Observations of the Eclipse *of the* Sun *on the* 12 *of* July *last (new style) made at the* Observatory *at* Paris 1684. *in the lower apartment, by* Messieurs Cassini *and* Sedileau ; *in the upper, By* Messieurs de la Hire *and* Pothenot. *At the* College *of* Lewis *the* Great, *in the presence of* Monseigneur *the Duke of* Bourbon, *by* R.P. Fontenay ; *at* Aix *in* Province ; *at* Lyons ; *at the* Bay *of* Roses ; *at* Honfleur *and at* Pau ; *by divers other learned Persons.*

In the lower appartment, by Messieurs Cassini *and* Sedileau.

FOr observing this *Eclipse*, beside the *Instruments* which were made use of for observing that of the *Moon*, at the *Focus* of the *Glass* of 40 foot, was placed circle of Paper equal to the Suns Image, divided into 12 digits, by concentrick circles ; and, to another Glass of 6 foot, was applyed, on the *Parallatick* Engine, another circle equal to that at the *Focus* of the Glass of 40 foot.

The Sun, at the beginning of the *Eclipse*, was clouded ; so that it could not be observed : but observations were taken of the following *Phases*, so as from thence divers others of the principal *Phases* might be collected according to the measures thereof, taken at such times as the Sun was free. The greatest obscuration was seen, and the end of the *Eclipse*, which was exactly marked. And having adjusted the computation of time for the several observations, and compared them together ; they were found in this manner,

	ho	′	″	Differences	
The beginning of the Eclipse.	2	25	55	6′	55″
One Digit	2	32	50	7	10
2 Digits	2	40	0	7	40
3 Digits	2	47	40		

4 Digits

4 Digits	2	54	10	6	30
5 Digits	3	2	0	7	50
6 Digits	3	10	5	8	5
7 Digits	3	20	10	10	5
7⅞ Dig. the great-est occultation	3	35		′	″
7	3	55	50		
6	4	4	10	9	20
5	4	12	25	8	15
4	4	19	15	6	50
3	4	25	50	6	35
2	4	32	15	6	25
1	4	37	40	5	25
End	4	43	23.	5	43

The apparent *Diameter* of the *Moon* appeared lefs than that of the *Sun*. It was judged that the Dilatation of the Suns light, might make the Moons Diameter feem lefs. The Horns or Points of the Sun Eclipfed feemed fome-times a little blunted by the Glafs.

In the upper apartment, by Meffieurs de la Hire *and* Pothenot.

The conclufions following we deduced from a great number of obfervations of the Suns obfcuration, which were meafured very carefully with a Micrometer. The beginning was not immediate'y obferved, by reafon of Clouds; but is concluded from many obfervations made foon after it. Wherefore this obfervation may be reput-ed as juft as the reft. The Suns greateft obfcuration was obferved very exactly; but the juft time when it happen-ed cannot be determined with the like precifenefs, be-caufe there then happened no confiderable alteration for the fpace of near two minutes. The end was obferv-ed with the greateft exactnefs poffible.

The

	h	′	″	Differences ′	″
The beginning.					
1 Digit	2	25	24	7	38
2 Digits	2	33	2	7	28
3	2	40	30	7	17
4	2	47	47	6	54
5	2	54	41	8	0
6	3	2	41	9	25
7	3	12	6	8	48
The greatest obscur. 7 dig. 5′	3	20	54		
	3	36	27		
7	3	53	34	10	19
6	4	3	53	7	10
5	4	11	3	6	39
4	4	17	42	7	32
3	4	25	14	6	42
2	4	31	56	6	15
1	4	38	11	5	16
End	4	43	27		

There were made also many observations of the distance between the seeming Horns of the Sun, which being compared with the Sun's lightsome part at the same time, and with the distances between the lines which joyned the Horns and the Suns fartheft border, the Moons Diameter appear'd then not to be more than about 30 minutes; though by the observations of her Diameter made some days before and after, it was judged to be 31. 30″. but the being somewhat agitated, permitted not to obferve exactly the extremities of the Horns, which appeared fomewhat blunted; on which depended the exactnefs of that determination.

At the College of Lewis the Great, in the prefence of Monfeigneur the Duke of Bourbon, by R. P. Fontenay, Profeffor of the Mathematicks.

At hour 2. 29′. 30″. the Sun which had been covered with clouds, being now a little uncovered, the Eclipse appeared

peared fenfibly begun ; but not yet half a Digit, nor a third part.

	h	'	"
1½ Digit	2	37	40
2	2	40	25
3	2	46	34
4	2	54	30
5	3	3	0
6	3	12	40
7	3	22	18
7¾	3	38,and more.	
7	3	51	20
6	4	2	25
5	4	10	50
3	4	24	31
2	4	29	54
0⅓ fere.	4	41	

The Sun withdrawing behind the Clouds, hindred the obferving of the end.

An Abridgment of diverfe other Obfervations, *fent to* M. Caffini ; *at* Aix *in* Province *by M. the* Priour Gautier.

The beginning at 2*h.* 54'. 30". The end at 5*h.* 9'. 9" The greatnefs of the Eclipfe 8½ Digits. The Height of the Pole 43*d.* 30'.

At Lyons, *in the great* College *of* Jefuits, *by* R. P. Paul Hofte.

	By the Fix'd Stars			By the Sun.		
	h	'	"	h	'	"
1. Digit.	2	45	3	2	50	3
8½ Dig.	3	53	52	3	58	52
1. Digit.	4	59	20	5	4	20
	3	26	14	*The Diameter of Sun and Moon.* 30' 58"
	4	20	34	*The Diameter of the Sun* 30'. 58.
				of the Moon 30'. 5.

The

The time of the greatneſs of the Eclipſe at every of the Digits, was obſerved, but is not put into this Abbridgment

At the Bay de Roſes, by M. Chaſſelles.

	h		
The beginning of the Eclipſe	2	40	
The edge of the Moon at the Suns Center	3	25	
The Horns Horizontal	3	40	
The Horns Vertical	4	15	
The End of the Eclipſe	5	1	30'

The greatneſs of the Eclipſe, about ¾ of the Suns Diameter. During the Eclipſe, all the world ſaw Venus without pain. The place is 3 Miles in the Sea, before Roſes 42d. 10' Latitude.

At Honfleur, by M. de Glos, Profeſſor of Mathematicks.

	h	'	"
The Beginning, at	2	15	2
The End, at	4	34	35

The Greatneſs ; more than 8 Digits, but leſs than 9.

Other Obſervations communicated by R. P. Fontenay.
At Pau, by P. Richaud, Prof. of Math. and Theol.

At hour 1¾. The Eclipſe not begun. At hour 3¼, at 10 Digits. The end at 4¾. Height of the Pole 43. d. 30.

At Avignon, by R. P. Bonfa.

	h	'	"
The Beginning	2	43	27
1. Digit	2	51	58
6. Digits	4	2	
The Horns Vertical	4	24	32
1½ Dig.	5	1	16
The End	5	4	37

R   The

The Suns Diameter.   31   38″
The Moons   30   6

    M. *Cassini*, having compared together these Observations, and made such reductions as the *Parallax* requires, doth thence take these *Differences* of *Meridians* between the places of observation.

From *Paris* to *Aix*	14′ to the *East*.
to *Avignon*	8½
to *Lyons*	8 or 13
to *Roses*	4
From *Paris* to *Honfleur*	7 to the *West*.
to *Pau*	11.

The