

RADIOCARBON DATES OF THE INSTITUTE OF ARCHAEOLOGY II*

1 January—31 July 1967

P. M. DOLUKHANOV, Ye. N. ROMANOVA,
and A. A. SEMYONTSOV

Institute of Archaeology, Leningrad Branch, Academy of Sciences, USSR

The present list covers samples measured between 1963 and July, 1967. Three previous lists have been published in Leningrad I (Sovetskaya arkeologiya, 1961, p. 3); Leningrad II (The Absolute Geochronology of the Quaternary Period, 1963); and Leningrad III (New Methods in Archaeological Investigations, 1963, p. 9-56). The samples measured include charcoal from cultural layers and hearths, wood from barrows [kur-gans]** and cemeteries, wooden tools from peat deposits, and mounds, as well as peat and animal tissue.

For the series numbered up to LE-599†, ethylbenzene conversion was used (Starik, Arslanov, and Klener, 1963). Samples LE-600 to LE-661 were measured by the method of benzene conversion in which benzene is synthesized from sample-derived acetylene with Zigler's alumino-organic catalyst according to the following scheme:



The yield was 50 to 60%. Use of an alumina-nickel-molybdenum catalyst permitted increasing yields up to 80% for Samples LE-654 through LE-661. At present, benzene synthesis is being attained by means of acetylene trimerization with a vanadium-alumina-silica catalyst (Arslanov and Gromova, 1967; Noaks *et al.*, 1967). The yield is 90 to 96%. Samples numbered LE-662 to LE-717 were measured by this method.

Measurements of radioactivity were carried out on liquid scintillation counters with single photo-multipliers. High-gain amplifiers permitted use of photo-multipliers arranged in coincidence. With the lower gate set at a level of 30 kev, about 0.5 to 1.2 counts/min were lost in every series of measurements. Monitoring of the scintillator's efficiency was carried out on a Co⁶⁰ spectrum boundary.

For 8.5 g of benzene, the standard counting rate is 41.3 ± 0.19 counts/min, the background rate being 4.5 ± 0.6 counts/min.

* Translated by P. M. Dolukhanov. Edited from Mr. Dolukhanov's translation and the original Russian text by Edith M. Shimkin, Univ. of Illinois, with comments by Demetri B. Shimkin, Univ. of Illinois. Original Russian text transmitted to Dr. Henry Field by D. B. Shelov, Project Dir., Inst. of Archaeology, Acad. of Sci., USSR, 19 Dm. Ul'yanova, Moscow (Document No. 307/654/1). Dr. and Mrs. Shimkin wish to express their appreciation to Dr. Field for his aid in initiating this work, and to Professor Ralph T. Fisher, Jr., Dir., Russian and East European Center, Univ. of Illinois for the assistance rendered by the Center in the preparation of the manuscript.

** Information in brackets added by editor (E.M.S.) and commentator (D.B.S.).

† The original official designation of this lab was RUL; dates publ. as Inst. of Archaeology I (Radiocarbon, 1965, v. 7, p. 223-228) carry this designation. References to dates in Inst. of Archaeol. I, 1965 are designated LE[RUL]—in this list (E.M.S.).

Benzene synthesized from a 30-yr-old birch felled in Kamchatka in 1908 is used as a modern reference standard, which is the same standard used by the Vernadsky Inst.

Moldavian SSR

LE-391. Varvarovka, Floreshty Raion **7090 ± 195**
5140 B.C.

Charcoal from Dwelling 1, Varvarovka village, Floreshty Raion (47° 55' N Lat, 28° 18' E Long). Depth not given (E.M.S.). Archaeologic age: late Tripolye, 4th millennium B.C. Subm. by T. S. Passek, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (T.S.P.): date much older than expected.

LE-640. Vulkaneshty II, Vulkaneshty Raion **5300 ± 60**
3350 B.C.

Fragment of charred wooden block from dwelling foundation, Excavation I, Vulkaneshty II settlement, Vulkaneshty Raion (45° 42' N Lat, 28° 25' E Long). Depth not given (E.M.S.). Subm. by T. S. Passek. *Comment* (T.S.P.): settlement belongs to Gumel'nitsa culture. Another date: 5810 ± 150, Mo-417 (Radiocarbon, 1968, v. 10, p. 454). Ref: Passek, 1966; Gimbutas, 1956.

Ukrainian SSR

LE-645. Mayaki, Odessa Oblast **4340 ± 65**
2390 B.C.

Charcoal from site at Mayaki village, Velyayevsk Raion, Odessa Oblast (46° 25' N Lat, 30° 19' E Long). Sample from dwelling pit, depth 2.0 to 2.4 m. Inferred age: late stage of Tripolye culture, Usatovo. Subm. by V. G. Zbenovich. *Comment* (V.G.Z.): date corresponds to estimated archaeological age.

LE-659. Poles'ye, Chernigov Oblast **3340 ± 80**
1390 B.C.

Peat from bog at Poles'ye village, Chernigov Oblast (51° 30' N Lat, 31° 30' E Long). Depth, 1.80 to 2.0 m. Primitive wooden plow [*ralo*], typically belonging to end of Bronze to Early Iron age, found in peat. Subm. by B. A. Shramko.

LE-573. Magala, Chernovtsy Oblast **1410 ± 90**
A.D. 540

Charcoal from upper cultural layer of ancient Thracian site at Magala village, Sadgor Raion, Chernovtsy Oblast [48° 18' N Lat, 26° 03' E Long]. Depth not given (E.M.S.). Archaeologic age: early Iron. Subm. by G. I. Smirnova, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): chronologic discrepancy. Thracian settlement on Dnestr R. ca. 400 B.C., cf. Tret'yakov and Mongayt (1956, p. 294) interpreting Herodotus.

LE-654. Peschanoye, Cherkassy Oblast **1120 ± 100**
A.D. 830

Fragment of dug-out boat [*cheln*] discovered at Peschanoye village,

Gel'myazev Raion, Cherkassy Oblast. [Gel'myazov: 49° 55' N Lat, 31° 50' E Long]. Depth not given (E.M.S.). Subm. by O. D. Ganina.

Belorussian SSR

Krasnoye Selo flint mines series, Grodno Oblast

Neolithic flint mines near Krasnoye Selo, Volkovysk Raion, Grodno Oblast (53° 08' N Lat, 24° 25' E Long). Archaeologic age: Late Neolithic. Subm. by N. N. Gurina, Inst. of Archaeol., Acad. of Sci., USSR.

LE-636. Shafts 2, 3, and 12 **3190 ± 60**
1240 B.C.

Charcoal from 3 shafts; depth, 2.6 to 3.0 m.

LE-680. Shaft 12 **3370 ± 50**
1420 B.C.

Charcoal from Shaft 12; depth, 0.9 m.

LE-637. Shafts 15, 21, and 56 **5300 ± 300**
3350 B.C.

Charcoal from Shafts 15, 21, and 56. Depths not given (E.M.S.). *Comment* (N.N.G.): culturally, mines belong to Late Neolithic (Gurina, 1965b, 1966). Charcoal from Shaft 13 dated at 4310 ± 45 yr, GIN-148 (Radiocarbon, 1968, v. 10, p. 437), and from Shafts 3, 11, and 18 at 5050 ± 25 yr, GIN-164 (*op. cit.*).

Zarubinets sites series, Mogilyov Oblast

Samples from sites in Bykhov Raion, Mogilyov Oblast. Inferred age: late Zarubinets [early E Slavic (D.B.S.)]. Subm. by L. D. Pobol, Inst. of Hist., Acad. of Sci., Belorussian SSR. Ref: Bud'ko, 1967; Tret'yakov, 1959.

LE-691. Obidnya **1760 ± 60**
A.D. 190

Wood from Excavation 17, Obidnya village [*urochishche*], Bykhov Raion (53° 32' N Lat, 30° 15' E Long). Depth, 1 m. Bud'ko (1967, p. 261) estimates age at 2nd to 5th century A.D. Alternate spelling: Abidnya (E.M.S.).

LE-340. Adamenka **1670 ± 240**
A.D. 280

Charcoal from Dwelling 1, Adamenka settlement, Bykhov Raion (53° 32' N Lat, 30° 15' E Long).

LE-688. Radysheva Gora **1620 ± 60**
A.D. 330

Charcoal from cemetery without kurgans, Radysheva Gora village [*urochishche*], Novyy Bykhov, Bykhov Raion (53° 18' N Lat, 30° 24' E Long). Burial 35; depth, 0.30 m. *Comment* (D.B.S.): Zarubinets culture in middle Dnestr region estimated to span period from 2nd century B.C. to 1st to 2nd century A.D. by dating of fibulae found at sites (Tret'yakov, 1959, p. 151). Dates in series agree well with Tret'yakov's analysis, but note lead seal from later period (*op. cit.*, p. 29), 8th century A.D.

Kolochin I series, Gomel' Oblast

Kolochin I fortified settlement [*Kolchinskoye gorodishche*], Gomel' Oblast (52° 10' N Lat, 30° 25' E Long). Subm. by E. A. Symonovich, Inst. of Archaeol., Acad. of Sci., USSR.

2180 ± 160
230 B.C.

LE-400. Kolochin I

Charcoal from semi-subterranean Dwelling 2. Depth not given (E.M.S.).

1770 ± 110
A.D. 180

LE-442. Kolochin I

Wood from stockade [*tyñ*], Quadrant 349. Archaeologic age: middle of 1st millennium A.D. *Comment* (D.B.S.): internally isolated fortress settlement founded in Zarubinetz period (Symonovich, 1963, p. 97); burned and rebuilt with final destruction ca. 7th to 8th century A.D. Later phase correlated with Tushemlya, LE-344 (this list; Symonovich, 1963, p. 133-137). (Cf. also LE [RUL]-246 = 920 ± 100 yr, Radiocarbon, 1965, v. 7, p. 228).

*Latvian SSR***Madona Raion sites series**

Peat samples from campsites in Madona Raion, E part of Latvian SSR (56° 53' N Lat, 26° 15' E Long). Subm. by I. A. Loze, Acad. of Sci., Latvian SSR. Ref: Loze, 1965.

4170 ± 130
2220 B.C.

LE-648. Nainieksle campsite

Peat from depth 0.4 to 0.5 m. Inferred age: Neolithic, end of 3rd millennium B.C. *Comment* (I.A.L.): site contains porous pottery with cord-marking, and comb and linear punctate decoration; typical pit-and-comb ware occurring in small numbers. (Cf. also another date for early cord-marked pottery at Kut site, W Ukraine: GIN-152 = 4090 ± 80 yr, Radiocarbon, 1968, v. 10, p. 437 [D.B.S.]).

3870 ± 70
1920 B.C.

LE-671. Abora campsite

Peat from depth 0.74 to 0.90 m. Inferred age: beginning of 2nd millennium B.C. *Comment* (I.A.L.): site contains corded, and early textile-impressed pottery. Date close to Tamula, corded ware site, in Estonian SSR: TA-10 = 3600 ± 180 yr; TA-28 = 4050 ± 180 yr (Radiocarbon, 1966, v. 8, p. 433); cf. also Liiva *et al.* (1965).

*Karelia and North Russia***Ust'-Rybeznoye I series, Leningrad Oblast**

Ust'-Rybeznoye I settlement site, at village of Ust'-Rybezno, Volkhovsk Raion, Leningrad Oblast (60° 22' N Lat, 32° 35' E Long) is located S of L. Ladoga. Archaeologic age: Neolithic.

LE-405. Ust'Rybezchnoye I**6380 ± 220****4430 B.C.**

Charcoal from hearth, Excavation 1. Subm. by N. N. Gurina (1965a).
Depth not given (E.M.S.).

LE-599. Ust'Rybezchnoye I**4000 ± 70****2050 B.C.**

Wood from Excavation 2, upper limno-telmatic contact of peat layer,
covered by sands of Ladoga transgression. Right bank of Pasha R., 1 km
upstream from Excavation 1 (LE-405). Subm. by P. M. Dolukhanov, Inst.
of Archaeol., Acad. of Sci., USSR.

LE-634. Ust'Rybezchnoye I**4510 ± 85****2560 B.C.**

Peat from Excavation 3, upper limno-telmatic contact of peat layer,
left bank of Pasha R. Subm. by P. M. Dolukhanov. *Comment* (P.M.D.):
Sample LE-405 obtained directly from cultural layer; LE-599 and LE-634
from peat horizon believed synchronous with cultural layer and predating
beginning of Ladoga transgression which submerged site area. (Cf. also
Foss, 1952, p. 268, no. 539, and map opp. p. 23 [D.B.S.]).

Bol'shoy Mokh peat bog series, Leningrad Oblast

Peat from Bol'shoy Mokh bog, Podporozh'ye Raion [Podporozh'ye
city: 60° 55' N Lat, 34° 12' E Long]. Subm. by P. M. Dolukhanov.

LE-610. Bol'shoy Mokh bog**6060 ± 75****4110 B.C.**

Peat. Depth, 3.5 m. Inferred age: Atlantic period. (Cf. also Shuvalovo
bog, Leningrad Oblast: Mo-324 [depth, 3.13 to 3.18 m] = 8720 ± 270
yr, Radiocarbon, 1966, v. 8, p. 294).

LE-608. Bol'shoy Mokh bog**4470 ± 80****2520 B.C.**

Peat. Depth, 1.5 m. Inferred age: pollen-zone boundary of Atlantic
and Sub-boreal periods. (Cf. also Shuvalovo bog: Mo-325 [depth, 1.35 to
1.85 m] = 4120 ± 190 yr, Radiocarbon, 1966, v. 8, p. 294; Neustadt [1965,
p. 78] dates Atlantic-Sub-boreal boundary at 4950 to 5250 yr B.P.
[D.B.S.]).

V'yun I campsite series, Leningrad Oblast

Samples from vicinity of V'yun I Neolithic campsite, Sosnovo Raion
[V'yun: 60° 35' N Lat, 30° 29' E Long]. Geologic age: Holocene. Subm.
by O. M. Znamenskaya, Leningrad State Univ.

LE-561. V'yun I**5980 ± 100****4030 B.C.**

Wood from deposits of Lake Ladoga, near V'yun I campsite. Depth,
4.3 m.

LE-500. V'yun I**2040 ± 130****90 B.C.**

Wood from buried peat layer near V'yun I campsite. Depth, 4.3 m.

LE-498. Leningrad, Leningrad Oblast **6060 ± 170**
4110 B.C.

Peat from Boring 4, Leningrad (59° 55' N Lat. 30° 15' E Long). Depth, 13.6 to 13.7 m. Samples 39 and 40. Subm. by O. M. Znamenskaya.

Marmuginskiy peat bog series, Vologda Oblast

Marmuginskiy peat bogs are located in Velikiy Ust'-yug Raion, in flood plain of Yug R. [Velikiy Ust'-yug: 60° 48' N Lat, 46° 18' E Long]. Subm. by G. M. Burov, Komi Affiliate, Acad. of Sci., USSR.

LE-711. Marmuginskiy I **4700 ± 60**
2750 B.C.

Wood remains of fish traps made of lathes [*dranka*]. Structure 1, Sample 1. Depth not given (E.M.S.). Inferred age: Neolithic.

LE-703. Marmuginskiy I **4510 ± 50**
2560 B.C.

Wood remains of fish weir made of lathes. Structure 2, Sample 2. Depth not given (E.M.S.). Inferred age: Neolithic.

LE-705. Marmuginskiy II **2650 ± 50**
700 B.C.

Wooden sticks. Sample 3, Artifact 1. Depth, 1.4 m.

LE-704. Marmuginskiy II **2000 ± 50**
50 B.C.

Wooden sticks. Sample 3, Artifact 2. Depth, 1.2 m. *Comment* (G.M.B.): these determinations confirm Neolithic age of Marmuginskiy I; Marmuginskiy II is younger.

Usvyata IV site series, Pskov Oblast

Pile structures bordering Usvyata Lake, Usvyata Raion (55° 43' N Lat, 30° 47' E Long). Samples from oldest ("B") settlement of Usvyata IV site (Dolukhanov and Miklyayev, 1968). Subm. by A. M. Miklyayev, Hermitage Mus., Leningrad.

LE-651. Usvyata IV **5530 ± 90**
3580 B.C.

Wood from pile dwelling, lowermost level of cultural Layer B, depth, 1.4 m. Inferred age: Neolithic.

LE-649. Usvyata IV **3920 ± 90**
1970 B.C.

Wood from pile dwelling, upper part of cultural Layer B, depth, 0.96 m. Inferred age: Neolithic. *Comment* (A.M.M.): determinations establish Neolithic age of lower and upper cultural layers. Middle portion of cultural layer dated at 4520 ± 70 yr (TA-105, Radiocarbon, 1968, v. 10, p. 125).

LE-501. Dal'niye Zelentsy, Murmansk Oblast **1720 ± 170**
A.D. 230

Peat from 12-m marine terrace above cultural layer at Dal'niye Zelentsy site, Murman Coast [69° 07' N Lat, 36° 05' E Long]. Subm. by

V. D. Dibner, Inst. of Arctic Geol. *Comment* (P. M. Dolukhanov): Dal'-niye Zelentsy is early Iron Age site.

600 ± 90

LE-480. Yumochorr Mountain, Murmansk Oblast A.D. 1350

Wood from W slope, Yumochorr Mt., Khibiny range [Khibiny Mts.: 67° 45' N Lat, 33° 45' E Long]. Subm. by G. M. Kozubov, Inst. of Forestry, Karelian Affiliate, Acad. of Sci., USSR.

Central and Northeast Russia

1700 ± 70

LE-516[506]. Dikarikha, Yaroslavl' Oblast A.D. 250

Charcoal from hearth, Dikarikha campsite, Pereyaslav' Raion (56° 48' N Lat, 38° 45' E Long). Depth, 0.5 m. Inferred age: Late Bronze. Subm. by A. L. Nikitin, Inst. of Archaeol., Acad. of Sci., USSR. Same site dated at 2200 ± 30 yr (GIN-128, Radiocarbon, 1968, v. 10, p. 429). (Cf. also other dates for Pleshcheyevo campsite series, GIN-113 through 116, *op. cit.*, p. 428; note correction of location for GIN-128 [E.M.S.] .)

Proto-Kievan Rus series, Smolensk Oblast

Samples from Proto-Kievan Rus sites, Smolensk Oblast, S of city of Smolensk. Archaeologic age: end of 8th century A.D. Subm. by P. N. Tret'yakov, Inst. of History of Material Culture, Acad. of Sci., USSR.

960 ± 150

LE-344. Tushemlya A.D. 990

Charcoal from soil layer, Tushemlya site (54° 17' N Lat, 32° 18' E Long). Depth not given (E.M.S.). Ref: Shmidt, 1957.

980 ± 90

LE-386. Voshkino A.D. 970

Charcoal from soil layer, Voshkino fortified settlement [*gorodishche*] (54° 24' N Lat, 32° 28' E Long). Depth not given (E.M.S.).

950 ± 120

LE-411. Glushitsa A.D. 1000

Carbonized crust from soil layer, Glushitsa freehold [*sloboda*] (54° 22' N Lat, 32° 23' E Long). Depth not given (E.M.S.).

Viss I and II peat bogs series, Komi ASSR

Viss Peat Bogs I and II are located near Sindor village, Zhelezno-dorozh Raion (62° 35' N Lat, 50° 55' E Long). Sites of pile dwellings supposedly Mesolithic (Viss I) and Early Iron (Viss II). Coll. and subm. by G. M. Burov, Komi Affiliate, Acad. of Sci., USSR. Ref.: Burov, 1966.

7820 ± 80

LE-616. Viss I 5870 B.C.

Wood from depth 1.6 m. Inferred age: 7th to 6th millennium B.C.

LE-684. Viss I**7150 ± 60****5200 B.C.**

Wood from pole with hand grip. Sample 1. Depth not given (E.M.S.).
Inferred age: Mesolithic.

LE-685. Viss I**7090 ± 80****5140 B.C.**

Wood from pole with tread. Depth, 1.2 m. Sample 1, artifact B. Inferred age: Mesolithic. *Comment* (D.B.S.): comparable artifacts from Shigir culture, C Urals, have been interpreted as digging sticks (Bryusov, 1952, p. 158).

LE-713. Viss I**7090 ± 70****5140 B.C.**

Wood from plank with [evidence of] sawing. Sample 3, artifact B. Depth, 1.9 m. Inferred age: Mesolithic.

LE-568. Viss II**3610 ± 80****1660 B.C.**

Wood from Viss II bog. Depth, 0.9 to 1.3 m. Inferred archaeological age: 2nd millennium B.C. to 5th century B.C.

LE-669. Viss II**1990 ± 50****40 B.C.**

Wood from paddle. Sample 1. Depth, 2.1 m. Inferred age: 1st millennium B.C.

LE-686. Viss II**1520 ± 50****A.D. 430**

Wood from piling. Sample 2. Inferred age: 1st millennium A.D. *Comment* (G.M.B.): dates corroborate inferred archaeological dates.

LE-538. Sizhina River, Kalinin Oblast**23,800 ± 570****21,850 B.C.**

Peat from sec. on Sizhina R. [Sizhinskoye: 56° 46' N Lat, 33° 33' E Long]. Depth, 5 m. Inferred age: Mikulino Interglacial. Subm. by Z. V. Yatskevich, Fifth Geol. Adminis.

LE-453[456]. Bol'shaya Kosha River, Kalinin Oblast**33,400 ± 1200****31,450 B.C.**

Peat from Sec. 2, Bol'shaya Kosha R. [56° 44' N Lat, 33° 42' E Long]. Inferred age: Mikulino Interglacial (Riss-Würm). Subm. by Z. V. Yatskevich.

*South Russia and Lower Volga Region***LE-545. Smolyan', Bryansk Oblast****1380 ± 75****A.D. 570**

Charcoal from bottom of pit, Excavation 2, Smolyan' dwelling site (53° 20' N Lat, 34° 30' E Long). Archaeologic age: 1st millennium A.D. No depth given (E.M.S.). Subm. by P. N. Tret'yakov.

- LE-708. Il'men', Voronezh Oblast** **3410 ± 50**
1460 B.C.
Wood from burial pit, Kurgan 8, at Il'men' village, Borisoglebsk Raion (51° 23' N Lat, 42° 05' E Long). Depth, 2.5 to 3.0 m. Subm. by P. D. Liberov, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): Puzikova and Kachalova (1967) report Bronze Age (Catacomb and Timber Grave) burial sites in this vicinity.
- LE-701. Russkaya Trostyanka, Voronezh Oblast** **2010 ± 50**
60 B.C.
Charcoal from burial pit, Kurgan 9, at Russkaya Trostyanka village (51° 00' N Lat, 38° 45' E Long). Depth, 1.0 m from summit of kurgan. Inferred age: Early Iron. Subm. by P. D. Liberov.
- LE-707. Storozhevoye, Voronezh Oblast** **2350 ± 60**
400 B.C.
Remnants of wooden construction from rampart of fortified village [*gorodishche*] at Storozhevoye village (ca. 51° N Lat, 38° E Long). Depth, 1.0 to 1.5 m from top of rampart. Inferred age: Early Iron. Subm. by P. D. Liberov.
- Durovka kurgan series, Belgorod Oblast**
Samples from Kurgans 1, 4, and 5, at Durovka village, Alekseyevka Raion. [Alekseyevka: 50° 37' N Lat, 38° 42' E Long]. Inferred age: Early Iron. Subm. by P. D. Liberov.
- LE-699. Durovka 1** **1930 ± 60**
A.D. 20
Wood from burial pit cover, Kurgan 1, Depth, 3.0 m from summit of kurgan.
- LE-702. Durovka 4** **2120 ± 60**
170 B.C.
Wood from burial pit cover, Kurgan 4. Depth, 2.0 m from summit of kurgan.
- LE-709. Durovka 5** **2150 ± 50**
200 B.C.
Charcoal from bottom of burial pit, Kurgan 5. Depth, 2.5 m from summit of kurgan. *Comment* (D.B.S.): presumably marginal Scytho-Sarmatian burial site (cf. Grakov and Melyukova, 1954, map, p. 83, and Smirnov, 1954, map opp. p. 216).
- LE-511. Kudinov, Rostov Oblast** **3180 ± 80**
1230 B.C.
Wood from Kurgan 1, Grave 7, from cultural layer of site at Kudinov farmstead (47° 23' N Lat, 40° 35' E Long). Inferred archaeological age: Bronze, Timber Grave [*sрубная*] culture. Subm. by A. N. Melent'yev. *Comments* (P. M. Dolukhanov): [wood from] same grave dated at 3520 ± 80 yr (UCLA-1274, Radiocarbon, 1968, v. 10, p. 411). (D.B.S.): attribution to earlier Pit Grave [*yamnaya*] culture in Russian original corrected by Dolukhanov (Tret'yakov and Mongayt, 1956, p. 141-152).

LE-624. Rostov city, Rostov Oblast**3880 ± 90****1930 B.C.**

Wood from Kurgan 7, Grave 3, E of Rostov (47° 10' N Lat, 39° 45' E Long). Inferred archaeologic age: Bronze, N Caucasian Catacomb culture. Subm. by I. B. Brashinskiy. (Cf. also Tret'yakov and Mongayt, 1956, p. 141-152 [D.B.S.])

LE-415. Kobyakovo, Rostov Oblast**2070 ± 140****120 B.C.**

Carbonized reed [*kamysh*] and charcoal from Dwelling 1, Kobyakovo settlement site (47° 14' N Lat, 39° 48' E Long). Depth not given (E.M.S.). Archaeologic age: Sarmatian. Subm. by S. I. Kaposhina. *Comment* (D.B.S.): according to archaeologic and historic evidence, Sarmatians crossed to W of Don R. in 2nd century B.C. (Tret'yakov and Mongayt, 1956, p. 507).

*North Caucasus and Transcaucasus***LE-613. Il' River, Krasnodar Krai****9000 ± 100****7050 B.C.**

Wood from alluvial layer, 1st flood-plain terrace of Il' R., near Il' Paleolithic campsite, Kuban' region [ca. 44° 50' N Lat, 38° 40' E Long]. Geologic age: Lower Holocene. Subm. by N. D. Praslov. (Cf. Beregovaia, 1966, p. 32 and Map 1, p. 50 [D.B.S.])

Ust'-Dzhegutinskaya cemetery series, Stavropol' Krai

Kurgans 24, 32, and 33 near Ust'-Dzhegutinskaya *stanitsa* [village], Prikubansk Raion (44° 06' N Lat, 41° 58' E Long). Subm. by R. M. Munchayev.

LE-693. Ust'-Dzhegutinskaya 1**4110 ± 60****2160 B.C.**

Wood from Kurgan 32, Grave 10. Depth, 6.5 m from summit of kurgan. Inferred archaeologic age: 1st half of 2nd millennium B.C.

LE-687. Ust'-Dzhegutinskaya 2**4040 ± 60****2090 B.C.**

Wood from Kurgan 24, Grave 1. Depth, 2.7 m from summit of kurgan. Inferred archaeologic age: 1st half of 2nd millennium B.C.

LE-692. Ust'-Dzhegutinskaya 3**3900 ± 60****1950 B.C.**

Wood from Kurgan 33, Grave 2. Depth, 2.2 m from summit of kurgan. Inferred archaeologic age: 1st half of 2nd millennium B.C.

Serzhen'-Yurt series, Checheno-Ingush ASSR

Samples from Serzhen'-Yurt 1 site, Checheno-Ingush ASSR [Serzhen'-Yurt village: 43° 07' N Lat, 45° 59' E Long]. Subm. by Ye. I. Krupnov, Inst. of Archaeol., Acad. of Sci., USSR. Ref.: Krupnov *et al.*, 1967. (Cf. also LE[RUL]-258 and 265, Radiocarbon, 1965, v. 7, p. 227 [D.B.S.])

- 2860 ± 60**
910 B.C.
- LE-661. Serzhen'-Yurt 1**
Charcoal from dwelling, upper layer, Quad. D-7. Depth not given (E.M.S.).
- 2890 ± 75**
940 B.C.
- LE-491. Serzhen'-Yurt 1**
Charcoal from artifact assembly [*Shtyk*] 3, Quad. D-7. Depth not given (E.M.S.).
- 2620 ± 75**
670 B.C.
- LE-575. Serzhen'-Yurt 1**
Charcoal from upper layer. *Comment* (Ye. I. K.): samples taken from upper layer; Late Bronze, Early Iron, 9th to 7th century B.C. (Krupnov *et al.*, 1967, p. 60).
- 4830 ± 230**
2880 B.C.
- LE-330. Uch-Tepe, Azerbaydzhan SSR**
Charcoal from Kurgan 3, Uch-Tepe, 4 to 6 km S of Karkay-Chay (39° 55' N Lat, 47° 20' E Long). Burned covering of principal tomb. Inferred archaeologic age: end of 3rd to 2nd millennium B.C. Subm. by A. A. Yessen, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (A.A.Y.): another date for charcoal from cover of grave pit: 4500 ± 120 yr (LE[RUL]-305, Radiocarbon, 1965, v. 7, p. 227); cf. also Ivanova, Kind, and Cherdyntsev, 1963, p. 146, and Yessen, 1965b, p. 185.
- 7510 ± 70**
5560 B.C.
- LE-631. Shomu-Tepe, Azerbaydzhan SSR**
Charcoal from Shomu-Tepe settlement, Akstafa Oblast [Akstafa: 41° 07' N Lat, 45° 27' E Long]. Depth, 1 m. Inferred archaeologic age: Eneolithic, 5th to 4th millennium B.C. Subm. by I. G. Narimanov.
- Kyul'-Tepe series, Nakhichevan ASSR, Azerbaydzhan SSR**
Charcoal from mound and campsites at Kyul'-Tepe, Nakhichevan ASSR (39° 11' N Lat, 45° 56' E Long).
- 4870 ± 150**
2920 B.C.
- LE-434. Kyul'-Tepe mound**
Charcoal from lower layer of mound. Exact depth not given (E.M.S.). Inferred archaeologic age: Eneolithic, 4th millennium B.C. Subm. by A. A. Yessen.
- 5770 ± 90**
3820 B.C.
- LE-477. Kyul'-Tepe campsite**
Charcoal from Layer 1-B, depth, 18.2 m. Inferred archaeologic age: Eneolithic, end of 5th to 4th millennium B.C. Subm. by O. A. Abibullayev. *Comment* (O.A.A.): Sample LE[RUL]-163, depth, 8.5 m, dated at 4880 ± 90 yr (Radiocarbon, 1965, v. 7, p. 226); cf. also Ivanova, Kind, and Cherdyntsev, 1963, p. 146, and Yessen, 1965a, p. 12. Depth of 18.2 m correct (Yessen, 1965a, p. 12) (E.M.S.).

LE-508. Kvelo Cheladidi, Georgian SSR**2400 ± 70
450 B.C.**

Carbonized wood from remains of burned dwelling, Kvelo Cheladidi settlement, near Poti (42° 07' N Lat, 41° 40' E Long). Depth, 2.0 to 2.2 m. Archaeologic age: Colchis. Subm. by T. K. Mikeladze. Inst. of History, Georgian SSR. *Comments* (D.B.S.): Colchis was Late Bronze age culture of Georgia believed by B. A. Kuftin (1941) to be synchronous with Urartu kingdom (cf. GIN-1, Radiocarbon, 1968, v. 10, p. 423; GIN-32, *ibid.*, p. 433; Mo-241, *ibid.*, p. 460), and dated to 12th and 9th century B.C. by Dzhaparidze (1953). Date for LE-508 appears unexpectedly late; (E.M.S.): note that correction of name and exact location are given in LE-508 for TB-5 (Radiocarbon, 1968, v. 10, p. 466).

LE-337. Racha, Georgian SSR**3530 ± 165
1580 B.C.**

Fragment of wooden prop from Racha copper mines, Gebi village [42° 46' N Lat, 43° 30' E Long]. Inferred archaeologic age: Late Bronze. Subm. by G. F. Kobedzhishvili.

LE-667. Atsavan fortress, Armenian SSR**1460 ± 50
A.D. 490**

Wood, part of beam of doorway, Atsavan fortress [*krepost'*], 15 km SE of Yerevan (40° 06' N Lat, 44° 37' E Long). Depth, 2.2 to 2.3 m. Inferred age: 1st century A.D., Roman period of Armenia. Subm. by G. A. Tiratsyan.

LE-681. Dziguti River, Abkhazian ASSR**26,600 ± 500
24,650 B.C.**

Peat from buried peat layer, right bank of Dziguti R., Ochamchire Raion [Ochamchire city: 42° 43' N Lat, 41° 28' E Long]. Depth, 1.9 m. Inferred age: Upper Pleistocene. Subm. by B. L. Solov'yev.

*Central Asia and Kazakhstan***LE-592. Chagylly-Tepe, Turkmen SSR****7000 ± 110
5050 B.C.**

Charcoal from 2nd cultural layer, Chagylly-Tepe site, near Meana settlement (36° 52' N Lat, 60° 28' E Long). Coll. name not given (E.M.S.). *Comments* (V.M.M.): layer belongs to late Dzheyhun culture; archaeologic date: 6th to 5th millennium B.C. (Masson, 1966, p. 76-92, and map, p. 24); (D.B.S.): Late Dzheyhun characterized by microlithic inventory, painted pottery, livestock, agriculture, and compact villages. Masson correlates late Dzheyhun with Dzhebel 5, and 10 to 11 m strata of Gari-Kamarband. Cf. also LE[RUL]-1 (Radiocarbon, 1965, v. 7, p. 226).

LE-647. Geoksyur I site, Turkmen SSR**4440 ± 180
2490 B.C.**

Charcoal from upper layer of Geoksyur I settlement site (37° 21' N Lat, 60° 46' E Long). Depth, 1.4 m. Location 54, Excavation 1. Inferred archaeologic age: Late Eneolithic, 1st half of 3rd millennium B.C. Subm.

by V. I. Sarianidi. (Cf. also LE[RUL]-257, Radiocarbon, 1965, v. 7, p. 226 [E.M.S.]·)

4070 ± 50**LE-664. Altyn-Tepe, Turkmen SSR****2120 B.C.**

Charcoal from Altyn-Tepe settlement site, Tedzhen Raion (37° 23' N Lat, 60° 30' E Long). Inferred archaeologic age: beginning of 2nd millennium B.C. Subm. by V. M. Masson, Inst. of Archaeol., Acad. of Sci., USSR. *Comments* (V.M.M.): sample from layer underlying Namazga V complex, dated to beginning of 2nd millennium B.C. (Masson, 1967). (D.B.S.): cf. also Masson, 1966, p. 152, 157; Altyn-Tepe is fortified Bronze Age settlement correlated with Namazga V.

2980 ± 60**LE-665. Namazga-Tepe, Turkmen SSR****1030 B.C.**

Charcoal from Namazga-Tepe settlement site, Kaakhka Raion (37° 20' N Lat, 59° 39' E Long). Hearth 3. Depth not given (E.M.S.). Inferred archaeologic age: 3rd to 2nd millennium B.C. Subm. by V. M. Masson. *Comment* (D.B.S.): stratigraphic position unclear in series from Neolithic through Bronze (cf. Masson, 1966, p. 151-152, and map, p. 153).

2250 ± 70**LE-639. Altyn-Akar, Turkmen SSR****300 B.C.**

Wood from Kurgan 1, Altyn-Akar cemetery, NE extremity of Bol'shoy Balkan range, Krasnovodsk Raion (39° 40' N Lat, 55° 20' E Long). Depth not given (E.M.S.). Inferred age: 4th century B.C. to 5th century A.D. Subm. by A. M. Mandel'shtam, Acad. of Sci., Tadzhik SSR.

1660 ± 50**LE-716. Meshrepi-Takhra, Turkmen SSR****A.D. 290**

Wood from Kurgan D, Meshrepi-Takhra cemetery, Kyzyl Arvat Raion, Ashkhabad Oblast (39° 00' N Lat, 56° 18' E Long). Depth not given (E.M.S.). Inferred age: 4th century B.C. to 5th century A.D. Subm. by A. M. Mandel'shtam.

Ak-Tan'ga shelter series, Tadzhik SSR

Ak-Tan'ga shelter is in Turkestan range (39° 33' N Lat, 68° 48' E Long). Subm. by V. A. Ranov, Acad. of Sci., Tadzhik SSR. Ref: Litvinskiy and Ranov, 1964. Site belongs to Hissar [Russian: *Gissar*] culture. (Cf. also Masson, 1966, p. 145-148 [E.M.S.]·)

8785 ± 130**LE-534. Hissar 6****6835 B.C.**

Charcoal from Hissar 6 layer, Quad. B-17, depth, 9 m. Inferred archaeologic age: Mesolithic or Early Neolithic.

5950 ± 380**LE-474. Hissar 4****4000 B.C.**

Charcoal from Hissar 4 layer. Depth not given (E.M.S.). Inferred archaeologic age: Neolithic.

LE-429. Hissar 3 **4170 ± 110**
2220 B.C.

Charcoal from Hissar 3 layer, Excavation 2. Depth not given (E.M.S.). Inferred archaeologic age: Eneolithic or Bronze.

LE-432. Hissar 2 **3220 ± 140**
1270 B.C.

Charcoal from Hissar 2 layer, Quad. B-18. Depth not given (E.M.S.). Inferred archaeologic age: Bronze (cf. also LE-614, this list [E.M.S.]). *Comment* (D.B.S.): Hissar culture combines river-pebble chopper, retouched flake, and polished stone technologies; pottery; and perhaps domesticated animals.

LE-690. Tutkaul, Tadzhik SSR **7100 ± 140**
5150 B.C.

Charcoal from hearth, Tutkaul settlement site, Nurek Raion (38° 20' N Lat, 69° 13' E Long). [Excavation is in inundation area of Nurek Hydroelectric Sta.; cf. Litvinskiy, 1967, p. 313 (E.M.S.).] 1st cultural horizon, depth, 4.46 m. Inferred archaeologic age: 6th to 5th millennium B.C.; Hissar culture with pebble industry, belonging to C. Asiatic mountain Neolithic. Subm. by V. A. Ranov. *Comment* (D.B.S.): Litvinskiy (1967) ascribes 2 upper layers to Hissar culture; cf. also Masson, 1966, p. 145-148, and Ak-Tan'ga series, LE-534, 474, 429, and 432, this list.

LE-715. Tigrovaya Balka, Tadzhik SSR **3350 ± 60**
1400 B.C.

Charcoal from Tigrovaya Balka cemetery, lower reaches of Vakhsh R., Shaartuz Raion [Shaartuz: 37° 16' N Lat, 68° 08' E Long]. Terrace 5, Kurgan 7, depth, 0.7 m. Inferred age: Late Bronze; "Vakhsh culture." Subm. by B. A. Litvinskiy, Acad. of Sci., Tadzhik SSR. (Cf. also Masson, 1966, p. 253 [E.M.S.].)

LE-445. Chust site, Uzbek SSR **2240 ± 75**
290 B.C.

Charcoal from Chust settlement site, Fergana valley, Chust Raion (41° 00' N Lat, 71° 13' E Long). Depth, 1.0 to 1.25 m. Inferred age: Late Bronze. Subm. by V. I. Shrishevskiy.

LE-712. Chun-Tepe, Uzbek SSR **970 ± 50**
A.D. 980

Charcoal from Chun-Tepe settlement site, SE Fergana valley, Kuva Raion (40° 20' N Lat, 71° 44' E Long). From cultural layer; depth, 4.5 m. Inferred age: 7th to 8th centuries A.D.; Early Medieval. Subm. by N. G. Gorbunova, Hermitage Mus., Leningrad.

LE-543. Torken, Kirgiz SSR **1440 ± 60**
A.D. 510

Wood (part of coffin) from Torken cemetery, Mound 43, Dzhahalabad Oblast (41° 50' N Lat, 73° 10' E Long). Archaeologic age: 2nd to 5th century A.D. Subm. by I. Kozhombardiyev, Inst. of History, Kirgiz SSR.

2430 ± 200**LE-309. Tagisken, Kazakh SSR****480 B.C.**

Charcoal from base of hearth, Kurgan 6, Kyzyl Orda Oblast [delta of Syr Darya, ca. 45° 30' N Lat, 62° 30' E Long]. Archaeologic age: Scythian. Subm. by S. P. Tolstov, Inst. of Archaeol., Acad. of Sci., USSR. [Excavation of Khorezm (Khwarazym) Expedition; depth not given (E.M.S.).] *Comment* (D.B.S.): Gryaznov believes Kurgan (Mausoleum) 6 at Tagisken earlier than Scythic, *i.e.*, Karasuk; cf. Gryaznov, 1966, p. 233-238.

3360 ± 130**LE-535. Chilikta, Kazakh SSR****1410 B.C.**

Wooden support from Kurgan 35, central cemetery, Chilikta valley [Chilik: 43° 33' N Lat, 78° 17' E Long]. Archaeologic age: Saka. Subm. by S. S. Chernikov, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): an extreme discrepancy between reported and estimated dates. The Saka (Sacae), or E Scyths, are known historically for Achaemenid period to invasion of Ephthalites, roughly 400 B.C. to A.D. 400, and attributed by Soviet archaeologists conventionally to 5th century B.C. Cf. also LE[RUL]-247, Radiocarbon, 1965, v. 7, p. 228.

Bes-Shatyr cemetery series, Kazakh SSR

Wood from kurgans in Bes-Shatyr cemetery, right bank of Ili R., Ili Raion [Ili: 43° 53' N Lat, 77° 10' E Long]. Archaeologic date: 5th century B.C. Depths not given (E.M.S.). Subm. by K. A. Akishev.

2550 ± 65**LE-603. Bes-Shatyr****600 B.C.**

Wood from Kurgan 1.

1850 ± 70**LE-590. Bes-Shatyr****A.D. 100**

Wood from Kurgan 3.

2760 ± 60**LE-632. Predgornoye cemetery, Kazakh SSR****810 B.C.**

Wood from burial, Kurgan 2, at Predgornoye village, Ust'-Kamenogorsk Raion (50° 16' N Lat, 82° 17' E Long). Archaeologic age: Andronovo. Subm. by S. S. Chernikov.

3500 ± 65**LE-614. Tasty-Butak, Kazakh SSR****1550 B.C.**

Wood (wattle) from Pit 14, Tasty-Butak site, Aktyubinsk Oblast (50° 16' N Lat, 58° 00' E Long). Inferred age: Andronovo. Depth not given (E.M.S.). Subm. by V. S. Sorokin, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (V.S.S.): wattle from Pit 2 dated at 3190 ± 80 yr (LE[RUL]-213, Radiocarbon, 1965, v. 7, p. 227); (D.B.S.): Tasty-Butak is referred by Masson (1966, p. 216) to later, or Ala-Kul', stage of Andronovo culture with which Hissar 2 horizon of Ak-Tan'ga (LE-432, this list) has also been correlated (*op. cit.*, p. 145-148).

Urals and Western Siberia

- LE-662. Turumbay cemetery, Orenburg Oblast** **3080 ± 50**
1130 B.C.

Wood from Turumbay cemetery [Stone] Circle 7, Burial 1, Dombarovskiy Raion (50° 32' N Lat, 59° 32' E Long). Depth, 0.9 m. Inferred age: Andronovo. Subm. by Ye. Ye. Kuz'mina. *Comment* (D.B.S.): cemetery and assoc. settlement are characteristic Late Andronovo; cf. Kuz'mina, 1967.

- LE-633. Lipovaya Kur'ya, Chelyabinsk Oblast** **3590 ± 90**
1640 B.C.

Charcoal from semi-subterranean dwelling, Lipovaya Kur'ya campsite, Miass Raion (55° 00' N Lat, 60° 06' E Long). Depth not given (E.M.S.). Archaeologic age: Andronovo. Subm. by L. P. Khlobystin.

- LE-548. Churakayevo, Bashkir ASSR** **3010 ± 70**
1060 B.C.

Wood from cemetery at Churakayevo village [Churayevo: 55° 25' N Lat, 55° 30' E Long]. Inferred archaeological age: Abashevo. Subm. by K. V. Sal'nikov, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): Abashevo synchronous with Andronovo and Timber Grave cultures in S Urals (Sal'nikov, 1954, p. 94).

- LE-467. Bashadar, Gorno-Altay Autonomous Oblast** **2430 ± 110**
480 B.C.

Trunk of larch (*Larix sibirica*) from cover of kurgan, Bashadar, Gorno-Altay Autonomous Oblast (50° 43' N Lat, 85° 46' E Long). Archaeologic age: Scythian. Subm. by S. I. Rudenko, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): princely burial synchronous with Pazyryk (Tret'yakov and Mongayt, 1956, p. 391); cf. also dates for Pazyryk: LE[RUL]-120 = 2350 ± 140 yr (Radiocarbon, 1965, v. 7, p. 223), and LE[RUL]-151 = 2440 ± 50 yr (*ibid.*).

- LE-660. Odino, Tyumen' Oblast** **3180 ± 70**
1230 B.C.

Charcoal from Odino campsite, left bank of Ishim R., Vikulovo Raion (56° 43' N Lat, 70° 30' E Long). Inferred age: Early Bronze. Depth not given (E.M.S.). Subm. by L. Ya. Krizhevskaya, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): may be one of earliest Bronze age sites in SW Siberia (Shimkin, 1960, p. 648-661).

Yagunya cemetery series, Kemerovo Oblast

Samples from Yagunya cemetery, on Yagunya R. (55° 17' N Lat, 86° 00' E Long). Depths not given (E.M.S.). Subm. by I. A. Martynov.

- LE-399. Yagunya 6** **2280 ± 120**
330 B.C.

Decomposed wood from Kurgan 6, Burial 3. Archaeologic age: 6th to 4th century B.C.

1970 ± 60
A.D. 20

LE-505. Yagunya 7

Charcoal from Kurgan 7, Burial 2. Archaeologic age: 2nd stage, Tagar epoch.

1520 ± 100
A.D. 430

LE-553. Yagunya 5

Charcoal from Kurgan 5, Burial 1. Archaeologic age: Tagar epoch. *Comment* (D.B.S.): Tagar epoch of Altay is typologically synchronous with Scythic, 6th to 4th century B.C.; cf. Kiselev, 1951, p. 185-303.

Central Siberia: Minusinsk Basin

Kokorevo series, Krasnoyarsk Krai

This group of Paleolithic sites is located near Kokorevo village, on left bank of Yenisey R., ca. 230 km S of Krasnoyarsk, Novosyolovo Raion (55° 05' N Lat, 91° 10' E Long).

12,940 ± 270
10,990 B.C.

LE-526. Kokorevo I

Charcoal from 2nd cultural layer, depth, 2.6 m. Archaeologic age: Upper Paleolithic; geologic age: 2nd half Sartanskoye [Würm III] glaciation. Subm. by Z. A. Abramova, Inst. of Archaeol., Acad. of Sci., USSR.

14,450 ± 150
12,500 B.C.

LE-628. Kokorevo I

Charcoal from 3rd cultural layer, Location 2, depth, 2.8 to 2.9 m. Upper Paleolithic; 2nd half Sartanskoye glaciation. Subm. by Z. A. Abramova. Charcoal from same layer, depth, 3.8 m, dated at 13,300 ± 50 yr (GIN-91, Radiocarbon, 1968, v. 10, p. 435); cf. also Grichuk *et al.*, 1966, p. 273.

12,690 ± 140
10,740 B.C.

LE-629. Kokorevo III (Kamennyy Log)

Charcoal from Kokorevo III (Kamennyy Log [Stony ravine]). Late Paleolithic; 2nd half Sartanskoye glaciation. Subm. by Z. A. Abramova.

15,460 ± 320
13,510 B.C.

LE-540. Kokorevo IV (Kipernyy Log)

Charcoal from Excavation 4, depth, 5.2 m. Late Paleolithic; middle of Sartanskoye glaciation. Subm. by S. N. Astakhov, Inst. of Archaeol., Acad. of Sci., USSR.

14,320 ± 330
12,370 B.C.

LE-469. Kokorevo IV

Charcoal from Excavation 1, Cultural Layers 3 through 5 in loess deposit at depth 4.0 to 4.5 m. Subm. by S. N. Astakhov. *Comment* (Z.A.A. and S.N.A.): Kokorevo I, II [GIN-90, Radiocarbon, 1968, v. 10, p. 435], and III belong to same group. Kokorevo I and Kokorevo IV, Excavation 1, have a more evolved aspect. Kokorevo III is youngest, dated geologically to terminal phases of Sartanskoye (Abramova, 1966; Astakhov, 1966). Note correction for location of GIN-90 and 91 (E.M.S.).

LE-455. Malyy Kopyony II, Krasnoyarsk Krai **4440 ± 150**
2490 B.C.

Charcoal from burial, Kurgan 2, Malyy Kopyony II (54° 20' N Lat, 91° 30' E Long). Inferred age: Afanas'yevo [Eneolithic]. Depth not given (E.M.S.). Subm. by L. P. Zyablin. (Cf. also Kiselev, 1951, p. 42, for description of burials and evidence of pillage [E.M.S.]).

LE-694. Sargov Ulus, Khakass ASSR **4270 ± 60**
2320 B.C.

Wood from Grave 3, Sargov Ulus cemetery, left bank Yenisey R., near Sovetskaya Khakassiya settlement (ca. 54° 00' N Lat, 91° 30' E Long). Inferred age: Afanas'yevo [Eneolithic]. Subm. by M. P. Gryaznov, Inst. of Archaeol., Acad. of Sci., USSR.

LE-532. Chernovaya III cemetery, Krasnoyarsk Krai **3700 ± 80**
1750 B.C.

Wood from Chernovaya III cemetery, Grave 3, Kurgan 4, on Chernovaya R., Bograd Raion [unlocated; Bograd: 54° 13' N Lat, 90° 51' E Long]. Subm. by G. A. Maksimenkov. Inferred age: Afanas'yevo.

Karasuk III cemetery series, Krasnoyarsk Krai

Samples of wood from Karasuk III cemetery, Bograd Raion (ca. 55° 00' N Lat, 91° 00' E Long). Depths not given (E.M.S.). Subm. by M. P. Gryaznov. Inferred age: Afanas'yevo.

LE-519. Karasuk III cemetery **3470 ± 200**
1520 B.C.

Wood from Enclosure 7.

LE-563. Karasuk III cemetery **2235 ± 100**
285 B.C.

Wood from Enclosure 3, Grave 1. *Comment* (D.B.S.): for a general discussion of Afanas'yevo culture (antecedent to Andronovo) see Tret'yakov and Mongayt, 1956, p. 117-119.

LE-587. Uzhur, Krasnoyarsk Krai **4600 ± 250**
2650 B.C.

Decomposed wood from grave cover, Kurgan 14, Uzhur (55° 17' N Lat, 89° 53' E Long). Archaeologic age: Andronovo. Subm. by N. L. Chlenova.

LE-602. Pristan' I cemetery, Krasnoyarsk Krai **3750 ± 60**
1800 B.C.

Wood from Pristan' I cemetery, Enclosure 6, Grave 2 (ca. 55° 00' N Lat, 91° 15' E Long). Archaeologic age: Andronovo. Subm. by M. P. Gryaznov.

Lanin Log series, Krasnoyarsk Krai

Wood from Lanin Log [ravine] cemetery, left bank Syda R. (54° 22' N Lat, 91° 47' E Long). Depths not given (E.M.S.). Archaeologic age: Andronovo. Subm. by M. P. Gryaznov.

LE-630. Lanin Log, Kurgan 1	3390 ± 70
Wood from Kurgan 1, Grave 1.	1440 B.C.
LE-617. Lanin Log, Kurgan 1	3660 ± 65
Wood from Kurgan 1, Grave 3.	1710 B.C.
LE-619. Lanin Log, Kurgan 2	3970 ± 70
Wood from Kurgan 2, Grave 1.	2020 B.C.

Yarki II cemetery series, Krasnoyarsk Krai

Wood from Yarki II cemetery, Bograd Raion [Bograd: 54° 13' N Lat, 90° 51' E Long]. Depths not given (E.M.S.). Archaeologic age: Andronovo. Subm. by M. P. Gryaznov.

LE-518. Yarki II cemetery, Grave 1	2370 ± 95
Wood from Grave 1.	420 B.C.
LE-529. Yarki II cemetery, Grave 2	2970 ± 70
Wood from Grave 2.	1020 B.C.

Kamenka II cemetery series, Krasnoyarsk Krai

Wood from Kamenka II cemetery [unlocated: probably near Yarki II, LE-518, 529]. Depths not given (E.M.S.). Archaeologic age: Andronovo. Subm. by M. P. Gryaznov.

LE-604. Kamenka II cemetery, Grave 1	3910 ± 75
Wood from Enclosure 24, Grave 1.	1960 B.C.
LE-595. Kamenka II cemetery, Grave 2	2540 ± 65
	590 B.C.

Wood from Enclosure 24, Grave 2. *Comments* (M.G.P.): sharp differences in ages of samples from neighboring graves within same cemeteries (LE-518 and 529; LE-604, and 595) could not be explained on basis of laboratory error. Hence, this laboratory intends to repeat analysis with newly-collected samples. (D.B.S.): note that many graves in Minusinsk Basin have been pillaged; there is also evidence that the same cemeteries were used for burials over long periods of time. For general discussions of Andronovo culture, see Tret'yakov and Mongayt, 1956, p. 169-173 and Kiselev, 1951, p. 67-105.

Karasuk IV cemetery series, Krasnoyarsk Krai

Samples from Karasuk IV cemetery, Bograd Raion (ca. 55° 00' N Lat, 91° 00' E Long). Depths not given (E.M.S.). Inferred age: Kamenny Log [late] stage, Karasuk culture, 10th to 8th century B.C. Subm. by M. P. Gryaznov.

- LE-695. Karasuk IV cemetery** **2930 ± 60**
980 B.C.
Charcoal from Enclosure 10, Grave 2.

- LE-577. Karasuk IV cemetery** **2710 ± 75**
760 B.C.

Wood from Enclosure 19, Grave 2. *Comment* (D.B.S.): close resemblances, especially in *tao* knives, link Karasuk culture to Middle and Late Shang (1300 to 1100 B.C.), according to Chinese historical chronology. Dates given are not inconsistent. Cf. Kiselev, 1951, p. 106-183 and Chêng, 1960, v. 2, p. 19, 32-34, 275, 293-295, 297.

- LE-696. Ulug-Kyuzur I, Krasnoyarsk Krai** **2450 ± 50**
500 B.C.

Wood from Ulug-Kyuzur I cemetery, Kurgan 3, Grave 1, left bank of Yenisey R., near Sovetskaya Khakassiya settlement (54° 20' N Lat, 91° 27' E Long). Depth not given (E.M.S.). Inferred age: Saragash stage, Tagar culture. Subm. by M. I. Pshenitsyna, Inst. of Archaeol., Acad. of Sci., USSR. *Comment* (D.B.S.): sample presumably from larch grave cover of Grave 1, containing remains of 2 men and 3 women; cf. Pshenitsyna, 1967, p. 143.

Central Siberia: Lower Yenisey region

- LE-600. Dudinskaya sopka, Krasnoyarsk Krai** **26,900 ± 1300**
24,950 B.C.

Wood from stratified deposits, right bank of Yenisey R., at Dudinskaya sopka [*peak*] [Dudinka: 69° 25' N Lat, 86° 15' E Long]. Depth not given (E.M.S.). Inferred age: 25 to 50 thousand yr. Subm. by G. F. Odinet, Permafrost Inst.

- LE-424. Zyryanka River, Krasnoyarsk Krai** **5150 ± 100**
3200 B.C.

Wood from lower part of buried peat layer, mouth of Zyryanka R., right bank of Yenisey R. [not located; probably near Zyryanka: 72° 20' N Lat, 81° 30' E Long]. Peat layer 8 to 10 m thick. Inferred age: 40 thousand yr. Subm. by G. F. Odinet.

- LE-612. Pyasina River, Krasnoyarsk Krai** **25,100 ± 550**
23,150 B.C.

Mammoth tissue from Pyasina R., Taymyr Peninsula, Taymyr Nat. Okrug [Pyasina: 73° 50' N Lat, 87° 10' E Long]. Discovered, 1964. Inferred age: ca. 30 thousand yr. Subm. by Inst. Zoology, Acad. Sci., USSR.

Central Siberia: Baikal region

- LE-513. Serovo, Irkutsk Oblast** **3990 ± 80**
2040 B.C.

Charcoal from Grave 2, Serovo (54° 20' N Lat, 103° 10' E Long). Inferred age: 3rd millennium B.C., Serovo stage, Transbaikalian Neolithic (Okladnikov, 1950). Subm. by A. P. Okladnikov, Inst. of Archaeol., Acad. of Sci., USSR. (Cf. also description of Serovo culture in Michael [1958,

p. 45-61]; Kitoi, succeeding phase, cross-relates with Afanas'yevo in Minusinsk Basin, LE-455, 694, 532, 519, 563, this list [D.B.S.]·)

5250 ± 170
3300 B.C.

LE-550. Irkut River, Buryat ASSR

Charcoal from 4th flood-plain terrace, Irkut R. [flood plain between ca. 50° 30' and 51° 00' N Lat, 102° 00' and 103° 30' E Long]. Inferred age: 5 to 6 thousand yr. Depth not given (E.M.S.). Subm. by Ye. V. Maksimov, Hertsen Pedagogical Inst., Leningrad.

Yakut ASSR

Bel'kachi series, Yakut ASSR

Bel'kachi I is multi-stratum campsite, left bank of Aldan R., 1.3 km S of mouth of Ulakhan-El'ge R. (59° 00' N Lat, 131° 57' E Long). Subm. by Yu. A. Mochanov, Yakut Affiliate, Siberian Br., Acad. of Sci., USSR. Ref: Okladnikov, 1964, p. 32-79, especially p. 69-72 (D.B.S.).

6720 ± 50
4770 B.C.

LE-650. Bel'kachi I, Stratum 10

Charcoal from Cultural Stratum 10; depth, 3.0 m. Inferred age: "Holocene Upper Paleolithic."

6750 ± 70
4800 B.C.

LE-698. Bel'kachi I, Stratum 10a

Charcoal from Cultural stratum 10a; depth, 3.1 m; Quad. AB-19 and -20. Inferred age: "Holocene Upper Paleolithic."

6250 ± 60
4300 B.C.

LE-697. Bel'kachi I, Stratum 9

Charcoal from Cultural Stratum 9; depth, 2.4 m; Quad. D-5. Inferred age: "Holocene Upper Paleolithic."

5900 ± 70
3950 B.C.

LE-678. Bel'kachi I, Stratum 8

Charcoal from Cultural Stratum 8; depth, 1.8 m; Quad. G-6. Inferred age: "Holocene Upper Paleolithic."

5970 ± 70
4020 B.C.

LE-676. Bel'kachi I, Stratum 7

Charcoal from Cultural Stratum 7; depth, 1.2 m; Quad. V-2. Inferred age: Early Neolithic.

5270 ± 70
3320 B.C.

LE-656. Bel'kachi I, Stratum 6

Charcoal from Cultural Stratum 6; depth, 1.1 m; Quad. B-32. Inferred age: Early Neolithic.

2930 ± 50
980 B.C.

LE-666. Bel'kachi I, Stratum 2

Charcoal from Cultural Stratum 2; depth, 0.4 m; Quad. B-33. Inferred age: Late Neolithic.

Magadan Oblast and Kamchatka

LE-674. Vakarevskaya campsite, Magadan Oblast **500 ± 50**
A.D. 1450

Charcoal from cultural layer, Vakarevskaya campsite, Mayn R., Anadyr R. basin (64° 47' N Lat, 171° 40' E Long). Depth, 1.0 m. Inferred age: Neolithic survival. Subm. by N. N. Dikov, Siberian Div., Acad. of Sci., USSR.

LE-677. Ekiatan, Magadan Oblast **Modern**

Charcoal from pastoral nomadic burial, Ekiatan R., right tributary of Amguyema R. (66° 40' N Lat, 180° Long). Depth, 10 cm. Subm. by N. N. Dikov.

LE-623. Shiveluch Volcano, Kamchatka **5620 ± 100**
3670 B.C.

Charcoal from Shiveluch volcano [56° 39' N Lat, 161° 18' E Long]. Subm. by G. S. Shteynberg, Inst. of Vulcanology, Siberian Div., Acad. of Sci., USSR.

LE-625. Avacha Volcano, Kamchatka **6000 ± 100**
4050 B.C.

Charcoal from Avacha volcano (53° 15' N Lat, 158° 49' E Long). Wood charred during eruption. Inferred age: Holocene. Subm. by V. S. Aver'yanov, Inst. of Vulcanology, Siberian Div., Acad. of Sci., USSR. (Cf. also GIN-122 = 5480 ± 70 yr, Radiocarbon, 1968, v. 10, p. 436; GIN-119 = 5555 ± 45 yr, *ibid.*, p. 442; and GIN-120 = 3300 ± 35 yr, *ibid.*, p. 442 [E.M.S.]).

LE-670. Klyuchi campsite, Kamchatka **490 ± 50**
A.D. 1460

Charcoal from Klyuchi campsite, left bank Klyuchi R., tributary of Kamchatka R. [Klyuchi: 56° 18' N Lat, 160° 51' E Long]. Depth, 1.0 m. Inferred age: Neolithic. Subm. by N. N. Dikov. Note corrected location for Ushki I site, GIN-184, 186 (Radiocarbon, 1968, v. 10, p. 442) is 56° 20' N Lat, 161° 00' E Long (E.M.S.).

LE-473. Nikolka, Kamchatka **730 ± 110**
A.D. 1220

Charcoal from hearth of semi-subterranean Dwelling 5, Nikolka fortified settlement [*gorodishche*], [unlocated; probably near Mt. Nikolka: ca. 55° 30' N Lat, 160° 00' E Long]. Depth not given (E.M.S.). Inferred age: 2nd millennium A.D. Subm. by N. N. Dikov.

Khabarovsk Krai and Maritime Region

LE-675. Polyakovo, Amur Oblast **1290 ± 50**
A.D. 660

Charcoal from site at Polyakovo village, Zeya R. valley, Svobodny Raion [Svobodny: 51° 25' N Lat, 128° 10' E Long]. Depth, 1.5 m. Inferred age: Neolithic. Subm. by A. P. Okladnikov. *Comment* (D.B.S.): discordance with inferred age.

LE-652. Pol'tso, Khabarovsk Krai **2930 ± 80**
980 B.C.

Charcoal from Pol'tso settlement site, near Kukelevo village, Leninsk Raion, Jewish Autonomous Oblast (47° 35' N Lat, 132° 30' E Long). Depth, 1.0 to 1.5 m. Inferred age: 6th to 5th century B.C. Subm. by A. P. Okladnikov. *Comment* (D.B.S.): Derevyanko and Derevyanko (1967, p. 175) describe assoc. well-developed iron-working complex: awls, needles, knives, daggers, and armor. Date is unexpectedly early and precedes major development of iron forging in China in Chan-Kuo phase of Chou period, 480 to 222 B.C. (Chêng, v. 3, p. xxiv-xxxii, 43-45).

LE-663. Malyshevo, Khabarovsk Krai **3590 ± 60**
1640 B.C.

Charcoal from Malyshevo-on-Amur site (48° 15' N Lat, 134° 40' E Long). Depth, 2.1 m. Inferred age: 3rd to 2nd millennium B.C., lower Amur R. early Neolithic (Okladnikov, 1967). Subm. by A. P. Okladnikov.

LE-657. Siniye Skaly, Maritime Region **1460 ± 50**
A.D. 490

Charcoal from cultural layer of dwelling, Siniye Skaly settlement site, Ol'ginsk Raion [Ol'ga: 43° 45' N Lat, 135° 20' E Long]. Depth not given (E.M.S.). Inferred age: 1st millennium A.D. Subm. by Zh. V. Andreyeva, Div. of History, Far Eastern Affiliate, Siberian Br., Acad. of Sci., USSR.

Kurile Islands, Sakhalin Oblast

LE-609. Zavaritskiy Volcano, Simushir Island **Modern**

Charcoal from Zavaritskiy volcano, Simushir I. [46° 58' N Lat, 152° 02' E Long]. Subm. by K. I. Shmulevich, Inst. Vulcanology, Siberian Div., Acad. of Sci., USSR.

LE-566. Tao-Rusyr Volcano, Onnekotan Island **7040 ± 100**
5090 B.C.

Charcoal from slopes of caldera, Tao-Rusyr volcano, Onnekotan I., N Kurile I. [49° 25' N Lat, 154° 45' E Long]. Inferred age: 4 to 10 thousand yr. Subm. by K. I. Shmulevich.

Soviet Arctic

LE-706. Matusevich Fjord, Novaya Zemlya **7210 ± 70**
5260 B.C.

Driftwood from moraine of glacier discharging into Matusevich Fjord, Oktyabr'skaya Revolyutsiya I. [80° 00' N Lat, 98° 15' E Long]. Elev: +50 m. Probably redeposited from marine terrace. Inferred age: Upper Pleistocene. Subm. by L. S. Govorukha, Inst. of Arctic and Antarctic.

Antarctica

LE-658. Westfall oasis, Antarctica **1480 ± 75**
A.D. 470

Mummified remains of seals from Westfall oasis [Vestfold: near 80° 00' E Long, 68° 00' S Lat]. Seals found on surface, partly covered with

sand. Subm. by Inst. of Arctic and Antarctic. (Cf. also Mo-255, Radiocarbon, 1966, v. 8, p. 32 [E.M.S.].)

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