RADIOCARBON DATES OF THE INSTITUTE OF ARCHAEOLOGY III*

1 July 1967—1 July 1969

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The current list presents samples measured in the radiocarbon laboratory, Leningrad Branch Inst. of Archaeol., Acad. of Sci., USSR, from July 1967 through June 1969. Ages of 85 archaeologic samples of wood, charcoal, and peat have been determined.

For all samples radiocarbon was measured as benzene prepared by the method proposed by Arslanov and Gromova (1967). Synthesis of benzene is:

Sample → Charcoal → Carbide → Acetylene → Benzene

The yield of benzene from acetylene is 90 to 95% and is very stable. Radioactivity of the samples was measured with 2 scintillation counters with individual photomultipliers (FEU) (Semyontsov, 1970). The counting channel (30 to 80 kw) is set at a CO⁺⁰ spectrum boundary, and monitored by light impulses. The limit of age measured by the counters is 45,000 yr. All dates were measured according to a half-life of C¹⁴ of 5570 ± 30 yr. Ages of the samples are calculated from 1950. Comments based on the literature and also from field observations made by P. M. Dolukhanov and V. I. Timofeyev.

Belorussian SSR

LE-799. Krasnoye Selo flint mine, Grodno Oblast 1640 B.C.


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* Translated and edited by Edith M. Shimkin, Univ. of Illinois, with comments by Demitri B. Shimkin, Univ. of Illinois, and Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, Calif. Original Russian text transmitted through Mstislav Keldysh, Pres. Acad. of Sci., USSR, to Henry Field by P. M. Dolukhanov, Paleogeog. Branch, Inst. of Archaeol., Leningrad Branch, Acad. of Sci., USSR. Tables 1 and 2 edited by E. M. and D. B. Shimkin from Dolukhanov’s originals. The editors wish to express their appreciation to H. Field for his aid in initiating this work, and to O. M. Wilson, Dir., Center for Advanced Study in the Behavioral Sciences, and to the Staff of the Center for their assistance in preparing the manuscript.

Information in brackets added by translator (E.M.S.) and commentator (D.B.S.)
Krivina peat bog series, Vitebsk Oblast

Krivina peat bog is located in Beshenkovichi Raion, Vitebsk Obl., Belorussian SSR [town of Beshenkovichi: 54° 57' N Lat, 29° 38' E Long]. First study of bog begun 30 yr ago (Polikarpovich, 1940); excavated by M. M. Chernyavskiy, Acad. Sci., Belorussian SSR.

LE-757. Krivina settlement

Peat with vegetative remains and wood from bottom of cultural layer; depth, 1.20 to 1.30 m, from Krivina settlement, S part of Krivina peat bog on boundaries of Beshenkovichi and Senno Raions, middle course Krivinka R., between Golovsk and Osovets villages (Chernyavskiy, 1969a). Large quantity of pottery, bone and horn artifacts, a few flint tools, wooden objects, amber artifacts discovered in settlement. Comment (M.M.C.): ceramic complex divided into early type (Ceramic I in lower part of cultural level) and later type (Ceramic II) showing influence of Early Bronze Age tribes.

Osovets II sub-series

Campsite is in NE part of Krivina peat bog, 1.5 km from Osovets village, on Krivinka R., Beshenkovichi Raion. Separate fragments of pottery, similar to Ceramic I of Krivina settlement (LE-757) found in base of cultural layer. Inferred archaeol. age: 1st half 2nd millennium b.c. (Chernyavskiy, 1967a, b; 1969b). [Alternative spelling: Asavets].

LE-756. Osovets II, cultural layer

Accumulation of wood bark in cultural layer; depth, 1.5 m.

LE-753. Osovets II, cultural layer

Log lying horizontally in layer of sapropel; depth, 1.6 m.

LE-754. Osovets II, Test Pit 1

Peat from Test Pit 1, Excavation 3; depth, 1.6 m.

LE-755. Osovets II, Test Pit 1

Peat from Test Pit 1, Excavation 4; depth, 1.8 m. Comment (M.M.C.): LE-754 and -755 not connected with cultural layer. Most of pottery shows traces of influence of Middle Dnepr culture in ornamentation and [tempering] admixture. Vessels of Middle Dnepr culture also found in lower part of cultural layer.

Osa series, Lubana Lowland

bone and horn artifacts from Excavation “B” under subsoil in compact peat with mixture of sand. Above Mesolithic layer in Excavation “B”, Early Neolithic pottery, bone and horn artifacts, are covered without [intervening] sterile layer by Pit-and-Comb pottery and flint and bone inventory. Excavation “A” contained Early Neolithic complex with pottery (attributed by Zagorskis to local variant of Narva pottery) and bone and horn artifacts.

**LE-810.**  
Peat from depth 1.4 m; Mesolithic layer.  
6580 ± 70 4630 B.c.

**LE-811.**  
Wood from depth 1.45 m; Mesolithic layer.  
6960 ± 80 5010 B.c.

**LE-812.**  
Wood from depth 1.7 m; Mesolithic layer. Comment (F.A.Z.): dates confirm Mesolithic age of lower cultural layer of Osa.

**LE-850.**  
Log, lying horizontally, from depth 1.80 to 1.90 m, from lower part of Early Neolithic cultural layer.  
5730 ± 50 3780 B.c.

**LE-758.**  
Wood from depth 0.90 to 1.00 m.  
4000 ± 60 2050 B.c.

**Piestene series**

Piestene [Russ.: Piestinya] campsite is on right [E] bank of Piestene R., 3 km W of Osa campsite, Rezekne Raion, Latvian SSR [56° 55’ N Lat, 27° 00’ E Long]. Excavated by F. A. Zagorskis. Site contains typical Pit-and-Comb pottery (8 to 9% of sherds in lower part of cultural layer) and pottery of “Piestinya type” (local variant of Developed Neolithic, characteristic of E Latvia). (Zagorskis, 1967).

**LE-750. Piestene I**  
Peat from cultural layer; depth, 0.7 to 0.8 m.  
4670 ± 150 2720 B.c.

**LE-748. Piestene II**  
Wood from cultural layer; depth, 0.9 to 1.0 m.  
4520 ± 120 2570 B.c.

**Madona Raion series**

radiocarbon dates of the institute of archaeology iii

le-751. eyni campsite

tree bole lying horizontally in base of cultural layer; depth, 1.30 m, from eyni, n part lubana lowland [ca. 57° 00' n lat, 26° 45' e long]. layer contains mainly sherds of vessels with porous composition. cord marked pottery occurs in upper part of layer (loze, 1965, 1968).

le-749. abora i campsite

peat and wood from middle part of layer; depth, 0.6 to 0.7 m, abora i, n part lubana lowland, on flood-plain terrace of ayviekste r., near confluence with abora r. [56° 45' n lat, 26° 18' e long]. [note correction of location from r., 1970, v. 12, p. 133 (e.m.s.)]. part of site adjacent to river contains mainly pottery with intertwined-cord, fine comb, and linear impressions, and also early textile-impressed pottery (loze, 1965). comments (i.a.l.): abora i is one of latest neolithic sites in latvia and dates from 1st half to middle 2nd millennium b.c.; (d.b.s.): le-751 and 749 and earlier madona raion series, 1970, v. 12, p. 133) date cord-marked pottery in lubana lowland.

sul'ka series

sul'ka campsite is in se lubana lowland, on sul'ka r., rezekne raion, latvian ssr [56° 45' n lat, 27° 00' e long]. excavated by i. a. loze. palynologic analyses by g. m. levskovskaya; samples coll. and subm. by p. m. dolukhanov. archaeologic material belongs to complex of typical pit-and-comb pottery; upper part contains some "piestinya type" pottery with flint and amber artifacts.

le-752.

wooden pile lying at angle, with sharpened base; depth, 0.90 to 1.25 m.

le-834. excavation 2, test pit 2

peat from depth 0.8 to 0.9 m, below cultural level. palynologic date: boundary of atlantic and sub-boreal.

le-836. excavation 3, test pit 2

peat from depth 1.1 to 1.2 m, below cultural layer. palynologic date: 2nd half, atlantic.

le-837. excavation 4, test pit 2

sapropel from depth 1.5 to 1.6 m. palynologic date: 1st half, atlantic. comment (p.m.d.): le-834 and 836 pertain to time of regression,
LE-837 and 838 to time of transgression, of Lubana Lake (Dolukhanov, 1970).

Sārnate series


\[
\begin{align*}
\text{LE-813.} & \quad 3140 \pm 60 \text{ B.C.} \\
\text{LE-814.} & \quad 1190 \text{ B.C.} \\
\text{LE-815.} & \quad 4510 \pm 110 \text{ B.C.} \\
\text{LE-816.} & \quad 2560 \text{ B.C.} \\
\end{align*}
\]

Peat from depth 0.3 to 0.4 m, above cultural level. Palynologic date: Sub-Boreal.

Peat from Neolithic dwelling; depth, 0.6 to 0.7 m. Palynologic date: boundary of Atlantic and Sub-Boreal.

Peat from depth 0.9 to 1.0 m. Palynologic date: beginning of Atlantic.

Peat from depth 1.2 to 1.3 m. Palynologic date: beginning of Atlantic. Comment (P.M.D.): peat from cultural layer (0.6 to 0.7 m) was dated in radiocarbon lab., Inst. Pre- and Proto-History, Berlin Acad. Sci.: 4640 ± 100 (Bln-769, R., 1970, v. 12, p. 417). Previous dates for Sārnate: charcoal: 4490 ± 250 (TA-24, R., 1966, v. 8, p. 434) and bone: 4700 ± 250 (TA-26, ibid.). LE-815 and 816 define period of Ancylus regression.

Lithuanian SSR

Sventoji I series, Lithuanian SSR

LE-835.
Wood from upper cultural level (0.40 to 0.80 m).

LE-833.
Wood from lower cultural level (0.80 to 1.10 m).

LE-904.
Wood from lower cultural level (0.80 to 1.10 m). Comment (P.M.D.): exact depths not given.

General Comment on dates in E Baltic (P.M.D. and V.I.T.): Mesolithic and Neolithic sites of E Baltic region are currently defined in a series of C14 datings. Mesolithic age of lower level of Osa campsite is confirmed; date is close to those for Mesolithic Layer II, at Narva, Estonian SSR (TA-17, -40, -52, R., 1966, v. 8, p. 432). Dates for sites of Early Neolithic, E Baltic region are attributed by some to Narva or Narva-Neman culture (Gurina, 1967a, 1970). In this connection, dates of W coastal sites (Särnnate and Sventoji series, this list): TA-24, -26 (R., 1966, v. 8, p. 434); Bn-769 (R., 1970, v. 12, p. 417) are not later compared with sites of E Latvia (Osa series, this list) and Estonia (Kääpa series, TA-4-6, R., 1966, v. 8, p. 431).

Synchronization of Mesolithic and Neolithic sites of E and W Baltic attempted in Table 1. Early Neolithic dates at Osa implies that very early ceramic Osa-type complexes in E Latvia are as old as Early Ertebølle sites. Most of dated Early and Developed Neolithic sites of E Baltic region (with pottery of Narva, Pit-and-Comb, and “Piestinya” types) correspond temporally to last phase of Ertebølle [Muldbjerg] and Bell Beaker culture of W Baltic region. Late Neolithic of E Baltic region corresponds to end of Middle Neolithic in Scandinavia.

Except where noted, dates for Baltic region coll. by Paleogeog. Div., Inst. Archaeol., Acad. Sci., USSR (E.M.S.): for basic sources on Mesolithic and Early Neolithic in Baltic Sea region, see Clark (1936) and Indreko (1964).

North Russian

LE-800. Great Reindeer Island Cemetery, Barents Sea

<table>
<thead>
<tr>
<th>Site</th>
<th>General loc.</th>
<th>Period and culture</th>
<th>C14 date</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lietzow-Buddelin No. 2</td>
<td>Rügen I., GDR</td>
<td>Late Mesolithic/Early Neolithic</td>
<td>5815 ± 100</td>
</tr>
<tr>
<td>2.</td>
<td>Ralswick-Augustenhof</td>
<td>Rügen I., GDR</td>
<td>Ertebølle-Ellerbeck Early Mesolithic</td>
<td>5455 ± 100</td>
</tr>
<tr>
<td>3.</td>
<td>Lietzow-Buddelin No. 1</td>
<td>S Jutland, Denmark</td>
<td>Ertebølle-Ellerbeck Early Mesolithic</td>
<td>5455 ± 120</td>
</tr>
<tr>
<td>5.</td>
<td>Draved Mose, Dwelling 604</td>
<td>S Jutland, Denmark</td>
<td>Ertebølle-Ellerbeck Early Mesolithic</td>
<td>9250 ± 180</td>
</tr>
<tr>
<td>6.</td>
<td>Draved Mose, Dwelling 329</td>
<td>S Jutland, Denmark</td>
<td>Klosterlund and “probably another younger culture”</td>
<td>9060 ± 130</td>
</tr>
<tr>
<td>7.</td>
<td>Draved Mose, Dwelling 611</td>
<td>S Jutland, Denmark</td>
<td>Klosterlund: same as K-914</td>
<td>9050 ± 160</td>
</tr>
<tr>
<td>8.</td>
<td>Draved Mose, Dwelling 329</td>
<td>S Jutland, Denmark</td>
<td>Younger than Klosterlund</td>
<td>9050 ± 140</td>
</tr>
<tr>
<td></td>
<td>Site</td>
<td>General loc.</td>
<td>Period and culture</td>
<td>C$^{14}$ date</td>
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<tr>
<td>15.</td>
<td>Kongemosen, depth ca. 5-8 cm</td>
<td>Amosen bog, W Zealand, Denmark</td>
<td>Kongemose</td>
<td>8400 ± 150</td>
</tr>
<tr>
<td>16.</td>
<td>Bare Mosse II</td>
<td>Skåne (Scania), S Sweden</td>
<td>Maglemose</td>
<td>8800 ± 100</td>
</tr>
<tr>
<td>17.</td>
<td>Norslund, Layer 4</td>
<td>Jutland, Denmark</td>
<td>Coastal culture; questionable, see Comment, p. 303</td>
<td>6420 ± 130</td>
</tr>
<tr>
<td>18.</td>
<td>Norslund, Layer 3 (A)</td>
<td>Jutland, Denmark</td>
<td>Coastal culture</td>
<td>5730 ± 120</td>
</tr>
<tr>
<td>19.</td>
<td>Norslund, Layer 3 (B)</td>
<td>Jutland, Denmark</td>
<td>Coastal culture</td>
<td>5680 ± 120</td>
</tr>
<tr>
<td>21.</td>
<td>Salpetermose, Upper Layer</td>
<td>Salpetermose bog, Zealand, Denmark</td>
<td>Ertebølle</td>
<td>5780 ± 20</td>
</tr>
<tr>
<td>22.</td>
<td>Salpetermose, Upper Layer</td>
<td>Salpetermose bog, Zealand, Denmark</td>
<td>Ertebølle</td>
<td>5550 ± 120</td>
</tr>
<tr>
<td>Site</td>
<td>General loc.</td>
<td>Period and culture</td>
<td>C(^{14}) date</td>
<td>Reference</td>
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<tr>
<td>23. Salpetermose, Upper Layer</td>
<td>Salpetermose bog, Zealand, Denmark</td>
<td>Ertebølle</td>
<td>5410 ± 120</td>
<td>K-1235 (ibid.)</td>
</tr>
<tr>
<td>24. Ølby Lyng</td>
<td>Zealand, Denmark</td>
<td>Late Ertebølle</td>
<td>5320 ± 130</td>
<td>K-1231 (R., 1968, v. 10, p. 304)</td>
</tr>
<tr>
<td>25. Ølby Lyng</td>
<td>Zealand, Denmark</td>
<td>Ertebølle</td>
<td>5210 ± 130</td>
<td>K-1230 (ibid.)</td>
</tr>
<tr>
<td>28. Konens Høj</td>
<td>Jutland, Denmark</td>
<td>Early Neolithic</td>
<td>4850 ± 100</td>
<td>K-919 (ibid.)</td>
</tr>
<tr>
<td>30. Vätteryd 1</td>
<td>Skåne, Sweden</td>
<td>Early Neolithic</td>
<td>4555 ± 140</td>
<td>U-46 (ibid.)</td>
</tr>
<tr>
<td>32. Björkärr 2</td>
<td>Blekinge, Sweden</td>
<td>Late Pitted Ware</td>
<td>4250 ± 100</td>
<td>Lu-36 (ibid.)</td>
</tr>
<tr>
<td>33. Björkärr 1</td>
<td>Blekinge, Sweden</td>
<td>Late Pitted Ware</td>
<td>4160 ± 100</td>
<td>Lu-28 (ibid.)</td>
</tr>
<tr>
<td>35. Kunda</td>
<td>Rakvere District, N Estonian SSR</td>
<td>Mesolithic</td>
<td>6015 ± 210</td>
<td>TA-16 (ibid.)</td>
</tr>
<tr>
<td>Site</td>
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<td>Period and culture</td>
<td>C(^{14}) date</td>
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<tr>
<td>37. Narva, Mesolithic Layer III; depth, 300-310 cm</td>
<td>N Estonian SSR</td>
<td>Mesolithic</td>
<td>7090 ± 230</td>
<td>TA-41 (ibid.)</td>
</tr>
<tr>
<td>38. Narva, Mesolithic Layer III; depth, 223-212 cm</td>
<td>N Estonian SSR</td>
<td>Mesolithic</td>
<td>7580 ± 300</td>
<td>TA-25 (ibid.)</td>
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<tr>
<td>39. Narva, Mesolithic Layer II; depth, 212-217 cm</td>
<td>N Estonian SSR</td>
<td>Mesolithic</td>
<td>7315 ± 190</td>
<td>TA-52 (ibid.)</td>
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<td>41. Narva, Mesolithic II, bone</td>
<td>N Estonian SSR</td>
<td>Mesolithic</td>
<td>6020 ± 120</td>
<td>TA-17 (ibid.)</td>
</tr>
<tr>
<td>42. Narva, depth 90-110 cm, charcoal</td>
<td>N Estonian SSR</td>
<td>Mesolithic</td>
<td>5820 ± 200</td>
<td>TA-33 (ibid.)</td>
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<tr>
<td>44. Osa, Mesolithic, depth 1.45 m</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Mesolithic</td>
<td>6960 ± 80</td>
<td>LE-811 (this list)</td>
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<td>45. Osa, Mesolithic, depth 1.7 m</td>
<td>Lubana Lowland E Latvian SSR</td>
<td>Mesolithic</td>
<td>6760 ± 80</td>
<td>LE-812 (ibid.)</td>
</tr>
<tr>
<td>46. Osa, Mesolithic, depth 1.4 m</td>
<td>Lubana Lowland E Latvian SSR</td>
<td>Mesolithic</td>
<td>6580 ± 70</td>
<td>LE-810 (ibid.)</td>
</tr>
<tr>
<td>47. Osa, lower part E Neolithic layer, depth 1.80-1.90 m</td>
<td>Lubana Lowland E Latvian SSR</td>
<td>Early Neolithic</td>
<td>5730 ± 50</td>
<td>LE-850 (ibid.)</td>
</tr>
<tr>
<td>Site</td>
<td>General loc.</td>
<td>Period and culture</td>
<td>C(^{14}) date</td>
<td>Reference</td>
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<tr>
<td>49. Kääpa, cultural layer, bone</td>
<td>SE Estonian SSR</td>
<td>Early Neolithic</td>
<td>4480 ± 255</td>
<td>TA-6 (ibid.)</td>
</tr>
<tr>
<td>50. Kääpa, cultural layer, charred wood</td>
<td>SE Estonian SSR</td>
<td>Early Neolithic</td>
<td>4350 ± 220</td>
<td>TA-4 (ibid.)</td>
</tr>
<tr>
<td>52. Särnate, depth, 0.60-0.70 m, peat</td>
<td>NW Latvian SSR</td>
<td>Neolithic; Pit-and-Comb pottery</td>
<td>4640 ± 100</td>
<td>Bln-769 (R., 1970, v. 12, p. 417)</td>
</tr>
<tr>
<td>53. Särnate, charcoal</td>
<td>NW Latvian SSR</td>
<td>Neolithic; Pit-and-Comb pottery</td>
<td>4490 ± 250</td>
<td>TA-24 (R., 1966, v. 8, p. 434)</td>
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<tr>
<td>54. Särnate, depth, 0.6-0.7 m, wood</td>
<td>NW Latvian SSR</td>
<td>Neolithic</td>
<td>4510 ± 110</td>
<td>LE-814 (this list)</td>
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<tr>
<td>55. Šventoji, lower cultural level</td>
<td>W coastal region, Lithuanian SSR</td>
<td>Neolithic; Narva culture</td>
<td>4225 ± 70</td>
<td>LE-904 (ibid.)</td>
</tr>
<tr>
<td>56. Šventoji, lower cultural level</td>
<td>W coastal region, Lithuanian SSR</td>
<td>Neolithic; Narva culture</td>
<td>4100 ± 60</td>
<td>LE-833 (ibid.)</td>
</tr>
<tr>
<td>57. Piestenē, cultural layer; depth, 0.9-1.0 m</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic; Pit-and-Comb pottery</td>
<td>4520 ± 120</td>
<td>LE-748 (ibid.)</td>
</tr>
<tr>
<td>58. Piestenē, cultural layer; depth, 0.7-0.8 m</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic; Pit-and-Comb pottery</td>
<td>4670 ± 150</td>
<td>LE-750 (ibid.)</td>
</tr>
<tr>
<td>59. Sul'ka, depth, 0.9-1.25 m; wood</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic; Pit-and-Comb pottery</td>
<td>4060 ± 60</td>
<td>LE-752 (ibid.)</td>
</tr>
<tr>
<td>60. Osa, depth, 0.9-1.0 m; wood</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic; Pit-and-Comb pottery</td>
<td>4000 ± 60</td>
<td>LE-758 (ibid.)</td>
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Table 1 (Continued)*

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<th>Site</th>
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<th>Period and culture</th>
<th>C¹⁴ date</th>
<th>Reference</th>
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<tbody>
<tr>
<td>61. Nainiekste, depth, 0.4-0.5 m; peat</td>
<td>E Latvian SSR</td>
<td>Neolithic; Cord-marked and Pit-and-Comb pottery</td>
<td>4170 ± 130</td>
<td>LE-648 (R., 1970, v. 12, p. 133)</td>
</tr>
<tr>
<td>63. Eyni, base of layer; depth, 1.3 m</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic: Cord-marked pottery in upper section</td>
<td>4000 ± 60</td>
<td>LE-751 (this list)</td>
</tr>
<tr>
<td>64. Leimanishki, depth, ca. 1.0 m</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic: Cord-marked pottery</td>
<td>3970 ± 250</td>
<td>TA-23 (R., 1966, v. 8, p. 434)</td>
</tr>
<tr>
<td>65. Leimanishki, bones</td>
<td>Lubana Lowland, Latvian SSR</td>
<td>Neolithic</td>
<td>3770 ± 200</td>
<td>TA-27 (ibid.)</td>
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<tr>
<td>66. Šventoji, upper level</td>
<td>W coastal region, Lithuanian SSR</td>
<td>Neolithic</td>
<td>3860 ± 50</td>
<td>LE-835 (this list)</td>
</tr>
<tr>
<td>67. Abora, depth, 0.74-0.90 m; peat</td>
<td>E Latvian SSR</td>
<td>Neolithic; Cord-marked and early Textile-impressed pottery</td>
<td>3870 ± 70</td>
<td>LE-671 (R., 1970, v. 12, p. 133)</td>
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<tr>
<td>68. Abora, depth, 0.6-0.7 m</td>
<td>E Latvian SSR</td>
<td>Neolithic (see No. 67)</td>
<td>3860 ± 100</td>
<td>LE-749 (this list)</td>
</tr>
<tr>
<td>69. Tamula, bones from layer</td>
<td>SE Estonian SSR</td>
<td>Late Neolithic; TA-28 probably earlier period</td>
<td>4050 ± 180</td>
<td>TA-28 (R., 1966, v. 8, p. 433)</td>
</tr>
<tr>
<td>70. Tamula, wooden pile, partially in layer</td>
<td>SE Estonian SSR</td>
<td>Late Neolithic; Pit-and-Comb; Cord-marked pottery</td>
<td>3600 ± 180</td>
<td>TA-10 (ibid.)</td>
</tr>
<tr>
<td>71. Villa, bones, lower section</td>
<td>SE Estonian SSR</td>
<td>Late Neolithic; Pit-and-Comb; Cord-marked; and later period pottery</td>
<td>3570 ± 240</td>
<td>TA-20 (op. cit., p. 434)</td>
</tr>
</tbody>
</table>

* Owing to technical difficulties, P. M. Dolukhanov’s bar charts for Tables 1 and 2 had to be omitted. (E.M.S.)

4770 ± 60
2820 B.C.

LE-725. Podzorovo II

Pingisha peat bog series, Arkhangel'sk Oblast

1120 ± 50
A.D. 830

900 ± 50
A.D. 1050

LE-776. Viss I peat bog, Komi ASSR

Central Russia

Demidovka gorodishche series, Smolensk region
Demidovka gorodishche [fortified settlement] 12 km W of city of Smolensk, on right bank Rusanovka R., left [S] tributary of Dnepr R., 0.5 km S of village of Telyashi [54° 57' N Lat, 32° 00' E Long]. Excavations revealed 3 cultural layers (Schmidt, 1963). Lower layer attributed to Dnepr-Dvina culture, and perhaps dates to middle 1st millennium B.C. Inferred age of upper layer: later than middle of 1st millennium B.C.
Radiocarbon Dates of the Institute of Archaeology III


1820 ± 80
A.D. 70

LE-726.
Charcoal from lower layer; depth not given (E.M.S.).

1570 ± 60
A.D. 380

LE-727.
Charcoal from upper layer; depth not given (E.M.S.).

Ukrainian SSR

Bronze Age kurgan burial series

Demitrovskiy cemetery sub-series

Demitrovskiy cemetery is in Nikopol' Raion, Dnepropetrovsk Obl. [Nikopol': 47° 35' N Lat, 34° 25' E Long]. Subm. by V. P. Shilov.

3850 ± 90
1900 B.C.

LE-822. Kurgan 1
Wood from Kurgan 1, Grave 5. Depth, 4.7 m.

3680 ± 60
1730 B.C.

LE-823. Kurgan 1
Wood from Kurgan 1, Grave 16. Depth, 3.5 m.

3920 ± 50
1970 B.C.

LE-824. Kurgan 10
Wood from Kurgan 10, Grave 12. Depth, 2.5 m. Comments (P.M.D.): other dates for Pit Grave (Yamnaya) burials in Black Sea region and Volga-Don interfluve: Giryeva burial: 3870 ± 130 (LE[RUL]-136, R., 1965, v. 7, p. 228);* Us'man: 4150 ± 80 (UCLA-1271, R., 1968, v. 10, p. 411); Tsatsa: 4210 ± 80 (UCLA-1270, ibid.). (D.B.S.): Zbenovich and Leskov (1969, p. 35, 38) correlate Late Yamnaya burials of Odessa kurgan with influences from Maikop culture of NW Caucasus and Early Usatovo culture of Ukraine; for latter, Mayaki dates are: 4340 ± 65 (LE-645, R., 1970, v. 12, p. 131) and 4400 ± 100 (Bln-629, R., 1970, v. 12, p. 413-14). At Odessa kurgan, Catacomb-culture burials succeed Yamnaya graves, and are succeeded by those of Timber-Grave (Srubnaya) type. Succession of Yamnaya Catacomb is also true for the Sulgir Valley of the Crimea (Gimbutas, 1965, p. 488). Gimbutas (ibid., p. 494, 498, 515) correlates Catacomb-grave culture with Middle Kuban metallurgical phase of NW Caucasus (Maikop is Early Kuban), and with Cord-marked Pottery culture of C Europe. (See also discussion for Abora I, Madona Raion sites series, LE-749, this list.) Gimbutas also regards Timber-grave culture as of E origin, related to Andronovo, and expanding W of Volga and Don Rivers in its latest phases (ibid., p. 528-84).

* The original official designation of this lab was RUL; dates pub. as Inst. of Archaeol. I (R., 1965, v. 7, p. 223-28) carry this designation. Refs. to dates in Inst. of Archaeol. I are designated LE[RUL] in this list (E.M.S.).
LE-731. Vybla Cemetery


General Comment (P.M.D.): Table 2 lists dates for Pit Grave, Catacomb, and Timber Grave cultures in S Europe that USSR obtained in various labs. Existing dates of sites which are variants of Catacomb culture in lower Don R. and N Caucasus region show they are synchronous with Pit Grave burials of Ukraine and Volga-Don interfluve.

LE-355. Mikhaylovka

Charred bark, lower cultural layer, Mikhaylovka settlement, Kherson Obl. [47° 30' N Lat, 33° 55' E Long]. Subm. by S. N. Bibikov, Inst. of Archaeol., Ukrainian Acad. of Sci., Kiev. Depth not given; cf. Bln-630 = 4330 ± 100 for charred reed from depth, 1.50 to 2.00 m (R., 1970, v. 12, p. 414) (E.M.S.).

Transcaucasus

LE-780. Baba-Dervish, Azerbaydzhan SSR

Syria; and Beycesultan, Level XIII, Anatolia may be derivative from Kura-Araxes culture (Vaidov et al., 1965; Yessen and Kushnareva, 1965).

**Iron age sites series, Georgian SSR**

Namchaduri site and Petra-Tsikhisdziri fortress, Kobuleti Raion, Georgian SSR. Samples subm. by D. A. Khakhutayshvili.

**LE-781.  Namcheduri**

Charred wood from apparent defensive moat, Namcheduri, Kobuleti Raion [town of Kobuleti: 41° 49' N Lat, 41° 47' E Long]. Depth, 2.2 m. Inferred archaeol. date: 1st half of 1st millennium b.c.

**LE-779.  Petra-Tsikhisdziri fortress**

Charcoal from ruins of fortress-city Petra from layer with black burnished pottery, overlaid by Classical [Greek] period layer [41° 45' N Lat, 41° 45' E Long]. Depth, 3.8 m. Inferred archaeol. date: 8th to 7th century b.c.

**LE-818.  Aragats, Armenian SSR**


**Central Asia**

**Altyn-Tepe series, Turkmen SSR**


**LE-767.  Excavation 2**

Charcoal from excavation No. 2, at ruined wall, E of Dwellings 7 and 10; depth, ca. 0.5 m.

**LE-769.  Excavation 7**

Charcoal from excavation No. 7, from area of monumental architecture; depth, ca. 0.5 m.

**LE-770.  Excavation 5**

Charcoal from excavation No. 5, Dwelling 29; depth, ca. 1 m. Comments (V.M.M.): samples assoc. with materials of early Namazga V. Analogous samples dated by Berlin lab.: 4120 ± 100 (Bln-716, R., 1970,
<table>
<thead>
<tr>
<th>Name of site</th>
<th>Location</th>
<th>Culture</th>
<th>C¹⁴ date</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Us’man: Kurgan 1, Grave 13</td>
<td>Lower Don R., Rostov Obl.</td>
<td>Early Pit Grave</td>
<td>4150 ± 80 (2200 B.C.)</td>
<td>UCLA-1271 (ibid.)</td>
</tr>
<tr>
<td>5. Demitrovsk Cemetery: Kurgan 10, Grave 12</td>
<td>Lower Dneper R., Dnepropetrovsk Obl., Ukrainian SSR.</td>
<td>Pit Grave</td>
<td>3920 ± 50 (1970 B.C.)</td>
<td>LE-824 (this list)</td>
</tr>
<tr>
<td>6. Demitrovsk Cemetery: Kurgan 1, Grave 5</td>
<td>Lower Dnepr R.</td>
<td>Pit Grave</td>
<td>3850 ± 90 (1900 B.C.)</td>
<td>LE-822 (ibid.)</td>
</tr>
<tr>
<td>7. Demitrovsk Cemetery: Kurgan 1, Grave 16</td>
<td>Lower Dnepr R.</td>
<td>Pit Grave</td>
<td>3680 ± 60 (1730 B.C.)</td>
<td>LE-823 (ibid.)</td>
</tr>
<tr>
<td>Name of site</td>
<td>Location</td>
<td>Culture</td>
<td>C\textsuperscript{14} date</td>
<td>Reference</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------------</td>
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<td>--------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>10. Rostov Cemetery: Kurgan 1, Grave 5</td>
<td>Lower Don R.</td>
<td>Catacomb</td>
<td>$4005 \pm 100$ (2055 B.C.)</td>
<td>Bln-696 (op. cit., p. 414)</td>
</tr>
<tr>
<td>11. Rostov Cemetery: Kurgan 5, Grave 6</td>
<td>Lower Don R.</td>
<td>Catacomb</td>
<td>$3925 \pm 160$ (1975 B.C.)</td>
<td>Bln-693 (ibid.)</td>
</tr>
<tr>
<td>14. a. Kudinov: Kurgan 1, Grave 7</td>
<td>Lower Don R.</td>
<td>Timber Grave</td>
<td>$3525 \pm 80$ (1575 B.C.)</td>
<td>UCLA-1274 (ibid.)</td>
</tr>
<tr>
<td>16. Vybla Cemetery: Krest Kurgan, basic burial</td>
<td>Middle Dnepr R., Kiev Obl.</td>
<td>Timber Grave</td>
<td>$2920 \pm 80$ (970 B.C.)</td>
<td>LE-731 (this list)</td>
</tr>
</tbody>
</table>

2850 ± 60

LE-773. Kuchuk-Tepe, Tadzhik SSR
Charcoal from Kuchuk-Tepe settlement, Shirabad steppe, 70 km NW of Termez, Tadzhik SSR [37° 42' N Lat, 67° 00' E Long]. Depth not noted (P.M.D.). Excavations by L. I. Al'baum revealed dwellings of Late Bronze to Early Iron age (end of 2nd millennium to 9th to 7th centuries B.C.). Refs.: Al'baum, 1969; Masson, 1967a. Comment (E.M.S.): date des. gives Muzrabad steppe, evidently error for Shirabad steppe, ca. 70 km NW of Termez.

8020 ± 170

LE-772.* Second [cultural] horizon
Charcoal from base of Second [cultural] horizon; Quad. C-20; depth, 7.65 m.

6760 ± 110

LE-777. Second [cultural] horizon

Western Siberia: Omsk Region

LE-787. Kokonovka, Omsk Oblast

* For LE-772 and 777 Ranov and Korobkova (1971) add extensive data on cultural inventory but stratigraphy remains unclear (D.B.S.).
1790 ± 60

LE-724. Kamenka III cemetery

Wood from Grave 64, Kamenka III cemetery [unlocated; S of Novoselovo]. Detailed loc. not given (E.M.S.). Subm. by Ya. A. Sher, Inst. Archaeol., Acad. Sci., USSR. Refs.: Sher and Khlobystin, 1966; Sher et al., 1968. Comment (Sher et al., 1967, p. 146): “... several objects, especially iron knives with looped handles permit dating cemetery to end of Tagar epoch and pre-Tashtyk times. However, pottery and bone artifacts... differ substantially from those of sites of same period in Minusinsk Basin.”

General Comment (D.B.S.): accepted chronology of Tagar culture at present time is as follows: Bainy stage: 7th to 6th centuries B.C.; Podgornoye stage: 6th to 5th centuries B.C.; Saragash stage: 4th to 3rd centuries B.C.; Tesi stage: 2nd to 1st centuries B.C. according to Gryaznov, 1968, p. 187.

12,180 ± 120

LE-771. Tashtyk I, Khakass Aut. Oblast


Tuva ASSR series


10,360 ± 110

LE-791. Bol’shaya Yenisey R.

Wood from buried soil in cross-sec., Bol’shaya Yenisey R., Tuva ASSR [mouth: 51° 45′ N Lat, 94° 25′ E Long]. Depth, 8 m.

3520 ± 60

LE-792. Khamsara R.

Wood from buried peat bog in exposed terrace, height 4-5 m, Khamsara R., Tuva ASSR [mouth: 52° 45′ N Lat, 95° 50′ E Long]. Depth, 1.5 m.
LE-793. Warm Lagoon, Taymyr Peninsula 34,500 ± 1000 32,550 B.C.

Wood from marine terrace formed of sand, 6 km N of Tyoplaya laguna [Warm Lagoon], Pronchishcheva Coast, NE Taymyr Pen., Krasnoyarsk Krai [unlocated: Pronchishcheva Coast extends from ca. 74° 00' to 77° 00' N Lat, 113° 00' to 114° 00' E Long]. Depth, 3 m. Subm. by V. M. Makeyev.

Yakut ASSR

Aldan River series

Dyuktay Cave, Bel’kachi I and Ust’-Timpton sites presented below date a succession of newly described cultures of the Aldan and Lena valleys, Yakut ASSR. They include Dyuktay culture (Upper Paleolithic), Sumnagin (“Holocene Paleolithic”), Syalakh (Early Neolithic), Bel’kachi (Middle Neolithic) and Ymyyakhtakh (Late Neolithic). Cf. Mochanov, 1969a and b; Fig. 1.

Dyuktay Cave sub-series


LE-829. Holocene layer A.D. 1210

Charcoal from depth, 115 cm. Comment (D.B.S.): inconsistent with Mochanov’s basic report (1969b, p. 235) that Holocene strata range in thickness from 10 to 30 cm in cave, and from 80 to 120 cm in platform at cave mouth. Cultural remains in Holocene strata range in type from Iron age to “Holocene Paleolithic” (Sumnagin culture).

LE-784. Upper hearth layer 11,120 B.C.

Charcoal from upper hearth layer, depth, 230 to 234 cm. Comments (Yu. A.M.): LE-784 pertains to Upper Paleolithic layer; LE-829 taken from upper lying deposits. (P.M.D.): Mochanov attributes complex [of Upper Paleolithic] finds to special “Dyuktay culture,” genetically connected with Middle Paleolithic sites of Central Asia (Mochanov, 1969b, p. 239). (D.B.S.): Mochanov (op. cit., p. 237) believes Upper Paleolithic materials ascribed to new “Dyuktay culture,” belong to single cultural complex, assoc. with mammoth, bison, horse, muskox, collared lemming, and other fauna id. from 15,000 bones. About 10,000 flint artifacts include characteristic bifacially-worked spear points, and triangular and oval knives; disk-, wedge-type, and Levallois cores; mid- and side-line, multifacetted burins; massive, semilunar flensers (skreblo); miniature end-scrapers from blades; unifacial oval knives; massive blades with notched bases. Distinctive mammoth-bone artifacts are lanceolate, retouched spear points. Distribution: Central Aldan R.
Bel’kachi I sub-series

Bel’kachi I multi-stratum site is on left [W] bank of Aldan R., 1.3 km S of mouth of Ulakhan-El’ge R. [59° 00' N Lat, 131° 57' E Long]. Excavated by Yu. A. Mochanov. Refs.: Mochanov, 1969b; Mochanov et al., in press. [For stratigraphy cf. Fig. 1]. Depths not given for LE-808, 809, 802, 764 (E.M.S.).

**LE-808.**

Charred wood from Layer 27.
9330 ± 180
7380 B.C.

8740 ± 100
6790 B.C.

LE-764. Charcoal from Layer 24; Trench 50.
8470 ± 80
6520 B.C.

LE-763. Wood from Layer 23; depth, 6.2 m.
9190 ± 80
7240 B.C.

LE-762. Charcoal from Layer 22; depth, 6.1 m.
8520 ± 80
6570 B.C.

LE-801. Wood from Layer 21; depth, 5.9 m.
8370 ± 80
6420 B.C.

LE-761. Charred wood from hearth; Layer 20; depth, 5.7 m.
8500 ± 160
6550 B.C.

LE-740. Wood from layer relating to Layer 20; depth, 5.7 m.
8290 ± 80
6340 B.C.

LE-760. Wood from Layer 19; depth, 5.5 m.
8360 ± 80
6410 B.C.

LE-747. Wood from Layer 18; depth, 5.2 m.
8060 ± 70
6110 B.C.

LE-746. Charcoal from lower portion of Layer 17; depth, 5.1 m.
8260 ± 80
6310 B.C.

LE-745. Wood from upper portion of Layer 17; depth, 4.8 m.
8110 ± 80
6160 B.C.

LE-744. Wood from Layer 15; depth, 4.6 m.
7920 ± 60
5970 B.C.

LE-743. Wood from Layer 14; depth, 3.8 m.
LE-742.
Wood from Layer 13; depth, 3.2 m.

LE-741.
Wood from Layer 12; depth, 2.9 m.

LE-775.
Charcoal from Layer 5; depth, 1.1 m. Comments (P.M.D.): previous dates for Bel’kachi I: 6750 ± 70 (St. 10a, LE-698, R., 1970, v. 12, p. 150); 6250 ± 60 (St. 9, LE-697, ibid.); 5900 ± 70 (St. 8, LE-678, ibid.); 5970 ± 70 (St. 7, LE-676, ibid.); 5270 ± 70 (St. 6, LE-656, ibid.); 2930 ± 50 (St. 2, LE-666, ibid.). (E.M.S.): note discrepancies between depths and strata numbers for other dates in Bel’kachi series, R., 1970, v. 12, p. 150, and Fig. 1, this list. (D.B.S.): Mochanov (1969a, p. 124-143) ascribes Strata 11 through 8 (23 through 8, Fig. 1, this list) to Sumnagin culture, Early Holocene. Known sites are surface, evidently seasonal, dwellings with pebble hearths, at mouths of streams, on lower horizon of flood-plain facies of alluvium forming high flood plain, or on covering clayey or sandy loams of flood-plain terraces. Common fauna: moose, bear, reindeer. Flint implements from blades struck from carefully prepared prismatic or wedge cores include especially: knife blades; secondary angle and side burins; end scrapers; inserts; punches; pointed knives (ostriya); notched blades. Burin points were made by edge-pressure retouch rather than burin spalling. In early strata, 60 to 85% of all flint tools are microlithic, under 0.4 cm wide; in late strata, 10%. Early to late, flake tools rise from 0 to 15% including end scrapers (some with small side lugs); bifacially worked chisel tools; side- and mid-line burins. Massive chopping tools and flensers of diabase and quartzite constitute 5 to 10% of total inventories. Spear, dart and arrow points absent. Sandstone slabs used for polishing bone; bone punches and pointed knives also found. Stone net weights found in Late stage. Distribution: Type site, Sumnagin I (58° 55’ N Lat, 127° 35’ E Long) on Aldan R., S to Ust’-Timpton (LE-832, 831, 830, this list), N to mouth of Aldan R.; W on Lena R. to At-Daban (60° 25’ N Lat, 120° 15’ E Long) and Nyuya (60° 35’ N Lat, 116° 20’ E Long); for At-Daban and Nyuya, cf. Beregovaya, 1960, p. 93, nos. 421, 423.

Strata 7 and 6 ascribed by Mochanov (1969a, p. 144-164) to Syalakh (Early Neolithic) culture, characterized by net-marked pottery, partly retouched arrowpoints prepared from blades; bifacially-worked, leaf-shaped arrowpoints; rectangular, polished adzes; and multi-toothed, one-sided bone harpoon points. Settlement patterns, flint tools, hunting and fishing continue Sumnagin culture patterns. Distribution: Type site, Syalakh Lake (66° 10’ N Lat, 124° 25’ E Long); on Aldan R, from Sumnagin I (St. 14 through 11) to mouth; on Lena R, from Solyanka (on N bank of Lena R., ca. 59° 15’ N Lat, 112° 00’ E Long) to Chekurov-
Radiocarbon Dates of the Institute of Archaeology III


Strata 5 and 4 ascribed by Mochanov (op. cit., p. 165-183) to Bel'kachi (Middle Neolithic) culture, distinguished from Early Neolithic by cord-decorated pottery made by paddle-and-anvil technique; shouldered and lugged adzes; retouched ground adzes; bifacially retouched triangular arrowpoints with asymmetrical grooves at base; fiddle-shaped hoes; multifaceted burins with bifacially flattened grips; bifacially retouched knives with “button” lugs. Distribution: Type site, Bel'kachi I; Sumnagin I (St. 10 and 9). On Aldan, Lena and Vilyuy R., as for Sumnagin culture; also Khatanga (72° 00' N Lat, 102° 30' E Long), Nizhne Kolymsk (68° 30' N Lat, 167° 00' E Long) and Anadyr R. region, especially Ust'-Belaya (64° 55' N Lat, 172° 15' E Long).

Mochanov (op. cit., p. 184-196) ascribes St. 3 to Ymyyakhtakh (Late Neolithic) culture of semi-sedentary fishermen and hunters living in complexes of primary and seasonal settlements in surface dwellings. Cliff at Surukaakh-khaya (60° 40' N Lat, 123° 10' E Long) served as offering place, with ceremonial fire-drilling and pictography. Stone artifacts include bifacially retouched arrow and spearpoints and knives; slate and nephrite rectangular adzes; white nephrite rings; diabase and quartzite net weights. Bone artifacts: spear points; knives with flint-insert blades; awls; needles; flakers and retouchers. Characteristic pottery, built up of several layers of clay, and paddle-decorated (“waffled”) is abundant. Distribution: Type site, Ymyyakhtakh Lake (ca. 63° 00' N Lat, 130° 20' E Long). Aldan R., as for Sumnagin culture; Lena R., Surukaakh-khaya to Staryy Siktyakh (69° 55' N Lat, 124° 50' E Long); lower Indigirka R. and lower Kolyma R.

Data on Ust' Mil' Bronze age culture (St. 2) are lacking; type site at 59° 45' N Lat, 133° 00' E Long.

**Ust'-Tipton sub-series**


**LE-832.**
Charcoal from Layer 4.

9020 ± 80  
7070 B.C.

9000 ± 110  
7050 B.C.

**LE-831.**
Charcoal from Layer 4 c.

8380 ± 80  
6430 B.C.

8150 ± 60  
6200 B.C.
LE-830.  **Khabarovsk Krai and Amur Oblast**

Charcoal from Layer 2. *Comment* (P.M.D.): LE-832 and 831 attributed to Sumnagin culture (D.B.S.): Stratum 4 lies in lower part of alluvium covering high flood plain, 15 m above mean water level. Cultural remains lie in dark detritic patches in sandy loam. Moose and bear bones, and flint inventories of Sumnagin culture assoc. with pebble hearths (Mochanov, 1969a, p. 124-26). Stratum 2 consists of yellow-orange loam 10-15 cm thick, separated from Strata 1 and 3 by sterile layers. Inventory is Late Neolithic (Ymyyakhtakh), (Mochanov, 1969a, p. 188). Date inconsistent with Fig. 1.

**LE-826. Bolon' cemeteries, Khabarovsk Krai**  
A.D. 1090


**LE-825. Mikhaylovka village, Amur Oblast**  
380 B.C.

Charred wood from settlement at Mikhaylovka village [probably same as Mikhaylovskiy: ca. 51° 15' N Lat, 139° 50' E Long]. Depth, 0.6 m. Subm. by A. P. Derevyanko, Siberian Br., Acad. Sci., USSR. *Comment* (D.B.S.): remains of fortified, moated village [gorodishche], 6000 m², destroyed by fire. Includes 8 rectangular pit houses; Mokhe stamped pottery; many domesticated goat and swine bones; agriculture evidenced only by mullers. Iron arrows, knives, needles, awls, punches, axes, fish hooks; bone plate armor, decorations, needles; many reindeer antler artifacts (Derevyanko, 1968, p. 235-236). For another early date for iron on Amur R., see Pol’tso: 2930 ± 80 (LE-652, R., 1970, v. 12, p. 152); also Derevyanko, 1966.

**Antarctica**

**LE-730. Molodezhnaya station**  
A.D. 730

Peaty moss from *stantsiya Molodezhnaya* [Molodezhnaya Sta.: 67° 40' S Lat, 45° 51' E Long; Soviet scientific sec.], Antarctica. Subm. by V. M. Kameney, Inst. Arctic and Antarctic.

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ADDENDA