

White light Mean Daily Frequencies, 2000 December

| Observer | AA | | | | R | | Q | |
|--------------|-------|-------|-------|------|-------|------|-------|------|
| | North | South | Total | Days | Total | Days | Total | Days |
| R. Dryden | 4.6 | 2.4 | 7.0 | 8 | 126.8 | 8 | - | - |
| A. Gabriël | 4.0 | 2.6 | 6.6 | 18 | 112.0 | 18 | - | - |
| M. Hendrie | 5.3 | 5.0 | 10.3 | 3 | 147.3 | 3 | - | - |
| G. Johnstone | 3.6 | 2.6 | 6.2 | 11 | - | - | - | - |
| P. Meadows | 6.4 | 4.0 | 10.4 | 8 | 154.8 | 8 | 29.4 | 8 |
| K. Medway | 2.4 | 1.9 | 4.4 | 14 | - | - | - | - |
| J. Shanklin | 3.5 | 2.9 | 6.4 | 20 | 85.0 | 20 | - | - |
| L. Smith | 4.3 | 2.3 | 6.6 | 3 | 98.3 | 3 | 18.7 | 3 |
| E. Strach | 3.5 | 2.2 | 5.7 | 14 | 93.7 | 14 | 17.8 | 14 |
| D. Storey | 4.0 | 3.0 | 7.0 | 2 | - | - | - | - |
| MEANS | 3.9 | 2.7 | 6.5 | 101 | 108.3 | 74 | 21.6 | 25 |

AA = active areas, R = sunspot number, Q = mean quality estimate (JBAA 98,6,pp282-286)

White light activity, 2000 December

Strach notes that a string of spots was seen on the 1st at 11S/248; on the 2nd the penumbral leader of this Eso group was at 11S/253 with the follower at 13S/241 and it straddled the central meridian. By the 3rd the intermediary spots had faded and the follower had lost its penumbra. The group was last seen by Strach on the 6th when it was of type Hax.

Meadows reports that on the 3rd, the majority of the 13 groups seen were in the western hemisphere with an almost equal split between the north and south. The largest of the groups seen was of type Dao at N20/281 with an area of 400 millionths. This group consisted of a leading slightly asymmetrical penumbral spot with several small following penumbral spots. Only two other groups had moderately sized penumbral spots - a Hsx spot at N10/301 and a Cai group at S10/253 which had an area of 90 millionths (this is the group reported by Strach above). All the remaining groups either had small penumbral spots or were of type Axx or Bxo. Strach notes that one of these small penumbral groups was first seen on 29th November and that it was at the same position on the 4th when it had crossed the central meridian and it had developed two small following spots, one of which lay on the equator at a longitude of 223. It was not seen by Strach on his next observation on the 6th.

The next observation by Meadows on the 9th showed a reduced number of groups. Amongst these was a Csi group at N11/165 with an area of 60 millionths (which was seen by Meadows as an Axx spot on the 3rd) and an Eac group near the eastern limb at N14/88. The region around this latter group had developed substantially by the 14th as 3 groups could be seen; these were of types Bxo at N17/84, Dai at N14/91 with an area of 60 millionths and Dac at N8/85 with an area of 170 millionths. Thus, it was the southern most of these that was the largest and it comprised an asymmetric leading penumbral spot which had several umbra and it was followed by a collection of small penumbral and other spots. When seen by Meadows on the 15th, the number of spots had reduced but the size of the following penumbral spots had increased to give a total area of just 260 millionths. However, by the 16th, the group reduced in size to 120 millionths through a reduction in the size of all the penumbral spots. Meadows observed another moderately sized group on the 14th - this was of type Dac at 21°S/67°. It consisted of an irregular arrangement of penumbral spots spread out both in latitude and longitude but none were especially large as the total group area was 260 millionths. On the subsequent 2 days, the number of penumbral spots reduced to 3 and consequently the area reduced to 150 millionths on the 16th.

Strach notes that his largest number of active areas, 10, was recorded on the 15th when his highest R value of 164 was also reached.

Meadows reports that the most impressive of the 10 groups seen on the 28th was near the eastern limb at S7/202 and of type Ekc. It comprised a slightly asymmetrical leading spot which appeared some 4° in latitude and included several umbra together with a string of small following penumbral spots. By the 29th, the leading penumbral spot became quite asymmetric with several spots now appearing around it; the following penumbral spots had coalesced into two irregular spots. The corrected total group area was estimated to be 1010 millionths on this date. When this group was last seen by Meadows on the 30th, the main penumbral spot had changed shape again while the following penumbral spots had increased to 3 and each of these included several umbra. The number of smaller spots within the group had also increased. The group area was a slightly reduced 970 millionths. Also on the 30th, Strach noted a small leading spot at

S12/213, that the main penumbral spot covered an area of 650 millionths and that there were many following spots up to S7/196. Johnstone, Meadows, Medway and Strach all report that this group was an easy naked eye spot (as seen through suitable filters).

Ha activity, 2000 December

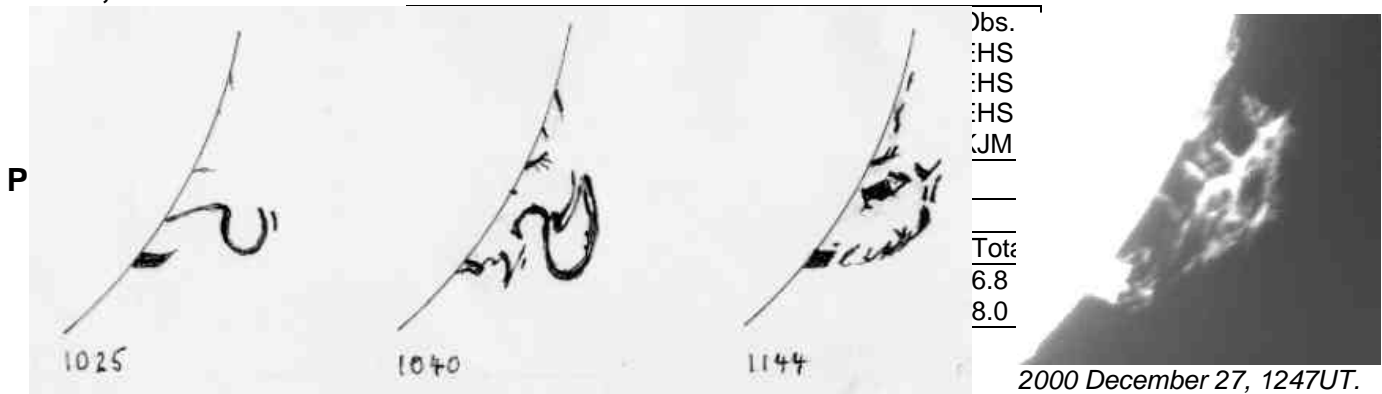
Strach notes that in contrast to his reduced white light activity, his prominence count has maintained its level over the past 4 months and that he was able to record some remarkable outbreaks during the month.

On the 3rd Medway observed a low mound prominence on the NE limb while Strach saw a slender but high spire prominence on the W-limb on the 4th at S70. On the same day Strach observed a massive detached cloud-like prominences on the E limb at N47. On the 9th, Medway saw a large pillar prominence on the NE limb at N55 while on the following day he observed a very tall slender pillar prominence on the NE limb at N45. Another high spire type was seen by Strach on the E limb on the 14th at S24.

A most remarkable prominence was seen by Strach on the 27th at S34E. At 1020 it looked like a giant question mark. It changed its configuration throughout the 2½ hours of observation time and eventually formed an arch which seemed somewhat compressed into an oval (see the sketches and CCD image below). Further observations by Medway on the 30th revealed a fairly quiet limb with two low arch prominences seen on the NE and SE limbs.

Many filaments were recorded by Strach. One that caught his eye was on the 2nd as it resembling a giant staple. It was in the N hemisphere when the leading vertical leg of the 'staple' lay on the CM. On the 3rd, its follower 'leg' approached the CM, while on the 6th it was foreshortened and on the 9th it appeared on the W limb as a dense prominence at N28. On the 27th Strach notes that a small prominence at N30E was connected with a tortuous filament. The latter became a large curved structure dominating the NE quadrant of the visible hemisphere. He estimated its length to be about one half of the solar radius. On the 30th, Medway reports that 11 filaments were seen, the largest number he saw during the month.

Flares, 2000 December



2000 December 27. Drawings of an active prominence. Eric Strach.

2000 December 27, 1247UT. CCD Image. Eric Strach