



Amoco Production Company

Denver Region
Amoco Building
1670 Broadway
Denver, Colorado 80202
303-830-4540

March 23, 1983

Mr. K. David Newell
KANSAS GEOLOGICAL SURVEY
1930 Avenue A, Campus West
University of Kansas
Lawrence, Kansas 66044

Dear David,

Enclosed are the calcareous microfossil data from Paul Brenckle's work. You received a rough copy of his data in my February letter. This enclosure represents a final copy.

Sincerely,

A handwritten signature in cursive script that reads "Chuck Sawyer".

Chuck Sawyer

CS:dh

Enclosure

31-21-33w
Maune #4

7. Shallow Water

C NE NW 31-21S-33W

#4 Maune

Morrow 4628-4649

Mississippian: 4657-4660; 4669-4780

Core Available: 46 Three-Foot Boxes

Condition: Slabbed and

Plugged (Except Where Shale)

2-3 Thin Section Chips Per Box.

Coverage: Incomplete

Available Footage (By Box):

4628-31	4669-72	4718-21	4769-72
4631-34	4672-75	4721-24	4772-75
4634-36 Missing	4675-78	4724-27	4775-78
4636-39	4678-80 Scrambled	4727-30	4778-80
4639-40	4679-82 Scrambled	4730-33	
4640-43	4682-85	4733-36	
4643-46	4685-88	4736-39	
4646-49	4688-91	4739-42	
	4691-94	4742-45	
4657-60	4694-97	4745-48	
	4697-4700	4748-51	
	4700-03	4751-54	
	4703-06	4754-57	
	4706-09	4757-60	
	4709-12	4760-63	
	4712-15	4763-66	
	4715-18	4766-69	

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 22, 1983

83053ART0078

FILE: Technical Service 825370PS

TO: O. R. Hille, Denver Region

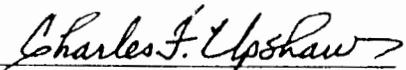
ATTN: C. W. Sawyer

SUBJECT: Calcareous Microfossil Identifications from Mississippian Core,
Hugoton Embayment, Southwestern Kansas.

Attached is a list of Mississippian calcareous microfossils identified by P. L. Brenckle from nine wells in the Hugoton area. The Kansas Geological Survey supplied all the core for this study with the provision that Amoco provide microfossil identifications for any material used. The enclosed list contains identifications only of literature taxa and no confidential Amoco paleo data are included. Transmission of the identifications to the Kansas Survey would be appropriate.

ERIC R. MICHAELIS

By


Charles F. Upshaw

PLB:sdg
Attachment

cc: J. A. Babcock
L. C. Babcock
W. S. Davis, Denver Region
H. R. Lane
A. R. Ormiston
J. W. Parks, Denver Region
R. W. Sherwood, Denver Region

<u>Sample (depth in ft)</u>	<u>Identification</u>
5523	indet. Aoujgaliaceae, <u>Endostaffella discoidea?</u> , <u>Brunsia?</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Litostroma</u> sp., indet. Tournayellidae?
5529	<u>Nodosarchaediscus</u> sp., <u>Calcisphaera</u> sp.
5529.5-30.5	indet. Archaediscidae, <u>Pseudoammodiscus?</u> sp., <u>Calcisphaera</u> sp., indet. Asteroarchaediscinae?, <u>Diplosphaerina inaequalis</u> , <u>Stacheoides</u> sp.
5537	indet. Endothyridae, indet. Aoujgaliaceae, <u>Nodosarchaediscus</u> sp., <u>Brunsia?</u> sp., indet. Archaediscidae, <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Archaediscus</u> sp., <u>Diplosphaerina inaequalis</u> .
5538	indet. Endothyridae, indet. Aoujgaliaceae.
5543	indet. Aoujgaliaceae, <u>Nodosarchaediscus?</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endostaffella discoidea?</u> , <u>Brunsia</u> sp., <u>Calcisphaera laevis?</u> , <u>Planoarchaediscus?</u> sp.
5544-45	indet. Archaediscidae, indet. Aoujgaliaceae, <u>Pseudoammodiscus?</u> sp., <u>Eoendothyranopsis</u> sp.
5545-46	indet. Endothyridae, indet. Aoujgaliaceae, <u>Pseudoammodiscus</u> sp., <u>Aoujgalia richi</u> , <u>Nodosarchaediscus</u> sp., <u>Proninella?</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endothyra</u> sp., indet. Archaediscidae.

Shallow Water Maune No. 4, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4633	Barren
4671-72	<u>Endothyra?</u> sp., indet. Archaediscidae?, <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Nodosarchaediscus</u> sp.
4676	indet. Endothyridae, <u>Calcisphaera</u> sp., indet. Salebriidae, <u>Diplosphaerina inaequalis</u> .
4683	indet. Endothyridae, <u>Calcisphaera</u> sp.,
4689	indet. Endothyridae, <u>Aoujgalia richi</u> , <u>Archaediscus</u> sp., <u>Diplosphaerina inaequalis</u> , calcitornellids?, <u>Endothyra</u> sp., indet. Archaediscidae, <u>Eoendothyranopsis?</u> sp., <u>Stacheoides</u> sp., <u>Nodosarchaediscus?</u> sp.

Agafanthe from core

<u>Sample (depth in ft)</u>	<u>Identification</u>
4692-93	<u>Endothyra</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Archaeodiscus</u> sp., <u>Nodosarchaediscus</u> sp., <u>Stacheoides meandriformis</u> , <u>Koninckopora minuta/pruvosti</u> .
4696	indet. Endothyridae, indet. Aoujgaliaceae, <u>Eoendothyranopsis?</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Globoendothyra?</u> sp., <u>Tetrataxis</u> sp.
4699	<u>Proninella</u> sp., <u>Eoendothyranopsis</u> sp., <u>Koninckopora minuta/pruvosti</u> .
4749	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Proninella</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Earlandia clavatula</u> gp., <u>Globoendothyra</u> sp.
4764-65	<u>Endothyra</u> sp., <u>Eoendothyranopsis</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Stacheoides</u> sp., <u>Archaeodiscus</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Epistacheoides</u> sp., <u>Aoujgalia variabilis</u> , <u>Skippella</u> sp., <u>Eoendothyranopsis scitula</u> , <u>Globoendothyra</u> sp.
4766.5	<u>Eoendothyranopsis</u> sp., <u>Archaeodiscus</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Koninckopora</u> sp., <u>Stacheoides meandriformis</u> , <u>Eoendothyranopsis scitula</u> , <u>Koninckopora minuta/pruvosti</u> .
4777	indet. Endothyridae, <u>Pseudoammodiscus?</u> sp., <u>Nodosarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endostaffella discoidea?</u> , <u>Planoarchaediscus?</u> sp., <u>Calcisphaera</u> sp., <u>Endothyra</u> sp., <u>Koninckopora minuta/pruvosti</u> .

M. L. Brown Maune No. 8, 31-21S-33W, Finney Co.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4732	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra</u> sp., <u>Globoendothyra piasae?</u> , <u>Koninckopora tenuiramosa?</u>
4739.5	indet. Endothyridae, <u>Calcisphaera</u> sp., <u>Archaeodiscus</u> sp., <u>Endothyra</u> sp., <u>Earlandia clavatula</u> gp., <u>Earlandia moderata</u> gp., <u>Tubisalebra?</u> sp.

January 31, 1983

Palynological analysis has been completed on the following seven cores from the Kansas Geological Survey collection. The sample interval and raw data listings per sample are provided as previously requested. As analyses on the other cores are completed, similar data will be provided to the Kansas Geological Survey


Carol Ann Dawson

CAD/df

K. C. Sawyer

Shallow Water Refining
#4 Maune
31-21S-33W
Finney Co., Kansas

Sample depth

Species present

4629'

Densosporites spinosus Dybova, & Jachowicz 1957
Laevigatosporites minor Loose 1934
Granulatisporites sp. (Ibrahim) Potonié &
Kremp 1954
Calamospora sp. Schopf, Wilson, Bentall 1944
Densosporites sphaerotriangularis Kosanke 1950
Lycospora pellucida (Wicher) Schopf, Wilson,
Bentall 1944
Lophotriletes sp. (Naumova) Potonié & Kremp 1954
Lycospora rotunda Bharadwaj 1957
Costatascyclus crenatus Felix & Burbridge 1967
Cristatisporites indignabundus (Loose) Staplin
& Jansonius 1964
Acanthotriletes sp. (Naumova) Potonié &
Kremp 1954
Raistrickia saetosa (Loose) Schopf, Wilson,
Bentall 1944
Potoniesporites sp. Bharadwaj 1954
Florinites sp. Schopf, Wilson, Bentall 1944
Crassispora kosankei (Potonié & Kremp)
Bharadwaj 1957
Densosporites variabilis (Waltz) Potonié &
Kremp 1956
Densosporites intermedius Butterworth &
Williams 1958
Dictyotriletes bireticulatus (Ibrahim) Smith &
Butterworth 1967
Cirratriradites saturni (Ibrahim) Schopf,
Wilson, Bentall 1944

4634'

Densosporites sphaerotriangularis Kosanke 1950
Densosporites triangularis Kosanke 1950
Densosporites intermedius B. & W. 1958
Cristatisporites indignabundus (L.) S. & J. 1964
Cingulizonates bialatus (Waltz) Smith &
Butterworth 1967
Lycospora pellucida (W.) S.W.B. 1944
Potoniesporites elegans (Wilson & Kosanke)
Habib 1966
Densosporites irregularis Hacquebard & Barss
1957

Sample depthSpecies present

4638'

Lycospora pellucida (W.) S.W.B. 1944
Reinchozpora triangularis (Kosanke) Ravn 1979
Dictyotriletes bireticulatus (I.) S.W.B. 1944
Densosporites intermedius B. & W. 1958
Schopfipollenites ellipsoides (Ibrahim)
 Potonié & Kremp 1954
Granulatisporites sp. (I.) P. & K. 1954
Acanthotriletes sp. (N.) P. & K. 1954
Florinites visendus (Ibrahim) Schopf, Wilson,
 Bentall 1944
Cingulizonates bialatus (W.) S. & B. 1967
Potoniesporites sp. Bharadwaj 1954
Densosporites irregularis H. & B. 1957
Crassispora kosankei (P. & K.) Bharadwaj 1957
Lophotriletes sp. (N.) P. & K. 1954
Knoxisporites dissidius Neves 1961
Trinidulus diamphidios Felix & Paden 1964
Calamospora sp. S.W.B. 1944
Radiizonates striatus (Knox) Staplin &
 Jansonius 1964
Savitrissporites nux (Butterworth & Williams)
 Smith & Butterworth 1967
Densosporites sphaerotriangularis Kosanke 1950
Densosporites spinosus D. & J. 1957
Raistrickia saetosa (L.) S.W.B. 1944
Foveosporis avcinni Ravn & Fitzgerald 1982
Waltzispora polita (Hoffmeister, Staplin
 Malloy) Smith & Butterworth 1967
Triquitrites cf. angulatus Kosanke 1950
Secarisporites remotus Neves 1961
Lycospora rotunda Bharadwaj 1957
Densosporites anulatus (Loose) Smith &
 Butterworth 1967
Ahrensissporites guerickei var. ornatus Neves
 1961
Colatisporites decorus (Bharadwaj & Vankatachala)
 Williams in Neves et al., 1973

4639'

Lycospora pellucida (W.) S.W.B. 1944
Densosporites intermedius B. & W. 1958
Murospora dupla (Ishchenko) Playford 1962
Cingulizonates bialatus (W.) S. & B. 1967
Densosporites spinosus D. & J. 1957
Calamospora sp. S.W.B. 1944
Crassispora Kosankei (P. & K.) Bharadwaj 1957
Cristatisporites indignabundus (L.) S. & J. 1964
Schopfipollenites ellipsoides (I.) P. & K. 1954
Acanthotriletes sp. (N.) P. & K. 1954
Knoxisporites dissidius Neves 1961
Lophotriletes sp. (N.) P. & K. 1954

Sample depthSpecies present

4639' (Cont.)

Colatisporites decorus (B. & K.) W. in Neves
et al., 1973
Granulatisporites sp. (I.) P. & K. 1954
Waltzispota polita (H.S.M.) S. & B. 1967
Densosporites irregularis H. & B. 1957
Alatisporites pustulatus (Ibrahim) Ibrahim 1933
Dictyotriletes bireticulatus (I.) S.W.B. 1944
Densosporites sphaerotriangularis Kosanke 1950
Densosporites anulatus (L.) S. & B. 1967
Raistrickia saetosa (L.) S.W.B. 1944
Triquitrites cf. angulatus Kosanke 1950
Trinidulus diamphidios F. & P. 1964
Florinites visendus (I.) S.W.B. 1944
Lycospora rotunda Bharadwaj 1957

4646'

Lycospora pellucida (W.) S.W.B. 1944
Foveosporis avcinni Ravn & Fitzgerald 1982
Granulatisporites sp. (I.) P. & K. 1954
Raistrickia saetosa (L.) S.W.B. 1944
Potoniesporites novicus Bharadwaj 1954
Cingulizonates bialatus (W.) S. & B. 1967
Densosporites sphaerotriangularis Kosanke 1950
Densosporites anulatus (L.) S. & B. 1967
Lycospora rotunda Bharadwaj 1957
Waltzispota polita (H.S.M.) S. & B. 1967
Trinidulus diamphidios F. & P. 1964
Cristatisporites indignabundus (L.) S. & J. 1964
Densosporites intermedius B. & W. 1958
Crassispora kosankei (P. & K.) Bharadwaj 1957
Remysporites eccentricus Mishell
Ibrahimispores brevispinosus Neves 1961
Densosporites spinosus D. & J. 1957
Radiizonates striatus (K.) S. & J. 1964
Colatisporites decorus (B. & K.) W. in Neves
et al. 1973
Cirratriradites saturni (I.) S.W.B. 1944
Mooreisporites trigallerus Neves 1961

4647'

Lycospora pellucida (W.) S.W.B. 1944
Cingulizonates bialatus (W.) S. & B. 1967
Densosporites spinosus D. & J. 1957
Densosporites anulatus (L.) S. & B. 1967
Acanthotriletes sp. (N.) P. & K. 1954
Knoxisporites dissidius Neves 1961
Colatisporites decorus (B. & K.) W. in Neves
et al., 1973
Granulatisporites sp. (I.) P. & K. 1954
Densosporites sphaerotriangularis Kosanke 1950
Calamospora sp. S.W.B. 1944
Densosporites irregularis H. & B. 1957

Sample depthSpecies present

4647' (Cont.)	<u>Ibrahimisporites brevispinosus</u> Neves 1961 <u>Lophotriletes</u> sp. (N.) P. & K. 1954 <u>Densosporites variabilis</u> (W.) P. & K. 1956 <u>Schulzospora</u> sp. Kosanke 1950 <u>Triguitrites</u> cf. <u>angulatus</u> Kosanke 1950 <u>Ahrensisorites guerickei</u> var. <u>ornatus</u> Neves 1961 <u>Lycospora rotunda</u> Bharadwaj 1957 <u>Nexuosporites comtus</u> Felix & Burbridge 1967 <u>Lycospora noctuina</u> Butterworth & Williams 1958
4657'	<u>Savitrisporites nux</u> (B. & W.) S. & B. 1967 <u>Calamospora</u> sp. S.W.B. 1944 <u>Granulatisporites</u> sp. (I.) P. & K. 1954 <u>Ahrensisorites guerickei</u> var. <u>ornatus</u> Neves 1961 <u>Lophotriletes</u> sp. (N.) P. & K. 1954 <u>Densosporites irregularis</u> H. & B. 1957 <u>Densosporites spinosus</u> D. & J. 1957 <u>Densosporites variabilis</u> (W.) P. & K. 1956 <u>Cirratriradites saturni</u> (I.) S.W.B. 1944 <u>Densosporites triangularis</u> Kosanke 1950 <u>Savitrisporites asperatus</u> Sullivan 1964 <u>Foveosporis avcinni</u> R. & F. 1982 <u>Radiizonates striatus</u> (K.) S. & J. 1964 <u>Murospora dupla</u> (I.) P. 1962 <u>Densosporites sphaerotriangularis</u> Kosanke 1950
4730'	<u>Savitrisporites nux</u> (B. & W.) S. & B. 1967
4736'	Barren of palynomorphs
4773'	Barren of palynomorphs

CAD/mlt
020783
RPT096

ROUGH DRAFT
FINAL WILL BE SENT AS IT BECOMES AVAILABLE
MCS

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 21, 1983

DRAFT 30520214

FILE: T.S. 825370PS
TO: C. F. Upshaw
SUBJECT: Calcareous Microfossils in Mississippian Core from the Hugoton Embayment, Southwestern Kansas

The following calcareous microfossils were found in Hugoton Mississippian cores supplied to the Kansas Geological Survey. The Denver Southern Division will forward these identifications to the Survey as part of our agreement for ^{their} use of the cores. The ages of most of these microfossils have been outlined in my memorandum of November 18, 1982, and discussed at the Hugoton Core Evaluation meeting in Denver on December 9-10. Since the meeting, samples from the previously unstudied M.L.B. Maune 9 have been processed and supplemental thin sections made from the Pan Am Block A-7 and S.W. Maune 4 wells. Identifications from all these new samples are included in this report.

<u>Sample (depth in ft)</u>	<u>Identification</u>
Pan Am Block A-7, 18-30N-33W, Haskell Co. 5501	indet. Endothyridae, indet. Aoujgaliaceae, indet. Archaeodiscidae, <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides tenuis?</u> , <u>Stacheoides</u> , sp., <u>Pronionella</u> sp., indet. Dasycladoceae.

Proprietary Statement

<u>Sample (depth in ft)</u>	<u>Identification</u>
4633	Barren
4671-72	<u>Endothyra?</u> sp., indet. <u>Archaediscidae?</u> , <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Nodosarchaediscus</u> sp.
4676	indet. <u>Endothyrida</u> ^e , <u>Calcisphaera</u> sp., indet. <u>Salebridae</u> , <u>Diplosphaerina inaequalis</u> . ^
4683	indet. <u>Endothyridae</u> , <u>Calcisphaera</u> sp.,
4689	indet. <u>Endothyridae</u> , <u>Aoujgalia richi</u> , <u>Archae-discus</u> sp., <u>Diplosphaerina inaequalis</u> , calcitor-nellids?, <u>Endothyra</u> sp., indet. <u>Archaediscidae</u> , <u>Eoendothyranopsis?</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Stacheoides</u> sp., <u>Nodosarchaediscus?</u> sp.
4692-93	<u>Endothyra</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Archae-discus</u> sp., <u>Nodosarchaediscus</u> sp., <u>Stacheoides meandriformis</u> , <u>Koninckopora minuta/pruvosti</u> . ^
4696	indet. <u>Endothyridae</u> , indet. <u>Aoujgaliaceae</u> , <u>Eoendothyranopsis?</u> sp., <u>Calcisphaera</u> sp., <u>Diplosphaerina inaequalis</u> , <u>Globoendothyra?</u> sp., <u>Tetrataxis</u> sp.

<u>Sample (depth in ft)</u>	<u>Identification</u>
4699	<u>Proninella</u> sp., <u>Eoendothyranopsis</u> sp., ^r [^] <u>Koninckopora minuta/pruvosti</u> , [^]
4749	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Pron-</u> <u>inella</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Ear-</u> <u>landia clavatula</u> gp., <u>Globoendothyra</u> sp.
4764-65	<u>Endothyra</u> sp., <u>Eoendothyranopsis</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Stacheoides</u> sp., <u>Archae-</u> <u>discus</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Epista-</u> <u>cheoides</u> sp., <u>Aoujgalia variables</u> , <u>Skippella</u> sp., ^{i i} ^{^ ^} <u>Eoendothyranopsis scitula</u> , <u>Globoendothyra</u> sp.
4766.5	<u>Eoendothyranopsis</u> sp., <u>Archaeodiscus</u> sp., <u>Diplos-</u> <u>phaerina inaequalis</u> , <u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Koninckopora</u> sp., <u>Stacheoides</u> <u>meandriformis</u> , <u>Eoendothyranopsis scitula</u> , <u>Kon-</u> <u>inckopora minuta/pruvosti</u> .
4777	indet. Endothyridae, <u>Pseudoammodiscus?</u> sp., <u>Nodo-</u> <u>sarchaediscus</u> sp., <u>Eoendothyranopsis?</u> sp., <u>Endos-</u> <u>taffella discordea?</u> , <u>Planoarchaediscus?</u> sp., <u>Cal-</u> ⁱ [^] <u>cisphaera</u> sp., <u>Endothyra</u> sp., <u>Koninckopora</u> <u>minuta/pruvosti</u> .

S
M. L. Brown Maune No. 8, 31-21^S-33W, Finney Co.
A

<u>Sample (depth in ft)</u>	<u>Identification</u>
4732	<u>Endothyra</u> sp., <u>Asphaltina?</u> <u>cordillerensis?</u> , <u>Stacheoides</u> sp., <u>Koninckopora minuta/pruvosti</u> , <u>Globoendothyra</u> sp., <u>Globoendothyra</u> piasee? piasee? , <u>Koninckopora tenuiramosa?</u>
4739.5	indet. Endothyridae, <u>Calcisphaera</u> sp., <u>Archaeodiscus</u> sp., <u>Endothyra</u> sp., <u>Earlandia clavatula</u> gp., <u>Earlandia moderata</u> gp., <u>Tubisalebra?</u> sp.

S
M. L. Brown Maune No. 9, 31-21^S-33W, Finney Co.
A

<u>Sample (depth in ft)</u>	<u>Identification</u>
4639-40	<u>Endothyra</u> sp., <u>Calcisphaera</u> sp., indet. <u>Asteroarchaediscinae?</u> , <u>Nodosarchaediscus?</u> sp.
4644-45	<u>Endothyra</u> sp., <u>Pseudoammodiscus?</u> sp., <u>Calcisphaera</u> sp.
4650	<u>Endothyra</u> sp., indet. <u>Archaediscidae</u> , <u>Diplosphaerina inaequalis</u> , <u>Nodasperodiscus</u> sp.
4657	<u>Endothyra</u> sp., " <u>Stacheoides</u> " <u>spissa?</u> , indet. <u>Aoujgaliaceae</u> , <u>Stacheoides</u> sp., <u>Aoujgalia</u> , <u>variabilis</u> , <u>Asphaltina?</u> <u>cordillerensis?</u> A

AMOCO PRODUCTION COMPANY
Tulsa, Oklahoma
February 11, 1983

83042ART0110

TO: K. C. Sawyer, Denver

SUBJECT: Processing of Conodont Samples - Deep Hugoton Project

The following wells associated with the deep Hugoton project have been processed for conodonts. This memorandum serves as a summary of my work on this project to date. Appropriate information contained herein may be extracted at your discretion and sent to the Kansas Geological Survey in fulfillment of our agreement with them to provide conodont identifications.

7. Locality 12441 - Shallow Water No. 4 Maune, Sec. 31, 21S, 33W 4
FINNEY Co., KANSAS.

Footage	Sample No.	Taxon No.	Conodont	Count
4633-34	* 1	3078	<u>Adetognathus lautus</u>	1
4671-72	2	0501	Barren of conodonts	
4689	3	0501	Barren of conodonts	
4699-4700	4	2618	Indet. conodont	1
4709-10	5	2618	Indet. conodont	1
4720-21	6	2618	Indet. conodonts	2
4637-38	* 7	2868	<u>Apatognathus sp.</u>	1
		4510	<u>Ligonodina levis</u>	2
4764-65	8	2618	Indet. conodont	1

*Age determined by D2 from core

6. Locality 12442 M. L. Brown No. 9 Maune. Sec 31, T21S, R33W, Finney
Co., Kansas

Footage	Sample No.	Taxon No.	Conodont	Count
4639-40	6	23360	<u>Taphrognathus-</u> <u>Cavusgnathus transition</u>	1
		2727	<u>Spathognathodus scitulus</u>	1
4644-45	7	2618	Indet. conodonts	10
4650	1	2618	Indet. conodonts	7
4658	2	2828	<u>Cavusgnathus unicornis</u>	1
		2827	<u>Cavusgnathus altus</u>	1
4661	10	0501	Barren of conodonts	
4705	13	0501	Barren of conodonts	
4719-20	14	0501	Barren of conodonts	
4725	3	2827	<u>Cavusgnathus altus</u>	1
		2828	<u>Cavusgnathus unicornis</u>	2
		2846	<u>Ozarkodina laeviposticus</u>	1
4727-28	15	2868	<u>Apatognathus sp.</u>	1
4745-44	16	2618	Indet. conodonts	2
4748.5	4	2826	<u>Cavusgnathus sp.</u>	1
		2868	<u>Apatognathus sp.</u>	2
		2727	<u>Spathognathodus scitulus</u>	1
		2741	<u>Spathognathodus scitulus</u>	1
		4489	<u>Magnilaterella sp.</u>	2
4753-54	17	4489	<u>Magnilaterella sp.</u>	2
		2618	Indet. conodonts	3
4753.5-55	5	2618	Indet. conodonts	4

A summary diagram illustrating correlations of these conodont faunas with the Mississippian and Early Pennsylvanian of the Las Animas Arch area are shown in Figure 5. That diagram is discussed in detail in a forthcoming Research Department report by myself and Mark Frye. Also, a copy of a report by me on Paleozoic conodont collections at the Kansas Geological Survey is also attached in the appendix.



H. Richard Lane

HRL:sdg
Attachment

cc: Jack Babcock
W. S. Davis
O. R. Hille
E. R. Michaelis
Allen Ormiston
J. W. Parks
R. W. Sherwood
C. F. Upshaw

APPENDIX

CONODONT ZONATION

SYSTEM	STAGES EUR	SERIES NA	ZONES (of authors)	F.U. LANE 1977 & 82
MISSISSIPPIAN	TOURNAISIAN	OSAGEAN	<i>anchoralis</i>	5
			<i>latus</i>	4U
MISSISSIPPIAN	VISEAN	MERAM.	Upper <i>typicus</i>	4L
			Lower <i>typicus</i>	3
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>isosticha</i>	2
			Upper <i>crenulata</i>	1F
MISSISSIPPIAN	VISEAN	CHESTERIAN	Lower <i>crenulata</i>	1E
			<i>sandbergi</i>	1D
MISSISSIPPIAN	VISEAN	CHESTERIAN	Upper <i>duplicata</i>	1C
			Lower <i>duplicata</i>	1B
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>sulcata</i>	1A
			<i>D. texanus</i>	7
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>A. scalenus</i> <i>Calusgnathus</i>	8
			<i>G. bilineatus</i> <i>C. charactus</i>	9
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>U. bilineatus</i> <i>C. altus</i>	10
			<i>naviculus</i>	11
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>C. unicornis</i>	12
			<i>muricatus</i>	U L 13
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>primus</i>	15
			<i>sinuatus-minutus</i>	16
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>symmetricus</i>	17
			<i>bassleri</i>	18
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>sinuosis</i>	19
			<i>klapperi</i>	20
MISSISSIPPIAN	VISEAN	CHESTERIAN	<i>convexus</i>	21
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