DAN - 01

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

78 - 029 - 36

CORE ~~Field Number~~

Collection Date 10/2/78 Collector Brian McClean Submission Date 1/8/79

Locality 22 km off Cape Aston HUDSON 78 - 029 - 36

Co - ordinates: Lat. 70 ° 5.5 ' N; Long. 66 ° 48.7 ' W. Map Padloping to Clyde - Chart 7053

M.A.S.L. - 98.8 Depth 64 cm Species Astarte

Sample Description

Estimated Age: Relative Holocene Absolute Geochron

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - Hc 2
B - Ast 1 - 15.9 mg, used 120 ul 6.3N HCl
C - Ast 1 - 15.3 mg, used 100 ul 6.3N HCl

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		
B 2																	<0.1	0.014
C 3																	<0.1	0.013
4																		

DAN - 02

Laboratory Number

8°

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

WWL - 001

Field Number

Collection Date 10/25/78 Collector W. W. Locke, III Submission Date 1/8/79

Locality Innerkip Interstadial Site, Oxford Co., Ontario

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 3.25 m Species Lymnaea parva

Sample Description p. 23 GSA Toronto 78, field trips guidebook

Estimated Age: Relative Port Talbot Interstade Absolute >50,000 GSC-2010-2

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 11.7 mg, 1 shell, used 80 ul 6.3N HCl E - 8.8 mg
B - 9.8 mg, 1 shell + 2 large frags
C - 22.5 mg, 2 large shells
D - 16.3 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1															2/79	0.107	0.13	0.11
B 2															2/80		0.077	0.069
C 3																0.098	0.078	0.071
D 4																0.098	0.078	0.080 0.
E																	0.080	0.068

DAN - 08
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

1
Field Number

Collection Date _____ Collector M. Alam Submission Date 2/77

Locality Core Grand Banks

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 470 cm Species N. pachyderma

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse) > 70,000

REMARKS contaminated

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		0.12
2																		
3																		
4																		

DAN - 09
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

2
Field Number

Collection Date _____ Collector M. Alam Submission Date 2/77

Locality Core 74-021-29 Grand Banks

Co - ordinates: Lat. 42°18 ' N; Long. 53° 0 ' W. Map _____

M.A.S.L. -3140m Depth [redacted] 300 cm Species G. bulloides pachyderma

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse) _____

REMARKS good chromatograph

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		0.14
2																		
3																		
4																		

DAN - 10
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

3
Field Number

Collection Date ____ Collector M. Aleam Submission Date 2/77

Locality Core 74-021-29 Grand Banks

Co-ordinates: Lat. 42° 18' N; Long. 53° 0' W. Map ____

M.A.S.L. -3140m Depth 264cm Species N. pachyderma

Sample Description ____

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

REMARKS reasonable chromatograph

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		0.25
2																		
3																		
4																		

DAN - 11
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

4
Field Number

Collection Date ____ Collector M. Aleam Submission Date 2/77

Locality Core 72-021-6 Grand Banks

Co-ordinates: Lat. 40°20.8' N; Long. 51° 30' W. Map ____

M.A.S.L. -3780m Depth 640 cm Species N. pachyderma

Sample Description ____

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

REMARKS bad chromatograph - contaminated

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		0.10
2																		
3																		
4																		

DAN - 12

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 4/10/78 Collector A. R. Nelson (MacLean) Submission Date 28/1/79

Locality Core 78-029-37 off Narpaing Fiord

Co-ordinates: Lat. 68 ° 15.5' N; Long. 65 ° 12.9' W. Map

M.A.S.L. -457 m Depth 591-593 cm Species Islandiella teretis

Sample Description 20 cc wet sed = 35.3 g

Estimated Age: Relative Holocene Absolute

Local Stratigraphic Relations (sketch on reverse)

≈ 0.8 mg REMARKS good chromatograph

RESULTS																	ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		0.03
2																		
3																		
4																		

DAN - 13

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/13/77 Collector Imperial Oil (ARN) Submission Date 6/2/79

Locality Core 77-3-2 SW Davis Strait

Co-ordinates: Lat. 63 ° 3' 19" N; Long. 59 ° 7' 33" W. Map

M.A.S.L. -970 Depth 845-849 cm Species ~~Globorotalia~~ Neogloboquadrina pachyderma

Sample Description 20 cc wet sed = ~~[illegible]~~ 41.3 g

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

1.34 mg cleaned - 20 ul HCl REMARKS good chromatograph

B - sediment in sample

RESULTS																	ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.37
B 2	[illegible]												ser/thr = 3					0.035
3																		
4																		

DAN - 14
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 26/9/78 Collector A.R. Nelson (MacLean) Submission Date 28/1/79

Locality Core 78-029-23 HUDSON

Co-ordinates: Lat. 71°22' N; Long. 71°29.8' W. Map

M.A.S.L. -603 Depth 300-306 Species all CO_3 species

Sample Description 20cc wet sed = 39.3g

Estimated Age: Relative Holocene Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

>63u fraction - 20cc
some dissolution?; 2-3 G. sacculifera?
2-3 benthic forams

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1					no amino acid content													
2																		
3																		
4																		

DAN - 15
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date Collector Imperial Oil (AAN) Submission Date 6/2/79

Locality Core 76-2-1 SW Davis Strait

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 795-798 cm Species ~~N. dutertrei~~ N. pachyderma

Sample Description 5cc wet sed = 11.4g

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

1.3mg cleaned - 20ul HCl REMARKS good chromatograph

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.24
B 2																		
3																		
4																		

DAN - 16

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/14/77 Collector Imperial Oil (ARN) Submission Date 6/2/79

Locality Core 77-1-2 SW Davis Strait

Co - ordinates: Lat. 63°28'12"N; Long. 59°6'17"W. Map

M.A.S.L. -813 Depth 816-819 cm Species ~~[illegible]~~ N. pachyderma

Sample Description 20 cc wet sed = 42.3g

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS contaminated

A
B - 120
C - 120

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.085
B 2																		0.049
C 3														[illegible]				0.134
4																		

DAN - 17

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

HN 78023-20-4a-1

Field Number

Collection Date 1978 DAY 210/1510GMT Collector CHRIS DALE Submission Date 2/8/79

Locality N.E NENFOUNDLAND CONTINENTAL SHELF Core 78-023-20

Co - ordinates: Lat. 50°22.32' N; Long. 55°00.73' W. Map

M.A.S.L. -280m Depth in core: 10 m Core 5 Species gastropod, unidentified

Sample Description

Estimated Age: Relative early Holocene Absolute 25,000 bulk sediment date

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A 4.8 mg - 35 ul HCl
B 41.0 mg
C 37.9 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	low	0.02
B 2																	low	0.01
C 3																	low	0.02
4																		

DAN - 18

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

HN78022-21 - 2cm - 1

Field Number

Collection Date 1978 DAY 210/16:9 Collector CHRIS DALE Submission Date 2/8/79

Locality NE NEWFOUNDLAND CONTINENTAL SHELF Core 78-023-21

Co - ordinates: Lat. 50 022.4 ' N; Long. 50 0 00.8 ' W. Map

M.A.S.L. - 280 Depth in core: 3.4 m Species bivalve ?

Sample Description

Estimated Age: Relative early Holocene Absolute

Local Stratigraphic Relations (sketch on reverse)

10,8 mg - 100 ul HCl REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																	low	0.029
2																		
3																		
4																		

DAN - 22

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 28/12/77 Collector A.R. Nelson Submission Date 27/3/79

Locality Imperial Oil Core 77-5-2

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -792 Depth 1056 cm Species Astarte ?

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 55 mg 39.4 mg REMARKS
B - 38 mg 26.3 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1															0.59		low	0.24
B 2															last sample ?	↗	0.49	0.23
3																		
4																		

DAN - 23
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 1/79 Collector A.R. Nelson (Ronai + Cooke) Submission Date 16/4/79

Locality Dévaványa, Hungary

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 36,66 - 37,13 m Species Unio sp.

Sample Description large abraded frags

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 267 mg 58,7 mg REMARKS
B - 136 mg 53,4 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.53	0.30
B 2																	0.42	0.23
3																		
4																		

DAN - 24
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date Collector A.R. Nelson (M. Aldam) Submission Date 27/3/79

Locality BIO Cruise [redacted] 74-021-23 (box core)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth surface 0-4cm Species N. pachyderma

Sample Description

Estimated Age: Relative modern <800 BP Absolute

Local Stratigraphic Relations (sketch on reverse)

A - CsCl - 75 REMARKS E - CO_2 - 75
B - CsCl - 75 F - CO_2 - 75
C - clean - 75 G - Bromoethane + acetone - 75
D - clean - 75 H - " " - 75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		
2				all	too	low	AA	content										
3																		
4																		

DAN-25

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN-182

Field Number

Collection Date _____ Collector A. R. Nelson Submission Date 27/3/79

Locality Qivitu cliffs, Sec 38-14

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. 6 Depth _____ Species Islandiella

Sample Description ≈ 130 g dry wt.

Estimated Age: Relative last interglacial Absolute shells ≈ 0.1

Local Stratigraphic Relations (sketch on reverse)

A - CsCl - 50 I. islandica
B - CsCl - 40 I. teretis
C - clean - 49 I. islandica
D - clean - 36 I. teretis

REMARKS
E - CCl_4 - 50 I. islandica
F - CCl_4 - 40 I. teretis
G - Bromethane + acetone - 56 I. islandica
H - " " - 50 - I. teretis

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG	H									ALLO: ISO Free	Hyd
A 1	bad sample?									E	low ser/thr			very good				0.29
B 2						contam		0.42		F								
C 3						very low				G								very low
D 4								0.45		H						OK		0.48

DAN-26

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN-337

Field Number

Collection Date _____ Collector A. R. Nelson Submission Date 27/3/79

Locality Qivitu cliffs, Sec 27-27

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. 7.2 Depth _____ Species Islandiella islandica

Sample Description ≈ 150 g dry wt.

Estimated Age: Relative early Foxe Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - CsCl - 50 I. islandica
B - CsCl - 50 I. islandica
C - clean - 57 I. islandica
D - clean - 57 I. islandica

REMARKS
E - CCl_4 - 57 I. islandica
F - CCl_4 - 57 I. islandica
G - Bromethane + acetone - 50
H - " " - 40

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG	F	H								ALLO: ISO Free	Hyd
A 1									bad	E							very low	
B 2								very low		F							very low	
C 3								very low		G								bad
D 4									bad	H								bad

DAN - 27

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 1/79 Collector A.R. Nelson (Ronai + Cooke) Submission Date 16/4/79

Locality Vészto, Hungary

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 71.99 - 72.58 Species Unio sp.

Sample Description abraded grays

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 156 mg 47.2 mg
B - 141 mg 52.7 mg

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																	0.66	0.48
B 2																	0.64	0.42
3																		
4																		

DAN - 28

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date Collector A.R. Nelson (Ronai + Cooke) Submission Date 16/4/79

Locality Vészto, Hungary

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 98.10 - 98.85 m Species Unio sp.

Sample Description large slightly abraded grays, pearly layers

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 147 mg 51.4 mg
B - 112 mg 42.0 mg

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																	0.64	0.40
B 2																	0.69	0.40
B 3																		0.57?
4																		

DAN-29

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN-427

Field Number

Collection Date _____ Collector A. R. Nelson Submission Date 27/3/79

Locality Qivitu cliffs Sec 22-7

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. 11 Depth _____ Species Islandiella

Sample Description ≈ 250 g dry wt.

Estimated Age: Relative _____ Absolute shells 0.07

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 40 I. teretis
B - 60 I. islandicus
C - 16 N. pachyderma - most look old
D - 30 I. teretis

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1											good	[illegible]			best			0.071
B 2															contaminated?			0.042
C 3																	too low	
D 4																too low		0.046

DAN-30

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN-386

Field Number

Collection Date _____ Collector A. R. Nelson Submission Date 27/3/79

Locality Qivitu cliffs Sec 10-37

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. 13.5 Depth _____ Species Islandiella

Sample Description ≈ 300 g dry wt.

Estimated Age: Relative _____ Absolute shells [illegible]

use islandica in future

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 40 I. teretis
B - 50 I. islandica

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1										ser/thr = 1.69			contam?					0.11
B 2						very good			ser/thr = 1.27									0.18
3																		
4																		

DAN - 31

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 1/79 Collector A.R. Nelson (Rengi + Cooke) Submission Date 16/4/79

Locality Vészto', Hungary

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 358.85 - 359.32 m Species Unio sp

Sample Description thick, highly abraded shells

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 159 mg 33.7 mg
B - 146 mg 46.3 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	1.19	1.09
B 2																	1.30	1.18
3																		
4																		

DAN - 32

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN - 211

Field Number

Collection Date Collector A. R. Nelson Submission Date 27/3/79

Locality Quiter cliffs Sec 38-14

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. 9 Depth Species Islandiella islandica

Sample Description ≈ 500g dry wt.

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 40 I. islandica
B - 40 I. islandica

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1		bad	sample		?												<	0.08
B 2		A2	contin't		low												<	0.07
3																		
4																		

DAN - 33
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN - 214
Field Number
GRL - 2895

Collection Date ____ Collector A. R. Nelson Submission Date 27/3/79

Locality Qivitu cliffs Sec 43-18

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. 3, 2 Depth ____ Species Islandiella teretis

Sample Description ≈ 200g dry wt

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 40 I. teretis
B - 40 I. teretis

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1	AA	content	too	low														
B 2			very	good				used	peak	heights								0.09
3																		
4																		

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

DAN - 34
Laboratory Number

C 1.
Field Number

Collection Date Jan 19, 79 Collector AEA Submission Date 4/4/79

Locality Baffin Bay HUDSON 74-026-557

Co-ordinates: Lat. 67 ° 29.8 ' N; Long. 60 ° 0.7 ' W. Map ____

M.A.S.L. 1100m Depth 174 cm. (557) Species ____

Sample Description Shell

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		
2																		
3																		
4																		

DAN - 35
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C2
Field Number

Collection Date Jan 19, 79 Collector AEA bsw Submission Date 4/4/79

Locality Baffin Bay HUDSON 76-029-040

Co-ordinates: Lat. 70 ° 24.4 ' N; Long. 64 ° 58.7 ' W. Map

M.A.S.L. -2000 Depth 368-382 (040) Species razor clam?

Sample Description Shell

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

14 mg 6.6 mg

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		0.12
2																		
3																		
4																		

DAN - 36
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C3
Field Number

Collection Date Jan 19, 79 Collector AEA bsw Submission Date 4/4/79

Locality Baffin Bay

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -1000 Depth 50-55 (017) Species [illegible]

Sample Description Shell

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 22 mg 9.6 mg
B - 21 mg 8.8 mg

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																	≈	0.07
2																	≈	0.05
3																		
4																		

DAN-37
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C21
Field Number

Collection Date Dec 30, 78 Collector AEA base Submission Date 4/4/79

Locality Baffin Bay

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -1000m. Depth 125-129 (017) Species

Sample Description Shell

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 22 mg 12.3 mg
B - 24 mg 14.1 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.027
B 2																		0.022
3																		
4																		

DAN-38
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B1
Field Number

Collection Date Jan 19, 79 Collector AEA base Submission Date 4/10/78

Locality Baffin Bay

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -2200m Depth 17-21 (006) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 75
B - 75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		bad
B 2																0.047	very	low
3																		
4																		

DAN-39
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

A1
Field Number

Collection Date Dec 30, 78 Collector AEA bsw Submission Date 4/4/78

Locality Baffin Bay

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -2200 Depth 24-27 (006) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A-75
B-75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	very low	
B 2																		
3																		
4																		

DAN-40
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B2
Field Number

Collection Date Jan 19, 79 Collector AEA bsw Submission Date 3/4/79

Locality Baffin Bay

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -2200 m. Depth 382-385 (006) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A-75
B-75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	very low	
B 2																	very low	
3																		
4																		

DAN-41

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B 12

Field Number

Collection Date Jan 19, 79 Collector AEA. Bowen Submission Date 3/4/79

Locality Baffin Bay

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -1000m. Depth 500-505 (017) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 75

B - 75

C - 125

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.10
B 2																		0.042
C 3																		0.040
4																		

DAN-42

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

A 28

Field Number

Collection Date Dec 30, 78 Collector AEA Bowen Submission Date 4/4/78

Locality Baffin Bay (Davis Strait)

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. -1000m Depth 900-904 (017) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) good chromatograph

A - 75 CsCl

B - 75 CsCl

C - clean - 75

D - clean - 80

REMARKS E - CCl_4 - 75

F - CCl_4 - 75

G - $CHBr_2$ + acetone - 75

H - $CHBr_2$ + acetone - 75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG	H									ALLO: ISO Free	ALLO: ISO Hyd
A 1	[illegible]							1.31		E							very	low
B 2	[illegible]							0.06		F								
C 3							very low			G							very	low
4								0.06		H							very	low

DAN-43
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B 5
Field Number

Collection Date Jan 19, 79 Collector AEA bsw Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-033

Co-ordinates: Lat. 71 ° 20 ' N; Long. 64 ° 16 ' W. Map

M.A.S.L. -2200m Depth 368-373 (033) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-75
B-75

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		
B 2																	very low	low
B 3																very low	~ 0.9	
4																		

DAN-44
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B 6
Field Number

Collection Date Jan 19, 79 Collector AEA bsw Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-033

Co-ordinates: Lat. 71 ° 20 ' N; Long. 64 ° 16 ' W. Map

M.A.S.L. -2200m Depth 378-382 (033) Species N. Pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-75
B-75

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	very low	
B 2																		bad
3																		
4																		

DAN-45
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B7
Field Number

Collection Date Jan 19, 79 Collector AEA base Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-034

Co-ordinates: Lat. 71 ° 46.1' N; Long. 64 ° 22.2' W. Map

M.A.S.L. -2200m. Depth 35-38 (034) Species N. pachyderma

Sample Description P. Foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-75
B-75
C-120
D-120

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		bad
B 2																	≈	0.076
C 3																		0.059
D 4																		

DAN-46
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

A 32
Field Number

Collection Date Dec 30, 78 Collector AEA base Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-034

Co-ordinates: Lat. 71 ° 46.1' N; Long. 64 ° 22.2' W. Map

M.A.S.L. -2200m Depth 298-302 (034) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-75
B-75
C-120
D-125

REMARKS I. sp.

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		bad
B 2																		bad
C 3																		0.
D 4																		0.125

DAN-47
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

A 33
Field Number

Collection Date Dec 30, 78 Collector AEA hsu Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-034

Co-ordinates: Lat. 71 ° 46.1' N; Long. 64 ° 22.2' W. Map

M.A.S.L. -2200m Depth 410-413 (034) Species N. Pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A-75
B-75
C-120
D-120

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																	bad
B 2																	bad
C 3																	0.045
D 4																	0.049

DAN-48
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B 3
Field Number

Collection Date Jan 19, 79 Collector AEA hsu Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-036

Co-ordinates: Lat. 72 ° 33.8' N; Long. 65 ° 52.4' W. Map

M.A.S.L. Depth 15-19 (036) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A-75
B-75
C-120
D-≈140

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																	bad
B 2																	bad
C 3																	0.025≈
D 4																	0.017

DAN-49
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B 4
Field Number

Collection Date Jan 19, 79 Collector AEA bsu Submission Date 4/[illegible]/78

Locality Baffin Bay HUDSON 76-029-036

Co-ordinates: Lat. 72 °33.8 ' N; Long. 65 °52.4 ' W. Map

M.A.S.L. -2200m Depth 315-318 (036) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 75 - CsCl
B - 75 - CsCl
C - clean - 75
D - clean - 80

REMARKS
I - 120
J - 120
E - CCl_4 - 75
F - CCl_4 - 75
G - $HCBr_2$ + acetone - 75
H - $CHBr_2$ + acetone - 75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG	H								ALLO: ISO Free	ALLO: ISO Hyd
A 1							~≈	0.16		E							bad
B 2								bad		F							bad
C 3	AA contact too low									G							bad
D 4								bad		H						no	low

I - dried during hydrolysis - bad J 0.12

DAN-50
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

A 10
Field Number

Collection Date Dec 30, 78 Collector AEA bsu Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-036

Co-ordinates: Lat. 72 °33.8 ' N; Long. 65 °52.4 ' W. Map

M.A.S.L. -2200m Depth 323-327 (036) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 75
B - 75
C - 120
D - 120

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1											"			"			≈ ≈	0.50
B 2											probably too low						≈ ≈	0.20
C 3														[illegible]		2.2		0.052
D 4														[illegible]		2.0		0.062

DAN-51

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

A 14

Field Number

Collection Date Dec 30, 78 Collector AEA Ksu Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-040

Co-ordinates: Lat. 70 °42.4' N; Long. 64 °58.7' W. Map

M.A.S.L. -2000m Depth 73-77 (040) Species N. pachyderma & I. islandica

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-75 N. pachyderma
B-75 N. pachyderma
C-65 I. islandica

REMARKS [illegible] D-120
look for Is. E-120

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
A 1	AA content too low								E									0.044
B 2	AA content too low																	
C 3	AA content too low																	
D 4																		

DAN-52

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Ok

A 17

Field Number

Collection Date Dec 30, 78 Collector AEA Ksu Submission Date 3/4/79

Locality Baffin Bay HUDSON 76-029-040

Co-ordinates: Lat. 70 °42.4' N; Long. 64 °58.7' W. Map

M.A.S.L. -2000m Depth 298-302 (040) Species N. pachyderma & I. islandica

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-75 N. pachyderma
B--75 N. pachyderma
C--50 I. islandica
D--50 I. islandica

REMARKS E-75 N. pachyderma
F-75 N. pachyderma

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
A 1													too low			≈	≈	0.18
B 2	bad sample																	
C 3	AA too low											E	0.064					
D 4	AA too low											F	0.059					

DAN-53

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B8

Field Number

Collection Date Jan 19, 79 Collector AEAhsu Submission Date 4/4/78

Locality Baffin Bay HUDSON 76-029-025

Co-ordinates: Lat. 69°12.3' N; Long. 62°25.5' W. Map

M.A.S.L. -2000 m. Depth 71-76 (025) Species N. pachyderma

Sample Description P. foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 75
B - 75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
A 1	AA content too low																	
B 2	too low																<	0.05
3																		
4																		

DAN-54

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B 9

Field Number

Collection Date Jan, 19, 79 Collector AEAhsu Submission Date 4/4/78

Locality Baffin Bay HUDSON 76-029-025

Co-ordinates: Lat. 69°12.3' N; Long. 62°25.5' W. Map

M.A.S.L. -2000 m Depth 594-598 (025) Species N. Pachyderma

Sample Description P. Foraminifera

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 75 - CsCl
B - 75 - CsCl
C - clean - 75
D - clean - 75
E - CCl_4 - 75
F - CCl_4 - 75
G - $CHBr_3$ + acetone - 75
H - $CHBr_3$ + acetone - 75

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG	H									ALLO: ISO Free	Hyd
A 1	AA content too low (50 ml)							—	E									bad
B 2	2 runs - one very low ?							≈0.27	F									bad
C 3								bad	G									bad
D 4								bad	H									bad

DAN-55

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

78023-31-4a

Field Number

Collection Date JULY '78 Collector C. DALE Submission Date 16/4/79

Locality N.E. NENFOUNDLAND CONTINENTAL SHELF 78-023-31

Co-ordinates: Lat. 50 ° 54.3 ' N; Long. 53 ° 18.6 ' W. Map

M.A.S.L. Depth CORE # 11, SECT 4a, 50cm Species ? same as 3b

Sample Description pearly inside with ////// dentition

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 41 mg 24.6 mg
B - 32 mg 20.7 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.23	0.025
B 2																	0.23	0.035
3																		
4																		

DAN-56

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

78023-31-3b

Field Number

Collection Date JULY '78 Collector C DALE Submission Date 16/4/79

Locality N.E. NENFOUNDLAND CONTINENTAL SHELF 78-023-31

Co-ordinates: Lat. 50 ° 54.3 ' N; Long. 53 ° 18.6 ' W. Map

M.A.S.L. Depth CORE # 11, SECT 3b, 80 cms Species ? same as 4a

Sample Description pearly on inside with ////// dentition

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 16 mg 8.8 mg
B - 12 mg 4.9 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.026
B 2																		0.004
3																		
4																		

DAN-57
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

79-002-4-402
Field Number

Collection Date March 6, 1979 Collector P. R. Hill Submission Date 15/5/79

Locality Seetian Slope

Co-ordinates: Lat. 42 o 44·3' N; Long. 63 o 24·5' W. Map

M.A.S.L. [illegible] Depth in core 402 cm. Species Mya + [illegible]

Sample Description Thick shell fragment - [illegible]

Estimated Age: Relative ? 10 - 20,000 yr BP Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A 27.0 mg
B 27.2 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.193	0.0282
B 2																	0.189	0.029
3																		
4																		

DAN-58
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

79-002-4-217
Field Number

Collection Date March 6 1979 Collector P. Hill Submission Date 17/5/79

Locality Seetian Slope

Co-ordinates: Lat. 42 o 44·3' N; Long. 63 o 24·5' W. Map

M.A.S.L. 800m Depth 217 cm Species

Sample Description Shell fragments [illegible]

Estimated Age: Relative 10 - 20,000 yr BP (Late Wisconsinan) Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A 25.3 mg
B 37.2 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.274	0.0218
B 2																	0.318	0.033
3																		
4																		

Reagent samples

DAN-03 residue from 100 ml pure H_2O (batch 1)
50 pmoles serine

~~DAN-04 last 2 ml hydroliged 7N HCl from Boulder~~

DAN-05 2 ml milipore system filtered H_2O
worse 20 pmoles serine

DAN-06 0.6 ml 12 N Ultrex HCl hydroliged

DAN-07 1.5 ml 6.3 N Ultrex HCl hydroliged

DAN-59
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-2
Field Number

core 1/2

Collection Date 14/8/77 Collector A.E. AKSU Submission Date 19/6/79

Locality N.W LABRADOR Sea - Imperial Oil 77-1-2

Co-ordinates: Lat. 63° 28' N; Long. 59° 6' W. Map

M.A.S.L. -813 Depth 410-425 cm Species N. Pachyderma

Sample Description P. foram. floated CsCl 60%

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A -100
B -100
C -120

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.092
B 2																		0.127
C 3													av/dn = 1.2					0.065
4																		

DAN-60
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-3
Field Number

Collection Date 14/8/77 Collector A.E. AKSU Submission Date 19/6/79 Core 1/2

Locality N. W. LABRADOR Sea - Imperial Oil 77-1-2

Co-ordinates: Lat. 63° 28' N; Long. 59° 6' W. Map

M.A.S.L. -813 Depth 580-590 cm Species N. Pachyderma

Sample Description floated Cs Cl 60%

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100
C-120

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.078
B 2																	≈	0.07
C 3																		0.078
4																		

C 3: ser/thr = 1.4

DAN-61
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-4
Field Number

Collection Date [redacted] Collector A.E. AKSU Submission Date 19/6/79 Core 2/1

Locality N.W LABRADOR Sea - Imperial Oil 76-2-1

Co-ordinates: Lat. 63° 20' N; Long. [redacted]° 10' W. Map

M.A.S.L. ~ -850 Depth 100-110 cm Species N. pachyderma

Sample Description floated Cs Cl 60%

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100
C-120

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	too low	
B 2																	≈ 0.058	
C 3																		
4																		

DAN-62
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-42
Field Number

Core 2/1

Collection Date [redacted] Collector A.E. AKSU Submission Date 19/6/79

Locality N.W LABRADOR Sea - Imperial Oil 76-2-1

Co-ordinates: Lat. 63° 20' N; Long. 59° 10' W. Map

M.A.S.L. N-850 Depth 160-164 cm. Species N. pachyderma

Sample Description floated CsCl 60%

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.057
B 2																		0.060
3																		
4																		

DAN-63
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-5
Field Number

Core 2/1

Collection Date Collector A.E. AKSU Submission Date 19/6/79

Locality N.W. LABRADOR Sea - Imperial Oil 76-2-1

Co-ordinates: Lat. 63° 20' N; Long. 59° 10' W. Map

M.A.S.L. N-850 Depth 410-425cm Species N. pachyderma

Sample Description floated CsCl 60%

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		
B 2																		0.108
3																		0.102
4																		

DAN-64
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

2-6
Field Number

Core 2/1

Collection Date ____ Collector A.E. AKSC/ Submission Date 19/6/79

Locality N.W. LABRADOR Sea - Imperial Oil 76-2-1

Co-ordinates: Lat. 63°20' N; Long. 59°10' W. Map ____

M.A.S.L. N -850 Depth 550-560 cm. Species N. pachyderma

Sample Description floated CsCl 60%

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100
C-120

REMARKS

RESULTS																	ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0,066
B 2																		0.17
C 3														ser/thr??				0.08±
4																		

DAN-65
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

2-7
Field Number

Core 3/2

Collection Date 13/8/77 Collector A.E. AKSC/ Submission Date 19/6/79

Locality N.W. LABRADOR Sea - Imperial Oil 77-3-2

Co-ordinates: Lat. 63°03' N; Long. 59°07' W. Map ____

M.A.S.L. -915 Depth 100-110 cm Species N. pachyderma

Sample Description floated CsCl 60%

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100
C-120

REMARKS

RESULTS																	ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.082
B 2																		0.151
C 3														ser/thr >1.7				0.068
4																		

DAN-66
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-72
Field Number

Collection Date ____ Collector A.E. AKSU Submission Date 19/6/79 Core 3/2

Locality N.W. LABRADOR Sea - Imperial Oil 77-3-2

Co-ordinates: Lat. 63° 3' N; Long. 59° 7' W. Map ____

M.A.S.L. -915 Depth 124-127 cm Species N. pachyderma

Sample Description floated CsCl 60%

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

A-100
A-100

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.185
B 2																		0.194
3																		
4																		

DAN-67
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

L-8
Field Number

Collection Date ____ Collector A.E. AKSU Submission Date 19/6/79 Core 3/2

Locality N.W. LABRADOR Sea - Imperial Oil 77-3-2

Co-ordinates: Lat. 63° 3' N; Long. 59° 7' W. Map ____

M.A.S.L. -915 Depth 300-310 Species N. pachyderma

Sample Description floated CsCl 60%

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

A-100
B-100

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.307
B 2																		0.343
3																		
4																		

DAN- 68
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector R. H. Fillon Submission Date _____

Locality Core HU77-149

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 102-108 cm Species small thin shell frags

Sample Description ≈ 3-5 mg

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A-all 4 frags of gastropod?
1 frag of bivalve?

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.24
2																		
3																		
4																		

DAN- 69
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector R. H. Fillon Submission Date _____

Locality Core HU77-149

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 102-105 cm Species N. pachyderma

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A-102
dried during hydrolysis

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	≈≈	0.16
2																		
3																		
4																		

DAN - 70
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector R. H. Fillon Submission Date _____

Locality Core HU77-149

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 400-402 cm Species N. pachyderma

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A-135

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																flow stopped		
2																		
3																		
4																		

DAN-71
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ABN79-05
Field Number

Collection Date 10/28/79 Collector R. S. Lemmon Submission Date 12/22/79

Locality Glenn Co., CA

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Physa

Sample Description _____

Estimated Age: Relative _____ Absolute 1 shell left ^{14}C 4000B.

Local Stratigraphic Relations (sketch on reverse)

A - large shell fragment 6.4 mg REMARKS beaker
B - 1 large, 1 med shell fragment 6.9 mg HYD dried in oven
C - 1 large lower 2/3 of shell 19.8 mg .396 ml
D - 2/3 of small shell + 10 small frags 10.8 mg .216 ml

	RESULTS													F	H		ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1													ser/thr 1.16				ND	0.0207
B 2													ser/thr 1.4				0.074	0.01 <
C 3														2.3 tyr			≈ 0.04	< 0.136
D 4																	ND	< 0.05

use peak areas

DAN-72 | AAL-1523

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN79-04

Field Number

ARN79-03

Collection Date ____ Collector A. R. Nelson Submission Date 12/22/79

Locality NW edge of Clear Creek Reservoir - distal edge of colluvial fan

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth ____ Species Succinea - Catinella

Sample Description ____

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

A ½ flower ⅔ large shell 11.5 mg REMARKS flash

B - 1 med shell 7.3 mg

C - 1 large shell 10.8 mg FREE only .22 ml HCl

D - part of 1 2.0 mg FREE only RESULTS .04 ml

	ASP	GLU	ALA	VAL	ISO	LEU	ARG							H3	F	H2	ALLO: ISO Free	ALLO: ISO Hyd
A 1														0.065	0.092	0.053	0.082	0.09±
B 2																		0.048
C 3																	0.093	
D 4															too low		too low	

0.060 ± 0.00

AAL-1523

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

DAN 72 (ARN 79-04

Field Number

Collection Date 10-79 Collector Nelson Submission Date 5/29/80

Locality Clear Creek Res. - Lake Co., Colo

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth ____ Species SUCCINEA

Sample Description 5 whole specimen - broken in order to get them clean

Estimated Age: Relative ____ Absolute ____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 4.6 mg

B - 3.8 mg partial specimen No free's because of small size

C - 4.5 mg HYD's only

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.07
B 2																		0.059
C 3																		0.060
4																		

DAN-73 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

WPL-2b

Field Number

Collection Date 79 Collector Rich Madsen Submission Date 1-15-80

Locality Boulder Co.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Hyrnnea sp. (Hanley)

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 10.6 mg
B - 7.6 mg
C - 7.5 mg
D - 9.5 mg

REMARKS

2/80

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.27	0.135
B 2																0.24	0.125
C 3																0.243	0.127
D 4															0.151	0.252	0.151

DAN-74

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK ? rerun.

Field Number

Collection Date Collector Ervin Otvos Submission Date 3/20/80

Locality Kimball Creek, Tunica Hills, La. - Richards (1938) p. 43

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Sphaerium sulcatum

Sample Description 6 unabraded, cracked whole valves

Estimated Age: Relative Farmdale Absolute

19.8°C

Local Stratigraphic Relations (sketch on reverse)

A - whole valve 44.1 mg
B - whole valve 25.8 mg
C - whole valve 35.8 mg

REMARKS freeze took 24 hrs. to dry

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.193	0.132
B 2																0.216	0.149
C 3															0.099	0.175	0.109
4																	

0.130 ± 0.020

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

WPL - 26
Field Number

Collection Date ____ Collector Rick Madole Submission Date 3-17-77

Locality Boulder Co.

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth 12 ft. Species ____

Sample Description 14 Lymnea sp. from 2-3' silty sand below Broadway alluv.

Estimated Age: Relative Broadway Absolute ____

Local Stratigraphic Relations (sketch on reverse)

not prepared

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		
2																		
3																		
4																		

DAN - 75
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date ____ Collector Ervin Otvos Submission Date 3/30/80

Locality Cedar Ls. mound, Hancock City, Miss. marshland

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth 1 ft, E end of mound Species Rangia cuneata

Sample Description 1 right valve, moderately abraded - in humus soil

Estimated Age: Relative Late Holocene Indian mound Absolute 2600 - 2800 BP ^{14}C

Local Stratigraphic Relations (sketch on reverse)

A - middle of hinge 67.4 mg
B - middle of hinge 121.9 mg
C - middle of hinge 73.1 mg

REMARKS freeze dried 24 hrs. & dry

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																	0.407	0.157
B 2																	0.78	0.168
C 3																	0.386	0.12
4																		

DAN-76

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector Erwin Otvos Submission Date 3/30/80

Locality Mississippi Sound - core S-2 56'9" to 57'3" - Biloxi Fm.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 56'9" to 57'3" Species Rangia cuneata

Sample Description 3 valves - moderately to highly abraded - A+B from same log

Estimated Age: Relative Sangamon Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - hinge 68.3 mg
B - hinge 65.2 mg
C - hinge 65.4 mg

REMARKS freeze took 24 hrs. to dry - no problem

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																1.10	0.63
B 2																0.79	0.63
C 3																1.22	0.52
4																	

DAN-77

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector Erwin Otvos Submission Date 3/30/80

Locality Mississippi Sound - core S-2 - Biloxi Fm.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 57' - 57'3" Species Chione interpunsa Rea

Sample Description 1 valve, bored, & encrusted with tubes - slightly abraded

Estimated Age: Relative Sangamon Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - middle hinge 24.9 mg
B - middle hinge 45.8 mg
C - middle hinge 39.4 mg

REMARKS retransfered to new tube 3 times freeze took 24 hrs. to dry - no problem

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.81	0.59
B 2																1.02	0.41
C 3																1.033	0.463
4																	

DAN-78
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80-[redacted]15
Field Number

Collection Date 5/18/80 Collector A.R. Nelson Submission Date 5/27/80

Locality NE¼, SW¼, Sec 10, T2N, R2W - Uinta River valley, Utah

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth surface Species Zonitoides (probably arboreus) possibly Retinella

Sample Description small snails as surface float from calcareous marl

Estimated Age: Relative early Holocene? Absolute

reference - Osborn, 1972?, p. 117

Local Stratigraphic Relations (sketch on reverse)

A - 15.6 mg (damp) 3 whole shells REMARKS 300ul + 150ul HCl
B - 30.0 mg (damp) 1 large, 1 small shell 0.6 ml HCl + 0.3 ml
C - (free only) 1 med shell 4.5 mg .09 ml
D - (free only) 1 med shell 2.6 mg .05 ml

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG								2 F	2 H	ALLO: ISO Free	ALLO: ISO Hyd
A 1																	<0.03	too low
B 2															ND?	<0.004	low	0.025
C 3																	<0.02	
D 4																	0.06	

using Vallonia use -8°C = 7.7-8 = -0.3°C

>20-25 mg may need test tube

DAN-79
Laboratory Number

∴ 480±100 ka

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80-19
Field Number

Collection Date 5/19/80 Collector A. R. Nelson Submission Date 5/27/80

Locality SE¼, Sec 9, T4S, R3W - mouth of Antelope Canyon, Duchesne Co., Utah

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 3.5 m Species Zonitoides ??

Sample Description 4 partly broken shells from arroyo fill silty fine sds - gravel silt

Estimated Age: Relative early Bull Lake Absolute Bagga, WY calibration site suggests age of 300-420K for ratio of 0.45

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 8-10 mg estimated 200ul + 75ul HCl
B - 5-8 mg estimated 150ul + 75ul HCl
C - 8 mg estimated 150ul + 75ul HCl
D - 1 med shell HYD only 1.6 mg .032 ml

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG								2 F	2 H	ALLO: ISO Free	ALLO: ISO Hyd
A 1															0.334	0.455	0.40±	0.50±
B 2																0.456	0.385	0.475
C 3																	0.403	0.338
D 4																	-	0.44

Val = 0.42

DAN-80 ✓

AAL-1524
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

DAN-80
Field Number

Collection Date _____ Collector R.F. Madole Submission Date 5-29-80

Locality _____

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species ~~Oreolelix~~ Helisoma trivolvis ?

Sample Description 3 whole specimen

Estimated Age: Relative highest y.g. Absolute _____ still have 1 Catinella left

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - whole specimen 52.6 mg → HYD lost in oven
B - " 38.2 mg Specimens broken
C - 51.6 mg partial specimen

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.387	
B 2																	0.393	0.170
C 3																0.0694	0.353	0.153
4																		

DAN - 81
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/4/80 Collector Dennis Stanford Submission Date 8/10/80

Locality Lamb site - square I 118

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 96.5 - 96.8 Species Stagnicola - Lymnea ~~[illegible]~~

Sample Description _____

Estimated Age: Relative _____ Absolute 12 ka ( )

see back 76B ARN

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - Lym 1 large shell 25.4 mg .51 ml
B - Lym 1 med broken shell 2.6 mg .05 ml FREE only
C - Cat - 1 large frag - clean
D - Cat - 1 med frag - clean
E - Cat - 1 large whorls center clean
F - Cat - ½ 4mm shell clean
G - Cat - " "
H - Cat - 1 5mm shell clean

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.176	too low
B 2																	0.16	
3																		
4																		

I – Prep – 5 1/2 s, fairly clean

J – Prep – 4 1/2 s, "

K – Prep – 6 1/3 s, 2 dirty

L – Prep – 2 1/2 s / 4 1/3 s, clean

M – Prep – 2 whole / 4 1/3 s – dirty

N – Prep – 2 whole / 4 1/2 s – dirty

C 2.0240
2.6298
2.2

D 1.9681
1.9655
2.6

E 2.0385
2.0327
5.8

F 2.0280
2.0265
1.5

G 2.0238
2.0223
1.5

H 2.0258
2.0241
1.7

I 2.0448
2.0405
4.3

J 2.0565
2.0511
5.4

K 2.0385
2.0344
4.1

L 2.0921
2.0872
4.9

M 2.0705
2.0632
7.3

N 2.1085
2.1000
7.5

no relationship to dirt

11-2

1dr vials + caps 2.76g - 6.06g (unweighed)

DAN-82
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

AAN80-19
Field Number

Collection Date 5/19/80 Collector A.R. Nelson Submission Date 5/27/80

Locality Antelope Canyon Pit, Duchesne Co., UT

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella ?

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - lower part of large shell + 1 small shell 2.8 mg REMARKS .056 ml
B - 1 med shell 3.7 mg .074 ml

	RESULTS															ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG									Free	Hyd
A 1															contam →	0.42	0.46
B 2																0.66	0.52
3																	
4																	

DAN-83 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

G103 SE
Field Number

Collection Date Collector Dennis Sanford - (WU) Submission Date 10/7/80

Locality Jones-Miller Site, Yuma Co., CO G103 SE

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 99.55 - 99.50 Species WU - Catinella vermetus

Sample Description occupation level - 3 large & 1 tiny shells, clean

Estimated Age: Relative Absolute ≥13K BP

Local Stratigraphic Relations (sketch on reverse)

A - 1 5.5 mm shell with some dirt 71.6 mg REMARKS shells cleaned in final V-vial
B - 1 6 mm " - 41.6 mg
C 1 5 mm shell & 1 2.5 mm shell 36.4 mg

	RESULTS															ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG									Free	Hyd
A 1																0.125	0.089
B 2																0.128	0.080
C 3																0.136	0.077
4																	

82B 5,3296
5,3259
3.7 mg

79D 2725
5,2709
1.6 mg

82A 4166
5,4138
2.8 mg

72C 5,2195
5,2067
12.8 mg

81B 5,2150
5,2124
2.6 mg

81A 5,3807
5,3553
25.4 mg

78D 5,2532
5,2506
2.6 mg

78C 5,3725
5,3680
4.5 mg

71C 1710
5,1512
19.8 mg

71D 5,3687
5,3579
10.8 mg

C 8314
4,7950
36.4 mg

B 7248
4,6832
41.6 mg

A 8426
4,7710
71.6

DAN - 84 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

G 103 SE
Field Number

Collection Date _____ Collector Dennis Sanford - (Wu) Submission Date 10/7/80

Locality Jones-Miller Site, Yuma Co., CO G103 SE

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 99.50 - 99.55 Species Wu - Vallonia gracilicostata

Sample Description 2 med Vallonia, clean

Estimated Age: Relative occupation level Absolute ≥ 13K BP

Local Stratigraphic Relations (sketch on reverse)

A - 2 2mm shells - 2.5 mg REMARKS shells were cleaned in final V-vial

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.087
2																		
3																		
4																		

DAN - 85 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

G 103 SE
Field Number

Collection Date _____ Collector Dennis Sanford (Wu) Submission Date 10/7/80

Locality Jones-Miller Site, Yuma Co., CO G103 SE

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 99.40 - 99.50 Species Wu - Catinella vermetus

Sample Description 3 large shells, clean

Estimated Age: Relative occupation level Absolute ≥ 13K BP

Local Stratigraphic Relations (sketch on reverse)

A - 1 4.5mm clean shell - 12.1 mg REMARKS shell cleaned in final V-vial
B - " 24.3 mg
C - " 15.5 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.081	0.192	0.106
B 2																0.42	0.20	0.129
C 3															0.117	0.084	0.129	0.093
4																		

A

~~6.8039~~

9017
6.8992
2.5 mg

A 7729
4.7608
12.1

B 7368
4.7125
24.3 mg

C 7425
4.7270
15.5 mg

DAN-86 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector Dennis Sanford (WU) Submission Date 10/7/80

Locality Jones-Miller Site, Yuma Co., CO G 103 SE

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 99.40-99.50 Species Vallonia gracilicostata

Sample Description 1 broken Vallonia

Estimated Age: Relative occupation level Absolute ≥ 13K BP

Local Stratigraphic Relations (sketch on reverse)

A- 0.8 mg dried in oven REMARKS shell cleaved in final V-vial

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	x	0.09±
2																		
3																		
4																		

low priority - never prepped

DAN-87

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

AAN80-172

Field Number

Collection Date 9/28/80 Collector A.R. Nelson Submission Date 9/30/80

Locality Beaver Ponds on Strawberry Fault, Wasatch Co., UT

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth edge of pond Species Helisoma trivolvis, Stagnicola-Lymn

Sample Description fresh to slightly broken shells

Estimated Age: Relative modern Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		
2																		
3																		
4																		

40

7. 2032

0,8 mg

DAN-88 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Oregon Mollusks

D405
Field Number

Collection Date 1954 Collector G.R. Scott Submission Date 4/22/80

Locality 91, Kassler Quad, CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species cf. Succinea grosvenori (Lea)

Sample Description 2 med + 1 small shell

Estimated Age: Relative Verdos Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 1 med shell (4 mm wide) 8.5 mg REMARKS

B - 1 med shell (5 mm wide) & 1 tiny (1 mm) shell 8.9 mg

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1															0.263		0.51	0.26
B 2															lost		0.62	0.24
3																		
4																		

low priority — never prepped

DAN-889
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 9/27/80 Collector A.R. Nelson Submission Date 9/30/80

Locality in creek near N end future Stinking Springs Res. - opposite outhouse

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth edge of stream Species Physa?, Stagnicola - Lymnea

Sample Description Phy collected live on grass stems

Estimated Age: Relative modern Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																		
2																		
3																		
4																		

A

8658
10.8573
08.5 mg

B

518
11.0429
8.9

OK

DAN - 90

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D 404

Field Number

Collection Date 1954 Collector Scott Submission Date 4/22/80

Locality 126, Hassler Quad., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species Hawaiia minuscula

Sample Description 16 dirty stained shells

Estimated Age: Relative pre-Piney Creek Absolute

Local Stratigraphic Relations (sketch on reverse)

A-3 2.5mm + 11.5mm shells - 6.7mg 100ul ph2+Nor

B-3 2.5mm + 21.5mm 8.2mg

C-2 2.5, 12, 11.5mm - 8.4mg

2 frees

REMARKS shells were cleaned in final V-vial

try 100ul

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
A 1																0.045		0.044±
B 2																		0.049
C 3																		0.051
4																		

1 more

DAN - 91

Laboratory Number

also AAL - 356

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D 418

Field Number

Collection Date 1954 Collector G.R. Scott Submission Date 4/22/80

Locality 94, Hassler Quad., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description 11 Vallonia

Estimated Age: Relative S. locum Absolute

all dried in oven

Local Stratigraphic Relations (sketch on reverse)

A-3 2mm shells 2.8mg

B- " 4.0mg (2 shells dropped)

C-1 2mm, 2 1.5mm shells 2.0mg (contam.? - check ser.)

D-2 2mm shells - broken 2.6mg 40ul HCl

REMARKS collectable site

Suc. run previously, AAL-356

cleaned in V-vial

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
A 1																		
B 2																0.06		0.20±
C 3																		
D 4															low	0.20		0.22

A 7180
6.7093
6.7

B 82
7.0800

C 1524
7.1440
8.4 mg

JHH-90

A 36
6.6708
2.8 mg

B 236
7.0296
4.0 mg

C 9711
6.9691
2.0 mg

DAN-91

1 more ✓

DAN-92 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D407
Field Number

Collection Date 1954 Collector G.R. Scott Submission Date 4/22/80

Locality 104, Kassler Quad., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species Vallonia cyclophorella

Sample Description 17 Vallonia

Estimated Age: Relative Pleistocene Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 4 2mm shells - 8.0 mg dried in oven
B - 3 2mm + 1 1.5m shells - 8.1 mg
C - 4 2 mm shells - 10.3 mg
~~F~~ D - 2 2mm + 1 1mm shells 1.8 mg

REMARKS Sme, seen previously, AAL-355 shells were cleaned in final V-vial wts, include dirt inside shell

Peak Height

RESULTS Peak area HYD

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1		modern?														0.04		0.177
B 2																0.05		bad
C 3																		0.051
D 4																		0.05

✓

DAN-93 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D411
Field Number

Collection Date 1954 Collector G.R. Scott Submission Date 4/22/80

Locality 93, Kassler Quad., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species ✓ Vallonia gracilicosta

Sample Description 23 Vallonia

Estimated Age: Relative Slocum Absolute

clean F - 2 2mm shells - 1.8 mg

Local Stratigraphic Relations (sketch on reverse)

A - 4 2mm shells, 1 broken - 6.2 mg
B 4 " - 5.2 mg
C " 5.3 mg dried in oven
D - 2 2mm shells, 1 1mm shell 1.8 mg
E - " " 1.3 mg

REMARKS collectable site shells were cleaned in final V-vial wts, include some dirt in shells

RESULTS Peak Area

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.148		0.083
B 2														0.131		0.117		
C 3												dried in oven				0.31		0.23
D 4												0.186						
E												0.193						

F = low

A 7.0240
7.0160
8.0 mg

B 7447
6.7366
8.1 mg

C 2050
7.1947
10.3 mg

D 2.0408
2.0390
1.8

DAN-92

A 262
7.0200
6.2 mg

B 8513
6.8461
5.2 mg

C 9872
6.7919
5.3

D
2.0340
2.0322
1.8

E
2.0138
2.0123
1.5

F
2.0588
2.0570
1.8 mg

DAN-93

OK

DAN-94 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D441
Field Number

Collection Date ____ Collector G.R. Scott Submission Date 4/22/80

Locality Littleton

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS Bull 1121-L

M.A.S.L. ____ Depth ____ Species ✓ Vallonia cyclophorella

Sample Description 17 Vallonia

Estimated Age: Relative Louviers Absolute ____

Local Stratigraphic Relations (sketch on reverse)

A 4 2mm shells - 6.9 mg
B " - 7.7 mg
C " - 11.9 mg
clean D-2 2mm shells - 0.7mg

REMARKS collectable site
shells were cleaned in final V-vial wts, include some dirt in shells

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.058		0.20±
B 2														>0.048				0.057
C 3														0.092	0.077			lost
D 4																		0.35±

OK

DAN-95 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D441
Field Number

Collection Date ____ Collector G.R. Scott Submission Date 4/22/80

Locality Littleton

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS Bull 1121-L

M.A.S.L. ____ Depth ____ Species ✓ Succinea cf. avara (Catinella sp.)

Sample Description 10 med Sue + 3 small Sue

Estimated Age: Relative Louviers Absolute ____

clean F - 1 4mm shell - 1.3 mg = < 0.2
G - 1 3mm shell - 1.6 mg = 0.0746

Local Stratigraphic Relations (sketch on reverse)

A - 3 2mm Shells - 12.1 mg
B - " - 28.4 mg
C - 1 3mm & 2 2mm shells 46.7 mg
clean D - 1 4mm shell - 1.3 mg
E - 1 4mm shell - 2.1 mg

REMARKS collectable site
shells were cleaned in final V-vial wts, include some dirt in shells

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									F	H	ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.0898	0.0625
B 2																	0.078	0.193	0.117
C 3																0.141	0.065	0.233	0.065
D 4																			
E																			

A
6774
6.6705
6.9 mg

B
6318
6.6241
7.7 mg

C
1697
7.1578
11.9 mg

D
2.0524
2.0517
0.7 mg

DAN-94

A
9737
17.9616
12.1

B
2664
17.2380
28.4 mg

C
0590
17.0123
46.7 mg

D
2.0169
2.0156
1.3 mg

E
2.0525
2.0502
2.3 mg

F
2.0010
1.9987
1.3 mg

G
2.0455
2.0439
1.6 mg

DAN-95

DAN-96
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusks

D413
Field Number

Collection Date _____ Collector G.R. Scott Submission Date 4/22/80

Locality 99, Kassler Quad., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description 12 Vallonia, 4 small

Estimated Age: Relative Younger Loess Absolute _____

Local Stratigraphic Relations (sketch on reverse)

NO MORE SAMPLE rehydrated with 100 ml

A 3 2mm & 1 1mm shells - 2.6 mg REMARKS collectable site?
B " 2 1mm " - 3.3 mg dried in oven Succinea previously run, AAL-354
C 4 2mm shells - 4.1 mg dried in oven shells were cleaned in final V-vial

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.197
B 2														dried in oven			~~0.496~~
C 3														dried in oven			0.733
4																	

OK

DAN-97
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic Mollusk

D431
Field Number

Collection Date 1954 Collector G.R. Scott Submission Date 4/22/80

Locality 124, Kassler Quad., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. _____ Depth _____ Species Pisidium casertanum

Sample Description 14 valves clean F-1 valve 1.6 mg = 0.1868
G- " 7.6 mg = 0.1569
H- " 2.3 mg = 0.2095/3584 4331 17.7317
I- " 2.8 mg = 17.3558 17.4305/2.6 17.7281/3.6
0.1232 2.6

Estimated Age: Relative Loveiers? Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 1 valve 3.6 mg REMARKS collectable site?
B - 1 valve 2.6 mg
C - 1 valve 2.6 mg 97C & B-H redried 11/21/81
D - 1 valve } cleaned with 2NHCl 4.6 mg
E - 1 valve 3.0 mg

RESULTS Peak Area

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.333	0.247
B 2																0.278	0.122
C 3																0.339	0.133
D 4												0.141					
E												0.148					

A
275
7.0249
2.6 mg

B
33
6.8500

C
8757
6.8716
4.1 mg

DAN-96

D
2.0634
2.0588
4.6

E
2.0245
2.0215
3.0

F
2.6822
2.6806
1.6 mg

G
2.6562
2.6486
7.6 mg

H
2.6542
2.6519
2.3 mg

I
2.6354
2.6326
2.8 mg

DAN-97

2 pages with grass

DAN-98 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date ____ Collector E. Evanoff Submission Date 10/21/80

Locality various between little Thompson & Big Thompson Rivers, Laramer Co., CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth ____ Species Vallonia gracilicosta

Sample Description 14 Vallonia - all 2 mm diameter

Estimated Age: Relative modern Absolute ____

all heated in 5% NaOCl for 30 mins at 80°C

Local Stratigraphic Relations (sketch on reverse) all cleaned in V-vial

A - 4 whole shells ≈ 2.3 mg uncrushed REMARKS 40ul 2N HCl added to clean 23ul 6N

B - 5 whole shells ≈ 3.0 mg crushed 30 ul 6N

C - 5 whole shells ≈ 3.0 mg rehydrated with 100 ul

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A1																<0.037		0.03
B2																		0.021
C3																		<0.06
4																		

DAN-99 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date ____ Collector E. Evanoff Submission Date 10/21/80

Locality various Univ. Colo Museum collections

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth ____ Species Vallonia cyclophorella

Sample Description 14 Vallonia - all 2 mm shells UCM Nos. 443, 17305, 17822, 14263, 22326, 25621, 19243

Estimated Age: Relative modern Absolute ____

all heated in 5% NaOCl for 30 mins at 80°C

Local Stratigraphic Relations (sketch on reverse) all cleaned in V-vial

A - 4 whole shells ≈ 2.3 mg 100ul REMARKS 5ul on

B - 5 whole shells ≈ 3.0 mg dried in oven 100ul ½ on

C - 5 whole shells ≈ 3.0 mg 100 ul ½ on

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A1																0.0276		0.024
B2																		0.016
C3																		0.017
4																		

DAN-100

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality various Univ. Colo Museum collections

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla muscorum

Sample Description cum no. – no. shells 2501-2, 17288-3, 1844-2, 10029-3, 2960-1, all 3 mm shells

Estimated Age: Relative modern Absolute _____

all heated in 5% NaOCl for 30 mins at 80°C

Local Stratigraphic Relations (sketch on reverse) all cleaned in V-vial

A – No. 17288 (3 whole) ≈ 3.8 mg REMARKS sound bone used ≈ 60%

B – No. 10029 & No. 2960 (4 whole) ≈ 5.0 mg 50% just right

C – No. 2501 + 1844 (4 whole) ≈ 5.0 mg ½ on

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		<0.031
B 2																		0.025
C 3																0.030		0.034
4																		

DAN-101

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality various Univ. Colo Museum collections

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla blandi

Sample Description cum no. – no. shells all 3 mm shells 2960-3, 233-1, 3008-3, 1760-3, 442-2, 2930-1, 283-2, 1765-2

Estimated Age: Relative modern Absolute _____

all heated in 5% NaOCl for 30 mins at 80°C

Local Stratigraphic Relations (sketch on reverse) all cleaned in V-vial

A – No. 1765 & No. 3008 (5 whole) ≈ 6.5 mg REMARKS 50% just right

B – No. 2960 & 1760 (5 whole) ≈ 6.5 mg 50% too much

C – No. 233 & No. 2930 & No. 442 & 283 (6 whole) ≈ 8 mg 100 ul 50 ul on

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.019
B 2																		0.019
C 3																		0.016
4																		

DAN-102 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QX1-3 P.C
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 2700' E of W bound, 2000' N of S bound., Sec 24, T1N, R94W

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species ✓ Vallonia cyclophorella

Sample Description 14 shells

Estimated Age: Relative Bull Lake Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 3 2mm shells 0.5 mg
B - 3 2mm shells) combined 1.1 mg
X - 3 2mm shells
clean C - 3 2mm shells 1.5 mg + free?

REMARKS clean D - 4 2mm shells 2.6 mg

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.178
B 2																		0.171
C 3																		low
D 4																		0.195

DAN-103 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QX1-3 P.C.
Field Number
(+ equiv.)

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 2700' E of W bound, 2000' N of S bound, Sec 24, T1N, R94W

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species ✓ Vallonia gracilicosta

Sample Description 14 shells

Estimated Age: Relative Bull Lake Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 3 2mm shells 1.3 mg
B - " 1.3 mg
C - " 1.0 mg dried in oven
clean D - 3 " 1.8 mg + free?

REMARKS clean E - 3 2mm shells 1.6 mg

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																		0.174
B 2																		lost
C 3																		0.171
D 4																		
E																		0.20

A 17,7380
0.5 mg

B+C 90
7.0829
0.1 mg

C
2.0288
2.0273
1.5 mg

D
2.0903
1.9977
2.6 mg

DAN-102

A 35
7.0422
1.3 mg

B 68
7.1553
1.3 mg

C 79
16.9269
1.0

D
2.0345
2.0327
1.8 mg

E 1.9743
1.9727
1.6 mg

DAN-103

rerun 104B HYD'.

DAN-104 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QX1-3 p.c.
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 2700' E of W bound, 2000' N of S bound, Sec 24, T1N, R94W

Co-ordinates: Lat. ____° ____' N; Long. ____° ____' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla muscorum

Sample Description 14 shells, 3 broken

Estimated Age: Relative Bull Lake Absolute _____

Local Stratigraphic Relations (sketch on reverse)

5856 .7415 .5951
11.5813 17.7392 17.5918
4.3 2.3 3.3

A - 2 ½'s, 1 whole 4.3 mg
B - 1 ½, 2 whole 2.3 mg
C - 3 whole 3.3 mg
D - 2 whole 3.8 mg
E - 3 whole 3.4 mg

REMARKS

104A & B-H redried 11/21/81

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.265	0.128
B 2																	0.284	0.735
C 3																	0.267	0.148
D 4																0.158 H		0.127
E																0.133 H		0.126

rehydrate ½ as much in future use 4 in future

DAN-105 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QX1-3 p.c.
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 2700' E of W bound, 2000' N of E bound, Sec 24, T1N, R94W

Co-ordinates: Lat. ____° ____' N; Long. ____° ____' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla blandi

Sample Description 14 shells, 3 broken

Estimated Age: Relative Bull Lake Absolute _____

Local Stratigraphic Relations (sketch on reverse)

8422 11.5480 9853
10.8395 11.5469 10.9830
2.7 1.1 2.8

A - 2 lower + 1 upper ½'s 1.1 mg
B - 3 lower ½'s 2.3 mg
C - 1 whole + 2 ½ shells 2.7 mg
D - 2 whole + 1 ½ 4.9 mg
E - 2 whole + 2 ½ 6.2 mg

REMARKS

105C-H redried 11/21/81 rehydrated 50x 75 ml cleaned in V-vial

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																≈1.0??		
B 2																	0.18	0.10
C 3																≈0.188	0.22	0.146
D 4																		0.219
E																		0.195

D	E
2.0541	2.0068
2.0503	2.0034
3.8	3.4

DAN-104

uncleaned Pup = 2 mg
" Val = 1 mg

∴ cleaned
Val = 0.5-0.8 mg
Pup = 1 - 1.5 mg

DAN-105

use 6 in future

DAN-106 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Q111-2 p.c.
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 375' E of W bound., 1450' S of N bound., Sec 31, T1N, R94W

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description 15 shells

Estimated Age: Relative intermediate Absolute _____

Local Stratigraphic Relations (sketch on reverse)

50 57 2965
18.1936 18.0948 18.2951
1.4 0.9 1.4

A - 3 med shells 1.4 mg
B - 3 med shells 0.9 mg
C - 3 med shells 1.4 mg
D - H+F 6 med shells ≈ 3 mg 100ul added

REMARKS

106 B-14 redried 11/21/81
cleaned in V-vial 50ul on

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1															bad ~~≈0.11~~		~~≈0.30~~
B 2																	0.12
C 3															bad ~~≈0.28~~ ?		
D 4															0.206		0.25

no more available

DAN-107 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Q111-2 p.c.
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 375' E of W bound., 1450' S of N bound., Sec 31, T1N, R94W

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla muscorum

Sample Description 14 shells, most broken

Estimated Age: Relative intermediate Absolute _____

Local Stratigraphic Relations (sketch on reverse)

.7551 40 98
16.7541 17.0123 17.2379
1.0 1.7 1.9

A - 3 lower halves, 1 upper half 1.0 mg
B - 2 lower halves, 1 upper half 1.7 mg
C - 4 lower thirds 1.9 mg
D - 1 whole + 4 frags 3.8 mg
E - " " 3.6 mg

REMARKS 50ul Norlea added syringe not rinsed on HY6
" "
" 100ul added 50ul on
cleaned in V-vial

RESULTS dried in oven " " F H

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1															≈ 0.16		≈0.33?
B 2																bad	lost
C 3																	
D 4															0.188		0.22
E																	0.217

DAN-108 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QV-1
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 1450' W of E bound, 2000' N of S bound, Sec 36, T1N, R94W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla muscorum, form A

Sample Description 1/2 of 1 broken shell

Estimated Age: Relative _____ Absolute < 200K - Pearlette O

Local Stratigraphic Relations (sketch on reverse)

A-1½ 0.7mg 50ul Norleu added REMARKS 0.7mg clear
B-1 frag ≈ 0.5mg 15ul HCl + 15ul mm cleaved in V-vial almost dried in oven

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.47
2																	bad	0.33
3																		
4																		

DAN-109 ✓
Laboratory Number

rerun D (all)
E? (all)

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QV-1
Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 1450' W of E bound, 2000' N of S bound, Sec 36, T1N, R94W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia gracilicosta

Sample Description 14 shells

Estimated Age: Relative _____ Absolute < 200K - Pearlette O

Local Stratigraphic Relations (sketch on reverse)

A - 3 2-3mm shells 1.9mg REMARKS
B - 3 2-3mm shells 2.4mg (shells whole)
C - 3 2-3mm shells 1.2mg dried in oven
D - 3 2-3mm shells ~~1.8mg~~ 2.5mg
E - 3 2-3mm shells 2.6mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.337
B 2																		0.201
C 3																		0.367
D 4																		0.238 H
E																		0.271 A

A 18.2767 (86)
1.9 mg

B 17.4173 (97)
2.4 mg

C 17.7300 (12)
1.2 mg

D

E 2.0991
2.0965
2.6

DAN-109

DAN-110

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QV-1

Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 1450' W of E bound, 2000' N of S bound, Sec 36, T1N, R94W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla blandi

Sample Description 9 shells, 5 broken

Estimated Age: Relative _____ Absolute < 600 K - Pearlette O

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 2 whole (1.5 mm wide), 2 ½'s 2.8 mg

B - " 3.0 mg (sample still whole) rehydrated with 100 ul

C - " 2.1 mg "

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																0.407		0.375
2																		0.212
3																		0.295
4																		

no more sample ~~[illegible]~~ nothing left

DAN-111

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QV-1

Field Number

Collection Date _____ Collector E. Evanoff Submission Date 10/21/80

Locality 1450' W of E bound, 2000' N of S bound, Sec 36, T1N, R94W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description 10 shells

Estimated Age: Relative _____ Absolute < 700 Ks - Pearlette O

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 3 2-2.5 mm shells 2.2 mg

B - 3 " 4.1 mg (dirt)

C - 3 " 1.8 mg

D - 2 2.5 mm shells 1.7 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.325
B 2																		0.262
C 3																		0.282
D 4				nothing left														bad run

A 33
17.6005
2.8 mg

B 4217
17.4187
3.0 mg

C 739
18.0718
2.1 mg

DAN-110

A 2027
11.2005
2.2 mg

B 80
17.0739
4.1 mg

C 69
17.2651
1.8 mg

D 1.9903
1.9886
1.7

DAN-111

80°

DAN-112
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 1/14/81 Collector A.R. Nelson Submission Date

Locality 1st + 2nd S terrace on Boulder Creek below Stadium

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth surface litter & logs Species Vallonia pupilla cionella – all cleaned with 5% NaOCl for 20 mins at 90° given in sequence and 35% H_2O_2 for 20 mins at 70°C

Sample Description

Estimated Age: Relative modern – periostracum Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

all Vallonias in 4 small, 2 big tubes for heating at 80°C

date →

remove at 100, 250, 365, 450, 600 days

A 3 each A, B, C 30ul 7NHCl
B (A) B, C 3 each 30ul 7NHCl
C A, B, C 4 each 40ul 7NHCl
D A, B, C 4 each "
E A, B, C 6 each 60ul 7NHCl

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1	80° in 1/20/81																
B 2	80° in 1/20/81																
3																	
4																	

DAN-113
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80-170
Field Number

Collection Date Collector A.R. Nelson Preparation Date

Locality Stinking Springs fault gully – near upper end

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 6 m Species Pupilla

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A – 1 whole 0.6 mg

REMARKS

61
4,6955
0.6

Prepared by:

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1																0.062	
2																	
3																	
4																	

1) 11 Valdonia removed from 112A on May 3 — 103 days
purified water in one tube changed

	in	days	out	no. shells
A	1/20/81 9PM	103	5/3/81 May	11
B	11	264	10/11/81 Oct	12
C	11	363	1/18/82	14
D	11	463	4/28/82	15
E	11	613	9/25/82	15
~~F~~	~~11~~	~~739~~	~~11/29/83~~	~~15~~ (dried out)

DAN-112

DAN - 114

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80 - 167

Field Number

Collection Date _____ Collector A. R. Nelson Preparation Date _____

Locality Stinking Springs fault gully

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 3.5m Species Pupilla

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 1 whole, 1½ 0.8 mg

REMARKS

64
4.7256
0.8

Prepared by:

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
1																≈	0.02	
2																		
3																		
4																		

DAN - 115

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80 - 166

Field Number

Collection Date _____ Collector A. R. Nelson Preparation Date _____

Locality Stinking Springs fault gully

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 1.6m Species Pupilla

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 2 whole, 1½ 2.0 mg

REMARKS

4.6884
4.6864
2.0

~~Check rate~~ ??

Prepared by:

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
A 1																	bad	
2																		
3																		
4																		

DAN - 116
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80 - 165
Field Number

Collection Date _____ Collector A. R. Nelson Preparation Date _____

Locality Stinking Springs fault gully

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla

Sample Description _____

Estimated Age: Relative _____ Absolute 7150 4,7134 1.6

Local Stratigraphic Relations (sketch on reverse)

A-2 whole 1.6 mg FREE REMARKS

look - redo ?? yes

Prepared by:

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	bad	
2																		
3																		
4																		

DAN - 117
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80 - 171
Field Number

Collection Date _____ Collector A. R. Nelson Preparation Date _____

Locality Stinking Springs fault gully

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth 5m Species Pupilla

Sample Description _____

Estimated Age: Relative _____ Absolute 7236 4,7229 0.7

Local Stratigraphic Relations (sketch on reverse)

A-1 whole, 1 ½ 0.7 mg FREE REMARKS

Prepared by:

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																≈	0.03	0.04
2																		
3																		
4																		

mid to early Holocene

DAN-118

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN80-163

Field Number

Collection Date _____ Collector A. R. Nelson Preparation Date _____

Locality Stinking Springs fault gully

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 2.8 m Species Pupilla

Sample Description _____

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 2 whole 1.3 mg

REMARKS

51
4.7138
1.3

Prepared by:

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A																	0.065	
2																		
3																		
4																		

reaun

MAT 62°F ?
16.7°C

DAN-119

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

∴ 6000 BP

W. Letts USGS

Field Number

Collection Date 2/24/81 Collector William Letts - USGS Submission Date 3/20/81

Locality western San Joaquine Valley

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species cf. Lymnea

Sample Description gastropods in buried alluvium San Luis alluvium?

Estimated Age: Relative _____ Absolute 40-75 ka or 140-160 ka

Local Stratigraphic Relations (sketch on reverse)

A - 1 7mm wide shell without spire 23.8 mg

REMARKS (dirt)

B - 1 5mm wide shell with spire 36.3 mg

C - 1 6mm wide shell without spire 40.5 mg

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.27	0.16
B 2																	0.28±	0.11±
C 3																	0.32	0.14±
4																		

mean 0.137

A
1015
11,0777
23.8 mg

B
8351
4.7988
36.3 mg

C
7783
4.7388
40.5 mg

DAN-119

HHL-4346

DAN-120
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
Park City 649-7608
UNIVERSITY OF COLORADO
Denver 234-3117

ARN81-
Field Number

Collection Date 6/1/81 Collector A.R. Nelson Preparation Date

Locality Test Pit No. 314, Jordanelle Reservoir, Co., UT

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymn? Sp.

Sample Description

Estimated Age: Relative pre-Bull Lake - early Quat Absolute

60 mL
25 mg/mL

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 5 "Lymnea - Succineada" type fragments - 10.5 mg shell - 0.42 mL rehyd's
B - 5 Gyralus sp. ?? - 5.1 mg. 0.32 mL "
C - 5 Gyralus sp. ?? - 5.6 mg. 0.38 mL "

Prepared by: DS.

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		.65 ?
2																		.63 ?
3																		.69 ?
4																		

low paranoity - never prepped

DAN-123
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

R31
Field Number

Collection Date 9/19/81 Collector A.R. Nelson Submission Date

Locality Friends Trip - Stop R31 - edge of small roadcut

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 0.3 m Species

Sample Description 4 large whole shells

Estimated Age: Relative modern Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		
2																		
3																		
4																		

DAN-124 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 9/19/81 Collector K.L. Pierce & A.R. Nelson Submission Date

Locality Friends Trip - Stop R31 - main gravel exposure

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 0-1m above gravels Species A. Orbelix ?

Sample Description 1 inner whorl + 1 fragment

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 1 frag 4.0 mg
B - 1 frag 6.7 mg
C - 1 whorl frag 8.6 mg
D - " " 18.4 mg

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.2407
B 2																		0.2643
C 3																1.28		too low
D 4																		1.04

need another 2 Suc - not now

DAN-125

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Lym 0.122 0.038 0.031
Val 0.036 0.030
Pup 0.030 0.036
Psid 0.062
Suc 0.061

Field Number

Collection Date 8/28/81 Collector A.R. Nelson Submission Date

Locality Indian Creek Cove 1 - Segs 3 & 4 SW, NW, Sec 15, T45, R11W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Strawberry Reservoir NE, UT

M.A.S.L. Depth 170-204 cm Species A. Lymnea, Pupilla, Gyralus?
A = Vallonia cyclophorella
B = Lymnea sp.
C = Pupilla muscorum

Sample Description

Estimated Age: Relative Absolute 170-204 cm 8230±190

Local Stratigraphic Relations (sketch on reverse)

cleaned in V-vial

A - 3 whole, 2½ shells ≈ 2.5 mg uncrushed REMARKS 25ul 6N 40 ml 2N HCl added to clean
B - 1 shell ≈ 8 mg uncrushed 50ul 6N
C - 1 small, 1 large, 2½'s ≈ 3.3 mg crushed 30ul 6N
H - 4 small 100 #2 lost
D - " "
G -

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Hyd	ALLO: ISO Free	ALLO: ISO Hyd
1					I ✓ lost				E Lym 0.122 ✓						A ✓			X	.036 ✓
2					J Psid 0.062 ✓				F Pup lost						B ✓	.038	.0391	X	.0391 ✓
3									G ✓ 0.036 ✓						C ✓	.030	.0296	X	.0295 ✓
4									H Val 0.030 ✓ lost						D ✓				0.031 ✓
									H Suc 0.061 ✓										

A	B	C	D
2.6160	2.6546	2.6337	2.6402
2.6120	2.6477	2.6251	2.6218
4.0	6.9	8.6	18.4

DAN-124

lost I ✓ broke in oven Sue ovalis — 1 large

lost H ✓ Val grac. — 4 small ✓

H ✓ Sue ovalis — 5 small 3 mg 80 ul pH2

J ✓ Psid abditum — 6 small 6 mg 160 ul pH2

D ✓ Lym — 1 med ✓

E ✓ Lym — 3 small 8 mg 200 ul pH2

lost F ✓ Pup — 3 whole 80 ul pH2

G Pup — 4 whole ✓

DAN-125

DAN-126

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/28/81 Collector A.R. Nelson Submission Date

Locality Indian Creek Core 1 Seg 8 SW, NW, Sec 15, T4S, R11W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Strawberry Reservoir NE, UT

M.A.S.L. Depth 661-688 cm Species cf. Pupilla, Lymnea, Gyraulus?

Sample Description A = Vallonia cyclophorella
B = Pupilla muscorum or Vallonia?
C = " "

Estimated Age: Relative Absolute >37,000

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 5 shells ≈ 3.0 mg uncrushed 30ul 6N — cleaned in V-vial
B - 7½'s, 1 whole ≈ 5 mg uncrushed 50ul 6N — 40ul 7N HCl added to clean
C - 7½'s, 1 whole ≈ 5 mg crushed 50ul 6N — G - 2 small Val ≈ 1.5 mg (20ul 7N HCl dried in oven)
F - Val D - Pup 8 mg lost 200ul pH2 E - Val - 7 med 20ul pH2 last — removed

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO	
										rehydrated after most of sample removed						Hyd	Free	Hyd
1					D	0.071 Pup				A			.094 ± .01			.089	X	.092
2					E	0.063 Val				B	0.115		.117 ± .09			.109	X	.126
3					F	lost ??				C			.082 ± .01			.081	X	.083
4					G													0.082

0.045 - 0.066 (0.055 used) 1/83

DAN-127

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/28/81 Collector A.R. Nelson Submission Date

Locality Indian Creek Core 1, Segs 12 & 13 SW, NW, Sec 15, T4S, R11W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Strawberry Reservoir NE, UT

M.A.S.L. Depth 894-922 cm Species Lymnea ??, sp.

Sample Description 6 small fragments

Estimated Age: Relative Absolute 25,840 ± 1300 894-922 cm

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - ≈ 1 mg 20ul HCl 50ul pH2 — cleaned in V-vial
B - Suc - lost

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO	
																	Free	Hyd
1 A																	X	.135
2 B	lost																	
3																		
4																		

DAN-128
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/28/81 Collector A. R. Nelson Submission Date

Locality Indian Creek - Core 1 [redacted] SW, NW, Sec 15, T45, R11W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Strawberry Reservoir NE, UT

M.A.S.L. Depth 702 cm Species Lymnea

Sample Description 1 shell

Estimated Age: Relative Absolute just below upper >37ka date

Local Stratigraphic Relations (sketch on reverse)

A - 1 small Lym - 8mg 160ul HCl REMARKS
B - ½ of pupilla - 2mg 20ul HCl 60ul pH2

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.131
B 2																		0.068
3																		
4																		

DAN-1289
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/31/81 Collector A. R. Nelson Submission Date

Locality Indian Creek - Core 2 - Seg 3 SW, NW, Sec 15, T45, R11W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Strawberry Reservoir NE, UT

M.A.S.L. Depth [redacted] 129-170cm Species Pisidium, Lymnea?

Sample Description Lymnea - 1 large frog, several small frogs, 1 small shell; Pisidium - 1 valve

Estimated Age: Relative Absolute 2955 ± 145 129-170 cm

Local Stratigraphic Relations (sketch on reverse)

A - 1 large frog - Lym 5mg 200ul HCl REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		0.047
2																		0.037
3																		
4																		

if needed - yes

DAN-130
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/31/81 Collector A. R. Nelson Submission Date

Locality Indian Creek - Core 2 SW, NW, Sec 15, T4S, R 11W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Strawberry Reservoir NE, UT

M.A.S.L. Depth 158 cm Species Lymnea, Psidium, Succinea

Sample Description several large Lymnea, 1 paired Psidium

Estimated Age: Relative Absolute 2955 ± 145 over 129-170 cm

Local Stratigraphic Relations (sketch on reverse)

A - ½ of shell - Lym - 8 mg? 60 ul HCl REMARKS 300 ul DH2 D 1 large valve Psid
B - several frags - Lym - 5 mg? 100 ul HCl E "
C - 1 large shell - Lym 20 mg? 200 ul HCl F "

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1													A			0.0155		0.021
2													B			0.0156		0.0258
3													C			<0.01		0.024
4																		

DAN-130
Laboratory Number

AMINO ACID LABORATORY
INSTAAR Reruns
UNIVERSITY OF COLORADO

Field Number

Collection Date Collector Preparation Date 12/19/82

Locality

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

D 1 valve 3.8 mg 76 ul 7N HCl Prepared by:
E " 2.8 mg 56 ul "
E " 2.3 mg 46 ul "

						Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T) 1	Peak Areas aIle/Ile (T) 2	Peak Areas aIle/Ile (T) 3	Peak Heights aIle/Ile (Free)				Peak Heights aIle/Ile (Total) 1	Peak Heights aIle/Ile (Total) 2	Peak Heights aIle/Ile (Total) 3	
A																			
B																			
C																			
D									0.015	0.020						<0.03			
E										0.043						0.047			
F										0.0253						0.031			

low priority - never prepped

DAN-131

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 10/81 Collector A. R. Nelson Submission Date

Locality 6' terrace above Boulder Creek below old campus

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth surface - on log Species Cionella

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		
2																		
3																		
4																		

low priority - never prepped

DAN-132

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 10/81 Collector A. R. Nelson Submission Date

Locality Boulder Creek below old campus

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Physa ?

Sample Description

Estimated Age: Relative modern Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		
2																		
3																		
4																		

DAN-133

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date _____ Collector A.R. Nelson Preparation Date _____

Locality Indian Creek Core 1

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 1037 - 1060 cm Species Psidium, Vallania, Gyralus

Sample Description >250 u

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1 valve 60 ul HCl 100 ul pH 2
B - 1 valve 60 ul HCl " "
C - 3 2mm shells, 2 frags 50 ul HCl Val 80 ul pH 2

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A								0.107
B								0.118
C								0.084
D								
E								

DAN-134

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 2 ul/mg
UNIVERSITY OF COLORADO 7N HCl + marbles

H-2

Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date _____

Locality Yampa River V. Hall Pit (S8)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Catinella

Sample Description priority #1 1-1mm, 1-3 mm long

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1 1mm wide shell (very small) est 1.5 mg dried in oven
B - 1 1.5mm wide shell est 3 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.177					
B			0.021	return	no more vial?			
C								
D								
E								

A

2.
2.3073
-400

B

2.2633
-400

DAN-134

DAN-135
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

H-2
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Wall Pit (58)

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Heliosoma ?

Sample Description priority #1 6 large frogs

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 33mm frogs 8,6 mg
B - 22 mm frogs - inner whorl 5,8 mg
C - 33mm frogs 5,6 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.148		
B		0.196 (low) adjac.? ~~re-run~~ ? not more vial		0.2604
C		too l 0.152		
D				
E				

DAN-136
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SK-1-P2-2-8-81
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date reprepare ? 1

Locality Yampa River V. Stanko Pit (53)

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella

Sample Description priority #2 1-8mm, 2-3mm, 2-2mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 1-8mm 450 ul HCl
B - 2-3 mm 80 ul HCl
C - 1-3mm ~~40~~ ul HCl

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.328 0.310		0.390
B		0.312 0.3696		0.369
C		0.184 lost		0.221
D				
E				

A	B	C
2.0361	2.0446	2.0230
2.0275	2.0388	2.0174
8.6	5.8	5.6

DAN-135

DAN-137

Laboratory Number

2% HCl ml

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SK-1-P2-2-8-81

Field Number

OK

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Stanko Pit (S3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #2 10-3mm, 4-1mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A-3 45ml HCl

B-3 50 ml HCl

C-3 40 ml HCl

D-3 2mm 2.0mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A				
B		0.235		0.211
C		0.200		0.251
D		0.208		0.236
E				low & bad

DAN-138

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SK-1-P2-2-8-81

Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Stanko Pit (S3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Pupilla musconum

Sample Description priority #2 4-2mm, 2 ±'s

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 2 2mm 3mg 60ml 7N HCl

B " " " "

C " " " "

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.234		
B		0.101 0.141		0.165
C		0.262 lost	no more vial	
D				
E				

D

2.0069
2.0049
2.0 mg

DAN-137

DAN-139
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SK-1-P2-2-8-81
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Stanko Pit (53)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #2 2-8 mm, 1-6 mm, 3-5 mm

Estimated Age: Relative Absolute

D-1 6mm shell 5.8 mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A-1 8mm 400 ul HCl [illegible] 100 ul - ½ aliquot

B-1 8mm 500 ul HCl

C-1 6mm 200 ul HCl

E-1 6mm shell 6.5 mg

F-1 " 6.0 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.659	rerun	no more vial		0.575 3.25	bad
B			0.300				0.455	
C			0.576				0.455	
D			0.4281	low				
E			0.3427					
F			0.3074	low low				

DAN-140
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SMP-1-2B
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Smythe Pit 1 (51)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella sp.

Sample Description priority #3 4-5 mm, 2-4 mm, 1-3 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A-1-5 mm 100 ul HCl

B-1-5 mm 100 ul HCl

C-1-5 mm 100 ul HCl

D-1-4 mm 1.9 mg

E-1-3 mm 1.6 mg

F-1-3 mm + frags (slight rust stain on shell) 2.2 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.471	no more vial			0.50	
B			0.18	0.201			0.272	
C							0.329	
D			low					
E			0.1223					
F			0.2232					

D

2.0287
2.0229

5.8 mg

E

2.0260
2.0195

6.5 mg

F

2.0249
2.0289

6.0 mg

DAN-139

D

1.9961
1.9942

1.9 mg

E

2.0266
2.0250

1.6 mg

F

2.0167
2.0135

2.2 mg

DAN-140

DAN- 141
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SMP-1-2B
Field Number

OK

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Smythe Pit (S1)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta (Reinhart

Sample Description priority #3 7-3mm, 5-2mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A 4 2mm 2.5 mg 50ul 7N HCl Prepared by:
B 3½ 2mm 2.2 mg 44ul "
C 4 2mm 2.5 mg 50ul "

	Peak Areas			Peak Heights		
	aIle/Ile (F)	aIle/Ile (T)		aIle/Ile (Free)	aIle/Ile (Total)	
A		0.213	lost no more vial			
B		0.267				
C		0.289			0.306	
D						
E						

DAN- 142
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SMP-1-2B
Field Number

OK

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Smythe Pit 1 (S1)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Pupilla muscorum

Sample Description priority #3 6-2mm, 1 small frag

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A 2⅔ 2mm 3.1 mg 62 ul 7N HCl Prepared by:
B 2½ 2mm 3.7 mg 74 ul "
C 2 2mm 3.0 mg 60 ul "

	Peak Areas		Peak Heights		
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)	
A		0.258		0.296	
B		0.259			
C		0.268			
D					
E					

DAN-143

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SMP-1-2B

Field Number

OK

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Smythe Pit 1 (S1)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea sp.

Sample Description priority #3 1-6 mm, 4-5 mm, 1-4 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 1 5mm 6 mg? 120 ul 7N HCl
B " " "
C " " "

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.223 low		0.225
B		0.255 low		0.296
C		0.281		0.340
D				
E				

DAN-144

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

CMP-2

Field Number

reprepare? ??

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. CMP-2 (C3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #4 2-6 mm, 2-3 mm, 3-1 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1-6 mm 200 ul HCl
B - 1-6 mm 200 ul HCl
C - 1-3 mm 60 ul HCl
D - small fraga 0.9mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.162		0.20
B		0.159		0.177
C		0.103 lost		0.164
D		bad		
E				

D

1.9973

1.9964

0.9 mg

DAN-144

DAN-145
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

RCP-1-S-81
Field Number

OK

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. RCP-1 (lg. fauna) (H3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella sp. Succinea

Sample Description priority #5 2-6 mm, 2-5 mm,

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1-6 mm 200 ul HCl D-1 6mm shell 11.9 mg

B - 1-6 mm 160 ul HCl

C - 1-5 mm 100 ul HCl

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.168		0.226
B		0.156		0.176
C		0.209 lost no more vial		0.200
D		0.2308 0.2215		
E				

DAN-146
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

RCP-1-S-81
Field Number

rehydrated 2x 7N amount OK?

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. RCP-1 (lg. fauna) (H3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #5 10-3 mm, 1-2 mm, 1 frag

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 4 3mm shells 3.2 mg 64 ul 7N HCl

B " " " almost dried in oven

C 3½ 3mm 2.8 mg 56 ul 7N HCl

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.128 lost no more vial		
B		0.096 0.248		0.211
C		0.124 0.1674		0.151
D				
E				

D

2.0087
2.0068

11.9 mg

DAN-145

DAN-147
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

RCP-1-5-81
Field Number

OK

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. RCP-1 (lg. fauna) (H3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Pupilla muscorum (Linne)

Sample Description priority #5 7-2 mm, 6 ½'s

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 3⅓ (3mm) - 5mg 100 µl 7N HCl Prepared by:

B - " - " "

C - " " "

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.091		
B		0.087		0.107
C		0.098		0.122
D				
E				

DAN-148
Laboratory Number

20 µl/mg 7N HCl rehydrate at 40 µl/mg pH 2 = 2x HCl amount

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

RCP-1-5-81
Field Number

OK

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. RCP-1 (lg. fauna) (H3)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella (Say)

Sample Description priority #5 2-5 mm, 2-4 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 1 shell 80 µl HCl D - 1 4mm shell 3.4mg Prepared by:

B - " 80 µl HCl E - frags 0.5mg

C - " 80 µl HCl

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.159		0.165
B		0.146		0.157
C		0.156		0.187
D		0.1128		
E		0.0476		

D

2.0461
2.0427

3.4 mg

E

2.0112
2.0117

0.5?? mg

DAN-148

DAN-149

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C2L-1

Field Number

20 ul/mg 7N HCl + norleu

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. C2L-1 (C6)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #6 1-6 mm, 15 mm, 2-4 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

5.5 mg A - 1, 3 mm wide shell 2.8 mg C - 1 2 mm wide shell Prepared by:

8.0 mg B - 1, 2 mm " only frags remaining 1.8 mg D

E - 1, 4 mm wide shell 10.8 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.185		
B		0.229 low		
C		~~0.109~~ low		
D		0.202		
E		0.194		

DAN-150

Laboratory Number

20 ul/mg 7N HCl

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

M-1

Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Mock Pit (H2)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #7 4-3 mm, 2-2 mm, 1-1 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A3 add 35 ul HCl Prepared by:

B3 45 ul HCl

C3 33 ul HCl

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.140 low		0.170
B		lost		0.056 lost
C		0.097		0.119
D				
E				

C

2.0175
2.0147
~~2.6462~~

2.8

D

2.0350
2.0332
~~2.6344~~

1.8

E

2.6247
2.6139

10.8

A 2.6517
2.6462

5.5 mg

B 2.6424
2.6344

8.0 mg

DAN-149

DAN-151

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

M-1

Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Mack Pit (H2)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #7 1 6mm, 1-3mm, 2 4mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A 1-3mm 60 ul HCl Prepared by:

B 1-6mm 160 ul HCl

C 1-3mm 60 ul HCl

D- " 1.5mg

	Peak Areas			Peak Heights		
	aIle/Ile (F)	aIle/Ile (T)		aIle/Ile (Free)	aIle/Ile (Total)	
A		0.171	lost		0.194	lost
B		0.154			0.181	
C		0.119	0.166		0.163	
D		0.1855				
E						

DAN-152

Laboratory Number

2 x HCl ul

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

H-Ave

Field Number

where are A & B?

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. H-Ave (H5)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella ✓

Sample Description priority #8 2-10mm, 1-7mm, ½-4mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) clean REMARKS Preparation:

A - 1-10mm 400 ul HCl D - 14mm shell 2.6mg Prepared by:

B - 1-10mm 500 ul HCl

C - 1-7mm 400 ul HCl

	Peak Areas			Peak Heights		
	aIle/Ile (F)	aIle/Ile (T)		aIle/Ile (Free)	aIle/Ile (Total)	
A						
B						
C		0.232			0.216	
D		low				
E						

D

2.0360

2.0345

1.5 mg

DAN-151

D

2.0079

2.0053

2.6 mg

DAN-152

DAN-153
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

H-Ave
Field Number

OK

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. H-Ave (H5)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Pupilla muscorum

Sample Description priority #8 1-2mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 20ul

all

REMARKS

Preparation:

Prepared by:

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.179				0.239	
B								
C								
D								
E								

DAN-154
Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg
UNIVERSITY OF COLORADO 7N HCl + water

HP-1
Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Peabody Pit (H1)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #9 2-4mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 2,3mm shells 5.5mg

REMARKS

Preparation:

Prepared by:

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.222					
B								
C								
D								
E								

A

2.0125
2.0070
5.5

DAN-154

DAN-155

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

20 ul/mg
7N HCl + norleu

C 394

Field Number

Collection Date 6/25/82 Collector R.F. Modale Preparation Date

Locality Yampa River V. C394 (C4)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella

Sample Description priority #10 3-5mm, 2-4mm, 1-2mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

7.2mg A -), 4mm wide shell 7.3 mg D solution very yellow dried in oven

7.4mg B - " 4.9 mg E

6.6mg C - " 0.4 mg 1.5mm wide shell F

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.108 0.1236		
B		0.099 0.0988		
C		0.125		
D		~~0.051~~ ?? Second		
E		0.168 no more vial		
F		~~0.599~~ ??		

DAN-156

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C 394

Field Number

Collection Date 6/25/82 Collector R.F. Modale Preparation Date

Locality Yampa River V. C394 (C4)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #10 6-2mm, 6-3mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS all very clean

Preparation:

Prepared by:

A - 2-2mm + frags 2.3 mg

B - 1-3mm + 2-2mm + frags 2.7 mg

C - 2-2mm + frags 2.8 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.8514 low		
B		0.3431		
C		0.2615		
D				
E				

D

2.0574
2.0501
~~2.6464~~

7.3

E

2.0484
2.0435
~~2.6373~~

4.9

F

2.0147
2.0143
~~2.5983~~

0.4

A

2.6536
2.6464

7.2 mg

B

2.6447
2.6373

7.4 mg

C

2.6049
2.5983

6.6 mg

DAN-155

A
2.0268
2.0245

2.3

B
2.0821
2.0694

2.7

C
2.0527
2.0499

2.8

DAN-156

DAN-157

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C 394

Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. C394 (C4)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Pupilla muscorum

Sample Description priority #10 2-2mm, 27 ½'s

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 3½'s + frags 2.6 mg lost

B - 3½'s + frags 2.0 mg

C - 5½'s + frags 3.4 mg

D - 3½'s + frags 1.7 mg

REMARKS

Preparation:

Prepared by:

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A								
B			0.2066					
C			0.0953	0.0791				
D			bad					
E								

DAN-158

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

C 394

Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. C394 (C4)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #10 3-2mm, 5-3mm, 3-4mm wide

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - 1-3mm shell 2.0 mg

B - 1-4mm shell 2.6 mg

C - 1-4mm 4.6 mg

D - 1-2mm, 1-3mm 1.8 mg

E - 1-4mm, 1-2mm 3.5 mg

F - 2-3mm shells 3.6 mg

G - 1½-3mm shells 2.1 mg, low

REMARKS

Preparation:

Prepared by:

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.2087 <				0.1111	
B			0.1681	0.1606				
C			0.1054					
D			0.1182					
E			bad low					

0.1173

A	B	C	D
2.0278	2.0083	1.9750	2.0075
2.0252	2.0063	1.9716	2.0068
2.6	2.0	3.4	1.7

DAN-157

A 2.6453	B 2.6622	C 2.6602
2.6433	2.6596	2.6566
2.0	2.6	4.6

D 2.6437	E 2.6403	F 2.6483
2.6419	2.6378	2.6447
1.8	3.5	3.6

G 2.0427
2.0406
2.1 mg

DAN-158

DAN-159
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SDP-1
Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Sherod Pit (57)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella

Sample Description priority #11 1-6mm, 1 6mm frag, 1-4mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS very clean Preparation:

A-1-6mm shell 6.5mg Prepared by:
B-½ 7mm shell 3.8mg
C-2 2mm shells 1.3mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.2713		
B		0.1998 0.3498 (low)		
C		0.3312 (low)		
D				
E				

DAN-160
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SDP-1
Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. Sherod Pit (57)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #11 2-2mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A-2-2mm shells 1.3mg Prepared by:

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.1251		
B				
C				
D				
E				

A 2.6493
2.6428
6.5

B 2.0200
2.0162
3.8

C 1.9913
1.9900
1.3

DAN-159

2.0422
2.0409
1.3

DAN-160

DAN-161
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

SDP-1
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. Sherod Pit (S7)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #11 2-3mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A 1-3mm 1.8 mg Prepared by:

B 1-2mm, ±-3mm 1.4 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.1930		
B		0.3301 low		
C				
D				
E				

DAN-162
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

?

CSW
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. CSW (C8)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species

Sample Description priority #12

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

Prepared by:

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A				
B				
C				
D				
E				

A 2.0225
2.0207
1.8

B 1.9740
1.9726
1.4

DAN-161

DAN-163
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

CH-1
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date reprepare?

Locality Yampa River V. CH-1 (C7)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella

Sample Description priority #13 1-8mm, 2 5mm, 1-4mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A-1-5mm 100 ml HCl D-13mm shell 1.8 mg
B-1-6mm 100 ml HCl E-frags 1.4 mg
C-1-8mm 160 ml HCl rerun?

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.374 0.289		0.379 0.274
B		0.244	no more vial	0.271
C		0.193 0.2668 rerun		0.201
D				
E				

DAN-164
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

CH-1
Field Number

Collection Date 6/25/82 Collector R. F. Madole Preparation Date

Locality Yampa River V. CH-1 (C7)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia gracilicosta

Sample Description priority #13 9-3mm, 6-2mm, 1-1mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 2-2mm + frags 2.9 mg
B 3-1.5mm + frags 3.2 mg
C 1-2mm, 2-1.5mm + frags 3.1 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.2840		
B		0.2728		
C		0.2322 0.1657		
D				
E				

D

2.0101
2.0083
1.8 mg

E

2.0480
2.0456
1.4 mg

DAN-163

A 2.0256
2.0227
2.9

B 2.0431
2.0399
3.2

C 2.0595
2.0564
3.1

DAN-164

DAN-165

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

CH-1

Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. CH-1 (C7)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Lymnea modicella

Sample Description priority #13 1-8mm, 1-4mm, 1 3mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A-1, 2mm shell
B-1, 5mm shell
C-1, 3mm shell

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		too low		
B		0.193		
C		0.186		
D				
E				

DAN-166

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

FVH

Field Number

Collection Date 6/25/82 Collector R.F. Madole Preparation Date

Locality Yampa River V. FVH Pit (H6)

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Catinella

Sample Description priority #14 2 med frags, 1-6 mm

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A ½-7mm 2.7 mg
B 1-3mm 1.5 mg
C 3 frags 1.9 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.1207		
B		0.2097 0.1241		
C		0.2229		
D				
E				

A	B	C
2.6056	2.6441	2.0644
2.6093	2.6280	2.0587
6.3	15.1	5.7

DAN-165

A	B	C
2.0431	2.0352	1.9846
2.0404	2.0337	1.9827
2.7	1.5	1.9

DAN-166

DAN-167

Laboratory Number

110°

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

night of in 2/4/83

Field Number

7N HCl 20ul/mg

Collection Date 1/23/83 Collector A. R. Nelson Preparation Date

Locality 6' terrace on N side Boulder Creek below stadium

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia

Sample Description clean in NaClO4 - 20 mins 80°C

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

D - 10 Val out 3/26/83 5:15 A-2½ stells B-3 stells C-2 stells — Out at 50 days

C - 10 Val out 3/11/83 7:50 PM A-2 stells C&B-2½ stells — 35 days

B - 10 Val out 3/11/83 7:15 PM (dried out & threw away) new out 3/20/83 in 25 days A-2½ stells B&C-3 stells

A - 10 Val out 2/19/83 10:45 AM — 15 days

2½ stells each Peak Areas | Peak Heights

	aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A														
B														
C														
D														
E														

DAN-168

Laboratory Number

130°

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

7N HCl 20ul/mg

Field Number

Collection Date 1/23/83 Collector A. R. Nelson Preparation Date

Locality 6' terrace on N side Boulder Creek below stadium

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia (all 2mm)

Sample Description (see back)

Estimated Age: Relative Absolute

in 5:30 PM 1/29/83 Sat oven 2

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

D - 10 Val ~~dried in 130° oven~~ 3+ stells each — Out at 15 days

C - 10 Val look wet A, B, C - 2½ each 30 ul 7N HCl — 10 days

B - 10 Val A, B, C - 2½ each " — 6 days

A - 10 Val A, B, C 2½ each 30 ul 7N HCl — 3 days

new out 3/1/83 7:15 PM

Peak Areas | Peak Heights

	aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A														
B														
C														
D														
E														

DAN-167

	in	out
A	2/4/83 5:15 PM Fri.	2/19/83 10:45 AM ~~Sat~~
B	3/1/83 7:30 PM Tues	3/26/83 3:15 PM Sat
C	2/4/83 5:15 PM Fri	3/11/83 7:50 PM Fri
D	2/4/83 5:15 PM Fri	3/26/83 3:15 PM Sat

AA	AB	AC	BA	BB	BC
2.0405	2.0980	2.0391	1.9774	1.9584	2.0224
2.0388	2.0959	2.0389	1.9750	1.9560	2.0206
1.7	2.1	?? 0.2 more like 2.5	2.4	2.4	1.8

CA	CB	CC	DA	DB	DC
2.0514	2.0608	2.0656	2.0110	2.0785	2.0676
2.0502	2.0585	2.0637	2.0990	2.0767	2.0662
1.2	2.3	1.9	?? 11.0 more like 3 mg	1.8	1.4

2/5	111°
2/8	111°
2/12	111°
2/14	111°
2/15	111.2°
2/16	112°
2/17	111°
2/19	111.1°
2/23	108° (deer creek
3/1	110°
3/5	110°
3/11	110.2
3/14	111°
3/16	109.5
3/20	109.0
3/23	109.0

DAN-168

	in	out
A	~~2/4/83 5:15 PM~~ 1/29/83 6:30 PM Sat	2/1/83 7:20 PM Tues
B	1/29/83 5:30 PM	2/4/83 5:05 PM Fri
C	1/29/83 5:30 PM	2/8/83 6:00 PM Tues
D	2/14/83 7PM	3/1/83 7:15 PM

DA	DB	DC
1.9939	2.0980	2.0911
1.9954 ??	2.0970	2.0889
~~2.0~~ ~ 2.5 est	2.0	2.2

1/30	127°
2/1	130.5
2/5	130.0
2/8	130°
2/14	130°
2/15	129°
2/19	128°

DAN-169

Laboratory Number

155°

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

10:15 155,0
11:00 155,0
11:12 157
11:45 152
12:00 155,5
1PM 155
1:15 155

7N HCl 20ul/mg

Field Number

1:45 154 3:30 15
2:00 155 3:00 15
2:15 155 4:15 15
3:00 155 4:30 15

Collection Date 1/23/83 Collector A. R. Nelson Preparation Date 2/20 154

Locality 6' terrace on N side Boulder Creek below stadium

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Vallonia

Sample Description

Estimated Age: Relative Absolute

6/11 D 12 hrs. 155,5° all-3 shells

Local Stratigraphic Relations (sketch on reverse)

REMARKS Out: 12 hours Preparation:

6/11 C 9 hrs. 155,5° almost dried out (some vapor) all 1½ shells 9 hours Prepared by:

B 10:15AM - 5mins at 4:30pm 6 hrs. + 10 min 154.5° ~~D-3 shells~~ A-2½ shells 6 hours

A in 10:15AM out 1:25PM 155° 3 hrs + 10 min A-3 shells B-3 shells C-2½ shells 3 hours

	Peak Areas				Peak Heights			
	aIle/Ile (F)				aIle/Ile (T)			
A								
B								
C								
D								
E								

DAN-170

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

Field Number

Collection Date Recieved 3/83 Collector Ervin Otvos Preparation Date 4/12/84

Locality Tunica Landing, LA (Hwy 66) location in Otvos site 2 1880, 1981

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Mesodon elevatus (Say)

Sample Description 19.8°C p. 159 - Burch, 1962 OK

Estimated Age: Relative Woodfordian Absolute 14C UGa-836 20,[illegible] UGa-871 21,[illegible]

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - middle ⅓ of outer whorl Prepared by: SR

B - outer ⅓ of outer whorl

C - middle whorl

all same shell

	HYD	Peak Areas				Peak Heights			
		aIle/Ile (F)				aIle/Ile (T)			
A	16.4					0.166			
B	22.1					0,166			
C	20.0					0.153			
D									
E									

0,162 ± 0.007

169

DAN-169

AA
2.0549
2.0526
2.3

AB
1.9878
1.9859
1.9

AC
2.0780
2.0761
1.9

BA
2.0566
2.0555
1.1

BB
2.0948
2.0931
1.7

BC
2.0729
2.0713
1.6

CA
2.0683
2.0672
~~2.0664~~
1.1

CB
2.0029
2.0012
1.7

CC
2.0679
2.0664
1.5

DA
2.0160
2.0130
3.0

DB
2.0383
2.0358
2.5

DC
2.0146
2.0103
4.3

DAN-171

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

could rerun
OK

Field Number

Collection Date Recieved 3/83 Collector Ervin Otvos Preparation Date 4/12/84

Locality Upper Tunica Bayou, LA, upstream from Hwy 66 bridge T15, R4W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Mesodon sp. (immature?)

Sample Description 19.8°C Burch, 1962

Estimated Age: Relative Farmdalian Absolute [redacted]

all same shell

Local Stratigraphic Relations (sketch on reverse)

A – outer ⅓ of outer whorl

B – middle whorl

C – ½ center whorl

REMARKS

2°C Sonicated clean

Preparation: 76 B

Prepared by: SR

	H4D	Peak Areas aIle/Ile (F)	Peak Areas aIle/Ile (T)	Peak Heights aIle/Ile (Free)	Peak Heights aIle/Ile (Total)
A	22.7		0.090 0.119		
B	17.0		0.110 0.097		
C	9.1		0.167 rerun [redacted]		
D					
E					

0.117 ± 0.030

DAN-172 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

39°F est. = 3.9°

2nd leach 7N HCl - Nov

Field Number

use long reg pipettes for >5 mg samples

Collection Date 7/20/82 Collector Dave Moore x5373 [redacted] Preparation Date

Locality 1 mi N Alpine Junction, ID SE¼, SW¼, Sec 7

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Alpine Quad.

M.A.S.L. ≈5800 Depth 1-1.5 m Species Orehelix cf. O. strigosa

Sample Description 3 whole snails in loess on fluvial terrace

Estimated Age: Relative Bull Lake ?? Absolute min using MAT – 80 ka est using Bagg – 287 ka stage 8

all cleaned with 2N HCl (⅓ less)

Local Stratigraphic Relations (sketch on reverse)

A – frags from outer ⅓ 9.6 mg

B – frags from whole shell 14.1 mg

C – looks submodern?, frags from whole shell 13.8 mg

REMARKS

Preparation:

Prepared by:

	Peak Areas aIle/Ile (F)	Peak Areas aIle/Ile (T)	Peak Heights aIle/Ile (Free)	Peak Heights aIle/Ile (Total)
A		0.192 (all)		
B		0.195	bad chromatogram	
C		0.161	bad chromatogram	
D				
E				

mean 0.1827

A	B	C
2.0402	2.0365	2.0252
2.0306	2.0224	2.0124
9.6	14.1	12.8

DAN-172

DAN-173 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

MAT 7.4°

ARN82-07
Field Number

OK

Collection Date 9/9/82 Collector _____ Preparation Date _____

Locality small pit on E shore Rockport Reservoir

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species cat, ?

Sample Description lower pink unit to N

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1 frag (large thin maybe Suc?) 3.9 mg
B - 1 5mm long Suc (whole shell) very clean 3.5 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.127 (all)		
B		0.148 (all)		
C				
D				
E				

DAN-174 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN82-08
Field Number

Collection Date 9/9/82 Collector ARN Preparation Date _____

Locality small pit on E shore Rockport Reservoir

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species _____

Sample Description upper pink unit S of middle of pit

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1 3mm frag (Suc??) 3.0 mg
B - 2 med ½ Pup's = 1 whole 3.7 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.198		
B		0.177		
C				
D				
E				

A	B
2.0433	2.0107
2.0394	2.0072
3.9	3.5

DAN-173

A	B	C
2.0218	2.0021	
2.0520	1.9984	2.0179
≈3.0 ?	3.7	

DAN-174

DAN-175 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN82-09

Field Number

Collection Date 9/9/82 Collector _____ Preparation Date _____ OK

Locality W shore Rockport Reservoir

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Orehelix cf. strigosa

Sample Description shells from lower ⅓ colluvium

Estimated Age: Relative _____ Absolute _____

cleaned with 2N HCl

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 3 frags from outer whorl 9.4 mg Prepared by:

B - 4 frags from columnella 11.0 mg

C - 7 frags from outer whorl 13.9 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.296		
B		0.301		
C		0.259		
D				
E				

0.285 ± 0.023

DAN-176 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN82-10

Field Number

Collection Date 9/11/82 Collector _____ Preparation Date _____

Locality SW Heneker, cemetery cut, sec 9

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 2 m Species Orehelix cf. strigosa

Sample Description 2 - 8 mm dia shells

Estimated Age: Relative Holocene? Absolute _____

cleaned with 2N HCl

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - ⅔ of whole shell 13.8 mg Prepared by:

B - " " 13.8 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.138		
B		0.134		
C				
D				
E				

A	B	C
2.0444	2.0308	2.0194
2.0350	2.0198	2.0055
9.4	11.0	13.9

DAN-175

A	B
2.0450	2.0288
2.0312	2.0080
13.8	13.8

DAN-176

DAN-177 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN82-12

Field Number

Collection Date 9/21/82 Collector ARN Preparation Date 4/12/84 check to see if more samples would be run (on tape)

Locality NW shore Deer Creek Reservoir

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description scattered shells & frags from lower fine colluvial units

Estimated Age: Relative Absolute

NEW PREPS 2/84 cleaned with 2N HCl

Local Stratigraphic Relations (sketch on reverse)

A - 150 mm shell - outer whorl 19.6 mg

B - " " - columnella 17.1 mg

C - 8 mm shell - CO_3 encrusted 24.4 mg

D - ⅓ of outer whorl - [illegible]

E - ⅓ of outer whorl - [illegible]

REMARKS

at 7.5°C 0.08 = 17 ka
0.12 = 26 ka
0.26 = 57 ka

Preparation:

Prepared by: SR.

at 0°C 0.09 = 62 ka
0.12 = 105 ka
0.35 = 356 ka

		Peak Areas				Peak Heights			
		aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A				0.104	0.392			0.118	
B				0.083	0.286			0.093	
C				0.37	0.655			0.35	
D	33.3			0.253					
E	33.6			0.308					

0.322 ± 0.058

may be 2 groups

DAN-178 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/13W/21/1A-[redacted]

Field Number

Collection Date Collector Mary Gillam Preparation Date 7/1/83

Locality San Jacan Concrete pit

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Cotinella sp.

Sample Description Holocene mainstream alluvium; outcrop [redacted] interior

Estimated Age: Relative Absolute lots more sample, clean shells, living assemblage

7N HCl 20ml/mg

Local Stratigraphic Relations (sketch on reverse)

A - 13 mm wide shell 4.1 mg

B - 14 " " 9.3 mg

C - 14 " " 7.3 mg

REMARKS

Preparation: NELSON 83

Prepared by: ARN

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.140					
B			0.161					
C			0.111	0.136				
D								
E								

0.146 ± 0.013

A	B	C
2.0286	2.0625	2.0425
2.0030	2.0454	2.0181
25.6	17.1 mg	24.4

DAN-177

A	B	C
2.6559	2.6386	2.6234
2.6528	2.6293	2.6161
4.1	9.3	7.3

DAN-178

DAN-179 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/13W/21/1A-6

Field Number

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality San Juan concrete pit

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description all 2 mm shells

Estimated Age: Relative _____ Absolute some sample left

7N HCl 20 ul/mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 5 shells 10.7 mg
B - 6 shells 4.1 mg
C - 6 shells (not as clean as A & B) 6.3 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.121	0.201				
B			0.085	0.112				
C			0.082	0.097				
D								
E								

~~0.172 ± 0.055~~ 0.110 ± 0.012

DAN-180 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/13W/21/1A-6

Field Number

interior

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality San Juan concrete pit

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupilla blandi

Sample Description _____

Estimated Age: Relative _____ Absolute no more sample

7N HCl 20 ul/mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 2½ 2mm shells (some bleach stains) 7.7 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.118	0.140				
B								
C								
D								
E								

179

A

1.9957
1.9850

10.7

B

2.0484
2.0443

4.1

C

2.0505
2.0442

6.3

180

A

2.0354
2.0277

7.7

DAN-181 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/13W/21/1A-6
Field Number
interior

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality San Juan concrete pit

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Physa gyrina

Sample Description _____

Estimated Age: Relative _____ Absolute 1 shell left

7N HCl 20ml/mg

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 1 3mm shell 6.9 mg (doubled HCl) Prepared by:

B - 1 3mm shell 6.6 mg "

C - 1 3mm shell 14.7 mg used 300ml

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.0152					
B			0.0143					
C			0.020	0.014				
D								
E								

0.0145 ± 0.0006

DAN-182 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/13W/21/1A-6
Field Number
interior

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality San Juan concrete pit

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth 2-4 ft Species Kawaia minuscula

Sample Description _____

Estimated Age: Relative _____ Absolute no more sample

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 1 3mm + 1 2mm shell use 100ml Prepared by:

B - 4½ 2mm shells use 100ml

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.032	0.085				
B			0.067	0.094				
C								
D								
E								

0.090 ± 0.006

A

2.6522
2.6453
6,9

B

2.6631
2.6565
6.6

C

2.6339 ??
2.6192
14,7

DAN-181

A

2,1051
≈2,0700
5.1

B

2,0026
≈2,0700

DAN-182

DAN-183 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

35N/9W/14/1-1
Field Number
interior

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality Glasco driveway

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Oreohelix sp.

Sample Description sidestream fluvial, outcrops interior

Estimated Age: Relative Bull Lake ? Absolute lots shell left, cleaned with 2N HCl
7N HCl 20ml/mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - part of large whrl 9.6 mg
B - top of shell 4.7 mg
C - tip of shell 4.3 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.175					
B			0.148					
C			0.175					
D								
E								

0.166 ± 0.016

DAN-184 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

35N/9W/14
Field Number
interior 1-1

Collection Date _____ Collector Mary Gillam Preparation Date _____

Locality Glasco driveway

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description sidestream fluvial, outcrops interior

A - from sample 1-1
B - from sample 1-3 (surface)
C - from sample 1-4
D - from sample 1-4

Estimated Age: Relative Bull Lake ? Absolute _____
7N HCl at 20ml/mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 2.2 mm shells 5.4 mg
B - 1⅔ 2mm shells 4.7 mg
C - 3 2mm shells 6.3 mg
D - 2½ 2mm shells 4.7 mg

	Peak Areas (may have dried in oven)				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.203	0.140 (0.172)				
B			0.174	0.202				
C			0.169					
D			0.219	0.172				
E								

0.172 ± 0.022 ∴ depending on mean .17 = .20

A 2.6363
2.6267
9.6

B 2.6479
2.6432
4.7

C 2.6310
2.6267
4.3

A 2.0681
2.0627
5.4

B 2.0190
2.0143
4.7

C 2.0767
2.0704
6.3

D 2.0799
2.0752
4.7

DAN-184

DAN-185 ✓
Laboratory Number

9° MAT

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

35N/9W/14/1-4
Field Number
interior

Collection Date ____ Collector Mary Gillam Preparation Date 7/1/83

Locality Glasco driveway

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth ____ Species Pupilla blandi

Sample Description sidestream fluvial, outcrop interior

Estimated Age: Relative Bull Lake ? Absolute ____

7N HCl 20ml/mg

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - ≈ 1½ shells 4.4 mg Prepared by:

B - ≈ 1½ shells 6.5 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.132		
B		0.092 0.126		
C				
D				
E				

0.129 ± 0.004

DAN-186 ✓
Laboratory Number

10° MAT

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/12W/6/2-7
Field Number

Collection Date ____ Collector Mary Gillam Preparation Date 7/1/83

Locality Flora Vista area

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth ____ Species Catinella sp. ?

Sample Description ~~gravel~~ gravel, sidestream alluvium, outcrop surface

Estimated Age: Relative post-Bald Mesa Absolute no more sample

7N HCl 20ml/mg

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 1 3mm frag 5.5 mg Prepared by:

B - 1 3mm shell 7.3 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.287		
B		0.31		
C				
D				
E				

0.299 ± 0.016

185

A

2.0284
2.0240

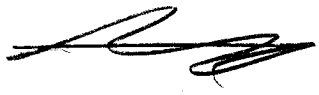
4.4

B

2.0605
2.0540

6.5

9



186

A

2.0180
2.0115

5.5

B

2.0521
2.0448

7.3

DAN-187 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

29N/12W/5/3-10

Field Number

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality Flora Vista area

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Cotiella sp?

Sample Description gravel, sidestream alluvium, outcrop surface & interior

Estimated Age: Relative post-Cedar Hill Absolute 1 shell left

7N HCl 20ul/mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 1 4mm wide shell 6.6 mg (HCl x3)

B - 1 " " 13.0 mg (doubled HCl)

C - 1 " " 27.7 ?? mg used 300ul

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.433		
B		0.380 0.439		
C		0.473		
D				
E				

0.448 ± 0.022

DAN-188 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

reprepare 2 mina

29N/12W/5/3-10

Field Number

surface & interior

Collection Date _____ Collector Mary Gillam Preparation Date 7/1/83

Locality Flora Vista area

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Pupelloid sp? (Pupoides)

Sample Description surface & interior

Estimated Age: Relative post-Cedar Hill Absolute more sample

7N HCl 20ul/mg

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A - 9 1/3's 6.2 mg

B - " 6.8 mg

C - " 6.0 mg dried in oven

D - 4 1/2's + fragg 2.2 mg

E - 5 1/2's 2.5 mg dried in oven??

F - " " 4.1 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		~~0.215~~ ~~0.249~~		
B		0.441		
C		lost		
D		0.5511		
E		0.4670		

0.6238

187

A
2.6456
2.6390
6.6

B
2.6333
2.6203
13.0

C
2.6489
2.6212
27.7
??

188

A
2.0259
2.0197
6.2

B
2.0399
2.0331
6.8

C
2.0445
2.0385
6.0

D
1.9893
1.9871
2.2

E
2.0371
2.0346
2.5

F
2.0600
2.0569
4.1

DAN-189 ✓

Laboratory Number AAL-3495

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-02

Field Number

Collection Date 6/23/83 Collector ARN Preparation Date 7/14/83

Locality Morgan Valley, UT - large pit above Bonn shoreline N of town of Morgan

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Orehelix

Sample Description whole snails in face of exposure facing SE - 2-3m below surface

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

snails in fine colluvium? dipping 40° NW over alluvial fan gravels Prepared by: J.G.

A - 1 large shell (17mm) outer part of shell prep'd

B - 1 med shell (13mm) same

C - 1 large shell (14mm) same

					Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	28.1							0.293	0.35						0.34	—		
B	23.7							0.47	0.65						0.54	0.45		
C	22.5							0.72	—	0.400					0.85	0.62		
D																		
E																		

0.41 ± 0.06

DAN-190 ✓

Laboratory Number AAL-3496

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-03

Field Number

Collection Date 6/24/83 Collector ARN Preparation Date 7/14/83

Locality Morgan V. - spring pit N of Robison Sps. - exposure on N side

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth >3m Species Oreohelix

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

alluvial fan & interstratified colluvium, snails from silty lenses ≈ 3-4 deep on face of cut Prepared by: J.G.

A - ⅓ large shell

B - 2 frogs

C - ⅓ of outer whorl

					Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	25.7							0.98	0.583						0.93			
B	25.6							1.76	1.14						1.80	1.84	0.60	0.711
C	23.8							1.61	0.58						—	0.62		
D																		
E																		

0.588 ± 0.011

DAN-191 ✓

Laboratory Number

AAL-3497

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-04

Field Number

Collection Date 6/24/83 Collector ARN Preparation Date 7/14/83 OK

Locality pit near cemetery SW of Hanefer - Sec 9

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth see tape Species Oreohelix

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B

Prepared by: J. G.

in fine lens in alluvial fan gravels

A - 1/3 shell (small) sonicated with $(NaPO_3)_{13}$ - almost all sample prep'd

B - 1/2 shell 12 mm outer, thin. The cap broke as I was tightening it, and one tiny fragment fell in the vial.

C - 1/3 outer whorl

		Peak Areas				Peak Heights			
		aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A	28.6			0.39	0.40			0.39	0.45
B	20.3			0.52	0.39			0.61	0.43
C	9.0			0.28	0.38			0.214	0.41
D									
E									

0.39 ± 0.01

DAN-192 ✓

Laboratory Number

AAL-3498

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83-05

Field Number

Collection Date 6/24/83 Collector ARN Preparation Date 7/14/83

Locality pit near cemetery SW of Hanefer - Sec 9

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Oreohelix

Sample Description dispersed shells in slope colluvium

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B

Prepared by: J. G.

fine colluvium over alluvial fan gravels - all within ___ horizon of profile ___

A - 2/3 I shell - (6 mm) sonicated with $(NaPO_3)_{13}$ - prep'd all - not quite clean.

B - 1/2 I shell - (7 mm) sonicated with $(NaPO_3)_{13}$

C - 1/2 I shell - (7 mm) leached

		Peak Areas ↑ same				Peak Heights			
		aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A	21.2			0.502	0.173			0.182	0.182
B	16.4			0.202	0.15			0.217	0.174
C									
D									
E									

dissolved in the leach. Sorry!!

DAN-193

Laboratory Number

AAL-3499

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-13

Field Number

Collection Date 6/24/83 Collector ~~ARN~~ Tim Sullivan Preparation Date 7/14/83

Locality N side Mahogany Canyon on E side Morgan V.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Oreohelix

Sample Description 1 snail from caliche layer in roadcut

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76B

Prepared by: F.G.

A - ½ outer whorl

B - middle whorl (10 mm) - prep'd ½ sample - not very clean (but cleaner than left over part)

					Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	13.7							0.765	—	0.583					0.91	0.83		
B	20.6							1.79	≈0.26	0.404					1.51	—	0.46	0.52
C																		
D																		
E																		

0.522±0.08

SEE BACK

DAN-194

Laboratory Number

∴ 2 of 12 are remarked

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

do 6 more

Field Number

Collection Date 8/30 & 9/15/83 Collector ARN Preparation Date 4/12/84

Country USA Locality Morgan Valley, UT Morgan Quad

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth surface float Species Oreohelix cf. strigosa?

Sample Description modern shells from surface litter

Estimated Age: Relative Absolute modern

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76B

Prepared by: SR

A) ARN83-75 above trench M-6 D) inner ⅓ of outer whorl

B) ARN83-111 above trench M-4 E) "

A) inner ⅓ of outer whorl F) "

B) "

C) "

	HYD				Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	32.3							0.293										
B	24.7							0.015	0.026									
C	32.5							0.025										
D	32.1							0.024										
E	31.5							0.027										
F	28.3							0.136										

PREP 76 B
J. G. 6-11-84

	wt.	(all inner ⅓ outer wheel)
G	12.5	0.0352
H	28.9	0.0217
I	16.2	0.0208
J	29.6	0.0314
K	22.5	0.0280
L	28.6	0.0157

DAN-194

DAN-195 ✓

Laboratory Number

OK

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83 - 69

Field Number

Collection Date 8/30/83 Collector ARN Preparation Date 4/12/84

Country USA - UT Locality roadcut near M-6 - Mahogany Cany.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description hard caliche

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - upper ½ of entire middle whorl

B - inner ⅓ of outer whorl

REMARKS

Sonicated clean AB

Preparation: 76B

Prepared by: SR

Doubled concentration

	HYD					Peak Areas						Peak Heights					
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	30.4								0.988	0.509									
B	31.6								0.984	0.492									
C																			
D																			
E																			

DAN-196 ✓

Laboratory Number

OK

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83 - 70

Field Number

Collection Date 8/30/83 Collector ARN Preparation Date 4/12/84

Country USA - UT Locality roadcut near M-6 - Mahogany Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description whitish-pinkish looser matrix of caliche near 2nd glove in photo

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - inner ⅓ of outer whorl

B - middle ⅓ of outer whorl

REMARKS

Sonicated clean AB

Preparation: 76B

Prepared by: SR

	HYD					Peak Areas						Peak Heights					
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	17.4								0.515	0.450									
B	29.5								0.237										
C																			
D																			
E																			

0.401 ± 0.145

DAN - 197 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83 - 71
Field Number

Collection Date 8/30/83 Collector ARN Preparation Date 4/12/84

Country USA - UT Locality roadcut near M-6 - Mahogony Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description hardest caliche - indurated
near second glove in photo

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - middle ⅓ of middle whorl sonicated (ISA)
B - middle ⅓ of outer whorl
C - " "

REMARKS

Preparation: 76B
Prepared by: SR

	HYD					Peak Areas						Peak Heights					
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	25.4								0.281										
B	22.8								0.205										
C	22.7								0.459	0.398									
D																			
E																			

DAN - 198 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83 - 81
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date 4/12/84

Country USA - UT Locality roadcut at curve near M-6, Mahogony Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description 30m W of ARN83-82 in brown buff B horizon-like soils above caliche layer - like B horizon in soil pit

Estimated Age: Relative Absolute

all same shell

Local Stratigraphic Relations (sketch on reverse)

A - upper ½ inner 2 whorls
B - lower ½ inner 2 whorls
C - middle ⅓ outer whorl

REMARKS

Sonicate clean HCl

Preparation: 76B
Prepared by: SR

	HYD					Peak Areas						Peak Heights					
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	12.7								0.208	0.302	0.196								
B	13.0								0.264										
C	31.5								0.342										
D																			
E																			

0.303 ± 0.039

197A - Thin crust of $CaCO_3$ or SiO_2 on inner layer, could not remove

197B - Thick " " " " " " " , shell fragments break while trying to remove

DAN-197

DAN-199 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83-32
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date 4/12/84

Country USA-UT Locality roadcut near M-6, Mahogany Cany.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix (2) cf. strigosa

Sample Description at base or just below caliche layer W of previous localities photo with hammer

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - inner ⅓ of outer whorl
B - middle ⅓ of outer whorl

REMARKS

Preparation: 76B
Prepared by: SR

	HYD	Peak Areas: aIle/Ile (F)	Peak Areas: aIle/Ile (T)	Peak Heights: aIle/Ile (Free)	Peak Heights: aIle/Ile (Total)
A	32.3		0.490		
B	27.8		0.576 0.466		
C					
D					
E					

0.478 ± 0.017

DAN-200 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83-72
Field Number

Collection Date 30/8/83 Collector ARN Preparation Date 4/12/84

Country USA-UT Locality Trench M-6 - Mahogany Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description lower part of lowest columella unit - see log

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - middle ⅓ of outer whorl
B - lower ½ of columella Sonicated (2 min)
C - middle ⅓ of outer whorl Sonicated (2 min)

REMARKS

Preparation: 76B
Prepared by: SR

	HYD	Peak Areas: aIle/Ile (F)	Peak Areas: aIle/Ile (T)	Peak Heights: aIle/Ile (Free)	Peak Heights: aIle/Ile (Total)
A	30.1		0.593		
B	25.7		0.532		
C	21.0		0.584		
D					
E					

0.570 ± 0.033

199 A. - thin crust on inner layer removed very small patches left on some frags.

DAN-199

DAN-201 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-76
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date 11-6-84

Country USA-UT Locality Trench M-6, Mahogony Cany.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad.

M.A.S.L. Depth Species Oreaelix

Sample Description see log -

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76B

Prepared by: F.G.

A ½ section of subunit

B " "

C " "

	H	Peak Areas aIle/Ile (F)	Peak Areas aIle/Ile (T)	Peak Heights aIle/Ile (Free)	Peak Heights aIle/Ile (Total)
A	18.5		0.297		
B	9.5		0.385		
C	8.7		0.381		
D					
E					

DAN-202 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

low priority

ARN83-78
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date

Country USA-UT Locality Trench M-6, Mahogony Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species

Sample Description see log -

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

	Peak Areas aIle/Ile (F)	Peak Areas aIle/Ile (T)	Peak Heights aIle/Ile (Free)	Peak Heights aIle/Ile (Total)
A				
B				
C				
D				
E				

DAN-203 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-79
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date 11-6-84

Country USA - UT Locality Trench M-6, Mahogony Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix

Sample Description see log -

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

A- ¼ middle outer whorl Prepared by: J. G.

B- " "

C- " "

	H	Peak Areas: aIle/Ile (F)	Peak Areas: aIle/Ile (T)	Peak Heights: aIle/Ile (Free)	Peak Heights: aIle/Ile (Total)
A	22.8		0.451		
B	20.7		0.406		
C	26.7		0.355		
D					
E					

DAN-204 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-74
Field Number

Collection Date 8/30/83 Collector ARN Preparation Date 11-6-84

Country USA-UT Locality Trench M-6 - Mahogony Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species

Sample Description lowest fluvial gravels - opposite wall - see log

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

A- ½ sec of whorl Prepared by: J. G.

B " "

C " "

	H	Peak Areas: aIle/Ile (F)	Peak Areas: aIle/Ile (T)	Peak Heights: aIle/Ile (Free)	Peak Heights: aIle/Ile (Total)
A	17.1		0.465		
B	13.6		0.446		
C	12.5		0.408		
D					
E					

DAN-205 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-77
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date 4/12/84

Country USA - UT Locality Trench M-6, Mahogany Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description see log - same unit as 74

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - middle ⅓ of outer whorl Prepared by: SR

B - " "

C - " " looks weathered

	HYD					Peak Areas: aIle/Ile (F)			Peak Areas: aIle/Ile (T)			Peak Heights: aIle/Ile (Free)				Peak Heights: aIle/Ile (Total)			
A	29.6								0.315	0.594									
B	28.7								0.453										
C	27.9								0.460										
D																			
E																			

0.455 ± 0.114

DAN-206 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

ARN83-80
Field Number

Collection Date 8/31/83 Collector ARN Preparation Date 4/12/84 / D: 11-6-84

Country USA - UT Locality Trench M-6, Mahogany Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad.

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description see log - largest shell

all same shell

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - inner whorl sonicated very small Prepared by: SR / 18.9

B - ⅓ middle whorl

C - middle ⅓ outer whorl

D - " "

	HYD					Peak Areas: aIle/Ile (F)			Peak Areas: aIle/Ile (T)			Peak Heights: aIle/Ile (Free)				Peak Heights: aIle/Ile (Total)			
A	9.4								0.111	0.113	rejected								
B	25.2								0.189										
C	29.6								0.206										
D	7.4								0.211										
E																			

~~0.169 ± 0.054~~

DAN-207 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83-83

Field Number

Collection Date 9/1/83 Collector ARN Preparation Date 4/12/84

Country USA-UT Locality gravel pit - Morgan Quad

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 4 m Species Oreohelix cf. strigosa

Sample Description base of fine colluvium which grades into fluvial - x in middle of colluvial wedge well below ARN83-02

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - middle 1/3 of outer whorl Prepared by: SR

B - " "

C - middle whorls somcate - very fragile

	HYD				Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T)			Peak Heights aIle/Ile (Free)				Peak Heights aIle/Ile (Total)			
A	29.0							0.350	0.363									
B	31.6							0.232										
C	12.2							0.246										
D								↑ poor chromat.										
E																		

0.27±0.06

DAN-208 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83-84

Field Number

Collection Date 9/1/83 Collector ARN Preparation Date 4/12/84

Country USA-UT Locality gravel pit - Morgan Quad

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth >5 m Species Oreohelix cf. strigosa

Sample Description base of alluvium at base of pit

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - middle 1/3 of outer whorl Prepared by: SR

B - middle 1/3 of outer whorl

C - " " "

	HYD				Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T)			Peak Heights aIle/Ile (Free)				Peak Heights aIle/Ile (Total)			
A	28.7							0.433										
B	28.8							0.471										
C	22.7							0.389	0.376									
D																		
E																		

0.431±0.041

207B - Small patch on inner layer of calcite or silica - can't remove

DAN-207

DAN-209 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARN83-85

Field Number

Collection Date 9/1/83 Collector ARN Preparation Date 4/17/84

Country USA-UT Locality soil pit S of road just past the gravel pit - Morgan Quad

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Oreohelix cf. strigosa

Sample Description from matrix in soil pit under ? stage III-IV CO_3

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - middle ⅓ of outer whorl

B - " "

C - " "

REMARKS

sonicated (15 min)

Preparation: 76B

Prepared by: SR

	H4D				Peak Areas				Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	21.4							0.253	0.311								
B	15.5							0.387									
C	22.2							0.389									
D																	
E																	

0.362 ± 0.044

DAN-210 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg
UNIVERSITY OF COLORADO 7N HCl + norlen

ARN83-103

Field Number

Collection Date 9/2/83 Collector ARN Preparation Date 4/12/84

Country USA-UT Locality Hennefer area ? - yes looks OK

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map ? ?

M.A.S.L. Depth Species Oreohelix strigosa
1 - Vallonia cf. cyclophorella

Sample Description ~~snails & frags from fine brown clayey silts of lowest Weber terrace ? ?~~ nothing on tape

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

A - inner 2 whorls

B - columella frag

C - whorl frag

D - 1 3.5mm Vallonia

REMARKS

C - some matrix clean

- not given a D sample to prepare

Preparation: 76B

Prepared by: SR

	H4C				Peak Areas				Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	19.1							0.048									
B	15.1							0.054									
C	17.0							0.048									
D	4.0							0.051									
E																	

D

2.0424

2.0384

4.0

DAN-210

DAN-211 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-109

Field Number

OK

Collection Date 9/2/83 Collector ARN Preparation Date

Country USA - UT Locality ≈1 mi S of Hoytville Pecks Cany

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Coalville Quad ?

M.A.S.L. Depth Species Suc & Pup

Sample Description small pit pinkish silty sands
also collected modern translucent discoid Zonitoides - like as ARN83-110

Estimated Age: Relative Absolute

17 mm Catinella 5 Catinella frags
15 mm Catinella

Local Stratigraphic Relations (sketch on reverse) REMARKS 24 mm Pupoides albilabris (Adams)

Preparation:

A - 7mm Cat 6.3 mg D - 4mm Pupoides 2.5 mg

Prepared by:

B - 5mm Cat 4.2 mg E - 4mm Pupoides 2.1 mg

C - largest Cat frag 6.3 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.154		
B		0.134		
C		0.145		
D		0.124		
E		0.127		

DAN-212 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-137

Field Number

OK

ID ✓

Collection Date 10/24/83 Collector ARN Preparation Date

Country USA - CO Locality N side Barbers Gulch W of Carbondale, CO

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map also Econulous?

M.A.S.L. Depth Species Vallonia gracilicosta Reinhardt

Sample Description A) W end - 1 bag just above ash (#1) B) E end - ash & seds near upper 6-8" just above ash (#2)
C) within ash - Val & tooth frags - near far E end site of Buds sample

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

Prepared by:

Ⓐ A) 1.5 2mm Val 1.3 mg
Ⓐ B) " " 1.5 mg
Ⓒ C) 2 2.5 mm Val 2.5 mg
Ⓒ D) 2 2.5 mm Val 2.8 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.100 0.245		
B		0.186	∴ -14° C	
C		0.209 too low		
D		0.218		
E				

A 2.0083
2.0020
6.3

B 2.0649
2.0607
4.2

C 2.0224
2.0161
6.3

D 2.0156
2.0131
2.5

E 1.9935
1.9914
2.1

DAN-211

A
169
20156
1.3

B
2.0148
2.0133
1.5

C
2.0407
2.0382
2.5

D
1.9913
1.9885
2.8

DAN-212

DAN-213 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO 20ul/mg 7N HCl + norbu

OK

ARN83-18

Field Number

Collection Date 7/24/83 Collector ARN Preparation Date

Country Locality Wanship gravel pit Oread

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 2 m above pit floor Species Catinella ???

Sample Description pink sand lens near N end of lower cut - N facing exposure & more recent cut

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Oreo ??? Preparation:

A - 3 small thin frags - Catinella ??? 3.2mg Prepared by:

					Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A								0.389										
B																		
C																		
D																		
E																		

DAN-214 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norbu
UNIVERSITY OF COLORADO

ARN83-20

Field Number

Collection Date 7/24/83 Collector ARN Preparation Date

Country Locality S edge of Coalville fan

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth ~~[illegible]~~ 3 m above floor Species ~~[illegible]~~ see back

Sample Description S segment of pinkish sands high fan west of Coalville

Estimated Age: Relative CO_3 II Absolute bags from 4 m thick unit in middle of sequence

Local Stratigraphic Relations (sketch on reverse) REMARKS see back Preparation:

~~[illegible]~~ Prepared by:

~~[illegible]~~ bag from middle of sequence (20) Pup, Val, frags

~~[illegible]~~

					Peak Areas						Peak ~~Heights~~ Area							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A							Oreo	0.141		p	F			Pup	~~0.140~~	0.112		
B							Oreo	0.225			G			Pup	0.127			
C							Oreo	0.173			-							
D							Val	0.093										
E							Pup	0.091	0.096									

A 2.0632
2.0600
3.2

DAN-213

1 Fossaria??
1 inner ½ of Oreohelix cf. strigosa
2 - Vallonia cyclophorella
numerous Pupilla blandi
a few Pupilla muscorum

A 2.0576
2.0512
6.4

B 2.0283
2.0205
7.8

C 2.0369
2.0257
11.2

D 1.9915
1.9905
1.0

E 2.0065
2.0035
3.0

F 2.0041
2.0001
4.0

G 2.0192
2.0160
3.2

6.4 A - inner + upper ½ Oreohelix cf. strigosa
7.8 B - abraded Oreo frags
11.2 C - abraded Oreo frags
1.0 D - 2 2.5 mm Vallonia cyclophorella
3.5mm Sterki
3.0 E - 3 Pup blandi
4.0 F - "
3.2 G - "

DAN-214

DAN-215 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-17
Field Number

Collection Date 7/24/83 Collector ARN Preparation Date

Country Locality Wanship gravel pit Quad

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 4m below CO_3 III Species Valloni sp. ??

Sample Description in pinkish silty sands - 18m from base of pit
max exposure of 10-20 years in oldest face

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 2/3 of 1 Val. ~~[illegible]~~ 0.5 mg Prepared by:

B - 1 small Cat?? frag (curvebroken) 2.7 mg

	Peak Areas						Peak Heights					
	aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)			aIle/Ile (Total)		
A				2.148 (low)								
B				0.177 too low								
C												
D												
E												

DAN-216 ✓ ??!?
Laboratory Number
washed in?

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-16
Field Number
OK

Collection Date 7/24/83 Collector ARN Preparation Date

Country Locality Wanship gravel pit Quad

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 10m above floor of pit near bee hives Species ~~Pupoides~~ / Pupoides sp. in 2 pieces

Sample Description

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 1 4mm Pupoides 1.8 mg Prepared by:

	Peak Areas						Peak Heights					
	aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)			aIle/Ile (Total)		
A				0.107								
B												
C												
D												
E												

A

2.0109
2.0104
0.5

B

2.0277
2.0250
2.7

DAN-215

A

2.0476
2.0458
1.8

DAN-216

DAN-217 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20 ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-21
Field Number

Collection Date 7/24/83 Collector ARN Preparation Date

Country Locality N edge of Coalville Fan

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 2m above base Species unabraded frags - Catinella ????

Sample Description N segment of high fan W of Coalville

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 2 med frags 4.2 mg Prepared by:
B - 3 small frags 1.8 mg

	Peak Areas				Peak Heights			
	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A			0.173					
B			0.214	too low				
C								
D								
E								

DAN-218 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20 ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-14
ARN83-15
Field Number
combined

Collection Date 7/24/83 Collector ARN Preparation Date

Country USA - UT Locality small pit on E shore Rockport Reservoir

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Val, Pup, Suc, frags of Orec (some abraded)

Sample Description upper pink unit in middle of pit 2 whole Catinella sp.
1 frag of " "
2 whole Pupisella blandi
3 whole Vallonia gracilicosta Reinhardt

Estimated Age: Relative Absolute

D&G dried in oven

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

14 - Suc, Val, Pup, frags A 1 - 4mm Catinella D - 2 3mm Pup (all blandi) Prepared by: G - fresh Orec frags
15 - Val, frags B 1 - 2mm Catinella E - 4 Pup frags H - " " "
C 1 - 5+mm Catinella frag F - 3 2.5mm Val I - " "

	Peak Areas				Peak ~~Heights~~ Areas					
	aIle/Ile ~~(F)~~		aIle/Ile (T)		aIle/Ile ~~(Free)~~			aIle/Ile (Total)		
A					F		Val	0.134		
B	too low		~~0.086~~ (low)		G		Orec	0.344		
C			0.244	Orec?	H		"	0.259		
D	~~Pup~~		~~0.234~~		I		"	0.344		
E		"	0.131							

A 2.0277
2.0235
4.2

B 2.0153
2.0135
1.8

DAN-217

Vallonia gracilicosta Reinhardt
Pupilla blandi Morse
Catinella sp.
Oreohelix sp.?

A 1.9977
1.9957
2.0

B 2.0369
2.0360
0.9

C 1.9987
1.9942
4.5

D 2.0290
2.0265
2.5

E 2.0789
2.0764
2.5

F 2.0283
2.0264
1.9

G 2.0286
2.0175
11.1

H 1.9928
1.9861
6.7

I 2.0465
2.0340
12.5

DAN-218

DAN-218 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

ARNS3-15
Field Number

Collection Date 7/24/83 Collector ARN Preparation Date 4/12/84

Locality USA-UT small pit on E shore Rockport Reservoir

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Orchelix sp.

Sample Description columella frag

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76B

Prepared by: SR

A - 1 large frag

		Peak Areas				Peak Heights			
	HYD	aIle/Ile (F)		aIle/Ile (T)		aIle/Ile (Free)		aIle/Ile (Total)	
A	11.0			0.185					
B									
C									
D									
E									

DAN-219

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

PL-1

Field Number

Collection Date 10-20-83 Collector F. Hawkins/C. Krinsky Preparation Date 4/12/84

Locality Pyramid Lake, NV., trench 1, SE¼, SE¼, Sec 10, T 22 N, R 23 E

Co-ordinates: Lat. 39° 47' N; Long. 119° 23' W. Map Nixon, NV. 15' quadrangle

M.A.S.L. 1300 m Depth 3½ m Species Paraphylax

Sample Description gastropod shells in fine sand (lake beds)

Estimated Age: Relative late Sehoo Absolute 10,000-15,000

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

Buried Lahontan lake beds on "downthrown" side of Pyramid Lake fault. Prepared by: SR

A - 1,5mm wide shell - sonicate clean ABC

B - 1,6mm "

C - 1,6mm "

		Peak Areas		Peak Heights	
		aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
HYD A	13.1		0.161		
B	17.3		0.146		
C	6.2		0.137		
D					
E					

DAN-220

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

72 unit 2
73
76
78

ARN83-73

Field Number

low priority

Collection Date 30/8/83 Collector ARN Preparation Date

Country USA-UT Locality Trench M-6 - Mahogany Camp

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Morgan Quad

M.A.S.L. Depth Species

Sample Description 1 m W of ARN83-72 - see log

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

Prepared by:

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A				
B				
C				
D				
E				

DAN-221 don't use

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

1 more Suc

Field Number

Collection Date 183 Collector J. J. Alford Preparation Date 4/17/84 (look up)

Country Illinois, Cass Co. Locality Cottonwood School Section, 3 mi E of Bearstown

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 25 ft. below surface Species Succinea sp. + lots of big ones

Sample Description shells from old road cut, MAT = 53.2°F = 11.8°C
14C

Estimated Age: Relative Absolute 18-20 ka (Willman & Frye, 1970)
6.8°C

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 70E

A 1-10mm Suc B - [illegible] clean Prepared by: SK

B 1-10mm Suc

C - 1-11mm Suc

	HYD				Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T)			Peak Heights aIle/Ile (Free)				Peak Heights aIle/Ile (Total)			
A	13.2							0.062	~~0.055~~	~~0.048~~								
B	15.6							0.080										
C	22.1							0.108	0.129	→	0.1185							
D																		
E																		

0.095 ± 0.029

DAN-222

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + narlei
UNIVERSITY OF COLORADO

OK

Field Number

Collection Date 183 Collector J. J. Alford Preparation Date 1 more

Country Illinois, Hancock Co. Locality barrow pit in S. Dallas City

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Dallas City S.

M.A.S.L. Depth 30 ft below surface Species Discus chronkhitei (Newcomb) + Discus shimeki (Pilsbry) a la Leonard

Sample Description shells collected from loess dune?, MAT = 51.2°F = 10.67°C

Estimated Age: Relative Holocene? Absolute

7.5-6.4°C

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - 1 4mm juvenile (all shimeki) 1.1 mg Prepared by:

B - 1/3 outer whorl of 6mm 4.1 mg

C - " " 3.8 mg

					Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T)			Peak Heights aIle/Ile (Free)				Peak Heights aIle/Ile (Total)			
A								too low										
B								0.096										
C								0.080										
D																		
E																		

0.088 ± 0.011

A	B	C
1.9811	2.0206	2.0407
1.9800	2.0165	2.0369
1.1	4.1	3.8

DAN-222

DAN-223
Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20 ul/mg 7N HCl + vortex OK
UNIVERSITY OF COLORADO

Field Number

Collection Date /83 Collector V. V. Alford Preparation Date 1 more Discus

Country Illinois, Henderson Co. Locality old road cut 2 mi N of Dallas City

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map Dallas City N.

M.A.S.L. Depth 18 ft. below surface Species Succinea sp., + Discus shimekii (Pilsbry) ala Leonard

Sample Description shells in Peoria loess, MAT = 51.2°F = 10.67°C

Estimated Age: Relative [redacted] Absolute

all cleaned with H_2O_2 – greenish mold adhering to shells

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - Succinea sp. 4 mm looks like could be modern 1.7 mg Prepared by:

B - " " 10 mm 6.7 mg

C - ½ of juvenile Discus (4 mm) 4.3 mg

D - ½ " " (6 mm) Peak Areas 3.2 mg

E - 1 " " 1.5 mg

	aIle/Ile (F)	aIle/Ile (T)	Peak Heights aIle/Ile (Free)	aIle/Ile (Total)
A		0.0100	0.011 ± 0.0005	
B		0.0109 0.0119		
C		0.084 too high? no	0.042 ± 0.029	
D		0.026 0.023		
E		0.033		

DAN-224
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO
OK
do more Suc

Field Number

Collection Date /83 Collector V. V. Alford Preparation Date 4/17/84 (look up)

Country Mississippi, Locality Vicksburg by-pass road cut

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth 40 ft. below surface Species Succinea sp., Helicina orbiculata Mesodon, Triodopsis

Sample Description Peoria loess, MAT = 66.1°F = 18.9°C (14C)

Estimated Age: Relative Absolute 18 – 22 ka Snowden & Priddy (1968) (9°C)

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - ½ outer whorl - 26 mm shell } Triodopsis sp. Prepared by: SR

B - ½ inner whorl - 25 mm shell

C - columella ± 25 mm shell

D - 15 mm Suc

	HYD	aIle/Ile (F)	aIle/Ile (T)	Peak Areas	Peak Heights aIle/Ile (Free)	aIle/Ile (Total)
A	24.9		0.133			
B	21.4		0.114	0.123 ± 0.010		
C	23.4		0.121			
D	22.5		0.051 0.026	modern?		
E				0.044 ± 0.024		

A

2.0334
2.0317

1.7

D

2.0221
2.0189

3.2

B

2.0307
2.0240

6.7

E

2.0100
2.00085

1.5

C

1.9964
1.9921

4.3

DAN-223

DAN-225

Laboratory Number

do Sphaericum??

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

1 more

8002

Field Number

Wards Creek, Baton Rouge

Collection Date 5/79 Collector J.J. Alford, Kolb, Holmes Preparation Date 4/17/84

Country Louisiana, Locality NW¼, Sec 39, T7S, R1E

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth >15 ft. below surface Species Mesodon sp.

Sample Description shell from massive clay-silt unit beneath Peoria loess upon which N. Branch of Wards Creek fl

Estimated Age: Relative should date Prairie surface prior to loess deposition Absolute 14C Beta 20595 ± 225 B.P. # 1854 → 12.7°C (.22) 8.3 (.11)

MAT = 67.5°F = 19.7°C

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - small piece of outer whorl } all frags ABC sonicated clean Prepared by: SR

B - " " } could be

C - " " } Mesodon or Triodopsis or maybe Heliodiscus

	HYD				Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T)			Peak Heights X̄ aIle/Ile (Free)				Peak Heights aIle/Ile (Total)			
A	10.9							~~0.224~~	0.179		0.204							
B	7.2							~~0.111~~	0.143		0.127							
C	10.7							0.1978	0.1630		0.1804				~~0.207~~			
D																		
E																		

~~0.154 ± 0.022~~ 0.170 ± 0.04

DAN-226

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

T-2

Field Number

Collection Date 5/14/83 Collector ~~[illegible]~~ Joe ~~[illegible]~~ Holmes Preparation Date 4/17/84

Country Louisiana, W Feliciana Parish Locality E of bridge on S bank of Bakers Creek, Tunica Hills, NW cor, Sec 90, T1S, R4W E LA Hwy 66

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Mesodon sp. (probably clausus (Sa

Sample Description 2 snail shells from fresh slump block of Peoria loess over sands & gravels, MAT = 67.9°F = 19.8°C

Estimated Age: Relative age of loess over T-2 surface Absolute Otvos (1974) elsewhere unit is 20-22 ka 11.5°C

shells partially crushed

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - ⅓ of outer whorl Prepared by: SR

B - ⅕ of outer whorl

C - " "

	HYD				Peak Areas aIle/Ile (F)			Peak Areas aIle/Ile (T)			Peak Heights aIle/Ile (Free)				Peak Heights aIle/Ile (Total)			
A	22.3							~~0.182~~	0.158									
B	26.0							0.126										
C	26.4						to low	~~0.202~~	0.132									
D																		
E																		

0.139 ± 0.017

DAN-227
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

low priority

MALLARD 832604
Field Number

Collection Date 4/26/83 Collector D. Clark Preparation Date

Country Louisiana Locality NW - Four League Bay, La.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species

Sample Description oyster shells from bottom of Four League Bay by shell dredge (Radcliff Dr...

MAT = 70.0°F

Estimated Age: Relative "fossil" shell reef - Holocene? "weathered" apparence Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

Prepared by:

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A				
B				
C				
D				
E				

DAN-228
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

OK

LC10-31-4
Field Number

Collection Date 10/81 Collector W. Miller Preparation Date 4/17/84

Country Louisiana, New Orleans East Locality Sec 36, T11S, R12E, Lake Carmel borrow-pit Bullard ave., N.O. East

Co-ordinates: Lat. 30 ° ' N; Long. 90 ° ' W. Map

M.A.S.L. Depth 6m below surface Species Mercenaria mercenaria

Sample Description 1 valve from excavation [redacted] from near base of Barrier Bar Sand porous unit, mixed assemblage

MAT = 70.0°F

Estimated Age: Relative Absolute drift wood fragments just above shell Beta 3721 → 29,860 ± 430 BP

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76B

A - chunk of middle layer from hinge part of umbo) adjacent D - 1 valve Prepared by: SR

B " " E - 1 valve) [redacted]? check

C " " (separate saw cut) F - 1 valve DEF - Sonicated 10m

	44D	Peak Areas		Peak Heights	
		aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A	28.6		[redacted] 0.126		0.153
B	22.5		0.142	0.141 ± 0.011 7.6° C	
C	24.9		0.144		
D	4.5		0.071		
E	3.7		0.065	0.067 ± 0.003	
F	3.5		0.066		

0.140

DAN-229 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR 20ul/mg 7N HCl + norleu
UNIVERSITY OF COLORADO

ARN83-19

Field Number

Collection Date 7/24/83 Collector ARN Preparation Date

Country Locality S edge of Coalville fan

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth [illegible] Species 2 frags Cat??, 1 3mm Vallonia gracilicosta Reinhardt, 1½ of Pupilla blandi

Sample Description S segment of high fan west of Coalville

Estimated Age: Relative CO_3 II Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

vial near SE pit edge (19) [illegible] Prepared by:

A - 1 Val 0.7 mg

B - ½ Pup 0.7 mg

C - 2 frags 2.2 mg

					Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A							Val	0.125 (low)										
B							Pup	0.108 (low)										
C							Cat?	0.075	rerun									
D																		
E																		

DAN-230 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

QX1-3 p.c.

Field Number

Collection Date Collector E. Evanoff Preparation Date

Country Locality

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map

M.A.S.L. Depth Species Succinids

Sample Description lowest terrace E of Meeker

Estimated Age: Relative Absolute

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation:

A - ⅓-8mm 5.8 mg E - 1-4mm, 2-2mm + frags 5.4 mg Prepared by:

B - ½-8mm 4.2 mg F - 1-3mm, 1-2mm + frags 4.2 mg

C - ⅔-7mm 4.9 mg

D - 2-3mm, 1-2mm + frags 4.3 mg

					Peak Areas						Peak Heights							
					aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A								0.1454 ~~0.1148~~										
B								~~0.2861~~ 0.1870										
C								0.2222										
D								0.2531										
E								0.2210										

0.1878 ~~0.1004~~

A
2.0109
2.0102
0.7

B
2.0439
2.0432
0.7

C
2.0415
2.0393
2.2

DAN-229

A
2.0676
2.0618
5.8

B
~~1~~.9992
~~1~~.9950
4.2

C
2.0074
2.0025
4.9

D
2.0140
2.0097
4.3

E
2.0~~3~~~~4~~6
2.0292
5.4

F
2.0474
2.0432
4.2

DAN-230

DAN-231 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Q111-2 P.C.

Field Number

Collection Date _____ Collector E. Evanoff Preparation Date _____

Country _____ Locality _____

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinidae

Sample Description lowest terrace W of Grand Hogback

Estimated Age: Relative _____ Absolute _____

individually cleaned

just rinsed + scooped with spatula

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 1-3mm, ½-5mm, ½-3mm 3.3 mg
B 2-2mm, 2×½-3mm + frags 5.1 mg
C 1-4mm, 3-2mm + frags 6.9 mg
D - 17.3mg

E - 14.6 mg
F - 19.2 mg dried in oven??

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		bad		
B		0.2535 ← best?		
C		0.3105 0.4162	throw out?	
D		[illegible]		
E		0.2923 low?	0.2305 good	
		0.1934 0.2920 OK		

DAN-232 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Q5-1

Field Number

Collection Date _____ Collector E. Evanoff Preparation Date _____

Country _____ Locality White River

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succineids

Sample Description highest terrace

Estimated Age: Relative Lava Ck ash Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation:

Prepared by:

A 1-5mm 1.9 mg
B upper ½-8mm 15.4 mg
C 1-2mm + frags 3.5 mg
D ½-8mm 17.2 mg

E - 3 frags 2.4 mg
F - 1-2mm, 1-3mm 2.0 mg

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A		0.5527 (low)		
B		0.4603		
C		0.6964 (low) 0.3133		
D		0.4491		
E		0.4384		
		0.4531 (excellent)		

A 2.0336
2.0303
3.3

B 2.0059
2.0008
5.1

C 2.0208
2.0139
6.9

D 2.0048
1.9875
17.3

E 2.0354
2.0208
14.6

F 2.0402
2.0200
19.2

DAN-231

A 2.0005
1.9986
1.9

B 2.0484
2.0330
15.4

C 2.0467
2.0432
3.5

D 2.0309
2.0137
17.2

E 2.0132
2.0108
2.4

F 2.0200
2.0180
2.0

DAN-232

DAN-233

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/4/80 Collector Dennis Stanford Preparation Date 8/10/80

Country USA - CO Locality Lamb spa site - sq. I118

Co-ordinates: Lat. ° ' N; Long. ° ' W. Project CO snails

M.A.S.L. Depth 96.5 - 96.8 Species Pupilla

Sample Description see DAN-81

Estimated Age: Relative Absolute 12 ka ( )

Local Stratigraphic Relations (sketch on reverse)

A (81I)
B (81J)
C (81K)
D (81L)

REMARKS

E (81M) dried in oven
F (81N)

Preparation: 76B
Prepared by: ARV

		Peak Areas		Peak Heights	
		aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A	81I		0.054 0.059		
B	81J		0.030		
C	81K		0.038		
D	81L		0.041		
E	81M				
F	81N		0.030		

DAN-234

Laboratory Number

✓ 0-10 = 10°C
10-15 = 20°C

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Holo ~6°C ??
EDT = 5.5°C

Field Number

Collection Date 8/4/80 Collector Dennis Stanford Preparation Date 8/10/80

Country Lamb Spa site Locality sq. I118

Co-ordinates: Lat. ° ' N; Long. ° ' W. Project CO snails

M.A.S.L. Depth 96.5 - 96.8 Species ✓ Vallonia cyclophorella

Sample Description many shells stained black - Mn??

Estimated Age: Relative Absolute 12,750 ka ( ) 14C

Local Stratigraphic Relations (sketch on reverse)

A 2 2mm shells 1.3 mg
B 2 " 2.0 mg
C 3 " 1.0 mg
D 2 " 1.2 mg

REMARKS

E 3 " 2.0 mg
F 2 " 1.8 mg

Preparation: 76B
Prepared by: ARV

	Peak Areas		Peak Heights	
	aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A				0.043±
B		0.0512 (all)		
C		0.52 ~~(all)~~ bad		
D				0.044 (all)
E				0.045 (all)
F		0.0445±0.0044		0.0391 (all)

A

2.0009
1.9996
1.3 mg

B

1.98562
1.9842
2.0 mg

C

2.0502
2.0492
1.0 mg

D

2.0336
2.0324
1.2 mg

E

1.9523
1.9503
2.0 mg

F

2.0045
2.0027
1.8 mg

DAN-234

DAN-235
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Field Number

Collection Date 8/4/80 Collector Dennis Stanford Preparation Date 8/10/80

Country USA - CO Locality Lamb Spa site - sq. I 118

Co-ordinates: Lat. ° ' N; Long. ° ' W. Project CO snails

M.A.S.L. Depth 96.5 - 96.8 Species Catinella

Sample Description see DAN-81

Estimated Age: Relative Absolute 12 ka ( )

Local Stratigraphic Relations (sketch on reverse)

A (DAN-81C)
B (81D)
C (81E)
D (81F)

REMARKS

E (81G)
F (81H)

Preparation: 76 B
Prepared by: ARV

		Peak Areas		Peak Heights	
		aIle/Ile (F)	aIle/Ile (T)	aIle/Ile (Free)	aIle/Ile (Total)
A	81C		0.054		
B	81D		0.103		
C	81E		0.110		
D	81F		0.078		
E	81G		0.087		
F	81H		0.082		

Already run - AAL

AAL-337 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

WPL-2a
Field Number

Collection Date _____ Collector Rick Madole Submission Date 3-17-77

Locality Boulder Co.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 12 ft. Species Succinea sp., probably avara

Sample Description 11 Succinea from 2-3' silty sand below Broadway Alluvium

Estimated Age: Relative Broadway Absolute _____

Local Stratigraphic Relations (sketch on reverse) FREE'S

A - 5.2 mg 6.7 mg REMARKS dried & rehydrated 7/78
B - 4.5 mg 2.7 mg
C - 3.3 mg 7.2 mg

2/80 7/78

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.21	0.18
B 2																	0.18	0.19
C 3																	0.21	0.21
4																		

↑

AAL-338 ✓
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

none
Field Number

Collection Date 4/10/78 Collector A. Nelson Submission Date 8/2/78

Locality Pond at [redacted] Colorado Blvd. & 28th St.

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 0 Species A Valvata cf. pulchella
B cf. Succinea

Sample Description 2 & small shells - Val
single shells each prep - Suc

Estimated Age: Relative modern Absolute see back

Local Stratigraphic Relations (sketch on reverse)

A Analy Bal Wt = 6.4 mg REMARKS B 5.2 mg - 1 large shell
H4O only was prepared (.4 ml cystic 9N HCL added.)
undissolved material in H4O sample

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																		0.025
B 2																		≈0.010
B 3																		≈0.010
B 4																		≈0.010
B																		<0.004

16.0393
15 − 16.0286 C (10.7 mg) — Catinella — 35% H_2O_2 — F+H dropped on floor

16.1326 − 16.1294 D (3.2 mg) — " — 5% NaOCl — F+H

15.8454 − 15.8447 E (0.7 mg) — " — 35% H_2O_2 — F+H 50ml + all heated for 20 min at 90° C

15.8453 − 15.8392 F (6.1 mg) — " — 5% NaOCl — F+H

11.5853 − 11.5841 G (1.2 mg) — Gyralus — 35% H_2O_2 — F 20ml #4 6N HCl

11.3747 − 11.3736 H (1.1 mg) — " — " — H 36ml 20ml/1mg

10.8420 − 10.8403 I (1.7 mg) — " — 5% NaOCl — H 52ml

11.5477 − 11.5474 J (0.3 mg) — " — F 7ml

Julies Soil Pit

Zon. Soil 4

10.9859 − 10.9832 (2.7 mg) H 82ml

H = 0.33

	F	H	E	H
C	low	0.00973 0.00902	∴ no	
D	ND	<0.0103	difference,	
E	low		use NaOCl	
F	ND	0.103		
G	0.20?	—		
H	—	bad		
I	—	<0.03		
J	ND	—		

AAL-338

AAL - 339
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

GM - 1
Field Number

Collection Date ____ Collector Rich Modale Submission Date 3-17-77

Locality Summit Co., Colorado

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth 15' Species 5 Succinea sp., probably avara

Sample Description 5 Succinea + 1 Vallonia from fine alluvium just below ash

Estimated Age: Relative ____ Absolute < 600,000 BP

Local Stratigraphic Relations (sketch on reverse)

6.5 mg 4.2 mg

A not rehydrated
B -40 ul not rehydrated
C -40 ul

A - 35.0 mg B - 7.5 mg C - 5.2 mg REMARKS dried & rehydrated 7/78

just below 0-6" ash bed believed to be equivalent of the ash 100' above the Pearlette type O near Montrose, Colorado

D (Vallonia gracilicosta?) 0.6 mg 1 whole shell 15 ul HCl cleaned in V-vial; almost dried in oven broken up 2/80

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
A 1															0.31	0.465	0.34
B 2															0.29	0.465	0.30
C 3																0.505	0.30
D 4																bad	~~0.52~~

AAL - 340
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B - 4
Field Number

Collection Date ____ Collector Rich Modale Submission Date 3-17-77

Locality Carbon Co., Wyoming

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map ____

M.A.S.L. ____ Depth 10' Species 4 Succinea sp., probably avara

Sample Description 4 Succinea from silty sand 2' above Pearlette O but unconformity

Estimated Age: Relative ____ Absolute 600,000 BP

Local Stratigraphic Relations (sketch on reverse)

REMARKS

stone line separates sample from Pearlette O ash

A - 7.1 mg -60 ul B - 5.8 mg -60 ul C - 21.6 mg -60 ul Boulder 2/80 DC

6.6 mg FREE

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
1 A															0.22	0.594	0.28
2 B																↗	0.42
3 C															0.46	↘ 0.615	0.49
4																	

FREE 1/5

A - 1.5 mg

B - 4.1 mg

C - 9.7 mg

AAL-339

AAL - 341

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

B - 5

Field Number

Collection Date _____ Collector Rich Madole Submission Date 3-17-77

Locality Carbon Co., Wyoming

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth 15' Species 3 Succinea; probably avara

Sample Description 3 Succinea from thin paleosol under Pearlette O

Estimated Age: Relative _____ Absolute 600,000 BP

A -160 ul
B

Local Stratigraphic Relations (sketch on reverse)

A - 5.1 mg B - 47.7 mg REMARKS dried & rehydrated 7/78
largest Succinea from B2b of paleosol? under Pearlette type O ash; same as sample BSL-3 submitted to John Hanley USGS

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									H	ALLO: ISO Free	Hyd
B 1												0.47		0.48		~~0.54~~		~~0.59~~
A 2																		0.52
C 3																		0.26
4																		

See Back

AAL - 342

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Donnet silt

Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Donnet silt

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinea cf.

Sample Description 5 small Succinea

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 3.1 mg REMARKS dried & rehydrated 7/78

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	Hyd
1																		0.19
2																		
3																		
4																		

AAL-341 C

Anal. Bal Wt. 1.4 mg

H4D only was prepared

(.4 ml of 9N acetic acid added)

AAL-341

AAL - 343
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit D
Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit D

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description 6 Vallonia

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 3.2 mg
-30ul
corrected 2.45 mg

REMARKS

3.20
.75
2 45

dried & rehydrated 7/78

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																0.046		0.033±
2																		
3																		
4																		

AAL-344
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit E
Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit E, base of upper layer

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinea sp.

Sample Description 4 small Succineas

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 3.3 mg

REMARKS dried & rehydrated 7/78

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
1																0.1224		~~0.15~~
2																		
3																		
4																		

AAL-345 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit E

Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit E, base of upper unit

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia gracilicosta

Sample Description 3 Vallonia

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 1.5 mg REMARKS dried + rehydrated 7/8

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
1																	0.085
2																	
3																	
4																	

AAL-346

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit E

Field Number
MSS-10

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit E, MSS-10

Co-ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Hawaiia minuscula

Sample Description 2 Hawaiia

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 0.6 mg REMARKS dried + rehydrated 7/8

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									ALLO: ISO Free	ALLO: ISO Hyd
1																	0.059
2																	
3																	
4																	

AAL - 347 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit E

Field Number
MSS-10

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit E MSS-10

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia cyclophorella

Sample Description 2 small Vallonia

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 0.6 mg REMARKS dried & rehydrated 7/78

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		0.059
2																		
3																		
4																		

AAL - 348 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit E

Field Number
MSS-2

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit E MSS-2

Co - ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinea sp.

Sample Description 3 large Succinea

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 5.6 mg - 60ul REMARKS some bad ??
B - 5.2 mg - 60ul
C - 6.1 mg - 120ul

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG									H	ALLO: ISO Free	ALLO: ISO Hyd
1																		0.17
2																		0.16
3																0.16		0.17
4																		

AAL - 349
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

Unit F_2
Field Number
MSS-116

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, Unit F_2 lower B.M. MSS-116

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinea sp.

Sample Description 1 small broken Succinea

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Anay. Bal Wt. 0.8 mg
Only HYD prepared, (.4ml of 9N cystic HCL added)

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		0.093
2																		
3																		
4																		

AAL - 350
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

base blackmat
Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, base of blackmat

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinea sp.

Sample Description 2 large Succinea

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

REMARKS

A - 16.0 -60ml
B - 15.4 -60ml

$\bar{x} = 0.136$

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1A																0.133		0.14
2B																0.138		0.15
3																		
4																		

AAL - 351
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

base blackmat
Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, base of blackmat

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Hawaiia miniscula

Sample Description 1 Hawaiia

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

1 sample - 0.5 mg REMARKS dried & rehydrated 7/78

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1																		0.068
2																		
3																		
4																		

AAL-352
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

blackmat
Field Number

Collection Date _____ Collector _____ Submission Date 3-28-77

Locality Lehner site, base of black mat

Co - ordinates: Lat. ____ ° ____ ' N; Long. ____ ° ____ ' W. Map _____

M.A.S.L. _____ Depth _____ Species Vallonia gracilicosta

Sample Description 4 Vallonia

Estimated Age: Relative _____ Absolute _____

Local Stratigraphic Relations (sketch on reverse)

2.800
- .375

1 sample - 2.8 mg - 15 ul REMARKS 2.425
corrected 2.425 mg dried & rehydrated 7/

RESULTS

$\bar{x} = 0.0984$

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
1														0,109	0.095			0.054±
2																		
3																		
4																		

AAL-353

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

✓ OK

La-1

Field Number

Collection Date _____ Collector _____ Submission Date 2-24-77

Locality Lindenmier site

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map _____

M.A.S.L. _____ Depth _____ Species Succinea grosvenori

Sample Description ≈ 8 broken thin Succinea

Estimated Age: Relative < early Wis? Absolute C14 date of 11,000 BP

9.3 mg corrected

A - 20ul not rehydrated
B
C

Local Stratigraphic Relations (sketch on reverse)

A - 9.8 mg B - 4.9 C - 5.4 REMARKS

C14 dated charcoal is stratigraphically above silts containing shells could be as old as early Wis. dried & rehydrated 7/78

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																0.138		0.15±
B 2																		0.124
C 3																		0.128
4																		

AAL-354 ✓

Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic mollusc

USGS PP421 98b

D429

Field Number

Collection Date 1953 Collector Glenn R. Scott Submission Date 2-24-77

Locality 98b Kassler Quad, Colorado NW¼, NE¼, S36, T6S, R69W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP421-A

M.A.S.L. _____ Depth _____ Species Succinea cf. avara (Say)

Sample Description ≈ 9 small Succinea from pit E of main gully at ancient spring site

Estimated Age: Relative Younger loess Absolute _____

Local Stratigraphic Relations (sketch on reverse)

A - 3.9 mg (not rehydrated) REMARKS best FREE'S 6.5 mg dried & rehydrated 7/78

B - 4.7 mg 4.0 mg - black stain

C - 7.1 mg - 40ul ↓ 6.1 mg corrected 15.0 mg

2/80

	RESULTS																ALLO: ISO	
	ASP	GLU	ALA	VAL	ISO	LEU	ARG										Free	Hyd
A 1																	0.221	0.186
B 2																	0.213	0.162
C 3																	0.195	0.14
4																		

AAL-355 ✓

Laboratory Number also DAN-92

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic mollusc

D407

Field Number 104

USGS PP 421

Collection Date 1953 Collector Glenn R. Scott Submission Date 2-24-77

Locality 104 Kassler Quad, Colorado NE, SW, NW, S16, T7S, R68W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species Succinea cf. avara (Say)

Sample Description ≈11 small Succinea from Cca of soil on Louviers alluvium

Estimated Age: Relative Louviers Absolute

Local Stratigraphic Relations (sketch on reverse)

A – ~~4.2 mg~~ – 70 ul 2.45 mg REMARKS 4,20 1.75 FREE's 2.45 5.8 mg

B – 5.6 mg 5.7 mg dried & rehydrated 7/78

C – 5.5 mg 8.3 mg

2/80

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG							H	F	H	ALLO: ISO Free	ALLO: ISO Hyd
A 1														0.12	0.177	0.12	0.167	0.075±
B 2															0.167		0.160	0.093
C 3															0.123		0.155	0.121
4																		

AAL-356 ✓

Laboratory Number also DAN-91

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

USGS Cenozoic mollusc

D 418

Field Number 94

USGS PP421

Collection Date 1954 Collector Scott, D.W. Taylor, C.C. Cavern Submission Date 2-24-77

Locality 94, Kassler Quad, Colo. SE, NE, S12, T7S, R69W

Co-ordinates: Lat. ° ' N; Long. ° ' W. Map USGS PP 421-A

M.A.S.L. Depth Species Succinea cf. grosvenori (Lea

Sample Description ≈5 broken Succinea from pebbly calcareous alluvium

Estimated Age: Relative Slocum Absolute

Local Stratigraphic Relations (sketch on reverse) FREE's

A – 4.8 mg – 60 ul 2.0 mg REMARKS corrected 3.3 mg

B – 3.2 mg 2.7 mg dried & rehydrated 7/78

C – 2.3 mg

2/80

RESULTS

	ASP	GLU	ALA	VAL	ISO	LEU	ARG										ALLO: ISO Free	ALLO: ISO Hyd
A 1																	0.348	0.19
B 2																	0.340	0.17
C 3																	—	0.21
4																		

AAL-3312
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO FREE + HYD

T-4-24
Field Number

Collection Date 9 MAY 1979 Collector M.R. WATERS Preparation Date 4-4-83

Locality Locality B -- Strat Section ancient L. Cahuilla, C.I.F.

Co-ordinates: Lat. 116 036.9 ' N; Long. 116 015.67 ' W. Map PALM DESERT, CALIF. 15'

M.A.S.L. 0 Depth 3.1 m Species ANADONTA

Sample Description WHITE SHELL

Estimated Age: Relative L. Holocene Absolute 2285 ± 120 B.P. (UCR-1000) 20°C

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

A see back Prepared by: J.L.

B

C

	H	F	Peak Areas aIle/Ile (F)	Peak Areas aIle/Ile (T)	Peak Heights aIle/Ile (Free)	Peak Heights aIle/Ile (Total)
A	23.7	19.9			0.380	0.105
B	23.0	20.4			0.393	0.086
C	20.0	28.7			0.380	0.102
D						
E						

0.098 ± 0.010

AAL-3313
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO FREE + HYD

T-3-2
Field Number

Collection Date 10 APRIL 1979 Collector M.R. WATERS Preparation Date 4-4-83

Locality Locality C -- Stratigraphic section ancient Lake Cahuilla, California

Co-ordinates: Lat. 33 024.25 ' N; Long. 116 03.65 ' W. Map OASIS, CALIF. 7.5'

M.A.S.L. 0 Depth 75 cm Species ANADONTA

Sample Description White shell

Estimated Age: Relative late Holocene Absolute 490 ± 100 B.P. (UCR-986) 23.5°C

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

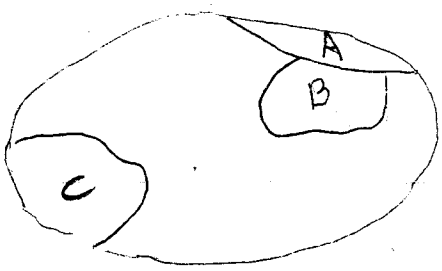
A Prepared by: J.L.

B

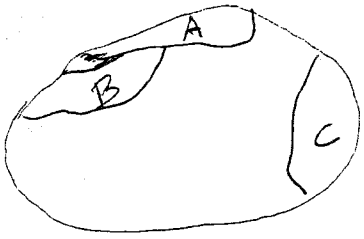
C

	H	F	Peak Areas aIle/Ile (F)	Peak Areas aIle/Ile (T)	Peak Heights aIle/Ile (Free)	Peak Heights aIle/Ile (Total)
A	25.5	23.1			0.196	0.043
B	27.2	30.7			0.222	0.044
C	29.0	20.2			0.168	0.041
D						
E						

0.043 ± 0.0015



AAL-3312



AAL-3313

AAL-3314
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

T-4-25
Field Number

Collection Date 9 MAY 1979 Collector M.R. WATERS Preparation Date HYD only 4-4-83

Locality Locality B -- Strat Section ancient Lake Cahuilla, Calif.

Co-ordinates: Lat. 116 036.9 N; Long. 116 015.67 W. Map PALM DESERT, CALIF. 15'

M.A.S.L. 0 Depth 3.8m Species Anadonta

Sample Description White sh. 11

Estimated Age: Relative Late Holocene Absolute 2300 ± 120 B.P. (UCR-1001) 18.8°C

Local Stratigraphic Relations (sketch on reverse)

A - hinge
B -
C - piece in 2 layers

REMARKS

Preparation: 76B
Prepared by: J.L.

	H	Peak Areas: aIle/Ile (F)			Peak Areas: aIle/Ile (T)			Peak Heights: aIle/Ile (Free)				Peak Heights: aIle/Ile (Total)			
A	27.9											0.085			
B	21.5											0.076			
C	27.8											0.082			
D															
E															

0.081 ± 0.0046

AAL-3315
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

T-4-21
Field Number

Collection Date 3 MAY 1979 Collector M.R. WATERS Preparation Date HYD only 4-4-83

Locality Locality B -- strat. section ancient Lake Cahuilla, Calif.

Co-ordinates: Lat. 33 036.9 N; Long. 116 015.65 W. Map PALM DESERT CALIF. 15'

M.A.S.L. 0 Depth 45 cm Species ANODONTA

Sample Description White sh. 11

Estimated Age: Relative Late Holocene Absolute 450 ± 100 B.P. (UCR-997) 23°C

Local Stratigraphic Relations (sketch on reverse)

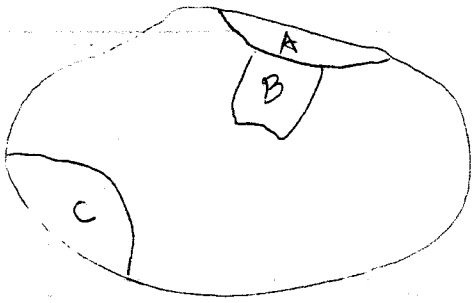
A see locke
B
C

REMARKS

Preparation: 76B
Prepared by: J.L.

	H	Peak Areas: aIle/Ile (F)			Peak Areas: aIle/Ile (T)			Peak Heights: aIle/Ile (Free)				Peak Heights: aIle/Ile (Total)			
A	25.4											0.036			
B	22.3											0.041			
C	20.9											0.036			
D															
E															

0.038 ± 0.003



AAL-3315

AAL-3316
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

T-3-3
Field Number

Collection Date 10 APRIL 1979 Collector M.R. WATERS Preparation Date HYD only 4-4-83

Locality Locality C -- Stratigraphic section ancient Lake Cahuilla, California

Co-ordinates: Lat. 33 024.25' N; Long. 116 03.65' W. Map OASIS, CALIF. 7.5'

M.A.S.L. 0 Depth 1.4 m Species ANADONTA

Sample Description White sh. II

Estimated Age: Relative L. to Holocene Absolute 1340 ± 100 B.P. (UCR-987) 19.9°C

Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

A
B
C

Prepared by: J.G.

	H	Peak Areas: aIle/Ile (F)			Peak Areas: aIle/Ile (T)			Peak Heights: aIle/Ile (Free)				Peak Heights: aIle/Ile (Total)			
A	29.6											0.057			
B	27.1											0.062			
C	29.8											0.058			
D															
E															

0.059 ± 0.003 (265)

AAL-3317
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

T-4-22
Field Number

Collection Date 9 MAY 1979 Collector M.R. WATERS Preparation Date HYD only 4-4-83

Locality Locality B -- Strat section ancient Lake Cahuilla, Calif.

Co-ordinates: Lat. 33 036.9' N; Long. 116 015.65' W. Map PALM DESERT, CALIF. 15'

M.A.S.L. 0 Depth 1.0 m Species ANADONTA

Sample Description White sh. II

Estimated Age: Relative L. to Holocene Absolute 835 ± 100 BP (UCR-998) 21°C

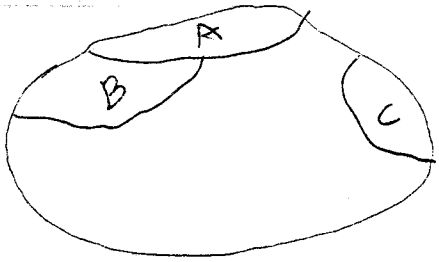
Local Stratigraphic Relations (sketch on reverse) REMARKS Preparation: 76 B

A
B
C

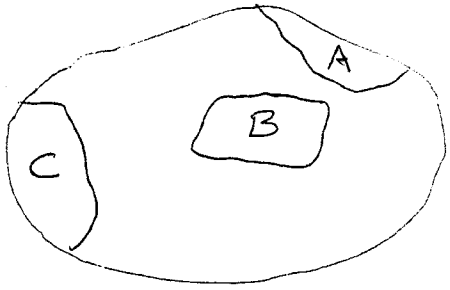
Prepared by: J.G.

	H	Peak Areas: aIle/Ile (F)			Peak Areas: aIle/Ile (T)			Peak Heights: aIle/Ile (Free)				Peak Heights: aIle/Ile (Total)			
A	25.8											0.046			
B	27.0											0.050			
C	24.3											0.046			
D															
E															

0.047 ± 0.0023



AAL-3316



AAL-3317

AAL-3318
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 5
Field Number

Collection Date 22 December 1982 Collector M.R. Waters Preparation Date HYD only 4-8-83

Locality 40 m beach of ancient Lake Cahuilla, California

Co-ordinates: Lat. 32 ° 48.2 ' N; Long. 115 ° 52.7 ' W. Map PAINTED GORGE, CALIF. 7.5'

M.A.S.L. 40m Depth 50 to 100 cm down from berm crest 50cm in from side Species Anodonta

Sample Description Anodonta from coarse sand and gravel

Estimated Age: Relative late Pleistocene Absolute 250,000 to 40,000 BP

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B
Prepared by: J. L.

A - edge
B - middle
C - middle

	H	Peak Areas: aIle/Ile (F)	Peak Areas: aIle/Ile (T)	Peak Heights: aIle/Ile (Free)	Peak Heights: aIle/Ile (Total)
A	20.9		0.88		1.03
B	28.0		0.98		1.03
C	23.0		0.92		1.03
D			0.927 ± 0.050		
E					

33 ka at 18.8°

AAL-3319
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 3
Field Number

Collection Date 22 DECEMBER 1982 Collector M.R. WATERS Preparation Date HYD only 4-8-83

Locality 31 m beach of ancient Lake Cahuilla, California

Co-ordinates: Lat. 32 ° 47.1 ' N; Long. 115 ° 51.9 ' W. Map PLASTER CITY, CALIF. 7.5'

M.A.S.L. 31 m Depth 50cm down from berm crest 1m in from side Species Anodonta ~~and freshwater gastropods~~

Sample Description Fragmentary Anodonta and gastropods from v. coarse sand and gravel

Estimated Age: Relative late Pleistocene Absolute 250,000 to 40,000 BP.

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B
Prepared by: J. L.

Very close, if not the locality of 14C date of 26,000 + 1570 -1325 BP (GX-3396)

A - edge
B - middle thin outer layer removed
C - middle

	H	Peak Areas: aIle/Ile (F)	Peak Areas: aIle/Ile (T)	Peak Heights: aIle/Ile (Free)	Peak Heights: aIle/Ile (Total)
A	24.1		0.96		1.04
B	26.5		1.04		1.11
C	22.1		1.04		1.05
D			1.013 ± 0.046		
E					

39 ka

AAL-3320
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 3
Field Number

Collection Date 22 Dec 1982 Collector M.R. Waters Preparation Date HYD only 4-8-83

Locality 31 m beach of ancient Lake Cahuilla, CA

Co-ordinates: Lat. 32 ° 47.1 ' N; Long. 115 ° 51.9 ' W. Map Plaster City, CA 7.5'

M.A.S.L. 31 m Depth 50 cm down from berm crest 1 m in from side Species Physa?

Sample Description v. coarse sands, near to ^{14}C date 26,000 ± 1570-1325 (GX-3386)

Estimated Age: Relative _____ Absolute 250-40 ka

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B
Prepared by: T. G.

A - ⅓ of 12mm shell prep'd all, very thin
B - ½ of 14mm shell whole ½ prep'd
C - ⅔ of 12mm shell very little available w/out incrustations

	H	Peak Areas			Peak Heights			
		aIle/Ile (F)	aIle/Ile (T)		aIle/Ile (Free)	aIle/Ile (Total)		
A	12.4		— 0.79			0.81	0.89	
B	29.8		0.71			0.85		
C	13.2		— 0.83			0.97	1.06	
D			0.777 ± 0.061					
E								

25 ka

AAL-3321
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 2
Field Number

Collection Date 22 December 1982 Collector M.R. Waters Preparation Date HYD only 4-8-83

Locality 36 m beach of ancient Lake Cahuilla, California

Co-ordinates: Lat. 32 ° 47.2 ' N; Long. 115 ° 52 ' W. Map PLASTER CITY, CALIF. 7.5'

M.A.S.L. 36 m Depth 70 cm down from berm crest 1 m in from side Species Anodonta ~~and fragmentary gastropods~~

Sample Description Fragmentary Anodonta and gastropods from v. coarse sand and gravel

Estimated Age: Relative late Pleistocene Absolute 250,000 - 40,000 B.P.

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B
Prepared by: T. G.

A - edge
B - middle most outer layer removed
C - edge outer layer removed

	H	Peak Areas			Peak Heights			
		aIle/Ile (F)	aIle/Ile (T)		aIle/Ile (Free)	aIle/Ile (Total)		
A	26.3		0.95			1.04		
B	20.8		0.97			1.07		
C	26.5		0.84			0.88		
D			0.920 ± 0.070					
E								

∴ need to assume

model

AAL-3320

AAL-3322
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 2
Field Number

HYD only

Collection Date 22 Dec 1982 Collector M.R. Waters Preparation Date 4-8-83

Locality 36m beach of ancient Lake Cahuilla, CA

Co-ordinates: Lat. 32 °47.2' N; Long. 115 °52' W. Map Plaster City, CA 7.5'

M.A.S.L. 36m Depth 70 cm down from berm crest / 1 m in from side Species Physa?

Sample Description v. coarse sand & gravel - whorls removed

Estimated Age: Relative late Pleist Absolute 250-40 ka

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B

Prepared by: J.L.

A - 1,5 mm wide shell very thin fragment available for prep.
B - 8x6 mm shell whole shell
C - 5x7 mm shell " "

	H					Peak Areas				Peak Heights							
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	14.5								0.712										
B	26.6								0.759										
C	18.7								0.717										
D									0.729 ± 0.026										
E																			

AAL-3323
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 1
Field Number

HYD only

Collection Date 22 December 1982 Collector M.R. Waters Preparation Date 4-8-83

Locality 38m beach of ancient Lake Cahuilla, California

Co-ordinates: Lat. 32 °47.74' N; Long. 115 °52.40 W. Map PLASTER CITY, CALIF. 7.5'

M.A.S.L. 38m Depth 2 m down from berm crest; 1 m horizontal into berm Species Anodonta

Sample Description whole & fragmenting Anodonta from course sand of forset beds

Estimated Age: Relative Late Pleistocene Absolute 250,000 - 40,000 B.P.
>39,900 B.P. (UCR-988)

Local Stratigraphic Relations (sketch on reverse)

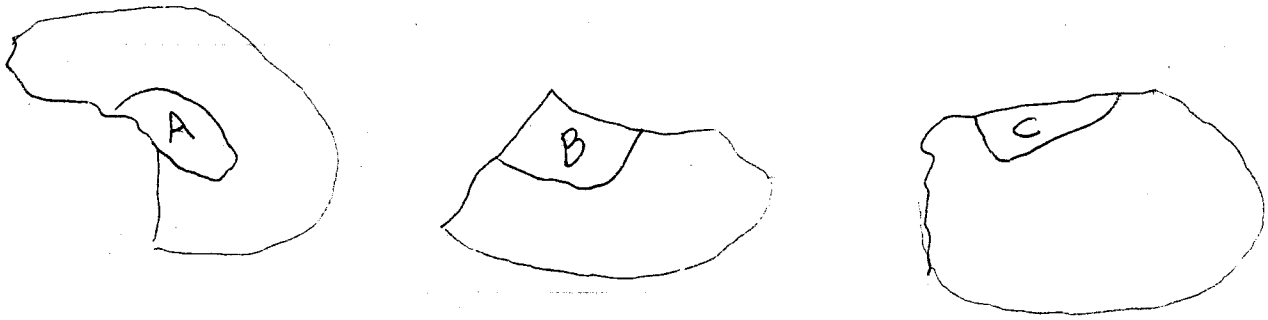
REMARKS

Preparation: 76 B

Prepared by: J.L.

A see sketch
B
C

	H					Peak Areas				Peak Heights							
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	22.7								0.824										
B	28.3								0.916										
C	25.4								0.886										
D										0.875 ±	0.047								
E																			



AAL-3323

AAL-3324
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 4
Field Number

HYD only

Collection Date 22 DECEMBER 1982 Collector M.R. WATERS Preparation Date 4-8-83

Locality 46 m beach of ancient Lake Cahuilla, California

Co-ordinates: Lat. 32 ° 47.6 ' N; Long. 115 ° 53 ' W. Map PAINTED GORGE, CALIF. 7.5'

M.A.S.L. 46 m Depth 50 to 100 cm down from berm crest / 50 to 100 cm in from side Species Anadonta ~~and freshwater gastropods~~

Sample Description Fragmentary Anadonta and gastropods from v. coarse sand

Estimated Age: Relative late Pleistocene Absolute 250,000 to 40,000 B.P.

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B
Prepared by: F.G.

A - edge
B - middle
C - hinge outer layer removed

	H					Peak Areas						Peak Heights							
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	30.8								0.924										
B	29.3								1.036										
C	30.4								0.747	1.030									
D																			
E																			

1.00 ± 0.06

AAL-3325
Laboratory Number

AMINO ACID LABORATORY
INSTAAR
UNIVERSITY OF COLORADO

82 PC 4
Field Number

HYD only

Collection Date 22 Dec 1982 Collector M. R. Waters Preparation Date 4-8-83

Locality 46 m beach of ancient Lake Cahuilla, CA

Co-ordinates: Lat. 32 ° 47.6 ' N; Long. 115 ° 53 ' W. Map Painted Gorge, CA 7.5'

M.A.S.L. 46 m Depth 50 to 100 cm down from berm crest / 50 to 100 cm in from side Species Physsa?

Sample Description from v. coarse sand - center whorls removed

Estimated Age: Relative late Pleist. Absolute 250-40 ka

Local Stratigraphic Relations (sketch on reverse)

REMARKS

Preparation: 76 B
Prepared by: F.G.

A - 8 x 11 mm shell about ⅓ shell prep'd (outer, ~~convex~~ convex part)
B - " " columella and some outer part prep'd
C - " chalky same as above

	H					Peak Areas						Peak Heights							
						aIle/Ile (F)			aIle/Ile (T)			aIle/Ile (Free)				aIle/Ile (Total)			
A	27.7								0.817										
B	22.3								0.814										
C	20.2								1.302	0.677									
D																			
E																			