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TALLINN RADIOCARBON DATES VI

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The following list includes samples dated at the Institute of Geology, Academy of Sciences of the Estonian SSR in 1978. The measurement of natural ^{14}C activity is performed by 1-channel and 2-channel scintillation devices (Punning & Rajamäe, 1977). Ages are calculated using the half-life of 5568 ± 30 years and 0.95 NBS oxalic acid modern standard with AD 1950 as reference year.

Estonian SSR

Tln-253. Reo **7165 ± 70**

Sapropel with reed remains under Littorina Sea sands from Reo profile, 12km from v Orissaare, Saaremaa I. Sample in upper layer of organic deposits at depth 200 to 220cm. Pollen analyses by H Kessel refer accumulation of deposits to Pollen Zone AT 1. Coll 1976 by H Kessel, Inst Geol, Acad Sci Estonian SSR (now Inst Geol).

Tln-254. Reo **7350 ± 70**

Phragmites peat from same profile as Tln-253. Sample at depth 220 to 230cm.

Tln-261. Niitvälja **7580 ± 70**

Lagoonal sapropel overlying sands in Niitvälja mire near settlement Niitvälja, Harju Dist. Sample at depth 280 to 290cm. Coll 1976 by H Kessel, Inst Geol. Pollen analyses by H Kessel refer accumulation of lagoonal deposits to Pollen Zone AT 1.

Akali mire series

Akali mire is situated near estuary of Emajögi R. Deposits comprised of *Carex* peat overlying fine sands. Samples coll from 2 boreholes: Tln-281, -282 from deposits 185cm thick; Tln-347, -348 from deposits 350cm thick. Coll 1977 by M Ilomets, Inst Geol and T Moora, Inst Hist, Acad Sci ESSR.

Tln-281. Akali **3480 ± 60**

Sample at depth 190 to 200cm.

Tln-282. Akali **6390 ± 90**

Sample at depth 340 to 350cm.

Tln-347. Akali **3340 ± 60**

Sample from depth 165 to 173cm.

Tln-348. Akali **3610 ± 70**

Sample at depth 175 to 185cm.

Tln-328. Korveküla **41,000** $^{+\ 700}_{-2100}$

Wood remains from borehole, 10km N of town Tartu. Sample embedded in sands at depth 350cm below surface. Sands with organic remains are covered by sandy loam and gravel and overlie sapropel. Coll 1978 by J M Punning and R Rajamäe, Inst Geol.

Tln-340. Kuigli **6620 ± 80**

Phragmites peat from borehole within Karula Heights, South Estonia. Bog deposits 265cm thick in closed depression. Sample at depth 155 to 165cm. Coll 1977 by M Ilomets, Inst Geol.

Tln-342. Parmu **9190 ± 80**

Sapropel from Parmu raised bog within Otepää Heights. Sample coll at depth 468 to 475cm from contact zone of underlying silts. Coll 1975 by M Ilomets and A Sarv, Inst Geol.

Tln-343. Parmu **6510 ± 70**

Sphagnum peat from same complex as Tln-342. Sample at depth 215 to 225cm.

Tln-345. Rebase **3190 ± 60**

Sapropel from Rebase profile, 20km S of town Tartu. Sample depth 125 to 135cm. Coll 1975 by M Ilomets and A Sarv, Inst Geol.

Tln-346. Palamumäe **6910 ± 100**

Wood peat from lake and bog deposits on bank of Palamumäe Lake within Haanja Heights. Sample coll at depth 565 to 575cm from contact zone of underlying silts and till. Coll 1976 by M Ilomets.

Byelorussian SSR

Tln-308. Galinovo **5050 ± 70**

Loamy light sand and silts with plant remains overlie till in exposure on right bank of Zapadnaya Dvinaa R, 4km upstream of town Surazh, Vitebsk Dist. Sample at depth 670cm below terrace surface. Coll 1977 by L Voznyachuk, Inst Geochem and Geophys, Acad Sci, Byelorussian SSR.

Tln-310. Galinovo **5300 ± 80**

Plant detritus with wood remains from same complex as Tln-308. Sample at depth 720cm.

Tln-309. Galinovo **17,470 ± 210**

Plant detritus at depth 375cm below base of Valdai till from same complex as Tln-308.

Tln-322. Mikhailovo $35{,}700^{+1100}_{-1000}$

Peat from under sandy-gravel-boulder horizon with till lens in profile 5km N of town Liozno, Vitebsk Dist. Coll 1978 by L Voznyachuk.

Tln-325. Volosovo **10,650 ± 160**

Wood remains at depth 480cm below surface of 550cm terrace on right bank of Luchesa R, 17km W of town Vitebsk. Organic layer overlain by loamy light sand and sandy loam. Coll 1977 by L Voznyachuk.

Tln-326. Konevichi $34{,}850^{+2350}_{-1850}$

Plant detritus underlying marl, sands and gyttja on left slope of Konevichi stream, tributory of Zapadnaya Dvinaa R, in town Velizhe. Coll 1977 by L Voznyachuk.

Tln-327. Drichaluki **24,550 ± 300**

Plant detritus at depth 300m below surface of moraine in profile on left bank of Usvjaga R, 200 m upstream from its flow into Zapadnaya Dvinaa R, Vitebsk Dist. Coll 1977 by L Voznyachuk.

Tln-329. Chizhovka **17,150 ± 150**

Plant detritus in profile on right bank of Dnepr R near v Dubrovno in Brandenburg marginal zone. Coll 1978 by L Voznyachuk.

Murmansk District

Tln-255. Sgoskodanvara **4285 ± 115**

Peat in borehole 1.5km SE of town Sgoskodanvara. Sample at depth 160 to 170cm. Coll 1976 by B Koshechkin, Geol Inst Kola Branch Acad Sci USSR (now Geol Inst).

Tln-256. Sgoskodanvara **4665 ± 90**

Peat from same borehole as Tln-255. Sample at depth 170 to 180cm.

Tln-259. Kovdora **3455 ± 65**

Peat from under gravel and pebble deposits in Kovdora iron pit. Coll 1976 by G Rubinraut, Geol Inst.

Tln-260. State farm "Nivskij" **7410 ± 95**

Peat from surface of sea terrace in territory of state farm "Nivskij", Murmansk Dist, Kandalaksha region. Sample at depth 70cm in lower part of lake and bog deposits underlying muddy light sand. Coll 1976 by B Koshechkin.

Tln-267. Kovdora **6670 ± 80**

Wood remains from under sands in Kovdora iron pit. Coll 1976 by G Rubinraut.

Tln-305. Kovdora **⩾53,000**

Plant remains in profile of Kovdora iron pit (see Tln-259). Sands with plant remains embedded in sandy gravel fluvioglacial deposits at depth 800 to 1000cm. Coll 1977 by V Evzerov, Geol Inst.

Tln-293. Eina **3180 ± 100**

Shells (*Cyprina islandica*) at depth 300cm below surface of 8.5m sea terrace in Valley of Eina R, Rõbatchij peninsula. Coll 1977 by B Koshechkin.

Tln-302. Eina **120 ± 70**

Peat from same profile as Tln-293. Sample at depth 35cm below surface of 8.5m terrace.

Tln-307. Eina **7200 ± 200**

Shells (*Hyatella arctica*) from same profile as Tln-293. Sample at depth 400cm below surface of 8.5m terrace.

Tln-301. Kanda estuary **100 ± 70**

Peat at depth 150cm from profile in 22m terrace in valley of stream on N bank of Kanda estuary. Coll 1977 by B Koshechkin.

Tln-306. Prolivyi **7400 ± 100**

Shells in exposure of sand quarry 1km SE of v Prolivyi. Sample at depth 300cm. Coll 1977 by V Koshechkin.

Tln-331. Voche-Lambina **7100 ± 60**

Submerged peat on NW bank of Voche-Lambina Lake near town Kurtvarene. Sample at depth 150 to 160cm. Coll 1978 by N Dedkov, Geol Inst.

Tln-332. Umbozero **7300 ± 60**

Peat from 2.7m terrace near N pier of Umbozero Lake. Sample at depth 135 to 145cm in peat complex 2m thick. Coll 1978 by N Dedkov.

Tln-333. Ochtokanda **8130 ± 65**

Submerged peat on E bank of Ochtokanda estuary, Imandra Lake. Sample at depth 150 to 165cm. Coll 1978 by N Dedkov.

Tln-339. Kolvica **5470 ± 70**

Wood from bog deposits in valley of Kolvica R. Peat overlain by sea sands forming 62.5m terrace. Coll 1978 by N Dedkov.

Arkhangelsk District

Tln-312. Koleshki **⩾54,500**

Koleshki profile is situated on right bank of Vaga R, tributory of Severnaya Dvinaa R, ca 3km downstream from mouth of Koleshki R. Sample from peat layer embedded in bluish-gray loamy silts covered by dusty sands. Sample at depth 450cm from river level. Coll 1977 by R Rajamäe, Inst Geol.

Tln-338. Koleshki **46,900 +2300 −1750**

Exposure ca 300m upstream from profile where Tln-312 was coll. Layer of *Bryales* peat, 35cm thick at alt 550 to 590cm from sea level underlies sands and is overlain by loamy light sand. Sample coll from upper part of organic complex.

Tln-344. Koleshki **⩾52,750**

Sample from the lower part of same complex as Tln-338.

Zaton series

Exposure is on left bank of Mezen R, 1.5km upstream from settlement Zaton. From top downwards profile contains limonated sands, coarse sands with gravel, medium sands with gravel and abundant shells. Sample at depth 700 to 740cm. Coll 1973 by J M Punning and R Rajamäe, Inst Geol. Only well-preserved shells were subjected to dating. Shells were dissolved in HCL and divided into 3 fractions. Outer layer (0-10%) was not dated. The results obtained refer to contamination of of uppermost part with young carbon.

Tln-313. **40,100 +5200 −3600**

Fraction 10 to 30%.

Tln-314. **>46,300**

Fraction 30 to 60%.

Tln-315. **>51,600**

Fraction 60 to 100%.

Verkhnaya Telza series

Profile Verkhnaya Telza-2 lies on right bank of Verkhnaya Telza R, tributory of Onega R, ca 700m upstream from bridge. In profile from top downwards following layers are found: dark red till, gravel and pebble deposits, silty sand, gravel and pebble sand with abundant shells (mainly *Mytilus edulis* and *Tellina baltica*), chocolate brown and brick red till. Age increases with depth and implies contamination by younger carbon. Sample at depth 735 to 795cm. Coll 1974 by J M Punning and R Rajamäe, Inst Geol.

Tln-323. **35,300 ± 550**

Fraction 10 to 30%.

Tln-324. **38,600 +900 −750**

Fraction 30 to 50%.

Tln-351. **>44,600**

Fraction 50 to 100%.

Pasva series

Exposure lies on right bank of Vaga R, tributory of Severnaya Dvinaa R, near v Pasva. In exposure, 2 complexes of organic deposits overlie till and are covered by sandy-clayey deposits. Coll 1977 by R Rajamäe from same place as Tln-215: 34,600 ± 1100 and Tln-217: 34,600 ± 750 (Punning & Troitsky, 1979). New dates indicate postsedimentation contamination of samples date before.

Tln-335. **>55,500**

Peat from upper part of uppermost layer of organic deposits.

Tln-336. **>51,200**

Peat from lower part of same layer as Tln-335.

Tln-349. **>46,400**

Layer of gyttja in uppermost sandy-clayey deposits.

Tln-350. Raibola **>51,600**

Raibola profile is on right bank of Vaga R, tributary of Severnaya Dvinaa R, 10km downstream from town Shenkursk. Till is underlain by fine and medium sands containing layers of clayey silt, plant remains and peat layers. Sample from upper layer. Coll 1978 by J M Punning.

West Spitsbergen

Tln-266. Cape Martin **620 ± 60**

Animal bones from cultural layer in beach barrier on Cape Martin, Nordenskiöld Land. Coll 1975 by V Korjakin, Inst Geogr Acad Sci USSR (now Inst Geogr).

Reindalen series

Peat complex lies on right boundary of Reindalen valley on terrace, alt +20 to 25m, left branch of Gangdanselva R. Coll 1976 by L Troitsky, Inst Geogr.

Tln-268. **7965 ± 80**

Peat at depth 5 to 15cm.

Tln-269. **8260 ± 80**

Peat at depth 90 to 100cm.

Tln-270. **10,360 ± 260**

Peat at depth 170 to 175cm.

Adventdalen series

Samples from marine terraces in estuary of Adventdalen valley between Tudalen valley and settlement of Longyearbyen. Dates enable determination of rate of neotectonic uplift in central part of West Spitsbergen more precisely. Coll 1976 by L Troitsky.

Tln-271. **8700 ± 90**
Shells from surface of relict of 23m terrace.

Tln-272. **9150 ± 110**
Shells at depth 1 to 1.5m below surface of 34m terrace.

Tln-273. **9300 ± 130**
Shells from flat-dipping slope of 28m terrace.

Tln-274. **9370 ± 110**
Shells from surface of 47m terrace.

Tln-275. **9480 ± 120**
Shells at depth 12 to 13m below surface of 55m terrace.

Tln-321. **9250 ± 300**
Shells from 40m marine terrace.

Tln-320. **6900 ± 100**
Shells from slope of pingo.

Tln-362. **8670 ± 60**
Basal horizon of peat complex on 25m terrace.

Brögger series

Samples from marine terraces near settlement of Ny-Ålesund on Bröggerhalvøya. Coll 1977 by J M Punning.

Tln-276. **9450 ± 120**
Shells from surface of 5m terrace.

Tln-277. **9330 ± 120**
Shells from surface of 8.5m terrace.

Tln-278. **9220 ± 140**
Shells from surface of 22m terrace.

Tln-279. Billefjorden **41,700 ± 1200**

Driftwood from profile on E coast of Billefjorden near Cape Ekholm. Pleistocene deposits overlie carbonaceous sandstones and are represented by marine deposits embedded between 2 tills and fluvioglacial deposits. Age of shells from these deposits 34,120 ± 600: Tln-194 (Punning & Troitsky, 1979). Because of great difference in age, 41,700 should be regarded as minimum for this complex. TL-date for quartz extracted from silts of lower marine deposits favors this conclusion: 70000: Tln-TL-21 (Troitsky *et al*, 1979). Sample coll 1977 by L Troitsky.

Tln-280. Kapp Lyell **5350 ± 80**

Driftwood from complex of marine deposits at alt 6m on Kapp Lyell. Coll 1977 by J M Punning.

Tln-292. Sildresletta **23,300 ± 500**

Shells from surface of terrace 5 to 7m high on E coast of Prince Karls Forland. Coll 1977 by L Troitsky.

Tln-298. Aberdeenflya **33,250 ± 500**

Shells from surface of 22m terrace on E coast of Prince Karls Foreland. Coll 1977 by L Troitsky.

Tln-295. Nathorst **830 ± 50**

Driftwood from surface of terrace in front of marginal formations of Nathorst moraine, Van Keulenfjorden. Coll 1977 by J M Punning.

Tln-319. Nathorst **6590 ± 100**

Driftwood at alt 80m in front of marginal formations of Doktorbreen Glacier. Coll 1977 by J M Punning.

Tln-299. Ekmanfjorden **150 ± 70**

Driftwood in push moraine of Holmströmbreen Glacier, W coast of Ekmanfjorden. Coll 1977 by L Troitsky.

Tln-300. Sörbreen **1010 ± 60**

Driftwood from moraine of Sörbreen Glacier, end of Wijdefjorden.

Tln-334. Reinbondalen **9330 ± 70**

Shells from surface of 60m terrace, Wijdefjorden. Coll 1978 by L Troitsky.

Tln-352. Sassendalen **2080 ± 50**

Driftwood from surface of regressional beach barrier, 3.1m high, SW coast of Tempelfjorden, 4km from Sassendalen valley. Coll 1979 by A Armand, Inst Geogr.

Tln-353. Sassendalen **2990 ± 50**

Driftwoood from surface of same regressional 5.5m beach barrier as Tln-352.

References

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UNIVERSITY OF MIAMI RADIOCARBON DATES XVII

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The following radiocarbon dates are a partial list of samples measured for a variety of projects and materials since April 1979. Chemical and counting procedures remain the same as indicated in R, v 20, p 274-282.

Calculations are based on the 5568 year Libby ^{14}C half-life. Precision is reported as one-standard deviation based only on statistical counting uncertainties in the measurement of the background, NBS modern standard, and sample activities. $\delta^{13}C$ values are measured relative to PDB and reported ages are corrected for isotopic fractionation by normalizing to $-25‰$. An additional 400 year reservoir age correction has been applied to marine carbonates.

SAMPLE DESCRIPTIONS

I. GEOLOGIC SAMPLES

Virgin Island Series

Core samples of carbonate sand and coral rock taken from S shelf of US Virgin Islands were dated to determine sedimentation rates. Coll 1978 and subm 1979 by R Miller, USGS, Corpus Christi, Texas.

UM-1728. 305020 **1750 ± 90**

Carbonate sand (18° 19′ N, 65° 1.25′ W) coll by R Miller.

UM-1729. 380095 **2020 ± 80**

Carbonate sand (18° 19′ N, 65° 1.25′ W) coll by R Miller.

UM-1730. 3155170 **2890 ± 90**

Carbonate sand (18° 19′ N, 65° 1.25′ W) coll by R Miller.

UM-1731. 3230245 **3660 ± 80**

Carbonate sand (18° 19′ N, 65° 1.25′ W) coll by R Miller.

UM-1732. 3320335 **5940 ± 85**

Carbonate sand (18° 19′ N, 65° 1.25′ W) coll by R Miller.

UM-1733. H-861-I **22,370 ± 280**

Carbonate sand (18° 20.5′ N, 64° 58′ W) coll by Woodward and Clyde.

UM-1734. Rotary Core #4 **7600 ± 100**

Coral rock (18° 12′ N, 64° 44′ W) coll by R Miller.

Carteret County series

Core samples of organic clay and shell taken from a lagoonal and back barrier environment in Carteret Co, North Carolina. Samples coll

from Back Sound and Harkers I. (34° 40′ N, 76° 40′ W) for stratigraphic correlation. Coll July 1978 by W Berelson; subm by D Heron, Duke Univ, Durham, North Carolina.

UM-1647. H I #11 188 to 191cm **4300 ± 90**

Oyster shell within lagoonal mud facies (Back Sound).

UM-1648. H I #26 213cm **3080 ± 90**

Gastropod shells from marsh mud below tidal delta deposit (Back Sound).

UM-1649. H I #37 208 to 218cm **1520 ± 70**

Clam shells near top of marsh mud below tidal delta deposit in back barrier environment (Back Sound).

UM-1650. H I #18 257 to 262cm **15,440 ± 280**

Organic clay unit with lagoonal mud facies, back barrier environment.

UM-1651. H I 25b, 475 to 483cm **>32,000**

Organic stained sandy clay near top of lagoonal mud, back barrier environment.

UM-1652. H I A 457 to 483cm **25,050 $^{+480}_{-450}$**

Humate from soil zone below modern barrier island sands (Harkers I.).

Back Sound series

Shell and organic sediment coll via cores from marsh, marine, and back barrier island environments in Back Sound, North Carolina (36° 40′ N, 76° 30′ W). Samples dated to determine stratigraphic correlation. Coll 1978 by W Berelson and subm 1979 by D Heron, Duke Univ, Durham, North Carolina. UM-1719 coll and subm 1979 by W Berelson.

UM-1707. F (335 to 427cm) **32,540 $^{+680}_{-630}$**

Mercenaria sp fragments from marsh mud.

UM-1708. 12 (112 to 142cm) **1050 ± 140**

Oyster and slipper shells from marsh mud.

UM-1709. 24 (287 to 295cm) **3190 ± 150**

Oyster and slipper shells from silty mud in marsh environment.

UM-1710. 5 (76cm) **2940 ± 150**

Gastropod shells from coarse lag in mixed marine environment.

UM-1711. 16 (10 to 20cm) **2720 ± 135**

Ribbed clam shell from coarse lag inlet fill in mixed marine environment.