

GLIWICE RADIOCARBON DATES VIII

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The following list sums up the results of radiocarbon dating of geologic samples obtained mostly during 1978 and 1979. Measurements have continued with the same proportional counters, pretreatment procedures, carbon dioxide purification, measurement and calculation as described previously (Pazdur *et al*, 1982). Ages are reported as conventional radiocarbon dates in years before AD 1950. No corrections for $^{13}\text{C}/^{12}\text{C}$ ratio were made for samples reported in this date list. Infinite dates are based on a 2-sigma criterion (Pazdur and Walanus, 1979). Sample descriptions and comments are based on information provided by the submitters.

ACKNOWLEDGMENTS

All samples listed here have been dated with the technical assistance of Helena Skorupka during sample pretreatment and carbon dioxide purification.

SAMPLE DESCRIPTIONS

GEOLOGIC SAMPLES

A. Poland

Baltic Coast and N Poland

Swietouś series

Charcoal from fossil soil levels covered with eolian sands in cliff undercutting Wolin end moraine, Wolin I. ca 1km W of Swietouś (59° 30' N, 14° 38' E). Wolin end moraine is built of deposits formed by glacial tectonic processes; upper part of glacial tectonic structures is sheared and covered with fluvial and eolian cover sands with two fossil soil levels. Coll Nov 1978 by R K Borówka and Ryszard Gonera; subm 1979 by R K Borówka, Inst Geog, Adam Mickiewicz Univ, Poznań.

Gd-1062. Swietouś K-35 **1880 ± 70**

Sample from younger fossil soil separating 2 series of eolian sands, depth 3.5m.

Gd-631. Swietouś K-43 **11.590 ± 270**

Sample from older fossil soil developed on fluvial (?) sands and covered with eolian sands, depth 7m. *Comment*: undersized, diluted.

Troszyn series

Charcoal and gyttja from fossil soil levels in N part of parabolic dune near Troszyn, Western Pomerania (53° 52' N, 14° 45' E). Subm 1978 by Stefan Kozarski, Inst Geog, Adam Mickiewicz Univ, Poznań.

Gd-546. Troszyn 11/BN/77 1580 ± 70

Charcoal from upper soil level, depth ca 80cm. Coll Sept 1977 by Bolesław Nowaczyk.

Gd-528. Troszyn 9/BN/76 2300 ± 170

Charcoal from middle soil level, depth 3.75 to 3.85m. Coll Oct 1976 by Bolesław Nowaczyk.

Gd-529. Troszyn 10/BN/76 3130 ± 70

Charcoal from fire layer at top of lower fossil soil, depth 6.40 to 6.46m. Coll Oct 1976 by Bolesław Nowaczyk.

Gd-538. Troszyn 13/BN/77 8020 ± 110

Coarse-detritus gyttja, thin layer at depth 6m underlain by terrace sands and covered with dune sands. Coll Nov 1977 by Andrzej Karczewski and Kazimierz Tobolski. *Comment* (KT & BN): expected age: Late Glacial. Contamination with younger rootlets cannot be excluded.

Gd-537. Troszyn 12/BN/77 2440 ± 60

Charcoal from pit underlying fossil soil in S part of dune, assoc with pottery remains, depth ca 80cm. Coll Nov 1977 by Tadeusz Wiślański. *Comment* (TW): assoc cultural material indicates Hallstadt C/D period.

Pomorska Bay R-3 series

Peaty detritus from lowest part of Core R-3 taken from sea bottom in S part of Pomorska Bay, ca 15.6km W of Międzyzdroje (53° 55' 55" N, 14° 23' 13" E). Core from sublittoral zone at bottom of a large valley filled up to high level during late stages of Baltic transgression. Now in accumulation zone (Rosa, 1967; Kolp, 1966) at water depth ca 10m. Coll with vibrocorer July 1979 by Radosław Pikies and Zdzisław Sliwiński; subm 1979 by Włodzimierz Krocza, Geol Inst, Dept Marine Geol, Sopot.

Gd-1143. R3-2220G 7240 ± 150

Top part of peaty slime layer, depth 80 to 87cm.

Gd-1144. R3-2221G 7700 ± 120

Peaty slime with shells and shell detritus, depth 87 to 107cm.

Gd-1142. R3-2222G 8090 ± 110

Peaty and shell detritus, depth 107 to 122cm. *Comment* (WK): core did not reach base of organic sediments.

Gd-541. Miodowice 1 11,190 ± 180

Thin layer of peat at depth 2.4m underlying alluvial sands near Miodowice village, W Pomerania (53° 45' N, 14° 42' E). Coll Oct 1977 and subm by J E Mojski, Geol Inst, Warsaw. *Comment* (MFP): another portion of sample was dated by Groningen lab: GrN-8890, 10,710 ± 150 (Mook, written commun, 1979; cf R, 1982, v 24, p 000-000).

Gd-602. Gac 1/78 7520 ± 330

Sand with sticky humus from bottom layer in deflation basin, depth 115 to 129cm, from peat bog in dune area at SE shore of Łebsko Lake, Słowiński Natl Park, 1km NE of Gac village (54° 42' N, 17° 29' E). Coll and subm 1978 by Kazimierz Tobolski, Inst Geog, Adam Mickiewicz Univ, Poznań. Dated for studies of dune stratigraphy and paleogeog of Gardno-Łeba Lowland (Tobolski, 1972). *Comment* (KT): younger than expected, pollen analysis indicates pre-Boreal age. Rejuvenation by penetration of younger rootlets is possible.

Sarbsko series

Peat and wood from two cores taken at shore of Sarbsko Lake near Łeba (54° 45' 30" N, 17° 35' 40" E). Coll 1978 by Bogusław Rosa; subm by Stanisław Fedorowicz, Dept Geomorphol and Quaternary Geol, Gdańsk Univ, Gdynia.

Gd-1028. Sarbsko 3 5080 ± 80

Peat from depth 3 to 3.65m.

Gd-592. Sarbsko 4 15,020 ± 200

Fragments of wood in peat layer at depth 9.7 to 11.2m. *Comment* (SF): probably driftwood dated; age much older than expected.

Machowinko series

Peat from layer at depth 2.10 to 3.25m in basin without outflow in foreland of frontal moraine surrounding Gardno Lake, 1km N of Machowinko village (54° 37' N, 17° 00' E), 15km E of Ustka. Coll Dec 1978 by Krzysztof Petelski; subm by Stanisław Fedorowicz.

Gd-1075. Machowinko P-1 8620 ± 90

From depth 2.2 to 2.25m.

Gd-635. Machowinko P-2 8590 ± 100

From depth 2.65 to 2.75m.

Gd-594. Mierzeja Łebska 5/BR 1800 ± 60

Fragment of decayed tree trunk found *in situ* on surface of biogenic sediments in beach at Mierzeja Łebska (54° 45' 45" N, 17° 30' 00" E). Coll 1978 by Bogusław Rosa; subm by Stanisław Fedorowicz.

Gd-1066. Gardno 78/KP 7300 ± 70

Single layer of peat in vicinity of Gardno Lake (54° 39' 48" N, 17° 09' 20" E). Coll 1978 by Krzysztof Petelski, subm by Stanisław Fedorowicz.

Gd-1230. Osieki 9760 ± 80

Sandy detritus with wood fragments from layer at depth 1.1 to 1.2m on slope of small valley in N part of Łębork Upland, NNW of Choczewo (54° 47' N, 17° 51' E). Coll Nov 1979 and subm by Sylwester Skompski, Geol Inst, Warsaw (Sylwestrzak, 1969).

Gd-1049. Czymanowo prof a 10,600 ± 100

Peat from layer at bottom of postlacustrine depression overlain by other lacustrine sediments (calcareous gyttja and lacustrine chalk) and peat, from peaty plain at Czymanowo near Choczewo (54° 44' N, 18° 5' E). Coll Sept 1978 and subm by Sylwester Skompski. *Comment* (MFP): alkali-soluble fraction dated.

Hel-Jastarnia series

Samples from two organic layers in core reaching Tertiary sediments near Jastarnia, Hel peninsula (54° 40' 35" N, 18° 40' 30" E). Coll 1978 by Bogusław Rosa; subm by Stanisław Fedorowicz.

Gd-1027. Hel-Jastarnia 1 5370 ± 100

Peat from depth 3 to 5m.

Gd-593. Hel-Jastarnia 2 >38,800

Wood fragments from peat layer at depth 59 to 59.8m. *Comment* (SF): probably driftwood was dated; age much older than expected.

Gd-539. Lipce 3c 9690 ± 150

Humic detritus from bottom layer at depth 21 to 23.6m underlying Wisła R deltaic sediments in Lipce village, Żuławy (51° 54' N, 19° 56' E). Coll and subm 1978 by J E Mojski.

Orunia series

Layer of humic detritus ca 8m thick, in deltaic sediment of Wisła R, loc Orunia, Gdańsk, Żuławy (54° 18' 00" N, 18° 37' 30" E). Coll and subm 1978 by J E Mojski.

Gd-549. Orunia 9b+a, S2 7300 ± 110

From depth 8 to 11.2m.

Gd-540. Orunia 9b+a, S1 5420 ± 110

From depth 5 to 8m.

Wisłoujście series

Peat with plant detritus and fragments of wood and twigs with admixture of amber in two layers separated by and underlying fine-grained sands in Gdańsk, loc Wisłoujście (54° 24' N, 18° 40' E). Coll Sept 1978 by Stefan Kozłowski and subm by J E Mojski.

Gd-1042. Wisłoujście 1 2380 ± 60

Single pieces of plant detritus and small twigs coll with tweezers. Upper peat layer at depth 7 to 7.1 m.

Gd-638. Wisłoujście 1, 7-7.1m, A 3560 ± 70

Same layer, fine plant detritus obtained after careful removal of amber grains.

Gd-608. Wisłoujście 6440 ± 90

Fragments of wood and twigs from lower peat layer at depth 9 to 9.3m overlying black clay with shell fragments and amber.

Gd-639. Wisłoujście 1, 9-9.3m, A**3860 ± 80**

Same layer, fine plant detritus.

General Comment (MFP): both samples were heterogeneous, composed of some *in situ* peat with twigs of probably same age, pieces of wood washed in by storm waves, and amber of Tertiary age. Since rejuvenation by rootlets penetration or younger humus, leaching seems improbable. Younger dates of both organic horizons should be considered better approx to real age of formation.

Great Poland Lowland and W Poland

Gd-611. Laskowo 1/78/BN**11,380 ± 170**

Charcoal from fossil humus level at depth 1.45m overlying terrace sands of first terrace of Warsaw-Berlin Pradolina and underlying sands of alluvial cone developed in mouth of erosion – denudational valley, 750m E of Laskowo, 8km of Sulechów, Great Poland Lowland (52° 04' N, 15° 32' E). Coll Aug 1978 and subm by Bolesław Nowaczyk.

Zbrudzewo series

Organic sediments from peaty paleomeander of older generation filled with biogenic-mineral sediments. Recently used as meadow at SW margin of Zbrudzewo (52° 07' N, 17° 02' E) Warta R valley, 3km N of Srem. Dated for studies in IGCP 158A Project. Coll July 1978 by Stefan Kozarski and Kazimierz Tobolski; subm by Stefan Kozarski (Kozarski and Rotnicki, 1977).

Gd-1020. Zbrudzewo Zb/I/78**24,230 ± 550**

Black detritus gyttja, top part of gyttja layer at contact with low peat, depth 235 to 241cm.

Gd-1016. Zbrudzewo Zb/I/78**23,700 ± 370**

Brown sandy organic mud laminated with fine-grained sand, bottom part of biogenic sediments, depth 350 to 357cm.

Gd-1022. Zbrudzewo Zb/II/78**20,270 ± 200**

Black detritus gyttja from top part of gyttja layer at contact with overlying low peat, depth 170 to 175cm.

Gd-1021. Zbrudzewo Zb/II/78**27,500 ± 1000**

Black detritus gyttja with laminae of mud, bottom part of biogenic sediments, depth 350 to 356 cm.

Gd-1083. Zbrudzewo Zb/I/78A**1670 ± 60**

Carex peat, marked change in local phytocenosis, depth 55 to 61cm.

Gd-651. Zbrudzewo Zb/I/78A**8870 ± 120**

Carex peat, marked change in local phytocenosis, depth 119 to 125cm.

Gd-656. Zbrudzewo Zb/I/78A**9400 ± 100**

Carex peat, marked change in local phytocenosis, depth 175 to 180cm.

Gd-1084. Zbrudzewo Zb/I/78A 14,690 ± 150

Carex peat, marked change in local phytocenosis, depth 190 to 195cm.

Czmoniec series

Organic sediments from peaty paleomeander of older generation, Warta R valley near Czmoniec, ca 10km N of Srem, Great Poland Lowland (52° 11' N, 17° 00' E). Coll July 1978 by Stefan Kozarski and Kazimierz Tobolski and subm by Stefan Kozarski. Dated for studies in IGCP 158A Project.

Gd-585. Czmoniec Cz/I/78 4130 ± 70

Sand with laminae of detritus gyttja and allochthonous wood, boundary between sands and underlying gyttja, 219 to 225cm below surface of peaty paleomeander.

Gd-584. Czmoniec Cz/I/78 4130 ± 80

Detritus gyttja with admixture of sand from bottom of organic sediments, 250 to 256cm below surface of peaty paleomeander.

Gd-589. Czmoniec Cz/II/78 1960 ± 70

Brown-gray organic mud from bottom part of organic sediments, depth 415 to 420cm.

Gd-588. Czmoniec Cz/II/78 2380 ± 70

Gray detritus gyttja with rich admixture of sand, bottom part of organic sediments, depth 445 to 450cm.

Jaszkowo series

Carex peat with charcoal layers from upper peat layer in peaty paleomeander, flood plain of Warta R valley near Jaszkowo (52° 10' N, 16° 57' E) ca 9km N of Srem, Great Poland Lowland. Coll 1977 by Kazimierz Tobolski; subm 1978 by Stefan Kozarski. Dated for studies in IGCP 158A Project of stratigraphy of floodplain deposits and changes of Warta R channel during Late Würn and Holocene (Kozarski and Rotnicki, 1977).

Gd-1079. Jaszkowo Ja/77A 6210 ± 80

Depth 75 to 80cm.

Gd-1081. Jaszkowo Ja/77A 7790 ± 80

Depth 115 to 120cm.

Gd-1082. Jaszkowo Ja/77A 8500 ± 100

Depth 185 to 190cm. *Comment* (MFP): for other dates from this locality, see Kozarski and Rotnicki (1977) and R, 1978, v 20, p 409; R, 1979, v 21, p 166-167.

Bóbr River series

Wood, fragments of largest tree trunks, found during exploitation of sands and gravels in gravel pits in Bóbr R valley. Subm 1978 by

Teofil Dzioba and Ireneusz Wróbel, Polish Fellows Soc Earth Sci, Zielona Góra. For more general outline, see Dzioba (1978).

Gd-513. Nowogród Bobrzański 1/77 1230 ± 60

Oak wood from trunk, 10.5m long and 1.2m diam, lying horizontally at depth 7m in accumulation terrace of Bóbr R near Nowogród Bobrzański (51° 49' 18" N, 15° 13' 54" E). Coll Nov 1977 by Henryk Łysik.

Gd-514. Olszna 2/77A 1750 ± 70

Oak wood from trunk found in accumulation terrace of Bóbr R near Olszna (51° 25' 24" N, 15° 36' 30" E). Coll Oct 1977 by Henryk Łysik.

Gd-515. Olszna 2/77B 1700 ± 80

Duplicate run on second part of same sample.

Gd-517. Gryzyce 4/77 3670 ± 80

Oak wood from tree trunk, 12.5m long and 0.9m diam, found in series of sandy gravels, accumulation terrace of Bóbr R near Gryzyce (51° 38' 24" N, 15° 17' 24" E). Coll Oct 1977 by Henryk Łysik.

Gd-516. Dobruszów 3/77 4120 ± 130

Oak wood from trunk, 14.5m long and 0.8m diam, found at depth 7m in sandy gravel sediments of accumulation terrace of Bóbr R near Dobruszów (51° 46' 28" N, 15° 15' 18" E). Coll Nov 1977 by Henryk Łysik.

Gd-1040. Dobruszów 5/78 950 ± 50

Pine wood from trunk, ca 12m long and 0.6m diam, found at depth ca 3m in sandy gravels, accumulation terrace of Bóbr R near Dobruszów (51° 46' 29" N, 15° 15' 18" E). Coll April 1978 by Teofil Dzioba.

Gd-606. Jędrzychowice n/Zgorzelec 6380 ± 90

Oak wood from tree trunk, 0.6m diam, found at depth ca 3m in sandy gravel sediments of Nysa Łużycka R near Jędrzychowice (51° 10' 51" N, 15° 1' 38" E). Coll March 1978 by Jerzy Baczyński.

Kujawy and Mazowiecka Plain

Toruń-Nieszawka series

Peat, small fossil layer in substratum of flood plain of Wisła R valley, Toruń-Bydgoszcz basin, left bank of Wisła R between Toruń and Mała Nieszawka, inside flood rampart (53° 00' 00" N, 18° 35' 30" E). Peat layer overlies fine sands and underlies packing of sandy-gravelly sediments, 40cm thick, with cobbles and alluvial series of fine sands and silts, 3.6m thick. For general inf on geomorphology of area, see Tomczak (1965) and Niewiarowski and Tomczak (1969). Coll Nov 1978 by Anna Tomczak and Bożena Noryśkiewicz; subm 1979 by Anna Tomczak, Inst Geog, Mikołaj Kopernik Univ, Toruń.

Gd-1065. Toruń-Nieszawka 5A >43,000

From top of peat layer, depth 4m.

Gd-633. Toruń-Nieszawka 5B**>39,000**

From bottom of peat layer, depth 5.1m.

Toruń-Pedzewo series

Peat from organic layer in substratum of flood plain of Wisła R valley, Toruń-Bydgoszcz Basin, ca 15km W of Toruń, right bank of Wisła R near Pedzewo (53° 05' 00" N, 18° 21' 30" E). Peat layer overlies sandy mud and underlies fine- and medium-grained sands with laminae of sandy mud. Coll Nov 1978 by Bożena Noryśkiewicz and Anna Tomczak and subm 1979 by Anna Tomczak.

Gd-627. Toruń-Pedzewo A**1930 ± 70**

From top of peat layer, depth 0.5m. *Comment* (AT): contamination by contemporary rootlets possible; date fits limits of expected age fairly well.

Gd-630. Toruń-Pedzewo B**5350 ± 80**

From bottom of peat layer, depth 1.7m. *Comment* (AT): pollen analysis of bottom part of peat layer made by Bożena Noryśkiewicz indicates Atlantic or younger age.

Zgłowiączka R series

Samples from valley of Zgłowiączka R, Kujawy region, dated to establish chronology of river channel formation during Late Glacial and Holocene in relation to development of Wisła R valley. Coll 1979 and subm by Leon Andrzejewski, Inst Geog and Spatial Org, Polish Acad Sci, Toruń.

Gd-1149. Wieniec WI**9530 ± 100**

Peat from bottom part of floodplain sediments, 2.5 to 3.5m thick, composed of peats with inserted layers of muds or fine silty sands. Coll from depth 2.8 to 2.95m, ca 10km W of Włocławek, 1km W of Wieniec village (52° 39' N, 18° 54' E).

Gd-1153. Wieniec WII**9750 ± 100**

Peat from bottom part of fossil meander, depth 1.85 to 2m, ca 2km E of Wieniec village (52° 40' N, 18° 58' E).

Gd-1156. Wieniec WIII**10,160 ± 180**

Dusty gyttja with fragments of partly decomposed plants from bottom part of old meander, depth 2.3 to 2.45m, ca 2.5km E of Wieniec village (52° 40' N, 18° 58' E).

Gd-1155. Kazanie KI**9250 ± 140**

Sandy detritus with organic matter from bottom part of glacial trough, depth 7.5 to 7.7m, 600m S of Kazanie village (52° 33' 30" N, 18° 54' E).

Gd-1147. Kazanie KII**6620 ± 70**

Peat from same profile, depth 5.4 to 5.5m.

Raciazek series

Dispersed fragments of charcoal and amorphous humus coal in loess layer below fossil soil in Raciazek, Kujawy region (52° 51' 30" N, 18° 49' 30" E). Coll March 1979 and subm by MD Baraniecka, Geol Inst, Warsaw.

Gd-672. Raciazek **7300 ± 210**

From depth 2.5 to 2.6m. *Comment*: undersized, diluted.

Gd-792. Raciazek **11,130 ± 230**

From depth 3 to 3.1m. *Comment* (MDB): loess layer corresponds to Poznanian stage of Vistulian Glaciation, according to Łyczewska (1973).

Gd-1073. Skorupy **>44,000**

Sandy peat from peat layer covered with fluvial and eolian sands of parabolic dune ca 1km SW of Skorupy village near Celestynów (52° 03' N, 21° 25' E), profile Skorupy 2, depth 6.89 to 6.91m. Coll and subm 1979 by M D Baraniecka.

General Comment (MDB): pollen analysis by Zofia Janczyk-Kopikowa (written commun, 1978) indicates cold period from end of Brorup interstadial or younger. Fluvial sediments overlying peat layer are of Late Vistulian age. Other radiocarbon dates for this profile measured in Archaeol and Etnogr Mus, Łódź: Lod-25, depth 6.9 to 7m, >28,000; Lod-26, depth 7 to 7.15m, >28,000 (Kanwiszer, written commun, 1978; Konecka-Betley and Baraniecka, 1978).

Piaski series

Peat and peaty detritus from Profile 1 in Piaski (51° 14' N, 19° 23' E) near Bełchatów, former flood plain of Widawka R. Quaternary sediments in area of Bełchatów brown-coal open-cast mine were studied by Jurkiewiczowa (1961), Janczyk-Kopikowa (1971), Baraniecka (1971), Baraniecka and Sarnacka (1971) and Rzechowski (1971). Lacustrine deposits in central part of presently studied sec of exposure are described by Baraniecka (1978) and Baraniecka and Pazdur (1979). Coll Oct 1977 and subm 1978 and 1979 by M D Baraniecka.

Gd-1072. Piaski, prof 1/061077, s1 **43,700** **+ 3700**
Peat from depth ca 16m. **- 2400**

Gd-777. Piaski, prof 1/061077, s2 **21,970 ± 810**
Peaty detritus, depth ca 12.2m.

Lesznówola 2 series

Organic deposits from profile Lesznówola 2, Core 9, near Lesznówola village (51° 54' 45" N, 20° 54' 20" E) Polish Lowland, 6km NE of Grójec, flood plain of Jeziorka R. Core taken in 1976; samples for dating coll and subm 1977 and 1978 by M D Baraniecka.

		+ 2600
Gd-527. Lesznowola 2/I	30,300	
Fossil soil, depth 7.15 to 7.3m.		– 1900
		+ 3200
Gd-551. Lesznowola 2/III	38,200	
Brown organic detritus, depth 7.9 to 8m.		– 2300
Gd-552. Lesznowola 2/IV	22,800 ± 470	
Sandy mud with organic layer, depth 8.8 to 9.0m.		+ 2300
Gd-518. Lesznowola 2/II, sol	27,400	
Peat, depth 10.3 to 10.4m, alkali-soluble fraction.		– 1800
		+ 3200
Gd-519. Lesznowola 2/II, res	29,500	
Same sample as Gd-518, insoluble organic residue.		– 2300

Zoliborz series

Organic sediments consisting of fossil soil covered by peat and overlain by fine- and medium-grained sands and artificial embankment, near fossil lake, Zoliborz, Warsaw (52° 16' N, 20° 56' E). Coll 1976 and subm 1977 by M D Baraniecka.

Gd-526. Zoliborz Ia	460 ± 60
Peat, depth 2.2 to 2.28m.	
Gd-524. Zoliborz II, sol	1560 ± 60
Fossil soil from depth 2.28 to 2.38, alkali-soluble fraction.	
Gd-525. Zoliborz II, res	1560 ± 60
Same sample, insoluble residue dated.	

S Poland**Gd-1041. Debno** **1880 ± 50**

Wood, mostly twigs (*Alnus incana* (?)) id. by Andrzej Obidowicz, from bottom of old channel of Dunajec R in series of silty, sandy deposits at depth 1.15m, near present mouth of Białka R, alt ca 530m asl, S of Dębno village (49° 28' N, 20° 13' E), Podhale. Coll Aug 1975 by Maria Baumgart-Kotarba and Ewa Niedziałkowska, Inst Geog, Dept Geomorphol and Hydrol Mts and Uplands, Polish Acad Sci, Kraków; subm 1978 by MBK. *Comment* (MBK): younger than expected.

Gd-659. Brzeczowice 10 **1060 ± 70**

Wood, fragments of trunks of alder and maple at depth ca 5.2m, overlain by organic slime, sandy dust, dusty till, and artificial embankment, near Brzeczowice, Jasiołka R valley (49° 44' N, 21° 33' E). Coll and subm 1978 by Antoni Wójcik, Geol Inst, Carpathian Branch, Cracow. *Comment* (AW): much younger than expected.

Gd-605. Kraków-Dąbie**2900 ± 70**

Fragment of oak trunk (probably *Quercus robur*) 0.9m diam, exposed at courtyard of Inst Bot, Polish Acad Sci, Cracow. Sample found in 1913 in Wisła R at Dąbie near mouth of Prądnik R (Srodoń, 1980). Subm 1978 by Andrzej Srodoń, Inst Bot, Polish Acad Sci, Cracow.

Gd-610. Zemborzyce 1974:150**10,040 ± 120**

Valley peat from lower part of Holocene peat cover, depth 3.92 to 3.94m, flood plain of Bystrzyca R valley, Lublin, Zemborzyce (51° 11' 12" N, 22° 32' 34" E). Coll March 1974 and subm 1978 by Henryk Maruszczak, Inst Earth Sci, Maria Curie Skłodowska Univ, Lublin. *Comment* (HM): pollen analysis by Krystyna Bałaga indicates boundary between Pleistocene and Holocene.

Jarosław (1972:4C:d4:10.33-10.40) series

Organic loam and peat in form of irregular lenses in fossil bog soil horizon, outcrop in Jarosław, depth 10.33 to 10.4m, (50° 01' 13" N, 22° 38' 50" E). Transitional zone between upper terrace of San R and slope of Carpathian Foreland, younger loess deposits with interstadial soil (Maruszczak, 1976; 1980). Coll Oct 1972 and subm 1978 by Henryk Maruszczak.

Gd-607. Jarosław: acid-sol**27,300 ± 790**

Acid-soluble fraction. *Comment*: undersized, diluted.

Gd-1052. Jarosław: alkali-sol**21,700 ± 250**

Alkali-soluble fraction, acid-precipitated part of NaOH-soluble fraction of same sample.

Gd-615. Jarosław: res**24,000 ± 630**

Organic residue, insoluble during acid and alkali treatment.

General Comment (HM): pollen analysis by Zofia Janczyk-Kopikowa (written commun, 1974) indicates cold climate Boreal flora with *Selaginella* spores. For detailed geol profile, cf Maruszczak (1976, p 146, fig 2). Bone remains from same level subm for dating by fluorine-apatite-collagen method to Wysoczański-Minkowicz.

B. USSR**Mongolia series**

Charcoal from fire layers in deposits of small fossil lake, Mongolia, N Gobi Desert, E slope of Chojra rift valley (45° N, 108° E). Site is on parapediment developed on granite massive, Iche Narate, ca 1160m asl, covered with two series of mud-flow deposits separated by fossil-lake deposits with four fire layers. Coll July 1977 by R K Borówka and Karol Rotnicki; subm 1978 by Karol Rotnicki, Inst Geog, Adam Mickiewicz Univ, Poznań.

Gd-556. Mongolia 176/77**>44,200**

From upper fire layer, depth ca 1.5m.

Gd-557. Mongolia 174/77**>39,900**

From lowest fire layer, depth ca 2.4m.

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