



Volume 14, Issue 8

August 2009

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President's Report:

John Rombi

Welcome to the August edition of *Prime Focus*.

Last Month

Our speaker (member) Chris Malikoff gave a tantalising view into the world of Astro-imaging.

Over the last few years CCD, Webcam and 35mm digital cameras have taken over from the stalwart (since the inception of photography) sensitised film.

Even though film photography has produced some amazing images, there's nothing like the immediacy that digital imaging brings to the craft. Within a very short period of time you can see if the result is what you want. This gives you the opportunity to start again, instead of film where the need to process the material would mean waiting days for results that may be inadequate.

Chris will give Part 2 of this presentation in our September meeting.

Thanks for Part 1 Chris, very informative!!

(Continued on page 2)

Observing Dates

August

15/08/09	International House: The Forest
17/08/09	General Meeting
19/08/09	Wollondilly Anglican School
22/08/09	The Forest
29/08/09	The Domes: Public Night
No Stargard this month	

September

12/09/09	Stargard
19/09/09	The Forest
21/09/09	General Meeting

October

10/10/09	Stargard
17/10/09	The Forest
19/10/09	General Meeting

November

14/11/09	The Forest
16/11/09	General Meeting
21/11/09	Stargard

December

12/12/09	Stargard
19/12/09	The Forest
21/12/09	General Meeting



President's Report:

John Rombi

Public Nights

We've just completed our fifth public night of this year (August 1st). Approx 100 members of the public turned up for another clear night.

With the advancement of the winter sky, we were treated to a $\frac{3}{4}$ Moon and our solar systems giant planet, Jupiter. Jupiter displayed an Io shadow transit, along with a prominent Great Red Spot.

Later in the evening "The Bird Strike" became obvious with the momentary steadying of the night air.

The success of the night was topped off with 12 new members for MAS!

Well Done Everyone.

Stargard & The Forest

The Forest was mostly clouded out, but we made up for that with a lot of socialising and of course ... discussions on ... astronomy!

Stargard was a great success, with over a dozen members enjoying the night. The cloud was sporadic, which did spoil the observing. Luckily we had a least some clear sky to whet the appetite.

What's on?

Saturday August 15th. The Forest- International House, until 9pm: then **Members Only**.

Monday August 17th. Monthly meeting, UWS Campbelltown: Prof Geraint Lewis.

Wednesday August 19th. Wollondilly Anglican School, Tahmoor. 6.00pm - 9pm.

Saturday August 22nd. The Forest New Moon Observing. **Members Only**.

Saturday August 29th. The Domes UWS Campbelltown, **PUBLIC NIGHT**.

Please keep an eye on the "What's on" link of our website for all the latest member information.

Next Month

Chris Malikoff will present Part 2 of "Imaging with Digital SLR"

Saturday September 26th, Fred Watson will present "Why is Uranus upside down"

This will be the major event of the IYA for MAS. At the time of writing this, the full information was not available. I will have a full rundown by our August monthly meeting.

Tonight

I would like to welcome (after a very successful first visit, in 2008) **Professor Geraint Lewis** from Sydney University. His presentation will be on "**Cosmology and Dark Energy**".

Until next time,

Clear Skies, John Rombi

Secretary's Column:

Roger Powell

Members may have noticed that references to the Public Astronomy Nights on our website have been removed. This has become necessary because the events have become so popular and are heavily over-booked. They will still proceed, so please watch the 'Members Activities' schedule on the 'What's On' page, for details.

Last month was the fortieth anniversary of the Apollo 11 Moon landing and those of us at the July meeting were treated to a reprise of part of the "In The Shadow of The Moon" DVD. I could watch that Moon landing stuff over and over again and wish we could play it at every meeting. It brings back evocative memories of an amazing era, where manned space exploration achieved so much and promised so much more - until the US Congress cut the funding off.

Since then, manned activities have been limited to low Earth orbit, including the International Space Station. Happily, the Moon seems to be back on the agenda again and in a few years maybe we will see men and women set foot on the Moon again.

As a preparation for this, NASA has recently sent two probes back to the Moon, one of which, the Lunar Reconnaissance Orbiter, has already sent back detailed images of the old Apollo landing sites, showing the landing modules, scientific instruments and in the case of Apollo 14, a trail left by the astronauts as they moved backwards and forwards between the lander and the instruments. This is the final nail in the coffin for the Lunar landing conspiracy 'theory', which can now be filed in the waste bin along with the so-called 'face on Mars'.

(Continued on page 3)



Secretary's Column:

Roger Powell

Hooray. Go to http://www.nasa.gov/mission_pages/LRO/main/index.html and follow the link.

Jupiter is now a grand sight in the evening sky and certainly impressed a lot of visitors to our last public night. Regrettably I could not see the recently appeared 'Wesley Scar' but I did manage to pick out the shadow of Io transiting Jupiter.

The local press gave us some good coverage of Jupiter and the Public Night, if you can ignore some of the basic journalistic errors! They asked us for a high resolution member's image of Jupiter, which we were unable to provide to their satisfaction, so get snapping!

Last month's guest speaker was our very own Chris Malikoff, on the topic of astro-imaging with a digital SLR. Chris showed us how to simplify what appears to be a fairly complex task and it has given me (and maybe other members) hope that I might achieve some modest results.

I treat astro-imaging as an extension of photography, as much as being a branch of astronomy. I'd like to get a few decent astro-shots but will not be pushing the boundaries too far and do not expect super results. My reasoning is that if you have a telescope and you also have a digital SLR, then it makes sense to buy a cheap adapter (suited to your camera) to put them both together and have a go. All you need then is a remote camera shutter control. That's the easy bit.

After that, it's a question of developing a photographic technique – allowing for the Earth's rotation; choosing shutter speed & ISO rating; learning how to focus the darn thing; taking enough multiple exposures; taking dark frames etc. and using the right software to process the exposures to get a good result. That all sounds easy but of course it's not, especially as you are doing most of it in the dark. So I am really looking forward to the second part of Chris's talk at our September meeting.

At the last committee meeting, it was decided that we would not be participating in the Fisher's Ghost Street Parade on 31st October. It was believed that our resources would best be directed towards our current heavy programme of public observation nights and school visits.

81

That's where our current membership number stands. I think this must be a record level of membership for our Society and our finances are looking fairly healthy too. Much of the reason for this can be put down to the success of our Public Nights and the publicity about MAS which those evenings have generated in the Chronicle and Advertiser.

So, a warm welcome to all the members who have joined recently. I hope you enjoy your membership and that together we can all advance our knowledge and experience of the amazing Universe out there.



Stargard July 2009

A Brief Note from the editor: Geoff Young

The first thing I must do is express my most sincere apologies to Davy Jones. Davy had emailed me an article in June for the July issue of Prime Focus. Inadvertently, I had moved the file to the June folder on my computer and consequently did not include Davy's article in the last issue. That error has been rectified and Davy's article appears in this issue on page 6.

A request of new members. Prime Focus is an avenue for all members to express themselves. If you think you have something that would be of interest to others in the Society, or would like to tell about your introduction to our Society, start writing! Information for the submission of articles is on page 2 of this issue.



OBSERVING AUGUST 2009

Sun, Moon and Planets Observing List, evening of 2009 Aug 15 at Stargard, Tl
 Sunset 17:31, Twilight ends 18:52, Twilight begins 05:12, Sunrise 06:33, Moon

Completely dark from 18:52 to 02:43. Waning Crescent Moon. All times local (G

Listing All Classes visible above the perfect horizon and in twilight or moonlight

The minimum visual difficulty is: detectable.

Cls	Primary ID	Con	RA (Ap)	Dec (Ap)	Mag
MSS	Mercury	Leo	11h16m02.7s	+04°02'15"	0.1
MSS	Saturn	Leo	11h29m48.4s	+05°24'24"	1.1
MSS	Jupiter	Cap	21h38m45.3s	-15°12'44"	-2.9
MSS	Neptune	Cap	21h50m14.2s	-13°32'07"	7.8
MSS	Uranus	Psc	23h46m02.8s	-02°22'33"	5.7
MSS	Moon	Tau	05h01m21.3s	+26°42'47"	-8.5
MSS	Mars	Tau	05h31m29.8s	+23°12'10"	1

And	Andromeda	Lac	Lacerta	Cir	Circinus	Pup	Puppis
Ant	Antlia	Leo	Leo	Col	Columba	Pyx	Pyxis
Aps	Apus	LMi	Leo Minor	Com	Coma Berenices	Ret	Reticulum
Aqr	Aquarius	Lep	Lepus	CrA	Corona Austrina	Sge	Sagitta
Aql	Aquila	Lib	Libra	CrB	Corona Borealis	Sgr	Sagittarius
Ara	Ara	Lup	Lupus	CrV	Corvus	Sco	Scorpius
Ari	Aries	Lyn	Lynx	Crt	Crater	Scl	Sculptor
Aur	Auriga	Lyr	Lyra	Cru	Crux	Sct	Scutum
Boo	Boötes	Men	Mensa	Cyg	Cygnus	Ser	Serpens
Cae	Caelum	Mic	Microscopium	Del	Delphinus	Sex	Sextans
Cam	Camelopardalis	Mon	Monoceros	Dor	Dorado	Tau	Taurus
Cnc	Cancer	Mus	Musca	Dra	Draco	Tel	Telescopium
CVn	Canes Venatici	Nor	Norma	Egu	Equuleus	Tri	Triangulum
CMa	Canis Major	Oph	Ophiuchus	Eri	Eridanus	TrA	Triangulum Australe
CMi	Canis Minor	Ori	Orion	For	Formax	Tuc	Tucana
Cap	Capricornus	Pav	Pavo	Gem	Gemini	UMa	Ursa Major
Car	Carina	Peg	Pegasus	Gru	Grus	UMi	Ursa Minor
Cas	Cassiopeia	Per	Perseus	Her	Hercules	Vel	Vela
Cen	Centaurus	Phe	Phoenix	Hor	Horologium	Vir	Virgo
Cep	Cepheus	Pic	Pictor	Hy	Hydra	Vol	Volans
Cet	Cetus	Psc	Pisces	Hyi	Hydrus	Vul	Vulpecula
Cha	Chamaeleon	PsA	Piscis Austrinus	Ind	Indus		

Best and Brightest 200 Observing List, evening of 2009 Aug 15 at Stargard, The Oaks, NSW

Sunset 17:31, Twilight ends 18:52, Twilight begins 05:12, Sunrise 06:33, Moon rise 02:43, Moon set 12:35

Completely dark from 18:52 to 02:43. Waning Crescent Moon. All times local (GMT+10).

Listing All Classes visible above the perfect horizon and in twilight or moonlight after 19:00 and before 02:30.

The minimum visual difficulty is: detectable.

Cls	Primary ID	Alternate ID	Con	Mag	Size	Distance	Rise	Transit	Set	Difficulty
Open	NGC 3114	Collinder 215	Car	4.5	35.0'	3000 ly	-	12:26	-	detectable
PNe	Eight Burst	NGC 3132	Vel	8.2	1.4'	3600 ly	3:58	12:31	20:59	easy
Open	NGC 3228	Collinder 218	Vel	6.4	5.0'	1800 ly	2:27	12:45	22:59	easy
PNe	Ghost of Jupiter	NGC 3242	Hya	8.6	40"	2800 ly	5:47	12:48	19:46	detectable
Open	IC 2581	Collinder 222	Car	5.3	5.0'	8000 ly	-	12:51	-	obvious
Open	IC 2602	Collinder 229	Car	1.6	100.0'	520 ly	-	13:06	-	easy
Open	NGC 3532	Collinder 238	Car	3.4	50.0'	1600 ly	-	13:29	-	easy
Open	NGC 3766	Collinder 248	Cen	4.6	9.3'	7200 ly	-	14:00	-	obvious
Glob	NGC 4372		Mus	7.2	5.0'	20000 ly	-	14:49	-	easy
Open	Jewel Box	NGC 4755	Cru	5.2	10.0'	6400 ly	-	15:17	-	obvious
Glob	Omega Centauri	NGC 5139	Cen	3.9	55.0'	16000 ly	6:24	15:50	1:12	detectable
Gal	M 83	NGC 5236	Hya	7.8	14.1'x 13.2'	15.0 Mly	8:19	16:00	23:38	detectable
Open	NGC 5460	Collinder 280	Cen	6.1	35.0'	2200 ly	6:56	16:31	2:01	detectable
Glob	M 5	NGC 5904	Ser	5.7	23.0'	29000 ly	11:38	17:41	23:40	detectable
Glob	NGC 5986		Lup	7.6	9.6'	46000 ly	9:51	18:09	2:23	detectable
Open	NGC 6025	Collinder 296	TrA	6	14.0'	2500 ly	-	18:26	-	easy
Open	NGC 6067	Collinder 298	Nor	6.5	14.0'	4600 ly	7:19	18:36	5:50	easy
Glob	M 80	NGC 6093	Sco	7.3	10.0'	36000 ly	11:24	18:40	1:52	detectable
Open	NGC 6124	Collinder 301	Sco	6.3	39.0'	1700 ly	10:14	18:48	3:18	detectable
Open	NGC 6167	Harvard 11	Nor	6.6	7.0'	3600 ly	9:07	18:57	4:44	easy
Open	NGC 6178	Collinder 308	Sco	7.2	5.0'	3300 ly	9:50	18:59	4:04	easy
Open	NGC 6193	Collinder 310	Ara	5.4	14.0'	3800 ly	9:26	19:04	4:39	easy
Glob	M 12	NGC 6218	Oph	6.1	16.0'	23000 ly	13:00	19:10	1:20	detectable
Glob	M 10	NGC 6254	Oph	6.6	20.0'	23000 ly	13:04	19:20	1:35	detectable
Glob	M 62	NGC 6266	Oph	6.4	15.0'	26000 ly	11:42	19:24	3:02	detectable
Glob	M 19	NGC 6273	Oph	6.8	17.0'	23000 ly	12:02	19:25	2:49	detectable
Open	NGC 6322	Collinder 326	Sco	6.5	5.0'	3200 ly	10:53	19:41	4:26	obvious



OBSERVING AUGUST 2009

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Cls	Primary ID	Alternate ID	Con	Mag	Size	Distance	Rise	Transit	Set	Difficulty
Open	NGC 6167	Harvard 11	Nor	6.6	7.0'	3600 ly	9:07	18:57	4:44	easy
Open	NGC 6178	Collinder 308	Sco	7.2	5.0'	3300 ly	9:50	18:59	4:04	easy
Open	NGC 6193	Collinder 310	Ara	5.4	14.0'	3800 ly	9:26	19:04	4:39	easy
Glob	M 12	NGC 6218	Oph	6.1	16.0'	23000 ly	13:00	19:10	1:20	detectable
Glob	M 10	NGC 6254	Oph	6.6	20.0'	23000 ly	13:04	19:20	1:35	detectable
Glob	M 62	NGC 6266	Oph	6.4	15.0'	26000 ly	11:42	19:24	3:02	detectable
Glob	M 19	NGC 6273	Oph	6.8	17.0'	23000 ly	12:02	19:25	2:49	detectable
Open	NGC 6322	Collinder 326	Sco	6.5	5.0'	3200 ly	10:53	19:41	4:26	obvious
Open	NGC 6383	Collinder 335	Sco	5.4	20.0'	3200 ly	12:09	19:57	3:46	easy
Glob	NGC 6388		Sco	6.8	10.4'	42000 ly	10:57	19:59	4:57	detectable
Glob	M 14	NGC 6402	Oph	7.6	11.0'	23000 ly	13:47	20:00	2:13	detectable
Open	Butterfly Cluster	M 6	Sco	4.6	20.0'	1600 ly	12:16	20:03	3:50	obvious
Glob	NGC 6397		Ara	5.3	31.0'	6500 ly	9:05	20:03	6:58	detectable
Open	M 7	NGC 6475	Sco	3.3	80.0'	980 ly	12:18	20:16	4:15	easy
Open	M 23	NGC 6494	Sgr	5.9	29.0'	2000 ly	13:21	20:20	3:18	detectable
Open	M 20	NGC 6514	Sgr	5.2	28.0'	2700 ly	13:13	20:25	3:37	easy
Neb	Lagoon Nebula	M 8	Sgr	5	17.0'x 15.0'	4100 ly	13:10	20:27	3:43	easy
Open	M 21	NGC 6531	Sgr	7.2	14.0'	3900 ly	13:17	20:27	3:37	detectable
Glob	NGC 6541		CrA	6.3	15.0'	13000 ly	11:37	20:31	5:21	detectable
PNe	Blue Racquetball	NGC 6572	Oph	8	15"	3500 ly	14:48	20:34	2:20	obvious
Open	Star Queen	M 16	Ser	6.5	6.0'	5700 ly	13:58	20:41	3:24	easy
Open	M 18	NGC 6613	Sgr	7.5	5.0'	4200 ly	13:50	20:42	3:35	easy
Glob	M 28	NGC 6626	Sgr	6.9	13.8'	16000 ly	13:29	20:47	4:05	detectable
Open	NGC 6633	Collinder 380	Oph	5.6	20.0'	1200 ly	15:03	20:50	2:36	easy
Open	M 25	IC 4725	Sgr	6.2	29.0'	2000 ly	13:55	20:54	3:53	detectable
Glob	M 22	NGC 6656	Sgr	5.2	32.0'	9800 ly	13:44	20:59	4:14	detectable
Open	IC 4756	Collinder 386	Ser	5.4	39.0'	1600 ly	15:12	21:01	2:51	detectable
Glob	M 70	NGC 6681	Sgr	7.8	8.0'	65000 ly	13:18	21:06	4:53	detectable
Open	Wild Duck Cluster	M 11	Sct	6.1	32.0'	6100 ly	14:52	21:13	3:35	detectable
PNe	Ring Nebula	M 57	Lyr	9.4	1.4'	2600 ly	16:54	21:16	1:38	detectable
Open	NGC 6716	Collinder 393	Sgr	7.5	10.0'	2600 ly	14:15	21:17	4:19	detectable
Glob	NGC 6723		Sgr	6.8	13.0'	33000 ly	13:14	21:22	5:29	detectable
Glob	Pavo Globular	NGC 6752	Pav	5.3	29.0'	20000 ly	-	21:33	-	detectable
Glob	M 55	NGC 6809	Sgr	6.3	19.0'	20000 ly	14:21	22:02	5:44	detectable
PNe	Little Gem	NGC 6818	Sgr	10	22"	7300 ly	15:22	22:06	4:50	easy
Glob	M 71	NGC 6838	Sge	8.4	4.0'	16000 ly	17:04	22:16	3:28	detectable
PNe	Dumbbell	M 27	Vul	7.3	8.0'	1100 ly	17:22	22:22	3:21	detectable
PNe	Saturn Nebula	NGC 7009	Aqr	8.3	28"	3200 ly	16:50	23:26	6:02	obvious
Glob	M 15	NGC 7078	Peg	6.3	18.0'	42000 ly	18:21	23:52	5:23	detectable
Glob	M 2	NGC 7089	Aqr	6.6	16.0'	49000 ly	17:49	23:55	6:02	detectable
Glob	M 30	NGC 7099	Cap	6.9	12.0'	39000 ly	16:50	0:02	7:15	detectable
PNe	Helix	NGC 7293	Aqr	6.3	16.0'	530 ly	17:47	0:51	7:56	detectable
Gal	NGC 55	MCG -7-1-13	Sci	8.5	30.2'x 3.4'	4.9 My	18:15	2:37	10:58	detectable

These lists were produced using SkyTools v3. If members have any changes they would like made, please let me know at editor@macastro.org.au



Norman Lockyer Observatory:

David M Jones

Towards the end of World War II, I was evacuated from just outside of Brighton, Sussex, to the sleepy Devonshire town of Sidmouth, where I was raised. Sidmouth is set in a valley, with hills on three sides and the English Channel on the fourth. Gazing towards the sea, from Core Hill or Fire Beacon at the back of the valley, the casual observer will see Salcombe Hill to the left and Peak Hill to the right. Sitting in those uninviting hills at night and looking down on the valley is quite an experience. The hills are dark – oppressively dark – and the lights, far below in the valley, twinkle warmly, a microcosm of the distant stars above. The inky background of the sea on moonless nights is unbroken, apart from the lights of occasional passing ships.

Salcombe Regis village



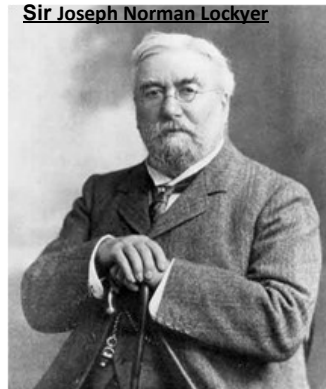
As a young man, I found Sidmouth to be a very boring place, with little to recommend it. However, the countryside was beautiful, and during school holidays, my mates and I would roam at will. We spent many hours on our bicycles exploring far and wide. One of our more demanding rides would take us to the very top of Salcombe Hill and over to Salcombe Regis.

The one strange object worth stopping to gawp at was a series of strange silver domes. The five-bar gate – bore the name – ‘Norman Lockyer Observatory’. The gate was always locked and the intimidating atmosphere of the place didn’t invite youthful inquisitive exploration. The observatory, oddly, was a place to be respected – a place of science – and not for the youth of ill-bred working class. That was the culture of Sidmouth in those days; people knew their place.

As for Norman Lockyer, I never gave him another thought until surfing the Internet recently, when I came across his name; he turns out to have been a most intriguing character. He was born in Rugby, Warwickshire, where he was raised and educated. Lockyer gained employment with the British War Office for a

number of years. Eventually, he married and settled in Wimbledon, south London. Lockyer was a keen amateur astronomer, who had a special interest in the sun. He eventually became director of the Solar Physics Observatory in Kensington, London.

Sir Joseph Norman Lockyer



In the 1860s Lockyer became fascinated by electromagnetic spectroscopy as an analytic tool for determining the composition of planetary bodies. During the solar eclipse of October, 1868, Lockyer noted a prominent yellow line from a spectrum taken near the edge of the Sun from Vijaydurg. With a wavelength of about 588 nm, a little less than the so-called ‘D’ lines of sodium. the line could not be explained as due to any substance known at the time. It was suggested by Lockyer that the yellow line was caused by an unidentified solar element. He named this element helium after the Greek word ‘Helios’ meaning ‘sun’. An observation of the new yellow line also was made by Janssen at the same eclipse; he and Lockyer are usually awarded joint credit for helium’s discovery. Terrestrial helium was found about 10 years later by William Ramsay. In his work on the identification of helium, Lockyer collaborated with the noted chemist Edward Frankland. (Hearnshaw, J. B. (1986). *The Analysis of Starlight*. Cambridge: Cambridge University Press. pp. 84 – 85), (Wikipedia, 2009)

To ease the spread of ideas between scientific disciplines, Lockyer established the wide-ranging science journal *Nature* in 1869. He remained its editor until shortly before his death.

After his retirement in 1911, Lockyer set up an observatory near his home in Salcombe Regis near Sidmouth, Devon. Originally known as the ‘Hill Observatory’, the site was renamed the ‘Norman Lockyer Observatory’ after his death. For a time the observatory was a part of the University of Exeter, but is now owned by the East Devon District Council, (EDDC) and run by the Norman Lockyer Observatory Society. The Norman Lockyer Chair in Astrophysics at the University of Exeter is currently held by Professor Tim Naylor, who heads a star formation group there.

Lockyer died at his home in Salcombe Regis in 1920, and was buried there in the churchyard of St Peter and St Mary. (Wikipedia, 2009)



Norman Lockyer Observatory:

David M Jones

Today, whilst still playing an active part in astronomy, the observatory also has a very important historical role to play. Unlike the days of my youth, the observatory can be accessed at public viewing times, or by arrangements for organised parties. (Goulev, 2008)

The 'Norman Lockyer Observatory' has its own version of our Chris Malikoff who runs a very worthwhile Internet site, which can be visited at: <http://normanlockyer.org/>. All of the historical telescopes can be viewed online, as can a very succinct history of the observatory to the current day. If you ever find yourself travelling the Jurassic Coast down along sleepy, rural East Devon, take a small detour and pop into see the 'Norman Lockyer Observatory' and tell them they are even known in Sydney.

Jurassic Coast: <http://www.enjoyengland.com/destinations/find/south-west/dorset/jurassic-coast-world-heritage-site.aspx>

References:

Goulev, P. (2008). Welcome to the Norman Lockyer observatory (Observatory). Retrieved June 12, 2009, from <http://normanlockyer.org/>.

Wikipedia. (2009). Joseph Norman Lockyer. Retrieved June 11, 2009, from http://en.wikipedia.org/wiki/Norman_Lockyer.

Star Hopping to the Messiers #15 Sagittarius: M8, 17, 18, 20, 21, 22, 23, 24, 25, 28, 54, 55, 69, 70 and 75.

Bob Bee

Sagittarius is smack in the middle of the Milky Way star fields so it's not surprising that it contains so many Messier objects – fifteen in total. Seven of these are attainable in 50mm binoculars in dark skies.

Three Ms fall on the Tea Pot's base, two are outliers to the South and the East, while the remaining ten are clustered about and above the Tea Pot's lid.

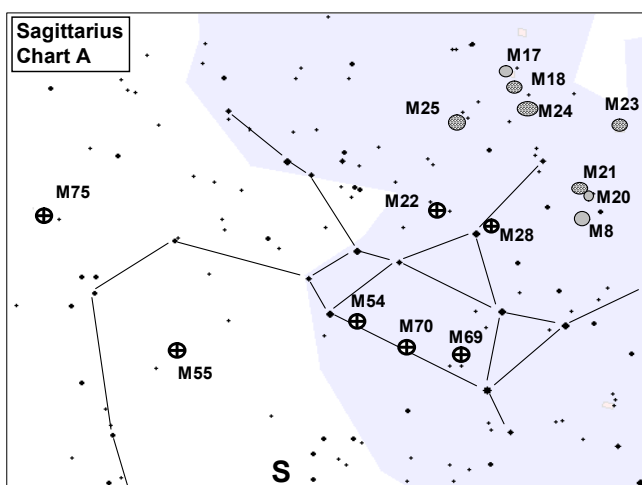
The Messier's details are as follows and their location generally shown on Chart A below:

(BN = Bright Nebula; GC = Globular Cluster; OC = Open Cluster)

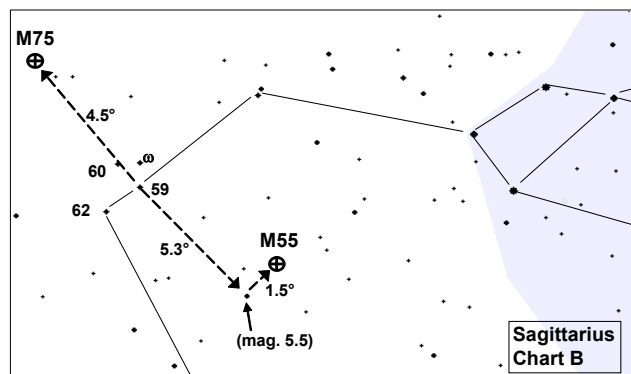
Messier No.	M8	M17	M18	M20	M21
Type	BN	BN	OC	BN	OC
Size (arc-min)	90	46	9	29	13
Magnitude	3.5	6	6.9	6.3	5.9

Messier No.	M22	M23	M24	M25	M28
Type	GC	OC	OC	OC	GC
Size (arc-min)	24	27	5(?)	32	11.2
Magnitude	5.1	5.5		4.6	6.9

Messier No.	M22	M23	M24	M25	M28
Type	GC	OC	OC	OC	GC
Size (arc-min)	24	27	5(?)	32	11.2
Magnitude	5.1	5.5		4.6	6.9



Let's look for the two outliers, M75 and M55 first, both Globular Clusters. Use Chart B below as a guide.



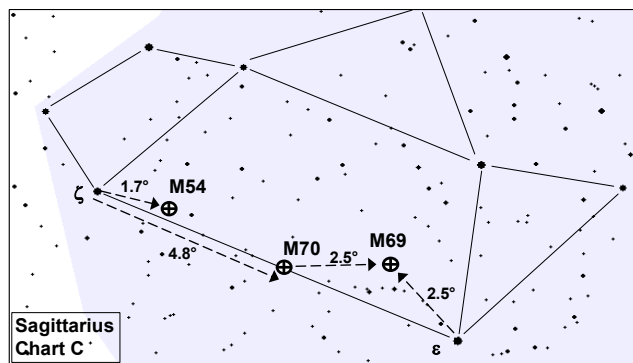


Star Hopping to the Messiers #15 Sagittarius: M8, 17, 18, 20, 21, 22, 23, 24, 25, 28, 54, 55, 69, 70 and 75.

Bob Bee

Move away from the Tea Pot's handle in a south-east direction, following the stars shown. You'll reach a 2° long kite shaped asterism of 4th and 5th mag. stars which are numbered as ω , 59, 60 and 62 Sgr. Place that in your f/s FoV. If you move along the line from 59 through 60 by another 4.5°, you'll land right on M75. It won't be visible in your f/s but it should show up in your main eye piece.

Now go back to the 'kite'. This time follow the line from 60 through 59 Sgr and extend it by 5.3°. This will give you a mag.5.5 star. Then move up (north) at right angles by 1.5° to land on M55. You should be able to see it in your f/s as a faint fuzzy glob.



The remaining ten Messiers are clustered about and above the Tea Pot's lid. See Chart D below. The chart may look like a mess but if you break it down into separate steps, it is relatively simple. The key is to identify visually (at first) two particular stars. The 'tip' of the Tea Pot lid is λ (lambda) Sgr, a mag. 2.8 star and is easy to find. Just 5.5° north of λ is μ Sgr, a mag. 3.9 star. Find that one also. (If you find Sagittarius too north for comfort, you'll need to face north and turn Chart D upside down with South at the top.)

Now, all the following star hops involve steps less than the FoV of the average finder scope, say 5°.

Now let's grab the three globs lying on the bottom of Tea Pot. Refer to Chart C below. Starting from the bottom left star of the Pot, ζ Sgr. imagine the line across to the opposite bottom star, ϵ Sgr. About 0.5° above that line and just 2.3° from ζ is a mag. 6.6 star. Locate that star in your f/s. Now M54 lies 1.7° from ζ on the line to that star. So put the centre of your f/s $\frac{3}{4}$ of the way from ζ to the 6.6 mag. star and you should be on M54.

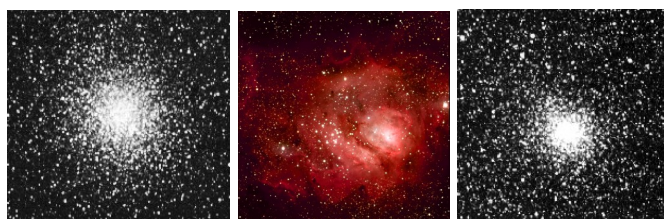
M70 is easier still. It lies exactly midway (4.8°) along the line from ζ to ϵ . If your f/s has a 5° FoV, then ζ and M70 would be on opposite sides of it. To help you along, there is a delicate triangle of mag 7 stars on the 'line' exactly 1° before you reach M70.

Next up is M69. Not on the bottom pot line but only 1.2° off it. It is also 2.5° away from both M70 and ϵ Sgr. (Do you feel a triangle coming on?) Now it's only 4.5° from M70 to ϵ Sgr., well inside your f/s FoV. So place them there and estimate midway. Then go up into the tea pot by 1.2° and it should land on M69. Check in your main eye piece. Ah, time for a cuppa.

Let's do an easy one first – M22, a magnificent glob. As shown in Chart D, it is a mere 2.5° east of λ Sgr. If you place the centre of your f/s on λ Sgr, you should actually see M22 to the east near the edge of the FoV. Move the f/s centre to that and Voilà.

Let's find M8 next, simply because it's so obvious. It shows up nicely in your f/s as an elongated glowing parch, studded with stars. If you follow the line from the top of the 'handle' through λ Sgr and on by 5.5°, you'll land right on M8.

Next, M28, which is even closer to λ Sgr. than M22 and is on the way to M8 from λ . Follow the line from λ towards M8 by 1.5° to see a mag. 6 star, then go back 0.5° and up (north) by the same amount. That should land you right on M28 which, as the table above indicates, is over 1 mag fainter and half the diameter of M22.



M22

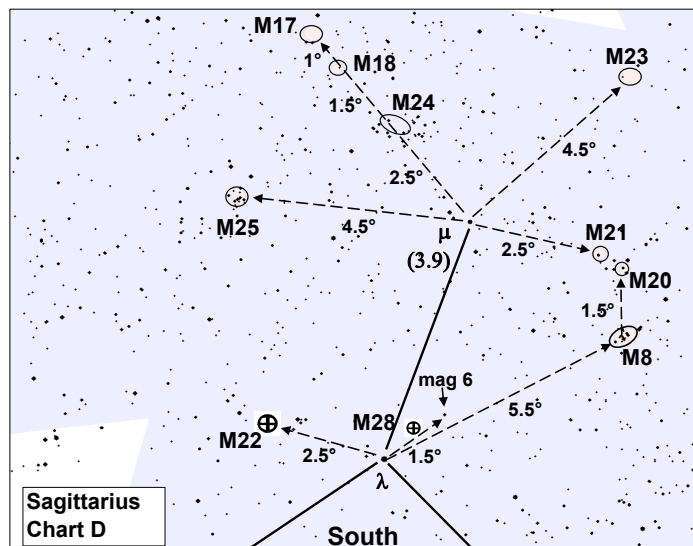
M8

M28



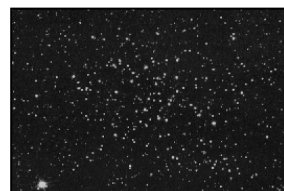
Star Hopping to the Messiers #15 Sagittarius: M8, 17, 18, 20, 21, 22, 23, 24, 25, 28, 54, 55, 69, 70 and 75.

Bob Bee



appearance, is just on the limit of resolution with binoculars so it may barely show up as a hazy patch in your f/s. It is conveniently within the same f/s FoV as μ Sgr, being 4.5° away. If you can judge the angle of the line from μ to M23 with respect to the λ - μ line (about 30°) and move along it 4.5° , you will land very close to M23.

Another little trick, if you are good at imagining triangles, is to know that the 4° long line from M8 to μ and the 4.5° line from μ to M23 form a nice right angle triangle. So put M8 and μ in your f/s, judge the right angle line from μ and get it in your f/s and the end of it will land on M23. (That high school geometry comes in handy, eh?)



M23

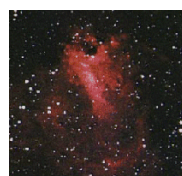


M25

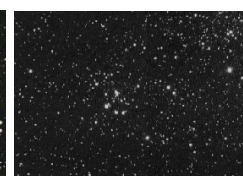
By another one of those happy coincidences, the last three Sagittarius Messiers, M24, M18 and M17 lie in straight line out from μ Sgr, the furthest being a tad over 5° from μ so all three should lie in your f/s FoV with μ .

M24 can be deceptive, it's hard to know where it begins and ends when you are trying to identify it. To quote from Collins Stars and Planets: "M24 is a rich and extensive Milky Way starfield south of M17 and M18, grainy and shimmering in binoculars. Some observers restrict the name M24 to a small cluster of faint stars in its northern half known also as NGC 6603, but this is not what Messier meant. The whole Milky Way star cloud in this region measures $2^\circ \times 1^\circ$ and is one of the most prominent parts of the Milky Way to the naked eye."

To find them, follow a line at an angle approx. 45° east of the l-m line. All three Messiers lie on that line. You'll find M24 2.5° (half a f/s FoV) from μ . Then continue from M24 another 1.5° to M18 (a small loose cluster of 9th mag and fainter stars) and then another 1° to M17, the famous Omega/Horseshoe/Swan nebula. M17 should show up in binoculars as a nebulous wedge-shape so may also be visible in your f/s. Good Hopping!



M17



M18



M24

Now M25. It is nicely visible in binoculars and so should also show up in your f/s. It is, again happily, only 4.5° east of μ Sgr. So if you first get λ and μ both in your f/s FoV, then centre it on μ and move at east at right angles to the λ - μ line by 4.5° (almost a FoV), it the f/s should show you a nice smattering of stars. That's M25.

Now to find M20 and M21, you have two choices. Firstly you can find M8 again and move 'up' (north) by just 1.5° . That will land you on M20, the Trifid Nebula. M21, a spidery cluster smaller than M20, is only 0.5° further 'up' and to the east from M20. So M8, M20 and M21 will all be in your same f/s FoV, but only M8 would be visible in it. You'll have to judge your hopping angular distances fairly well to land on M20 and M21. An alternative (but not necessarily better) way to find M20 and M21 is to



M20



M21

start from μ Sgr, and hop 2.5° west to M21 and another 0.5° to M20.

Now M23, a widely spread open cluster of fairly uniform



Macarthur Astronomical Society: Looking for males for new Channel 7 TV show.

An email to editor@macastro.org.au from Ewa [edob@sstar.com]

(Note: no flyer attached - paragraph 5)

My name is Ewa Dobrowolska, and I am a Producer at the television production company, Endemol Southern Star. We are currently casting for a new TV show called 'Beauty and the Geek', which will soon be airing on Channel 7.

*We are looking for **males between the ages of 18-30**, who are exceptionally gifted or experts in their own specialised field – this can range from mathematicians, scientists, physicists, geologists, musicians, chemists, poets and literary lovers to guys who excel in puzzles, games or computers. The list is endless.*

The premise of the show is to carry out a social experiment for which there is a large cash prize for the winners. We will couple together beautiful, socially savvy women with highly intelligent males, and through a series of challenges, see what they learn from each other. The idea is to embrace and celebrate the talent and individuality of each contestant.

We are holding informal auditions in our North Sydney

office this week and successful applicants would need to be available for filming from 1st September until 7th October.

Please find attached a flyer that offers more information, and can be used to send out if you have a database of contacts.

If you would like to get in touch, my number is (02) 9202 8920, or this email address.

Kind regards and thank you for your time.

Ewa (edob@sstar.com)

(Editor: Anyone interested? Please note the age, sex and intelligence requirements)

Prime Focus Article Submission

Deadline for article submissions for the August edition of Prime Focus is

Monday 14th September 2009

All Articles can be submitted via email editor@macastro.org.au
Or via snail mail to the MAS Postal address

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FOR SUBMISSIONS!!!**