SAN FRANCISCO BAY BIRD OBSERVATORY NEWSLETTER

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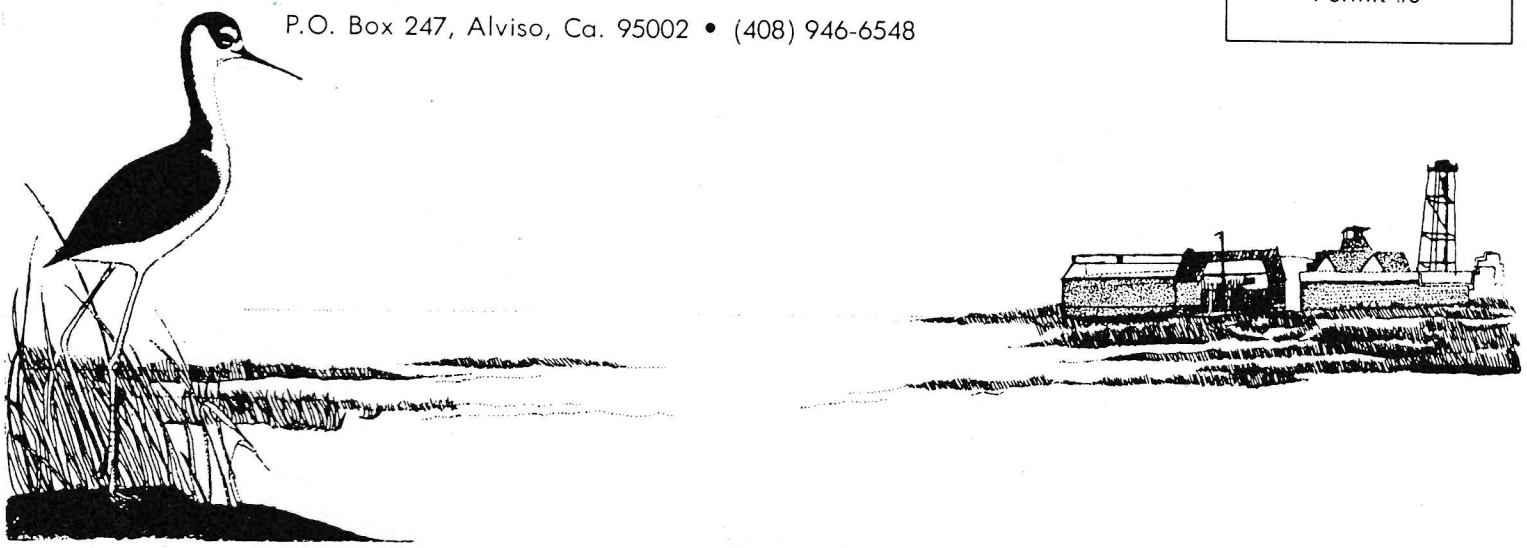


Volume 9, Number 5 September/October 1990

REMEMBERING TOM HARVEY AND DICK MEWALDT

I got out of the Army and went directly into San Jose State University in January, 1970. Seems like a lifetime ago and if you remember those days you also remember how it was on college campuses during this time. Well, to an ex-GI it was kind of a culture shock to go from reveille to revelation; I never fully supported either point of view.

My earliest memories of Tom and Dick go back to these days when they were on the staff of the Biology Department at SJS. After the Army I looked to professors in the same light as I did captains, majors, generals, and others from the same mold. Needless to say, both Tom and Dick eased my formality and got me involved with nature; Dick with the "Wool Ranch" banding project and Tom with the big picture of ecology. Twenty years later and these people are still a part of my life.

Unfortunately, my mortality recently reached out and slapped me in the face. Both Tom Harvey and Dick Mewaldt passed away within a month of one another. Both men played a large part in our formation and our day to day operations for many years. Tom was a member of our advisory board and his expertise in the field of marsh ecology will be missed. Dick, of course, was one of the founding fathers of Point Reyes Bird Observatory, Coyote Creek Riparian Station, in addition to SFBBO. I surmise that if he had had more time on this earth he would have helped establish many more banding stations in North America.

The San Francisco Bay Bird Observatory joins with family and friends in their time of sadness at the passing of Tom Harvey and Dick Mewaldt.

Don Starks
Executive Director

Mark your calendar - Scope and Binocular Show, Sunday, October 14.

Choosing the Best Binoculars

by Darrell Gray

The San Francisco Bay Bird Observatory and the Golden Gate Raptor Observatory will hold the second annual Scope and Binocular Show on Sunday, October 14 at Fort Mason in San Francisco. All major makers such as Celestron, Nikon, Zeiss, Swift and Kowa will be displaying their binoculars and spotting scopes. It is one of the few chances to compare the multitude of models available and pick out what you really like. With so much available, it can make choosing difficult. To help you enjoy the show here is a guide to the selection of binoculars and spotting scopes.

When we go shopping we are faced with scores of companies selling many sizes and shapes (and nowadays colors) of binoculars spanning a price range from downright cheap to astronomical. Getting through the maze to the "best" binocular, which is the one that is best for your needs, takes some understanding of how binoculars work. Let's start with a simple definition of binoculars, and see what some of our choices are in pursuit of the "best".

Binoculars are an extra pair of eyes that collect light and magnify what is in front of us. Like a funnel, the front, or objective lenses collects the light and the twin eyepieces allow the collected light of the magnified image into your eyes. Big front lenses collect a lot of light and make a bulkier instrument, while more compact binoculars collect less light, but are easier to carry. Most binoculars are stamped with numbers telling you about the front lens size, always in millimeters, and the power, or magnification. Here are two examples:

POWER		OBJECTIVE (Front lense size)
7	x	42
7	x	25

The first example, the "7 by 42s", has larger front lenses, and if you had both of these binoculars in hand you would immediately see and feel the difference in size and weight, the 7 by 42s being much larger and bulkier than the 7 by 25s. But which pair is best? As with most things the answer is, "it all depends".

Each pair has its advantages and disadvantages, and to understand why we have to understand the term exit pupil. The examples above show the size of the tops of the optical funnels, 42mm and 25mm. But what is the size of the bundle of light coming out? It isn't seven, that's the magnification. The answer is found by dividing the objective size by the power:

OBJECTIVE		POWER		EXIT PUPIL
42	/	7	=	6
25	/	7	=	3.57

This is the heart of the matter. Most of us buy binoculars between 7 and 10 power, any lower being too little magnification, and any more being too hard to hold. What really changes is the exit pupil, one of the most important specifications to consider. The size of the exit pupil is important because of how our eye works. The pupil, the center of our eye reacts to changes in light, getting smaller in bright light and larger in dim light. An eye used to the dark will have a pupil as large as 7, the same eye will shrink its pupil down to 1.5 in extremely bright light. Looking at the above examples, one can imagine being out at dawn, or on a heavily overcast day, and really needing the heavier, larger, 7 by 42s. The eye would be able to take in all the light available. The smaller glasses would do a poor job indeed. Their smaller front lense takes in less light and pours little out to the eye. In bright light the difference between the two would be much less.

Try this experiment. Take a pair of binoculars having a relatively large exit pupil out on a sunny day. To make it easy look only through one side. Cut a hole in a piece of dark paper smaller than the front objective and place it in front of the lens. The image will get no dimmer until you have cut the exit pupil down smaller than your pupil. Try the same thing at dusk and watch the image quickly dim, with only a small reduction in the size of the front objective. Bigger, heavier binoculars usually have better seeing over a wide range of conditions. Smaller lighter, binoculars pack anywhere, but are not so good in dime light. Larger exit pupils mean more comfortable viewing, but a bulkier instrument. There are many models that are in between, and are good all-around choices. As a rule of thumb anything in a binocular having an exit pupil less than 3 isn't very practical, and unless you are out a lot at night, 6 is about the upper limit. Guess why 7 x 35s are so popular? Next in importance is how well you can see through any particular model, and how they feel to you.

Eye Comfort

When you look through a pair of binoculars you must place your eyes a certain distance from the eyepiece. Manufacturers design their products to make that easy for you, and most provide fold-down rubber eye guards for those who wear eyeglasses, so that your eye is correctly positioned. You may not wear prescription glasses now, but binoculars are a long term investment, so it is important that you try looking through them with glasses on (rubber cups folded down) and without (cups in normal position). Usually with glasses on the field of view is a bit narrower, but this varies from the same view to a greatly reduced field. If you don't wear prescription glasses, sunglasses will do for this check.

The size, weight, and feel of a pair of binoculars is of concern, especially if you intend to use them over extended periods of time. It is of little value to have the optically "best" pair if they are uncomfort-

able to handle. Different brands having the same specifications will vary greatly in the way they feel, for three reasons. First, all binoculars have prisms which are mirrors that make the image appear upright to the viewer. There are two types. Roof prisms are the most familiar, and make the binocular wide and short, while Porro prisms make the binoculars long and narrow. Some people like to grip of the wider binoculars while the feel of the straight binoculars pleases others. Secondly, the type of covering add to the feel, with leather, rubber, and polyurethane foam being some of the choices. Finally, there is the overall sense that you could carry and use the binoculars for an extended time, which is a combination of size, weight, balance and covering. Here are some other considerations.

Field of View

Besides the numbers giving the width of the objective lense and the power, there is usually stamped on the binoculars the field of view, either in feet at 1000 yards or meters at 1000 meters. The larger the number, the wider the view. Here are two examples:

POWER		OBJECTIVE	FIELD OF VIEW (@ 1000m)
8	x	30	123
8	x	30	138

The two are the same except for the view, but the wider field example is heavier and bulkier. The wider field model needs bigger prisms and all else being equal, the wider field binoculars are more expensive. Once again there is a trade-off of weight and balance.

Close Focus

Some models only focus to as close as 24 feet, while others focus under 12 feet, smaller binoculars tending to focus very close. This can be a deciding factor if you do a lot of looking at your back yard feeder, but can be useful at other times. The first Clapper Rail I saw was at 12 feet, the closest distance my binoculars would focus.

Zoom Eyepieces

These allow you to change power in your binoculars. A zoom eyepiece is very difficult to make, and should be carefully checked before buying. Cheap ones are useless, and good ones are hard to find.

Center of Focus Versus Individual Focus

Most binoculars have a center wheel that focuses both lenses together, but there are models which must be focused one side at a time. This type is difficult to use, but can be sealed against water and dirt very well. However, so can center focus models, so it is a trade off that probably isn't worth it.

So far we have discussed getting binoculars that will meet our needs and that we feel comfortable with. Next I will talk about simple field tests for optical properties such as contrast and color fringing, as well as discussing spotting scopes.

There are three types of spotting scopes, the most common looking very much like a half pair of binoculars, which of course it is, but much larger (Illustration 1). The difference is that you have a choice of eyepieces from the manufacturer, including zoom eyepieces in most cases. How you focus the optic varies, and some models allow viewing at an angle instead of straight through. This type is compact, rugged, and many models are available.

The second type of spotting scope (Illustration 2) is borrowed from astronomy, and unlike the first type have no prisms, but a simple mirror. This means that the image is right side up, but reversed left to right. Viewing is done at a right angle. These scopes take more care in use and handling. The mirror assembly, the eyepiece, and the focusing mechanisms are more subject to wear and tear than the first type. But there are advantages. Your choice of eyepieces is vast, and because there is no prism to scatter light, they seem a little brighter for their size. They are, in general, reasonably priced and light weight. But they must be handled carefully.

The third type (Illustration 3) is also borrowed from astronomy, but is of much different construction. There are many variations, but a good generic term for these are mirror optics, two of the variations being called Schmidt-Cassergrain and Maksutov-Cassegrain, named after the original designers. If you look at illustration three, you will get an idea of how they work. The light comes through a collector plate, bounces off a mirror at the back of the scope, hits a little mirror attached to the correcting plate, and finally exits out the back of the scope. If you are wondering what you get for this effort, the answer is the ability to pack what would be a large telescope into a small package. These are available with front lenses of 980 to 100 mm. This means brighter images and higher powers. You generally view at a right angle, and the image is reversed left to right. Like the second type, a little more care in handling is necessary. They use widely available astronomical eyepieces. If you must have the highest power possible, these should have your attention.

As a last note on the two astronomical types, the numbers on the scopes and eyepieces are marked a little differently, and figuring out the exit pupil and power requires an extra step or two. Because the eyepieces will fit many types and sizes of scopes, the eyepieces do not give the magnification, but instead give the focal length, or the distance from the center of the lens to where it will focus a distant object. Also, the scope has a focal length which you must know, but again this is clearly stated in the manufactures literature and is usually on the scope. For example, I have a scope of the second type, which has a front lens 60mm wide. It is marked as having a focal length of 420mm. I have an eyepiece marked as having a focal length of 20 mm. To figure out magnification, here is what you do:

Continued on page 4

Illustration 1

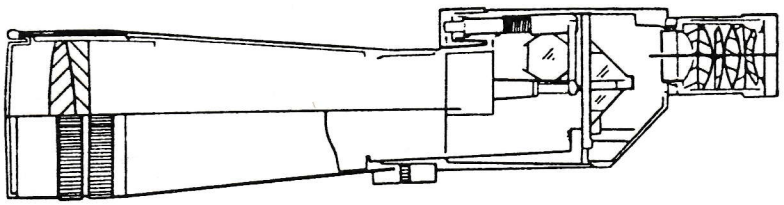
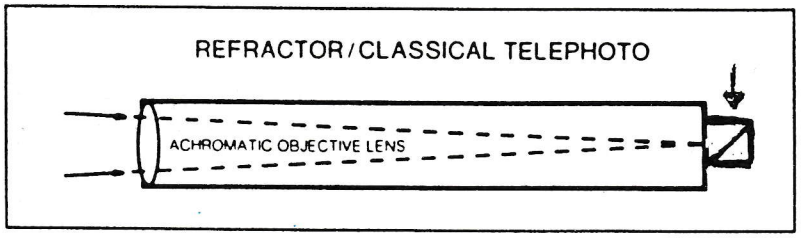


Illustration 2



Refractor

To find the power: Divide scope focal length by eyepiece focal length.

420/20 = 21 power

If exit pupil is equal to front lens diameter divided by power, then I have about a 3mm exit pupil.

This is a bit tricky, but literature from scope companies give the specifications for their instruments, and astronomical stores have a pocket calculator for just such purposes.

So there are your choices. A standard half of a binocular giving you a rugged compact unit, but perhaps limited eyepieces. An astronomical unit giving you a better choice of eyepieces, but requiring more care. And the folded optics, or mirror lenses giving higher power, but having the same restrictions as the second type. The good and bad news is this: the astronomical types are getting more rugged, and the standard types are offering bigger objectives, giving us many choices that weren't available just a few years ago.

One hates to admit to prejudices when trying to explain a subject, but I must admit that in spotting scopes, to me, the bigger the front lens the better. Here is why I feel that way:

1. You will be putting a scope on a tripod, so bulk and weight are not as important — the tripod will be more of a hassle than the scope.

2. Most are about the same length. The ones with the bigger front lenses getting rounder, but not much longer, and are just as easy to handle.

3. With a small front lens either you stick to lower powers or you get a dimmer image, and that's not prejudice that's a fact. If you will recall at the beginning of this article, I said that there were three numbers that were important in binoculars: the power, the size of the front lens, and the exit pupil size, found by dividing the power into the front lens size. For example:

Power		Front Lense		Exit Pupil
7	into	35	=	5

In bright light, the pupil of your eye shrinks to about 2.5mm. The above binoculars would be quite comfortable in bright light, and also do pretty well in dim light. Now lets look at some numbers for common scopes on the market. Since you can get different eyepieces that give you different powers, I will pick eyepieces that give an exit pupil equal to 2.5mm.

Power	Front Lense	=	Exit Pupil
20	50		2.5
24	60		2.5
32	80		2.5

These powers are nice and bright in good light — a dim day or higher power and your view through the scope starts to darken. Most people put up with somewhat of a dimmer image to gain the higher powers. After all, the scope is on a tripod making for a steady view, but all in all the larger front objectives give you a broader range of powers and a righter image. Most manufacturers offer several choices in eyepieces, and powers ranging from 15 to 60. Personally, I feel the lower the power you can tolerate is better than too high a power, especially for viewing over a long period of time.

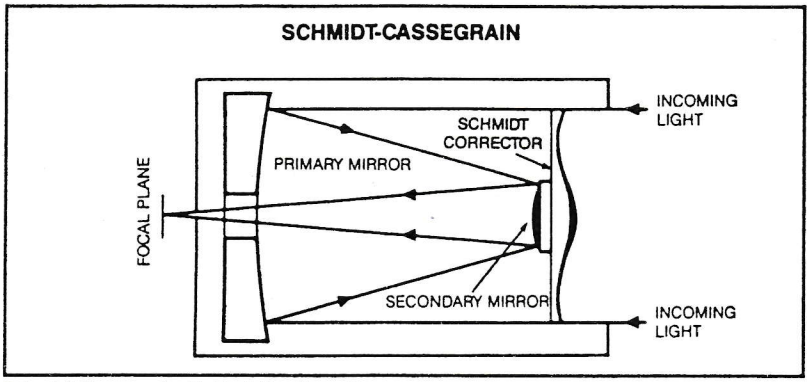
Testing Them Out

The following tests are for all optics and can be easily performed. For binoculars, start by adjusting the binoculars to fit you. If you are wearing eye glasses, fold down the rubber cups for a better view. Then spread the binoculars — they all have a hinge between the two halves — until you can comfortably see through them. Next, most binoculars have one eyepiece that can be adjusted, and it is usually marked from plus to minus. Cover that half with your hand or a lens cap and look through the other side. Don't close your eye, or you will be squinting! Find the focus adjustment for the binoculars and focus on a far object and get it as sharp as you can. Now cover that side, and without touching the focus look through the other side. Rotate the eyepiece adjustment until the same object is sharp. Now check the setting on the eyepiece adjustment — that is the setting you will use for that pair of binoculars. The adjustment is there to balance any difference in your eyes. For example, with my glasses on, my setting is 0, but without my glasses it is -1. If you intend to use your binoculars with and without glasses, do this twice.

Alignment (Binoculars Only)

With both sides properly focused on a far

Illustration 3



Schmidt-Cassegrain Optical Configuration

object, center an object in the field of view. Alternately close each eye, and see if the centered object seems to jump — if it does the binoculars are not properly aligned.

Close Focus

This would seem simple, but there are a couple of catches. With binoculars, try with and without glasses — there can be a difference. With scopes, try the eyepieces you intend to use most often, and again with and without glasses.

Field of View & Eye Relief

Eye relief is often stated by manufacturers as a number, but for now let's say it's the ability to see as wide a field with glasses as without glasses. Try looking with the eye cups folded down, through the optics with eyeglasses or sunglasses on. Then fold the cups up, and try again. Some optics will show no difference in width of field, and others will show a considerable difference. Field of view, however, is a comparison. Two pair of 7 x 35 binoculars can have different fields of view, and two 60mm scopes at 20 power can have different fields of view. But, if you must wear glasses, this is complicated by the ability of the optics to deliver that image to you. In general, small binoculars and high power scopes have the worst eye relief. However, most people seem not to mind a little loss of field if they can comfortably see through the optics.

Sharpness

This is a comparison test, and is fairly straightforward. Just be sure to compare apples and apples — compare 7 power binoculars with 7 power binoculars, not with 10 power. Do the same with scopes. Focus on a highly detailed pattern and look for the smallest detail you can see. Pick something with lines if possible, and try for an object that challenges the optics. Then compare. With a scope, compare 60mm scopes at the same power — don't compare a 60mm with an 80mm at the same power, because the 80mm will be brighter and you can get fooled. With binoculars, often the total design — the weight, shape, and feel of the binoculars aid in the sharpness, simply because you can hold some designs steadier. There are giant binoculars with superb optics, such as 11 x 80s that offer wonderful eye relief, a large image, and weigh a ton. They are very sharp — if you can hold them up.

Straight Lines and Color Fringing

These are two very different characteristics, but can be tested at the same time. Find a straight line, such as a power line that fills the entire field. Try to get a good contrast difference, such as a bright sky and a dark line. Focus on the line in the center of view and then look carefully at the corners of the image. Does the line bend upwards or downwards? Then look along the line. Do you see a secondary color just above or below the line? Both these faults should be non-existent.

Contrast

Imagine being in front of a dirty window and looking out. Everything looks O.K. until you open the window — suddenly there are brighter colors everywhere! Look into the shadows. Suddenly there are details that were not there. Everything stands out sharper, clearer, and better defined. This is contrast, and in comparing optics it is very important, especially when the light is low. When comparing optics try looking at a subtle area, such as a shaded area. Does one instrument make the area look more vivid than another? Does one make the difference between colors more intense? Can you see into shadows better? This is what contrast does for you. As always, compare optics of similar specifications.

Edges

Be sure in doing any tests to check right to the edge of the field — the center is the easy part — getting it right the whole way across the field is the hard part.

The above tests are simple, but will weed out truly terrible optics. There are so many good instruments available today that it is silly to get something that doesn't suit your needs, or is of poor quality. I hope you can attend the Scope and Binocular Show on Sunday, October 14, from 10:00 - 4:00 p.m. at Fort Mason in San Francisco (see enclosed flyer). You will have a chance to handle and check out optics from many companies, and compare them in an outdoor setting. Hope to See you there. ■

SHIPS IN THE DESERT

by Paul Noble

I have always wanted to use that title, as it is a complete contradiction in terms. What I am referring to is our tour of southeast Arizona this past August. Our "ships" were however cars and the word desert really does not apply to southeast Arizona in August. As you may know August is the season of the monsoon, the summer rains. These rains transform a parched landscape to a lush, green grassland full of birds.

We were fearful last may that the rains would fail as they have done during the past three years leaving the area as dry as it had been on our spring trip. Our fears were put to rest as we entered Madera Canyon, south of Tucson. Brilliant verdant slopes extended as far as the eye could see. The songs of Botteri's Sparrows could be heard as one drove by. I met the group at Bog Springs campground. It was here that our trip began. For the next eight days we would experience the best birding southeast Arizona had to offer.

Madera Canyon produced excellent birding with the Elegant Trogon being one of the most sought after birds. We not only found a pair of Trogons, but Red-faced Warblers as well. A Whiskered Owl was obliging when found on a day roost. Florida (Flor-EE-da)

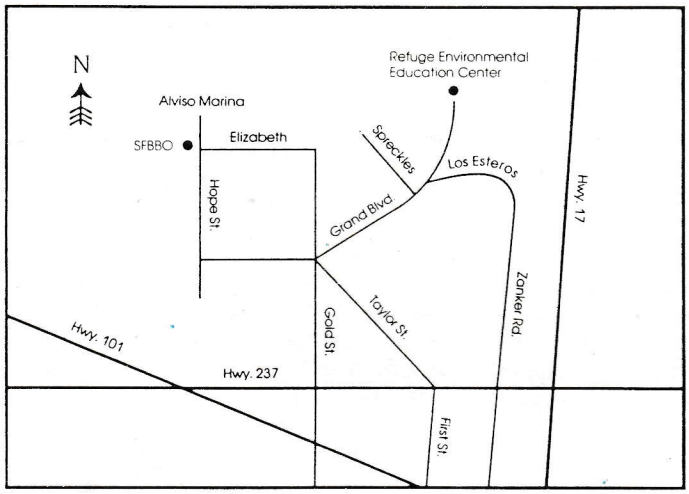
Continued on page 6

The Bird Observatory is located at 1290 Hope St. in Alviso. The office is open from 1-5 pm weekdays and some weekends. But before stopping in, call (408) 946-6548 and check the schedule.

The General Membership meetings are typically held on the first Thursday of each month, but are sometimes changed due to the availability of the speaker. The program starts at 7:30 pm at the San Francisco Bay National Wildlife Refuge Environmental Education Center in Alviso. (see map) The Board meetings are open to the membership and are held monthly. Call the Observatory office for dates and times.

The newsletter is a bimonthly publication. Send contributions to the editor: Susie Formenti, 16675 Buckskin Ct., Morgan Hill, CA., 95037. The deadline is the first Monday of the previous month.

The San Francisco Bay Bird Observatory is a non-profit corporation under IRS statute 501(c) 3. All memberships and contributions are tax deductible.



Ships In the Desert Cont.

wash came through with the aforementioned Botteri's Sparrow as well as crippling views of Varied Bunting. We moved on to Patagonia and to the lovely Sonoita Creek Sanctuary. Here we found our first surprize — a Violet-crowned Hummingbird. It would not be our only rare hummer though. At Ramsey Canyon Preserve a White-eared Hummer was visiting a feeder on a regular basis and was seen by all. Sawmill Canyon in the Huachucas were productive with the main target bird here being the Buff-breasted Flycatcher. We saw the flycatcher well and also had excellent views of Hepatic Tanagers. At Sonoita, just up the road from Patagonia, we were audience to singing Cassin's Grasshopper and Botteri's Sparrows allowing easy comparisons of song and plumage. We made our way to the Chiricahuas for the Mexican Chickadee, the only place in the United States where this bird may be found. Camping at Rustler Park amid pine and fir forest we set out on a evening hike to the top of Barfoot peak where one has commanding views. The Chickadees were proving a bit elusive, but we finally ran into a feeding flock of Olive, Grace's and Hermit warblers and at last the Chickadees.

Our next stop on the tour was to be a bit of a change to the relatively cool weather we had been experiencing all week. To find the Common Black Hawk one must invariably go to Aravaipa Creeks north and east of Tucson. Although a perennial stream with giant cottonwoods growing along its banks, once you get out of the creeks influence the desert begins. At an elevation of only 2000 feet it is hot. After a twelve mile dirt drive we come to the parking area and not five seconds after getting out of the cars the Black Hawk is seen flying overhead and away. Well a quick look is better than none at all. All told we saw over a hundred species of birds, a few mammals and a black-tailed rattlesnake thrown in for good measure (after all what is a trip to Arizona without rattlesnakes?). I thank those participants who put up with my misdirections on occasion and the sometimes drippy weather. For those who missed this trip look for a repeat next August. Lets see, maybe that Montezuma Quail will show this time. ■

Thanks

The editor would like to thank Jean & Pat DuBois for their assistants with the newsletter mailing.

Watch for information about the December Annual SFBBO Meeting in the next newsletter.

San Francisco Bay Bird Observatory

P.O. Box 247
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Alviso, CA 95002
408-946-6548

I would like to join ☐ Renew my membership ☐ in the San Francisco Bay Bird Observatory.

NAME_____

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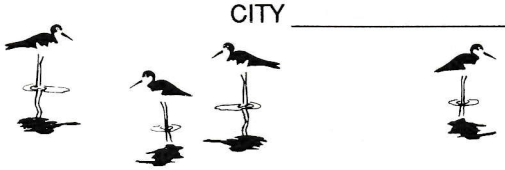
CITY _____STATE____ZIP_____

Student/Senior	$10
Regular	$15
Family	$20
Associate	$50
Contributing	$100
Sustaining	$200
Life	$400 *
Patron	$2000 *
Corporation	$500 *

* Single payment becomes part of an endowment fund.



Make checks payable to SFBBO. Your membership is tax deductible.

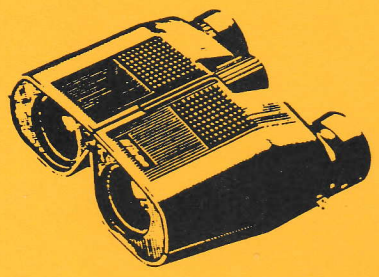
San Francisco Bay
Bird Observatory

San Francisco Bay Bird Observatory &
Golden Gate Raptor Observatory
present

Golden Gate
RAPTOR
Observatory

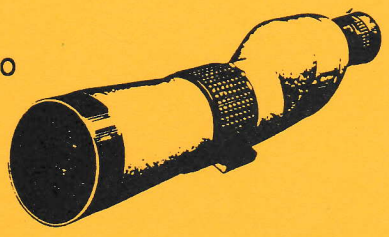
2nd ANNUAL
SCOPE AND BINOCULAR SHOW

SUNDAY, OCTOBER 14, 10-4 p.m.



Bldg. F (Firehouse), Fort Mason, San Francisco

$3 Admission
Ample parking available



Come see, handle and purchase the latest in spotting scopes and binoculars from top manufacturers such as:

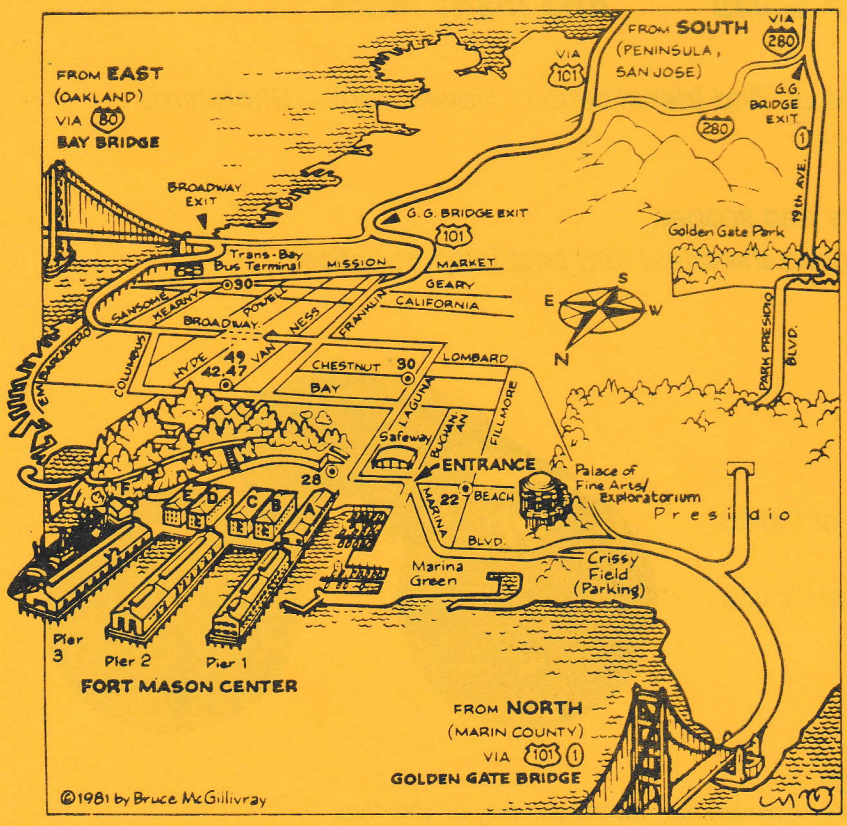
Swarovski	***Leitz***	***Swift***	***Celestron***
Orion	***Nikon***	***Kowa***	***Aus Jena***
Leupold	***Bogen***	***Optolyth***	***Zeis***
Bushnell	***ABA Sales***	***And many more***	

- *Lectures and slide presentations on Bird Identification: Hawks, Gulls, Shorebirds*
- *Demonstrations on care of optics*
- *Door Prizes*
- *Lectures on choosing binoculars and scopes*
- *Outdoor test patterns for comparing the latest and best in sport optics*

Lecture Schedule

11:00 - 12:00 Gull Identification
12:00 - 1:00 Lecture on Use and Selection of Optics
1:00 - 2:00 Shorebird Identification
2:00 - 3:00 Lecture on Use and Selectionof Optics
3:00 - 4:00 Hawk Identification

Thanks to Lockheed *Missiles & Space Company, Inc. for the printing of this flyer*



DIRECTIONS

East Bay - Bay Bridge to Embarcadero Exit; Main right to Harrison & turn left; Harrison to Embarcadero & turn left; Embarcadero (1.5 miles) to Bay and turn left; Bay to Buchanan & turn right. Cross Marina Blvd. & sharp right into Fort Mason Center.

Peninsula - US 101 North to 9th St. Exit; 9th to Hayes & turn left; Hayes to Franklin & turn right; Franklin to Bay and turn left; Bay to Buchanan & turn right. Cross Marina Blvd. & sharp right into Fort Mason Center.

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