Proposal for two new Anisian substages. In: Zapfe, H. (Ed.): Die Stratigraphie der alpin-mediterranen Trias. Schriftenr. Erdwiss. Komm. österr. Akad. Wiss. Wien, 2, 23–39.
- ASSERETO, R., JACOBSHAGEN, V., KAUFFMANN, G., & NICORA, A. 1980: The Scythian/Anisian boundary in Chios, Greece. Riv. ital. Paleont. (Stratigr.) 85/3–4, 715–736.

- BENDER, H. 1970: Der Nachweis von Unter-Anis ("Hydasp") auf der Insel Chios. Ann. géol. Pys hellén. 19 (1967), 412–464.
- BUCHER, H. 1988: A new Middle Anisian (Middle Triassic) ammonoid zone from northwestern Nevada (USA). Eclogae geol. Helv. 81/3, 723–762.
- BUCHER, H., GUEX, J., & TAYLOR, D.G. (in prep.): Ammonoids of the latest Spathian (Lower Triassic) Haugi Zone.
- BURKE, D.B. 1973: Reinterpretation of the "Tobin thrust": pre-Tertiary geology of the southern Tobin Range, Pershing County, Nevada. Ph. D. Dissert. Stanford, Calif. Stanford Univ.
- DAGYS, A.S. 1987: The classification and phylogeny of the Longobarditids. Trudy Inst. geol. geophys. (Acad. Nauk. SSSR, Siberian Branch) 688, 63–70 (in Russian).
- 1988a: Major features of the geographic differentiation of Triassic ammonoids. In: WIEDMANN, J., & KULLMANN, J. (Eds.): Cephalopods, present and past (341–349). Schweizerbart, Stuttgart.
 - 1988b: The Lower-Middle Triassic boundary in boreal and tethyan regions and correlations of Anisian deposits. Geol. geophys. (Acad. Nauk. SSSR, Siberian Branch) 11, 3–9 (in Russian).
- DAGYS, A.S., ARKHIPOV, Yu.V., & BYTCHEKOV, Yu.M. (1979): Stratigraphy of the Triassic system of north-eastern Asia. Trudy Inst. geol. geophys. (Acad. Nauk. SSR, Siberian Branch) 447 (in Russian).
- DAGYS, A.S., DAGYS, A.A., KAZAKOV, A.M., & KURUSHIN, N.I. 1977: The boundary between the Lower and Middle Triassic in the North of the Middle Siberia. Geol. Geophys. (Acad. Nauk. SSSR, Siberian Branch) 12, 216, 73–80 (in Russian).
- DAGYS, A.S., & ERMAKOVA, S.P. 1981: Triassic ammonoids of North Siberia (Family *Parapopanocertidae*). Trudy Inst. geol. geophys. (Acad. Nauk. SSSR, Siberian Branch) 495 (in Russian).
- DAGYS, A.S., & ERMAKOVA, S.P. 1986: The genus *Keyserlingites* and its stratigraphic significance. Geol. Geophys. (Acad. Nauk. SSSR, Siberian Branch) 2, 20–26 (in Russian).
- DAGYS, A.S., & KAZAKOV, A.M. 1984: Stratigraphy, lithology and the cyclic system of Triassic deposits of northern Central Siberia. Trudy Inst. geol. geophys. (Acad. Nauk. SSSR, Siberian Branch) 586 (in Russian).
- DIENER, C. 1895: The Cephaolopoda of the Muschelkalk. Paleontologia indica (15), 2/2, 1–118.
- 1905: Entwurf einer Systematik der Ceratiden des Muschelkalkes. Stizber. Akad. Wiss. Wien, Math. natw. Kl. 114/1, 765–806.
 - 1907: The fauna of the Himalayan Muschelkalk. Paleontologia indica (15), 5/2, 1–140.
 - 1912: The Trias of the Himalayas. Mem. geol. Surv. India 36/3, 202–367.
- FANTINI-SESTINI, N. 1981: Lower Anisian (Aegean) ammonites from Chios Island (Greece). Riv. ital. Paleont. (Stratigr.) 87/1, 41–66.
- FRECH, F., & RENZ, C. 1908: Neue Triasfunde auf Hydra und in der Argolis. N. Jb. Mineral. Geol. Paläont. Beilbd. 15, 443–466.
- GUEX, J. 1970: Sur les moules internes des Dactyliocératidés. Bull. Lab. Géol. Univ. Lausanne 182.
- 1978: Le Trias inférieur des Salt Ranges (Pakistan): problèmes biochronologiques. Eclogae geol. Helv. 71/1, 105–141.
- HE, G.X., WANG, Y.G., & CHEN, G.L. 1986: Early and Middle Triassic of Mt. Burhan Budai, Central Qinghai. In: Carboniferous and Triassic strata and fossils from the southern slope of Mt. Burhan Budai, Qinghai (171–274). Nanking (in Chinese).
- HYATT, A., & SMITH, J.P. 1905: The Triassic Cephalopod genera of America. Prof. Pap. U.S. geol. Surv. 40.
- JACOBSHAGEN, V., & NICORA, A. 1981: The Lower/Middle Triassic boundary – a proposal. – unpubl. report submitted to IUGS Subcommission on Triassic stratigraphy, Sarajevo.
- KORCHINSKAYA, V.M. 1982: Explanatory note to the stratigraphy scheme of the Mesozoic (Triassic) of Svalbard. SSSR Ministry of Geology, "SEVMORGEO", Leningrad (in Russian).
- KORCHINSKAYA, V.M. 1984: New ceratitids from the Upper Olenek sediments of Spitsbergen. Paleont. J. 3, 105–108 (in Russian).
- KRYSTYN, L., SCHÄFFER, G., & SCHLAGER, W. 1968: Stratigraphie und Sedimentationsbild obertriadischer Hallstätter Kalke des Salzkammergutes. Anz. Acad. Wiss. Wien, Math.-Naturwiss. Kl. 14, 329–332.
- KUMMEL, B. 1953: Middle Triassic ammonites from Peary Land. Medd. Grön. 127/1.
- 1969: Ammonoids of the late Scythian. Bull. Mus. comp. Zool., Harvard Univ. 137/3, 311–702.
- MCLEARN, F.H. 1969: Middle Triassic (Anisian) ammonoids from Northeastern British Columbia and Ellesmere Island. Bull. geol. Surv. Canada 170.
- MOUNT, J.D. 1971: Stratigraphy and paleontology of the marine Triassic, Inyo Mountains, Inyo County, California. Bull. South. Calif. paleont. Soc. 5/7, 1–4.
- NICHOLS, K.M., & SILBERLING, N.J. 1977: Stratigraphy and depositional history of the Star Peak Group (Triassic), northwestern Nevada. Spec. Pap. geol. Soc. Amer. 178.

- NICORA, A., GAETANI, M., & GARZANTI, E. 1984: Late Permian to Anisian in Zanskar (Ladakh; Himalaya). *Rend. Soc. geol. ital.* 7, 27–30.
- NOETLING, F. 1905: Die asiatische Trias. In: FRECH, F. (Ed.): *Lethaea geogn. II. Teil: Mesozoicum*, Bd. 1: *Trias* (107–221). Schweizerbart, Stuttgart.
- OKUNEVA, T.M. 1976: Anisian ammonoids from the Great Tchourki (Kabarovsk area). In: Stratigraphy and lithology of Paleozoic and Mesozoic deposits of the Far-East and east of Lake Baikal. *Trudy VSEGEI*, n. ser. 263, 49–65 (in Russian).
- OKUNEVA, T.M., & JELEZNOV, A.A. 1976: Lower and Middle Triassic deposits of Kabarovsk. *Trudy VSEGEI*, n. ser. 263, 15–27 (in Russian).
- RENZ, C. 1910: Die mesozoische Faunen Griechenlands. I. Teil: Die triadischen Faunen der Argolis. *Paleontographica* 58, 1–104.
- SHEVYREV, A.A. 1968: Triassic ammonoids of south USSR. *Trudy Inst. Paleont. (Acad. Nauk. SSSR, Moscow)* 119 (in Russian).
- SILBERLING, N.J., & NICHOLS, K.M. 1982: Middle Triassic Molluscan Fossils of biostratigraphic significance from the Humboldt Range, northwestern Nevada. *Prof. Pap. U.S. geol. Surv.* 1207.
- SILBERLING, N.J., & TOZER, E.T. 1968: Biostratigraphic classification of the marine Triassic in North America. *Spec. Pap. geol. Soc. Amer.* 110.
- SILBERLING, N.J., & WALLACE, R.E. 1967: Geologic map of the Imlay Quadrangle, Pershing County, Nevada. Map GQ-666. *U.S. geol. Surv.*, Washington.
- 1969: Stratigraphy of the Star Peak Group (Triassic) and overlying Lower Mesozoic rocks, Humboldt Range, Nevada. *Prof. Pap. U.S. geol. Surv.* 592.
- SMITH, J.P. 1914: The Middle Triassic marine invertebrate faunas of North America. *Prof. Pap. U.S. geol. Surv.* 83.
- SPATH, L.F. 1934: Catalogue of the fossil Cephalopoda in the British Museum (Natural History), pt. 4, The Ammonoids of the Trias. London.
- 1951: Catalogue of the fossil Cephalopoda in the British Museum (Natural History), pt. 5, The Ammonoids of the Trias (II). London.
- TOMMASI, A. 1889: La fauna dei calcari rossi e grigi del Monte Clapsavon nella Carnia occidentale. *Paleontographia ital.* 5.
- TOZER, E.T. 1965: Latest Lower Triassic ammonoids from Ellesmere Island and northeastern British Columbia. *Bull. geol. Surv. Canada* 123.
- 1967: A standard for Triassic time. *Bull. geol. Surv. Canada* 156.
- 1971: Triassic time and ammonoids – Problems and proposals. *Canad. J. Earth Sci.* 8/8, 989–1031.
- 1972a: Triassic ammonoids and *Daonella* from the Nakhlak Group, Anarak region, Central Iran. *Rep. geol. Surv. Iran*, 28, 29–69.
- 1972b: Observations on the shell structure of Triassic ammonoids. *Paleontology*, 15/4, 637–654.
- 1974: Definitions and limits of Triassic stages and substages: suggestions prompted by comparisons between North America and the Alpine-mediterranean region. In: ZAPFE, H. (Ed.): *Die Stratigraphie der alpin-mediterranen Trias. Schriftenr. Erdwiss. Komm. österr. Akad. Wiss.* 2, 195–206.
- 1981a: Triassic Ammonoidea: classification, evolution and relationship with Permian and Jurassic forms. In: HOUSE, M.R., & SENIOR, J.R. (Eds.): *The Ammonoidea. Spec. Vol. System. Assoc.* 18, 65–100.
- 1981b: Triassic Ammonoidea: geographic and stratigraphic distribution. In: HOUSE, M.R., & SENIOR, J.R. (Eds.): *The Ammonoidea. Spec. Vol. System. Assoc.* 18, 397–331.
- 1982: Marine Triassic faunas of North America: Their significance for assessing plate and terrane movements. *Geol. Rdsch.* 71/3, 1077–1104.
- in prep.: Canadian Triassic ammonoids. *Bull. geol. Surv. Canada*.
- TOZER, E.T., & PARKER, J.R. 1968: Notes on the Triassic biostratigraphy of Svalbard. *Geol. Mag.* 105/6, 526–542.
- VAVILOV, M.N., & ARKADIEV, V.V. 1986: New and rare Ammonoidea of the Middle and Late Triassic of Central Siberia. *Trudy Inst. geol. geophys. (Acad. Nauk. SSSR, Siberian Branch)* 648, 38–41 (in Russian).
- WANG, Y.G. 1978: Latest early Triassic ammonoids of Ziyun, Guizhou – with notes on the relationship between Early and Middle Triassic ammonoids. *Acta paleont. sinica* 17/2, 151–179 (in Chinese).
- 1985: Remarks on the Scythian Anisian-boundary. *Riv. Ital. Paleont. (Stratigr.)* 90/4, 515–544.
- WANG, Y.G., ZHEN, Z.G., & CHEN, G.L. 1979: *Atlas of Paleontology of Qinghai – Cephalopods*. Geological Publishing House, Peking (in Chinese).
- WELTER, O. 1915: Die Ammoniten und Nautiliden der Ladinischen und Anisischen Trias von Timor. *Paläontologie von Timor* 5, 71–136.

- WENDT, J. 1973: Cephalopod accumulations in the Middle Triassic Hallstatt-Limestone of Jugoslavia and Greece. N. Jb. Geol. Paläont., Mh. 10, 624–640.
- YANG, Z.Y., YIN, H.F., XU, G.R., WU, S.B., HE, Y.L., LIU, G.C., & YIN, Y.R. 1983: Triassic of the South Qilian Mountains. Geological Publishing House, Peking (in Chinese).
- ZAKHAROV, Yu.D. 1968: Biostratigraphy and ammonoids of the Lower Triassic of southern Primorie. Acad. Nauk. SSSR, Moscow (in Russian).

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