



Space Weather

Supporting Information for

Early American Sunspot Drawings from the “Year without a Summer”

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Figure S1

Figure S1. A set of sunspot drawings from the early 19th century discovered in the journals of the Reverend Jonathan Fisher.

6. Lest mit to dirix for ¹mor wipm
Turned & filed to hure & Mrs. Hgten.
Ket u surmanu.

7. Prehed d Blahil. Mr. Grom
Margarin Bus kyle, & spent / mit of
us. - vere kold & / seru.

8. Stil kold. Warked o selur w
n d. Wido Petur's tok to of us. -

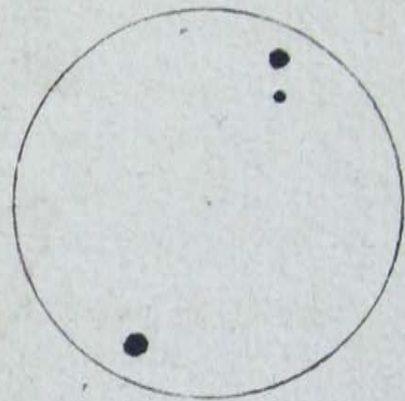
9. Warked $\frac{1}{2}$ drs o d, run to brad in
mi rit $\frac{1}{3}$ P.M. mi $\frac{1}{3}$ git framf. -
Tended Hch d / meting d. Mr. Mrs,
& Mr. Herik & wij go rrlus v dr.

10. Blak-k8 & Blakberu Apr. 10.
1817. Lest mit rmarke. kold. spent
Por writing & / fousing u $\frac{1}{3}$ subjeko.

11. Finifed taking rown d hombur
& selur steur. Jan wid hyled to
lod v wid & me, & brak & waginu.
Mrs (obed) Junn & wido. Male wid
d us n vult. ob wyronu.

12. Jan Hgten hyled wid & me. Ket
n surmanu. Prehed to laktur d /
meting hos. 6 laktur uul o Deyn
steunir, & Tended o n stl v Mr.
Fgtenur & Mr. Jov. Bruwage.

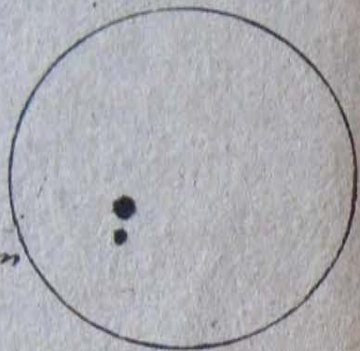
Je sunnar hifurto har bin un-
yuzali kold. / rfturmin v / 10 d kold
enaf & sno, @ & 9 hyl wofr, vejatosa
1 jen - 2, 3 wox behind 6 22
1 sun serur.



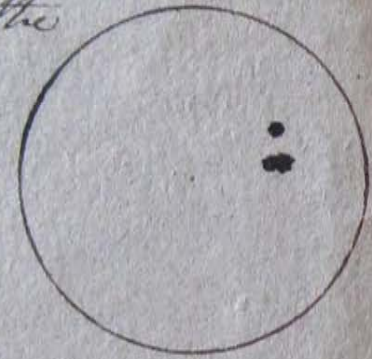
Spats in / rising sun this morning
ar in / annexed figur.

Julii 12. 1816

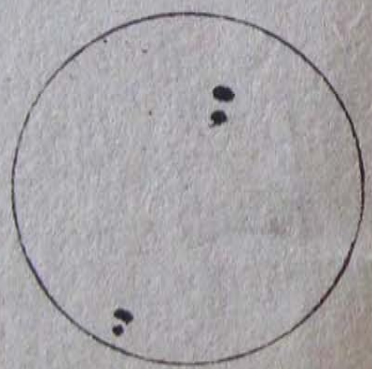
Spots in the rising sun, as in this circle, July 30. 1816.



August 8. sun free from spots.



August 17. Spots on the rising sun as in this figure.



Spots on the rising sun as seen Sept. 25. 1816

July 13. 1816.

13. - Rot is little as summer. 101 & Deg-Stonair, & of 1/2 hrs & Mr. Ben- Kler, & Jendad / punery & 1/2 grand & infant doctor & Mrs. Green. - Jan the 1st highd wife & me. worm.

= 14. Prended & Robt Hill. I summer A.M. of Kus-v ~ P.M. Red, Pan. 6 meeting is worm, & a deris (ron. a & v to inspired of Yangel & L!

15. A.M. Worked & P.M. Mr. Fykenur & Mr. Wm Kerltun of us til nit purry of difkult to Mr. F. & Mr. S. -

16. Til prest & P.M. Inspired highd wife, Joriah of me. Mr. Jun W & highd & me 3 load / & wun to 1 ton land; attended (Hrly 5 / meeting hrs. -

Mrs. Ros go rilos & Fr. Mr. Ros & wife & Mr. Herik & wife accepted the & movement. Worm, grey wife.

March 1817

5. A.M. Waked for wind 1/4 wind, Junon
Wid of me. Mr. R. H. W. Hyle & Cook
& me. P.M. of Mrs. Trifur, Dr. Tenor
Hyer & Mr. Janson's sler, wcz & a ro
visit d Mr. Sz. Argrade. wyrm.

6. Wgrom & Arge. Selekted Hebró 82.
Mrs. L. Arge & Mrs. Oxid us ro visit.
1/2 wing dended 2 mi katoking laka
tur d Degmsteuniz. Fremad. Societa
& edokentz hefen d met d mi d 1/
Euning.

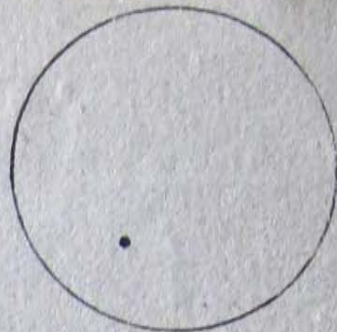
7. Spent Jons string box & binding.
Woz Janson d us ro visit. wyrm.

8. Bkunnz Kolo. Spent 2 1/2 Jons string
ing & roping box. Finifed surmuns.
= 9. Proved d Blshil, red 4 trakt.
git plerant.

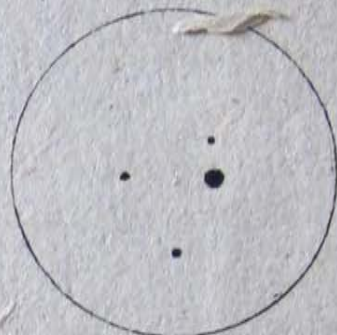
10. Ferr & kiel. Set st far Bule's
ten of mi dgtur Betsu. Had ro pler-
ant rid. Dined & d ro visit d Kap-
Per's. Wz Jens & Mr. Blud's; spent
1 nit.

Jumund & Heb. mor swer & Kold
& stymz fan non & robat. 30 yrs
post.

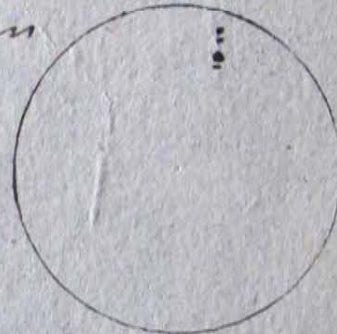
Face of the rising
sun Oct. 24. 1816.



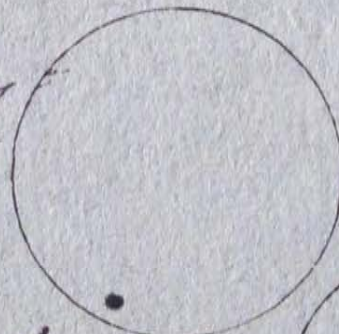
Face of the rising
sun Nov. 2. 1816.



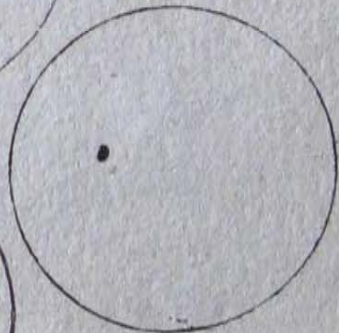
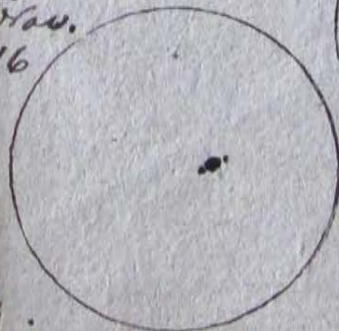
Face of the rising sun
Nov. 13. 1816



Face of
the sun
Nov. 16.
1816.



Face of the
sun Nov.
29. 1816

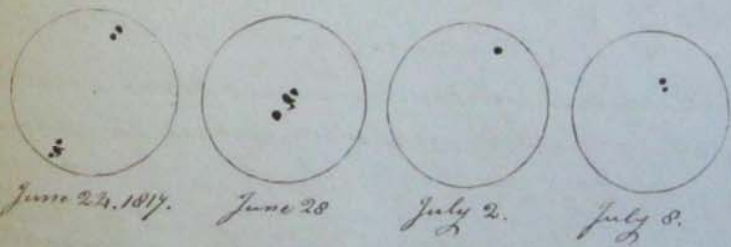


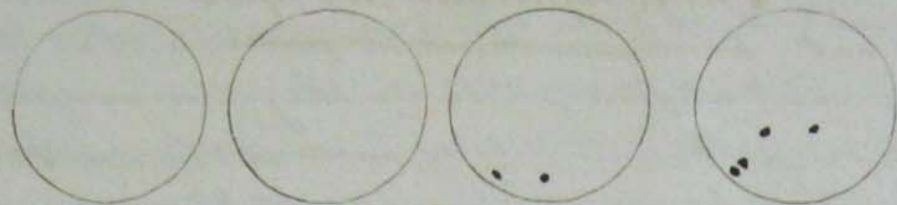
Face of the rising sun
March 28. 1817

The Summer of 1817 was an unusually cold summer. During the course of it there was an observable dimness in the appearance of the sun; it shone not with its usual brightness. During the course of this summer the spots on the surface of the sun were rather larger than common. Of the nature of these spots there have been various conjectures. My own conjecture is this; that the sun is a vast body of combustible matter, somewhat, perhaps, like that, which produces the lava from the burning mountains, and that the surface of the sun is as a vast ocean of melted lava; that like terrestrial, ignitable substances, it diffuses light and heat in proportion to its size, the density of its burning matter, the measure in which it is ignited, and the nature of the medium thro' which its rays pass. That the spots consist of fragments, broken by the operation of fire from parts of the sun below the surface, of less gravity, than the flowing lava of the surface, and so rising in it,

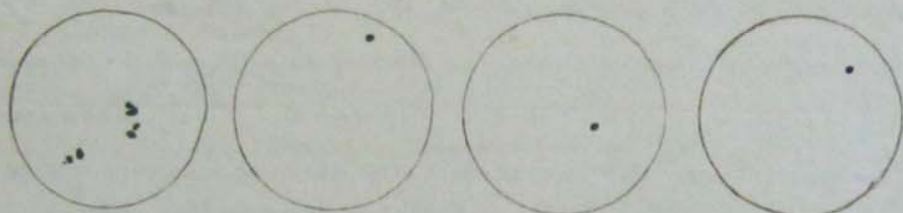
and supplying the surface with new measures⁴³ of fuel. I should think it possible that these fragments at first, if such they are, might diminish the intensity of heat at the surface; but when they become inflamed, might increase it. According to this conjecture I have suspected that after the subsiding, or disappearing of spots of unusual size, or number, we might have a succession of warm summers. This, however, is but conjecture, grounded on a measure of analogy, which perhaps is not applicable to the case.

In the year 1817, with a spy-glass, guarded with a smoked glass, I observed the sun a number of mornings, soon after it was risen, and marked down the spots, appearing on its disk, as accurately as I could. The times and appearances are as follows.

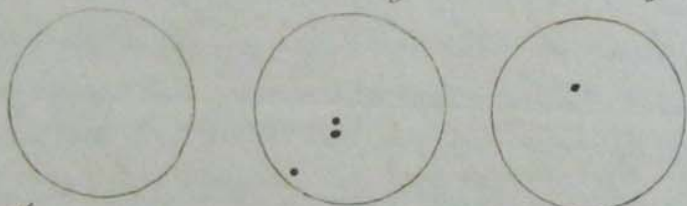




July 10, free. July 14, free. July 19. July 22.



August, 6. Aug. 16. Aug. 22. Aug. 25.



Aug. 27, free. Aug. 29. Sept. 4.

Tho' it is evident from the above appearances, that the spots on the sun's disk vary in size, shape, and position, within short intervals, it is also evident from them that the sun has a rotatory motion from west to east. The spots of Aug. 29, are probably the spots of Aug. 6, 23 days previous, having ^{nearly} made one revolution, in part united, and decreased in size.

Jon. Fisher.

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cles, worn off by attri