have spent more than R3000 on the telescope itself and most of that was taken up by the mirrors and eyepieces. Regarding astrophotography experience, my first roll of film was a disaster but my second roll did contain some good images. At the moment I can expect at least three or four really acceptable images off a 36 frame roll of film.

During the coming year I will be sharing some of my limited experience regarding astrophotography with those who are interested. Perhaps others who have also tried their hands in this field might also contribute articles.

ED

Will none assist me in this task,
That is the question which I ask,
Are contributions really rare,
Or do they simply just not care,
Without their help there is no hope,
Alone I really cannot cope,
Unless the letters start to fly,
I must watch Urania die.

EDITORS THREAT

If contributions are not forthcoming I will treat you to more of this type of prose.

Please prevent that!

August 1990

Urania

Astronomical Society of Southern Africa
Pretoria Centre

WHATS UP DOC?

Last month we took a look at certain objects in the vicinity of the Southern Cross. So far I have had no feedback but I hope that this does not mean that nobody has looked at any of the objects. PLEEZE let me know what you see. If you dont want to write just give me a call.
This month I will give some details on objects in the Scorpio/ Sagittarius region. For those of you who dont know, the center of our Milky Way galaxy lies in the direction of Sagittarius. We are therefore looking at the greatest concentration of stars and other galactic objects when we look in this region. In fact there are many "ordinary" areas in this region that are more impressive than many clusters found in other regions. A wide field telescope just scanning the star fields gives great satisfaction. Then we get to some of the more interesting objects and.... Well I'll leave you to comment on the region after you've had a look.
Try M6 and M7 first. These are two very bright and relatively large open clusters. Both contain bright stars and are therefore good objects for small telescopes. M6 is the dimmer of the two at magnitude 5.3 and gives a very good impression of a butterfly. Can you make out the shape of the "Butterfly cluster"?
Sagittarius contains three bright nebula, the Lagoon, Triffid and Omega. Remember to dark adapt thoroughly before trying any object other than a bright open cluster. The inside of my dome is painted black and cuts off all outside lighting. When I am properly dark adapted a clear trans- parent night sky appears very bright. Only when this level of dark adaption is reached can you really appreciate the beauty of nebulae or hope to see galaxies. Rules for dark adaption are therefore -
(a) Avoid all lights;
(b) Find as dark an area as possible;
(c) Wait at least twenty minutes to adapt to the dark;
(d) If you must use a torch, make it as dim as possible and paint the bulb red. (Your eye is less sensitive to this region of the spectrum and is not as easily desensitized.)

The Lagoon and the Triffid can be seen well on clear nights in my 8 inch. Light pollution may well make them invisible in small

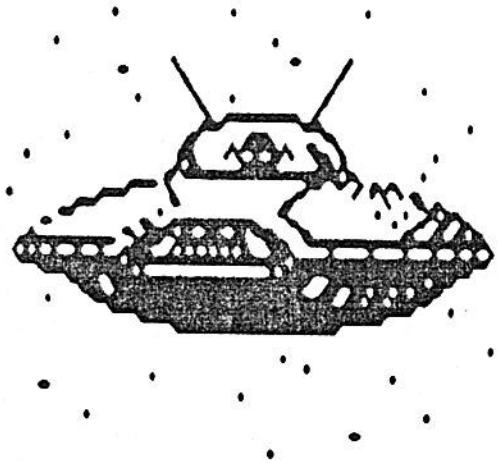
instruments although they are amongst the brightest nebulae. From a dark region the rifts in the Triffid and in the Lagoon can according to the computer program ACECAT easily be seen with a 60mm. These objects are one and a half degrees apart and could therefore be seen together in a very wide field eyepiece on a small telescope. In larger telescopes and preferably with a light pollution filter or from a dark site, these nebula show significant detail. The open cluster NGC6530 in the Lagoon is an added attraction.

The Omega Nebula is also known as the Swan nebula and in my opinion the latter name is much more appropriate. Even a small telescope should show the form of the swans head and neck with a slightly elongated body. Through the eight inch this is a very obvious nebula. The region between this and the Triffid/Lagoon area is well worth sweeping with a low power eyepiece since it contains amongst other interesting objects the Small Sagittarius star cloud.

Competitions

Well, nobody asked for any competitions but I thought they might be fun. No prizes though unless we can persuade our treasurer.

Firstly there is quite an interesting region in Scorpio. See the regions marked X on the chart. The person who gives me the best description of what he sees in this region will be the winner. The best description of the region will appear in a future edition of Urania. Note: You will already have won something merely by examining this region.



Secondly I remember reading in a Sky and Telescope that the fairer sex are sometimes offended by the acronym for the spectral types of stars:
Oh Be A Fine Girl Kiss Me Right Now Smack.
The particular article asked for alternative suggestions and after some hours of thought all I could come up with is -
Only Bold And Fine Gentle Knights May Rout Nasty Saurians.

Perhaps one of you has a somewhat more elegant version. Suggestions to be given at the next monthly meeting and/or at the practical session, please.

ED

Some thoughts on astrophotography

Many people are put off astrophotography by the many pitfalls and problems which are so often stressed in magazines. The very technical approach of such articles also contributes to the view that you need thousands of rands worth of equipment and 100 years of experience before you can even start. This is not so.

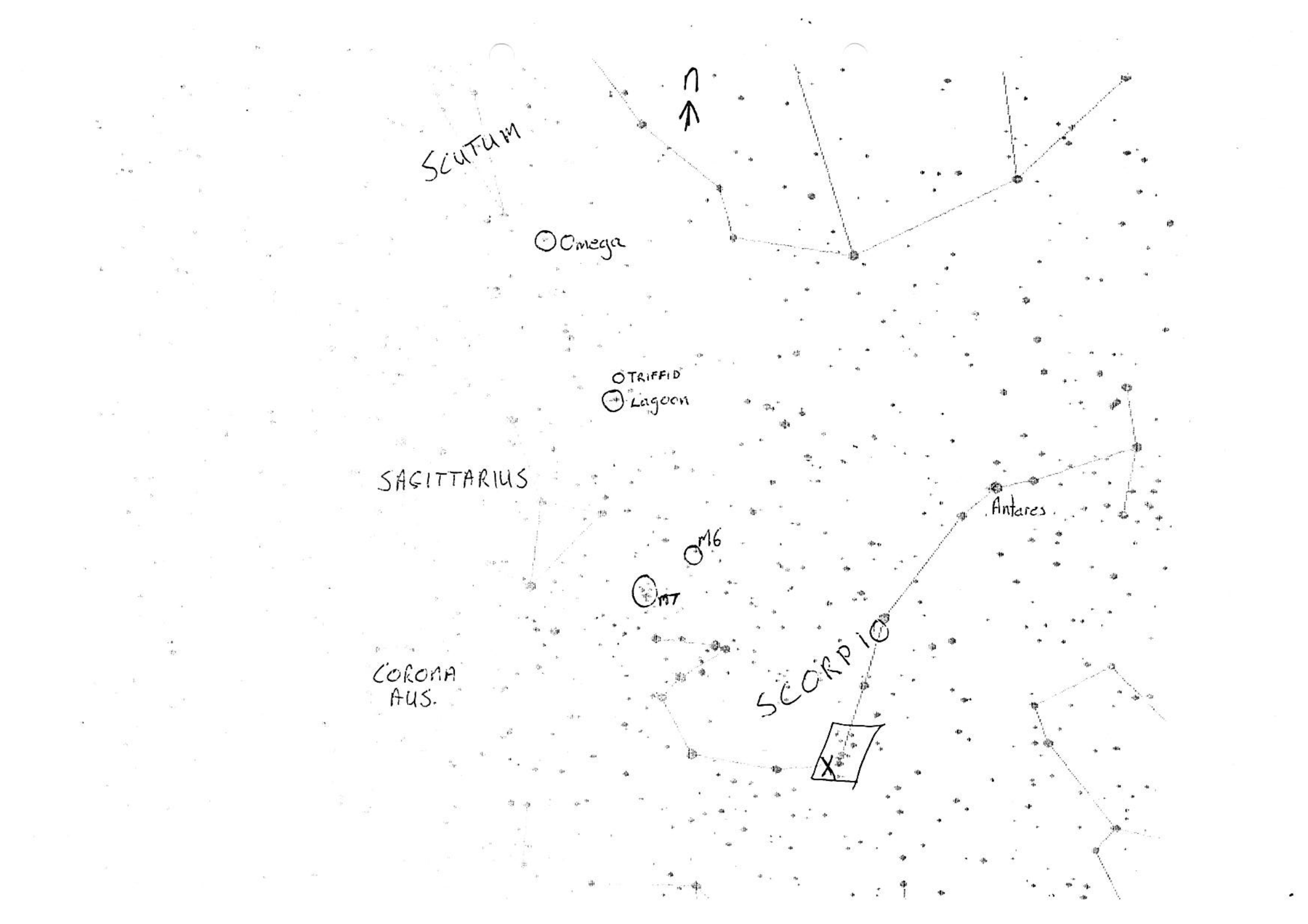
Those of you who saw my slides during the June meeting may be surprised to hear that they were taken through a home built newtonian on a home built german equatorial mount with a home built tangent arm drive. Even the camera was a home modified 35mm. You might think that I have a complete workshop but my most sophisticated tool is a normal hand drill. For some of the work I did use sanding and grinding equipment which I borrowed from someone. Conclusion, you do not need thousands of rands worth of equipment.

The basics of astrophotography at the prime focus of a fairly large telescope depend on three main factors.
(1) Good solid equipment. My telescope and mount are heavy and are permanently fixed into a large concrete block.
(2) Good polar alignment. It took me almost a month of adjustment before I achieved an alignment within about 5 arc minutes of the southern pole. This is good enough to allow only a small drift over a twenty minute exposure. I do however intend to improve on this.
(3) Accurate controllable motor drive. The electronics which control my stepper motor drive are also home built but keep an object pretty well centered in the eyepiece for more than an hour. The mechanical parts are also home built and give me a periodic error of 15 seconds of arc over a timespan of about one minute. This is not good enough for astrophotography with my telescope but my system allows me to adjust both the RA and Dec axes via a hand paddle and I can therefore guide the telescope to keep it accurately centered on the object being photographed.

Any camera can take a picture but if you want to be fussy you could say that no normal commercial camera is ideally suited to astrophotography. The camera I use is a rebuilt 35mm which I picked up very cheaply since it was broken beyond repair. In essence it is a film holder with a manually controlled shutter. This is really all you need.

The accuracy of your polar alignment and motor drive become more critical the longer the focal length of your system. A normal 35mm camera with a 50mm lens is quite forgiving in this regard. The greater focal length of a telescope magnifies the image much more and therefore also magnifies any errors in alignment or drive.

Although what I have said above might give the impression that I am being as technical and negative as some of the astrophotography articles in magazines, I must stress that I have achieved a reasonable standard without spending large amounts of money and without having years of experience. As far as money is concerned I cannot


SCUTUM
Omega
TRIFFID
Lagoon
SAGITTARIUS
M16
M17
Antares
SCORPIO
CORONA
AUS.