RAW DATA: JUPITER 1962 by Clark Chapman (transcribed and organized from notebook).

March 18 - 10" at 100x, 11:00 - 11:20 UT, seeing not bad.
Equatorial regions appeared unchanged from preceding year. This longitude of STB (about λII 330°) seems fairly faint. The NTrZ-NTeZ was more prominent than the STrZ-SEBZ. The NTrZ itself (southern part of combined zone) was especially bright. There was almost definitely something in the STrZ or SEBZ from about 2/3rds of the dist from the CM to the fol. limb to about 5/6ths. It tended to be elongated horizontally. (This was indeed the Red Spot).

April 2 - 8-15 deg. up. 10:15 - 11:00 UT, seeing 0-1, trans 3⅓, T_r 4-5, 10" refl. 150x CMs: 340-355° λ_I, 40-50° λ_{II}

Best view yet. The RS was orangish and remains prominent with its following end near 23° λ2. The equatorial complex was very dark. The SEBn seems considerably more prominent than in 1961. The STB, though easily seen, seemed weak. There were definitely no ovals on the belt in this section except near the RS where there were probably no ovals. The EZ seemed dark. The NNTB seemed comparatively strong and all the regions north of it seemed considerably darkened. The STrZ area seemed devoid of unusual detail except the strongly suspected RSH and possibly some darkening in the following end of the zone about 5:50 UT. The regions of the SEBn just preceding the CM may have projected slightly south. There were possibilities of white areas along the NEBn (particularly just past the CM near the beginning and in the following part of the belt).

April 10 - 10:30 UT, 10" refl. at 150x (CMs 166.8 1, 165.2 2). Seeing 1, trans 3⅓

Jupiter was observed with best conditions yet. The occn of a star was not seen because of the faintness of the star and Jupiter's altitude. The STrZ-SEBZ was the most prominent zone and was bluish in hue compared with the NTrZ's yellow hue. The STB was quite weak (although I suspect the faint section was not central). An oval was probably visible.

April 16 - 10:20 UT, 13-23 deg up, seeing 2-3, trans 3⅓, 10" refl at 200x.
CMs: 27.3 1, 339.9 2.

The conditions were the best yet. The difference between the STrZ and the SEBZ could be recognized by color only: STrZ yellow, SEBZ bluish. The RS was dark and orange. The NNTeZ was unusually light.

April 21 - 10" refl. at 200x, seeing 1, trans 3, CMs: 80 1, 0 2.
Color filter work:
47 C5 (blue-vio., blue) RS v.d., SEBn very dark, NEB v.d., NTrZ-NTeZ more prominent than STrZ-SEBZ and brighter.... (this type of work was done with 3 Wratten filters yielding the following tentative results:) RS yellow ~~ex~~ orange red (minus blue), SEBn yellow orange red, NEB colorless, NEBn may have some green, NNTB bluish green, STB reddish?, STrZ-SEBZ warm?, NTeZ bluish.

April 24 - 10" refl. at 200x, seeing bad. The STrZ-SEBZ was more prominent than the NTrZ-NTeZ. The STB was darker on its preceding side with CM 2 = 96°.

May 7 - 22-28 deg up, 10" refl. at 200x, seeing 1, trans var., CMs: 90 1, 240 2.
The STrZ-SEBZ was bluish, the NTrZ-NTeZ yellowish, the EZ a deep orange. The SEBn was narrow but very dark. There were some interesting NEBn features about λ270° II.

May 13 - 25-30 deg up, 9:50 UT, seeing 2-3, trans 2⅓, 10" refl. at 200x, CMs: 309.8 1, 56.6 2. The RS remains prominent and colorful. Its following end was estimated near λ25° III. The darkest feature was the SEBn (nearer normal latitude) which had some dark spots. The NEB was fairly well disintegrated in the complex turmoil of the EZ regions. The EZ is hardly a zone.

May 22 - color observation by Mr. Mike Batt: RS is yellow-orange.

[illegible] - 25-38 deg. up, 9:03 UT, seeing 5-6, trans 3½, T_r = 6, 10" refl. at 270x. CMs: 261.8 1, 300.2 2. This is the best observation of Jupiter. The darkest part of the STB is to the south. There is a yellowish border to the north. The oval was quite indistinct. The NNTB spots were well seen. The EZ features are indistinct and quite different from those of 1961. The EZ is a rich yellow hue. The SEBn is dark and narrow (near its normal latitude). The SEBs and NTB were both very faint. The RS was orange and prominent.

[illegible] - 10" refl. at 260x, Tr = 5½, seeing poor. Approx. CMs: 125 1, 120 2.

The equatorial complex seemed practically a solid dark band with green and blue filters. There were small flecks in the EZ that were fairly bright with yellow filters.. In integrated light, the SEBn seemed bathed in a reddish-orange color. The EZ and NEB (incl. NEBn) were bathed in a deep yellow hue. The STrZ-SEBZ was the most prominent zone generally except with a red 25 Wratten filter when the NTrZ-NTeZ was more prominent.

[illegible] - 22-33-39 deg. up, 9:25 UT, seeing 3-6, trans 3½, T_r 6 (during twilight), 10" at 260x CMs: 9.8 1, 316.4 2. NTB not really seen as a belt (just a darkening). Notice (on the drawing) the double NEB. The north component was fainter than the south component. SEBn was dark and narrow. Note STrZ festoon detail. The STeZ oval was not too prominent. The drawing is quite accurate. Conditions were good. No evidence of an EB in these regions. Contrast between EZ and the festoons was poor. Prominence estimates were made with 7 Wratten filters (31,34,13,25,15,47,64) yielding these tentative color results: EZ is a strong emitter near 6000 Å (yellow-orange), NTrZ is reddish orange but reflects other colors, too. NNTB probably is orange to north, green to south. The SEBn is a strong emitter in the reddish orange. SSTB is reddish. STeZ is weakly yellow. The NEBs is faintly orangish. The SEBZ-STrZ is basically bluish.

[illegible] - 35 deg up, 9:10 UT, seeing 4-5, T_r = 5, trans. 2½, 10" refl. at 260x. CMs: 272.2 1, 188.4 2. The drawing is very careful and shows many fine features. Note the prominent EB, the dark projection into the NTrZ, and the two STeZ white ovals. The SSTB was weak but was much darker following the following STeZ oval.

[illegible] - 35 deg. up, 9:15 UT, seeing 4, trans var., 10" refl. at 270x, CMs: 73.2 1, 341.7 2. The EZ detail was very weak.

[illegible] - 10" refl. at 260x, clear tho slightly hazy skies, seeing 3, approx CMs: 230 1, 135 2. The STrZ-SEBZ was by far the most prom. zone. In comparison with the side of Jupiter visible yesterday, The SEBn was much more prominent on this side. The STB was dark but weaker. The STeZ was relatively dusky. The NEBn was not as obvious.

[illegible]

[illegible]

[illegible] - 35 deg up, seeing 2 - 6, trans 3½, Tr = 6, 11 cm Zeiss refr at 275x, 8:30 UT CM: 280.1, 21.0. The NNTB spots were prominent. The SEBs spot was well seen. It was a small, slightly elongated "bump" on the south side of the SEBs. A possible festoon preceding it was suspected connecting it to the SEBn. The separate drawing is for 9:30 (λ_{II} CM 54.3) and was made partly at the telescope.

[illegible] - 30-45 deg up, 7:52 (CM: 326.8, 29.8;) and 10:37 (CM: 67.4, 129.5) UT, seeing 6-7, trans. 4, 11 cm refr. at 184x. This observation was lengthy and complete. The first drawing was made with the aid of a stump. Both have exaggerated contrast for the fainter features (such as in the SEBZ). The bright NTrZs spot in the second drawing was especially brilliant. Conditions were very good.

July 7 - 35-50 deg up, 8:35 (CM: 309.0 1, 356.5 2); and 11:23 (CM: 51.4 1, 98.0 2) UT, seeing 5 decr. to 3, trans. 4 decr to 3½, 11 cm refr at 184x. The contrast (particularly on faint features) is exaggerated. Conditions were poorer and time more curtailed for the second drawing, so it is not as good. The NTrZs white spot was seen again and Mr. Floyd Herbert confirmed its tilt.

July 12 - 40-50 deg up, 9:48 - 12:18 UT (CMs: 63.4-154.9 (I), 72.3 - 162.9 (2)), seeing 4 impr to 6, trans 4 decr to 3½, 11 cm refr at 275x and 184x. The sketch was made under good conditions. There was an hour break in observing from 10:15 to 11:15. Note SEBs spots, carefully observed.

July 14 - 40-50 deg up, 9:40 - 11:40 UT (CMs: 14.4 - 87.6 I, 8.1 - 80.7 II), seeing 3-4, trans. 4, 11 cm refr at 275x and 184x. Jupiter was observed but not as carefully. Conditions were less good and I was quite sleepy. Transits and intensity estimates are reliable but the drawing is somewhat careless, in parts (particularly the center).

July 16 - 40-50 deg up, 8:50 (CM: 141.9 I, 128.3 II) and 10:50-12:35 UT(CMs: 215.1-279.1 I, 200.8 - 264.3 II), seeing 3 rapidly impr to 7-8, trans. 4, 12½" f/8 refl. of Dale Cruikshank's used at 192x. While the first disk drawing was being made the seeing improved from av. poor to fine. The fine seeing lasted throughout the extended observation. Dale made independent disk and extended drawings during my off times. I lost no continuity between halves of the extended drawing. This was my best Jupiter view since July 1960 with the 17" refl. The contrast of the fainter features is exaggerated (such as in the SEBs) and the vertical EZ features are more evident on the drawing than on the general Jovian appearance. Note the intricate detail in the EZ-NEB. I had the very strong impression that all of the NEB-EZ detail was composed of dozens of tiny white spots, most too tiny to represent well. For instance, an oval in the NEB central about 10:50 was clearly seen as 3 white spots. The major zones (particularly the NTrZ-NTeZ) were all covered with larger cellular brighter zones of faint contrast. Some of the brighter of these were seen as "ovals". Jupiter's appearance under such conditions is radically different from its appearance with poorer conditions. Although not exceptionally realistic, my observations should be very reliable, to the smallest details.

July 18 - 45 deg up, 11:25 UT (CM: 34.4 I, 12.4 II) extended one hour, seeing 5-7, trans. 4½, Alika Herring's 6" f/7 refl. used at about 210x from Catalina Station (30 miles NE of Tucson, 8400 ft. alt.) William K. Hartmann was observing simultaneously from the same location with his 8". Preceding end of RSH most prominent. SEBs spots faint but seen. Ends of RS darkest.

July 20 - 8:40 - 8:55 UT (approx CMs: 320 I, 250 II), seeing 5, trans. good, 12½-inch "Calver" refl. used at 336x from its location eight miles east of Tucson on the desert. The STB was easily split. Both components were darker in intensity preceding and following teh oval. The NNTB was practically invisible. There were, however, two very narrow very dark sections, one at the latitude of the NNTBs generally preceding (past) the CM, the other just following the CM at the latitude of the NNTBn.

July 21 - 40-50 deg up, 8:00 - 11:15 UT (CMs: 119.6-238.4 I, 344.1 - 102.0 II), seeing 5-7, trans. 3½, 11 cm refr at 184x. This extended drawing was made under good conditions, but the latitudes of the belts in the equatorial regions are poor (they should be compressed), I am unhappy with the realism of my representation of the equatorial detail, and I have doubts about the accuracy of detail in the following part of the drawing. Note that the p. end of the RS is more pointed than the f. The SEBs was very dark following the RS. The following STeZ oval was brighter.

August 3 - 35-50 deg up, 6:25 - 10:25 UT (CMs 175.7 - 322.1 I, 17.9 - 162.9 II), seeing 7 with 11 cm. refr. prior to 8:10 UT, seeing 4-5 with Cruikshank's 12" refl. after 8:10, trans. 4. This is a better representation than July 31. Note duplicity of STB just after first white oval. An observation at 8:00 with the 12": The deep orange-yellow hue of the EZ did NOT extend to the white rift in the middle of the NEB. Note the white region in the NEB curving into the NTrZ around 9:00 UT.

August 4 - 30-50 deg up, 5:18 - 12:33 UT, seeing 2-7 (best near beginning and near Red Spot), trans. 4$\frac{1}{2}$, T_r = 6$\frac{1}{2}$, 11 cm. refr at 184x.
CMs: 5:18 (292.9, 127.8), 8:18 (42.6, 236.6), 12:33 (198.1, 30.6).

The entire surface of Jupiter was covered with this 7.25 hour extended drawing. I was reasonably alert throughout the observation. The features in the EZ following the longitude of the RS on the right part of the drawing were not accurately seen. The STeZ was noted to be brighter following λII 180°. The SSTB was noted to be darker following λII 245°.

D D

August 5 - 30-50 deg. up, 5:00 - 8:35 - 11:50 - 12:20 UT, seeing 3-5, trans 4$\frac{1}{2}$. 11 cm refr used at 184x at 5:00 and between 11:50 and 12:20 UT. 36-inch refl. used at 400x with 16" stop at 8:35. Observation with 36": (CMs: 211.1, 37.3). The image quality was strange: though blurry, the image yielded much detail. I call the seeing 5. The proper darkening of the EZ on the drawing would have blotted out all the fine detail seen. Note STrZ spots, SEBs doubling, STeZ belt, RS detail, dark P shoulder of RS, etc. All recorded detail well seen. STrZ yellow, SEBZ white with tinge of blue, EZ and Eq. belts orgnge, regions north of NNTB bluish, STeZ bluish (?). Note that the drawing is inverted since the instrument was used at the Cass focus.
Observation with 11 cm: Extended $\frac{1}{2}$ hr. beginning at 11:50 (330.0 - 155.1 λ I, II). The drawing is rather poor, especially in the equatorial regions. I was hampered by motes.

August 6 - 40 - 45 deg. up, 5:30 (CMs: 256.3 I, 75.8 II) to 6:45 UT (CMs:302.0, 121.2), seeing 5, trans. 3, 11 cm James refr. at 184x. The STB is noticeably darker in intensity (at least .3 unit) following the 2nd STeZ white oval. Features in the EZ until 5:45 UT on the drawing were faint and illdefined. SSTB and NNTB were both quite faint at end of sketch. Obs. at 7:35 UT (CMs 332.5 I, 148.4 II): Both EB and NEBn are very dark though thin. The NNTB is dim and low in intensity. The N edge of the SSTB is much darker than the rest.

August 7 - 50 deg. up, 7:10 to 8:35 UT (CMs 115.3-167.1 I, 286.7-338.1 II), seeing 6-7, trans. 3$\frac{1}{2}$, 11 cm refr at 184x. This is a fairly accurate drawing. Observation made between 10:30 - 10:50 UT with 36" refl. used at 16" aperture and 400x with seeing 3-4: The RS region was very carefully studied. Note the overlap of the RS on the STB. The RS drawing is inverted.

August 8 - 45 deg. up, 6:20 UT (CMs 242.8 I, 46.9 II), seeing 5-8, trans. 4, Mr. Alika Herring's 12$\frac{1}{2}$" refl. at 135x from hills west of Tucson. View with 12" superb but breeze hindered some. Drawing is careful and accurate. Wealth of detail.

August 10 - about 6:00 UT and later (CMs 185 I, 340 II and more), seeing 3-4, trans. 3, 11 cm refr. at 180x and sometimes 275x. The dusky preceding border of the RSH was unusually dark, thick, and quite close to the RS. The SSTB is much darker preceding a point 1/3rd the longitude from RSp to RSf (near 8°λII) than following that point.

August 11 - about 5:45 UT (CMs about 335 I, 120 II), seeing 3-4, 11 cm. refr. at 184x. The STB was much darker following the STeZ oval than preceding it. The white spot in the STeZ following the main oval was quite large, bright, and distinct. The STeZ was dark and festooned. The STrZ was definitely brighter than the SEBZ.

August 18 - 50 deg. up, 8:58 UT (CMs: 119.5 I, 206.4 II), seeing 4-6, trans. 3, 11 cm. refr. at 184x. The NEBn region seemed to be fading away. The STrZ was the brightest zone with the STeZ next.

August 24 - 30 - 48 deg. up, 7:45 UT (CMs 303.2 I, 344.7 II), seeing 8, trans. good, 11 cm refr at 275x. The STeZ oval center about 5:00 UT definitely deflected the STB slightly into the STrZ. The STrZ was much brighter following the RS than preceding. The NTrZ was brighter than the NTeZ. Alika Herring has a simultaneous drawing.

August 25 - 50 deg. up, 7:00 UT (CMs 73.9 I, 107.9 II), and 9:45 UT (CMs 174.5, 207.7), seeing 5, trans. 3-3½, 11 cm refr. at 184x. (No notes)

TUCSON, ARIZONA

BUFFALO, NEW YORK

September 8 - less than 35 deg. up, 1:30 - 6:00 UT (CMs about: 340-140 I, 290 - 70 II) seeing 2, trans. 3½, 10" refl. at 260x. Comparative prominence estimates were made with 8 Wratten filters (8,25,32,31,44A,45,34,57) yielding the following tentative color results: STeZ yellow, STrZ yellow-orange-red, SEBZ slightly bluish?, EZ red-orange, NTrZ yellow, NTeZ green?, NNTeZ orange?, SSTB bluish?, STB bluish and reddish (no green), SEBs bluish?, SEBn?, NEBs red, NTB bluish?, NNTB bluish, RS orange.

September 9 - less than 30 deg. up, 4:45 - 6:15 UT (CMs: 44.0 - 98.8 I, 331.9 - 26.3 II), seeing 7 to 5:45 and less than 3 afterwards, trans. 3½, 10" refl. at 270x. (no notes).

BUFFALO, NEW YORK

CAMBRIDGE, MASSACHUSETTS

November 30 - 34 - 37 deg. up, 22:20 - 23:35 UT (CMs 109.6-155.4 I, 118.8-164.1 II), seeing 5, trans. 3, 7½" refr of H.C.Obs., at about 180x. My first look at the SEB disturbance. The SEBZ features are much more prominent than anything I've seen before in the zone, but they lack the consistent organization and uniformity I was expecting. The SEBn is dark but broken and knotted. The dusky NTrZ is a bit brighter than the NTeZ. The SSTB is ill-defined. The NEB is somewhat more complex than before but it has been strange all along. No clock drive but conditions were good.

December 1 - 25-35 deg. up, 22:30 UT - 0:40 Dec. 2 (CMs: 273.4-352.7 I, 274.9-353.5 II), seeing often 6 sometimes down to 2, trans. 3, 7½" Clark refr. at about 200x. SEBZ bright. STrZ filled with junk. RS v. dark to south-following but much lighter than before, especially to the north, though still colored. SEBZ disturbance not in this region. EZ still a mess, not too well represented on the drawing.

December 8-9 - about 22:30 - 0:15 UT (CMs around 345 I, 290 II), seeing 5, trans 2½, 7½-inch refr. at 200x. THE SEBZ-STrZ DISTURBANCE: At about 23:30 it was noted that fairly strongly developed festoons in the SEBZ on the preceding part of the disk extended nearly to the apparent longitude of the satellite shadow (269 λII) and therefore nearly to the STrZ disturbance. At 23:50 the satellite shadow had nearly the same apparent longitude as the following-most SEBZ festoon. Following the SEBZ disturbance, the SEBZ was clear and bright until about longitude 304 λ II where faint features began to be evident again which increased some in prominence with increasing longitude associated with more prominent nodules on the south side of the SEBn. (These last notes before, were made at 0:15). It was noted that the SEBs shifts south between the following end of the SEB disturbance and the preceding end of the STrZ disturbance and is quite southerly bordering the STrZ disturbance. Cont. on pg. 6.

December 9 - 9 cont. - OTHER NOTES: There was a strong suspicion that a very dark south component of the STB looped south into the STeZ just preceding the STeZ oval. The SSTeZ was quite bright until about longitude 295 λ II. The EB was quite evident on the following side of the disk at 0:15. The RS could not be seen on the following side of the disk at 0:15.

December 10-11 - 7½-inch refr. with poor conditions. CMs about 260 I, 190 II.

The SEBs was well seen and the SEBZ was disturbed though no feature in it was very prominent.

December 14 - 15 - 21:45 UT Dec. 14 (CM: 136.1 I, 38.6 II), seeing 2-6, trans. 3, 7½-inch refr. at less than 200x. The NEB looks more normal although still not a solid featureless belt; RS medium faint, bright orange, followed by a very dark colorless blob; STeZ white oval is small but bright. Note the thin, well-defined NTB (NTrZB?). Note the dusky STrZ preceding the RS and the STrZ-SEB features following. (Drawing to come)

December 18 - 19 - seeing 5, 7½-inch refr. 22:15 - 23:45 UT (CMs about 95 I, 325 II).

The equatorial regions are looking more normal, though there was a definite rift in the NEB and the EB was disjointed. The RS is still very orange and is quite prominent. The STeZ oval over the preceding part of the RS is circular and very bright. Note from CM transit report the prescence of a "NTrZB" (sometimes called NTB before) and an NTB itself, both showing longitudinal variations. The STrZ filled with dusky detail.

[redacted]

[redacted]

December 26 - 27 - about 23:00 Dec. 26 (CMs near 260 I, 80 II), seeing 2-4, 10-inch refl with 260x. Dark blob fontinues to follow a rather prominent Red Spot.