
Ancient TL

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Ancient TL SUPPLEMENT

Date List

November 1990 Issue 4

1. This list includes dates for fired materials of archaeological interest, submitted to *Ancient TL* during 1989 for which sufficient information has been supplied. Readers are referred to earlier issues of the Date List for a fuller description of the structure of entries.
2. Application forms are available from the Editor, who will be pleased to advise on data compilation; laboratories wishing to submit dates for which the current date entry specification is not suitable should write to him. The application forms may be supplied on either paper or magnetic media.

Laboratory: [name]	Date Entry Specification	Entry: [entry number]
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PART I

Site: [Name] Location: [Region, country] Grid Ref.: [National map reference]

Site Description: [Brief description of period and nature of site]

Dates/Ages:

Lab. Ref. Material Archaeological Ref.

[Type]	[Type]	[Lab. abbrev.]				
TL	Context		800 AD ± 50 (Dur87TLfg)	100-1/6	pottery	ABC-1a
Single	Age					
			[Overall error]	[Test year]	[Technique]	[Context reference]
				[Sample ref.]		
					[Dated material]	

— TL Context Components: [Details of component TL dates/ages used to derive Context Date/Age] —

Archaeological Evidence: [Excavator's brief description of context(s)]

Site Director: [Full name and institutional postal address]

Reports: [Details of excavation and laboratory reports]

PART II

Section A. TL Measurements

1. **min.**([mineral]) **tech.**([technique]; [grain size range, *gsr*] μm)
Data tabulated for each sample:
2. **P** = [value] $\pm$ s.e. Gy 2a. **I/P** = [value] 3. **Slopes** [2nd/1st: [value] $\pm$ s.e.]
4. [Type of plateau] **Plateau** [$\pm$ [value] %; [$T_1 - T_2$]]
- 4a. **Peak** [@ [value] $^{\circ}\text{C}$; [heating rate] $^{\circ}/\text{s}$; [pre-heat details if applicable]]
5. **Stability**[[interval, $T_1 - T_2$]; [period] ; [storage T $^{\circ}\text{C}$] ; [result ; [value] $\pm$ [value] %]]
6. *a* value = [value] , or *b* value = [value]

Section B. Dose-rate Measurements

Data tabulated for each sample:

1. **Total Effective Dose-rate** = [value] $\pm$ s.e. mGy/a [α = [value] % [method] ;
 β = [value] % [method] ; γ = [value] % [method] ; $\cos(\text{mic})$ = [value] % [method]]
2. **Radon** [$\pm$ [value] % [method]]
3. **Water** [Sample ([value] $\pm$ s.e. %); (Burial) Environment ([value] $\pm$ s.e. %)]

Section C. Error [[Procedure : eA76 or specify other]]

Section D. TL Age

Data tabulated for each sample:

TL Age [$\pm$ [random error] ; $\pm$ [overall accuracy]]

Special Remarks: [Details of entries with * or any other additional information]

KEY TO ABBREVIATIONS

STANDARD METHODS/TECHNIQUES/PROCEDURES

i	Inclusion	pd	Pre-dose	a Plat	Age plateau
fg	Fine-grain	MA	Multiple activation	d Plat	Dose plateau
mmi	Multi-mineral	ADD	Additive dose proc.	s Plat	TL Signal plateau
		Sb	Sensitivity baseline		
α -c	Alpha counting	FPh	Flame Photometry	TLD	TL dosimetry
AAS	Atomic absorption	NAA	Neutron Activation Analysis	XRF	X-ray fluorescence
β -c	Beta counting	PXE	PIXIE		
CAP	Capsule	SPEC	Spectrometer (SPEC = portable)		
Non-standard		AutoR	Auto regeneration	PTTL	Photo-transferred TL

MINERALS & ETC.

cal	Calcite	Nf	Sodium feldspar	*	Other
ft	Flint	p	Polyminal	-	Not applicable
f	Feldspar	q	Quartz	e	Equivalent to
Af	Unsep. alkali feldspar	z	Zircon		(used as prefix)
Kf	Potassium feldspar	por	Porcelain	a	Year
Terms: I, P, a, b, A, S _N , S _O , TAC: as defined in the literature.					

Laboratory: Oxford Entry: 40

Site: Manup Cave
Location: Zaire.
Grid Ref.: -
Site Description: The cave is located in the Mt. Hoy limestone massif, in Iuri.

Dates	Lab. Ref.	Mat'l	Archaeological Reference
TL Single Ages: 24.7 ± 3.7 ka (Ox87TL1)	2003	hearth stone	ID115
23.0 ± 3.5 ka	2006	-	U120
28.0 ± 3.0 ka	2007	-	IA130-135
33.4 ± 4.4 ka	20017	-	EL140
29.4 ± 3.0 ka	2008	-	IA155
70.0 ± 8.5 ka	2009	-	IA195
68.8 ± 8.8 ka	20010	-	IB270
80.0 ± 9.5 ka	20012	-	IB380-400

Archaeological Evidence: The samples are from Late Stone Age levels, in decalcified loams, with Microlithic industry. The levels were overlain by Iron Age artefacts.

Site Director: Prof. F. Van Noten, Director of Museum of Art and History, Jubelpark 10, B 1040 Brussels, Belgium.

Reports: Van Noten, F. (1977) Excavations at Manup Cave, Antiquity, LI, 35-40.
Van Noten, F. (1984) Faunal remains from Manup Cave, an Iron Age and Late Stone Age site in N.W. Zaire, *Académie Africain. Musée des Sciences*, 46(2), 59-76.

PART II
TECHNICAL SPECIFICATION

Section A. TL Measurements						
I. Min(t) tech.(t : 90 - 150 µm)						
Sample Ref.	P ± s.e. (Gy)	I/P	Slips	z Plateau	Peak	Stability
2003	43.1 ± 2.6	0	0.98 ± 0.05	± 6%; 325-400*	350°; 5%/;	-
2006	68.5 ± 3.0	0	1.08 ± 0.05	± 3%; 350-450*	400°; 5%/;	-
2007	71.5 ± 3.5	0	1.30 ± 0.05	± 5%; 350-425*	400°; 5%/;	-
2008	50.6 ± 2.6	0	1.05 ± 0.05	± 5%; 350-460*	350°; 5%/;	-
2009	123.5 ± 6.5	0	1.20 ± 0.05	± 5%; 300-350*	325°; 5%/;	-
20010	148.7 ± 7.7	0	0.98 ± 0.05	± 5%; 300-425*	325°; 5%/;	-
20012	38.5 ± 2.5	0	1.18 ± 0.05	± 6%; 325-400*	350°; 5%/;	-

Section B. Dose-rate Measurements									
Sample Ref.	Total Eff. Dose-rate		Dose-rate Components			Radon		Water	
	mGy/a	%	α	β	γ	cos.	%	Sample	Env.
2003	1.56 ± 0.23	-	13	82	5	-	0 ± 5	0 ± 2	20 ± 5
2006	1.88 ± 0.28	-	28	68	4	-	-	-	-
2007	2.45 ± 0.36	-	45	52	3	-	-	-	-
2008	2.14 ± 0.32	-	23	69	8	-	-	-	-
2009	1.57 ± 0.24	-	25	72	3	-	-	-	-
20010	1.78 ± 0.27	-	33	65	2	-	-	-	-
20012	1.86 ± 0.28	-	34	64	2	-	-	-	-
Method			α-c	β-c	γ-c	SPEC	SPC	α-c	SPEC

Section C. Error (αA76)

Section D. TL Age			
Sample Ref.	TL Age ka	Random ka	Overall ka
2003	24.7	-	3.7
2006	23.0	-	3.5
2007	28.0	-	3.0
20017	33.4	-	4.4
2008	29.4	-	3.0
2009	70.0	-	8.3
20010	68.8	-	8.8
20012	80.0	-	9.5

Laboratory: Oxford Entry: 41

Site: Meer IV
Location: Near the Belgium-Dutch border, north of Antwerp.
Grid Ref.: -
Site Description: The site is located in the cover sands of the N. Campine. The industry belongs to the Late Upper Palaeolithic of N.W. Europe. It is characterized by a variety of projectile points, the most typical a blade with a curved back edge called the 'Tjonger point'. The Tjonger site occupies the south east slope of the ridge and consists of an extended flint concentration some associated with fireplaces.

Dates	Lab. Ref.	Mat'l	Archaeological Reference
TL Context Age: 11.8 ± 1.2 ka (Ox87TL1g)	255A	burnt flint	Tjonger site
Context Age Comp: 11.5 ± 1.2	255AII	-	Square I, E2, 44
12.4 ± 1.6	255AII	-	Square II, D4, 111

Archaeological Evidence: The site belongs to the Epipalaeolithic complex of North-West Europe.

Site Director: Dr. F. Van Noten, Royal Museums for Art and History, Jubelpark 10, B 1040 Brussels, Belgium.

Reports: Nijls, K. A Tjonger and a Mesolithic site at Meer, Belgium, in The "Big Puzzle" (Acta M., Czeisla, Z. and Winter, D., Eds.), Proc. of the 1st. Int. Symp. on the subject of refuting stone artefacts BAR Int. Series. Monographs, 1988. (in press).

PART II
TECHNICAL SPECIFICATION

Section A. TL Measurements						
I. Min(t) tech.(t : 1 - 8 µm)						
Sample Ref.	P ± s.e. (Gy)	I/P	Slips	z Plateau	Peak	Stability
255AII	7.82 ± 0.4	0	-	± 2%; 275-350*	350°; 5%/;	350°; 0.3%; 18°; 10043%; 0.14
255AII	7.95 ± 0.4	0	-	± 2%; 325-375*	350°; 5%/;	350°; 0.3%; 18°; 10043%; 0.10

Section B. Dose-rate Measurements									
Sample Ref.	Total Eff. Dose-rate		Dose-rate Components			Radon		Water	
	mGy/a	%	α	β	γ	cos.	%	Sample	Env.
255AII	0.68 ± 0.08	2.5	20	35	20	0	0 ± 2	10 ± 2	-
255AII	0.64 ± 0.06	1.5	15	48	22	0	0 ± 2	10 ± 2	-
Method			α-c	β-c	γ-c	SPEC	SPC	α-c	SPEC

Section C. Error (αA76)

Section D. TL Age			
Sample Ref.	TL Age ka	Random ka	Overall ka
255AII	11.5	-	1.2
255AII	12.4	-	1.6

Site: Daylight Rock
 Location: Caldey Island, Wales, UK.
 Grid Ref.: SS 1497 9662
 Site Description: An 'open site' located on the present cliff top on the eastward extremity of Caldey Island, Dyfed.

Dates	Lab. Ref.	Mat'l	Archaeological Reference
TL Single Ages: 7.7 ± 1.2 ka (Ox89TLg)	2631f	burnt flint	D3 level 39
6.7 ± 1.0 ka	2631f	-	P7 level 82
7.9 ± 1.2 ka	2631f	-	H1 level 37

Archaeological Evidence: The TL dates are significantly later than the A.M.S. dates (see below) from charred hazel nut shell from sealed contexts on the site. None of the samples was typologically diagnostic, and cannot be considered to have been in situ since their deposition.
 Oxidation (Accelerator Mass Spectrometer, Oxford University):
 Ox-A2245: 9040 ± 90, Ox-A2246: 9030 ± 80 and Ox-A2247: 8850 ± 80 B.P.

Site Director: Andrew David, 7 Clifton Road, Isleworth, Middlesex, UK.

Reports: Lacaille, A. D. and Grimes, W. F. (1955) The Prehistory of Caldey, *Arch. Camb.*, 104, 85-165.
 David, A. (1989) Some Aspects of the Human presence in W. Wales during the Mesolithic. In *The Mesolithic in Europe* (C. Bonsall Ed., Proc. 3rd. Int. Symp. of Mesolithic in Europe, 1985), Edinburgh.

PART II TECHNICAL SPECIFICATION

Section A. TL Measurements									
1. Min(f) tech.(g: 1 - 8 µm)									
Sample Ref.	P ± s.e. (Gy)	1/P	Sips	z Plateau	Peak	Stability	σ val		
2631f	6.38 ± 0.38	0	-	± 3%; 350-425*	375*, 5%/-	350 - 425*, 0.5 ± 18*, 100 ± 3%	0.10		
2632f	5.85 ± 0.35	0	-	± 3%; 300-400*	375*, 5%/-	300 - 400*, -	0.08		
2633f	7.80 ± 0.40	0	-	± 3%; 300-375*	350*, 5%/-	300 - 375*, -	0.10		

Section B. Dose-rate Measurements									
Total Eff. Dose-rate Components									
Sample Ref.	Total Eff. Dose-rate	α	β	γ	cos.	Radon	Water Sample	Env.	
	mGy/a	%	%	%	%	%	%	%	
2631f	0.83 ± 0.08	8	11	64	17	0 ± 5	0 ± 2	15 ± 5	
2632f	0.83 ± 0.08	14	16	53	17	-	-	-	
2633f	0.98 ± 0.10	17	15	54	14	-	-	-	
Method	α-c	β-c	SPBC	SPBC	SPBC	α-c	β-c	SPBC	
	FFB	FFB	CAP	CAP	CAP				

Section C. Error (σA76)

Section D. TL Age			
Sample Ref.	TL Age ka	Errors Random ka	Overall ka
2631f	7.7	-	1.2
2632f	6.7	-	1.0
2633f	7.9	-	1.2

Site: Yabroud/Shelter I.
 Location: Approximately 80 km. north of Damascus, Syria.
 Grid Ref.: 33° 38' N, 36° 9' E
 Site Description: A major Middle/Early Palaeolithic shelter, discovered by A. Rust in 1930. Flints found in 1930-31 were associated with a broad burned area marked as a hearth zone in Shelter I, K1a's K2 area at ca. - 4.60m depth.

Dates	Lab. Ref.	Mat'l	Archaeological Reference
TL Context Age: 195 ± 15 ka (Ox90TLg)	264c1	burnt flint	Yabroud - 4.6m
Context Age Comps:	264c1	-	1134
210 ± 20	264c2	-	-
192 ± 20	264c3	-	-
205 ± 18	264c7	-	1133
190 ± 18	264c11	-	-
190 ± 16	264d2	-	1139

Archaeological Evidence: Associated cultural material (handaxes) relate to Rust's Kulturschicht, his Jungschalen, now Acheulo-Yabrudian. The average date of 195 ka for this culture horizon is consistent with the TL dates from El Kowm, Hummal 1b (160 ka, J. Huxtable, Oxford.)

Site Director: Wim Farand, Dept. Geol. Sciences, Univ. Michigan, Ann Arbor, Mich.
 Ralph Solecki, Dept. Anthrop. Columbia Univ., New York, 1988 season.

Reports: Bordes, F. (1935) Le paléolithique inférieur et moyen de Jabrud (Syrie). *L'Anthropologie*, 39, 486-507.
 Farand, W. (1970) Geology, climate and chronology of Yabroud Rockshelter I. In *Fundamenta Archaeologicae*, H. E. 212-223.
 Farand, W. (1969) Climate and paleoenvironment of Levantine prehistoric sites as seen from sediment studies. *J. Arch. Sci.*, 6, 369-392.
 Henzlin, J. de (1966) Revision du site de Yabroud. *Annales Arch. Arabes Syriennes*, XVI, 157-163.
 Hennig, G. and Hours, F. (1982) Dates pour le passage entre l'Acheuléen et le Paléolithique moyen à El Kowm (Syrie). *Paléorient*, 8(1), 81-83.
 Huxtable, J. (1988) TL dates on burnt flints from El Kowm. *Ancient TL Data List Entry #22*.
 Rust, A. (1930) Die Höhlenfund von Jabrud. *Syrien. Neumünster*.
 Solecki, R. S. (1970) Excavations at the site of the Columbia Univ. arch. invest. at Yabroud. In (Schwabe-Belissen, H., Ed.) *Fundamenta Archaeologicae*, 199-201.
 Solecki, R. S. and Solecki, R. L. (1966) New data from Yabroud. Preliminary report. *Annales Arch. Arabes Syriennes*, XVI, 121-154.
 Solecki, R. S. and Solecki, R. L. (1986) A reappraisal of Rust's cultural stratigraphy of Yabroud Shelter I. *Paléorient*, 12(1), 53-59.

PART II TECHNICAL SPECIFICATION

Section A. TL Measurements									
1. Min(f) tech.(g: 1 - 8 µm)									
Sample Ref.	P ± s.e. (Gy)	1/P	Sips	z Plateau	Peak	Stability	σ val		
264c1	215 ± 15	0	-	± 5%; 350-425*	375*, 5%/-	350 - 425*, 0.5 ± 18*, 100 ± 3%	0.10		
264c2	210 ± 15	0	-	± 5%; 325-375*	350*, 5%/-	325 - 375*, -	0.15		
264c3	300 ± 15	0	-	± 3%; 325-375*	350*, 5%/-	325 - 375*, -	0.13		
264c7	210 ± 15	0	-	± 5%; 350-425*	375*, 5%/-	350 - 425*, -	0.13		
264c11	210 ± 15	0	-	± 5%; 350-425*	375*, 5%/-	350 - 425*, -	0.20		
264d2	364 ± 24	0	-	± 5%; 350-425*	375*, 5%/-	350 - 425*, -	0.20		

Section B. Dose-rate Measurements									
Total Eff. Dose-rate Components									
Sample Ref.	Total Eff. Dose-rate	α	β	γ	cos.	Radon	Water Sample	Kav.	
	mGy/a	%	%	%	%	%	%	%	
264c1	1.02 ± 0.20	25	25	38	12	0 ± 5	0 ± 2	9 ± 9	
264c2	1.16 ± 0.23	35	23	33	10	-	-	-	
264c3	1.11 ± 0.31	44	24	26	7	-	-	-	
264c7	1.49 ± 0.30	44	22	26	8	-	-	-	
264c11	1.65 ± 0.33	45	23	23	7	-	-	-	
264d2	1.92 ± 0.39	60	20	14	6	-	-	-	
Method	α-c	β-c	SPBC	SPBC	SPBC	α-c	β-c	SPBC	
	FFB	FFB							

Section C. Error (σA76)

Section D. TL Age			
Sample Ref.	TL Age ka	Errors Random ka	Overall ka
264c1	210	-	20
264c2	210	-	20
264c3	192	-	20
264c7	205	-	18
264c11	190	-	18
264d2	190	-	16

Laboratory: Oxford Entry: 44

Site: Port-Racine
Location: Cotenin Peninsula, France
Grid Ref.: x: 294.850 y: 232.337 Lambertian co-ordinates.

Site Description: A sea shore site at Saint-Germain des Vaux called Port-Racine. The occupation is at the foot of the cliffs and is attributable to the last interglacial. The occupation layer is Sector 4 of the section by B. Van Vliet-Lancee (1987). The stratigraphy is a little expanded and shows a layer of beach pebbles infiltrated by a glycolitic loam (D2c), with lithic industry and associated hearths.

Dates	Lab. Ref.	Mat'l	Archaeological Reference
TL Context Age: 106 ± 10 ka	(Ox90TLg)	265f burnt flint	Sector 4 of B. Van Vliet-Lancee.
Context Age Comp. 109 ± 12	265f1		
103 ± 12	265f2		

Archaeological Evidence: The glycolitic loam (D2c) can be attributed to stage 5c of the Oxygen-isotope record by micromorphological studies.

Site Director: Mr. D. Cluquet, Conservateur au Musée d'Evreux, 6, Rue C. Corbeau, 2700 Evreux, France.

Reports: Fosse G., Cluquet, D. and Vilgoin, G. (1986) La Moustérien du Nord Cotenin. Actes du colloque int., Lille 4 - 6 Sept. 1984. 22nd C.P.F. suppl. au Bull. Assoc. pour l'Etude du Quat., 26, 141-155.

PART II TECHNICAL SPECIFICATION

Section A. TL Measurements									
I. Min(t) tech. (fig. 1 - 8 µm)									
Sample Ref.	P ± s.e. (Gy)	I/P	Slips	s Plateau	Peak	Stability	a val		
265f1	109 ± 10	0	-	± 5%; 350-400*	375% ± 5%;	350 - 400%; 0.25 ± 18°; 100 ± 3%	0.1		
265f2	133 ± 10	0	-	± 5%; 325-400*	375% ± 5%;	325 - 400%; 0.25 ± 18°; 100 ± 3%	0.1		

Section B. Dose-rate Measurements									
Sample Ref.	Total Eff. Dose-rate	Dose-rate Components			Radon		Water		a val
		α	β	γ cos.	%	%	Sample	Env.	
265f1	1.25 ± 0.36	22	18	53	7	0 ± 5	0 ± 2	20 ± 5	
265f2	1.29 ± 0.19	9	11	71	9	±	-	-	
Method		α-c	α-c	α-c	SPEC	SPEC	α-c	SPEC	

Section C. Error [eA76]

Section D. TL Age			
Sample Ref.	TL Age ka	Random ka	Overall ka
265f1	109	-	12
265f2	103	-	12

Laboratory: Oxford Entry: 45

Site: Trollesgave
Location: Zealand, Denmark
Grid Ref.: 55°17' N 11°48' E.

Site Description: Small habitation site belonging to the Late Palaeolithic Bromme culture.

Dates	Lab. Ref.	Mat'l	Archaeological Reference
TL Single Ages: 11.7 ± 1.4 ka	(Ox90TLg)	601/31 burnt flint	99/103 : 31
11.1 ± 1.2 ka	(Ox90TLg)	601/32	99/103 : 32
12.0 ± 1.4 ka	(Ox90TLg)	601/45	99/103 : 145

Archaeological Evidence: The TL dates were obtained from 3 flakes found in the central hearth of the habitation area. They belong to one and the same reduction sequence and are thus contemporary within a margin of a few minutes. Considering the error margin, the average TL date fits the already available C-14 dates of the refuse layer near the bottom of the adjacent lake deposits, which fix the age at approximately 11,100 b.p. plus a calibration factor of 500 to 1000 years.

Site Director: Anders Fischer, The Forest and Nature Agency, Slusmarken 13, DK- 2970 Horsholm, Denmark.

Reports:

Fischer, A. and Mortensen, B.N. (1977) Trollesgave-bopladsen et ellisempel på anvendelse af EDB inden for arkæologien. *Nationalmuseets Arbejdsmark*, 90 - 95, Copenhagen.

Fischer, A. and Mortensen, B. N. (1978) Report on the use of computers for the description and analysis of Palaeolithic and Mesolithic rock paintings and in *New Directions in Scandinavian Archaeology* (Kristiansen and Palludan-Müller Eds), 7-22, Copenhagen.

Fischer, A. An 11000 yr old school of flint knapping. Results from refitting the Late Palaeolithic site Trollesgave, Zealand, Denmark. *Acta Archaeologica*, Copenhagen, in press.

PART II TECHNICAL SPECIFICATION

Section A. TL Measurements									
I. Min(t) tech. (fig. 1 - 8 µm)									
Sample Ref.	P ± s.e. (Gy)	I/P	Slips	s Plateau	Peak	Stability	a val		
601/31	10.45 ± 0.50	0	-	± 2%; 325-400*	375% ± 5%;	325 - 400%; 0.25 ± 18°; 100 ± 3%	0.10		
601/32	9.45 ± 0.50	0	-	± 2%; 325-425*	375% ± 5%;	325 - 425%; 0.25 ± 18°; 100 ± 3%	0.08		
601/45	10.45 ± 0.50	0	-	± 5%; 325-425*	375% ± 5%;	325 - 425%; -	0.08		

Section B. Dose-rate Measurements									
Sample Ref.	Total Eff. Dose-rate	Dose-rate Components			Radon		Water		a val
		α	β	γ cos.	%	%	Sample	Env.	
601/31	0.89 ± 0.13	7	18	60	15	0 ± 5	0 ± 2	28 ± 7	
601/32	0.89 ± 0.13	6	18	60	15	±	-	-	
601/45	0.87 ± 0.13	8	15	62	15	-	-	-	
Method		α-c	α-c	α-c	SPEC	SPEC	α-c	SPEC	

Section C. Error [eA76]

Section D. TL Age			
Sample Ref.	TL Age ka	Random ka	Overall ka
601/31	11.7	-	1.4
601/32	11.1	-	1.2
601/45	12.0	-	1.4