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Abstract

The petrographic investigation of Khasib Formation exhibiting finding six main microfacies in East Baghdad Field, these facies are: mudstone, mud-wackstone, wackstone, wack-packstone, Packstone and pack-grainstone. These facies containing many sub-facies. These different facies had been affected by several diagenetic processes such as: neomorphism, dolomitization, compaction, dissolution, cementation, and authogenic mineral growth. Constructive and destructive effects of these processes on reservoir characteristics for these facies had been identified.

Through out the microfacies analysis of the Khasib Formation, it was found that this formation was deposited in wide spectrum of environments extends from basin to open sea environment.

The several pore types of this Formation included interparticle, moldic, intrafossil, dissolution, fractures, and cavernous were observed in this formation. The Secondary porosity (dissolution, fractures, cavernous) represents the most important types in enhancing the reservoir characteristic

of the formation. Depending on the petrographic & pore types, Khasib formation was divided into seven units.

(3) (-)

(Buday,1980)

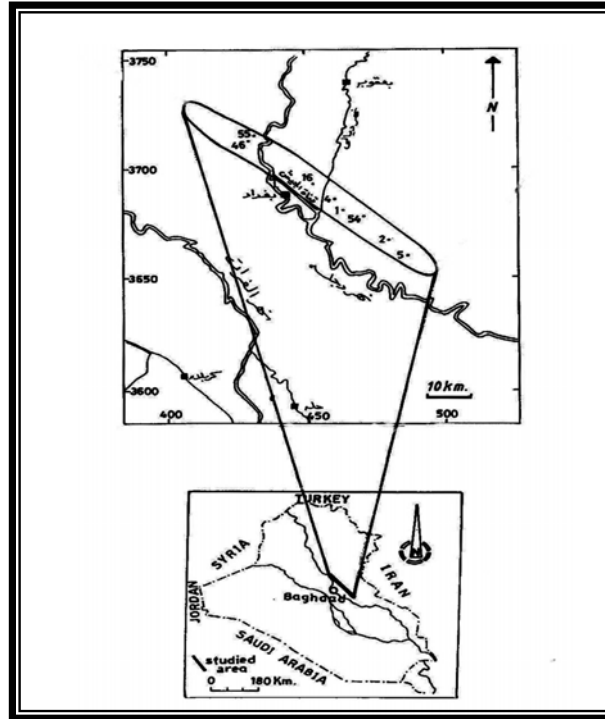
(120-90)

(50)

(418) (498)

(3728) (3650)

(8) (120)



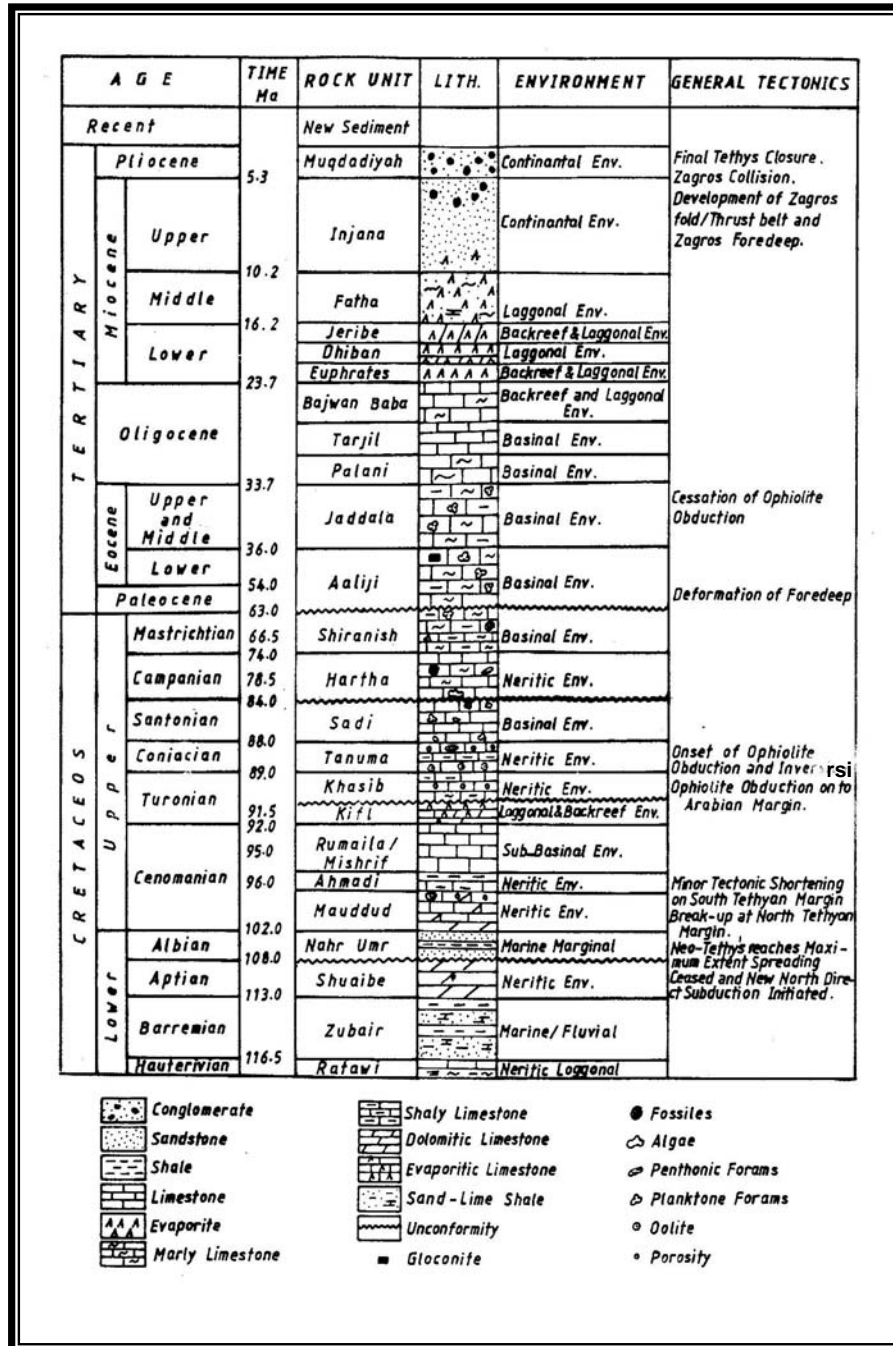
الشكل (1): خارطة توزيع آبار الدراسة في حقل شرق بغداد

(EB-5) (2) .
(894.53) (Hauterivian)
(Rabanit, 1952 in
(Zb-3) Van Bellen et al., 1959)
(Owen and Nasr, 1958 in
Van Bellen et al., 1959)

(AL-Siddiqi, 1976 in Buday,1980), (Owen and Nasr, 1958
in Van Bellen *et al.*, 1959),
(Saddoni and Aqrawi, 2000)

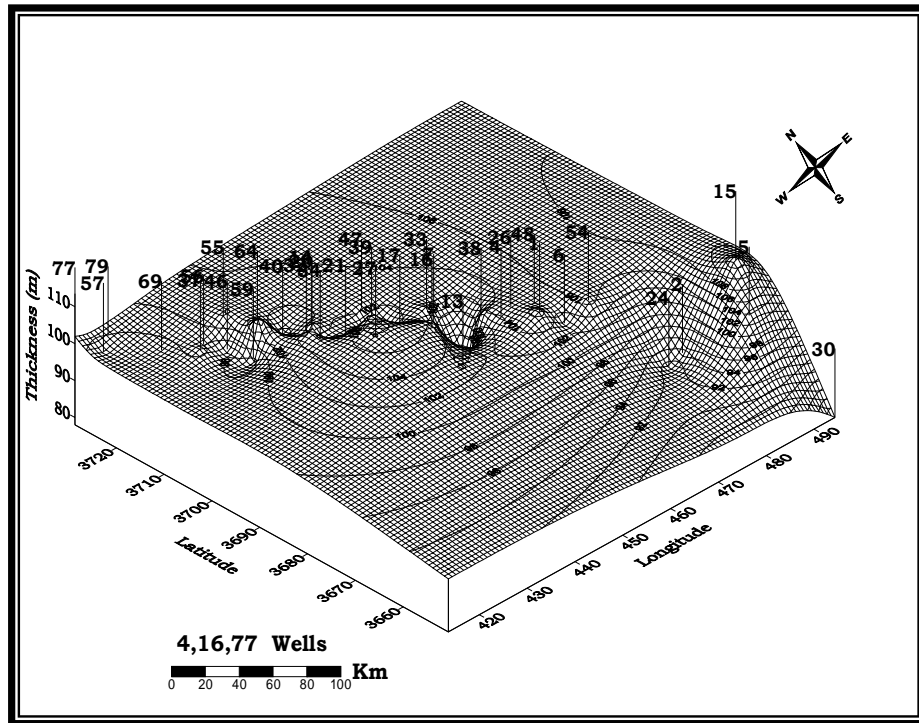
.(a,b-1)

.(3-)



(EB-5)

:(2)



الشكل(3): مجسم ثلاثي الأبعاد لسماكة تكوين الخصب في حقل شرق بغداد

Petrography and Microfacies

()
 .(Peloids)

(Dunham, 1962)

.(Limemud)

.(Wilson, 1975)

Neomorphism
 Cementation
 .Authogenicminerals

Dolomitization
 Compaction
 Dissolution

Diagenetic Process

(fluyel,1982)

:Constructive Riagenesis -I

:Isochemical -1

Cementation
 (Stylolite)
 .Neomorphism

:Allochemical -2

Dolomitization
 Mg-calcite
 Silicification
 Authogenic

Dedolomitization
 Calcification ()
 Phosphitization
 .Minerals

:Destructive Diagenesis -II

Burrows
 Boring
 Chemical Dissolution

.Compaction

-:

:Neomorphism -1

.(Microsparite)

:Dolomitization -2

EB-5

(Total,1981)

.(c, d, e, f-1)

:Compaction () -3

(Pressure solution)

Stylolite

Pyrite

.(Insoluble residuel)

Stylolite

.(Oil stain)

/
(Stylolite)

...		
	Dissolution	-4
Vuges		
	Channels	
(Moldic)		
		(g,h-1)
	(Al-Jawadi,1990)	
	Cementation	-5
		(i-2)
	Authigenic Minerals	-6
		(j,,k-2)
	(1986,)	(l,m-2)
	Microfacies Type	

(280)

(3)

(1-) EB-1,EB-5 & EB-16 :

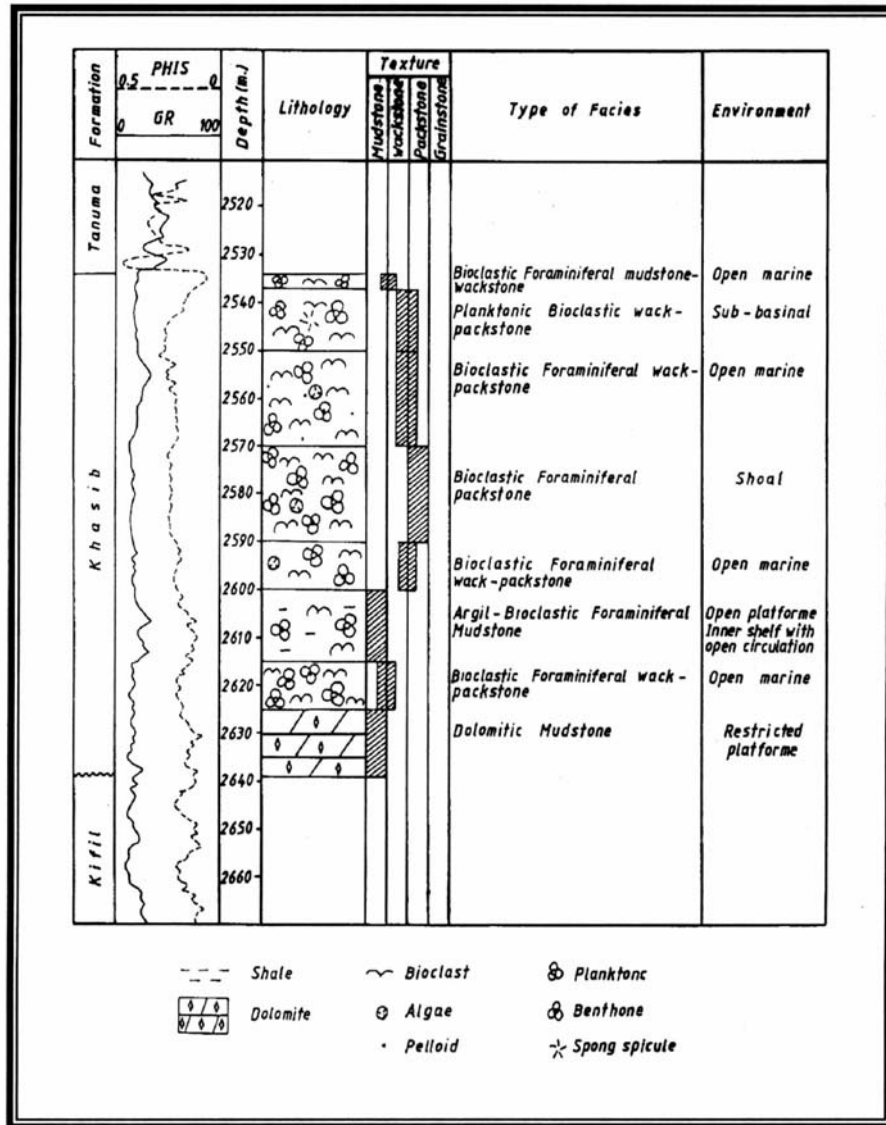
EB-5

(4-)

: (1)

Main Facies Type	Code	Microfacies	Borholes
Lime mudstone Facies	M	<ul style="list-style-type: none"> ❖ Bioclastic- Foraminiferal Mudstone microfacies ❖ Bioclastic-Benthonic Mudstone Microfacies ❖ Argillaceous Bioclastic-Foraminiferal Mudstone microfacies ❖ Dolomitic Mudstone microfacies 	EB-1, EB-5
Lime Mudstone -Wackstone Facies	M-W	Bioclastic-Foraminiferal Mudstone -Wackstone microfacies	EB-1, EB-5
Lime Wackstone Facies	W	Bioclastic Wackstone microfacies	EB-1
Lime Wackstone - Packstone Facies	W-P	<ul style="list-style-type: none"> ❖ Bioclastic-foraminiferal Wackstone-Packstone microfacies ❖ Planktonic-Bioclastic Wackstone-Packstone microfacies ❖ Benthonic-Bioclastic Wackstone-Packstone 	EB-1, EB5, EB-16

			micrafacies	
Lime Packston Facies	P		Bioclastic-Peloidal Packstone micrafacies	EB-1, EB-5
Lime Packston – Grainstone Facies	P-G		Foraminiferal Packstone- Grainstone micrafacies	EB-16



الشكل (4): التوزيع السحني والبيئي لتكوين الخصب ممثلاً بمقطع البئر EB-5

Lime mudstone Facies

(a)

(Dunham,1962) (%90)

Micrite

(%10)

.(1-)

Lime Mudstone – Wackstone Facies

-

(b)

.(%10)

.Benthonil

.Open marine environment

Lime Wackstone microfacies

(c)

.Open marine environment

Lime Wackstone – Packstone

-

(d)

Facies

.(Peloids)

(1-)

Lime Packston Facies

(e)

.Shoal Environment

-

(f)

Lime Packston – Grainstone Facies

.(Shoal environment)

Porosity

(Lucia, 1995)

: (5-)

(Interparticale pores)

(1)

.(ground mass)

(Grain-dominated fabric)

(Mud-dominated fabric)

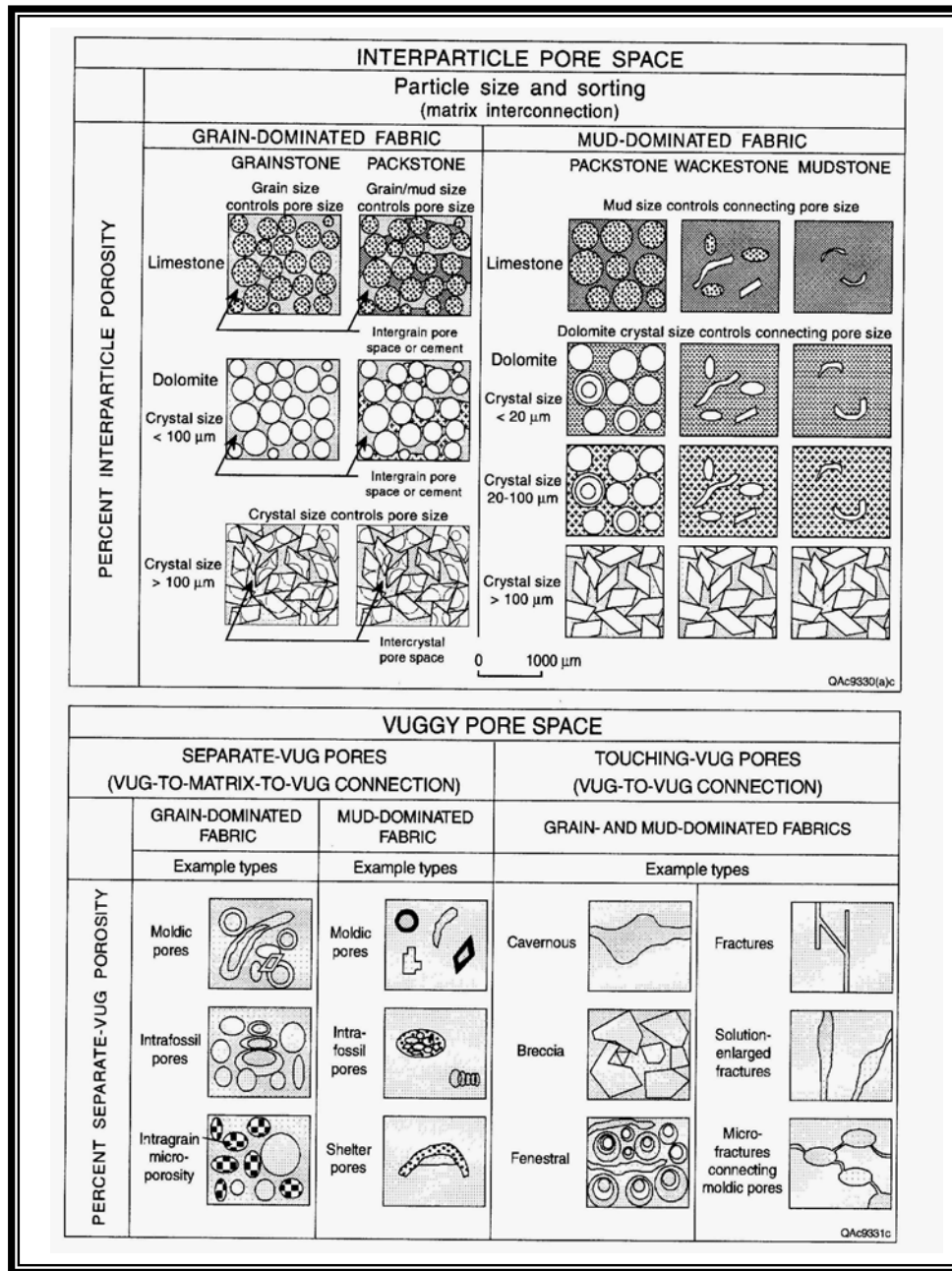
(Vuggy porosity) ()

(2)

(Separate-vug pores)

: (Touching-vug pores)

(Separate-vug pores)	.
:	
:(Moldic pores)	❖
:(Intrafossils)	❖
(Touching-vug pores) ()	.
Solution enlarged)	❖
(moldic pores)	:(fracture
:(Fractures pores)	.(o, p-2) ❖
:(Cavernous pores)	❖



(Lucia, 1995)

:(5)

Conclusion

: .1

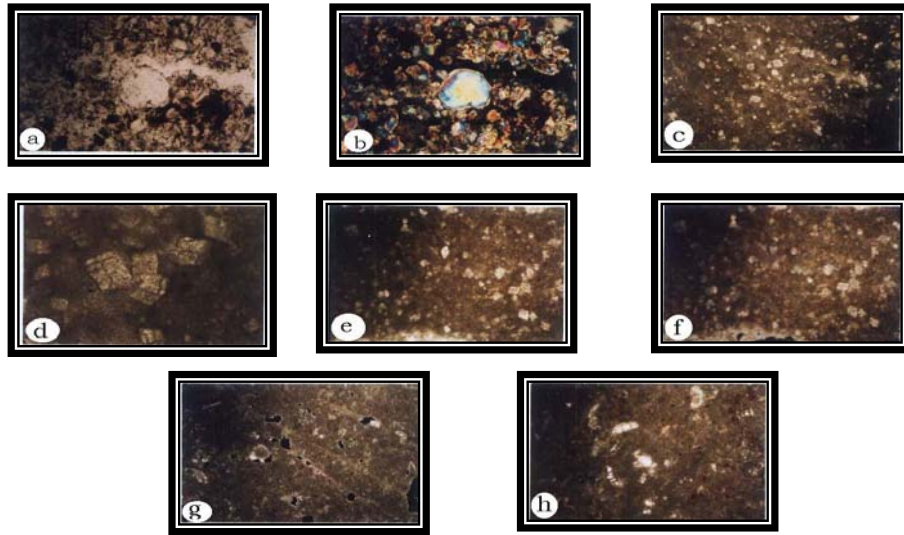
:

-

-

()

.(stylolite)



			:(a-1)	❖
.(50X)	EB-5/2640m	()		
			:(b-1)	❖
.(50X)	EB-5/2640m	()		
			:(c-1)	❖
	.(50X) EB-5/2625			
			:(d-1)	❖
	.(200X) EB-5/2625			
			:(e-1)	❖
	(50X) EB-5/2633			

:(f-1) ❖

(50X) EB-5/2633

:(g-1) ❖

.(50X) EB-5/2598

Rotalina sp.

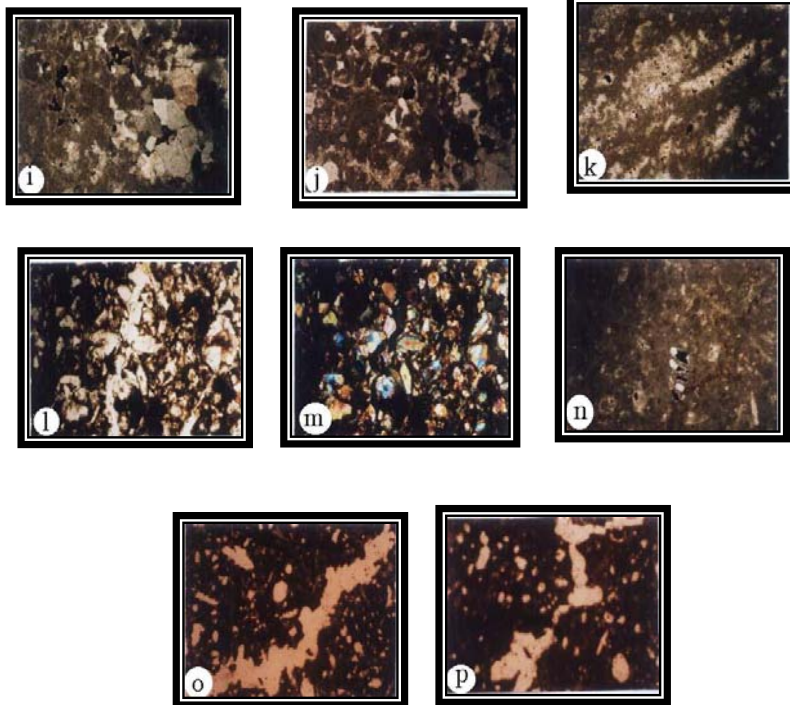
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:(h-1) ❖

Oil stain

.(50X)

EB-5/2621



(Calcite)

:(i-2)

.(50X) EB-5/2633

:(j-2) ❖

Pyrite

.(50X) EB-5/2636

			:(k-2) ❖
	.(50X) EB-5/2617	Pyritte	
			:(l-2) ❖
	.(50X) EB-5/2624.40		
			:(m-2) ❖
	.(50X) EB-5/2624.40		
Rotalina sp.	-		:(n-2) ❖
Oil stain			
	.(50X)	EB-5/2621	
	.(80X) EB-5/2557.05		:(o-2) ❖
			:(p-2) ❖
	.(80X) EB-5/2539.5		

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