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## **Microfacies and Depositional Environment of the Interfingering Beds of Avanah Formation from Selected Sections, Sinjar Anticline, Northwest Iraq**

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### **ABSTRACT**

Lithological studies of three surface sections of Jaddala Formation, Sinjar anticline, indicated the presence of Avanah Formation, this manifested by three interfingering beds in Sharafadden village section and two thin beds in Jaddala village section, while non is present in Bara village section. These interfingering beds are comprised of three microfacies : Nummulitic lime grainstone microfacies (A1), Bioclastic lime grainstone-ies (A2) and Alveolina lime wackestone microfacies (A3), their depositional environment extended from inner-middle-outer ramp zones.

The disappearance of interfingering from the western part of Sinjar anticline and it's presence in the eastern part, point to the deepening deepocenter during the Eocene of the Sinjar basin in westward direction of the studied area.

(Mc Ginty, 1953 in Bellen et al., 1959)

116

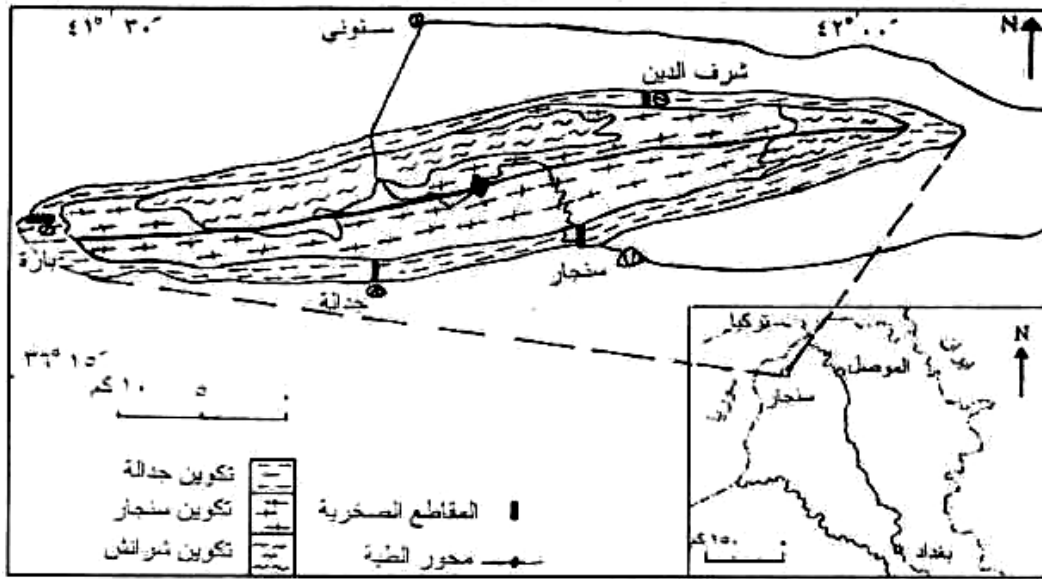
(1983)

(Maala, 1977)

(1989

Buday, 1980 Al-Hashimi and Amer, 1985)

(Al- Banna and Al-Mutwali, 2002)



:1

(100)

:

-1 :

330

. 41 51 14

36 26 3

( )

( - )

:(2 )

(19-16)

(3) :

(Ridge)

(Lamination )

(Symmetrical ripple mark )

(10)

(30)



.....

( intraformational conglomerate)

(2)

(1)



: 1

(0.5)

:

(240 -23905)

: -2

36 18 20

(342)

41 41 28

(280)

: -3

(590)

41 29 00

36 20 30

- 3)

(12 - 0.5)

(10

(45)

:

:

-1

**Nummulitic lime grainstone microfacies (A1):**

%90

(4 - 1)

*Nummulites bayhariensis* Chechia-Rispoli

(2 )

%80

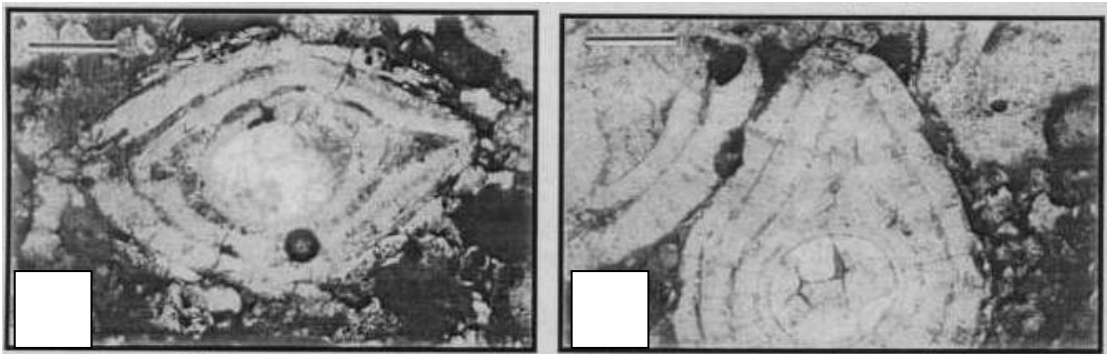
%5

(*Lithothamnium* sp.

*Discocyclina varians* Kaufman

.(3 )

)



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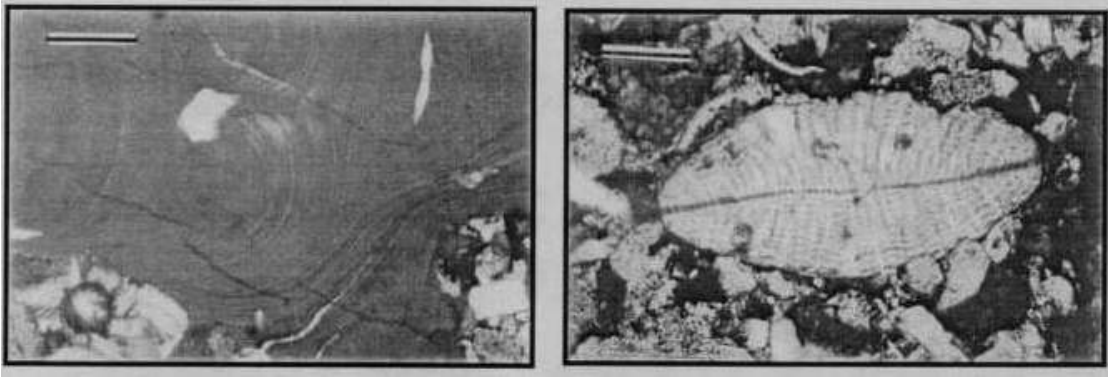
( ) :2

17

*Nummulites bayhariensis* Chechia - Rispoli

.( 0.5= )

.....



( ) *Discocyclina varians* Kaufman ( ) :3  
 .( 0.5= ) 17 (Lithothamnium sp.)

( intraformational conglomerate)

-

(2)

*bullbrooki*

(p10, p11)

A. Bolli, *A. broedermanni* Cushman and Bermudez

(Bartholdy et al. 1999; Bartholdy, 2000)

(Nummulitic bar)

-

(Winnowing)

(Buxton and Pedley, 1989; Hottinger, . (Photic zone)

(Pomar, 2001a and b) 1997)

80-40

(Mezophotic zone)

(Hallock and Cleen, 1986; Pomar, 2001a) .(Endosymbiotic algae)

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-2

**Bioclastic lime grainstone-packstone microfacies (A2)**

% 90-50

*N. fraasi* De La Hurpe

*D. augustae* Van der weijden, *D. dispansa* Sowerby and *D.*

(SBZ10-SBZ12)

(4 ) *sella* D'Archiac

.(Serra-Kiel et al.,1998)

*Cibicidoides* , *Lenticulina* , *Dorothia*

*Morozovella aragonensis* Nuttall and

% 20

*Acarinina pentacamerata* Subbotin

P7-P9



( )

-

:4

*Discocyclusella sella* D' Archiac

( ) *Nummulites fraasi* De La Harpe

.( 0.5= ) 4



.....

-

(Symmetrical ripple mark )

(10)

(30)

( )

(5.6 ) (Swift and Thorne, 1991)

%50

(7 )

(150)



- :6

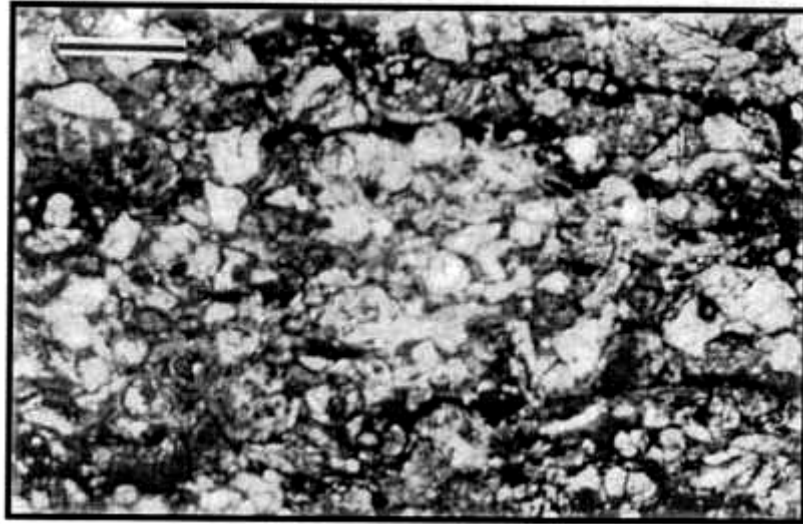


:5

18

.( 0.5= ) 19

( 0.5= )



- - :7  
 .( 0.5= )

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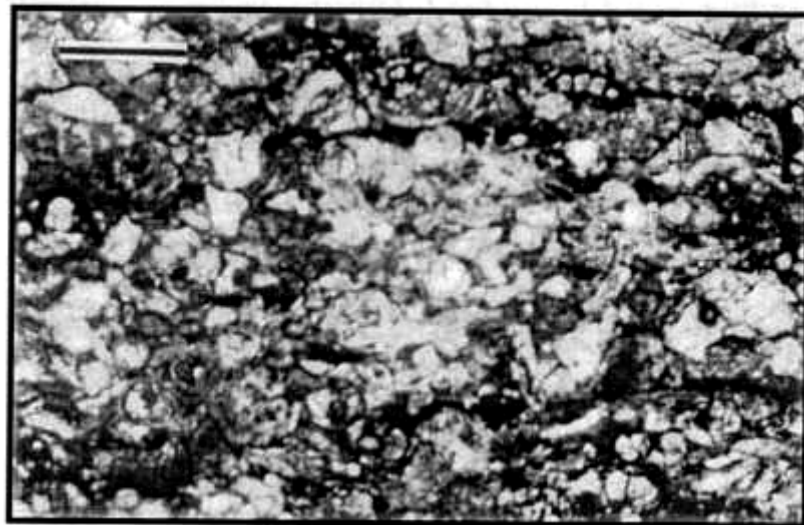
-3

**Alveolina lime wackestone microfacies (A3)**

*Pyrgo* , *Triloculina*

%60

.(8 ) and *Quinqueloculina*



.( 0.5= )

: 8-

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( 40 )

(Lagoon)

(Henson, 1950; Pautal, 1987)

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Bartholdy et al., 1999; )

.(Bartholdy 2000; Hauptmann and Bartholdy, 2000 and Pomar, 2001a

A1, A2, A3

(Carbonate platform)

.(Pomar, 2001a)

(Tuker, 1990; Handford and Loucks, 1993 and Wright and Burchrtte, 1996)

(Distally steepened ramp)

(El Garia Formation)

(Loucks et al., 1996)

(A1)

(Middle ramp)

(A2)

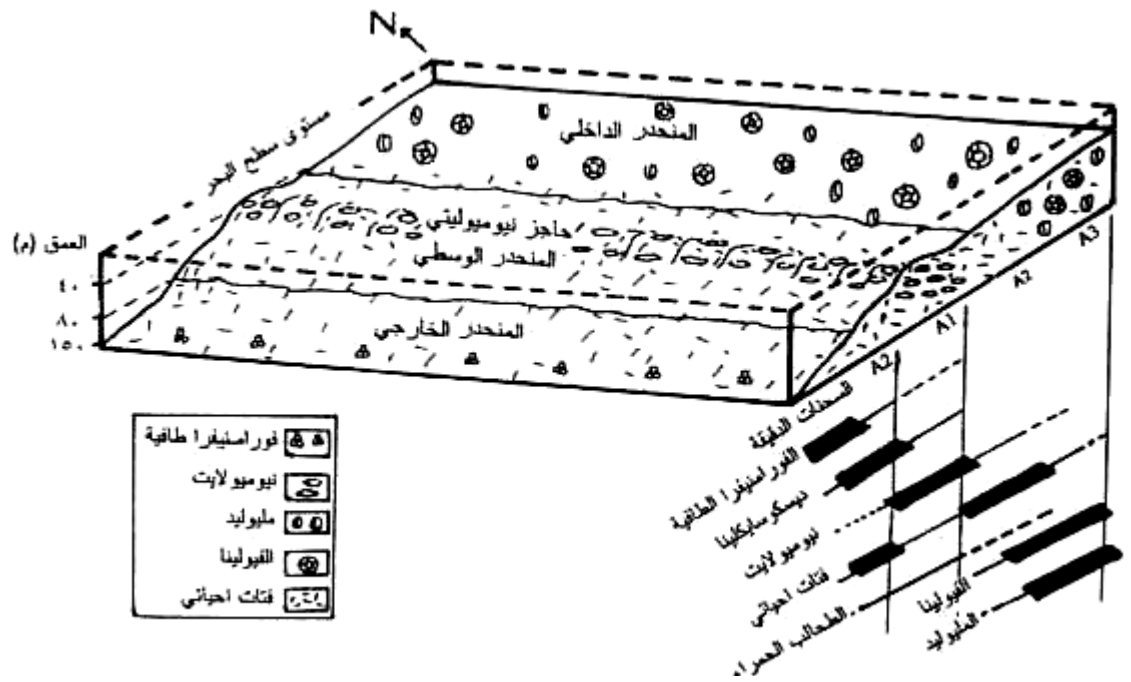
(Outer ramp)

Inner ) (A3) (ramp - 3).

Al-Banna and ) A2, A1 (Al-Mutwali, 2000

A2, A1 (1 ) .A3

A3



.1983

101

.1989

110

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