

WORLD'S BEST

BY ANY TEST



*Bausch & Lomb*

BINOCULARS



## ALL AMERICAN

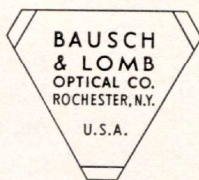
Bausch & Lomb Binoculars are made in America. They are designed in the B & L Scientific Bureau, castings are made in the B & L foundry, machining is done in the B & L shops, and the glass is made in the B & L glass plant, the only glass works in America maintained by an optical manufacturer. Every part and process is the result of American thought and ingenuity.

We acknowledge our heritage from the optical science of the past, but particularly we wish to point to

the achievements of the modern American optical scientist, the metallurgist, and the mechanical engineer, who have placed the new Bausch & Lomb Binoculars in the forefront in value and quality of world products.

A Guarantee Certificate accompanies every Bausch & Lomb Binocular that leaves the factory. It guarantees to you the finest of materials and workmanship, and satisfaction from a purchase of lasting value.

# BAUSCH & LOMB BINOCULARS



# INSIDE INFORMATION ON BINOCULARS

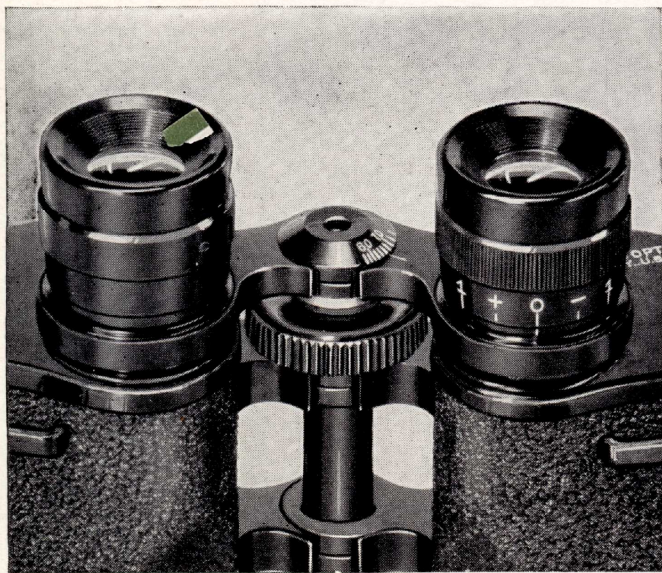
Would you like to check up on Binocular value? Know why prices vary? Why Uncle Sam buys the finest glasses obtainable?

Binoculars are scientific instruments and the best facilities and highest order of skill are required in their manufacture, yet the tests by which you can measure the quality of a glass are simple and can easily be performed.

The following tests will enable you to go into a store and intelligently examine and compare different glasses.

**MB**

*Below: A central focusing model 7X, 35.*



## Focusing

Two adjustments are necessary to render a binocular adaptable to any pair of eyes having normal or abnormal vision. The barrels must swing on a hinge to provide for adjusting to the distance between the eyes. Secondly, to accommodate those having eyes of unequal vision, one eyepiece must be individually adjustable. Both of these adjustments should be graduated for convenient resetting.

Then, because binoculars are used for varying distances, it is necessary to focus the eyepieces. To adjust a glass, place it before your eyes and move the barrels together or apart until it comfortably fits the eyes. Next, if the glass has a central focusing device, cover, with the hand, the objective which is on the same side as the adjustable eyepiece and rotate the central focusing adjustment until the object is as clear and distinct as possible. Then cover the other objective and turn the individual eyepiece adjustment until the object can be seen clearly, and the glass will be set. The binocular is now in adjustment for your eyes and will require no resetting of eyepieces, unless changed by some other user. By taking the readings which are on the adjustment scales, you can, at any future time, readily reset the glass to fit your eyes.

## Magnification

By magnification (or power, as it is sometimes designated) we mean the number of times the image seen through the glass is larger than the object appears to the naked eye. Magnification is a comparatively easy characteristic to obtain in a binocular. By placing lenses of the proper curvature the proper distance apart, any desired magnification within reason can be had.

To obtain the numerous other desirable qualities necessary to a good binocular, workmanship and skill of the highest degree are required. Do not, however, take for granted the power which is stamped on a glass. Glasses of obscure make are sometimes much lower in power than they are claimed to be. The following experiments will enable you to check up on the power of binoculars.

Select an object about one hundred feet away, place the glass upon a rest, adjust it to your eyes and focus it on the object. Any object which does not occupy the entire field will do. Now, instead of looking through both barrels, look at the object through one barrel, having the other eye exposed so that it is peering down the outside of the glass at the object. Then with both eyes looking at the object you will see two images, a large one seen through the glass and a small one seen with the naked eye. Then move the lens about until the large image overlaps the smaller. Now

The square illustration shows a view of New York City as it would look to you from above. Others show the magnifications obtained by 4, 6, 8, 10 and 20 power glasses.



4 POWER



6 POWER



8 POWER



10 POWER



20 POWER TELESCOPE

compare the sizes of the images. The number of times the large image exceeds the small image in height is the actual power, of the glass. In other words, if the glass is 8 power, the large image should be eight times as large as the small image.

In the listing of Bausch & Lomb Binoculars, the power or magnification is indicated by  $\times$ , and the objective lens diameter in millimeters by the figure immediately following. Thus, a  $7\times$ , 35 B & L Binocular magnifies 7 times and has objectives 35 mm in diameter.

### Field of View

"Field of view" is the term used to designate the width of the view which can be seen through a binocular at a given distance. A wide field of view is highly desirable, both in making it easy to locate any particular object that you wish to observe and in being able to see more of a view without moving the glass.

Sometimes, a large field of view is secured at the expense of marginal definition. This reduces the value of the large field, since, unless the object is clearly seen, recognition is difficult.

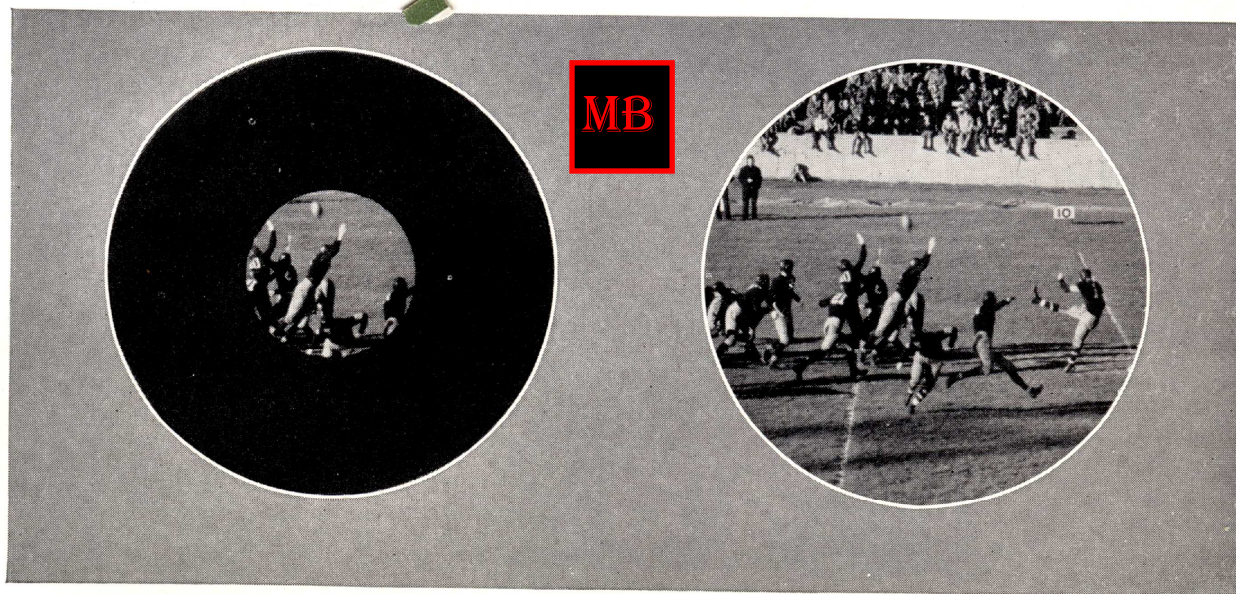
Comparing two glasses for field of view is a simple matter. First be sure that the two glasses are of the same rated power because a low power glass will generally allow a greater field to be seen than a high power glass. Focus each binocular on the same object at a moderate distance. A brick building can be used for this purpose. Place one binocular to your eyes and count the number of bricks which you can see across the widest part of the field without moving the glass. Repeat this performance with the other glass. Of course, the glass showing the larger number of bricks has the greater field. If a brick building is not available, this test can be performed by focusing both binoculars on any object or landscape which is larger than the area covered by the glass, and observing the most widely separated points which can be seen through each glass. The glass which has the more widely separated objects in its field is the glass which has the larger field.

### Clearness of Field

In testing to determine if a large field of view is clearly defined to the

*Left:* The field of view of a Galilean Glass.

*Right:* The field of view of a Bausch & Lomb Binocular.



edge, hold the head still and swing the binocular so that the object appears to move to the edge of the field. In comparing two glasses for clearness of field, we must first be certain that the magnification and field of view are the same. Glasses are not made that show definition in the margin of the field equal in every respect to that in the center.

### Size and Construction

Binoculars are divided into two distinct classes, the old fashioned Galilean type and the modern prismatic type. The former is nothing more or less than a double telescope with direct vision through the lenses. The prismatic type reflects the image through a series of prisms set at opposing angles. The Galilean glass is seldom constructed to magnify more than  $3\frac{1}{2}$  or 4 times, because higher magnifications require excessive length and weight. At best, the field of view is comparatively small.

In the Bausch & Lomb prismatic type light passes through the objective lens and is reflected by the first prism into the second prism, and then is reflected through the eyepiece lens system, as shown on page 8. This construction materially shortens the length and at the same time permits long focus objectives to be used. It also results in a light weight, compact design and permits more separation between the two telescope systems than when other erecting prism systems are used. This greater separation results in desirably enhanced stereoscopic effect.

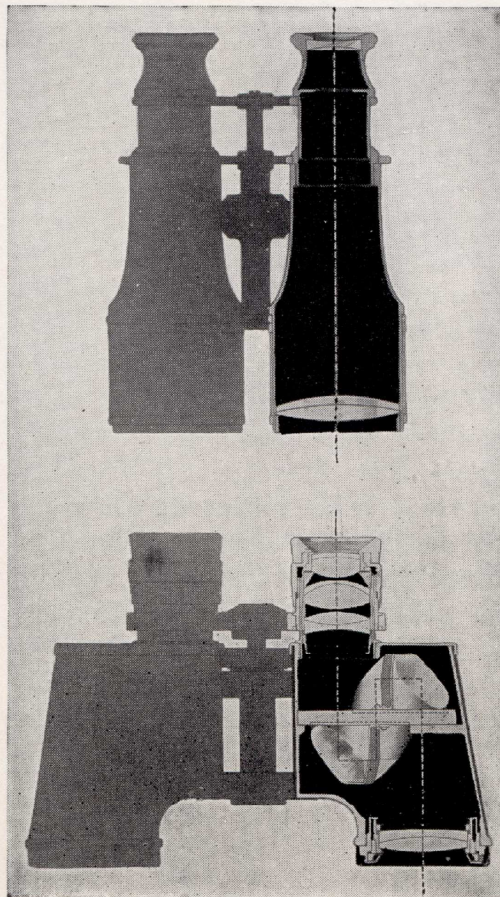
The greater separation of the objective lenses gives the same result as though the eyes themselves were that distance apart.

### Alignment

In order that a glass may function properly, both optical and mechanical axes must be aligned. This calls for extreme precision and rigid inspection, because the alignment must be correct at every possible interpupillary distance. It is difficult to test alignment without precision testing equipment. However, an approximate test that will reveal severe misalignment can be made as follows. Draw upon a piece of paper two lines about two or three feet long, crossing each other at right angles. Place this cross line diagram about one hundred feet away and focus the glass on it. The binocular must be fixed on a rest. If the glass is approximately aligned, you will see a single sharp image of the cross line. If not, you will see two images of one or both

*Top:* Galilean Field Glass.

*Bottom:* Bausch & Lomb Prism Binocular.



The greater the visual angle the greater the stereoscopic effect.

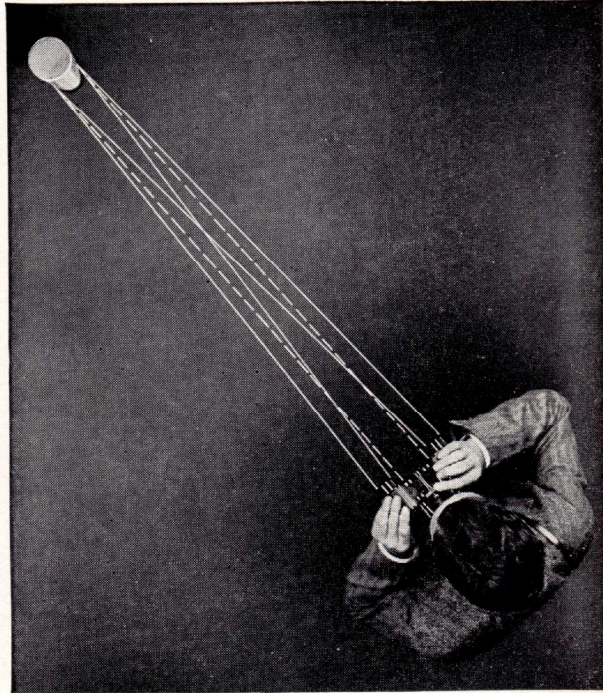
of the lines, or the lines will be thick and fuzzy. Much less misalignment than is revealed by this crude test will result in serious eyestrain.

The alignment of a binocular may be correct when the glass is new, but very little wear or a slight impact may throw it out of adjustment unless it is rigidly constructed to give life-long service. The prisms in ordinary glasses are not securely mounted, and they are easily shaken out of position. Bausch & Lomb Binoculars have prisms securely mounted by mechanical means, insuring life-long performance.

### Stereoscopic Effect

The stereoscopic effect of a binocular is its quality of giving the view depth, as well as breadth and height. If you will close one eye and observe several objects within your view, you will find that it is quite difficult to determine their respective distances from you, and from each other. Yet when you look with two eyes, the relative positions become apparent. The reason for this is that when you look with two eyes you are looking at the objects from two slightly different angles. The greater the angles, the greater the stereoscopic effect will be.

A quality binocular, therefore, will have the objective lenses much further apart than the eyepiece lenses. (See illustration.) This feature should be considered when you are purchasing a prism binocular. Particularly in hunting, you will find that stereoscopic effect is vitally important in determining the relative distance of game and its surrounding objects. Stereoscopic effect



is of great importance if correct observations are to be made:

### Brightness

Brightness is a factor that must always be considered, but especially when using binoculars under conditions of low visibility, as in wooded country, in the early morning, in fog, rain, or at night. In any glass, if we neglect the possibility of light losses in passing through the optical system, illumination is proportional to the square of the quotient of the full aperture of the objective divided by the magnification. For a given magnification the larger the objective the more light. Light losses can be caused by improper design and lead to a reduction of the effective aperture to less than the apparent free aperture of the objective.\* A certain loss of light is inevitable, due to reflection at the glass surfaces and to absorption within the glass.

\*This defect is easily overlooked in the examination of a prism binocular.



# BAUSCH & LOMB BINOCULARS

Designed for lifetime service

**MB**

The superiority of B & L glasses is made evident by the fact that they are used by the U. S. Army and Navy and are the ultimate choice of those who demand the best.

Both Zephyr-Light and regular weight models are available. The bodies of the Zephyr-Light Binoculars are made of a light weight, high tensile strength alloy, such as is used in aircraft construction, thereby materially reducing the weight without sacrificing either optical or mechanical efficiency.

Bausch & Lomb glasses remain in alignment and adjustment even after they have been subjected to severe abuse. This is entirely due to their sturdy construction. The bodies are made of strong aluminum alloy. The prisms, instead of being cemented in as they are in many cheaper glasses, are recessed into the prism support and are so snugly fitted into this recess that lateral shift is impossible. The prism is held down into this depression by a sturdy, bridge-shaped, metal strap, held by screws.

Because the alignment adjustments in B & L Binoculars are made with the objective lenses, the prisms can be permanently anchored in this manner. In cheaper or old style glasses, collimating is often accomplished by shifting the prisms. It is obvious that when provision is made for shifting these prisms they cannot be firmly locked in place.

If the prisms were merely cemented in, a slight impact would cause them to loosen and get out of place.

Glasses of this construction are frequently in need of repairs and are a source of dissatisfaction to the owner. Some of the better types of glasses have prisms held in the body by means of three screws which are used to adjust the prism for collimating. Although this method of mounting is superior to cementing, the prisms are likely to get out of adjustment and ruin the alignment or collimation of the glass.

The field of view is as large as possible without sacrifice of other desirable qualities. Any B & L glass has a field of view about three times larger in diameter and nine times larger in area than that of the Galilean type.

The eye cups on a B & L glass are formed to fit comfortably against the brow; they do not exert pressure against the eye itself, and thereby irritate it—a valuable and comfortable characteristic in prolonged observation.

An adjustment of one eyepiece enables the user to adjust the B & L center focusing glass to his own eyes and a scale enables him to reset them in a fraction of a minute. The independently focusing eyepieces (preferred by U. S. Navy and Army) are available in all except the Zephyr-Light models.

B & L glasses are adjusted and tested until the alignment of the barrels is correct to 1% from one extreme of the adjustment to the other.

Bausch & Lomb Binoculars are

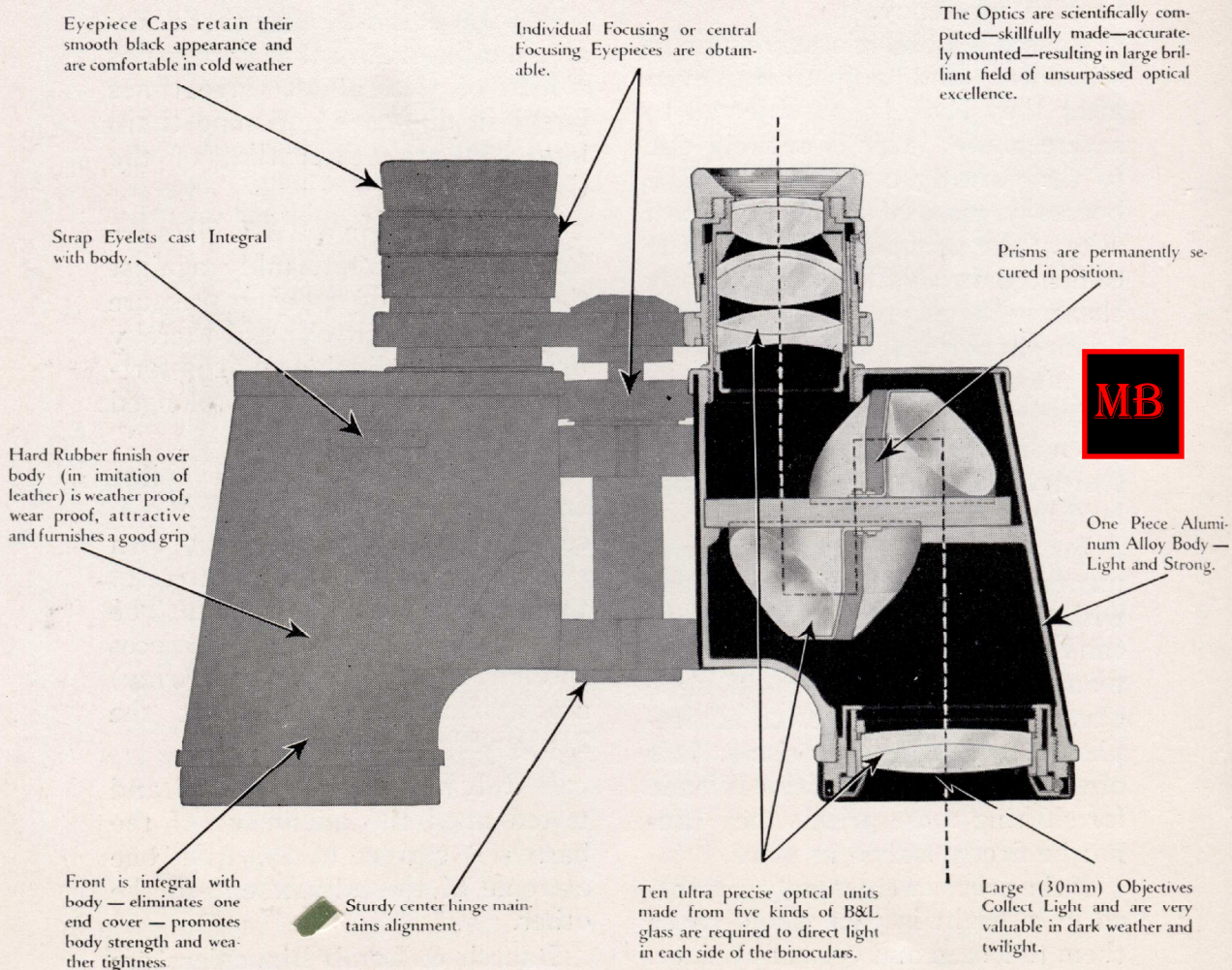
made with Bausch & Lomb optical glass, acknowledged to be without superior in the world. This glass is produced in the Bausch & Lomb Glass Plant, the only commercial optical glass plant in the western hemisphere, which, accordingly, has the advantage of being able to develop as well as to specify the most favorable types of glass for all B&L instruments. In this way, the limits of optical theory are now fully realized in practice.

In making a binocular, the lenses and prisms must be accurate to within a wavelength of light of the specifications. That means that the

measurements must be made in millionths of an inch. Such fine measurements cannot be obtained by any mechanical device. They can only be made by actually using light waves as units of measurement.

Decide what power of glass will suit your needs, compare the B & L glass with others on the market, by means of the tests which we have suggested or any other test you might conceive. Then make your decision. Optical excellence, mechanical dependability and handiness are combined in B & L Binoculars. If you desire any further information about binoculars, write us.

*Below: Cross Section of 8 X, 30 glass.*



# WHAT MODEL TO CHOOSE

## The experts make recommendations

In choosing a binocular, first of all one must decide the chief purpose or purposes for which this glass will be used.

There is a binocular which is best suited for every individual use. We cannot, however, say that one type of glass (and that type only) can be used for a particular purpose. Many, in spite of adverse opinions, have successfully used some "pet" glass for numerous purposes.

### Focusing Adjustments

B & L glasses are made in central focusing and individual focusing eyepiece models. The central focusing device is very convenient, especially where several people will use the same binocular. The individual eyepiece construction is preferred by the Army and Navy because of its more moisture proof construction, simplicity, and sturdiness.

It is preferred by the sportsman and those who intend to be the sole users of the glass. Such a person can focus each eyepiece in that position best suited for his eyes and then either note the eyepiece setting on the diopter scale to facilitate setting the eyepiece in the future, or securely strap the eyepieces in position with adhesive tape.

### Do you wear glasses?

For those who wear eyeglasses, special flat cups are available in place of regular cups for the 6×, 30;

7×, 35; 8×, 30; 8×, 40, and 9×, 35 mm glasses, without extra charge.

### Rubber Eye Guards

The rubber eye guards, illustrated on page 10, are attached to the binocular eyepieces. They fit tightly around the eyes, excluding all outside light, and thus brighten the visual image. These eye guards are available for 6×, 30; 7×, 35; 8×, 30; 8×, 40 and 9×, 35 models.

Carrying case and neck strap.





*Top: Rubber Eye Guards.  
Bottom: Rain Guard.*

Rotatable rubber eye guards are available for the 6×, 30; 7×, 35, and 8×, 40 models. They replace the regular bakelite eyecups and turn freely to allow adjustment of individual focusing eyepieces.

### Rain Guard

The black leather rain guard is placed on the neck strap, as shown, and slides down to cover the eyepieces when the binocular is not in use.

### Carrying Case and Straps

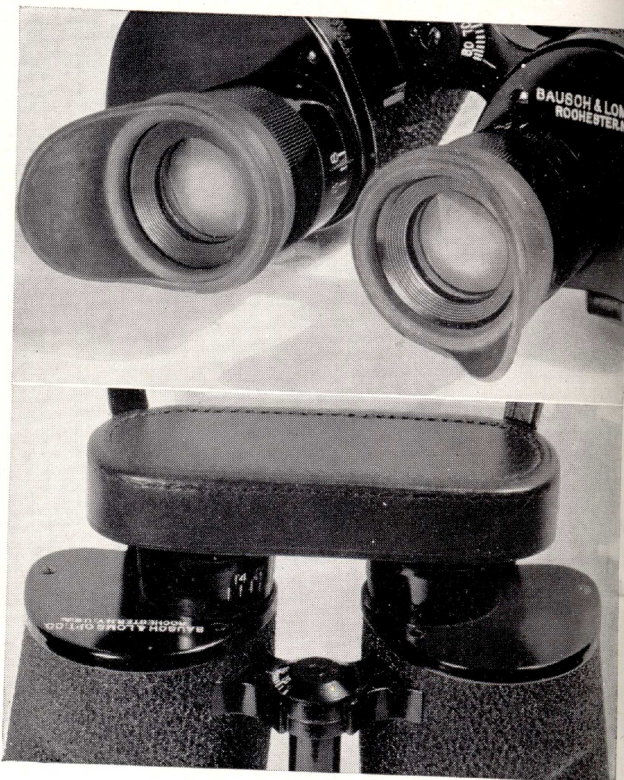
Sturdy carrying cases in either black or tan cowhide are supplied with Bausch & Lomb Prism Binoculars. They are designed to protect the binocular, yet are neat and attractive in appearance. An adjustable shoulder strap for the case and a neck strap for the binocular are also standard equipment included in the purchase price.

### Sportsmen and Binoculars

Ozark Ripley, the well known guide, author, and sportsman, uses Bausch & Lomb Binoculars. He recently said:

“Binoculars are positively an essential part of a modern sportsman’s equipment. For hunting big and small game, fishing, exploring, mountain climbing, yachting, motoring, field trials, canoe cruising, they add to your enjoyment—a boon to duck hunters!

“When you buy a binocular, buy a quality product. Don’t let adver-



tised low prices of cheap, inferior glasses mislead you. You pay more for a good glass but you get more. The myth of European optical superiority was exploded long ago. You can buy a quality U. S. A. made binocular at relatively lower cost, considering quality. Select the glass best suited for your purpose. As a sportsman’s all around glass, I carry a B&L 6×, 30.”

### Field Trials

Ozark Ripley uses a Bausch & Lomb Binocular in judging field trials. The widest and fastest of dogs can be followed through a B&L Binocular, as though they are alongside the observer every moment of the heat. The wider ranging the champion, the harder he is to follow with the naked eye. A glass of medium power and large field is required.

## Hunting

If the sportsman expects to spend the greater part of his time hunting in wooded country, illumination is an exceedingly important factor. In the dim borders of the woodland the light is often poor and the atmosphere is seldom as clear as it is in the higher altitudes of mountain country. Also at dawn and dusk visibility is invariably poor.

In all forms of hunting, of course, weight and size enter into consideration. The smaller, more compact and easy to carry, the more desirable a binocular is for hunting, providing that illumination, magnification, and sturdy construction are not sacrificed.

In timbered country it is seldom necessary to observe the game at great distances.

However, wide field and good image brightness are essential. The 6×, 30 and 7×, 35 glasses are very popular for this work.

### Arms Editor Gives Advice

Mr. M. H. Goode, Editor, Arms and Ammunition Department of *Southern Sportsman*, often receives requests for information. The following paragraphs are taken from a letter answering an inquiry about Binoculars.

"Dear Mr. C.

"Acknowledgment is made of your recent inquiry concerning the quality of binoculars and spotting 'scopes manufactured by Bausch & Lomb.

"Construction of binoculars is of utmost importance to prevent serious injury to the eyes and for durability. The market is flooded with

spurious binoculars which are invariably bad optically as well as mechanically, and one should never spend money for glasses of faulty construction, poor workmanship, and inferior materials.

"Cheap glasses are often fitted with simple plano-convex lenses instead of highly corrected achromatic lens combinations, which means poor definition as well as color fringes around the image.

"The durability of binoculars depends largely upon the firmness with which the prisms are anchored to the metal frames. In low grade binoculars the prisms are often held by thin springs only, and are cemented to their seat. Cement allows only of partial adhesion between metal and glass, and the prisms are certain to become loose should the glass receive a hard jar.

"The mechanical defects of cheap glasses are many. The covering may be inferior and screw threads may work loose quickly. Apparently in good order when new, within two years the inferior instrument may become foggy, dust sift in between the reflectors, or other serious defects may appear, which will render the instrument unfit for use. With ordinary care, a quality binocular such as Bausch & Lomb should last a lifetime, while the cheap instrument is a worthless makeshift, frequently worse than none at all.

"Bausch & Lomb binoculars are of very high quality and should not be confused with low grade, faulty, so-called prism binoculars offered for sale in pawn shops and cheap sporting goods stores. In my opinion they are the very best binoculars produced, particularly the new models recently announced."

## Outdoor Sports

For use in observing track racing, boat racing and numerous other outdoor sports, wide field of view is an important feature of a glass. A wide field of view will enable the observer to see a larger number of the entrants than will a small field. High power is not important, as the objects are seldom far enough away to make high magnification necessary. A wide field will enable the observer to follow the scene with considerable ease. We, therefore, recommend the 6×, 30; 7×, 35, the B&L Sport Glass, and the Companion Glass for this purpose.

### Camping Trips By Water

The canoeist or fisherman on a trip through strange waterways will find a binocular to be a handy piece of equipment. With it he can locate camping sites along a wooded shore or he can save time by investigating the safety of the wind swept water beyond a protecting point.

### Woodchuck Hunting

The woodchuck and prairie dog hunter will find a light-weight binocular a handy part of his outfit. The glass can be slung from a shoulder strap. Only one hand is necessary to manipulate it when he scans the distant hillside to locate a 'chuck which may be out for food.

### Forest Rangers

Ask the alert forest ranger to let you look through his binocular the next time you climb to a mountain

observation tower. Binoculars are an essential part of the equipment of every fire warden. They increase the area over which his vigilance can be effective. They assist in definitely establishing the position of an incipient forest conflagration. High power is most useful in such work and we recommend the 10×, 50 and the 9×, 35.

### Target Shooting

Fred C. Ness, "Dope Bag" Editor of the American Rifleman Magazine, in commenting on the use of binoculars for target shooting, said:

"To the modern rifle or pistol shot, binoculars and a spotting 'scope are indispensable, but unless they are of the best quality, one is better off without them. We have been the victims of an avalanche of cheap optical junk from Europe, some of which is so bad that it imposes a severe strain upon the eyes."

### The Race Track

Rare is the picture of a race track which does not include binoculars. There is a reason for it. When the horses round the far turn and start down the other side of the field, one needs a binocular to see the position of his choice. Horse race enthusiasts have long appreciated and used B & L Binoculars.

Wide field of vision is a prime requisite of a binocular for this pastime.

The 6×, 30 mm and 7×, 35 mm Binoculars are recommended. The Companion, Sport, and Balar Glasses are also used.



Photo: S. A. Grimes—The Blackburnian Warbler.

## For General All-round Use

For the person who can afford but one good binocular, we suggest either the 6 $\times$ , 30, 7 $\times$ , 35, 8 $\times$ , 30, or the 8 $\times$ , 40 mm glass. Their wide field of view, bright illumination, small size, light weight and large exit pupil, together with the fact that their magnification is suited to all-round use, make these glasses the ideal for general purposes.

## Bird Study

Mr. Ernest G. Holt, former Director of Sanctuaries, National Association of Audubon Societies, wrote us in regard to his Bausch & Lomb Binoculars as follows:

"As I am rather suspicious of the motive of those who write testimonials, I have heretofore scrupulously avoided lending my own name to any commercial purpose. I am making an exception in this case solely because of three reasons: (1) I honestly believe that you manufacture a superior product; (2) the

few contacts I have had with your firm lead me to believe that you maintain an exceptionally high standard of courtesy in your dealings with the public; and (3) the advertising matter of yours that has come to my attention has not been an insult to my intelligence."

Mr. Holt and other experts agree that the 7 $\times$ , 35 mm, particularly the Zephyr-Light Model, is the best all-round bird glass.

## Hunting in Mountains

In hunting mountain sheep or goats, or any animal where long range stalking is necessary, a light glass of fairly high power is by far the best. A glass of too high a power is difficult to hold steady, and in this type of hunting one is generally climbing or travelling over long distances. After one has made a long climb to an advantageous point of observation, he is usually breathing heavily and will find a glass of high power difficult to hold steady.

In all kinds of hunting a wide field of view is extremely important—the widest possible field permitting clear definition.

## Hunting Ducks

The duck hunter who has never used a binocular to watch rafts of floating ducks, or ducks in flight, has missed one of the enjoyable parts of the sport. With a binocular, much can be learned of the habits and characteristics of various species that will be of future value to the hunter. Spring hunting with binoculars when the ducks are going north to the breeding grounds is a new sport enjoyed by all members

of the family. Watch for those Spring duck hunters the next time you are near the water and join them with your Bausch & Lomb Binocular. High power and good illumination are desirable for this work.

## Exploration

When preparing for his 1934-1935 Antarctic exploration, Admiral Richard Byrd tested a wide variety of glasses and selected Bausch & Lomb Binoculars as the official glasses of the expedition. He was equipped with six 7×, 50 Bausch & Lomb Binoculars and one 10×, 50.

Bausch & Lomb Binoculars were chosen again for Antarctic work by the Byrd Expedition of 1939, and were carried by the Snow Cruiser as standard navigating equipment.

Only the best equipment should be used when human life is exposed to hazards of exploration in new lands.

## Navigation

The ideal glass for navigation use possesses a combination of moderate power and high relative brightness. Seven is the power decided upon as best for the naval and coast guard services. The 7×, 50 mm glass, unquestionably, is ideal, because it gives a maximum of relative brightness. This is of tremendous importance in conducting observations under difficult light conditions or weather, such as at dusk, dawn or even at night.

The 7×, 35 mm is also recommended. It should be remembered, however, that this glass provides

only half the brightness of the 7×, 50 mm.

## Night Glass

Image brightness is the most important feature, of course, to be looked for in a glass which is to be used for work under poor light conditions or at night.

Therefore, a binocular having the largest possible exit pupil will usually prove more satisfactory than one having a smaller exit pupil. We suggest the 7×, 50, and 7×, 35.

## Coast Guard

The Coast Guardsman needs a reliable glass—one with excellent illumination for dark weather—for piercing fog, sleet and snow, for use at night or at dusk. The 7×, 50 mm is a favorite glass among Coast Guardsmen, and the United States Government has purchased many of these during the past few years.

## Target Work

While the most satisfactory glass for target work is a spotting scope, many shooters, who already own a binocular, use a binocular for spotting. This is, of course, a compromise and will work well enough for amateur shooting. Longer ranges and more accurate shooting call for magnification in the order of 20×. Such powers are provided by a spotting telescope.

However, if you prefer to use a binocular glass for spotting, the two higher power B & L Binoculars, the 9×, 35 and 10×, 50, when used on a tripod, will be found very efficient. These glasses, too, may be used for general purposes where a rest is available.





## The 6X, 30 BINOCULAR

Action in the outdoor world—fast moving sporting events—football—race track—hunting deer, moose, ducks, etc.—study of birds and animals—wherever a glass of brilliant illumination and moderate, easily controlled power is required, the 6X, 30 is ideal. Available in central or

individual focusing models.

The angular field is  $8^{\circ} 29'$ , or the linear field 445 feet at a distance of 1,000 yards, length  $4\frac{11}{16}$  inches closed, or  $4\frac{15}{16}$  inches open. Weighs  $19\frac{1}{2}$  ounces. Exit pupil, 5 mm, relative brightness, 25. Magnification: 6 times.

- |             |   |
|-------------|---|
| 61-21-60-01 | Bausch & Lomb Binocular 6X, 30 mm diam., central focusing, in case with straps. |
| 61-21-61-01 | Same but with individual focusing eyepieces.                                    |



## The ZEPHYR-LIGHT 6X, 30 BINOCULAR

This Zephyr-Light Binocular is the same, in both optical and mechanical performance, as the standard 6X, 30 mm Binocular. A high tensile strength alloy is used for the body, to reduce the weight.

The angular field is  $8^{\circ} 29'$ , or the linear field 445 feet at a distance of 1,000 yards, length  $4\frac{11}{16}$  inches closed, or  $4\frac{5}{16}$  inches open. Exit pupil, 5 mm, relative brightness, 25. Magnification: 6 times.

61-21-11-01 Bausch & Lomb Zephyr-Light Binocular 6X, 30mm diam., central focusing, in case with straps.



## The 7X, 35 BINOCULAR

Because of its high light gathering ability, plus the extra magnification, this 7 power has become the most popular binocular for all around use. It is light in weight and fits and balances perfectly in the hands. Many Naval men prefer the 7 $\times$  glass.

The angular field is 7° 17', or the linear field 381 feet at a distance of 1,000 yards. The length is 5 $\frac{7}{16}$ " closed, or 5 $\frac{3}{4}$ " open; weight 26 ounces. Exit pupil, 5 mm, relative brightness, 25. Magnification: 7 times.

- |             |  |
|-------------|--|
| 61-21-70-01 | Bausch & Lomb Binocular 7 $\times$ , 35 mm diam., central focusing, in case with straps. |
| 61-21-71-01 | Same but with individual focusing eyepieces.   |



## The ZEPHYR-LIGHT 7X, 35 BINOCULAR

The 7 $\times$ , 35 Zephyr-Light Binocular also is made with the new light weight alloy body, and is equal, both mechanically and optically, to the standard 7 $\times$ , 35 mm binocular.

It has the same preferred combination of light gathering ability

and power, with the added feature of reduced weight.

The angular field is 7° 17', or the linear field 381 feet at a distance of 1,000 yards. The length is 5 $\frac{7}{16}$  inches closed, or 5 $\frac{3}{4}$  inches open. Exit pupil, 5mm, relative brightness, 25. Magnification: 7 times.

61-21-21-01 Bausch & Lomb Zephyr-Light Binocular 7 $\times$ , 35 mm diam., central focusing, in case with straps.



## The 7X, 50 BINOCULAR

The professional navigator is interested in brilliant illumination for use in foggy weather—a glass with such excellent light gathering ability that it can be used in the evening or even at night. The larger size and greater weight necessary in a 50 mm glass are not serious considerations on board ship. This glass is dust

and water tight.

The angular field is  $7.3^\circ$ , the linear field 381 feet at a distance of 1,000 yards. Its length is  $7\frac{1}{16}$  inches closed or  $7\frac{7}{16}$  inches open. It weighs 42 ounces. Exit pupil, 7.1 mm, relative brightness, 50.4. Magnification: 7 times.

61-21-75-01 Bausch & Lomb Binocular 7X, 50 mm diam., in case with straps. Individual focusing only.



## The 8X, 30 BINOCULAR

This is the general purpose glass selected by travellers, mountain climbers, hunters, and nature students. Ideal in mountain country, for long distance, and clear atmosphere, because of its light weight and high power (few demand higher power). It is highly corrected optically. Available in central and

individual focusing models.

The angular field is  $8^{\circ} 29'$ ; its linear field 445 feet at a distance of 1,000 yards. The length closed is  $4\frac{1}{2}$  inches; open  $4\frac{13}{16}$  inches; weight 22 ounces. Exit pupil, 3.8 mm, relative brightness, 14.3. Magnification: 8 times.

- |             |   |
|-------------|---|
| 61-21-80-01 | Bausch & Lomb Binocular 8X, 30 mm diam., central focusing, in case with straps. |
| 61-21-81-01 | Same but with individual focusing eyepieces.                                    |



## The ZEPHYR-LIGHT 8X, 30 BINOCULAR

In reducing the weight of the new Zephyr-Light Binoculars, great care was taken to insure the superior performance expected of Bausch & Lomb Binoculars. The clarity and distinctness of image corresponds with our standard weight glasses.

This glass is available in central focusing model only. The angular field is  $8^{\circ}, 29'$ , its linear field 445 feet at a distance of 1,000 yards. The length closed is  $4\frac{1}{2}$  inches, open  $4\frac{1}{16}$  inches. Exit pupil, 3.8mm, relative brightness, 14.3. Magnification: 8 times.

61-21-31-01 Bausch & Lomb Zephyr-Light Binocular 8X, 30 mm diam., central focusing, in case with straps.



## The 8X, 40 BINOCULAR

The 8X, 40 has the same relative brightness as the popular 6X, 30 and 7X, 35 binoculars, with the added feature of increased magnification.

This glass will find exceptional favor with sportsmen, as it is a light weight glass with high magnification and large field of view. It is

available in central and individual focusing models.

The angular field is  $6^{\circ} 19'$ ; the linear field, 331 feet at 1000 yards. Length, closed  $6\frac{7}{16}$  inches; open  $6\frac{3}{4}$  inches; weight 30 ounces. Exit pupil, 5 mm, relative brightness, 25. Magnification: 8 times.

61-21-88-01 Bausch & Lomb Binocular 8X, 40 mm diam., central focusing, in case with straps.

61-21-89-01 Same but with individual focusing eyepieces.





## The 9X, 35 BINOCULAR

Light weight and high power are combined in this instrument. It is the binocular to use for hunting in mountain countries where great distances demand its power and where the clear atmosphere permits the use of a powerful glass, and one which

is easy to carry.

The angular field is  $7^{\circ} 17'$ . The linear field is 381 feet at 1,000 yards. The weight is 26 ounces and the length open is  $5\frac{11}{16}$  inches. Exit pupil, 3.8 mm, relative brightness, 14.4. Magnification: 9 times.

61-21-90-01 Bausch & Lomb Binocular 9X, 35 mm diam., central focusing, in case with straps.

61-21-91-01 Same but with individual focusing eyepieces.



## The ZEPHYR-LIGHT 9X, 35 BINOCULAR

The Zephyr-Light 9 $\times$ , 35 mm is a high power, light weight binocular that can be held for long periods at a time without fatigue. The highly corrected and accurately aligned optical system prevents eyestrain.

It is the same hand fitting shape of the standard weight binoculars,

with the same body covering that will never come off or be slippery in wet weather.

The angular field is 7° 17' with a linear field of 381 feet at 1,000 yards. The length open is 5 $\frac{1}{16}$  inches. Exit pupil, 3.8 mm, relative brightness, 14.4. Magnification: 9 times.

61-21-41-01 Bausch & Lomb Zephyr-Light Binocular 9 $\times$ , 35 mm diam., central focusing, in case with straps.



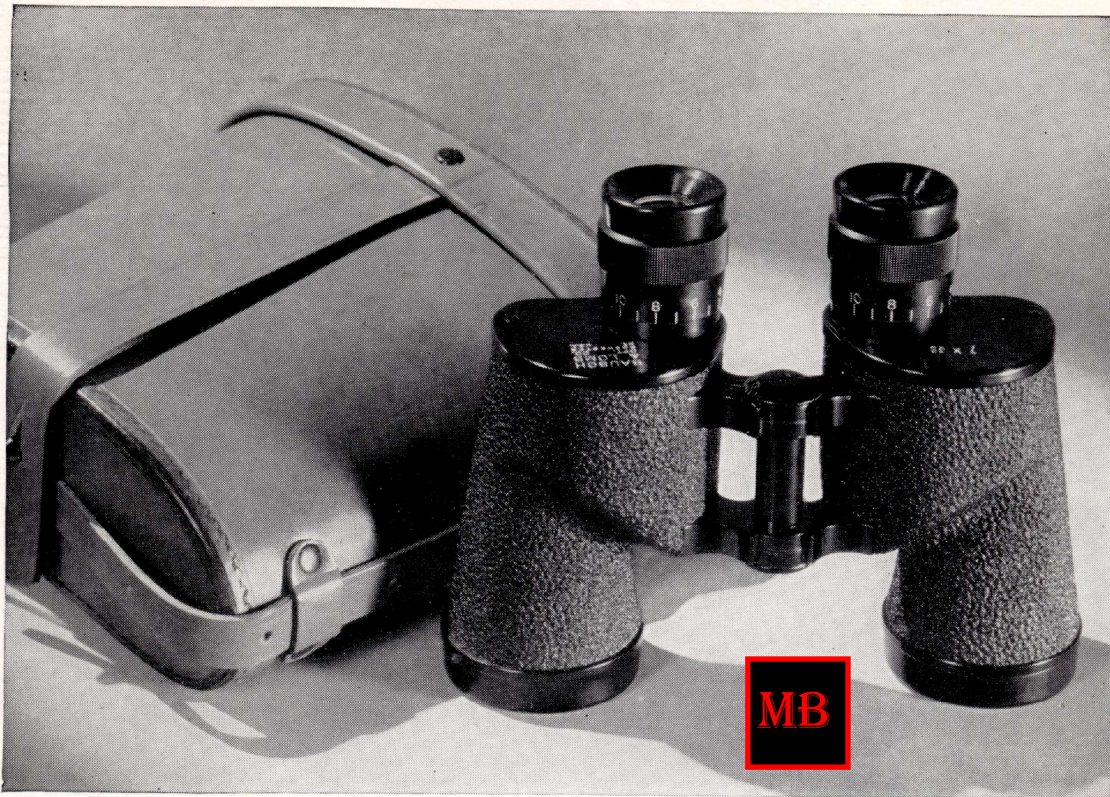
## The 10X, 50 BINOCULAR

Since powers beyond 10 $\times$  are generally used for viewing objects beyond the range at which the stereoscopic effect of a binocular is perceptible, B&L manufactures no binocular with higher magnification than this 10 $\times$ , 50 mm. For those requiring higher magnifica-

tion, a spotting telescope is recommended.

The angular field is 5° 12'; its linear field is 272 feet at 1,000 yards. The length closed is 6 $\frac{13}{16}$  inches; open 7 inches; weight 41 ounces. Exit pupil, 5 mm; relative brightness, 25. Magnification: 10 times.

61-21-05-01 Bausch & Lomb Binocular 10 $\times$ , 50 mm diam., in case with straps. Individual focusing eyepieces only.



## ARMY and NAVY OFFICERS' BINOCULARS

In addition to the models shown in the preceding pages there are three designed and built especially for the Commissioned Officer. These glasses carry the approval of practically all military authorities who have had an opportunity to test them thoroughly.

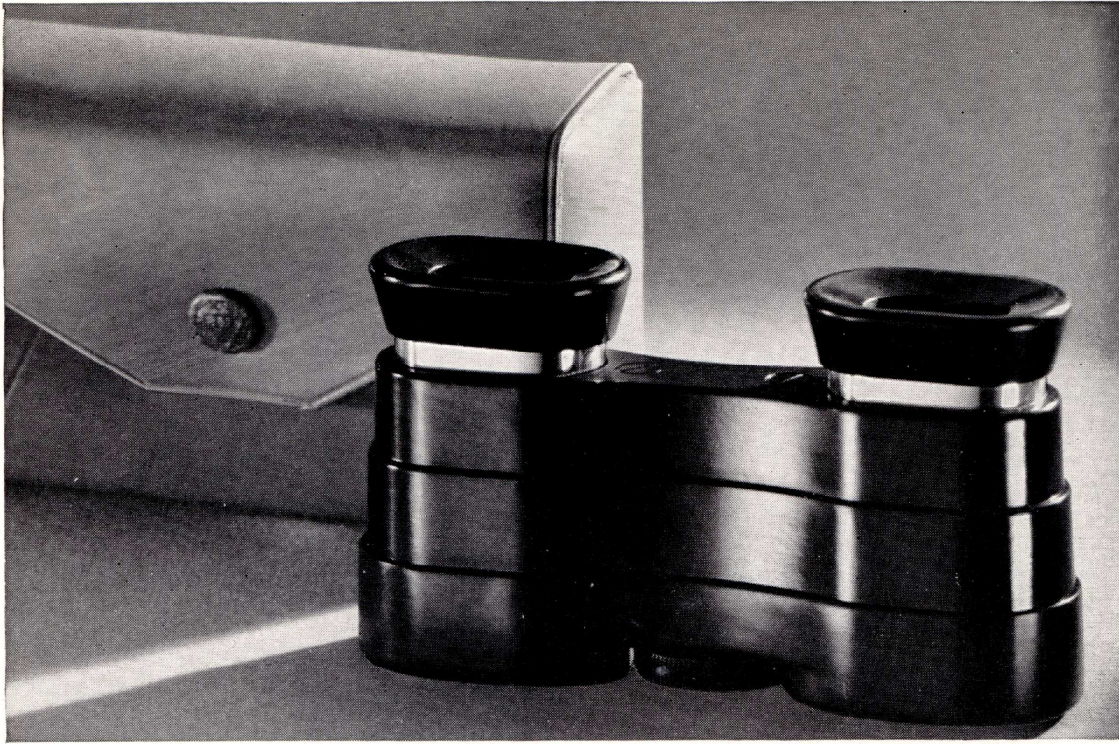
These models have been made in accordance with the Officers' needs: the 6 $\times$ , 30; 7 $\times$ , 35, and 8 $\times$ , 30. Equipped with an approved mil scale in the left body, individual focusing eyepieces, and moisture-proofed throughout, they meet all military specifications. A special case has the strap pass all the way around. The color of the case is a

brown which can be polished to the color of other leather uniform accessories. The lug for the latch is placed on the bottom to prevent the case from being set upright, thereby minimizing the danger of the glass being knocked over, off a bench, etc.

Unquestionably, these special glasses are the finest ever made available from any source. *Commissioned officers* of the Regular Army, Navy Naval Reserve, National Guard or Organized Reserves should write Bausch & Lomb direct for details.

Please indicate the military organization with which you are connected.

- |             |  |
|-------------|--|
| 61-21-66-01 | Bausch & Lomb Army and Navy Officers' Binocular 6 $\times$ , 30 mm diam., with mil scale in left eyepiece, in brown leather case with straps. Individual focusing eyepieces. |
| 61-21-72-01 | Same as above but 7 $\times$ , 35 mm diam.   |
| 61-21-86-01 | Same as above but 8 $\times$ , 30 mm diam.   |



## The BALAR, 3 POWER FIELD GLASS

Here is an entirely new type of field glass. The Balar is so handily shaped that it fits into a gentleman's vest pocket without bulging, or a lady's purse without being noticeable. Yet it's a full three power glass with no sacrifice of optical efficiency to gain its trim, small size and smoothness.

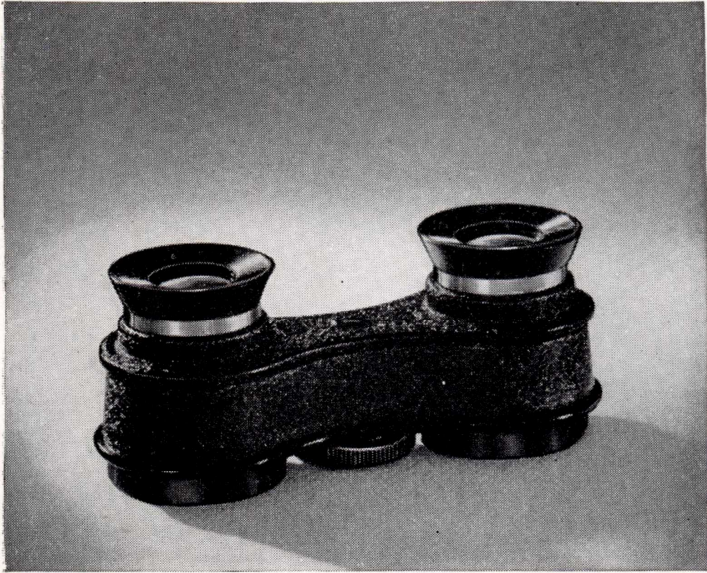
The body of the Balar is made of black molded plastic. Metal parts are of a special alloy for lightness. The Balar weighs only 6 ounces. The lenses, instead of being circular as in the conventional type, are flat-

tened circles. This accounts for the small dimensions. The Balar is only  $1\frac{3}{16}$ " thick,  $4\frac{5}{32}$ " wide and  $2\frac{1}{4}$ " high (closed). Precision focusing is quick and easy by means of the conveniently located, knurled button.

The Balar requires no concession in optical performance to its small size and portability. At 1000 yards the field of view is 453 feet. The images are crisp and brilliant. With its full three times magnification, the Balar gives service previously expected only from larger and heavier models.

61-26-03-05 Bausch & Lomb 3 power Balar Field Glass with Leather Carrying Case.

## SPORT GLASS



The new Bausch & Lomb Sport Glass is one of the most attractive ever offered. Finished in extremely durable crackle lacquer that won't chip, won't wear off. The same fine lens system so effective and popular in the former model.

Magnification is 2 power—ideal for sports events and the theatre. The wide field of view is exceptional—843 feet at 1,000 yards. This new, improved Sport Glass is offered with no increase in price over former models.

61-26-11-01 B&L 2× Sport Glass with Leather Case.

The low cost, four power Companion Glass will be found to be excellent for student or beginner's bird study, although the 7×, 35 Binocular is the recognized glass for experts and teachers.

The Companion is also handy at football games—yacht races—opera, or wherever a medium power glass with wide field of view is wanted.

Its weight is 10½ ounces. The field of view 373 feet at 1,000 yards. It is 3¼ inches long.

## COMPANION GLASS



61-26-40-20 B&L 4× Companion Field Glass with Leather Case and Shoulder Straps.

## SPOTTING SCOPES FOR GENERAL USE

Spotting Telescopes derive their name from the fact that they are used extensively by rifle shooters for spotting shots on the target and reading wind conditions. They are, however, regular telescopes in every respect, compact and highly precise. Because riflemen buy so many of them, their cost is exceedingly low in comparison to the high quality. The prices are less than half of those of the old long tube telescopes, although optically these spotting telescopes are as good or better, and mechanically more convenient.

Consequently, Spotting Telescopes have found wide use as general observation instruments at summer homes, mountain camps, observation balconies, and the like. They are ideal for watching waterfowl and for other long range bird study. Amateur astronomers, and professionals, too, buy many of these telescopes. For hunting in mountain country, they become a necessity once used. Spotting Telescopes have special purposes in our defense program, as well as being used by industrial inspectors.

In fact, these Spotting Telescopes will answer practically any normal telescope need if within the limits of an 80 mm objective or less.

The objective diameter determines the image brilliance at any given power and the detail which can be resolved. The 65 mm instrument, therefore, is the most desirable of the three smaller scopes for

general observation, target spotting, and bird study. Because a high power eyepiece has a short focal length, it is mechanically impossible to equip the 65 mm Telescope with a  $36.5\times$  eyepiece as on the 50 mm model.

The 50 mm Spotting Telescope is the one to be chosen by the amateur astronomer. Also, it is the most popular for the other purposes mentioned above because of its lower price. Its brilliance and resolving power are proportionately lower than the 65 mm Telescope, but in all other respects they are equal. The smaller over-all size of the 50 mm recommends it for some uses.

The two telescopes discussed above have prism erecting systems; made like one half of a B&L prism binocular. So, too, has the 80 mm Spotting Telescope. This is the ideal general observation telescope if ready portability is not a factor. It can be fitted easily in the trunk of an automobile and one man can set it up with little effort. Nevertheless, it is of most interest to those having waterside homes, and to hotels, golf clubs, etc. It is not recommended for astronomy.

It has been found that  $20\times$  is the best for all general purposes. Higher powers cut down the brilliance of image and increase the effect of heat waves. Lower powers are useful when the light on the object is dim or where a wider field is necessary. The amateur

astronomer should order the 50 mm Telescope equipped with the 13.3× eyepiece for finding and the 36.5× eyepiece for actual study. The telescopes are ordinarily shipped with a 20× eyepiece, but any one of the other powers can be substituted at no change in price.

The Draw Tube Spotting Telescope is an excellent low-priced instrument useful to the hunter, bird student, rifleman, for general observation, and the beginner in astronomy. Its brilliance of image is somewhat less than the others, its field of view smaller, but at its price, its qualities are not equalled

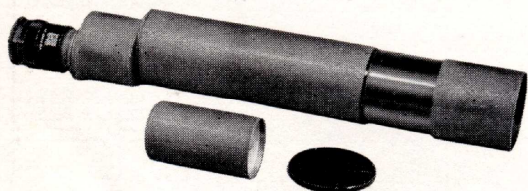
by any other make.

Bausch & Lomb does not manufacture tall tripods for these instruments, since camera tripods can be adapted for the purpose. Also, target shooter suppliers sell a variety of excellent stands.

A mimeographed paper telling in detail what can be seen by the astronomer using the 50 mm or Draw Tube Telescope will be sent on request.

Riflemen should request Folder G-112 applying to the advantages of these telescopes on the range.

## 65 mm PRISMATIC SPOTTING TELESCOPE



The 65 mm Spotting Telescope fulfills the demand for a personal telescope larger than the 50 mm, but without the extreme bulk of the 80 mm Telescope. While only slightly larger than the 50 mm, its increased relative brightness makes it particularly useful in dull weather and in the early morning or late evening.

Its olive green, wrinkled finish

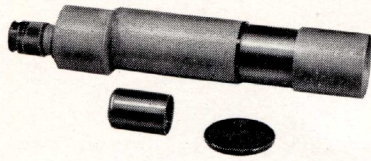
will stand a great deal of punishment. The eyepiece and objective, of course, are protected by metal caps which screw tightly into place, and the objective is fitted with a retracting sunshade. Quick action, click adjustment for coarse focusing and smooth, slow fine adjustment is provided in the eyepiece mount. Eyepieces are quickly interchangeable.

The Telescope is furnished with the 20× eyepiece, which is the most generally used power. It may be purchased, however, with either the 13× or 27× eyepiece in place of the 20× at the same price.

61-41-32-76	65 mm Spotting Telescope with 20× eyepiece. 18 <sup>3</sup> / <sub>4</sub> " long, closed; weight, 4 <sup>1</sup> / <sub>2</sub> lbs.
61-44-75	13× eyepiece, only.
61-44-76	20× eyepiece, only.
61-44-77	27× eyepiece, only.



## 50 mm PRISMATIC SPOTTING TELESCOPE



The 50 mm Spotting Telescope has been a favorite for years, particularly for the amateur astronomer. Its 13.3× eyepiece provides an excellent “finding” magnification with an exceptionally large field, and the 36.5× gives a real closeup view. It takes only a second to change the eyepieces.

For general purposes, the other magnifications, 19.5× and 26×, will be more generally useful.

Both objective and eyepiece are protected, when the telescope is not in use, by the threaded metal caps. The objective is fitted with a retracting sunshade, to give minimum length when closed, and provide the needed shield from bright sun rays when in use.

Finished in olive wrinkled lacquer, with smooth black eyepiece and objective caps.

61-41-25-19	50 mm Spotting Telescope with 19.5× eyepiece. 12 $\frac{3}{4}$ " long, closed; weight, 2 $\frac{1}{2}$ lbs.
61-44-70	13.3× eyepiece, only.
61-44-67	19.5× eyepiece, only.
61-44-65	26.0× eyepiece, only.
61-44-63	36.5× eyepiece, only.

## DRAW TUBE SPOTTING TELESCOPE



For general use, the Draw Tube Telescope provides a moderate priced, accurate instrument. It is fitted with a permanently mounted 20× eyepiece, focusable from 22 feet to infinity, with a field of view of 78 feet at 1000 yards.

The body is aluminum alloy, with olive green wrinkled finish, and



chromium plated, brass focusing tube. Both objective and eyepiece are fitted with threaded metal caps for protection when not in use.

61-41-20	Draw Tube Spotting Telescope with 20× eyepiece. 12 $\frac{5}{8}$ " long, closed; weight, 2 lbs.
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## 80 mm SPOTTING TELESCOPE

This is the ideal telescope for large estates, hotels, clubs, etc. It will provide your guests with the ultimate in enjoyment of the beautiful surroundings, distant mountain views, yacht races, ski jumps, skating races, or other sports events.

It may be mounted on the observation platform, sundeck or porch. While not readily portable, it may be moved from one vantage point to another if on a portable tripod, such as the one illustrated.

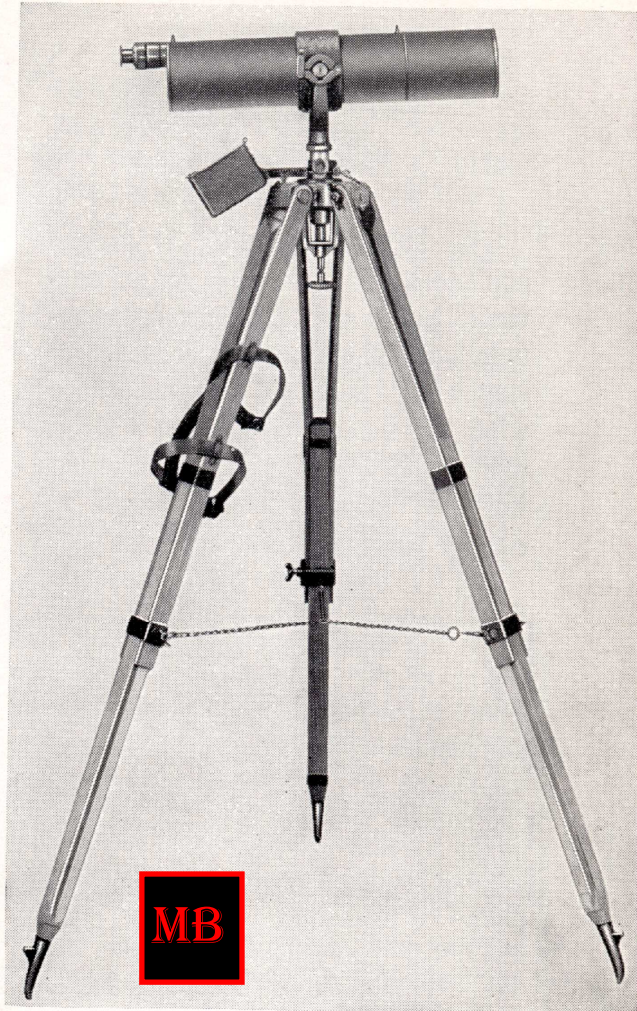
This telescope, too, is finished in wear-resisting olive green wrinkled lacquer, and is provided with threaded metal caps for eyepiece and objective.

61-41-84-20 80 mm Spotting Telescope with 21.0X eyepiece. 26" closed, weight 14 lbs.

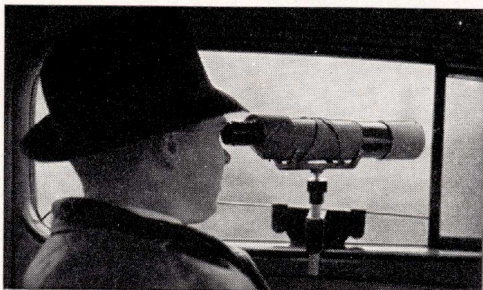
61-44-84 12.7X eyepiece, only.

61-44-86 25.6X eyepiece, only.

61-44-87 32.6X eyepiece, only.



## CAR WINDOW TELESCOPE SUPPORT



The Car Window Support adds to the usefulness of any B&L Spotting Scope. Designed for nature study, touring, and spectator sports. Fits any closed car window, and is adjustable to any position. (Requires shaft and cradle of B&L metal tripod.)

61-48-30 Car Window Telescope Support.

61-48-30-38 Car Window Telescope Support complete with cradle and shaft.

# BAUSCH & LOMB CATALOGS

THE Bausch & Lomb Optical Company manufactures many types of optical equipment not listed in this booklet. If you have a special optical problem, it is probable that an instrument of standard manufacture can be adapted to your use at moderate cost. New instruments are being developed continually to handle unusual problems. Below are listed some of the many Bausch & Lomb Products in regular production. Send for literature on lines that interest you.

## *Microscopes and Accessories*

Binocular Microscopes, Greenough Type  
Centrifuge Microscopes  
Chemical Microscopes  
Dark Field Optical Systems  
Eusopes (Exton)  
Fluorescence Microscopes  
Haemacytometers  
Laboratory Microscopes  
Metallographic Microscopes  
Micro-Manipulator (Fitz)  
Micro-Projectors  
Microscope Accessories  
Microscope Illuminators  
Microtomes  
Ortho-Stereo Camera  
Photomicrographic Cameras and Accessories  
Polarizing Microscopes  
Research Microscopes  
Shop Microscope  
Slit-Ultra Microscope  
Toolmakers' Microscope  
Ultra-Violet Photomicrographic Accessories

## *Instruments for Measuring Optical Properties*

Abbe and Dipping Refractometers  
Colorimetric Apparatus  
Density Comparator  
Opacimeter  
Photo-Elastic Apparatus  
Photometers  
Polariscope  
Quartz Monochromator  
Saccharimeters  
Spectrographs  
Spectrographic Equipment  
Spectrometric Equipment  
Spectrophotometers

## *Instruments for Aerial Mapping*

Metrogon Lenses  
Multiplex Projection Apparatus

## *Projection Equipment*

Contour Projectors  
Micro-Projectors  
Projection Apparatus (Balopticons and Accessories)  
Sales Projectors  
Super-Cinephor Projection Lenses  
Textile Projectors

## *Ophthalmic Products*

Binocular Ophthalmoscope  
Clason Visual Acuity Meter  
Diagnostic Instruments  
Ferree-Rand Perimeter  
Ferree-Rand Projector (Acuity Meter)  
Greens' Refractor  
Keratometer  
Ophthalmic Hydraulic Chair and Unit  
Orthogon Lenses  
Orthogon Test Lens Set  
Shop Equipment for the Optician  
Spectacle and Eyeglass Frames  
Stereo-Campimeter  
Universal Slit Lamp

## *Miscellaneous*

Binoculars  
Finger Print Magnifier  
Magnifiers and Readers  
Microscope Equipment for the Amateur  
Micro Tessar Lenses  
Optical Glass  
Photographic Lenses  
Searchlight Reflectors  
Special Lenses, Prisms and Reflectors  
Spotting Scopes for Riflemen  
Telescopes  
Optical Instruments for Crime Detection  
—Glass Control—Metallography—Metal Working—Ceramic Research—Textile Inspection—Chemical Determination—Food and Drug Manufacture—Paper Makers—Paint and Varnish Makers

Glass to meet the exacting specifications for all types of scientific instruments is made in the Bausch & Lomb Glass Plant, the only one of its kind in America.

Orthogon "wide vision" eyeglass lenses, designed by the Bausch & Lomb Scientific Bureau, afford perfect correction from center to edge. Enjoy their advantages—ask for them the next time you have your eyes examined.

**BAUSCH & LOMB OPTICAL CO.**  
Main Office and Works, Rochester, New York, U. S. A.  
New York — Chicago — San Francisco — Toronto — London — Rio de Janeiro



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Microscope Illuminators  
Microtomes  
Ortho-Stereo Camera  
Photomicrographic Cameras and Accessories  
Polarizing Microscopes  
Research Microscopes  
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Slit-Ultra Microscope  
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Quartz Monochromator  
Saccharimeters  
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Spectrographic Equipment  
Spectrometric Equipment  
Spectrophotometers

## *Instruments for Aerial Mapping*

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Multiplex Projection Apparatus

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Orthogon Test Lens Set  
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Optical Instruments for Crime Detection  
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MB

Price List for Catalog G-19

**BINOCULARS**  
and  
**SPOTTING TELESCOPES**



Code Word	Catalog No.	Description	Power	Objective Diam. in mm	Exit Pupil in mm	Relative Brightness	Field of View at 1000 yds.	Wt. in oz.	Length in In. (Open)	Price
<i>Jepox</i>	61-26-40-20	Companion Field Glass.....	4	38.1			373 ft.	10½	3¼	\$ 19.50
<i>Jiepp</i>	61-26-03-05	Balar Field Glass.....	3				453 ft.	6	2½	19.50
<i>Jiegg</i>	61-26-11-01	Sport Glass.....	2	27.4			843 ft.	7	1¾	16.00
<i>Jesub</i>	61-21-60-01	Binocular C.F.....	6	30	5	25	445 ft.	19½	4½	72.00
<i>Jetax</i>	61-21-61-01	Binocular I.F.....	6	30	5	25	445 ft.	19½	4½	66.00
<i>Jierr</i>	61-21-11-01	Zephyr-Light Binocular C.F.....	6	30	5	25	445 ft.	15¾	4½	80.00
<i>Jezig</i>	61-21-66-01	Army and Navy Officers' Binocular I.F....	6	30	5	25	445 ft.	19½	4½	Price on Request
<i>Jaixt</i>	61-21-70-01	Binocular C.F.....	7	35	5	25	381 ft.	26	5¾	86.00
<i>Jaizv</i>	61-21-71-01	Binocular I.F.....	7	35	5	25	381 ft.	26	5¾	81.00
<i>Jiess</i>	61-21-21-01	Zephyr-Light Binocular C.F.....	7	35	5	25	381 ft.	18	5¾	94.00
<i>Jezef</i>	61-21-72-01	Army and Navy Officers' Binocular I.F....	7	35	5	25	381 ft.	26	5¾	Price on Request
<i>Jadex</i>	61-21-75-01	Binocular I.F.....	7	50	7.1	50.4	381 ft.	42	7½	118.00
<i>Jesex</i>	61-21-80-01	Binocular C.F.....	8	30	3.8	14.3	445 ft.	22	4½	82.00
<i>Jesoz</i>	61-21-81-01	Binocular I.F.....	8	30	3.8	14.3	445 ft.	22	4½	76.00
<i>Jezoh</i>	61-21-86-01	Army and Navy Officers' Binocular I.F....	8	30	3.8	14.3	445 ft.	22	4½	Price on Request
<i>Jiekk</i>	61-21-31-01	Zephyr-Light Binocular C.F.....	8	30	3.8	14.3	445 ft.	16¾	4½	90.00
<i>Jiarp</i>	61-21-88-01	Binocular C.F.....	8	40	5	25	331 ft.	30	6¾	98.00
<i>Jiasr</i>	61-21-89-01	Binocular I.F.....	8	40	5	25	331 ft.	30	6¾	93.00
<i>Jevoc</i>	61-21-90-01	Binocular C.F.....	9	35	3.8	14.4	381 ft.	26	5½	93.50
<i>Jajec</i>	61-21-91-01	Binocular I.F.....	9	35	3.8	14.4	381 ft.	26	5½	88.50
<i>Jiell</i>	61-21-41-01	Zephyr-Light Binocular C.F.....	9	35	3.8	14.4	381 ft.	20	5½	101.50
<i>Jadoz</i>	61-21-05-01	Binocular I.F.....	10	50	5	25	272 ft.	41	7	132.00
<i>Jeyif</i>	61-41-84-20	Team Captain's Spotting Scope with 21.0× Eyepiece.....	21.0	80	3.8	14.5	114 ft.	14 lbs.	26½	275.00
<i>Jeyog</i>	61-41-84-24	Same, with extra eyepieces to give additional magnifications of 12.7× 25.6× and 32.6×								297.50
<i>Jiangf</i>	61-44-84	12.7× Eyepiece.....	12.7		6.3	39.6	148 ft.			7.50
<i>Jielt</i>	61-44-85	21.0× Eyepiece.....	21.0		3.8	14.5	114 ft.			7.50
<i>Jiahg</i>	61-44-86	25.6× Eyepiece.....	25.6		3.1	9.7	101 ft.			7.50
<i>Jiajh</i>	61-44-87	32.6× Eyepiece.....	32.6		2.4	5.8	80 ft.			7.50
<i>Jiaxw</i>	61-41-32-76	65 mm Spotting Scope with 20× Eyepiece..	20	65	3.2	10.1	104 ft.	4½ lbs.	17¼	78.00
<i>Jiemm</i>	61-41-32-75	Same, with 13× Eyepiece.....	13	65	5	25	158 ft.	4½	17¼	78.00
<i>Jienn</i>	61-41-32-77	Same, with 27× Eyepiece.....	27	65	2.4	5.7	78.5 ft.	4½	17¼	78.00
<i>Jiaml</i>	61-44-75	13× Eyepiece.....	13		5	25	158 ft.			9.00
<i>Jianm</i>	61-44-76	20× Eyepiece.....	20		3.2	10.1	104 ft.			9.00
<i>Jiapn</i>	61-44-77	27× Eyepiece.....	27		2.4	5.7	78.5 ft.			9.00
<i>Jaesm</i>	61-41-25-19	NRA Spotting Scope with 19.5× Eyepiece..	19.5	50	2.5	6.3	112 ft.	36	13	55.00
<i>Jevib</i>	61-44-70	13.3× Eyepiece.....	13.3		3.9	15.2	164 ft.			6.00
<i>Jaetn</i>	61-44-67	19.5× Eyepiece.....	19.5		2.5	6.3	112 ft.			7.50
<i>Jaexs</i>	61-44-65	26.0× Eyepiece.....	26.0		1.9	3.6	62 ft.			6.00
<i>Jaevv</i>	61-44-63	36.5× Eyepiece.....	36.5		1.3	1.7	43 ft.			7.50
<i>Jerix</i>	61-41-20	Draw Tube Spotting Scope.....	20	45			78 ft.	32	17½	30.00

C.F.—Central Focusing Eyepieces I.F.—Individual Focusing Eyepieces



## Accessories for Binoculars and Telescopes

Code Word	Catalog No.	Description	Price
<i>Jiavt</i>	61-48-13	Eyepiece Container for 65 mm Spotting Scope.....	\$ 2.25
<i>Jajob</i>	61-48-08	Eyepiece Container for NRA Spotting Scope.....	1.50
<i>Jafax</i>	61-48-05	Leather case and strap for NRA Spotting Scope.....	7.00
<i>Jiabz</i>	61-48-15	Web Strap for Draw Tube Spotting Scope.....	.75
<i>Jiazzy</i>	61-48-30	Car Window Telescope Support.....	2.00
<i>Jiecc</i>	61-48-30-38	Car Window Telescope Support complete with cradle and shaft.....	7.50
<i>Jezad</i>	61-22-49	Rubber Eye Guards for Binocular, per pair.....	.75
<i>Jiakj</i>	61-22-36	Rotatable Rubber Eye Guards (give model), per pair.....	1.75
<i>Jeyuh</i>	61-22-47	Rain Guard for Binocular Eyepieces.....	1.00
<i>Jafey</i>	61-47-29-25	Metal Tripod.....	10.50



*The prices herein are subject to change without notice and to addition or increase for applicable taxes, excises or other charges imposed by any governmental authority with respect to the articles listed herein or to the sale, use or consumption thereof. Orders are subject to final acceptance at Rochester, New York, and are accepted subject to prices prevailing at time of shipment.*