

I. *Observations made by Captain Stannyan of the Spots that appear'd upon the Body of the Sun in the Months of May, June and July, in the year 1704. Communicated by Mr Hodgson, F. R. S.*

May the 15th. **O**N Saturday, May the 15th, 1703, As I was observing the Setting of the Sun, in order to Examine my Clocks, there appeared two Suns, the Mock Sun seemed above the Real one, which was then only five degrees above the Horizon. Whereupon I took a good Seven foot Telescope, with a small Apperture, and soon discovered a Solar Spot near the Suns Center, which I designed to Observe more Exactly the day following, but it proved Cloudy.

May the 16th. Sunday no Sun shine.

May the 17th. Monday, May the 17th, At Six a Clock in the morning I took the same Telescope, armed with a Clouded Eye-glass, and immediately perceived that the Spot was advanced considerably towards the Suns Western Limb; it seem'd of a strong consistence, very Compact, resembling a Face, and was distant by Noon from the Anterior Limb of the Sun's Diske 61 Seconds of time. See Fig. the 12th.

May the 18th. Tuesday, May the 18th, At noon I found the Spot distant from the Preceding Limb 46 Seconds of Time. Fig. the 12th.

May the 19th. Wednesday, May the 19th, At Noon I observed the Solar Spot to be moved within 33 Seconds of time of his Western Limb. Fig. the 12th.

Thurs.

(1757)

Thursday, May the 20th, At Noon the Spot was arrived May the 20th. within 21 Seconds of Time of the Preceding Limb, and moving nearly in a Straight line. Intersecting the Parallel of Declination passing through the Sun's Center. Fig. the 12th.

Friday, May the 21st, We had no Sun-shine. May the 21st.

Saturday, May the 22d, At seven a Clock in the Morning I observed the Solar Spot was advanced very near the Limb of the Sun's Diske. Fig. the 12th. May the 22d.

Sunday, May the 23d, At six in the Morning I saw the Spot, which by that time was gotten to the very Edge of the Sun's Diske, Resembling a Barley Corn, lean and slender, and of a Dusky Colour, wanting only its own shortest Diameter of the Sun's Limb. At Eight a Clock I observed it again: Also at Ten, and at Twelve. At Two I perceived it was slid into the very Circumference, and hardly Visible, had I not had an Eye upon it all the day long. At Four I examined the Sun's Body with my Eighteen Foot Glas, which is a good one, but could not perceive the least Glimpse of it; so that about Three in the Afternoon it totally disappeared. Fig. the 12th. May the 23d.

Observations of the Solar Spots in June.

ON *Tuesday, June the 3d,* About six in the Evening June the 3d. I observed with my Eighteen Foot Glas four Spots in the Sun's Diske, environ'd with a Mistiness, thicker on the Right hand than on the Left, situated in the upper Left hand Quadrant, about the 12th part of the Sun's Diameter distant from his nearest Limb. From the Cloud about them proceeded both ways five long curve Rays, of a yellower Colour than the Sun's Body. These Spots I could never see more, though I watch'd them for several days together. Fig. the 13th.

(1758)

June the 7th.

On Monday, June the 7th, 1703. At three a Clock in the afternoon I discovered the same Spot (to my thinking) that I saw go off the Sun's Diske on May the 23d. Re-entering the Sun's Face just at the time and place that I expected it.

At four of the Clock, the Sun being extremely Clear, I mounted my Eighteen Foot Telescope, through which the Spot appeared distinct, but slender like a Spider, with an Elliptical Speckly mist about it, and 5 or 6 Light coloured Streaks. It seem'd to me to be as it were divided near the Top, as in the Figure. Fig. the 14th.

June the 8th.

Tuesday, June the 8th. At six this Morning the Spot was very Visible, and I saw it trace again its former Path, coming in exactly where I expected; it kept its shape, but those Lemon Coloured Streaks disappeared, tho it self and the Mist about it grew bolder and broader visibly, as it re-entered the Sun's Diske.

June the 9th.

Wednesday, June the 9th. At five of the Clock this Evening I observed the Spot with the 18 foot Glas, but could not perceive it had altered its shape, but advanc'd gradually over the Sun's Diske, as it had formerly done.

June the 10th.

Thursday, June the 10th, At noon the Sun shining very bright, I had an opportunity of being assured it was the same Spot, I plainly saw it move over its former Path, and was then distant from its nearest Limb 29 seconds of Time. At five in the Evening I observed its shape (with my 18 foot Tube) to be altered, appearing bigger and blacker than ever, as in the Scheme, Fig. 15.

June the 11th.

Friday, June the 11th was an ill day for Observations. But I had a sight on't with the 18 foot Glas; it continued black and bold, as before.

June the 12th.

Saturday, June the 12th, At 7 a Clock in the Morning, the Sun's Body being very Clear, I saw the Spot through the 18 foot Glas, retaining its former shape.

(1759)

Sunday, June the 13th, By this day noon the Spot was *June the 13th.* arrived at the same point of the Sun's Diske that I found it in on *Monday at Noon, May the 17th*; which makes me inclinable to believe it was the very same Spot.

Monday, June the 14th, According to Rules received *June the 14th.* yesterday from Mr *Flamsteed,* I measured the distance of the Spot from the next Limb of the Sun's Diske, which I found to be 45 seconds of Time from the Anterior Edge of the Sun's Body: And upon *Tuesday, May the eighteenth,* it was observed to be in the very same place of its Path, within a single second of Time. At 4 I observed it with my 18 foot Glafs, and perceived that it had altered its shape, appearing as at Number 14. I received it on the Scheme, and it was distant from the preceding Limb 612 such parts as the Sun's Semidiameter is 900.

Tuesday, June the 15th, At Noon the Solar Spot was *June the 15th.* distant 32 seconds of Time from the leading Limb of the Sun's Disk, and covered the very place where the same Spot had been observed on *Wednesday the nineteenth of May.*

Wednesday, June the 16th, No Sun shine. *June the 16th.*

Thursday, June the 17th, No Sun-shine. *June the 17th.*

Friday, June the 18th, At Noon I observed the Solar *June the 18th.* Spot waxing very slender, but notwithstanding that it was black and bold to appearance, the Mistiness about it on the Right Hand perceivable, and that on the Left grown slender, in proportion with the Spot it self, and found it distant 5 seconds of Time.

Saturday, June the 19th, At 5 this Morning, it being *June the 19th.* Clear Weather, I saw the Spot distinctly with my 7 foot Tube: At 9 a Clock I mounted my 18 foot Glafs, observing once in half an hour all the Morning: At 12 I perceived that all the Cloud or Misty Matter that used to surround the Spot was invisible, and the Spot it self re-

Q q q q q q q q q q duced

(1760)

duced to little or no breadth, in comparison to what it had been towards the Sun's Center, and so close to the Limb of the Diske, that I could only perceive a small streak of the Sun's Light between it and the Limb of the Sun's Body; at 2 a Clock I could just perceive it, but grown extremely slender.

The first Revolution I saw the Spot half in the Circumference of the Sun's Limb at 2 a Clock on *Sunday, May* the 23d: And the second Revolution I just perceived it with the 18 foot Glafs, at half an hour after two a Clock on *Saturday* the 19th day of *June*.

Observations of the Solar Spots seen in *June* and *July*, 1703.

June the 27th

ON *Sunday, June* the 27th, about six a Clock in the Evening I observed several Spots in the Sun's Diske, but had not the Conveniency to use my longest Telescope, because of some Trees that were in my way to Westward, so that I made no Observation till the *Tuesday* following.

June the 29th.

Tuesday, June the 29th, About 7 in the Morning I counted 16 Remarkable Spots in the Sun's Body, and near his Center they appeared as in the Figure, through the 18 foot Glafs; then I took my seven Foot Telescope and Frame, and observed that the foremost Center of six that looked on the Paper as one spot, was distant from the Sun's Anterior Limb 81 seconds of Time, and the last Cluster 87.

This day the foremost Spot was distant from the following Limb, according to the Path of the Spot, just 55 seconds of Time. The Sun's Diameter was always 126 seconds in the Transit, and the Spot was 126: So that that the Spots path was 10 seconds shorter than the Sun's Diameter.

Wednes-

(1761)

Wednesday, June the 30th, At eight a Clock this Morn June the 30th.
ing, observing the Solar Spots with my 18 foot Tellef-
cope, I perceived very plain that they had wonderfully
increased in Number, and strangely changed their
places. The Cluster of seven Spots seem'd to me to
move gradually, as the single Solar Spot did in *May*,
but the Cluster 4 went too fast forward, the 12 Spots
without a Mist about them straggled all manner of ways,
and the 9 Spots and the 5 black little ones went back-
ward, and unbent itself at the same time as it were into
a straight line. I am apt to believe it went backward,
as that the other went too fast, or faster than ordinary
forward, for in 24 hours the foremost Cluster advanced
21 seconds of Time, which is more by six seconds than
ever the single Spot moved in that time, even when
nearest the Sun's Center; and the distance in time be-
tween the first and the last Cluster this day was greater
by 3 seconds than the day before.

The foremost Cluster of 4 Spots was distant from the
advancing Limb of the Sun 60 seconds of Time.

At half an hour past 4 the advancing Cluster pass'd the
interfection in 55 seconds of Time, after the Sun's fore-
most Limb had passed Conformable to the Spots path; and
the last Spot passed in 63 seconds of Time, the last
Limb passing the interfection, according to the Path of
the Spot, in 126 seconds of Time, the Sun's largest Dia-
meter passing in 136 seconds, the Spots by this time ap-
peared strangely black, and of very odd shapes, as in the
upper part of the Circle.

Thursday, July the 1st, At eight a Clock in the Morn- July the 1st.
ing I observed the Solar Spots with my eighteen foot
Telescope, the Weather being good, and saw that they
had rang'd themselves in Respect of one another, as is
Represented in the upper part of the Scheme: The
leading and largest Spot being distant from the anterior
Limb 44 seconds of Time, the last Cluster lying a little

Q q q q q q q q q q 2

awry,

(1762)

awry, pass'd in 53 seconds: After the Anteriour Limb so done, the following Limb also pass'd the Interfection. according to the path of the Spot, in 125 seconds of Time.

Friday, }
Saturday, } No Sun-shine.

July the 4th. *Sunday, July the 4th,* This Morning at eight a Clock the Leading Spot was distant from the advancing Limb 10' seconds of Time, the Spots and Clusters retaining nearly the same shape, but beginning to Contract themselves, the foremost methought look'd strong enough to make another Revolution, and pass'd in 127 seconds.

July the 5th. *Monday, July the 5th,* At seven a Clock I found the Spots had quite alter'd their shape, appearing dull and slender, as in the lower part of the Scheme, and distant about four seconds, being all included in a Cloud.

July the 6th. *Tuesday, July the 6th,* At ten a Clock the Sun's Diske, view'd with my 18 foot Telescope, was found clear of all Spots.

On the seventeenth day of *July*, about four a Clock in the Afternoon I observ'd some Spots in the Sun's Body, resembling those I saw on *Thursday* the third of *June*, only with this difference, that these appeared to me as if they had been heated red hot; they seem'd to be in the same part of the Sun's Diske. I observed them above an hour together that day, but could never afterwards set Eye on them, nor discover whether they were coming in, or going off his Visible Diske. I continued to observe the Sun, as often as was possible, with my eighteen foot Glafs, till the end of the Month, but without farther success.

II. Georg.

fig = 1 -

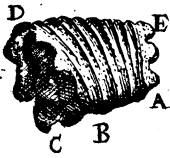


fig = 4 -

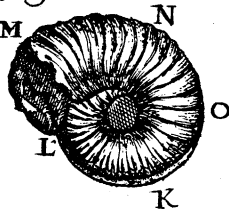


fig = 12 -

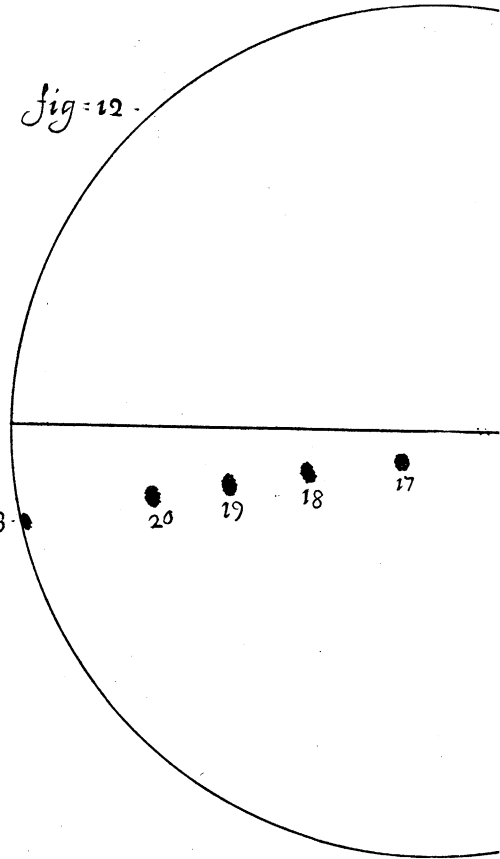


fig = 8 -

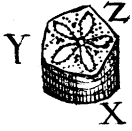
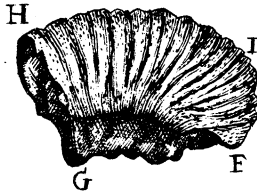


fig = 2 -



May:23 -

fig = 6 -



fig = 5 -



fig = 7 -

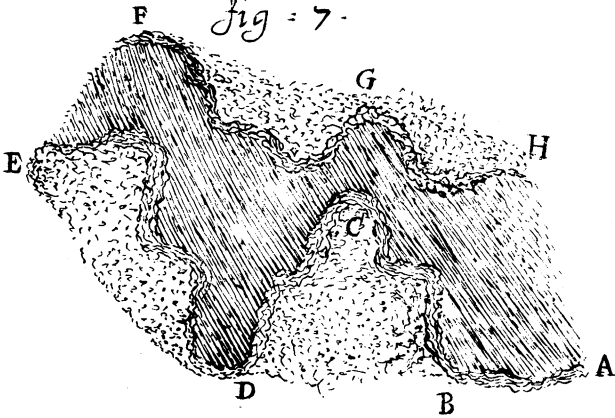


fig = 15 -



fig = 19 -

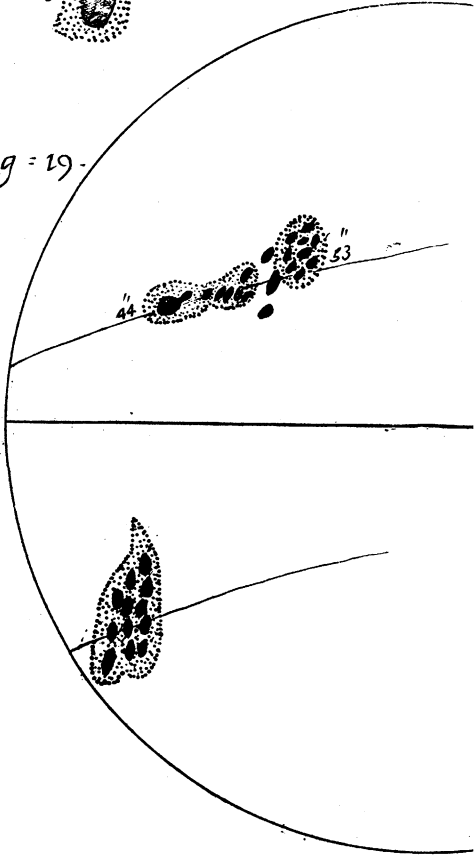


fig = 3 -

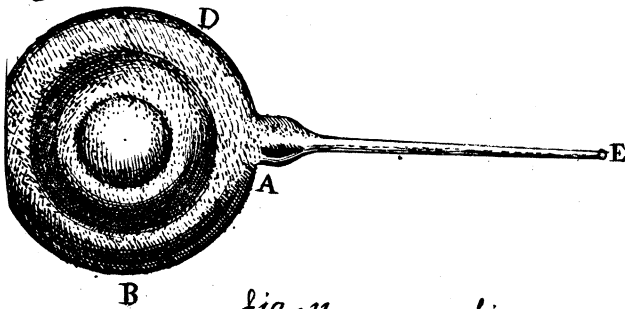


fig = 11 -



fig = 10 -



fig = 9 -



Fig: 18.

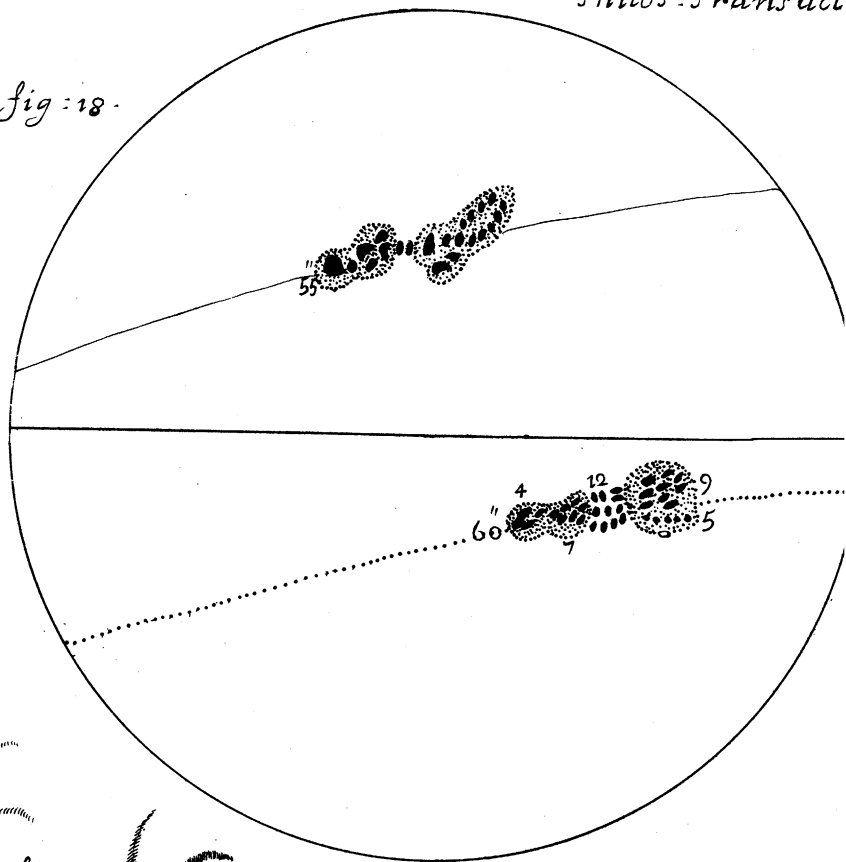


Fig: 13.

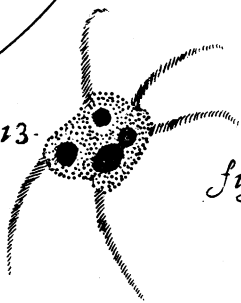


Fig: 14.



Fig: 17.

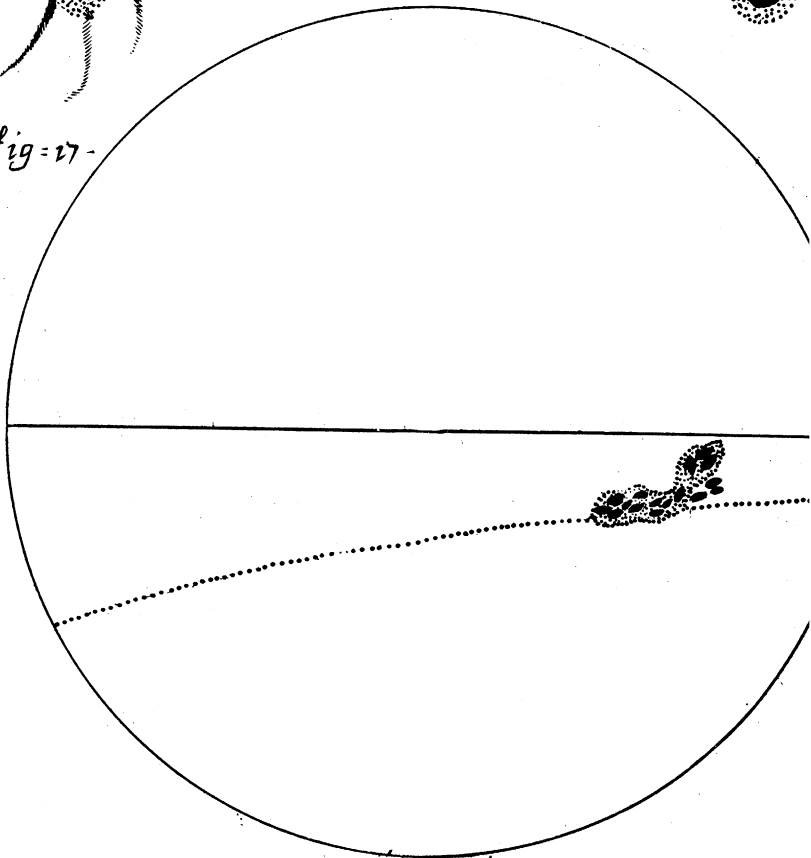


Fig: 16.



ns act: N: 294.

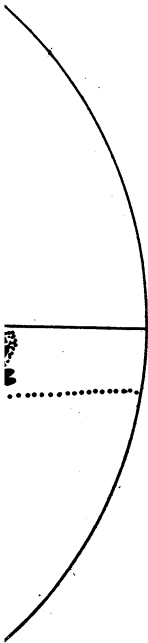
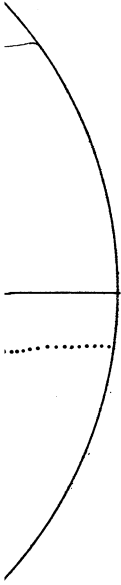




Fig: 12.

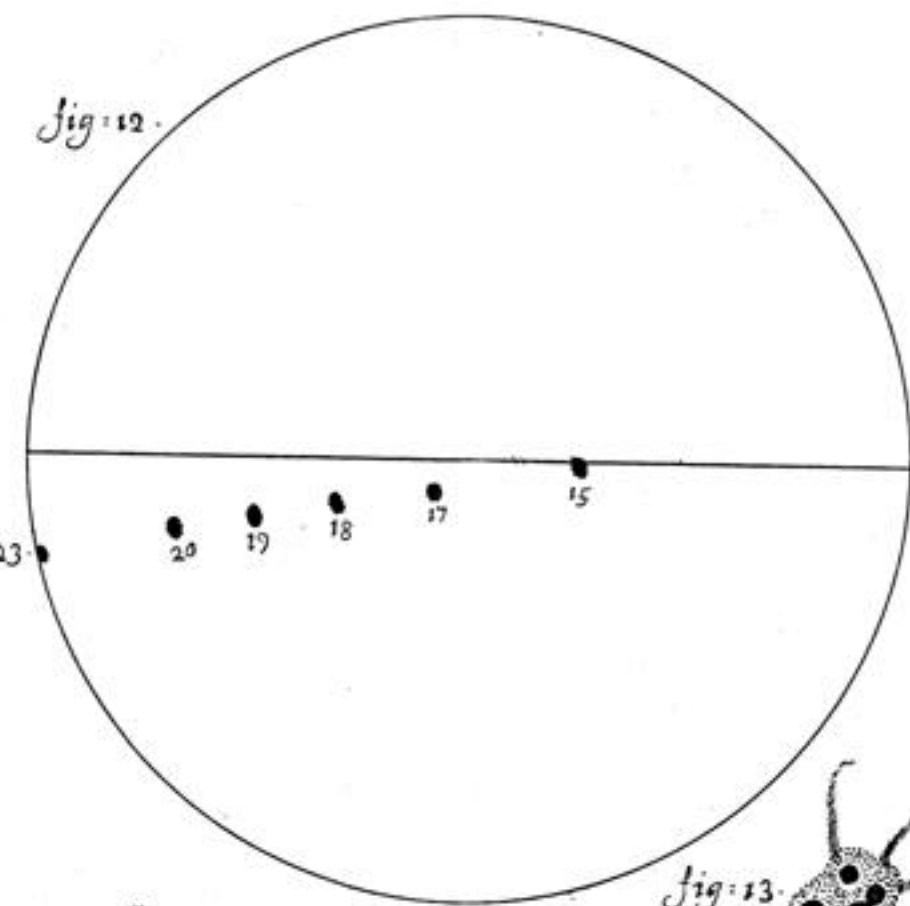


Fig: 18.

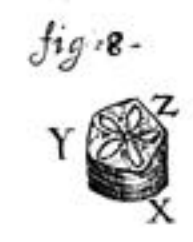
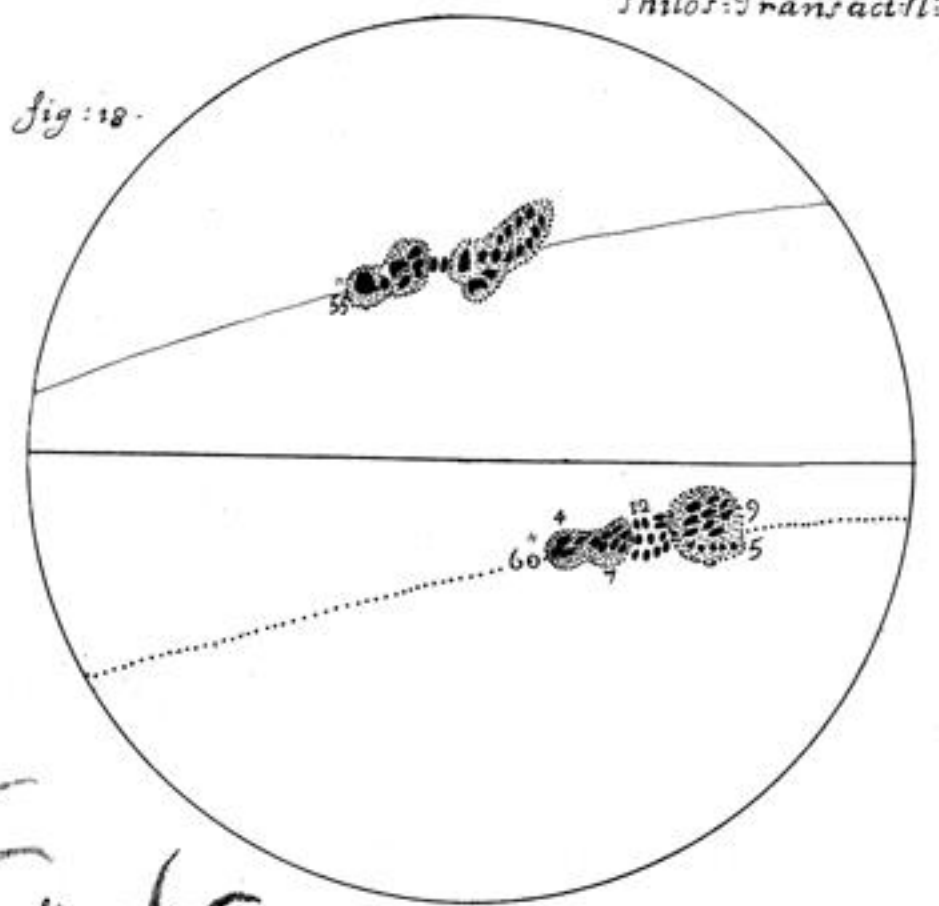


Fig: 2.



Fig: 5.

Fig: 7.

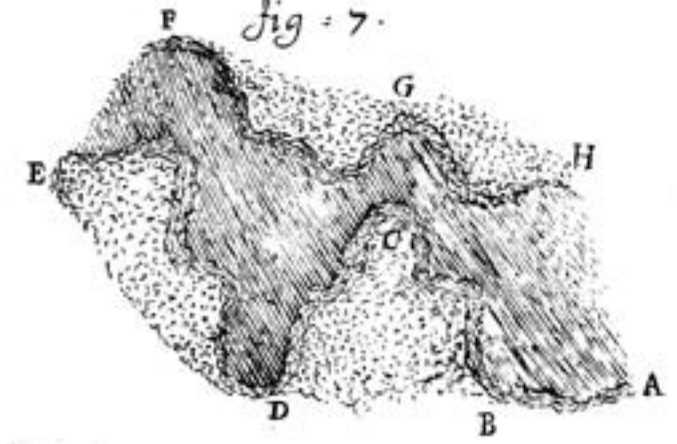


Fig: 15.



Fig: 13.



Fig: 14.



Fig: 16.

Fig: 19.

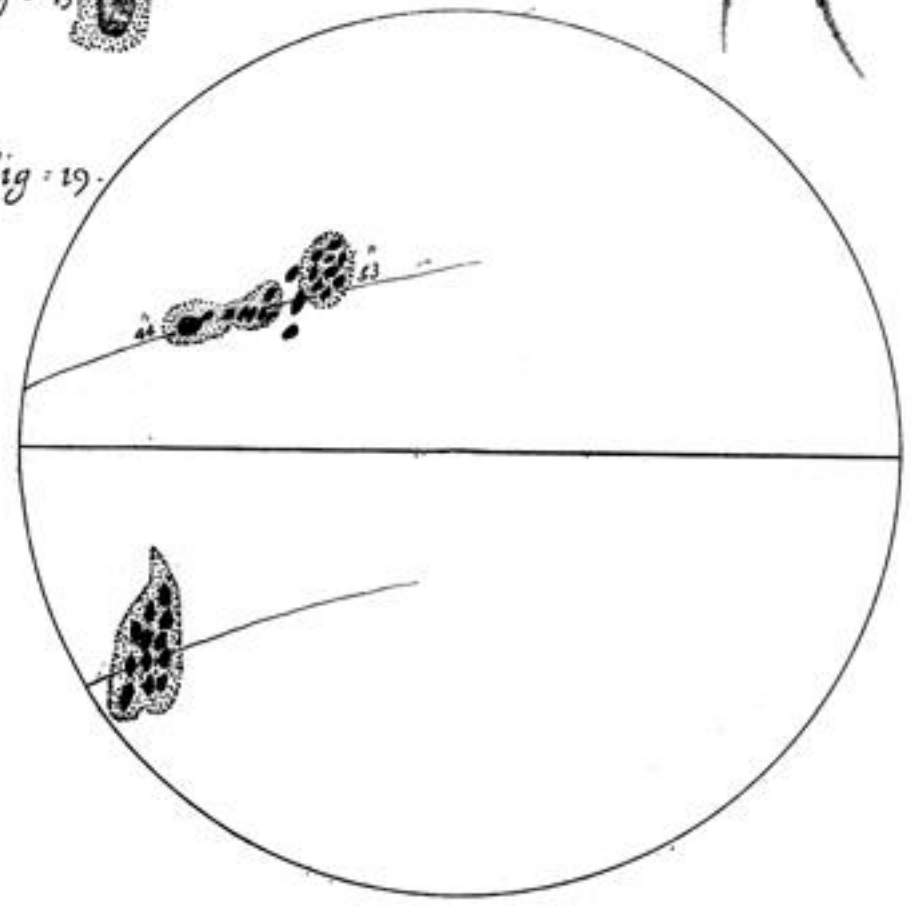


Fig: 17.

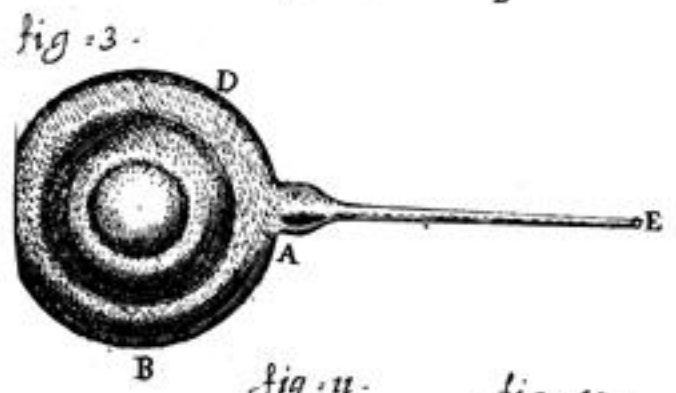
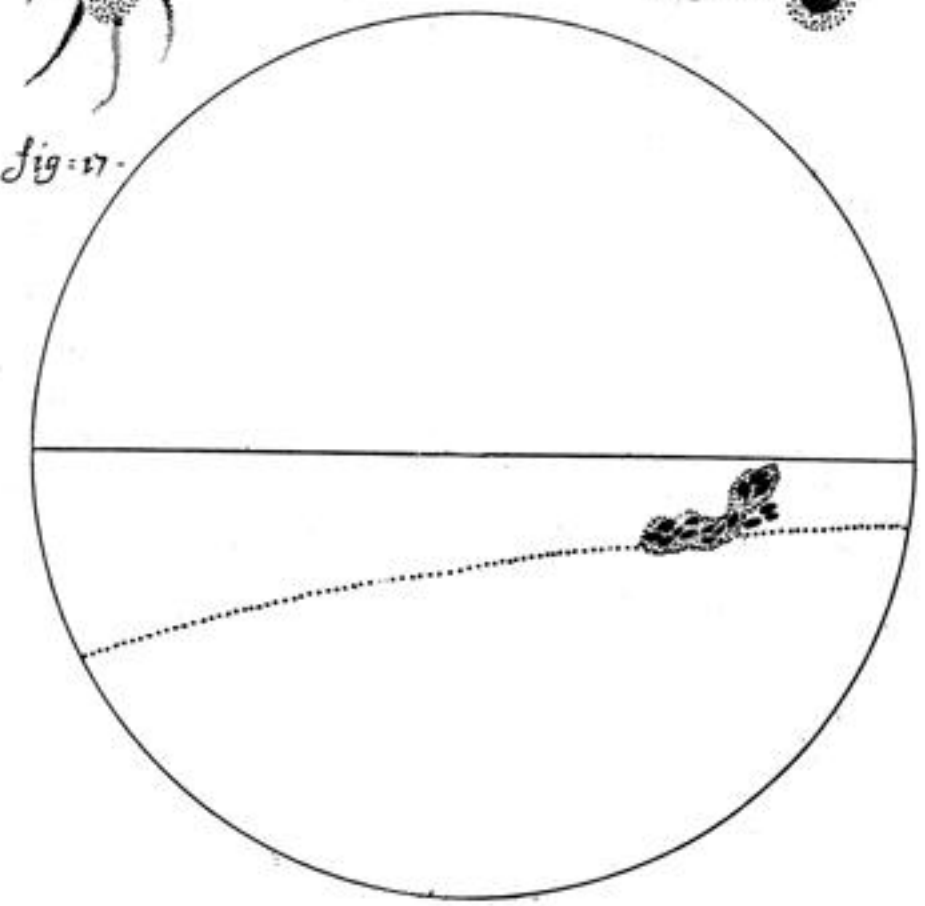


Fig: 3.



Fig: 11.

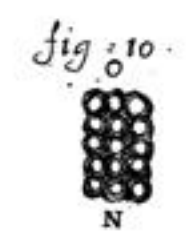


Fig: 10.



Fig: 9.