THE SHORELINE OBSERVER

Newsletter for the
Shoreline Amateur Astronomical Association

President- Peter Burkey **Vice President**- Steve Tuls **Secretary/Treasurer**- Rob Tuls

Robert Wade, Editor *April 1991*

April Meeting

The April meeting of the Shoreline Amateur Astronomical Association will be held on April 18th, beginning promptly at 7:00 PM in the West Ottawa Middle School Planetarium in Holland, Michigan. Refreshments will be provided. The agenda will be as follows:

7:00-7:15	Refreshments and Socializing.
7:15-7:30	The April Night Sky.
7:30-8:30	General Business Meeting: Astronomy Day 1991.

Board Meeting

Peter, Rob, Steve, Arlin, and Sandy spent the majority of this meeting laying the final plans for Astronomy Day at Westshore Mall, Saturday, April 20. Final arrangements have been made for several activities including a poster contest, telescope display, and scale models of the solar system and Big Dipper. We also hope to have a public viewing through the 22" Dobsonian "Big Boy" after the mall closes that night.

The board members have spend a great deal of time putting these ideas into place and are now requesting the help of our members or interested friends. Namely, we need people to help set up the displays after the mall closes on Friday, April 19, and to be present for a block of time on Saturday, April 20. We do not want to leave the telescopes on display unattended, and we would like members to help answer questions that people may have. This will also be a perfect opportunity to attract some new members. So, we are asking everyone to please come to the April meeting to help coordinate plans for Saturday's activities and to volunteer an hour or two at the mall on Astronomy Day. If possible, bring an interested friend as we can use all the help we can get.

The activities for Astronomy Day have been well planned and thought out, and I'm confident they will give us a great boost in making the public aware of our existence. Plus, they'll be interesting, informative, and fun. With all of us working

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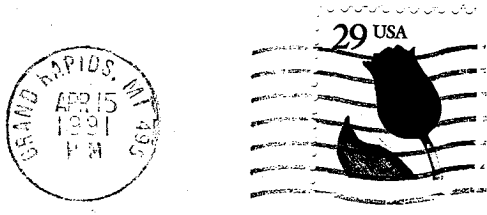

together, we will make Astronomy Day 1991 a big success in West Michigan. See you on the 18th.

Respectfully submitted by Peter Burkey.

[*Editors Note: the next couple of articles were taken off the Astronomical League Computer Bulletin Board. Enjoy...*]

In Defense of Power

When I first got into observational astronomy, I was fortunate to have access to plenty of good advice from more advanced amateurs, and from many excellent publications. One piece of advice which was drilled into me from the start was to stick with low powers on a telescope. This is a pretty good rule of thumb - especially for a beginner, and I'm certain that heeding this advice kept me from a lot of frustration in my early days. The only problem with following the low-power rule is that it led to a brain-washing of sorts. Like many observers, I associated high powers with dark, shaky, terribly fuzzy images which are impossible to track. A quick glimpse at a deep sky object at X222 from time to time would convince me that sure enough, my short focal length oculars were good for nothing but a little planetary or double star work.

Only slowly have I found my attitude in this area changing, 'till today when I can stand proudly in defense of the use of high power - even for deep sky observing. A number of factors contribute to my appreciation for power, and I'll try to present them here for others' consideration.

The key to successful use of higher powers lies in your own observing skill. An observer accustomed to only quick glimpses of objects will never find good detail at high power (and not much at low power either). However, amateurs with more polished habits ought to be acquainted with some important disciplines of observing which help to bring out extra detail at any power, but more so at high powers. Skilled use of dark adaptation, averted vision, tube movement, use of filters, knowledge of seeing conditions, proper polar alignment, and above all, patient, lengthy observation of every object all lead to better success. It is quite true that a X200 image will never be as sharp and bright as the same object at X80, but with a skilled eye, you'll be able to find exciting detail hiding in the more difficult X200 image which simply is not to be had at X80. Higher power yields better contrast and a darker background sky, so you'll be able to see those dark lanes and spiral arms which were washed out in the smaller low-power image with less contrast. Also, the larger image will allow such detail as bright knots, which may look like faint stars at low power, to be more easily identified.

The study of telescopic images is a black art, with emphasis on all kinds of things we never worry about. Optimum exit pupil sizes, actual and apparent fields of view, image surface brightnesses and many other esoterics all influence what you'll get from a given eyepiece in your telescope under different conditions. Since almost none of us can (or wants to) work out these specifics for an observation, I'll offer a neat solution. Instead of advocating the use of higher powers more of the time, what I really recommend is the use of a range of powers for every observation. Yes - I believe that you'll find lots of juicy extra detail at high powers, but even more useful is the contrasting blend of information you can obtain by comparing a set of observations for an object made at a variety of powers. Low power images offer the best impression of the overall field, and larger-scale structures, while higher magnifications can bring out finer details on a smaller scale. You probably use a variety of powers already, but perhaps like me, you've been taught to shy away from using that 9mm Orthoscopic for deep sky objects. Give it a try under good seeing on, say, M82, and see if the image doesn't raise your eyebrows.

If you carefully read Walter Scott Houston's notes in Sky & Telescope each month, or if you study the excellent deep sky notes in the Webb Society Handbooks, you're bound to find that the most detail is always extracted from comparative observations at a variety of powers - right up to the very highest useful power for that object. After a point, you reach powers that obviously do more harm than good, but you ought to be changing powers on up to that point in order to explore all the possibilities for a given object. Since you'll be making multiple observations of the same object, note- keeping will be a big help with sorting out the various details. Keeping notes is another habit of the more successful observer, and is a good subject for another article some day.

I bought a handy accessory for my 8" Celestron some years ago which has helped my observing significantly. It is a rotary ocular holder, or "tur-

a 12.4mm Erfle for X161, and a 9mm Orthoscopic which gives X222. The LPR filter which I sometimes employ fits between the main tube and the turret, rather than in a single ocular. This way, I can filter all the eyepieces at once, without having to change filters in the dark. Even swapping eyepieces for changing powers is a hassle - especially on a cold night. Before I got the turret, I would often skip the power-changing process because it was such a bother, but now I never fail to record my observations on all four powers. Somebody needs to invent a multiple ocular holder for Newtonians, so that the majority of observers can benefit this way.

The old advice is still priceless - stick with low powers most of the time. Especially for the beginner, this is a must, but for those of us looking for more detail and more substantial satisfaction from observing, a cautious venture into a more close-up universe can be just the thing.

Dean Williams, Little Rock Arkansas

The Dew Point

I would like to point out the significance of the dew point temperature, which I recommend you watch daily. The dew point is an accurate measure of the moisture content of the air and is a dependable indicator of the comfort levels of the air on any given day.

The dew point is the temperature at which the air becomes saturated (100% relative humidity) for the level of moisture in the local air mass. It will therefore show you the potential for the lowest value to which the temperature will drop overnight. How so? Because, when the temperature reaches the dew point, the air becomes saturated. Dew or fog will form at that temperature and the temperature fall stops as the moisture is condensing (all over your eyepieces, lenses, etc! Hence the expression 'dew point' in reference to that temperature reading.

When the dew point is below 32 F (or freezing) it becomes the 'frost point' temperature and cooling to that level produces frost on exposed surfaces. By the same token, flesh exposed to the air responds as musch as to the dew point as it does to the air temperature. Recall that the body's natural air-conditioning system functions through the evaporation of perspiration. When dew points are high, i.e., in the upper 60S and 70s, there is so much moisture in the air that perspiration is slow to evaporate and we feel "muggy" and miserable.

On the other hand, when dew point temperatures are low, e.g., in the 20s, 30s or 40's, there is much less moisture in the air. As a result, perspiration readily evaporates and exposed flesh feels cooler. The stronger the breeze, the more pronounced the cooling effect. This is the principle behind the summer comfort index and the winter wind-chill factor.

Why is the relative humidity considered a less useful tool in the measurement of atmospheric moisture? Because the relative humidity shows only the percentage of saturation of the air and changes minute-by-minute and hour-by-hour as the temperature changes. However, the dew point is a relatively constant value as a measure of the moisture content of the air and is an inherent value within large areas of air of homogeneous origin.

For example, as the temperature on any given day goes up, warmer air has a greater capacity to hold moisture. So the relative humidity goes down but the actual amount of moisture in the air remains the same with completely misleading results as far as comfort levels go.

On a typical summer day in Florida, the dew point in the pure tropical air is likely to be 75 F. Also, after overnight cooling, the air temperature could cool to 75 F. At that point the relative humidity is 100% - the temperature and dew point are the same. By mid-afternoon, however, the temperature may be up to 95 F with a corresponding drop in the relative humidity to as low as 50%. Now, are we going to feel more comfortable? Not likely! This is because the dew point will still be reading an oppressive 75 F. Excessive moisture in the air has not changed, only the number we call the relative humidity - and a number is not much relief from the smothering summer heat. If the dew point (or "frost"point) is below the freezing level (32 F), prolonged exposure to modest breezes can bring the threat of frostbite to exposed flesh. The lower the dew point and the stronger the wind, the greater the threat. This is the area in which the "wind chill" factor of which

you hear so much over the winter months comes into its own; as a predictor for potential frostbite in winter sports enthusiasts and other outdoor types.

See...now you can be your own forecaster...and be a lot more "weatherwise" than before, if you'll learn to watch the dew point!

WALLY KINNAN

DEW POINT TABLE

Relative Humidity

Temp	25	30	35	40	45	50	55	60	65	75	75	80	85	90	95	100
93	51	56	60	64	68	71	74	77	79							
92	50	55	59	63	67	70	73	76	78	79						
91	50	55	59	63	67	70	73	75	77	79						
90	49	54	58	62	66	69	72	74	77	78						
89	49	54	58	62	66	68	71	74	76	78						
88	47	53	57	61	65	66	70	73	74	77						
87	47	52	56	60	64	66	69	72	74	76						
86	46	51	55	59	62	66	68	71	73	75	77					
85	46	51	55	57	61	65	67	69	73	74	76					
84	44	49	54	58	60	63	67	68	71	73	75	77				
83	44	48	52	56	60	62	66	67	70	72	75	76				
82	44	48	51	55	69	61	64	66	69	71	74	75	77			
81	42	47	51	54	58	61	63	66	68	70	73	74	76	77		
80	41	45	50	54	56	60	62	65	67	69	72	73	75	76	79	
79	41	44	49	53	55	59	61	64	66	68	71	72	74	76	78	79
78	39	44	48	52	55	58	60	63	65	68	69	71	73	75	77	78
77	38	43	48	51	55	57	60	62	65	67	68	70	72	74	76	77
76	38	42	47	50	53	55	59	61	63	66	67	69	71	73	75	76
75	37	42	45	50	52	55	58	60	63	65	66	68	70	72	74	75
74	37	41	44	48	51	55	57	59	62	64	65	68	69	71	73	74
73	36	39	44	47	50	53	55	58	61	62	64	67	69	70	72	73
72	35	38	43	47	50	52	55	58	60	61	64	66	68	69	71	72
71	34	38	42	45	49	51	54	57	58	60	63	65	67	68	70	71
70	33	37	41	45	48	51	54	55	57	60	62	64	66	67	69	70
69	32	35	41	44	48	50	52	54	56	59	61	63	65	66	68	69
68	31	35	40	43	46	49	51	53	56	58	60	62	63	65	67	68
67	30	35	38	42	46	48	50	53	55	57	59	61	62	64	66	67
66	30	33	37	42	44	46	50	52	54	56	58	60	61	63	64	66
65	28	32	37	40	43	46	48	51	53	55	57	59	60	62	63	65
64	27	32	36	39	42	45	48	50	52	54	56	58	59	61	62	64
63	27	31	35	38	41	45	47	49	51	53	55	57	58	60	61	63
62	26	30	35	37	41	43	46	48	50	52	54	56	57	59	60	62
61	25	29	34	37	40	42	44	47	49	51	53	54	56	58	59	61
60	25	29	32	35	38	41	43	46	47	50	52	53	55	57	58	60
	—	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

Relative Humidity