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LITHO- AND BIOSTRATIGRAPHICAL STUDY OF QUATERNARY DEEP
MARINE DEPOSITS IN THE WESTERN BELGIAN COASTAL PLAIN.

RADIOCARBON DATING

by M. VAN STRIJDONCK (★)

The weight of the peaty-clay sample 193 DB 5/M53 from Adinkerke-Lebbe was 1035 g. It contained a lot of small shells. Most of the organic fraction was separated from the peat by decantation and sieving of the sample deluted with water.

Since the organic particles were inbedded in a calcareous clay (shells) a severe impregnation of younger humic acids was not feared.

Nevertheless the sample was washed with a hot solution of 1 % NaOH. Since shell carbonate can have a bad influence on the date a severe washing with a hot HCl-solution was necessary to eliminate all the carbonate.

After washing with distilled water and drying, 35 g of the sample was combusted. The combustion yield only 0.27 mol CO₂, meaning that most of the combusted material was still inorganic.

The CO₂ was converted into CH₄ and counted in a proportional counter. The activity of the sample was compared with the activity of a N. B. S. modern standard which resulted in a conventional radiocarbon date of 7795 ± 130 BP (lab. n° IRPA/439).

At present there is no calibration curve available to convert conventional radiocarbon dates into calendar dates for samples older than 7240 BP. The only correction that can be made is the 3% increase of the sample age due to the conversion from the Libby Half-life (commonly used in radiocarbon dating) to the real ¹⁴C half-life. This gives us a date of 6080 ± 130 years BC.

(★) C₁₄ - laboratory : Koninklijk Instituut voor het Kunstpatrimonium (IRPA), Brussel.

TABLE.

GASTROPODA	193DB5 25,7 - 26,2 m TAN	117DB7 26,3 - 26,8 m TAN	117DB9 27,2 - 27,7 m TAN	117DB12 27,6 - 28,1 m TAN	117DB13 18,9 - 19,4 m TAN	Dutch Eeian fauna	Fauna of Angulus pygmaeus	Nordmann, 1908
Lepidochitona cinerea (Linné)				ie	ie	x	x	
Acanthochiton spec.			ie		ie	x	x	
Chiton spec.		l	ie	l				
Scisurella crispata Fleming					l		x	
Emarginula reticulata Sowerby	e-	l			e-		x	x
Diodora apertura (Montagu)		l-d	l			x	x	
Acmaea virginea (Müller)	e-	e-	ZW	VW	ZW-		x	x
Calliostoma zyzophinum Linné	ie	e	ZW-	e-,e	ZW-		x	x
Gibbula cineraria (Linné)	e-,e	e,ZW	ZW,e	v,v	ZW	x	x	x
Gibbula tumida (Montagu)	e	e,e	ZW,e		ZW		x	
Phasianella pullus picta (Da Costa)	e	ld,l	w	e	ZW		x	x
Lacuna crassior (Montagu)		w	e			x	x	
Lacuna vineta (Montagu)		e-	l			x	x	
Littorina littorea (Linné)				e	e-	x		x
Littorina saxatilis (Olivi)		l			e-	x		
Hydrobia ulvae (Pennant)	ZW	ed	ZW		w	x		x
Hydrobia ventrosa (Montagu)	e			ZW		x		
Cingula alderi (Jeffreys)			e	l	e		x	
Cingula semicostata aculeus Gould			e	l	e		x	
Cingula semistriata (Montagu)	e		ZW	l	e		x	
Alvania crassa (Kanmacher)					l		x	
Rissoa inconspicua (Alder)	e	l				x	x	x
Rissoa parva parva (Da Costa)	l				e	x	x	x
Rissoa parva interrupta (Adams)	ZW	VW	VW	w	ZW	x	x	x
Tornus subcarinatus (Montagu)			l		e	x	x	x
Skeneopsis planorbis (Fabricius)	e						x	x
Turritella solanderi (Mayer-Eymar)	e	lvs	e	l	e			
Turritella tricarinata communis Risso		l			l-	x		x
Caecum glabrum (Montagu)			e		ZW	x	x	x
Parastrophia asturiana de Folin		lt						
Bittium reticulatum (Da Costa)	l-	l		l	l	x	x	x
Cerithiopsis tubercularis (Montagu)	l	ed	ZW	l,l	e	x	x	x
Triphora perversa adversa (Montagu)			l			x	x	x
Epitonium clathratulum (Kanmacher)					e	x	x	x
Epitonium clathrus (Linné)			l		e	x	x	x
Graphis albida (Kanmacher)					e	x	x	
Polinices polianus (Della Chiaje)		ZW	e-	ZW-,ZW	e-	x		x
Velutina velutina (Müller)			l-	l-		x	x	x
Trivia spec.	l		e	e	e	x	x	x
Trophon truncatus (Ström)	e	e,e	ZW	ZW	ZW-	x	x	x
Nucella lapillus (Linné)		l	e-,e	e-,e	e-	x	x	x
Ocenebra erinacea (Linné)		l	e-	ZY,e-		x	x	x
Neptunae contraria (Linné)			lt					
Buccinum undatum Linné	l	e	e-,ZW	VV-,VV	e-	x	x	x
Chauvetia minima (Montagu)			e-,ed	l,l			x	
Nassarius incrassatus (Ström)					ld,l	x	x	x
Nassarius reticulatus (Linné)		e		e	e	x	x	x
Nassarius spec.			lt					
Mangelia nebula (Montagu)	lvs					x	x	
Oenopota turricula (Montagu)	e-			e,e	e	x	x	x
Chrysallida indistincta (Montagu)					lvs	x	x	
Chrysallida obtusa (Brown)	e					x	x	x
Chrysallida spiralis (Montagu)		ld	evs	evs	ZW	x	x	x
Odostomia conoidea (Brocchi)					l	x	x	
Odostomia eulimoides Hanley	l	ld	l	l,l	ed	x	x	
Odostomia plicata (Montagu)		ld				x	x	
Odostomia turrita Hanley	e		ZW		e	x	x	
Turbonilla crenata (Brown)		e,e				x	x	
Retusa obtusa (Montagu)		l-	l		e,e	x	x	
Philina aperta quadripartita Ascanius			l		e-,ZW	x	x	

SCAPHOPODA

Dentalium vulgata (Da Costa)	<u>l</u>	<u>e</u>	<u>l</u>	<u>l</u>	<u>l</u>	x	x	
Dentalium spec.	<u>lvs</u>			<u>l</u>				
BIVALVIA								
Nucula nucleus (Linné)	<u>e</u>	<u>e</u>	<u>e,e</u>	<u>e</u>	<u>zw</u>	x	x	x
Arca lactea Linné	<u>l,e</u>	<u>e</u>	<u>e-</u>		<u>e</u>	x	x	x
Limopsis aurita (Brocchi)	<u>e-</u>	<u>e</u>	<u>e</u>		<u>zw</u>		x	x
Modiolus modiolus (Linné)		<u>evs</u>	<u>w</u>	<u>zw</u>		x	x	
Musculus discors (Linné)	<u>zw-d</u>	<u>l</u>	<u>e-,e</u>	<u>zw-</u>	<u>w-</u>	x	x	
Musculus niger (Gray)				<u>l</u>			x	
Mytilus edulis Linné	<u>vw</u>	<u>v</u>	<u>zw</u>	<u>e</u>	<u>e-,zw</u>	x		x
Chlamys cf distortus (Da Costa)			<u>l</u>				x	
Chlamys flexuosa (Poli)	<u>l</u>				<u>l</u>	x	x	x
Chlamys opercularis (Linné)	<u>e</u>				<u>e</u>	x	x	x
Chlamys varia (Linné)	<u>e</u>	<u>evs</u>	<u>l,e-</u>	<u>e</u>	<u>e-,e</u>	x	x	x
Anomia ehippium Linné					<u>e</u>	x	x	x
Ostrea edulis Linné	<u>l-</u>	<u>l-</u>	<u>w</u>	<u>e</u>	<u>zw,e-</u>	x		x
Astarte digitaria Linné	<u>e</u>	<u>e</u>	<u>e-</u>	<u>l-,l</u>	<u>l-</u>		x	x
Astarte montagui (Dillwyn)		<u>e</u>	<u>zw-</u>	<u>e-</u>	<u>zw-</u>	x	x	
Astarte triangularis (Montagu)	<u>zw</u>	<u>e,e</u>	<u>vw</u>	<u>e,e</u>	<u>e</u>	x	x	x
Altenaeum dawsoni (Jeffreys)		<u>l</u>			<u>l</u>	x	x	
Phacoides borealis (Linné)		<u>ld</u>	<u>l-d</u>	<u>e</u>			x	x
Erycina nitida (Turton)			<u>l</u>	<u>l</u>	<u>l</u>	x	x	
Montacuta ferruginosa (Montagu)					<u>l</u>	x	x	
Kellia suborbicularis (Montagu)					<u>l,l/l-</u>		x	
Mysella bidentata (Montagu)		<u>l</u>	<u>e-</u>	<u>e</u>	<u>e</u>	x	x	x
Cerastoderma edule (Linné)	<u>e,vw</u>	<u>vw</u>	<u>e-,e</u>	<u>vw</u>	<u>w-</u>	x		x
Cerastoderma glaucum (Poiret)		<u>e</u>			<u>ld</u>	x		
Parvicardium exiguum (Gmelin)			<u>e</u>			x	x	x
Parvicardium scabrum (Philippi)	<u>l</u>	<u>l-</u>					x	
Plagiocardium papillosum (Poli)		<u>l,e</u>				x		x
Venus casina Linné			<u>e</u>	<u>e</u>			x	
Venus gallina striatula (Da Costa)		<u>l-</u>	<u>e-,e</u>	<u>zw-,e</u>	<u>e-</u>	x		x
Venus ovata Pennant	<u>zw</u>	<u>zw</u>	<u>e</u>	<u>e</u>	<u>e,e</u>	x	x	x
Venerupis decussata (Linné)			<u>l-</u>			x	x	
Venerupis senegalensis (Gmelin)				<u>l</u>		x		x
Venerupis rhomboides (Pennant)			<u>e</u>			x	x	
Spisula elliptica (Brown)	<u>e</u>	<u>zw</u>	<u>zw,e</u>	<u>zw-,e</u>	<u>ed,e-</u>	x	x	
Spisula subtruncata (Da Costa)	<u>e-</u>	<u>e</u>	<u>l</u>		<u>e-</u>	x		x
Mactra corallina cinerea Montagu					<u>l</u>	x		x
Donax vittatus (Da Costa)	<u>l,e</u>	<u>e</u>	<u>evs</u>	<u>e</u>	<u>e-</u>	x		x
Gari fervensis (Gmelin)		<u>lvs</u>					x	
Abra alba (Wood)		<u>w</u>	<u>e</u>	<u>e</u>	<u>zw,zw-</u>	x		x
Abra prismatica (Montagu)		<u>e</u>				x	x	
Scrobicularia plana (Da Costa)	<u>e</u>		<u>e</u>	<u>l</u>	<u>l</u>	x		x
Macoma balthica (Linné)	<u>ed,zw</u>	<u>l</u>	<u>e</u>		<u>e-,l</u>	x		x
Angulus fabulus (Gmelin)		<u>e</u>		<u>e</u>	<u>e-,e</u>	x		x
Tellina tenuis Da Costa			<u>l</u>			x		x
Ensis arcuatus (Jeffreys)		<u>l</u>	<u>e</u>	<u>e</u>	<u>l</u>	x		
Solen marginatus Pulteney			<u>l</u>			x	x	
Hiatella arctica (Linné)	<u>e</u>	<u>e</u>	<u>vw</u>	<u>zw,zw</u>	<u>w-</u>	x	x	x
Mya truncata Linné		<u>e-</u>	<u>vw</u>	<u>zw</u>	<u>e</u>	x	x	x
Barnea candida (Linné)	<u>vw</u>	<u>w</u>	<u>v</u>	<u>w</u>	<u>vw</u>	x		x
Zirfea crispata (Linné)	<u>e</u>	<u>e</u>	<u>e</u>	<u>zw</u>		x	x	x
Thracia papyracea (Poli)					<u>e,e/l-</u>	x	x	

CONTINENTAL MOLLUSCS

Bithynia tentaculata (Linné)			1 ^{op}		
Lymnaea palustris (Müller)					<u>1</u>
Lymnaea spec.	<u>1</u>				
Planorbis leucostoma Millet					<u>1</u>
Succinea elegans/putris					<u>e</u>
Succinea oblonga Draparnaud					<u>1d</u>
Succinea spec.					<u>e</u>
Pupilla muscorum (Linné)					<u>1</u>
Trichia hispida (Linné)					<u>e</u>
Corbicula fluminalis (Müller)	1-			e	
Pisidium clessini Neumayr	<u>1</u>				
NON MOLLUSCS					
Pisces - vertebra	<u>1</u>				<u>1</u>
- otolith		1,1			
- shark tooth		1-	1	1	
Serpula			<u>zw</u>	<u>zw</u>	
Spirorbis		1			
Balanus spec.	<u>vw</u>	<u>zv</u>	dom.	dom.	dom.
Verruca strömia Müller	<u>e</u>	<u>e</u>	<u>e</u>	<u>e</u>	<u>zw</u>
Decapoda			<u>e</u>	<u>e</u>	<u>zw</u>
Ophiuridae			<u>vw</u>	<u>e</u>	<u>v</u>
Echinocardium cordatum (Pennant)	<u>est</u>	<u>est</u>	<u>est</u>		<u>e, zwst</u>
Psammechinus miliaris (Gmelin)	<u>zwst</u>	<u>e, est</u>	<u>zw, zwst</u>	<u>e, est</u>	<u>wst, zw</u>
Echinocyamus pusillus (O.F. Müller)			<u>e</u>	<u>e, e</u>	
Ostracoda			<u>zw</u>	<u>zw</u>	<u>zw</u>
Corals	e			e-	e
Bryozoa div. spec.	<u>vw</u>	e	<u>vv</u>	<u>vv</u>	<u>zv</u>
Cellaria	<u>zw</u>	e	<u>vv</u>	w	w
Foraminifera	w	w	<u>vv</u>	<u>vv</u>	<u>vw</u>
Nummulites		e	<u>e</u>	e	e
Sponge spicula					<u>zw</u>

EXPLANATION OF SYMBOLS AND ADDITIONS

1 = one single specimen

e = some specimens

zw = very few specimens

w = few specimens

vw = rather few specimens

vv = rather much specimens

v = many specimens

zv = very much specimens

dom. = dominant

1- = one juvenile specimen

1- = one very juvenile specimen

1 = one fragment1 = one little fragment

1/1 = one paired valve

1t = one topfragment

1d = one defective specimen

1vs = one worn specimen

1st = one spine

1op = one operculum