NEWSLETTER OF ASSA PRETORIA CENTRE **NOVEMBER 2026**

https://www.pretoria-astronomy.co.za

https://assa.saao.ac.za/

Prepared by Michael Poll pollmnj@icon .co.za

EVENTS: ***All are welcome to join these events.***

Next Observing Evening : Friday November 20th 2026

From sunset onwards at Christian Brothers College. Turn left immediately after entering the main gate. Carry straight on through the car park and proceed straight down the tarred road. About 50 to 100 metres after the last row of studs there is a cricket sightscreen on the right. Observing will be on the cricket pitch just past the sightscreen.

Please do not drive onto the grass.

Monthly Meeting : Wednesday November 25th 2026

The meeting is held on-line. The web link to join the meeting is:
https://meet.jit.si/ASSAPretoriaMonthlyMeeting
If you are on our invitation list you will receive an e-mail from Johan Smit on the day of the meeting, which has the link included. If you are not on the Invitation list please and wish to be included, send your mail address to johanchsmit@gmail.com

Johan Smit will be Chairman for the evening

And will present What's Up for December 2026 – January 2027

Main Topic for November

The Crab Nebula and the discovery that it is expanding. Michael Poll

The Crab Nebula is Number One ("M 1") on Charles Messier's list of nebulous objects. It is in the northern evening sky from about the beginning of November until about the end of February.

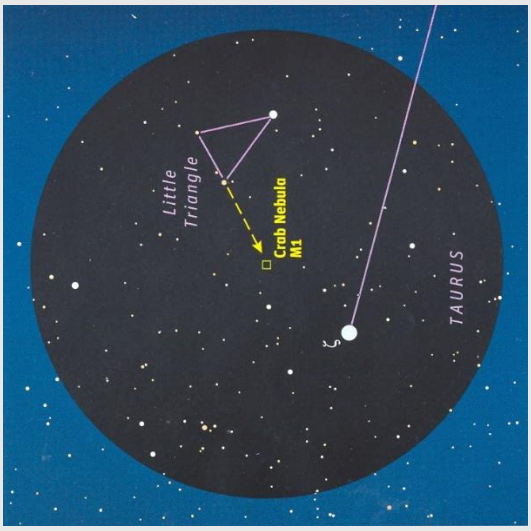
Charles Messier was a Frenchman who came to Paris in 1751 at the age of 21. Although Messier discovered the Crab Nebula independently, he learned later that the object had been discovered in 1731 by the Englishman John Bevis. Bevis informed Messier of his own discovery in a letter to Messier dated June 10th1771. Messier acknowledged this original discovery in the later publications of his catalogue.

The Crab Nebula is the remnant of a supernova that exploded in 1054. The original explosion was recorded in China and Japan where it was stated to have been visible in daylight for more than three weeks. No one in Europe knew about this supernova until 1846, when records were found in Chinese annals.

In 1921, Carl Otto Lampland found that changes had occurred in the nebula over a period of eight years, and in the same year John Duncan found that the nebula was expanding. Edwin Hubble noted that the speed of expansion implied an explosion 900 years previously. In 1939 Nicholas Mayall and Jan Oort were the first to positively link the nebula to the supernova explosion.

This presentation summarises the original papers of Lampland and Duncan, looks at the contemporary history of the explosion and how it was first discovered in the west, and discoveries subsequent to 1921.

The attached finder chart is taken from Sky and Telescope, February 2007, page 52. The Nebula is in the constellation of Taurus, and the bright star in the field, Zeta (ζ) Tauri, is the star that Messier described as "the southern horn of Taurus".



REPORTS

Observing Evening Report October 23rd 2026

What a great evening! There were 30 - 40 people of all ages, including some children from CBC. All were very interested and enthusiastic, and with lots to talk about. There were several telescopes as well. Even the weather was warm, *and* with no clouds.

The waxing gibbous Moon was two days from full, so a bit dazzling in the telescope. We noted the mountains limb-wards of Aristarchus, pointing out that the shadows were long because it was sunrise there. As well as Aristarchus, which is the brightest spot on the Moon, we noted Copernicus, Tycho with its rays , Sinus Iridium and Plato. *(See details below)*

The Moon was near Saturn. Saturn's rings have opened up a little, and at least two of its moons were seen during the evening. Some one wondered what the first person who ever saw the rings must have made of it – Michael said that it was Galileo in 1610, who had no idea of what he was looking at, and, unlike us, did not know what to expect. His optics were obviously not as good as we have access to, and his initial thought was that the rings were two other bodies, which were associated with Saturn. He was much perplexed when, in 1612, the bodies had disappeared – this was because the rings were now edge on and effectively invisible, but he was not to know this. Galileo wrote "the unexpected nature of the event, the weakness of my understanding, and the fear of being mistaken, have greatly confounded me".

We could not see many stars because of the bright Moon, but in the north we saw the (northern) Summer Triangle of Vega, Altair and Deneb, although Vega had set by the time we left. In the south was Achernar, and Fomalhaut and Alpha and Beta Gruis were almost over head. Alpha and Beta Centauri were going behind the trees in the south west, and later on the tail of Scorpius was about to do the same in the west. Canopus made its appearance in the south east. We mentioned that the South Pole of our Milky Way galaxy passes over head at our latitude in the evenings at this time of year, so the Milky Way runs around the horizon.

Apart from the Moon and Saturn there were not so many other things we saw in the telescope - but notably there was the colourful double Albireo (Beta Cygni), the Coat Hanger Cluster (a chance alignment of un-associated stars), the splash of the open cluster, Messier 7 in the tail of Scorpius, and the soft glow of the globular cluster 47 Tucanae.

Lunar Features

Copernicus:	Diameter 93 km, depth 3760 m
Aristarchus:	Diameter 40 km, depth 3000 metres
Sinus Iridium:	Diameter 260 km
Plato:	Diameter 100 km
Tycho:	Diameter 85 km, depth 4850 metres

Centre Meeting Report October 28th 2026

The Main Topic for the evening.

Michael Poll discussed the **Electromagnetic Spectrum** under the headings of the i) the Nature of Light, ii) How it is that we can see a small part of the Radiation as visible light, and iii) the Development of Vision and Its Effect on Evolution.

The first part showed how and when the various parts of the EMS : (Radio Waves : microwaves : Infra-Red : Visible Light : Ultra Violet : X Rays : Gamma Rays) were discovered and by whom – except that visible light had always been known - and the reconciliation of magnetism and electricity by James Clerk Maxwell. The varying amount of energy carried by the wave train led to an explanation of Quantum Units and Planck's Constant and Wave -Particle Duality whereby energy can be converted into mass and vice versa.

It was then explained how, over millions of years, human and animal ancestors developed photoreceptors, which contain light-sensitive proteins (opsins) and which can convert light waves of slightly different wavelengths into an electrical signal.

It is hypothesised that vision evolved through four stages

Stage 1: Photoreceptors only detect the presence of light.

Stage 2: Photoreceptors gain a barrier which blocks light coming from certain angles – so that the organism can detect light and but can also infer its direction.

Stage 3: Photoreceptors cluster into groups which can join information from light coming from different directions and produce images.

Stage 4 : With the addition of focusing elements, high resolution vision becomes possible.

The simpler stages before Stage 4 still exist in nature - they suit the needs of the owners. An animal sees what it needs to – it does not need anything "better".

Finally there was a discussion about how vision affected evolution during the Cambrian Explosion which lasted from about 543 000 000 years ago to about 538 000 000 years ago.

EDITORIAL How Many People Read These Newsletters??

I must admit to putting on-line magazines and articles to one side to read later, and often never get around to reading them. I get a weekly bulletin from Sky and Telescope but seldom look at it although I ought to because I no longer get the magazine. I subscribe to a professional Medical Laboratory journal from the UK which I used to look at but now that they have made it that you have to log in to read it, inertia has set in and I have not read it since.

Does this Newsletter suffer a similar fate? Is it set aside to (maybe) be read later? Or not read at all? These days one is swamped with inputs that one cannot keep up with, so maybe at times this Newsletter does remain unread.

I once read a newspaper journalist bewailing the subject of unread work. The comment was that after the reporters had collected information and submitted their reports, after the type had been set and printed and the proofs read and corrected, after it had all been edited, after it had been printed, packed and distributed by train and van around the country, someone had bought a copy.. The buyer skims through the content, casts the paper aside and says: "There's not much in the paper today!"

As far as content of the newsletter goes, I have a lot of saved articles that I can use. I used to send Pierre an article every month for some years and am using them again, but one gets little or no feedback from readers as to whether the content is suitable or not. It would also be nice if a few readers would submit an Opinion Piece for the Editorial.

Apart from a couple of exceptions early on when I started doing the Newsletter a year ago, only Magda submits articles on a regular basis, and……. does anyone try to look at the objects that Magda has described? – Although it is accepted that it is difficult in the City, it would be great to have some images and reports back from people who have looked at some of Magda's objects. [PS Magda has sent three objects to look at this month to keep observers busy during December and January]

As a matter of interest – according to the Microsoft "Info" the editing time for the September newsletter was 1227 minutes and for October it was 1452 minutes, and for this one 1642 minutes so far. I do not mind doing it because one has the urge to share information, but I hope that I do not run out of steam!

Michael

ARTICLE : Sirius Michael Poll

Sirius is a star in the constellation of Canis Major and is the brightest star in the night sky. Canis Major is visible in the evening sky from December, when it is low in the east, until May, when it is setting in the west. It reaches its highest altitude in our skies around midnight on New Year's Eve and at 9 pm in mid-February. Sirius is at declination –17°, so when at its highest, it passes only 9° north of overhead as seen from Pretoria.

Sirius is also known as the "Dog Star" - the association with a dog goes back to antiquity. The Chaldeans, Assyrians, Phoenicians, Egyptians, Greeks and Romans called the constellation that Sirius is in "The Dog", but it seems that the constellation took its name from the name of the star, rather than the constellation being named first. Contemporary star charts have contrived to make the shape of a dog by joining the stars with lines.

The earliest Greek reference to Sirius is in Homer's *Iliad,* a story about the Trojan War, which dates back to the 6th century BC. ("Iliad" was the Greek name for Troy). Sirius is described in the Iliad as "The star they give the name of Orion's dog".

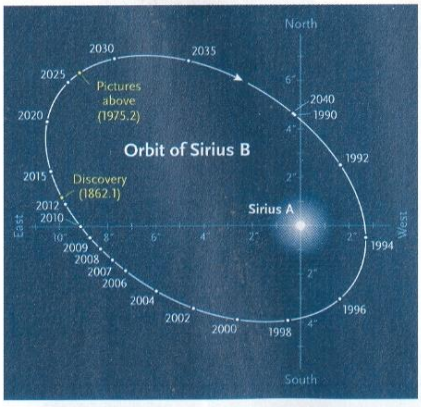
Because it is so bright, the ancient Romans thought that the Earth received heat from Sirius. In the (northern) summer Sirius rises and sets with the Sun and is in conjunction with the Sun in early July. It was believed that, during this period, its heat added to the heat of the Sun, creating a stretch of hot and sultry weather. This period of time, from 20 days before the conjunction to 20 days after, coincided with the hottest time of year a period called "The Dog Days" after the name of the star. The Greek word for the star was "Kyon" or "Kuon" which means simply "The Dog" but is also translated as "scorching" or "searing" because its heliacal rising (its first appearance in eastern sky before sunrise) coincided with the "Dog Days of Summer".

The Egyptians worshipped Sirius as early as 3285 BC, because its heliacal rising, which occurs in July in Egypt, gave notice of the annual flooding of the Nile. Each year The Egyptians would see Sirius lost in the sun's glare for a few weeks, and then see it re-emerge in the dawn sky around the summer solstice, just before the floods. The Egyptians counted this as the beginning of the new year, but, because their 365 day calendar had no leap year, the calendar eventually fell out of step with the heliacal rising of Sirius.

It took a period of 1461 years for the calendar to again become synchronous with the heliacal rising of Sirius. This period of 1461 years was called the Sothic Cycle, named after Sothis, the Greek equivalent to the Egyptian fertility goddess Sopdet. The life span of the mythical bird, the Phoenix, is equal in length to the Sothic cycle - the bird lived for 1461 years and then caught fire and died to be reborn out of its own ashes. It has been suggested that this is like Sirius being born anew out of the Sun's fire when the heliacal rising was again in step with the calendar.

Sirius is a double star : Sirius A is the bright star we see with the naked eye. It is 70 % larger in diameter than the Sun and is 26 times as bright. It is of spectral type A1 and has surface temperature of 10 200° C.

Sirius B is a white dwarf. In 1844, after analysing the proper motion of Sirius (A) through space for 10 years, Friedrich Wilhelm Bessel concluded that it must have an invisible companion of roughly its own mass. In 1851, the Danish astronomer, Christian Peters, calculated the orbit of the companion, but the object was not detectable with the telescopes then available. The companion was first seen visually in 1862 by Alvan G Clark in the USA, who was testing an 18-inch lens. It was found in almost exactly in the predicted position. The visual detection was long delayed because in 1844 the companion was only 3 arc seconds from Sirius, but by 1862 the gap had widened to 9.5 arc seconds. Sirius B is colloquially known as "The Pup". Being a white dwarf, Sirius B is small but massive. It has been shown that Sirius B is 98 % the mass of the Sun, despite being smaller than the Earth. Its surface temperature is 24 900° C, and its gravitational field is 350 000 times stronger than that at the Earth's surface. The age of the Sirius A and B pair is estimated at 225 – 250 million years, which is about 1/20th of the Sun's age. A 2005 study indicated that Sirius B started as blue star with 5 times the mass of the Sun. It would have been brighter than Venus in our sky at its current distance (but not at the time – it was much further away then). This star turned to red giant and then to a white dwarf about 125 million years ago, losing about 80% of its mass in the process.



This is the apparent orbit, projected on the sky, of Sirius B with respect to Sirius itself. The true orbit is inclined 43° to the plane of the sky. (Dates are for the beginning of each year.)

Sirius B revolves around Sirius A every 50.1 years. In 1994 the stars were at the minimum separation of 2.5 seconds of arc. In March 2007 they were 7.6" apart and reached maximum separation of 11.3"in 2022. They are now closing. The magnitude of Sirius B is 8.4, but it is difficult to see because of the large brightness differential - Sirius A is 10 000 times brighter than B.

In a sense Sirius is just passing by our Sun. It only looks as bright as it does because it is comparatively close to us. Its current distance is 8.6 light years and it has a magnitude of –1.44. Sirius will be brighter than magnitude 4.0 for 2 000 000 years either side of the present time. It has been our brightest night-time star for 90 000 years, will remain so for another 210 000 years. Its closest (and brightest) approach will be 60 000 years from now, when it will be 7.8 light years away, and at magnitude –1.64

References Include : Sky and Telescope: April 1998 p80; February 2006 p 46; March 2006 p26; February 2007 p 50; March 2007 p 47; February 2008 p33.

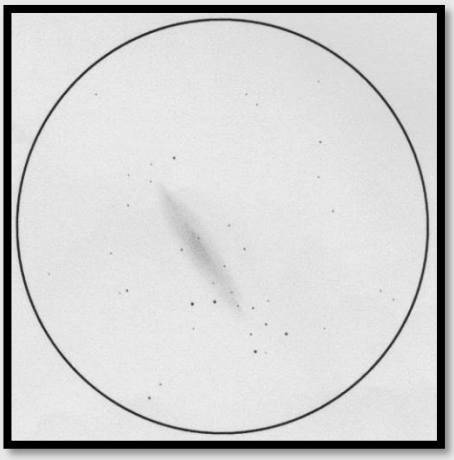
OBSERVERS CORNER by Magda Streicher

NGC 253 *Caroline's Nebula*

In the Southern Hemisphere we are truly blessed with exceptional deep sky objects to satisfy both the eye and the soul. One such special object is the galaxy NGC 253, situated in the constellation Sculptor. What makes this bright, beautiful, edge-on galaxy so special to me is that it was discovered by a lady, Caroline Herschel (1750-1848), who was said with great perseverance have discovered a total of nearly a dozen deep sky objects and eight comets. Caroline's brother William Herschel, rediscovered NGC 253 on 30 October 1783 in one of his solo sweeps and realised that it was the nebula that Caroline had seen a few weeks before. Referring to it as Caroline's Nebula he added her initials to a catalogue of nebulae. NGC 253 is approximately eight million light years from us and compares well in size with the Milky Way.

I see this jewel, as a very bright and almost edge-on galaxy in a north-east to south-west direction, with a slightly brighter oval nucleus. The surface displays an uneven structure with faint dark knots and faint stars intimately involved within it. Around the outer edge the galaxy seems flimsy and woolly and almost hanging three dimensional against the starry background. A short dark band can be glimpsed against the north-western side of the nucleus.
Seeking out Caroline's nebula was indeed nostalgic; what a remarkable woman for her time!

Telescope Sketch: Magda



OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 253	Galaxy	00h47m.6	-25°17'.1	7.6	30'x6'

NGC 362 *Tight Snowflakes*

Nestled near the northern edge of the Small Magellanic Cloud is the bright globular cluster NGC 362 in the constellation Tucana. The globular cluster can be seen with the naked eye against very dark skies. Through the telescope the centre displays a compressed star-like core. Higher magnification turns it into a smooth cotton ball, sprayed with well-resolved faint stars embedded in a hazy outer envelope. At even higher magnification, the core becomes granular, on the verge of resolving starlight. The pioneering French astronomer Nicolas Louis de Lacaille (1713-1762) observed the southern skies during his stay at the Cape of Good Hope during 1751 to 1752. He was the first to recognize NGC 362 as a cluster and not a single star. Nicolas de Lacaille also discovered a few deep sky objects like NGC 2547 and NGC 3228 in the constellation Vela. He named 14 new southern constellations and created a list of 42 objects in his catalogue *Nebulae of the Southern Sky*. He was regarded as the Father of Southern Astronomy.
Linger patiently through the southern starry skies - there is goldmine of objects to discover and admire.



Nicolas Louis Nicolas Louis de Lacaille
Pencil Sketch Credit: Kathryn van Schalkwyk

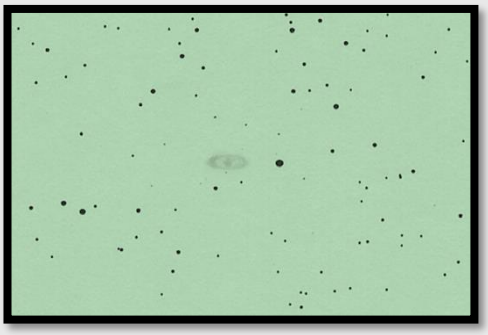
OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 362	Globular	01h03m.2	-70°51′.0	6.5	12.9′

NGC 7702 *Planet Saturn Impression*

A very strange looking galaxy catalogued as NGC 7702 reminds one strongly of the planet Saturn and is situated about 140 million light years away in the southern constellation Phoenix. It is a ring-shaped lenticular galaxy in a very peculiar form, hosting an outstanding large bright bar-like nucleus and displaying a concentric low surface outer ring. The ring probably formed during a starburst billions of years ago. According to astronomers it is unlikely that the ring structure was the cause of an interaction with a companion galaxy.

A larger amateur telescope and high magnification used in dark night skies reveal the oval galaxy with a very faint hazy edge, and a bright nucleus. A lovely yellowish magnitude 8 star is situated just 3′ towards the west with a magnitude 11 star 3′ south-east. The northern field of view displays no fewer than a dozen various magnitude stars, some of which shine with in a lovely yellow colour with a few super white stars in the mix.

When the opportunity comes your way to discover the Saturn galaxy, or, if all fails, admire our beautiful ring planet Saturn instead.



Telescope Sketch: Magda

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 7702	Galaxy	23h35m.4	-56°00′.6	12	2′x1.2′

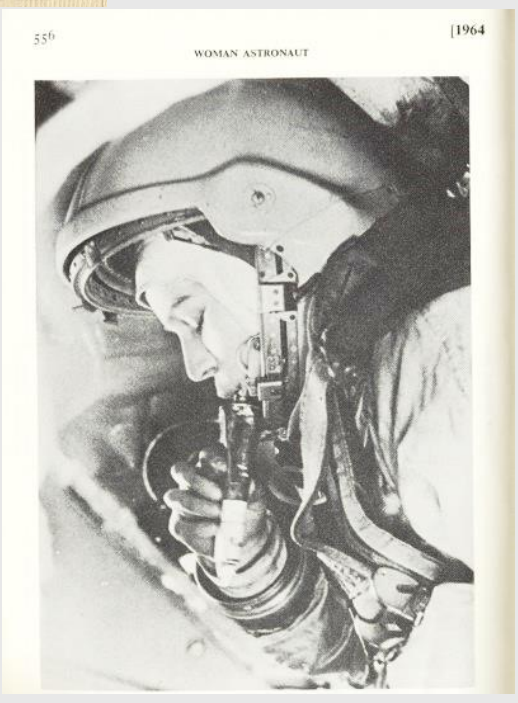
FROM THE ARCHIVES :

In 1987 due to ill health, Jack Bennett had to move from his house in Malan Street, Riviera to Mothwa Haven. It was a sad time, as he had to sell his collection of books. Members of the Centre attended and helped with the cataloguing and pricing of the books, and members also made some purchases at the time. Amongst the books that I bought were a number of copies of Whitaker's Almanac, a kind of year book packed with information about, well, everything going on in the UK. In each edition there was a centre spread of photographs highlighting and recording notable events that had occurred during the year. I had to dispose of the Almanacs eventually (to Hospice) when I had to move to downsize, but I did scan all the photographs. Here are a selection of relevant ones, and I will probably use more in future.

Jack Bennett's 1929 signature is in the 1927 edition. It can be noted that the one of the original sources of population demographics that were used to establish the Scottish Widows fund were figures compiled by Edmond Halley. In 1693 Halley had analysed 1238 births and 1174 deaths obtained from Breslau Germany, (now Wroclaw in Poland) and from Halley's tables it was possible to see that a 20 year old had a 1:100 chance of dying in a given year and a 50 year old had a 1:39 chance







1963

On Feb. 20, Lt.-Col. John Glenn became the first American to go into orbit round the earth, which he circled three times. He is shown (*above*) prepared for his flight. In August, Major Nikolayev and Lt.-Col. Popovich of the U.S.S.R. made 64 orbits in four days and 48 orbits in three days respectively. They are seen (*below*) acknowledging the applause of the crowd in Red Square, Moscow.

1964

Valentina Tereshkova, of U.S.S.R., the first woman to be sent into earth orbit, was launched in *Vostok* 6 on June 16. She landed safely in Central Asia 3 days later after making 49 orbits.

Talking about Halley –

In 2026 it is forty years since the last perihelion of Halley's Comet : it is "only" 36 years until the next one !

Pretoria News April 7th 1986 : People Who Saw It Twice.



PRETORIA NEWS Monday April 7 1986 7

NOW IN 1986 IT'S MERELY A GHOST OF ITS FORMER BREATHTAKING GLORY

Mrs Sannie Grimbeek . . . "A rainbow with green sparks."

Dominee Kemp . . . "It hung over the rantjie to the east."

Mr Willie Stander . . . "They called it the star with the oar."

Mr Harold Nicholson . . . "People were frightened it would fall!"

Mrs Audrey Cogill . . . "There were things more important than comets!"

Mrs Anita Theron . . . "Something never to be forgotten."

Mrs Dorothea Banfield . . . "A red blanket over the mountains."

Mrs Margarethe Schwantes . . . "A golden ball with a shining veil."

Halley . . . and those who were entranced

JAN VAN DER MERWE, Special Writer, shares the memories of a group of senior citizens who saw Halley's Comet in 1910.

concentration camp.

knowledgeable man and he gave us a memorable little lecture on the wonders of

And we could snack on souvenirs!

Closing date for competition entries: 30 April 1986



WIN A TRIP TO WALT DISNEYWORLD IN THE WILLARDS COMETS "SPOT THE STARS" COMPETITION

1st PRIZE (Value approximately) **R20,000**

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Consolation Prizes:
5 runners up will be awarded powerful telescopes (each valued at R500) and 1 000 entrants will win a Willards Halley's Comet informative wall poster.

How to Enter:
All you have to do is identify these three famous star groups. (They each have well-known, common names.) Check your answers on the back of Willards Comets packs. Or you can look in books, atlases, or even at the Planetarium.

Read these rules carefully:
1. Your entry must reach us by 5.00 p.m. on 30th April 1986. Winners will be notified in the comic section of the Sunday Times and Rapport on 11th May 1986. The judge's decision will be final. 2. Entrants must reside in the Republic of South Africa or SWA. Entries will not be allowed from employees or near relatives of employees of Willards Foods or their advertising agents. 3. Prizes must be claimed before 31 December 1986. 4. No further correspondence will be entered into. 5. Prizes may not be exchanged for cash.



Post each entry along with an empty Willards Comets pack (or reasonable facsimile) to: Willards Comets Competition, Willards Foods, Private Bag 7783, Johannesburg 2000.

The star groups are called:

1. _____
2. _____
3. _____

Now, in no more than 10 words, describe the taste of new Willards Comets.

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