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CASMAG

The official magazine of the Canterbury Astronomical Society

www.cas.org.nz www.facebook.com/CanterburyAstronomicalSociety

Monthly Meeting:

Our Monthly Meeting's held at the University of Canterbury are postponed until we have clearance to use the building due to Covid-19 Restrictions. We will update you as soon as we are able to return.

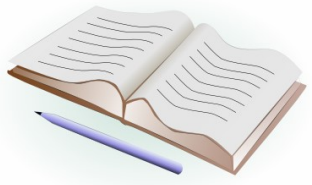
ZOOM ONLINE MEETING: 23RD JUNE 2020 7PM

"GALAXIES" by Euan Mason

Euan is having a online talk using the platform of ZOOM
We will put the link for this on the website in the members only forum and you will just need to click the link a little before 7pm and you will be able to watch and listen.

OBSERVATORY IS OPEN TO OUR MEMBERS:

The restrictions removed by the government earlier this week means we can now use the observatory with-out restrictions,
We completed a through deep clean of the lodge and equipment this week.
BUT WE STILL request you always **SIGN THE BOOK** on the table in the lodge and continue to follow the guidelines outlined on the notice (on table by the lodge door along with some cleaning equipment).
Best practice to follow these guidelines for your own safety.
PLEASE DO NOT come out to the Observatory to use the facilities if you or someone in your home is unwell



Many thanks to all of who have sent me articles and photo's,
If its not included in this months issue IT will be in next months.

Thanks Editor (Dale)

IN THIS MONTHS ISSUE

CAS Calendar, JUNE 2020 – AUGUST 2020

June 2020

Tuesday 9th	Committee meeting
Friday 12th	Public Open Night
Saturday 13th	Last Quarter
Saturday 20th	Members Night at Observatory
Sunday 21st	New Moon
Sunday 28th	First Quarter

July 2020

Saturday 4th	Kidsfest Nights at Observatory Start until 18th
Sunday 5th	Full Moon
Monday 13th	Last quarter
Tuesday 14th	Committee Meeting
Tuesday 21st	New Moon
	Members Meeting (to be confirmed)
Saturday 25th	Members night at Observatory
Tuesday 28th	First Quarter

August 2020

Tuesday 4th	Full Moon
Tuesday 11th	Committee Meeting
Wednesday 12th	Last Quarter
Tuesday 18th	Members meeting
Wednesday 19th	New moon
Saturday 22nd	Mid-Winter Bonfire Members night at Observatory
Wednesday 26th	First Quarter

UPCOMING EVENTS:

2020 Calendar:

PUBLIC OPEN NIGHTS

These will start from 12th June 2020
JUNE: 12,19th,26th
JULY: 24th,31st
AUGUST: 7th, 14th, 21st, 28th
SEPTEMBER: 4th, 11th, 18th, 25th

KIDSFEST 2020

This year it runs from Saturday 4th -Saturday 19th July
Excluding 14th (Committee Meeting Night)

As you can see a very busy winter season for us at CAS and we ask all who are able to help out to advise us by email to:
Rob at president@cas.org.nz or look at the forums
https://cas.org.nz/forums/forum/canterbury-astronomical-society-forums/outreach-and-public-open-nights
Remember as a Paid member of Cas you are able to attend any of our events free of charge, BUT we would love you to help out as you are able to,
Training is always available to you and this works towards accreditation on the equipment

MID-WINTER BONFIRE NIGHT 2020:

Due to the recent covid-19 restrictions the committee decided to cancel this for our June date and has moved it to

SATURDAY 22ND AUGUST

More details in next months casmag.

CAS CALENDAR FOR 2021

A suggestion has been made for CAS to produce a A4 size yearly Calendar, Using some of our members wonderful astronomy photos
The Committee is asking you, our members if you have a photo you would like to be considered to be included, please upload it in the gallery on the website and chose “Calendar 2021 Album”
We look forward to your contributions,
(please also include photo details/ description)
By submitting an image you grant CAS usage rights - individuals retain all copyright over their own images

MONTHLY MEETINGS:

Meeting Venue:

Room ER 225 in the Ernest Rutherford Building, University of Canterbury,
(1 building over from the east building we used last year)
Entrance to the building will be via the north side entrance,
Then using the lift or stairs up to level 2

Carol McAlavey is asking you, our members to make suggestions or offer to give a talk at our monthly meetings.
PLEASE CONTACT CAROL WITH YOUR SUGGESTIONS OR IF YOU CAN GIVE A TALK via **member2@cas.org.nz**

Until we have the okay to use the room at the University, the monthly members meetings are cancelled. Hopefully we will be able to hold our July meeting, Updates will be notified

Upcoming Meetings

23rd June. Euan Mason "Galaxies" online via zoom format
Details will be in members forum on website
21st July. TBA
18th August. TBA
15th September. Members Soap Box
20th October. TBA
17th November. TBA
(correct as at 6th June 2020, Subject to change as required)

Many thanks go to Sharlene Wilson and Orlon Petterson from the School of Physical and
Chemical Sciences, University of Canterbury
for arranging the meeting room for CAS this year
Also Thanks to Associate Professor Karen Pollard for organising the Lecture theatres
for our public talks

AGM REPORTS

The following reports were presented at our AGM back in March, As required in our constitution they are to be published in the Casmag. The Presidents and Treasurer reports were published before the AGM

OBSERVATORY REPORT:

The Observatory precinct has gradually come into shape with some willing workers and work parties.
The trees on the road boundary are mostly cleared now apart from some large logs which will eventually rot.
Trees for Canterbury supplied 87n plants for ground cover on the bank, and southern Woods tree nursery gave a discount for a row of Pittosporums along the fence line.
The are now requires weeding to clear the space before winter, A work bee is planned for the next members night at the observatory.
Scruffy plants have been removed from the fence-line by the steps and from in front of the upper terrace between the 14 inch and Nankivell domes.
The bare retaining wall here has been oiled and stained.
Wiring was done and 230-volt power is now supplied to the Nankivell dome and the fibreglass dome.
These both have 12-volt power supplies for the telescopes and lighting. As part of this job, we now have outside socket mounted on the wall of the 14 inch and by the fibreglass dome. These will be useful for computers, hair dyers etc on the terraces.
The fiberglass dome has been completely set up, A concrete pier was made, and the telescope mounted. This C11 has been polar aligned, Star aligned and training done.
On the social side we have had well attended members nights and working bees. I understand that in my absence, the summer BBQ went down well.
I certainly know the Winter Bonfire was well attended and enjoyed.
Also on the social theme, I have installed paper towel dispensers and waste baskets in each of the toilets.
I wish to acknowledge support from committee and members in achieving these goals. I especially want to thank those who did mowing and gardening (and I guess other hidden chores) during my seven-week absence overseas over Christmas and New year.
Jobs for the future.
The pressing job is now to replace rotting spars in the 14 inch dome. I was away for half the summer, and then had difficulty contacting the people we needed to asses this job. Sean Mullis, James Moffatt and myself have assessed the problem and come up with a plan. It is not a small job.
A whole panel will have to be removed, timber spars fabricated and replaced, the whole reassembled and them fiberglassed for waterproofness. This will take a concerted effort by a small team over 3 or 4 weekends. Now that we finally have this assessment, there is not enough time before open nights start, (if they do at all). We think it best to not do this in a rush, and plan for early next summer.
The committee had decided to go ahead and get quotes to replace the 12 inch with a Celestron fork mounted CPC11. Quotes were obtained before December but Christmas intervened and the paperwork was not done. This process will be repeated in the near future with new quotes.
Terry Richardson.

AGM REPORTS Cont

Editors Report:

This past year for Cas and Casmag has been very busy,
I published 11 editions this past year.
In each issue I try to cover event's, past and in the future, notices and information for our members,
Including Sky Charts, Committee and Observatory news
When published Casmag is then uploaded to our website and our members are notified by email.
The format and content of Casmag is ever evolving with changes made as required.
I continue to send to the other NZ and Australian societies. I also send printed copies to our life members, our members who have requested a printed copy and to the required legal deposit office, and to both Christchurch and The University of Canterbury Libraries.
I have continued in sending new members their 1st copy as a welcome with a note advising future issues will be available online via our website, (where possible)
I thank our members who sent items to be included and look forward to these arriving via email and I really do encourage all members to continue to do this in the future.
As part of the Editors job I also receive other New Zealand and several Australian society's including RASNZ, newsletter's and try to include items of interest in our own casmag
I want to thank Carol McAlavey for her continued support and as required assistance with getting the printed copies out in the post.
The Cas Coffee Mugs and pens with our new logo was another job completed,
As I have done the past 3 years as a committee member, I have attended monthly committee meetings, have been involved with open nights, special talks and the other events as often as it has been possible.
Again, this past year I was pleased to organise for 20 of our members to visit the SOFIA plane.
Hopefully SOFIA is back in Christchurch this year and we will be able to visit them (seems this will depend on NASA funding) as well as include them in our meeting/social events if possible
I do look forward to another year as your editor/ committee member if I am re-elected.
Finally, I would like to thank all the committee and my fellow cas members (My Cas Family) for all the support, they given to me personally this past year,
Dale Kershaw.

Librarian Report:

I apologise for my lack of activity due to my chronic illness.
Jan and myself have almost finished checking stock against the original catalogue which I located online.
We will work with the new librarian to finish this job.
I was contacted by a past Cas member James (Jim) Coxen and picked up a box of books from him for CAS. He has more books which he is keen to donate along with some colour slides.
Thank you.
Colin Fortune

WELCOME TO OUR NEW MEMBERS:

A warm welcome to our new members, We look forward to meeting you at our meetings or events, Please make yourselves known to others.
We like to welcome our new members here after the membership is accepted by the committee at the meeting:
Welcome to:
Kris Dennis
Chris Flanagan & Family
Kevin Stanley

It is always great to see our new members coming along to our Members Meetings, Members Nights and Events.

OBSERVATORY NEWS

ALARM AT THE OBSERVATORY

The installation of our ALARM at the observatory is now fully operational, Ask a committee member for the password.

INTERNET WI-FI:

Ask a committee member for the password

LASER POINTERS:

There is a legal requirement when importing them, and information is on our website and at the observatory,
CAS has a drafted a set of guidelines which we will present at the AGM to be added to our By-Laws,
If you need a letter confirming your membership for your application, please contact either membership secretary or secretary, (This letter will state you are a current financial member of our society)

ACCREDITATION

A reminder that unless you have full accreditation on the equipment you are not to use the equipment unless there is an accredited person with you

From Your Editor

This is your Casmag, for YOU our members,
So I welcome any ideas or articles you would like to share with the other members.
So please email your Article or favourite photo with details for me to include in future issues.
Remember you can have your advert added in the future casmag's,
Contact me for detail's
Please email to editor@cas.org.nz
Dale Kershaw

NOTES FROM YOUR COMMITTEE

SIGNING IN WHEN YOU ARE AT THE OBSERVATORY

Please remember to sign in the book on the table in the Lodge whenever you are out at the observatory, This helps give us an idea of who has been using the equipment etc, even if you are out there to do gardening or the like PLEASE SIGN THE BOOK and add what you have been doing,
Also please note and issues that have happened or that need fixing, and its good to follow that up with a email or phone call to Terry or the committee

CAS COFFEE MUGS & PENS

With our new logo we have had Coffee Mugs printed and also Pens which we have for sale to our members,
Coffee Mugs are $15.00 each
Pens are also available to members
Waterproof Stickers with our new logo are also available
Payment can be cash or bank deposit

They are available from Editor (Dale),
contact via editor @cas.org.nz
or 0272426376
We are still looking at other items like beanies and patches, And will advise when they are available for you to purchase

CAS YOUTUBE CHANNEL

Have a look at our new you tube channel
https://www.youtube.com/channel/ChLhFm7yaLUTIgH3IJvA11g

CAS Membership Subscriptions for 2020-2021

THIS YEARS MEMBERSHIP SUBSCRIPTIONS ARE NOW DUE

Please use your name and member number as a reference when banking, then email membership@cas.org.nz to advise so payments can be matched to you correctly.

PLEASE also include any changes to your contact details (eg: phone, email, address)

IT IS VERY IMPORTANT THESE DETAILS ARE KEPT UP TO DATE

Full details are included on the last page of this newsletter.
You are also welcome to pay by cash or cheque at our monthly meetings. (When we resume them)

INTRODUCING YOUR COMMITTEE

President:	Rob Glassey
Vice-President:	Simon Lewis
Treasurer:	David Brian
Secretary:	David Hill
Observatory Director:	Terry Richardson
Editor:	Dale Kershaw
Membership:	Marc Bunyan
Librarian:	Sasha Crawford
Web Master:	Marc Bunyan
Committee:	Carol McAlavey
	Mak Matthews
	Raewyn Marles
	Kerien Edan

All contact details are included on the 2nd to last page of casmag and on our website

Rob Glassey:

Many of you might know me from the Practical Astronomy talks or from Open Nights, This is my 7th year on committee, Moving this year to President after 4 years as Vice-President
I Have been actively observing the sky since 2004 when I started looking after a family holiday home near Staveley, and I got drawn into actual observing by the dark night skies out there. I use a wide variety if telescopes, of all sizes And I enjoy chasing the many strange and wonderful objects that can be found in the night sky. By day I pretend to be an Electronics Engineer.

Simon Lewis:

I have been interested in space and astronomy since I was young and in more recent years have indulged in a passion for telescopes both visual and radio. My other hobby, amateur radio has allowed me to explore and experiment in satellites, meteor, aurora and moonbounce communications.
My telescope interest led me to buying a 10" LX200 some years ago but I have migrated more to astrophotography these days.
I have built my own roll off roof observatory at home in Greendale.
I love doing outreach and seeing the delight on the kids faces.
My professional role is a Project and It Programme Manager gives me some great skills to use for CAS and I look forward to serving on the Cas Committee and developing CAS for its members.

David Brian:

David has been a member of CAS since 2006 and on the committee for a good many of those years, and has served several times as Treasurer, this year is the 3rd year this time round

INTRODUCING YOUR COMMITTEE cont

David Hill:

True story: growing up in Oamaru, as a child I dreamed of being an astronomer or astronaut.
I had a fascination with space. Of what was out there. But then, the night before my 11th birthday I had a nightmare of sorts My 10yr old brain couldn't comprehend how the universe came into being. I could not imagine the nothingness, so I chickened out- which was ironic, because we had bantams in the back yard.
Now with an adult brain but with a child like imagination- some might call it madness (but I couldn't possibly comment—I've never questioned my sanity) -I am ready to see a beginning is and end of something else, or rather, I am just tagging along with my Daughter, Sasha
I am a journalist by day (and sometime evening & weekends), with North Canterbury News and a little rural newspaper called Central Rural Life.
My other passion is family history, we still have bantams in the back yard and I've taken up walking in recent years, which lead to Sasha and I appearing in two feature films in 2017. The first was "Pecking Order', as we usually pop down to Oamaru to help my parents at the Oamaru Poultry show.
The other film was "Seven Rivers Walking" as I co-founded an initiative called "Walk for the Plant" In 2009 Walk for the Plant involved a pilgrimage from Stewart island to Wellington to raise awareness on climate change, and in 2017 we walked seven Canterbury rivers in seven weeks (hence the film title) to have a conversation on the state of our rivers.

Terry Richardson:

We moved to West Melton in 2000 for two reasons. One was to be away from the city noise and pollution, the other was to see the stars at night.
It was not until near retirement (from medicine and aviation) about 6 years ago I decided to buy a telescope. With trial and error and lots of internet consultation I learned how to set the telescope up and integrate it with the computer for information and control and then started astrophotography.
As with all astrophotography this is a developing interest and skill. I joined the society about 4 years ago to learn more by talking with like minded people. The passion for the night sky has grown to a point were I am now able to use all the telescopes at the observatory,
I built the Graeme Kershaw Sky Camera in 2019 and it is installed at the observatory.
I am also working on a Jupiter radio receiver and this is a work in progress.

Dale Kershaw:

I have been a member of CAS for 7 years and this will be my 4th year on committee, and as Casmag Editor (Last year I also held the secretary role along-side editor). In 2018 CAS hosted the RASNZ conference here in Christchurch and I was proud to be part of the team for the organizing committee for this. In 2019 I assisted with the running of Stardate SI, after this I was asked if I would take the role of Camp Mother for 2020 onwards when Jan resigned from the role.
I have had a keen interest in the night sky for many years and with Graeme's encouragement over the years I have learnt a lot of the technical side of telescopes/ equipment and also learning to use them. On most winter Friday nights you will find me out at the observatory helping with public open nights, I was excited to be accredited on the 12 inch last year, Other things that keep me busy are family, my garden, sewing/hand crafts and Orchids were I also serve on the committee for that society,

INTRODUCING YOUR COMMITTEE cont

Marc Bunyan:

I moved to NZ from the Scottish Borders in 2010 with my NZ partner after buying her a G & T in my local pub, (the rest as they say is history). Living in a rural area I've always had a fascination with the night sky and fondly remember astral events growing up—ranging from a shuttle launch to Hale Bop.
By day I work in the enterprise IT space (keeping your YouTube and Netflix going) and by night I'm often figuring out my next tinkering project, whether its another computer/ drone/camera experiment (some even get finished). I hope I can help CAS grow into the future and look forward to many clear skies ahead.

Sasha Crawford:

I am a first year physics and astronomy student at Canterbury University, so astronomy isn't really a hobby for me anymore. I joined CAS nearly two years ago after a meteor exploded over Sefton and Dad spoke with several astronomers, From those inquires Terry Richardson invited me to attend an open night and I have been member of the society ever since. So far I've enjoyed meeting scientists from around New Zealand, NASA and Hong Kong as well as learning to operate the telescopes and reading books from the Library. When I am not studying I try to keep up with my other interests such as being involved in a theatre group at Ferrymead Heritage Park, and being a member of the Waimakariri Youth Council. I also enjoy reading so I am keen to see what we can do with the Library

Carol McAlavey:

I was lucky to have been nominated a couple of years ago as a Life member of CAS, but I have been a member of CAS since 1986 along with my daughter Huia, and have thoroughly enjoyed my time in this wonderful organisation.
A couple of years after I joined I was voted onto the committee and halfway through my first year the Secretary left and handed me the minute book!!
9 1/2 years later I handed it on to the new Secretary with some pride in what our committee had achieved in that time. I had personally typed and posted out a letter to all the schools in Christchurch letting them know of our facility out at West Melton and offering a chance for classes and teachers to observe the night sky as part of their curriculum, This was before computers were readily available. It took a few years to get underway and now we are in a position where we have to limit the numbers out there for health and safety requirements. We were also involved with bringing astronomy to the public via setting up telescopes in malls whenever there was a partial eclipse or some other phenomenon.
During this time a few of us were also helping the paid observer in the Townsend Observatory at the Arts centre. For a while it was mostly overseas visitor trekking up the stairs with a few locals finding us by accident until we got asked if we would like to be part of the new Kidsfest programme in the July school holidays. It was insane!! So many people turned up that we had to turn them away as there was no way to fit them all up there. During that time we were able to talk to the locals and mentioned our observatory and a year or so later we started open nights on Fridays to cater for them and also started the Kidsfest programme there as well.

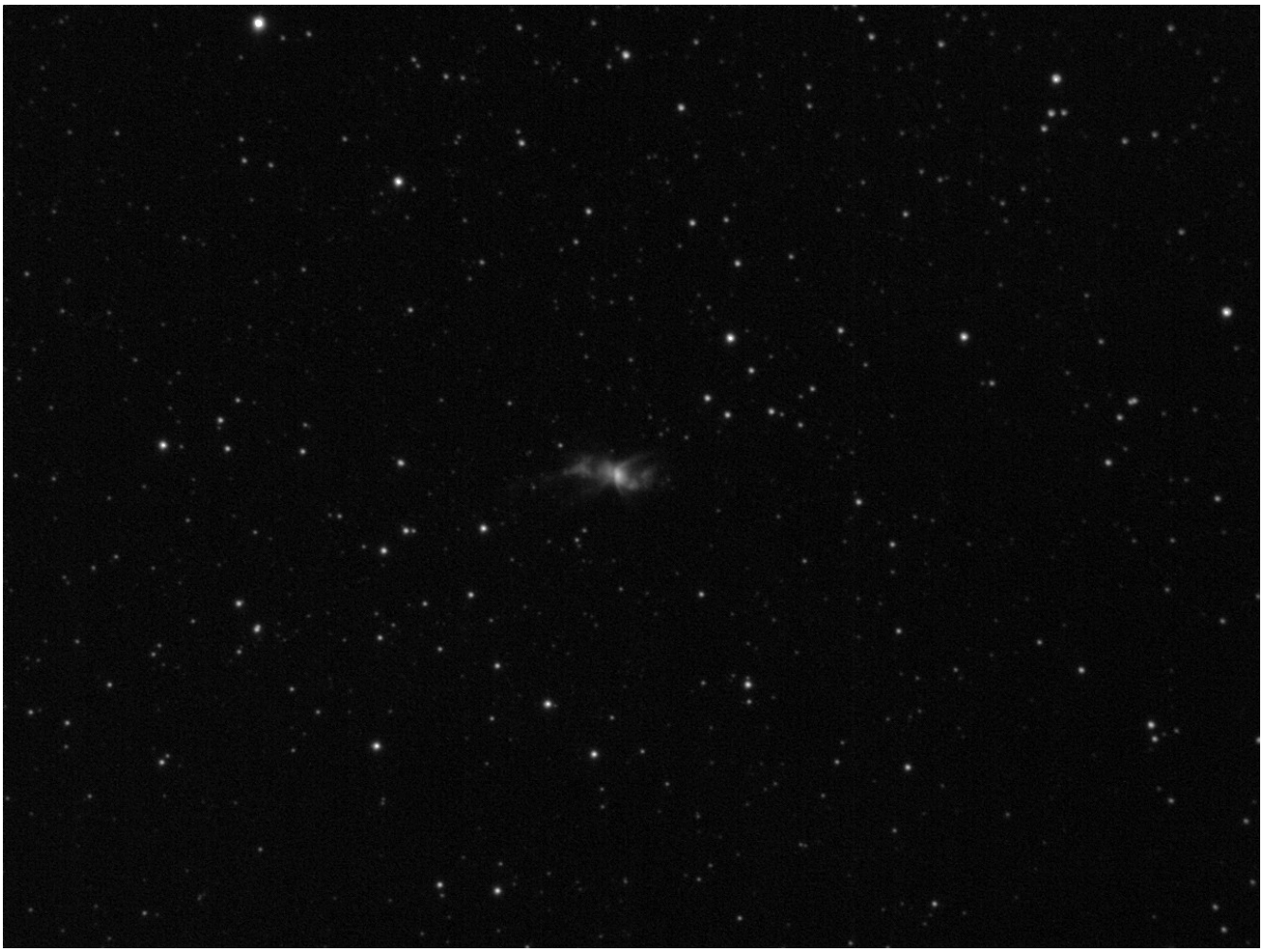
INTRODUCING YOUR COMMITTEE cont

Carol cont:

I have also been involved with a lot of the alterations around the observatory, including the terracing and the steps to the Clive Rowe Memorial dome, and being on the original committee for Stardate SI and helping with Stargazers Getaway in Herbert. I have also been involved with a number of RASNZ conferences held in Christchurch over the years and through all this involvement have meet some absolutely wonderful people.
I am still involved even after all this time as I love astronomy and enjoy learning new things about our amazing night sky

Raewyn Marles:

My husband Ashely, has been going out to the West Melton Observatory since he was a 10/11 year old boy, through school university and beyond. The observatory is so key in his life that we were even married on the grounds of the observatory in Feb 2003,
so by "osmosis" I have come to enjoy astronomy.
I work as a Real Estate Agent and look forward to the times we visit the observatory and the events



Bug Nebula
NGC 6302
By Rob Glassey

HEATHER'S NOTES/JOHN PICKERING'S NOTES

On the night of 28 April, I saw it was a lovely clear sky, now, I was not going to go out due to the fact that I had hurt my back and pulled muscles, --all my own fault..
People who know me know I am into fitness, but, too many repeats on one group of muscles, and, Ouch! Every time I say, "you won't do that again" of course not, till next time.
Anyway, as I was saying, it was a clear night so I thought I will try and see if I can lift my bino and stand,- bit of grunting and ouching, and yes, just outside the front door. I saw the crescent moon waxing and saw the earthlight, and I enjoyed seeing the craters stand out clearly along the Terminator. I enjoyed Orion's M42, the lovely double of alpha Cru,- beautiful open cluster NGC 3532in Carina, the Jewel Box,
using SAV- Slightly Averted Vision, I could make out the 'haze' of stars surrounding it and, the magnificent eta Carina nebula..
I have a love for nature, and to me, astronomy is a part of nature.
My astronomy is pretty basic, just viewing, and enjoying what I am looking at,
I am happy with that and even more happy if I am hunting for something, and I find it, -if I find it twice, I think I am pretty clever,---- occasionally.. From Heather

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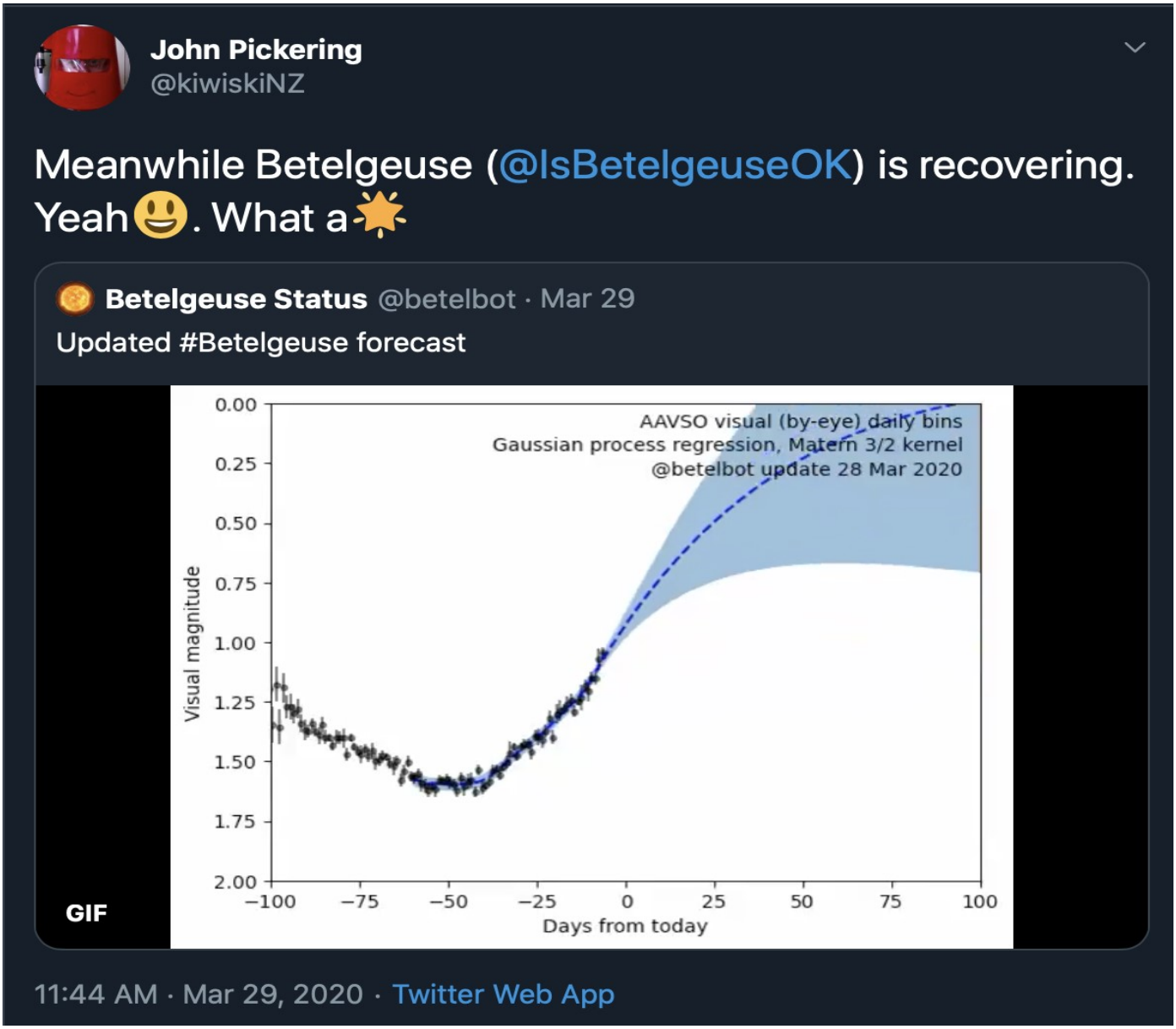
From John Pickering



Images from lockdown: Planetary Nebulae
By Rob Glassey

After what seemed like cloudy skies forever, the curse what finally broken with night after night of clear skies under lockdown, just when we can't get out to dark skies! But I couldn't let clear skies and morning sleep-ins pass me by. But what too look at under light polluted Christchurch skies? My usual imaging targets are galaxies and planets, but the planets are very early in the morning and competed with comet Swan for attention. The Virgo galaxy cluster is coming into view now, a rich group of many, many awesome galaxies, but with the light pollution they were a bit disappointing. So how about some bright targets? Star clusters and planetary nebulae? I normally prefer to observe these visually under dark skies, so I have not imaged many of these, or put much effort into these images. Maybe these would make the ideal lockdown targets? As it happens not only did we get clear nights, we also got a few remarkably still nights, and the planetary nebulae started looking pretty good! Here's a few of the best.

The Ghost of Jupiter, NGC 3242. This is a very bright planetary nebula in Hydra, still high in the sky in May. Showing multiple shells, the image revealed sharp detail within the inner ring, and fainter detail in the outer ring, and a faint bipolar middle shell. The central white dwarf star shines brightly as this dead star cools down. This nebula is so bright that at least some of the shells are visible in an 8" scope from the city.

The Eskimo nebula, NGC2392. Always low in Gemini, and fast disappearing now. This is something like the Ghost of Jupiter, but with even more detail. Being so low in the sky my image is not as sharp, but there still plenty to see! The inner ring is perhaps face shaped, with the outer "hood" and shoulders.

Cleopatra's Eye, NGC1535 in Eridanus, left of Orion and pretty much gone now. Much fainter than The Ghost of Jupiter but quite similar. Still plenty of detail in the inner ring.

The Bug nebula, NGC6302 in the tail of the Scorpion. Just when you thought all planetary nebulae were bullseyes, we see this gem. This is a bright bipolar nebula, still visible in an 8" scope under city lights. It is likely that some ring of material around the star prevented a simple bullseye shaped nebula, creating this masterpiece.

The 8 Burst nebula, NGC3132 in Vela. This one has gone a bit wonky. It's another fairly bright nebula and the odd shape is clearly visible in an 8" scope from the city. With some imagination the central star could be the middle of a figure 8? Some interesting detail here, with the little bump on one end, and the odd shaped outer halo.

The Spiral planetary nebula, NGC5189 in Musca near the Southern cross. This one gets even crazier. Not so bright, but through an 8" scope under dark skies this one could easily be mistaken for a galaxy, a "spiral nebula" as galaxies uses to be called.

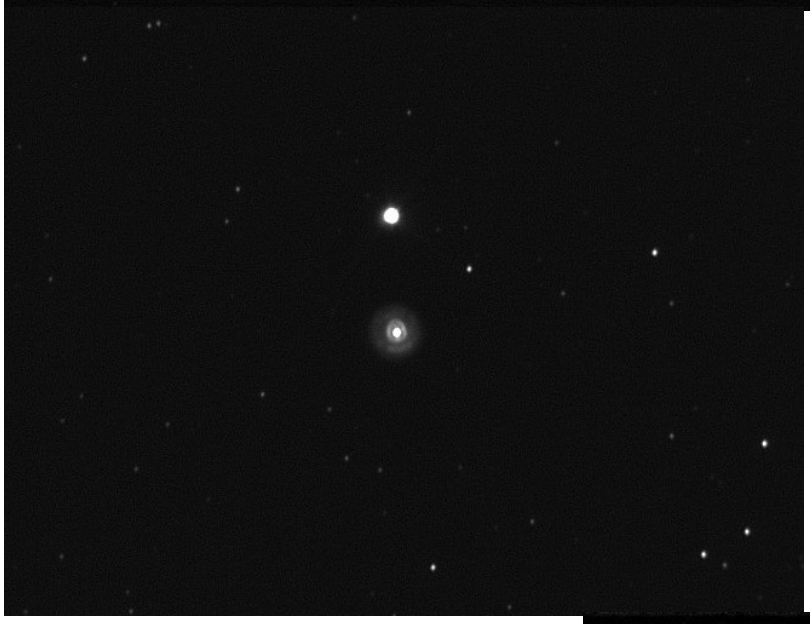
The Lawn Sprinkler nebula, NGC4361 in Crovus. Not so bright, but even more spiral like. Yeah, a lawn sprinkler, why not?

NGC2818 in Pyxis near Vela. I can't find a name for this one. This is another bipolar nebula, something like the Dumbell, M27, but much smaller and dimmer. The interesting thing about this one is the open cluster that it appears with, NGC2818A. It's not a stand-out open cluster either but the combination is magic. Something like the brighter and more famous NGC2438 ring in M46 (which is visible in Puppis at the moment and well worth a look).

(Rob's Photos are on page 12 & 15)

IMAGES FROM ROB GLASSEY

The Ghost of Jupiter
NGC 3242



The Eskimo Nebula
NGC 2392

The Lawn sprinkler Nebula
NGC 4361

SOUTHERN METEOR SHOWER CHART 2020

Shower	Dates		Moon	Peak Rate	RA	Dec	Near Star
	Active	Peak	2020				
Centaurids	Jan 28 - Feb 21	Feb 8	1 day before Full moon	5 (-25)	14.1	-59	β Cen
gamma-Normids	Feb 25 - Mar 22	Mar 13	3 days after Full moon	8	16.6	-51	γ Nor
pi-Puppids	Apr 15 - Apr 28	Apr 23	New moon	var to 40	7.3	-45	σ Pup
eta-Aquariads	Apr 19 - May 28	May 5	2 days before Full moon	60	22.5	-1	η Aqr
Pisces Austrinids	Jul 15 - Aug 10	Jul 27	1 day before First quarter	5	22.7	-30	α PsA
alpha-Capricornids	Jul 3 - Aug 15	Jul 30	2 days after First quarter	4	20.5	-10	α Cap
Southern delta-Aquarids	Jul 15 - Aug 25	Jul 27	1 day before First quarter	20	22.6	-16	δ Aqr
Southern iota-Aquarids	Jul 25 - Aug 15	Aug 4	Full moon	2	22.3	-15	ι Aqr
Northern delta-Aquarids	Jul 15 - Aug 25	Aug 13	1 day after Last quarter	4	22.3	-5	θ Aqr
Northern iota-Aquarids	Aug 11 - Aug 31	Aug 19	New moon	3	21.8	-6	β Aqr
Piscids	Sep 1 - Sep 30	Sep 19	2 days after New moon	3	0.3	-1	λ Psc
Orionids	Oct 2 - Nov 7	Oct 21	3 days before First quarter	20	6.3	+16	γ Gem
Leonids	Nov 14 - Nov 21	Nov 17	2 days after New moon	100+	10.2	+22	γ Leo
alpha-Monocerotids	Nov 15 - Nov 25	Nov 22	First quarter	var to 5	7.9	+1	δ Mon
Pheonicids	Nov 28 - Dec 9	Dec 6	2 days before Last quarter	var	1.2	+53	Achernar
Geminids	Dec 7 - Dec 14	Dec 14	1 day before New moon	120	7.3	+33	Castor

Chart from RASNZ Website

2020 Conference and RASNZ Centenary

NEW DATES SET FOR 2020 CONFERENCE

RASNZ 100

The 2020 Conference will be held 23rd-25th October at Wellington with the Wharewaka Function Centre the venue (near the Michael Fowler Centre) in downtown Wellington. The Wellington Astronomical Society is hosting this conference.

2020 marks a significant milestone in the life of the Society as it was founded in November 1920 with 75 members.

The SCC invites ideas from members how the Society might commemorate its centenary at next year's conference.

Please send your suggestions to the SCC at conference@rasnz.org.nz.

Conference registrations and more information at www.rasnz.org.nz

LOCKDOWN NOTES By David Hill

Canterbury's observatories might be in lockdown, but there is plenty for budding scientists and the superstitious to discover.
While the Oxford Area School Observatory is in lockdown, volunteer and Canterbury Astronomical Society member Erik Vermaat has been keeping in touch his night class students via his “Corona Blog” and on Facebook.
He says a lockdown can be the ideal time to make new discoveries.
“Newton developed theories of calculus and gravity while at home. What are you doing?,” Erik says.
As Erik points out, during the 1666 Great Plague, a 22-year-old Cambridge University student named Isaac Newton came up with new theories for calculus, optics and the law of gravitation, while in self-isolation after returning home to the family farm.
The superstitious will realise comets have a knack of making an appearance in the night sky in a crisis and Covid-19 doesn't disappoint, as Oxford Observatory volunteer and CAS member James Moffat points out.
“Atlas C/2019 Y4 could almost be mistaken for the latest doomsday comet arriving around the same time Covid-19 made its first appearance in China.”
Comets have historically been “harbingers of death”, with Halley's Comet making one of its flybys in 1665, on the eve of the Great Plague which claimed 100,000 lives in London.
“This comet (Atlas) is fast living up to that reputation appearing in brightness as rapidly as the Covid-19 virus itself spreads.”
The Greek demi-god Atlas was perceived as carrying the weight of the world on his shoulders, “but in fact it was the celestial sphere not the terrestrial globe”, James says.
“That is a weight humankind now bears upon his own shoulders in containing Covid-19.”
Unfortunately for New Zealand stargazers, the comet Atlas is more visible in the Northern Hemisphere night sky, but you can find about it by going to https://www.space.com/comet-atlas-may-be-brightenting.html.
There are several other moments throughout history when comets have appeared to coincide with disasters or crises:
In 44BCE, following the assassination of Roman leader Julius Caesar, a funeral festival was held in his honour. During the festival a comet appeared in the sky and remained visible for seven days, prompting Romans to believe it was none other than the soul of Julius Caesar himself, as he left to become a god in the sky.
The in 536CE, one comet which may have actually brought disaster was Halley's Comet, following its visit in 530. Scholars in 536 wrote that the Earth got extremely cold and the sun got smaller in the sky, causing crops to fail over the next few years, leading to starvation and ultimately the Great Plague of 542-43.
It is known that Halley's Comet throws off material as it speeds up as it gets closer to the sun. One theory is that the comet left large fragments behind in 530 and over the next years, the fragments crossed Earth's orbit and crashed into the planet like a nuclear bomb, unleashing dust, fragments and gasses into the atmosphere and partially blocking out the sun.
A comet appeared brightly in the sky in April 1066, six months before the Battle of Hastings, so the Normans believed it was a good omen as they went on to conquer England. Little did they realise it was in fact Halley's Comet in one of its periodic flybys of Earth.
In the 1500sCE a large “green” comet appeared in the sky, prompting South Americans in the Inca Empire to fear another people would come and conquer them. Sure enough the Spaniards did just that.
A bright comet appeared in the night sky in 1680, creating plenty of interest among scientists of the day. Isaac Newton used it to prove his gravitation theories, while Edmund Halley used it to predict the orbits of a dozen comets. One mathematician, William Whiston, even tried to link it to causing the great flood in the Bible.

Cont on next page

LOCKDOWN NOTES By David Hill cont

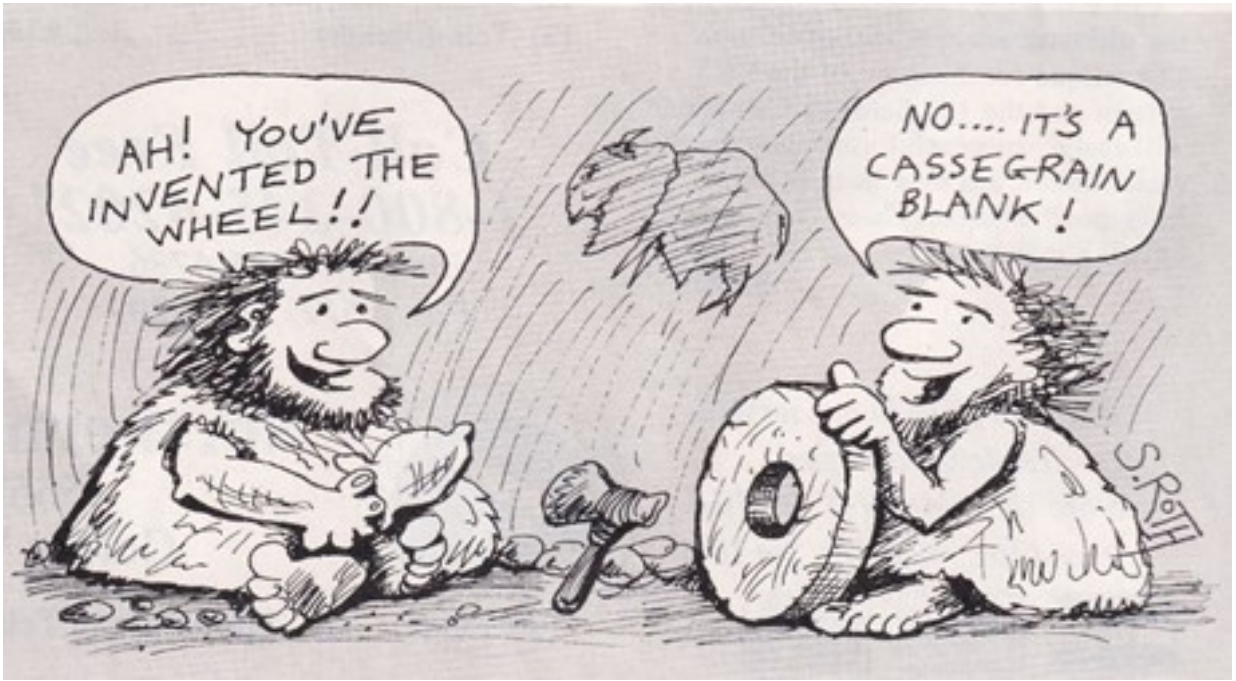
A comet first discovered in March 1811, made its closest approach on October 20, 1811, prompting paranoid Americans to fear disaster was imminent. Sure enough a major earthquake struck on December 16, 1811, in midwest and southern United States. The quake struck with such force, the Mississippi River temporarily flowed backwards.
The comet also turned out to be a bad omen for French emperor Napoleon, as he later suffered defeat to the Russians. But some European vineyard owners hailed it as a good omen after scoring a bumper grape harvest.
Theories have been put forward to suggest the Great Chicago Fire of October 1871 was caused by gases falling from a comet doing a flyby of the Earth. It is also believed to have caused fires at Lake Michigan and in Wisconsin.
For more about close encounters with comets, go to: https://listverse.com/2019/08/18/10-disastrous-earthly-events-linked-to-comets/

On Erik Vermaat's "Corona Blog" you can discover just how fast the speed of light is, all the observable parts of the electro-magnetic spectrum (which Ernest Rutherford helped to discover) and exoplanets.
Find the link to Erik's night class resources on the Oxford Observatory page on Facebook or go to http://www.ngawhetu.com/

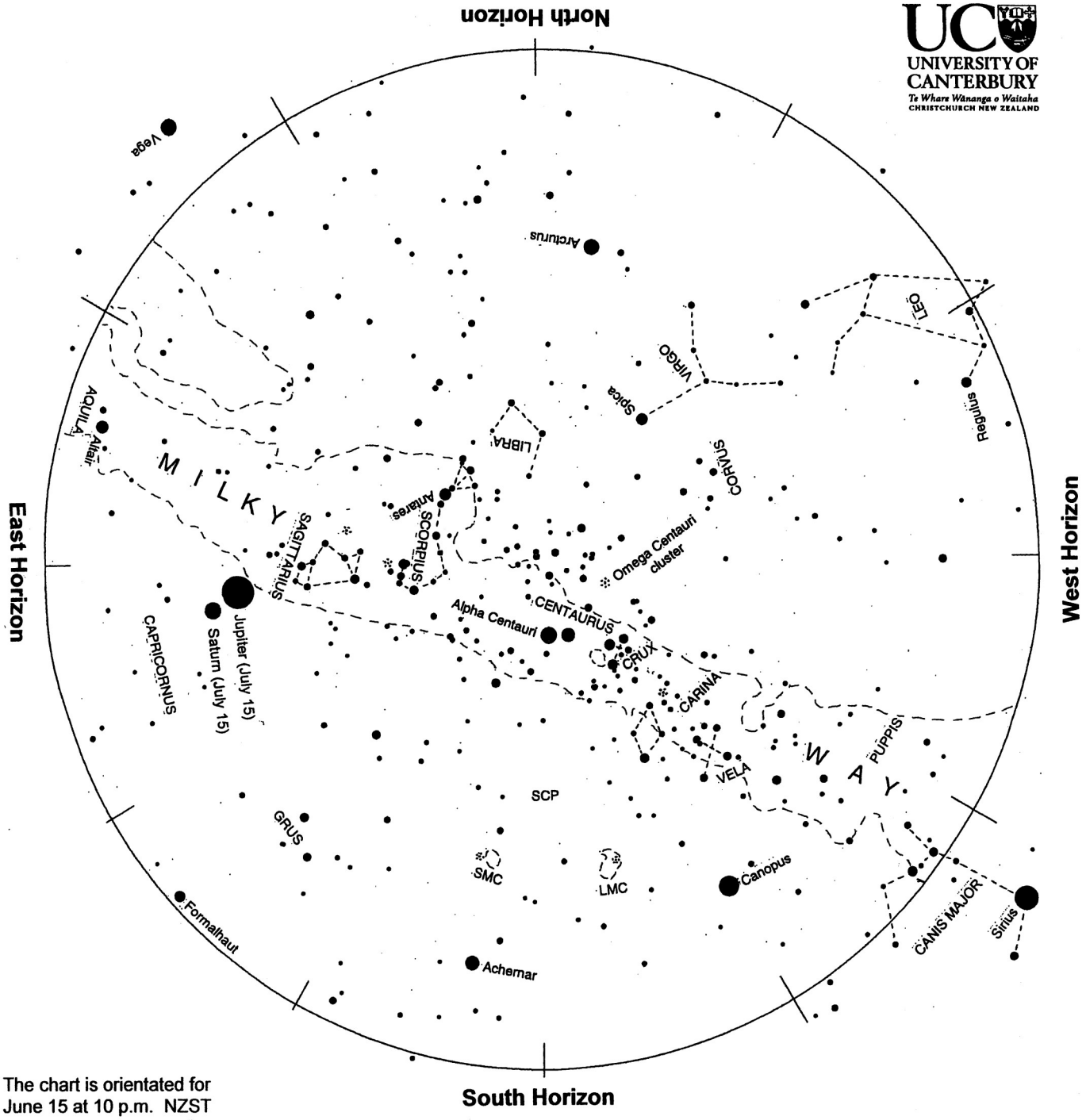
Erik's resources could make good home-school material, or for more space or science lessons – or just general interest go to:
Hayden Planetarium space videos :
https://www.youtube.com/playlist?list=PLrfcruGtplwELiuyIEVxHBpgW_0WxZI6G

Smithsonian Museum, USA, virtual tour:
https://naturalhistory.si.edu/visit/virtual-tour

Nasa space resources:
https://www.nasa.gov/specials/nasaathome/index.html



Thanks to Phil Burt in Invercargill for this



The chart is orientated for
June 15 at 10 p.m. NZST
July 1 at 9 p.m. "
July 15 at 8 p.m. "
Aug. 1 at 7 p.m. "

Evening sky in July 2020

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole (SCP on the chart). Stars rise in the east and set in the west, just like the sun. The sky makes a small extra clockwise rotation each night as we orbit the sun.

Golden Jupiter is the 'evening star', appearing low in the southeast at dusk. It is north of overhead by midnight. Saturn is just below and right of Jupiter. Low in the north is orange Arcturus, twinkling red and green when near setting. The Pointers and Crux, the Southern Cross, are south of the zenith. Sirius, the brightest true star (but fainter than Jupiter), sets in the southwestern twilight, sparkling colourfully. Canopus, the second brightest star, is low in the southwest. It swings down to the southern horizon later. Vega rises in the northeast around 9 p.m.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

The Evening Sky in July 2020

Golden **Jupiter** is the 'evening star'. It appears low in the southeast at dusk. By mid-evening it is halfway up the eastern sky. It is north of overhead around midnight and near setting in the southwest at dawn.
Just below Jupiter in the evening is **Saturn**, looking like a medium-bright cream-coloured star.
It follows Jupiter across the sky, being above and left of Jupiter in the southwest at dawn.

Jupiter and **Saturn** are always worth a look in any telescope. Jupiter's four 'Galilean' moons can be seen lined up on each side of the planet. Sometimes one or two may be missing as they pass in front of or behind Jupiter or are hidden in Jupiter's shadow. Jupiter is 11 times wider than Earth but spins much faster. It does one rotation in 10 hours. That stretches it out at the equator so Jupiter appears oval in a telescope. Parallel light and dark stripes across Jupiter mark cold and warm zones in its clouds. The dark clouds are 'warm' (-130 C), where gas is welling up from Jupiter's interior, and the white clouds are where the colder gas is sinking back down.

A small telescope shows Saturn's ring system and biggest moon, Titan, looking like a star about four ring-diameters from the planet. Big telescopes show fainter moons closer in.

Jupiter is 620 million km away mid-month; Saturn is 1350 million km away. Both planets are at their closest for this year. The full Moon will be above Jupiter on the 5th and beside Saturn on the 6th.

Sirius, the brightest true star, sets in the southwest as twilight ends, twinkling like a diamond. **Canopus**, the second brightest star, is also in the southwest at dusk. It swings south later. South of the zenith are 'The Pointers', Beta and **Alpha Centauri**. They point to **Crux** the Southern Cross on their right. Midway down the north sky is orange **Arcturus**, similar in brightness to Saturn. **Vega** rises in the northeast around 9 pm. It is on the opposite side of the sky to Canopus: low in the north when Canopus is low in the south.

Orange **Mars** rises due east around midnight (so is not shown on the chart). It is now brighter than Saturn and will get brighter still as we catch up on it. It is small in a telescope but the frost cap around its south pole might be seen as a white spot. It is 110 million km away mid-month. Mars will appear twice as big, and much brighter, when we pass it October. The Moon will be above Mars on the night of the 11th-12th.

.**Alpha Centauri** is the third brightest star. It is also the closest of the naked eye stars, 4.3 light years* away.
Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light years away. **Canopus** swings down to the southern skyline before midnight then moves into the southeast sky in the morning hours. It is a 'circumpolar star': it never sets. Crux and the Pointers are also circumpolar. Canopus is a truly bright star: 13 000 times the sun's brightness and 300 light years away.

Arcturus, in the north, is the fourth brightest star and the brightest in the northern hemisphere sky. It is 120 times the sun's brightness and 37 light years away. It twinkles red and green when setting in the northwest around midnight.
It is an orange colour because it is cooler than the sun; around 4000°C.

The **Milky Way** is brightest and broadest in the east toward **Scorpius** and **Sagittarius**. In a dark sky it can be traced up past the Pointers and Crux, fading toward Sirius. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The thick hub of the galaxy, 30 000 light years away, is in Sagittarius. The actual centre is hidden by dust clouds in space. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds.

Venus the brilliant 'morning star'. It rises in the northeast around 5:30 at the beginning of the month and before 5 a.m. at the end. In a telescope Venus appears as a tall thin crescent. It is 73 million km away mid-month.
At the beginning of July the **Matariki/Pleiades** star cluster can be found left of Venus. Venus gradually slips below the cluster. The thin crescent Moon will be left of Venus on the morning of the 17th with Matariki further left again on the same line.

*A **light year** (**l.y**.) is the distance that light travels in one year: nearly 10 million million km or 10^{13} km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz 200604

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Web: www.cas.org.nz

Canterbury Astronomical Society Facebook Group:
www.facebook.com/groups/CanterburyAstronomicalSociety

West Melton Observatory: 43° 29' 55.5" S, 172° 20' 59.0" E 218 Bells Road, West Melton

CAS Members Meetings:
The CAS monthly members meetings are currently held from 7.30pm onwards every third Tuesday of the month (except December and January) at the University of Canterbury, Venue for 2020 is still to be confirmed
Any member of the public who is considering in joining the society are most welcome to attend the meetings.

CAS on Facebook:
Cas has a Facebook presence, Useful to keep up to date with events, interesting articles, asking for advice,
For members please use the website forums for more detailed information etc

CAS Membership:
Subscriptions are due 1st April each year
Fees for current members shown on the membership form included on the back page of your Casmag,
Full details are included on our website.

Contributions to CASMAG:
Member contributions to CASMAG are always most welcome (letters, observing notes, articles, news)
Please submit articles by email to editor@cas.org.nz
The deadline for each issue is the 1st of each month
Small personal advertisements are free to financial members, (less than 8 lines in a column)
Charges for larger items range from $5 to $40, email the editor for more details.

The Constitution of The Canterbury Astronomical Society Inc:
This is available on request, Please ask for a copy if required

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CAS has taken all reasonable measures to ensure that the material contained herein is correct, but gives no warranty for, and accepts no responsibility for its accuracy or completeness.
Readers are advised not to rely solely on this information, and should seek independent advice before making any decision, CAS reserves the right to make changes at any time, as deemed necessary.

Canterbury Astronomical Society Inc

APPLICATION FOR MEMBERSHIP

To: Membership Secretary
Canterbury Astronomical Society Inc.
P.O.Box 25-137
City East
Christchurch 8141

Applicants Name in Full_____

Address: (Note a P.O.Box is NOT a legal address)_____

_____

Home Phone:_____ Cell Phone:_____

Email: _____ Date of Birth: (if under 18)_____

Membership Category *(tick, subscripton must accompany application)*

Online Banking Details (Please identify your payment): 03 0802 0098273 00

☐	Adult (any person 18years of age or over who is not eligile for any other category)	$70
☐	Family (two or more persons living at the same address)	$105
☐	Junior (under 18 years of age on 1st April in the current year)	$35
☐	Senior (over 65 Years)	$35
☐	Community Services Card Holder	$35
☐	Student (any person studying full-time at a tertiary institution, must reapply annually)	$35
☐	Corporate (members have voting rights of one member, but cannot take office)	$210

Name:	Date of Birth(if Under 18yrs)	Signature

All CAS members receive CASMAG a monthly newsletter, Would you prefer to receive this (please tick)

☐ by email as a PDF attatchment ? ☐ or by post as a hard copy?

Do you have access to a telescope? What type and size? _____

I the undersigned declare that the information given herein is true.

Signature: _____ Date: _____

By signing this application the applicant agrees to comply with the Constitution and By-Laws of the Canterbury Astronomical Society Inc.

Date Approved:_____