

Comet Tago-Sato-Kosaka 1969g

A large number of observers have reported on this comet, though there are considerable discrepancies in the observations of its appearance. Compare, for example, the magnitude estimates on February 3, which differ by more than three magnitudes! Recent observations by John Isles and others indicate that it suddenly brightened by about a magnitude around Feb 7. We are indebted to S W Milbourn, director of the comet section, for sending on Michael Candy's excellent photograph (on the cover) of the comet from Perth, Australia. Meanwhile, Colin Reeves has continued his observations from his new southern abode, and sends the following interesting notes:

Colin Reeves Observations of this object have not been made
Binoculars & under ideal conditions, but at least I had the
naked eye. advantage of being in the right hemisphere.
My observations to date are summarised below.

1969 Dec 30d 19h 45m : Comet spotted from R M S Windsor Castle some 100 miles off Capetown while watching for zodiacal lights. Position fixed by eye and using ship's field glasses. Condensed bright nucleus. Position: 19h 50m -52° dec (accuracy $\pm 1^\circ$). Mag of beta Indi, 3.5 approx. Tail length 6° approx.

1969 Dec 31d 19h 45m : Comet seen again, this time from a train in the depths of South Africa. Under these conditions, no significant change from the previous observation was noted.

1970 Jan 1d : Still on the same train which was unfortunately travelling due NE throughout the period of visibility of the comet which could not therefore be seen! (See cover for M P Candy's photograph taken on this date.)

1970 Jan 3d 19h 30m : (Now settled at Lobatse in Botswana) Poor fix with naked eye only. Lightning destroyed dark adaption at frequent intervals. Position 20h 20m -54° dec (accuracy $\pm 1^\circ$).

1970 Jan 7d 20h 00m : Sighted again but still without optical aid. Definitely brighter and with a longer tail than when seen previously. (Overcast skies and personal commitments had made observations impossible since 3d.) Position 21h 10m -54° dec Accuracy $\pm 1^\circ$. Mag 3.0+, tail length 9-10°.

1970 Jan 8d 19h 00m : Most accurate position yet, but still without optical aid: 21h 30m - 51° dec (accuracy $\pm \frac{1}{2}^\circ$). Bright central nucleus, mag cf. theta Indi 4.5 approx. Tail length 8°. Slight interference from cloud.

1970 Jan 9d 19h 00m : Access to binoculars at last - observations made during a garden cocktail party! See cover sketch. Position 21h 45m - 50° dec (accuracy $\pm \frac{1}{2}^\circ$). Mag cf. theta Indi 4.5 approx tail length 8°.

1970 Jan 10d 18h 45m : No optical aid again, but a good fix; 22h 00m - 48° dec (accuracy $\pm \frac{1}{2}^\circ$). Mag cf. delta Indi 4.5 approx, tail length 8°.

1970 Jan 11d 20h 00m : Only naked eye again. Object suddenly much fainter and with much shorter tail (see cover sketch). Position 22h 15m - 47° dec (accuracy $\pm \frac{1}{2}^\circ$), mag cf delta Gruis, circa 4.5, tail-length 3°.

1970 Jan 12d 18h 25m : Binoculars again, good fix; 22h 29.5m - 44° 45' (accuracy $\pm 0.1^\circ$). Nucleus more diffuse. Mag cf. delta 2 Gruis 4.5. Naked eye tail reduced to about 2°. (Mag estimated by off-focusing). See sketch 3.

1970 Jan 13d 19h 00m : Naked eye only. Averted vision necessary to see anything of it at all. Poor fix; 22h 50m - 42° dec (accuracy $\pm 1^\circ$). Mag between that of theta and rho Gruis - 4.5 to 5.0. No tail visible to the naked eye.

1970 Jan 14d 18h 35m : Binoculars again. Moon starting to interfere. Some cloud, but a good fix at 23h 00m - 39° dec (accuracy $\pm \frac{1}{2}^\circ$). Difficult object to see with naked eye. Binocular tail less than 1°. Nucleus more diffuse. Approx $\frac{3}{4}^\circ$ from nu Gruis. Mag again between theta and rho Gruis, (4.5-5.0). (See cover.)

1970 Jan 15d to 17d : Overcast! (A rare phenomenon in these parts) Worse, my friend with the binoculars has departed for three weeks in the bush.

1970 Jan 18d : Clear sky but gibbous moon makes it impossible to see anything of the comet with naked eye alone.

- The Geological Survey Department, P O Box 94. Lobatse, Botswana.

H Feijth Jan 21d 18h : Comet seen as faint nebulosity nearly halfway between beta and Iota Ceti with 100mm rich field Newtonian. Estimated brightness 5.5, which is much fainter than predicted. The comet was difficult to estimate because of the full moon and the hazy sky.

Jan 31d 19h : Comet near Gamma Arietis. I estimated it to be m=5.5 with 7x50 binoculars. The comet looked like a globular cluster such as M13. No tail was detected, not even with the Newtonian.

Feb 1d 19h : Estimated brightness 5.8 (7x50).

The comet was estimated extrafocally, the mag of the comparison stars being taken from the Becvar catalogue.

- Chopinlaan 20, kamer 411, Groningen, The Netherlands.

D A Allen Only two clear nights since it topped our horizon.
 4-in, 30-in etc. Jan 21d 00m15m : 4" OG, 30" spec (with many
 light losses). 5' diameter, no tail. Fairly
 well condensed, 30" showed small almost stellar nucleus. 1950.0 RA
 00h23.5m dec -16° 40' 6".

Jan 30d 00h15m : 10 $\frac{1}{2}$ OG x76. Sky not truly dark, but cirrus bank
 moving in. 5' diameter no tail, circular. RA 1h49'.1 dec +17° 16'.
 - 1210 Como Avenue, Minneapolis, Minnesota 55414.

Tony Ginman 1970 Jan 22d : Conditions at first were good but
 6x30 bin soon it became misty. I thought that I saw it at
 17h 45m but was not sure. I then saw it around
 the same area at 17h 54m. It appeared like a globular cluster.
 Estimated mag 3.6.
 - 44 Harman Drive, Sidcup.

<u>D C Heggie</u> 7x50 OG.		obs. minus calc. posn.		Mag.	Coma diam.	Transparency
Date	Time	RA	Dec			
1970 Jan 22	17h50m	-0.6	-15'	4	10'	poor
1970 Jan 26	18h35m	-0.7	-14'	5.0	9'	fair
1970 Jan 27	18h50m	-1.0	-15'	4.9	14'	poor
1970 Feb 02	22h40m	-0.5	+03'	6.2	9'	f. good
1970 Feb 03	18h35m	-0.1	+03'	5.8	7'	f. good
	21h30m*	-0.6	+01'			
	22h10m*	-0.4	+04'			
1970 Feb 04	00h10m	-0.2	+04'			
	18h40m	-0.5	+02	-	13'	f. good

(* = observed by Clive Butchins, Cambridge University A. S.)

Observed positions obtained by plotting on Webb's Atlas and correct-
 ing for precession; calculated positions obtained by second order
 Bessel interpolation of the ephemeris in BAA circular 515. Appear-
 ance of comet: round, slightly centrally condensed coma; no tail.
 There is evidence of a significant (O-C) in right ascension. The
 drift in (O-C) in declination might be real. Although we now have
 orbits based on substantial arcs (2-3 months), they are surprisingly
 uncertain. I think the comet is fainter than expected.
 - G5 Great Court, Trinity College, Cambridge CB21TQ.

J B Murray The comet was first located on Jan 22 at 17h 55m
 24-in, 18-in OG when it presented a disappointing spectacle in
 poor, rather hazy skies. One exposure of 5 minutes
 on the 24-inch (unfortunately f11) was managed, which showed the
 comet as not well-condensed, about 2'-3' across at this exposure
 with no sign of a tail. Appeared similar visually, but nucleus
 quite distinct and pronounced.

1970 Jan 25d : Two exposures on the 24-inch were managed; one,
 exposed 18h 45m - 19h 37m (with interruptions for cloud), is shown
 on the cover. The aggregate exposure was only 26 minutes, at the
 prime focus on a zenith astronomical plate developed 5 minutes in
 D19B. On the original plate, vague irregularities in the coma can
 be detected, but nothing pronounced enough to be called a tail.
 It is interesting to note that while guiding this comet visually

through the 18-inch, a meteor of about mag +2 was seen to cross the field about 7 minutes of arc from the comet. This did not register at all on the plate. The second plate, exposure 20 minutes, was spoiled by mist and cirrus.

1970 Feb 02d : Mag about 6.5 with 2-in OG x25, As before, no tail

1970 Feb 08d : 22h00m-40m. Very transparent skies (owl nebula an easy object), observing from Luton. In 9-inch spec with x100 Erfle eyepiece the comet appeared very spectacular, with bright coma about 12' across, non-stellar nucleus. A very faint tail suspected extending about 20' from the nucleus, about 7' wide, P.A. 90° approx. The tail confirmed independantly by J H Mathers.

- University of London Observatory, Mill Hill Park, N W 7.

S F Burch 1970 Jan 26d 06h30m-06h40m : Transparency good. Little turbulence, much cloud. Bright medium-sized nucleus surrounded by a large coma. Total diameter 10'-15'. Tail just visible as faint extension of coma, length about 10', PA about 110°. In general appearance resembled a large bright globular cluster. Mag (no comparison stars) about 5-6.

1970 Feb 02d 20h20m : brief view, much cloud. Circular. Small fairly bright nucleus surrounded by dimmer coma. Diameter c 6'-8'. No tail. Mag using no comparison stars about 5½-6½. Situated 25' to 30' E of alpha Arietis.

1970 Feb 03d 18h40m : Transparency excellent. Some turbulence. Strong gusty wind. Medium-bright small nucleus. Outer coma perhaps not evenly distributed about nucleus with more coma at PA approx 90°. Mag using binoculars (8x40) and 20&14 Arietis as comparison stars was +5.8- +5.9.

- 48 Henconner Lane Leeds 7.

D J Northwood : Comet seen on 1970 Jan 25, approx. 01h12m RA, 10x50 Binoculars +02°. 30 Dec, magnitude about 6.2. Seen again 1970 Jan 26 & 27 making about 3° in declination per 24 hours towards Aries. On 1970 Feb 03 at 18h43m UT it was at approx RA 02h12m, Dec +24°. 45, mag. about 7.1. Appearance circular, about 10' to 12' diameter with slight central condensation. No nucleus seen. - 37 Grosvenor Road, Staines, Middlesex.

M J Gainsford : Weather conditions have been most unfavourable for comet observing, but I have managed two 7x50 Binoculars observations of 1969g, on Jan 26 & 27, when the object had climbed above the persistent horizon haze, and just before the fog descended.

1970 Jan 26 19h30m : Seeing: haze and fog, very poor. 7x50's and 8½-in spec x35. Coma diam. (very roughly) 6'. Round, no tail seen. Mag. (very approx) 6.0. Fog descended before any further observation possible, & what little observation was made is of doubtful value.

1970 Jan 27 19h30m et seq : 7x50, 8½-in sp. x35, x200, x375. Seeing: haze, poor (but better than Jan 26). Coma diam. 15', but indistinct in bad seeing. Coma circular, moderately condensed, no nucleus seen in 8½-in x200 or x375. No tail seen, mag. approx. 4.9.

- 2 Derwent Way, Nuneaton.

K M Sturdy 1970 Feb 03 19h45m: I have no exact star magnitudes for this area, but using Norton's I reckoned the comet to be about mag. 6.7. I did not see it with 7x50 binoculars etc. the naked eye. The appearance was large and bright in the binoculars, diffuse and ill-defined in the 15cm reflector. The diameter was difficult to determine, as the coma seems to fade off imperceptibly all round; it was about 3' or 4' with x60, larger with lower power. The nucleus was very bright and quite non-stellar, 1' in diameter. There was a high wind which stopped me employing a higher power than x120, with which there was no suggestion of a star-like nucleus. On first looking through the telescope I saw an 8 mag star in the coma to the SE, and compared it with other stars in the region. When the comet had moved away, it seemed a little brighter to the eye, but using the comparisons I got the same result as before.

- 8 Pottergate, Helmsley, York.

R A Mackenzie: 1970 Feb 03 17h40m - 17h55m, seeing good. The 2½in OG x15,45 comet, mag. 4.0, was located with a low power (x15) at which it appeared almost star-like. The tail was not very prominent (x45), but could be fairly well seen with averted vision. There were in fact two tails visible. (PA 30° and 340°). The nucleus appeared starlike in nature, and was the brightest part of the comet, tending to overpower the rest of the comet and make it appear exceptionally faint.

- 26 Adrian Street, Dover, Kent.

J E Isles: 1970 Feb 03.79: Mag 6.8, coma 11'x7' - elongated PA 60°. Strong condensation 2' to 3' across, south preceding centre.

12x40 Binoculars

1970 Feb 04.98: Mag 6.6, coma 7' across, diffuse and circular.

1970 Feb 09.80: Mag 5.7, coma 8' across, circular and fairly well-condensed.

1970 Feb 10.91: Mag 6.0, coma diameter 6'.5, circular, fairly well-condensed, no definite nucleus.

Comparison stars were R Arietis for the first two observations, and R Trianguli for the second two. The comet was also observed with 2.4in OG x29, but no nucleus was seen on any occasion. My magnitude estimates may well be too faint, as I was using an instrument which was probably too large for this object.

- Flat 3, 116 Long Acre, London W.C.2.

The unfavourable Planets.....

Murray & Allen

MERCURY: 1970 February 06d 08h40m, 18in OG x300. A poor view in daylight; steadiness fair, but low contrast made useful observation impossible - only phase visible, about half but difficult to determine. JBM,- University of London Observatory, Mill Hill Park, NW7.

MARS: 1969 Dec 19d 23h50m, 10½in OG x216, CM=72°. This is my last observation of this apparition - the dwindling disk and increasingly grotty conditions here render it useless. Seeing was IV - V, and few details were visible. No obvious clouds; the S polar cap seemed larger. DAA, 1210 Como Ave. SE, Minneapolis, Minn. 55414, USA.