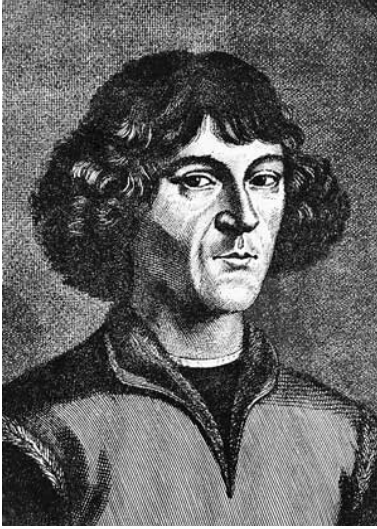


# ولادة علم الفلك الحديث حتى عصر غاليليو

إعداد: م. ألكسندر العادلي

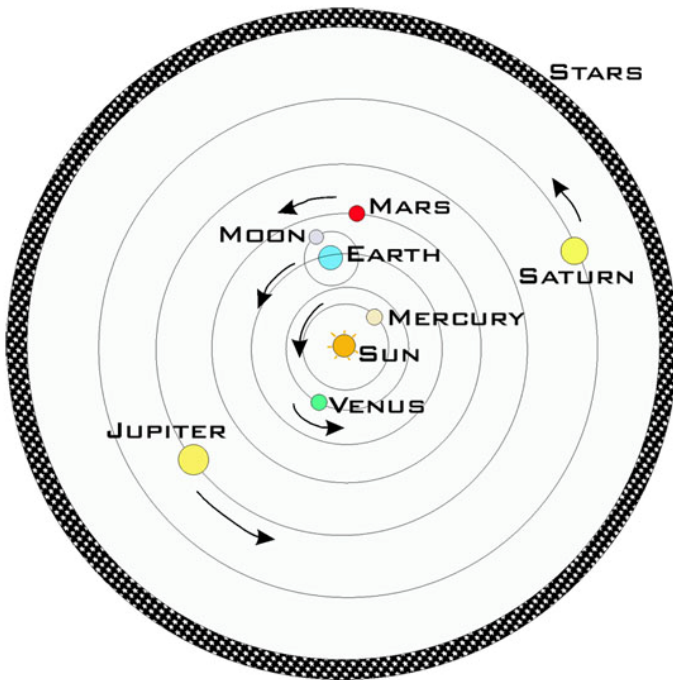


(1543-1473)

Copernicus

1543

(*De revolutionibus orbium coelestium*)



(1)

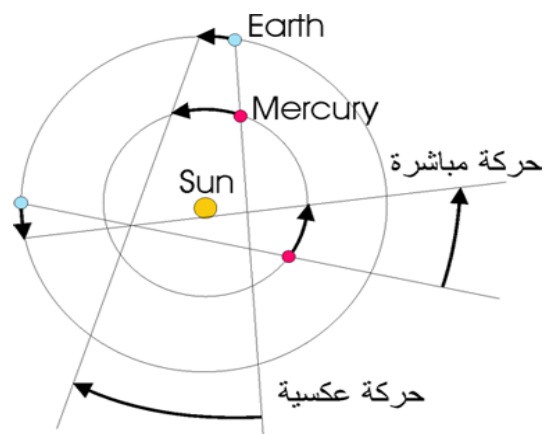
(1)

)

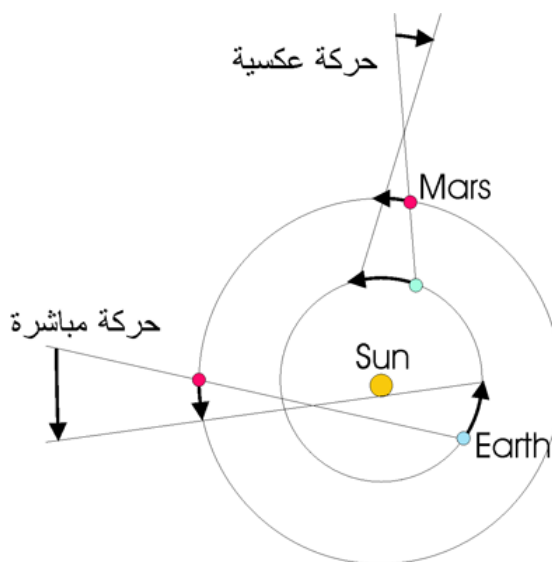
(

)

(



:(3)



:(2)

.(3 2 ) .



(1601-1546)

Tycho

(Johannes Kepler)

Brahe

(Newton)

!

"Astronomia nova"

1609

Focus

(Ellipse)

-1

-2



(1630-1571)

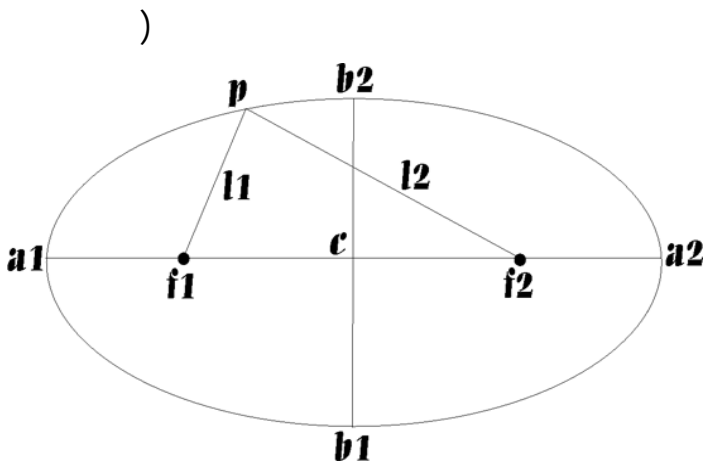
.(4)

( ) (Sidereal)

)  
1.88 .(  
2.14

.(5) (Sinodial)

: Sidereal



23:56:04 (

.24:00:00

365

:(4)

f1 f2 -

c-

[a1-a2] : = 2A

[b1-b2] : = 2B

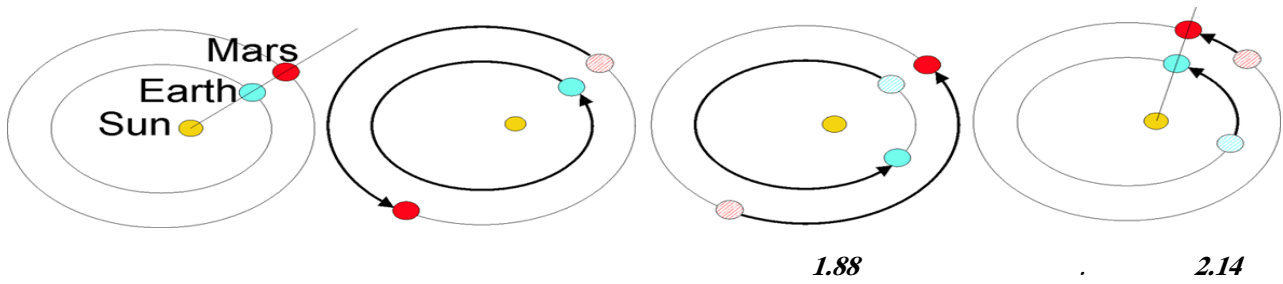
[f1-f2] : =2D

l1 + l2 = 2A

$$D^2+B^2=A^2$$

f2 b2 f1

( )

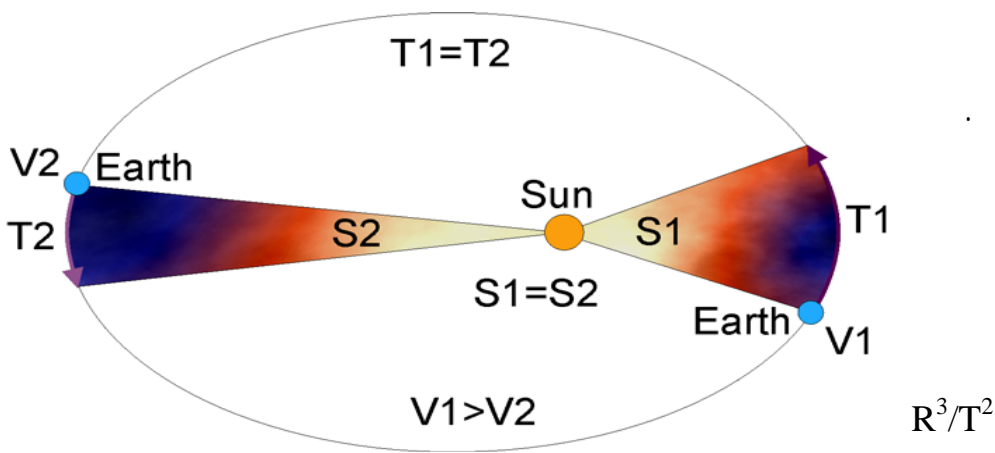


:(5)

$$\begin{aligned}
 & + \\
 & ) \quad 0,002738 \left( \begin{array}{c} 24 \\ 24 \end{array} \right) \\
 & .( \quad 47 \quad 5 \quad 365 \quad 24 \\
 & \quad \quad \quad 56 \quad 3 \quad 0,002738 \\
 & \quad 4 \quad 56 \quad 23 \quad 56 \quad 3 \quad 24
 \end{aligned}$$

(6)

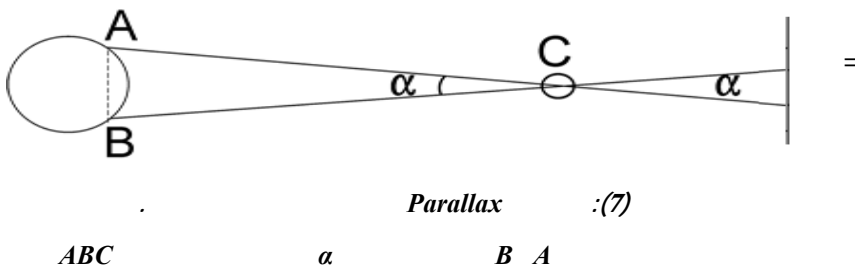
(Sector)



:(6)

.1

	( 1) R	( 1) T	$R^3/T^2$
	0,39	0,24	1,02
	0,72	0,62	0,98
	1,00	1,00	1,00
	1,50	1,88	0,96
	5,20	11,90	1,00
	9,60	29,40	1,02



.1  
(Astronomical Unit)  
.A.U.

Aristarchos



(1564-1642)

(Galileo Galilei)  
(8)

24

Richter

Cassini 1672

Parallax

(7) (Parallax)



:(8)

( 400)

150

( )	( )	
2450	58	
6050	108	
6380	150	
3400	228	
71500	778	
60000	1430	