SAN FRANCISCO
Amateur Astronomers
SHARING THE WONDERS OF THE UNIVERSE

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BULLETIN FOR SEPTEMBER 1991
ECLIPSE SPECIAL

Time: WEDNESDAY, SEPTEMBER 18, AT 8:00 PM

Place: THE RANDALL MUSEUM
199 Museum Way, San Francisco

Topic: LAND-BASED TELESCOPES FROM MAUNA KEA

Speaker: CAROL CHRISTIAN
University of California, Berkeley

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ANNUAL PICNIC AND STAR PARTY SEPTEMBER 7

Don't miss the annual SFAA picnic on Saturday afternoon, September 7, at Bootjack Camp on Mount Tamalpais, beginning about 3:00 p.m. The club is providing hamburgers, hot dogs and soft drinks. Bring a salad, dessert or other side dish to share. (Bootjack Camp is the last campground on the right before the Pantoll Ranger Station.)

At 8:00 p.m. that evening, members of Twilight Tours eclipse tour, which included several SFAA members, will be sharing their eclipse experiences at the Mountain Theater. Then it's on to Rock Springs for some sparkling views of Saturn and the Summer Milky Way.

If you enjoy the monthly star parties at Rock Springs, and want to see them continue, please arrive at Bootjack Camp by 3:00 p.m. to discuss the current situation with park rangers. For more information, call Bob Levenson at 468-3592.

DRIVING DOWN TO BAJA - by Jim Shields

At dawn on Eclipse Day a few high clouds caused some apprehension but by eight o'clock, as we finished our granola and packed up our gear, they were gone. Coffee that morning was provided by two new friends we'd met at the trailer park near San Jose del Cabo where we were camping. Irm and Tess, part of the local American expatriate community, had invited us to view the spectacle at a private eclipse party on Punta Gorda.

We'd also dined with Tess and Irm at their favorite eating spots in town, including two tables in a driveway where great tacos were served. (Nameless; they called it "Don Pedro's.) In the evenings we gave them their first views through a telescope--crescent Venus, M13, the Swan Nebula, Saturn. Their hospitality was wonderful! Thanks again!

We'd arrived in San Jose a few days before, after a leisurely four days' drive from the Bay Area. Now, here we were, ready for the main event. About 10:30 the Moon took its first small bite and our excitement began its crescendo toward a climax at totality. No change in the light until the Sun was nearly three quarters' covered. Then what an eery feeling, as if the shadows were somehow different. Our skin felt cool, unheated by the failing sunshine. Darkness was approaching in the West. Then, the Sun vanished!

No, not quite. Around the black hole of the Moon we could see the Sun's huge jagged corona. The stars were out and the planets--Venus, Jupiter, Mercury, where was Mars?--lined up across half the sky like the moons of Jupiter, a gigantic picture of the Solar System. Bright red prominences bigger than the Earth grew and danced in binoculars or a small scope like my 80mm finder. Forget the camera; just watch! Suddenly, a blinding glare in the eyepiece! It's the Diamond Ring! Is this second or third contact? Quick, try to get a picture! HURRAH!!!

Suddenly, and quite unexpectedly, it was daylight again. Around me people swore that it couldn't have lasted more than a minute and a half.

Contrary to the dire predictions we'd read about "a vacation from Hell," driving down to Baja was delightful: plenty of unleaded gas everywhere, the traffic light and the roads not too bad, the weather overcast and cool in the desert, the RV parks half full. (Yes, you can camp free on the beach.) We figured that articles like the one in Astronomy had scared people away, and they'd gone to Hawaii instead.

On the way down we discovered something the articles hadn't mentioned, that Baja California is a beautiful place! Its deserts are filled with light and color and wierd vegetation, the Bay of Concepcion is lovely beyond expression, and towns like Mulege are crowded with date palms and fascinating in their oasis-like unexpectedness. Sixty miles off the main road at 7,000 feet, the Parque Nacional Sierra San Pedro Martir is covered with great pine forests, giant open grassy meadows and mountain peaks reminiscent of the Alps. (Rick Decker and I set up our telescopes there on the way home.) The observatory there has an 82" telescope. A great place for a star party!

ECLIPSE HAWAII - by Ray Cash-Le Pennec

It was the middle of our two-week camping trip to Hawaii -- it was July 11, 1991 -- eclipse day. Arising from our tent at 5:30 AM my wife and I were greeted by the worst morning weather we had yet seen at our campsite on the "Big Island." Dreaded clouds were in all directions; no blue sky was to be seen anywhere -- and -- totality was only two hours away ! As you can imagine, we were anxious, we were even philosophical, but, most importantly, we were still hopeful.

At 6:30 AM, first contact, (still no sign of the sun), I set up my equipment at my carefully chosen site -- which was only five yards from the campground parking lot. I wanted to first enjoy the eclipse with no photographic or visual enhancing encumbrances, secondly, to share the view through my tripod mounted 10x70 binoculars, and thirdly, take photographs of this spectacle. My photographic equipment included three 35mm cameras: one hand-held with a 50mm lens loaded with print film, one slide loaded with a 35mm lens (also hand-held), my primary camera, however, was a tripod mounted stereo camera.

About thirty minutes before totality, we began to see glimpses of the sun, or what was left of it -- it looked "like a happy face," I heard a little boy exclaim. Ten minutes before totality, we were certain we would have a clear view, due to a break in the clouds and the rising elevation of the Sun/Moon. To feel the darkness surround, to see the "Baily's Beads" give way to the "Diamond Ring" effect while the corona simultaneously comes into view along with enormous bright red prominences is truly too much to express with words, or capture with photographs... But try we will.

The view through my 10x70 binoculars, if you could draw yourself away from the wonderful panorama, was simply stunning -- prominences were more visible and detailed -- I looked for, and saw, movement in the largest one; an irregular, spiky, streaky, pure white corona extended perhaps a degree from the Sun's limb (half a degree with the unaided eye). It was surprising to me how large it

looked: aided in part by the nearness of the horizon and the clouds that IT just broke through, but also, I think, the way your eyes were drawn to this "hole in the sky" -- a most unnatural sight -- one's mind emphasizes, exaggerates -- enlarges -- the spectacle even further... if that makes any sense.

We feel very fortunate to have witnessed this Totality on the Big Island of Hawaii. A few nights later, we hiked over recent lava flows to gape at another spectacle: red hot lava flowing into the ocean. Along with other sights and experiences such as snorkeling, hiking and meeting new friends, our spirits were renewed by the beauty of the Universe we find ourselves in.

FROM THE FINANCIAL DISTRICT - by Mai Shields

Not being an avid amateur astronomer, I did not venture forth to Baja or Hawaii to view the eclipse. I did venture into San Francisco's Financial District. Armed with my mylar sheet and instructions as to the best viewing time--supplied by my husband who was in Baja--I drummed up enough interest in my office that half the staff accompanied me downstairs to California and Davis Streets at 11:20 a.m. The other half followed ten minutes later.

Anyone who was in San Francisco in July knows how lucky we were. Although it was overcast and cool all week, Eclipse Day was exceptionally warm, clear and sunny downtown.

At least half a dozen people had already set up their homemade pinhole projectors on the sidewalk when I arrived with my mylar solar filter. The response was incredible! People were thrilled, not only to see the eclipse, but actually to view the Sun itself. It's something we live with every day but never see or really think about as an actual object in the sky. People were enthused and even charmingly greedy; they just had to have a second peek ...maybe even a third or a fourth!

Perhaps three dozen people saw the partial eclipse through my mylar filter. They passed the sheet from hand to hand, from those who had come outside expressly to see the eclipse to those who just happened to pass by, including a group of Spanish tourists who had no idea what was going on.

I thought the partial eclipse was outstanding! I'll always remember the real sun with this black wafer moon covering part of it. I'll never forget how very very appreciative people were to be able to see it for themselves. It was an upbeat crowd, putting the financial world on hold for a few minutes, so that we could become a part of this natural phenomena.

14 July 91

From: Jerry Penegor
Subject: TOTALITY!

Everyone,

I'm back, I'm feeling better, and the "at-the-last-minute" trip to Mexico to view the Eclipse was TOTALLY successful.

The trip was put together by a local tour guide (you may have seen the flyers on the bulletin boards) as a full week trip, not to Baja California where most went, but to the west Mexican coast where the weather forecasts were not as promising. We flew Oakland -> Puerto Vallarta direct but stayed in a small coastal town 75 km north: La Penita de Jaltemba. I wasn't sure how close we would be to the center line in La Penita but we saw a solid 4 minutes of TOTALITY when it happened.

Some of our loose group took buses and taxi's farther north, to Tepic, but they paid on the order of a dollar a second for the increased time in TOTALITY, and still had to out-run the afternoon build-up of clouds.

La Penita had its good points and its bad points. To the good, it was a small fishing and who-knows-what village with few tourists, calmer waters and nicer beaches than Puerto Vallarta, and no hawkers on every block trying to sell you time-shares in local condominiums. And warm and humid, but not like Houston in August. Definitely gave us a better opportunity to interact with the Mexican people.

On the other hand, our accommodations, Bungalows Las Palmas, could be described variously: local, primitive, groatty, ... At least we had a change of linen once while we were there, an overhead fan for cooling, and a working refrigerator (I replaced the plug on the refrigerator, it was shattered and unrepaired). The electrical wiring was point-to-point brown 2-conductor zip cord and electrical tape. The shower had hot water but you did want to shower with shoes and glasses on, at least until your tolerance of gecko's and cockroaches increased. And I think ours was one of the better bungalows. I heard one guy had a large ant nest in his mattress! Several large mango trees were overhead dropping ripe mangoes with every breeze. You'd think that would be a plus: but I was nearly hit once while reading outside, they'd thump on the roof or sidewalk at all hours, they littered the grounds, and every one that broke open or got squished attracted flies. But the fruit was good.

For dining there were many restaurants to choose from, for purchasing the necessities, like bottled water, beer and liquor, Cokes, ice, T.P., ... there were several "mini-supers". All-in-all, an OK place but you wouldn't recommend it for your parents. Then came the third day in Mexico. Turista strikes! Most of us had some kind of distress on the third or fourth day, some mild, others (myself certainly) evacuated TOTALLY everything. Ugh. Luckily, that was Wednesday and everyone was up and ready, though maybe not eating, for TOTALITY on Thursday. And those who escaped the early onslaught nearly all had something to talk about by the weeks end.

Now the weather: for the first 3 or so days it was almost totally overcast and we saw sunlight and shadows only in the early morning hours. I'm told it was like that all over Mexico, it is the rainy season after all. But Wednesday had some sun till noon and Thursday started out just as good. Of those remaining in La Penita, we collected ourselves and took a local van (called a combi, cost a 1000 peso's each, about 33 cents) a mile or so farther north to a nice, nearly deserted beach for our viewing site. We got there around 10:30, just at first contact of the Moons disk touching the Suns disk. Those who had cameras and/or telescopes set them up and tried to keep them aimed at the Sun as it approached the zenith.

The crossing of the Moon across the Sun proceeds leisurely, but at the last minute or two before second contact (the start of TOTALITY) things start happening fast. The overall light is noticeably subdued, the clouds over the ocean to the west become dark as the shadow approaches. Thin cirrus from the thunderheads over the eastern hills crossed the Sun but began dissipating. Quickly the thin crescent of remaining exposed Sun shrinks to nothing and suddenly its there: TOTALITY!

If you're trying to take photos, the four minutes are all too short. I have strong images of certain things: a flash of lightening, a nice Diamond Ring effect at the beginning and end of TOTALITY, the thin cirrus seeming to clear a distinct hole of dark sky around the eclipsed Sun, several (3?) large, red prominences visible (where I had expected none), a corona with structure and features esp associated with one of the prominences (where I expected the more uniform halo I read was typical of high sunspot cycle eclipses), the black disk of the Moon, the bright band of light on the southern horizon especially over the ocean (where I expected it to be so dark I brought a flashlight, maybe its that dark on the center line).

And there were things I no doubt failed to notice. For sure, I didn't just scan the sky and note the number of stars and planets visible. Some of the others were more alert to that.

Then its over. Boom, the light returns. People compare impressions, the father of the one Mexican family from P.V. at the beach asks everyone for their thoughts for his little portable taperecorder. We all have a drink, take the usual group photograph, and forget about the waning phase of the eclipse. There's all afternoon for packing up and taking a swim before walking back to the main road and hailing a combi back to town.

Those who had had enough of La Penita went to P.V. that afternoon. Others like myself left Friday. And it was worth it: to see P.V. _and_ to spend a night in a nice, four-star, air-conditioned hotel with bar and pool facilities. And I had the cash, easily. From all those meals I skipped on Wednesday and Thursday and Friday!

BULLETIN CONTRIBUTIONS

The SFAA Bulletin is a forum in which club members may share their ideas and experiences in astronomy. We encourage you to participate and welcome your letters, sketches and articles on astronomical subjects. Please send your contributions to SFAA Bulletin, C/O Jim Shields, 190 Chilton Avenue, San Francisco 94131. Deadline is the 18th of the month.

SFAA MEMBERSHIP BENEFITS

The club offers three categories of membership, with annual dues as follows:

Regular Membership - $20
Family Membership - $25
Junior Membership - $ 5 (for astronomers under 18)

SFAA members receive the monthly Bulletin and admission to club activities including monthly lecture meetings and star parties, field trips and the annual picnic. In addition, they may subscribe to various astronomy magazines at greatly-reduced rates. For more information, contact Chelle Beard, 32 Penhurst Avenue, Daly City 94015. Telephone 878-4965 evenings.

A Night Out in Baja Sur

by *STEVE GOTTLIEB*

As a hardcore deep sky addict, the "Eclipse of the Decade" offered an additional bonus-the lure of nighttime observing at a latitude of +23° in the dark skies of Baja Sur. Moving 15° south from the Bay Area reveals a fresh swath of the milky way below Sagittarius, along with a bounty of bright planetary and emission nebulae and rich globular and open clusters. Fortunately, our eclipse tour had planned nighttime sessions at our remote centerline eclipse site near the small town of Santa Cruz and quite distant from any significant light pollution. So, I excitedly flew down to Los Cabos lugging along a C-8, a solar filter for the eclipse and a list of new deep sky objects unobservable from our latitude.

On the ride out to the observing site at twilight, we had a beautiful view of the day and a half old moon setting in the west. As I tried to recall the youngest moon I had ever viewed, I realized that the preceding day we had been looking at a REAL new moon as it slid in front of the eclipsed sun! We exited the bus after dark and the milky way was ablaze in its full glory. I immediately noticed that Antares was oddly placed at an elevation of 40° instead of its accustomed appearance low on the southern horizon. And the bifurcated milky way did not peter out in Sagittarius and Scorpius, but continued on down below the tail of Scorpius into the newly revealed territory of Ara and Norma. These were the constellations that I was itching to explore.

First, though, I wanted a look at Alpha Centauri, our nearest neighbor. At this time of year it is well past the meridian but was still visible low in the southwest as darkness began. Besides the distinction of being a mere 4.3 light years away, Alpha is a remarkably bright telescopic double, consisting of a mag -0.4 G2 star (similar to our sun) and a mag 1.2 K-star separated by an easy 20" of arc. Looked liked a pair of bright headlights heading my way in the 8".

My first deep sky object of the night was Omega Centauri, the King of all globulars. At the latitude of the bay area, Omega never rises more than 5° above the horizon so the view is tarnished by viewing through thick layer of atmosphere. Above the muck, Omega could shine with all of its glory, and innumerable stars were resolved in the C-8. Scores of magnitude 12 and 13 stars seemed to be aligned in rich, curving streams over the entire disc.

Next I moved 5° southeast to the globular NGC 5286, also in Centaurus. The 5th magnitude star M Centauri just 4' southeast is a perfect signpost. Although the cluster was only 8° above the horizon, it appeared moderately bright, increasing to a bright middle and a small bright core. The halo was mottled and on the verge of resolution, but except for a 12th magnitude star on the southeast side, no other stars were clearly visible.

Moving over the border into Lupus, NGC 5822 was next on my list. This sprawling open cluster measured some 40' in diameter, filling my low power field. About 60 stars were visible, from 9th to 12th magnitude but with no central condensation. The border was neatly defined by several rows and arcs of similar stars.

Another 5° jaunt northeast is NGC 5927, a moderately bright globular which appeared lively with stars just below my threshold of resolution. At -50°40' declination, this cluster is just below my reach from Digger Pines. A short sweep 70' due east brought me over the Norma border and smack into NGC 5946, a faint globular cluster in a rich star field. A 12th magnitude field star is at the southwest edge, but the cluster was much to faint for further resolution.

Now I moved southeast for real unknown parts, the rich milky way starfields of Norma and Ara. NGC 6067 is a real jewel, with over 100 stars magnitude 8 to 12 resolved at 83X and comparing

favorably with the best of the northern open clusters in Perseus and Auriga. At 20' diameter, the cluster is large but very rich, compressed towards the core which includes a striking double star at the center! Many of the stars appear to be arranged in spirals and arcs and a couple of bright 8th magnitude stars at the edge complete the breathtaking picture.

About 4° southeast is another Norma gem, NGC 6087. Here, 35 stars from 7th to 11th magnitude were seen in a 15' field, including the bright variable S Normae. Many of the stars seem to form an arrowhead asterism with the vertex at the north end. Moving east towards Ara, I next examined NGC 6167, a memorable cluster with 50 stars visible within a 10' diameter. This rich cluster has a nice mix of bright and faint stars over an unresolved background haze. A 7th magnitude star sits at the southwest edge and a nice string of stars extends to the south.

At this point, I crossed over the Ara border to NGC 6193, an interesting open cluster with a large attached emission/reflection nebula. Highlighting NGC 6193 is a bright double star with components 5.6 and 6.8. With a separation of 10", these form a striking duo at 83X and a third 7th magnitude star is just 6' west. Just east of the double is a circular group of 7 fairly bright stars and a fainter curved string is visible in the cluster's core. A faint nebulosity, NGC 6188, envelopes the cluster and a long brighter streak of nebulosity oriented north-south extends along the west side of the cluster.

NGC 6200 is not plotted on the Sky Atlas 2000.0 so it surprised me that as many as 75 stars in a 20' diameter were visible, including many stars 9th-11th magnitude over a rich carpet of fainter stars. A bright 7th magnitude star shines off the southeast edge. NGC 6204 is close northeast and with over 40 stars compacted into a 8' field, this beauty is quite rich. A close triple star was seen in the core and 4 bright stars from 8th to 10th magnitude were arranged in a tight knot off the southeast edge.

Moving east I picked up the globular NGC 6352 in Ara, which at -48°25' is the farthest southern globular I had previously picked up from Digger Pines. Although the cluster has a fairly low surface brightness with no sharply defined nucleus, it was partially resolved into 10 stars, mostly on the southwest side.

The real showpiece of Ara is NGC 6397, which holds the record as the nearest globular cluster and furthermore measures up as the 5th brightest, ahead of our northern favorite M13. Although observed at only 13° elevation, this cluster was highly resolved into scores of 11th and 12th magnitude stars. The intensely bright core had dozens of stars superimposed and a very large halo was plastered with bright and faint cluster members.

Heading east again, this time towards Telescopium, I picked up the faint planetary Shapley 3. At 12th magnitude, this required some diligent searching to find a very faint, round disc, perhaps 30" diameter with a low even surface brightness. Now at the eastern edge of the milky way, I tracked down NGC 6584. This 8th magnitude globular had some slight resolution at the edges and was bracketed by three brighter fields. I spent some time chasing down some 12th magnitude galaxies in Telescopium but soon realized that an 8" scope was not going to due justice to these faint fuzzies, so I went looking again for one last showpiece before calling it quits for the night.

Just skirting the southern horizon at 12:30 was the constellation of Pavo, the peacock. I knew there were some neat galaxies in the area but I headed straight for NGC 6752, which at V magnitude 5.4 comes in as the third brightest globular behind Omega Centauri and 47 Tucana. I wasn't expecting much as the globular only rises to 6° elevation from southern Baja, but I was shocked to find it a very bright ball of resolved stars increasing to a very bright core surrounded by a huge halo. The brightest supergiants must be 11th magnitude or brighter as they were easily resolved at the edges of the core and within curved strings in the outer halo. Adding to the picture was a magnitude 7.7 star embedded in the southwest part of the halo.

After this sight, I was exhilarated but exhausted and so packed up for the one hour bus ride to the hotel. With my appetite now whetted for deep southern objects, I'll just have to make the next solar eclipse in the southern hemisphere!

ASTRONOMY IN THE PUBLIC INTEREST - by Rex Bell

Our August star party at Glacier Point in Yosemite National Park is now but a memory for those of us fortunate enough to have made the trip, but oh what a memory it is!

The adventure began on Friday, August 2. We had each made our way to Bridalveil Campground, some 2000 feet above the Yosemite Valley floor. After our long and grueling drives from the City, we set up camp and then headed the additional eight miles to Glacier Point.

The view from our site was spectacular! Due east across the 2400 foot deep Yosemite Canyon we could see Bridalveil and Yosemite Waterfalls cascading down to the valley floor far below. To the north was the imposing slate-gray facade of Half Dome, with its treeless granite cliffs. At the tip of Glacier Point, one could look almost half a mile straight down to the valley floor.

On Friday evening amidst this spectacular scenery, Ray Cash-Le Pennec gave a talk on the planets to about 50 tourists, while the rest of us were setting up our telescopes before the curious stares of the crowd. After Ray's talk, the public was treated to some stunning views of the heavens through a collection of big Dobsonians provided by Ray himself, Bill and Craig Cherrington, Jim Shields and Rick Decker. Bill May and Gail Enfiagian had their home-made 10-incher and I brought along my 10" plywood reflector. Joel Goodman had a pair of small refractors, and we were joined by an unknown camper with his C-8. Carl Trost gave an informal talk on the constellations which also proved popular.

It was difficult to keep track of the number of people in attendance that night since there was a steady stream of tourists going to and from Glacier Point. I estimate that about 50 people looked through my eyepiece that evening and the bigger scopes were host to at least that many. The seeing on Friday night was good. I found the southern Milky Way particularly striking, with prominent displays of the Lagoon and Trifid Nebulae. The crowd began to taper off around 11:00 and most of us were back in camp by 1:00, fatigued by the long day's drive.

After a rather chilly night, SFAA members and their guests enjoyed the scenic beauty of Yosemite the next day. On Saturday evening we returned to Glacier Point. This time we were joined by Larry McCune of the Sonoma County Amateur Astronomers. The seeing was not as good as the evening before; even so, we had a similar crowd of enthusiastic attendees, who expressed their excitement in half a dozen different languages. Saturn was the most requested object at my scope. About 10:30 a bolide shot across the sky and broke apart as it vaporized in the atmosphere, drawing quite a reaction from the crowd.

Our Yosemite star party was described by the Ranger on duty at Glacier Point as a "win-win-win" situation. The Park wins in that it can offer our astronomical presentation as an attraction to its visitors; the visitors win because they get to look through our telescopes; and we win because we get to camp and experience the wonders of Yosemite for free. In addition, there is that gratifying feeling of sharing our knowledge of the cosmos with a diverse group of individuals, many of whom are looking through a telescope for the first time.

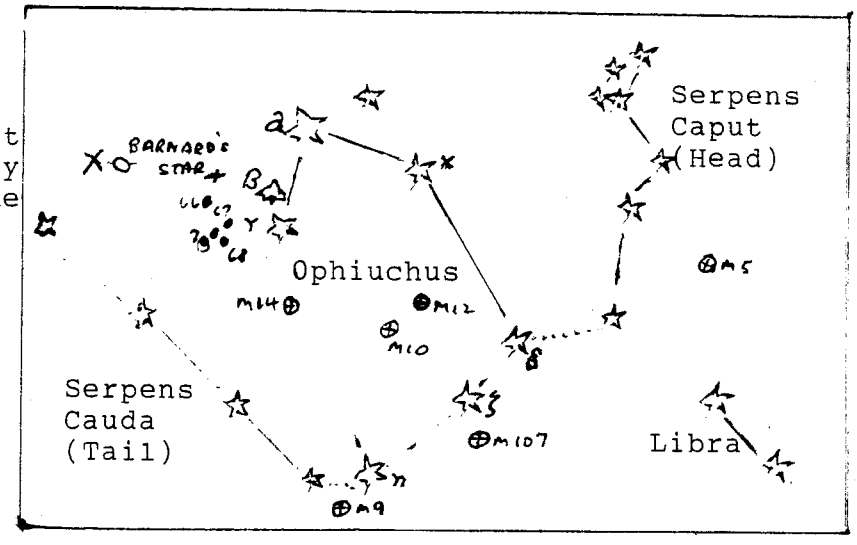
SEPTEMBER LIST OF MESSIER OBJECTS by Dennis Tye

This month, with 13 Messier objects is, alone with June, the largest list of any month, but all are easy to find. Most of the objects are located in the direction of our galactic center in the constellation of Sagittarius. The last couple of months have been rich in globular clusters. The next two months we will enter the realm of several fine diffuse nebulae.

NGC#	MES	RA	DEC	Mag	TYP	SIZE	DIST	CON	DESCRIP
6603	024	18 15.5	-18 27	04.6	OCL	004'	5010	SGR	
	A large, bright patch of Milky Way with NGC 6603 within.								
6611	016	18 16.0	-13 48	06.4	OCL	025'	1660	SER	Eagle
	Large cluster with associated nebulosity, in shape of eagle.								
6613	018	18 17.0	-17 09	07.5	OCL	012'	1910	SGR	
	Small open cluster with only about 10 members.								
6626	028	18 21.5	-24 54	07.3	GCL	004.7'	4.6K	SGR	
	A moderate size globular with some stars resolved.								
I4725	025	18 28.8	-19 17	06.5	OCL	040'	0550	SGR	
	A large open cluster with 80+ members some as bright as 8 mag.								
6656	022	18 33.3	-23 58	05.9	GCL	017.3'	3.0K	SGR	
	A truly spectacular globular, large, bright, many stars resolved.								
6705	011	18 48.4	-06 20	06.3	OCL	010'	1740	SCT	Wild Duck
	Rich open cluster, 600+ members, looks like GCL, flock of ducks								
6618	017	18 18.0	-16 12	08.9	DIF	046'x037'	1000	SGR	Omega
	Large diffuse nebula in shape of figure "2" + cluster of 35 stars.								
6637	069	18 28.1	-32 23	08.9	GCL	002.8'	7.2K	SGR	
	Small globular, next two globulars are close enough to star hop to.								
6652	070	18 40.0	-32 21	09.6	GCL	002.5'	020K	SGR	
	Easy to get to once you've located M69.								
6715	054	18 52.0	-30 32	07.1P	GCL	002.1'	015K	SGR	
	The third of trio. Bright nucleus here.								
6694	026	18 42.5	-09 27	09.3	OCL	009'	3920	SCT	
	Like a small ver. of M11 in this list. 90 members, 4-5 bright.								
6809	055	19 36.9	-31.03	04.4P	GCL	010.0'	5.8K	SGR	
	Large bright globular.								

OPHIUCHUS, THE SERPENT BEARER,---By Gordon Ridley

Ophiuchus (off-ih-YOU-cus) is not an easy constellation to most people. There are no first magnitude stars. The brightest, a mag 2.2 sapphire colored star, is Rasalhague (ras-al-HAIG-we), which means "Head of the Serpent-Charmer". Ophiuchus, the man with the snake, always shown with the constellation Serpens, stretches from just east of the head of Hercules to Scorpius, partly in the Milky Way and divided nearly equally by the Celestial Equator. But although always shown with the Serpent, the catalogues always have its stars distinct from the latter. There are many items of interest to be found here, as it is loaded with clusters, both open and globular, including those familiar Messier objects M9, M10, M12, M14, M19, M62 and M107. But some of the not-so-famous but equally interesting objects are here as well. For example: The four stars 66, 67, 68 and 70 Ophiuchus, which form the obsolete V-shaped asterism known as the "Bull of Poniatowsky". Of the four, star 70, at 18h05.5m + 2°30', is one of the most thoroughly studied binary stars in the heavens. The two components are mag 4.2 and 5.9, with a noticable color contrast, described variously as yellow and red, or gold and violet. What do you think? Separation is about 1.9" at P.A. 300. Can you separate them? An aura of mystery surrounds this double.



Due to unexplained irregularities in its motion many astronomers believe there is an unseen companion, a massive planet, about ten times the mass of Jupiter. Nearby is X Ophiuchus, at 18h38.3m + 8°50', a long-period Mira-type variable star with a period of 334 days and a magnitude variation from 6 to 9. Can you locate this pulsating red giant? Further, near the right shoulder of the Serpent-Holder, at 17h58.8m + 4°35', 5.9 light years away, is our second nearest neighbor in the universe. Only the Alpha Centaurui triple system is closer. This is Barnard's Star, a tiny red dwarf, discovered by E. Barnard in 1916. It has a magnitude of 9.53, while only about 20 times as big as the earth. It is sometimes called the "Runaway Star" as it has the largest proper motion of any known star, moving a degree across the sky every 351 years, or, over 10" annually. 8000 years from now it will be less than 4 light years away, and brightened to mag 8.6. Take a look at it from time to time, if for nothing more than to check how far it has moved since you last observed it.

San Francisco Amateur Astronomers
The Randall Museum
199 Museum Way, San Francisco 94114

MEMBERS' ADS

Members' advertisements are free and will run three times. Please notify the Bulletin if an item is sold so the ad may be deleted. This service is provided monthly on a space-available basis.

FOR SALE - Celestron 750mm f/6 Schmidt-Cassegrain telephoto lens/ telescope. Camera adapter and visual back for 1.25" eyepieces. Carrying case. $295. Joel Goodman 292-4381.

FOR SALE - Celestron C-90 1000mm f/11 telescope with Nikon T-Adapter (interchangeable) and padded carrying case. $175. Jerry 897-8650.