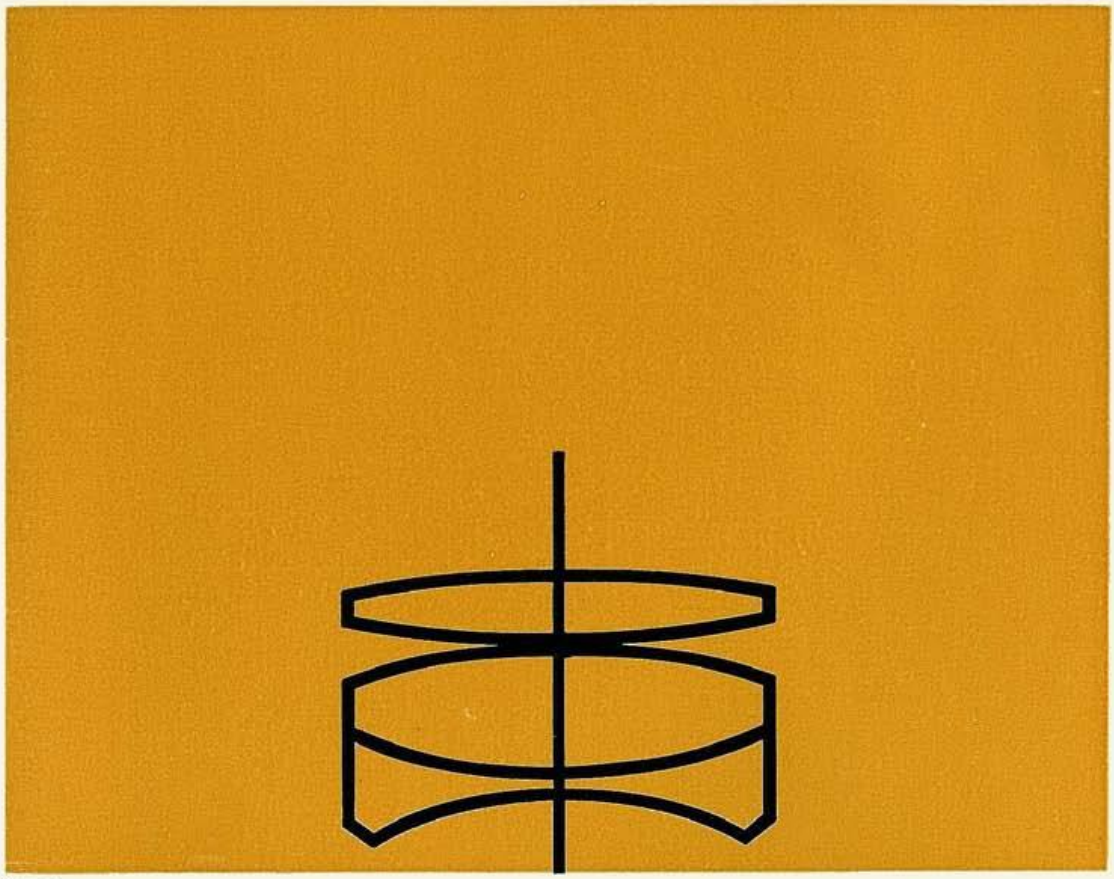
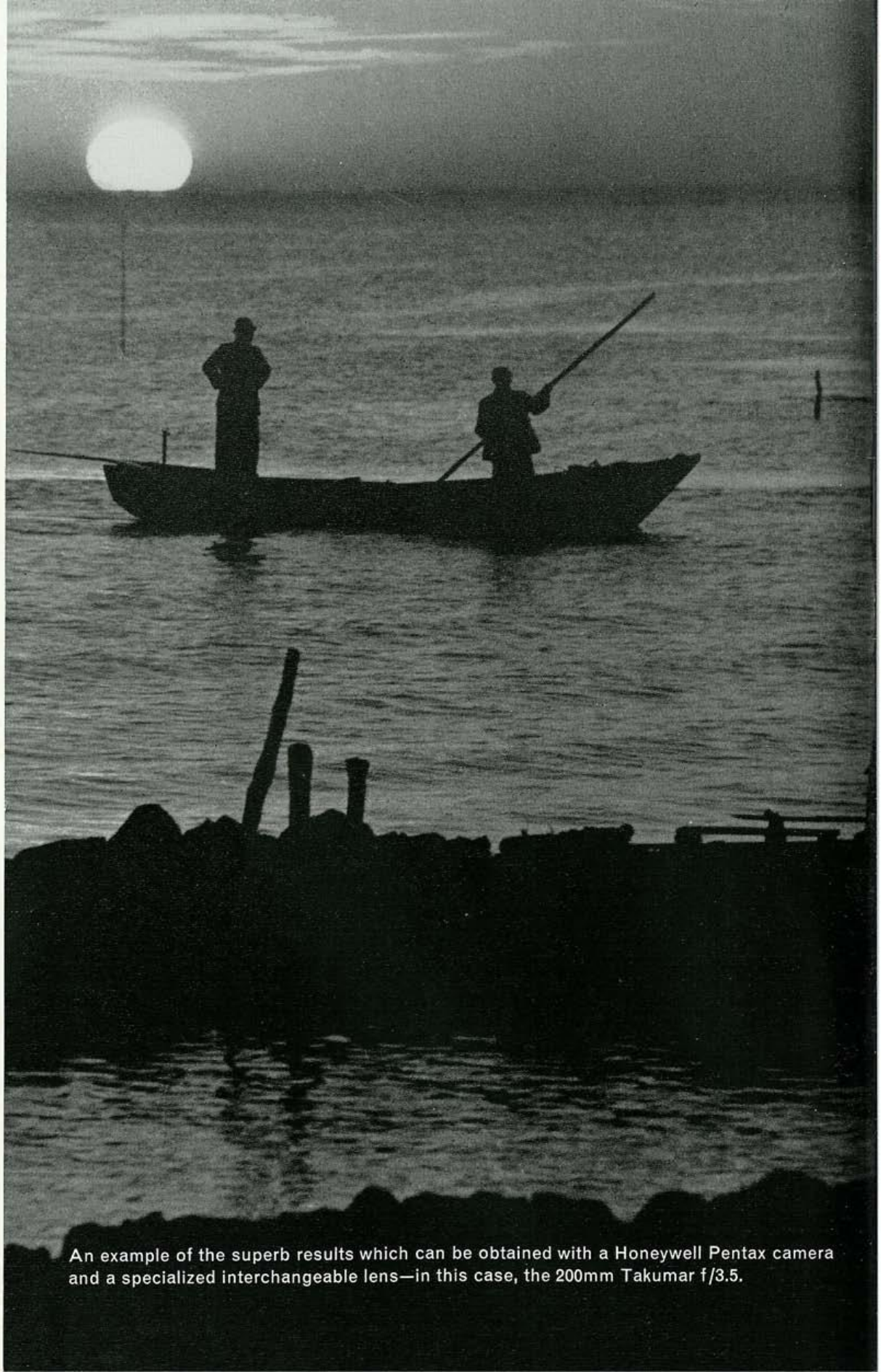


H LENSES FOR THE HONEYWELL PENTAX

LENSES FOR THE HONEYWELL PENTAX

A booklet designed to help you make the right choice of lenses and related accessories for your particular type of photography.



An example of the superb results which can be obtained with a Honeywell Pentax camera and a specialized interchangeable lens—in this case, the 200mm Takumar f/3.5.

INTRODUCTION

A WELL-CHOSEN ASSORTMENT of quality lenses, perhaps more than any other single factor, is the key to greater enjoyment of photography. True, the standard lens supplied with most fine cameras is perfectly adequate for a great many applications, but there are numerous occasions when a specialized lens is a must, either for practical reasons, or to achieve a desired esthetic effect. The purpose of this booklet is manyfold—it is meant to acquaint you with the complete line of Takumar lenses available for Honeywell Pentax cameras . . . to explain the various uses of each individual lens . . . to visually demonstrate the results you can expect from a specific lens, and, most important of all, to help you make the right choice of lenses for your particular type of photography.

As the owner or prospective owner of a Honeywell Pentax camera, you have access to one of the most complete systems of photography available today. Each lens described in this booklet is an important part of the overall system, contributing to its completeness and versatility.

Takumar lenses for the Honeywell Pentax are products of the Asahi Optical Company, Japan's second oldest lens manufacturer, and one of the world's leading producers of fine lenses, cameras, and other optical equipment. Ranked among the very finest lenses being produced today, Takumars are noted for their superb resolving power which results in edge-to-edge sharpness even at full aperture.

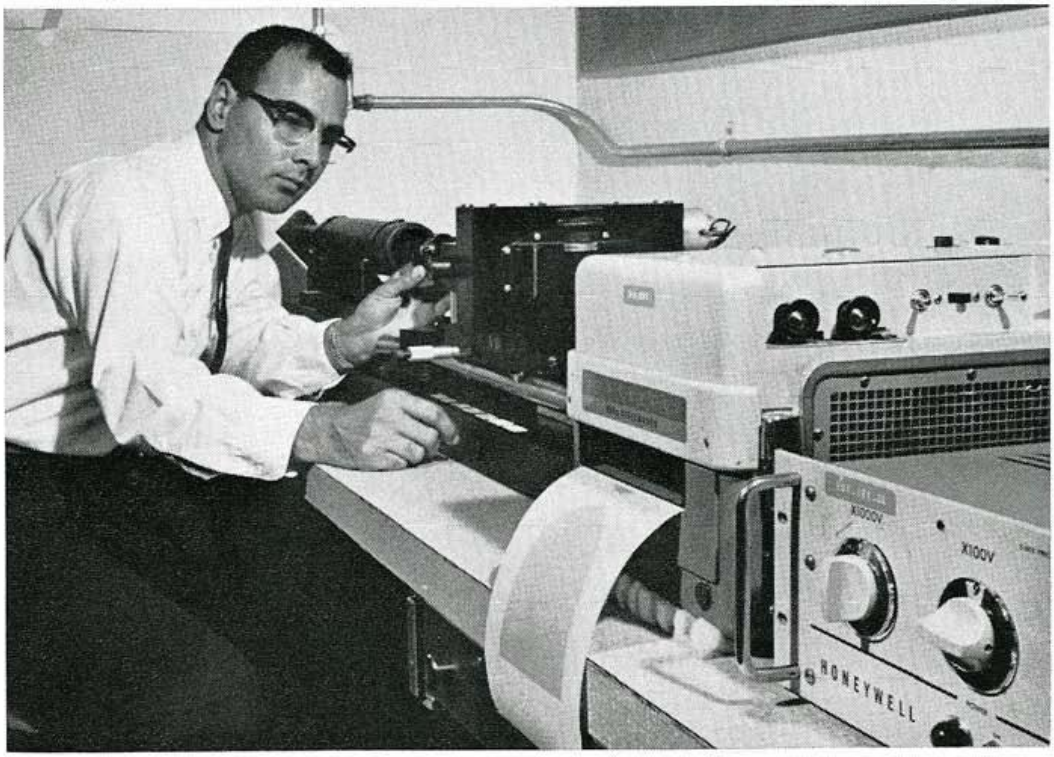
Painstaking hand craftsmanship and up-to-the-minute technological know-how are combined in the manufacture of Takumar lenses. In the past, lens design was a time-consuming process which made use of logarithmic tables, slide rules, and reams of scratch paper. It was considered normal for two or three competent designers to devote several years of steady work to the computation of a four-element lens. Today, Takumar lenses are designed with the aid of a modern electronic computer which performs extremely complicated calculations very rapidly and with great accuracy.

Only the very finest quality glass is used in a Takumar lens, and this superior glass, plus outstanding design, plus years of patiently acquired experience, means lenses in which aberration has been reduced to the absolute minimum extent possible to achieve today.

Another reason for the superiority of Takumar lenses is the emphasis placed on proper lens coating, especially in matching the coating to the specific lens. Coating serves several purposes: it makes the lens more efficient in its ability to transmit light (a coated lens with eight air-to-glass surfaces is approximately a half f/stop faster than a similar uncoated lens); it cuts down on internal reflections and reduces stray

light within a lens which might cause flare, thus fogging film, and it corrects a lens for proper rendition of certain colors. Takumar lenses are custom-coated, depending upon their maximum aperture and the number of elements they contain. For this reason, certain lenses in the Honeywell Pentax system receive a purple coating, some have a coating which is amber in color, and others employ a combination of purple and amber.

Fine optics alone do not make a superior lens; the mechanical components are equally important. Lens barrels of Takumar lenses are precision machined for accurate positioning of elements and smooth operation, and all engraved markings are clear and highly legible. For proper protection when not in use, each lens is supplied with front and rear lens caps and an individual case.



Honeywell testing for image fidelity of lenses includes this sophisticated checkout on a Honeywell Visicorder oscillograph

In addition to rigid quality controls during manufacture and a series of definitive optical tests before they leave the factory, Takumar lenses are tested *again* at the Honeywell Pentax Service Center in Denver. Here, factory-trained technicians employ the most advanced optical and electronic test equipment to insure that the Takumar lenses you purchase are perfect in all respects. Every lens is registered with Honeywell at the time of purchase, and is guaranteed against defects in manufacture for a full twelve months. More important to you than any specific time warranty, however, is Honeywell's reputation for

quality and dependability in the photographic industry—your assurance that you will receive courteous service and complete satisfaction from the entire Honeywell organization.

Because of its popularity in the 35mm single reflex field, many manufacturers offer interchangeable lenses for the Honeywell Pentax. Some are of high quality, while others are available at remarkably low prices: especially telephoto lenses of 200mm and longer focal lengths. Of the genuinely good quality lenses which will fit the Honeywell Pentax, we say this—Takumar lenses are designed specifically for the Honeywell Pentax by the same manufacturer as the camera. Other lenses will give satisfactory results, but *optimum* results are obtained with this natural combination of lens and camera designed to be used together.

All Takumar lenses must pass rigid optical and mechanical tests before they leave the Denver Service Center.

"Bargain" lenses are like any other bargain; you get what you pay for, and no more. Many low-priced lenses will secure good pictures, in view of their cost, but, since they are built to a price, cost-cutting is evident in a number of areas. For example, many budget-priced telephoto lenses are sold only by mail order. Upon receipt, you may find that the lens barrel is made of plastic, or even cardboard. Metal parts are usually made of a cheap alloy which wears rapidly and precludes accurate focusing. Lens elements often work loose in the course of normal picture taking, and coating begins to vanish. When repairs are necessary, you find that no manufacturer or distributor stands behind your lens and offers to make good in the event of manufacturing defects.

In lenses, as in everything else, the best economy is quality. When you purchase a lens from the Honeywell Pentax System, you're purchasing quality, plus the guarantee of a reputable company—one upon which you can depend. Nothing could be less expensive.

WHAT FOCAL LENGTH MEANS TO YOU

Without attempting to make this a basic course in photographic optics, we'd like to explain briefly how lens focal length affects the images you record on film.

Let's begin with what is termed "normal" focal length. To be considered normal, a lens' focal length should be equal to the diagonal of the negative. With a 35mm format measuring 24 by 36 millimeters, the diagonal measures approximately 45 millimeters. Very few 35mm cameras are normally fitted with this size lens as standard equipment; instead, a lens with a focal length of 50 to 55mm is the rule. This slightly increased focal length provides an image size just a little bigger than normal, and its perspective is more nearly like that of the human eye.

Lenses shorter than normal focal length are termed wide-angle lenses, and those with longer than normal focal length fall into one of two categories: long focus or telephoto. A long focus lens, simply stated, has a focal length longer than the diagonal of the negative. A true telephoto lens uses a different optical principle from that of a long focus lens, and can usually be built more compactly than a long focus lens of equivalent focal length. Telephoto lenses are, however, more expensive to design and construct than long focus lenses, and most long lenses for use in 35mm photography today are of the latter variety.

Three factors—perspective, depth of field, and image size—are governed by the focal length of a lens. First, let's consider how focal length controls perspective.

As stated above, a normal lens' perspective approaches that of the human eye. At close distances, a normal lens tends to distort and enlarge objects nearest the camera, and for this reason is not recommended for portraiture. A wide angle lens used at too close a range will provide similar distortion to a much greater extent. Many attention-getting pictures which have been published so often as to become photographic cliches are the result of intentional distortion with a wide angle lens. These include the automobile with a hood which seems half a block long, the low-angle shot of the basketball star whose head seems lost in the rafters, and the extended arm picture in which a ham-like hand is connected to a human arm fully eight feet from wrist to shoulder. Wide angle lenses also make distant subjects seem farther away than they really are, and extend the apparent distance between the various planes of a picture. Pictures looking down give the impression of great height, while buildings photographed at any angle greater than dead horizontal appear taller than normal.

The perspective rendered by a long focus or telephoto lens is far from normal, but in just the opposite way. Instead of the effect of great distance and spaciousness, a long lens causes foreshortening and gives the impression of compressing the planes in a picture. Perhaps the picture which is most illustrative of work with an extremely long lens is the oft-repeated shot down a busy avenue at rush hour. Cars twenty blocks from the camera seem as large as those in the foreground, and

everything has a flat, cut-out-and-pasted-down look about it. This feature of long lenses is extremely valuable when a compressed effect will add to the impact of a picture. However, while this is true of extremely long lenses, this foreshortening is not usually noticeable with lenses of medium long focal length. Consequently, a lens of from 85 to 135mm is ideal for portraiture because the subject's head or head and shoulders will fill the frame without distortion of the features.

Depth of field, as governed by focal length, is clearly defined: the longer the focal length of a lens, the shallower the depth of field will be, provided the aperature remains constant. For example, given three lenses from the Honeywell Pentax System—the 35mm f/2.0, 55mm f/1.8, and 135mm f/3.5—with all three focused on an object 10 feet away, and with apertures set on f/11, the 35mm lens will have a depth of field of from 5½′ to infinity, the 55mm from about 7½′ to 16′, and the 135mm lens from 9½′ to 10½′. This shallow depth of field peculiar to a long lens is very useful for separating the subject from a distracting background, while the great area of sharp focus offered by a wide angle lens is extremely valuable in wide angle applications such as architectural and scenic photography.

Image size, the third factor controlled by focal length, is also a clearcut matter. Without exception, the longer the focal length, the larger the image size in relation to the image produced by the normal focal length lens. With a number of lenses from which to choose, you'll be able to select one which will record the exact image size you wish. You'll avoid those walks backward in order to get your subject within the confines of your negative, and, if you can't get as close to your subject as you'd like, as when photographing an on-stage performer from your seat in the balcony, a long lens of the proper focal length will allow you to fill the frame with an image which will enlarge with ease. Once you work with three or four lenses instead of just one, you'll wonder how you ever got along without them. Your pictures will bear the mark of a photographer who knows his business, and you'll find that making them is more fun than ever before!

DIAPHRAGMS AND HOW THEY OPERATE

Before focusing our attention on specific lenses, let's take a look at the mechanics of lens diaphragms. Takumar lenses for Honeywell Pentax cameras can be divided into three groups—full-automatic, pre-set, and manual. The fully automatic lenses are known as Super-Takumars and contain a diaphragm which stops down automatically to a predetermined f/stop at the time of exposure. Here's a brief description of how they work:

1) Super-Takumar 35mm f/2.0 lens with fully automatic diaphragm.
2) Takumar 200mm f/3.5 lens with preset diaphragm.
3) Takumar 300mm f/4 lens with manual diaphragm.
4) Super-Takumar 28mm f/3.5 lens with fully automatic diaphragm.

At the rear of the lens is a lever which may be set in either an "M" (manual) or "A" (automatic) position. When the lever is set to the automatic position, the lens diaphragm is opened to its widest aperture, rendering the subject image extremely bright for critical composition and focusing. Assuming that you wish to make your picture at an aperture of f/8, the detent or click-stop aperture ring is set at this f/stop, and when the shutter is released, the lens diaphragm automatically stops down to f/8. Up until the instant of exposure, you view your subject at full aperture, but when you are ready to trip the shutter, it isn't necessary to interrupt your viewing in order to reset the diaphragm ring to the proper opening—the Super-Takumar lens does it for you. This feature is of great value when making a number of exposures in rapid sequence, and is especially appreciated when existing light is limited, making focusing at anything but full aperture difficult.

The "M" or manual position of the lever is used to preview the depth of field as you look through the viewfinder of the camera. Setting the lever to "M" stops the diaphragm down to the f/stop which will be used to take the picture, enabling you to see exactly what will be in focus and to change it, if you so desire, by choosing another f/stop.

The second group of lenses in the Honeywell Pentax system are known as pre-set lenses. These lenses contain two adjacent diaphragm rings, each containing markings for the various lens apertures. One of the rings is of the detent type, while the other rotates freely. In use, the detent ring is used to select the proper opening before exposure. The rotating ring is then turned to the lens' widest aperture and the picture is composed and focused. Before the shutter is released, the rotating diaphragm ring is turned in the opposite direction to stop down the diaphragm. This operation is quick and foolproof, since the ring will automatically stop when it reaches the aperture chosen with the detent ring. The exposure is then made, and the rotating ring manually turned once again to open the diaphragm for composing and focusing the next picture. Since pre-set lenses contain fewer internal mechanical parts than do semi-automatic lenses, they are less costly to produce and represent outstanding values to those whose needs do not require a lens with an automatic diaphragm.

Manual lenses comprise the third group in the Takumar line. These are conventional in operation and contain but one detent diaphragm ring which must be opened and closed manually and visually checked for correct setting.

A WORD ABOUT INTERCHANGEABILITY

All Takumar lenses in the Honeywell Pentax system are completely interchangeable. Mounting is by the screw-in method, which assures quick, positive attachment and easy detachment. Takumar lenses may be used with adapters on a number of well-known cameras, and by selecting the appropriate adapters, may be employed for specialized applications on several others.

LET'S LOOK AT THE LENSES

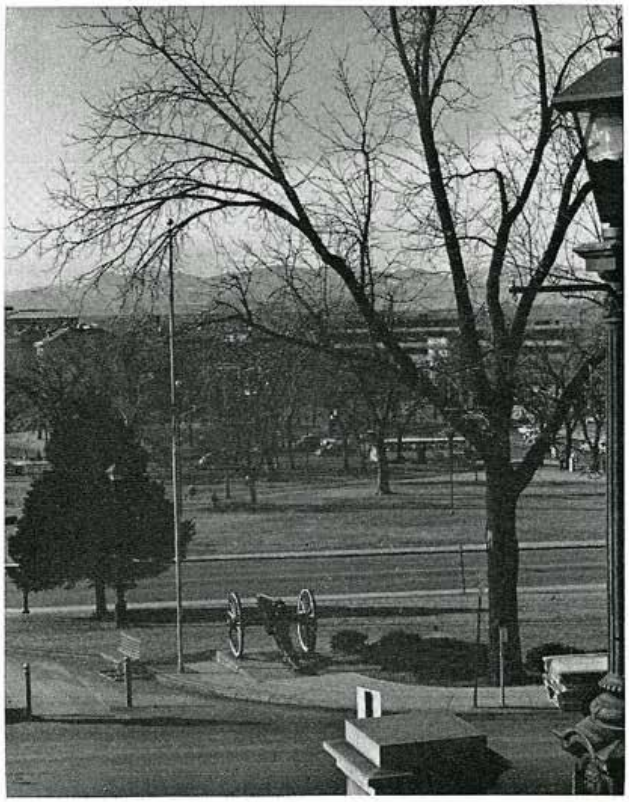
On the following pages, you'll find data on all the lenses in the Honeywell Pentax system, as well as pictures taken with the various lenses. Where appropriate, two pictures are shown; one made with the standard 55mm lens, and one taken with the wide-angle or telephoto lens in question in order to point out the advantages of a specialized accessory lens in a given picture situation. All result pictures are reductions of 8 x 10″ prints, and the original negatives were cropped only to such an extent that they would fit this standard format; therefore, all subject images are in direct proportion to the size of the image recorded on the negative.

18mm

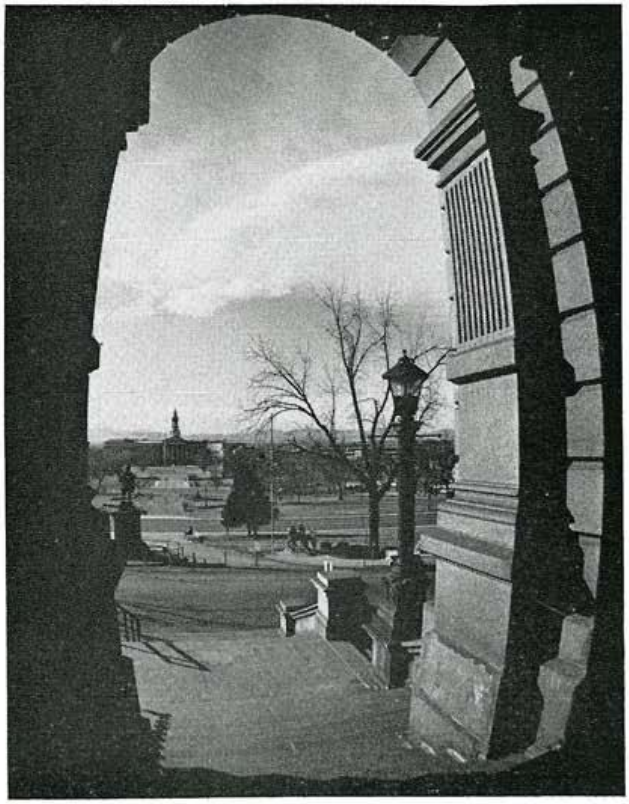
Cat. No. 715—18mm Takumar f/11; Waterhouse stops; 4 elements—fixed focus; minimum aperture f/32; minimum focusing distance 10″; angle of view approx. 148°; weight 3.3 oz.; in leather case . . . **$149.50**

Unlike many other ultra-wide-angle lenses, the Takumar 18mm lens affords actual through-the-lens viewing, permitting the photographer to view the subject and compose the picture through the viewfinder of the Pentax. No rangefinders or attachments are needed!

Extremely compact and lightweight, the 18mm Takumar becomes an effective tool in the hands of the creative photographer who utilizes the barrel distortion deliberately incorporated into its design. You will note in the illustration on the opposite page that the center portion of the format is free of distortion, permitting razor-sharp reproduction of the subject matter.



Taken with the standard Super-Takumar 55mm lens.



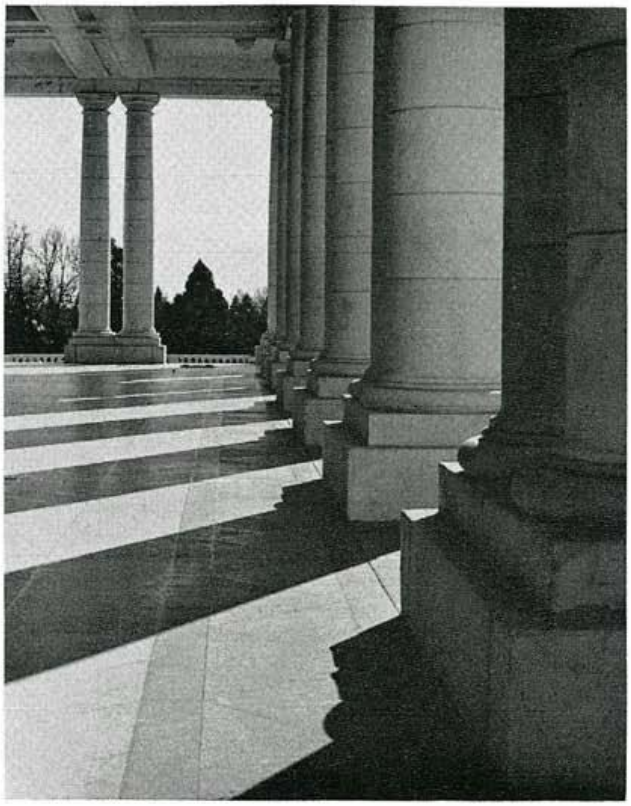
From the same spot, using the 18mm Takumar ultra-wide-angle lens.

28mm

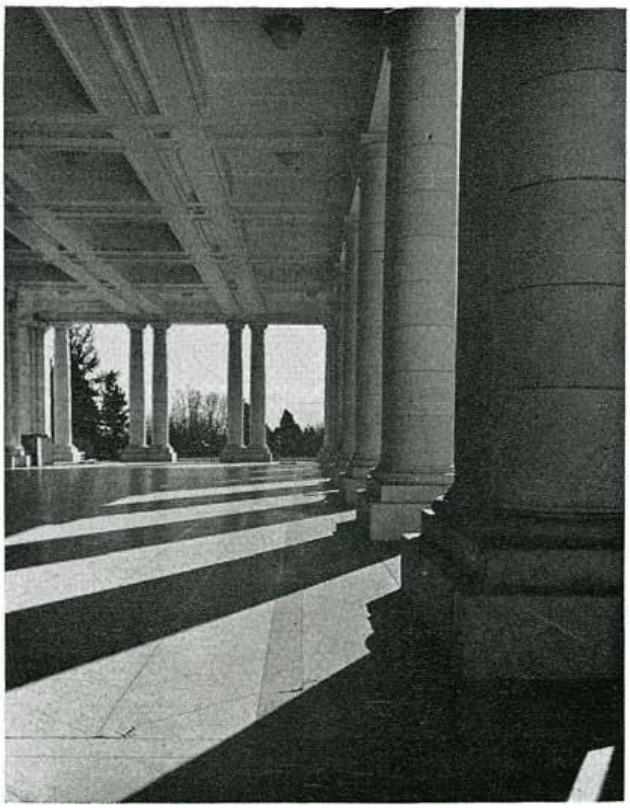
Cat. No. 741—28mm Super-Takumar, f/3.5; fully automatic; 7 elements; minimum aperture f/16; minimum focusing distance 15¾ inches; 75° angle of view; wt. 9.1 oz.; in leather case. **$129.50**

This super-wide-angle lens is of a unique focal length in that it very nearly matches what the human eye sees when fixed on one subject. The 28mm Super-Takumar offers extreme wide-angle coverage and unusual depth of field so convenient when the situation does not permit careful composition and focus. Professional photographers find it especially versatile for shooting in congested areas, or in constricted interiors where normal focal length lenses prove impractical.

Weighing just 9.1 ounces, the 28mm Super-Takumar has a 75° angle of view plus unsurpassed optical and mechanical quality. This fast f/3.5 lens is an extremely versatile addition to the equipment of those photographers who demand the ultimate in performance and reliability.



Taken with the standard Super-Takumar 55mm lens.



From the same spot, using the Super-Takumar 28mm f/3.5 lens.

35mm

Cat. No. 877—35mm Super-Takumar f/2.0; fully automatic; 8 elements; minimum aperture f/16; minimum focusing distance 1.5 ft.; 63° angle of view; wt. 14 oz.; in leather case **$179.50**

Cat. No. 742—35mm Super-Takumar, f/3.5; fully automatic; 5 elements; minimum aperture f/16; minimum focusing distance 1.5 ft.; 63° angle of view; wt. 5.3 oz.; in leather case. **$94.50**

A highly versatile wide-angle lens, the 35mm focal length is used as a standard lens by many photographers because its tremendous depth of field makes critical focusing unnecessary when taking a number of pictures in rapid sequence. Its 63° angle of view permits you to make successful pictures in close quarters, and it is an ideal lens for landscapes, and other outdoor pictures where the effect of great space is desired. The 35mm lens is also well suited for pictures of large groups, buildings, and sports events or other spectacles which cover a wide area.

You can choose from two fully-automatic 35mm lenses in the Honeywell Pentax System—the Super-Takumar f/2.0, an extremely bright, fast lens, perfect for wide-angle available light pictures; or the Super-Takumar f/3.5, a fine lens for those whose needs do not require extreme speed and one which represents an exceptional value in the fine-lens field. Whichever you choose, you will find it a valuable addition to your basic camera—one which you will use often in a wide range of applications.

Taken with the standard Super-Takumar 55mm lens.

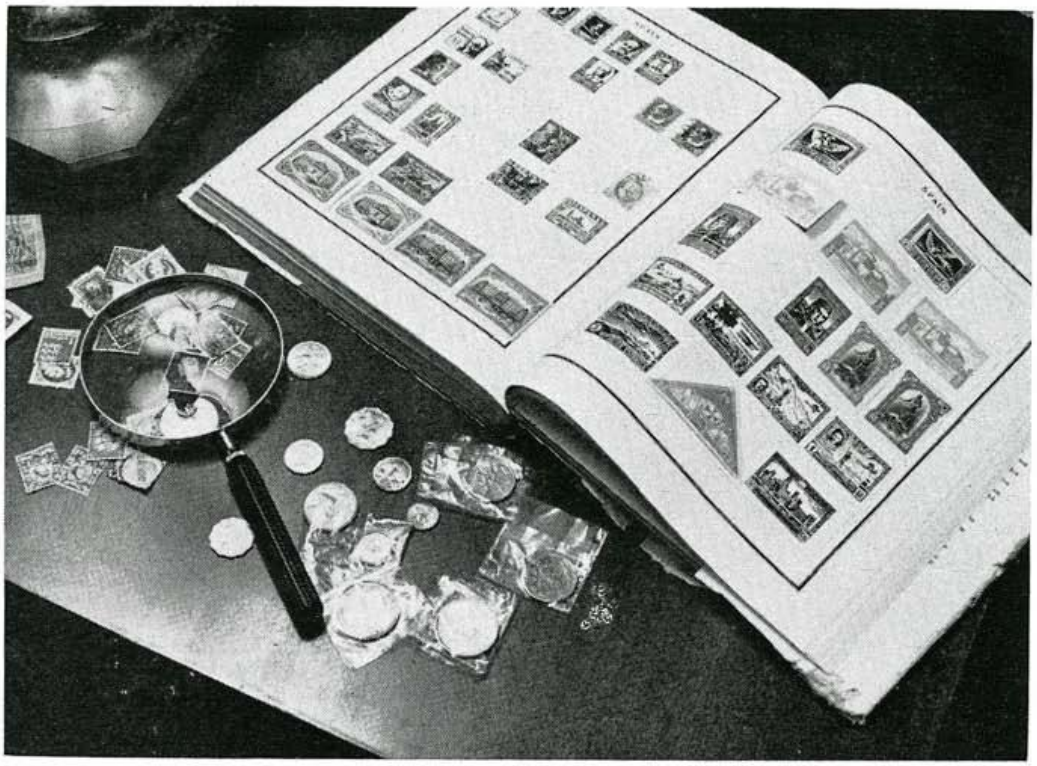
From the same spot using the Super-Takumar 35mm f/2 lens.

50 mm

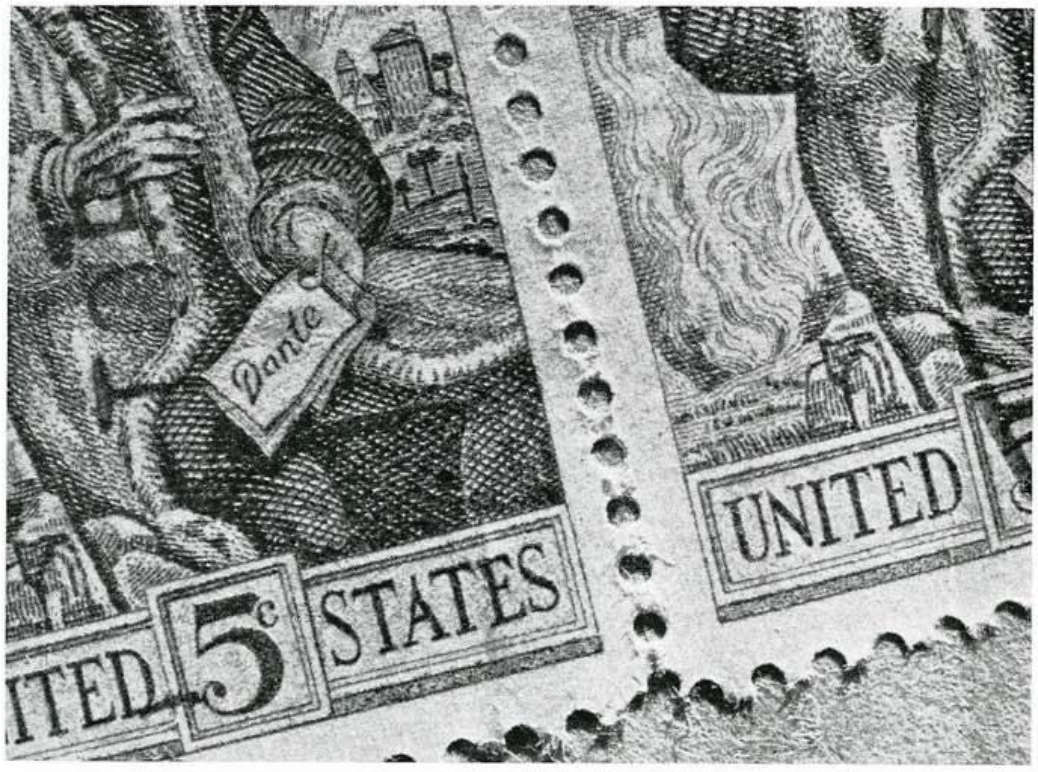
Cat. No. 825—50mm Macro-Takumar, f/4.0; pre-set 4 elements; minimum aperture f/22; minimum focusing distance 8" from film plane (2⅛" from rim of lens); 46° angle of view; wt. 9.3 oz.; in leather case. **$114.50**

The Macro-Takumar is one of the most versatile lenses in the Pentax line. Although it is specially designed for extreme close-up work, it may be used at any distance from 2⅛" to infinity! The Macro-Takumar is capable of up to 1-to-1 subject/image ratio with an extremely flat field and features maximum balance of optical contrast and resolving power of the lens. Its color-coded calibration system makes it extremely easy to use. The exact image-to-subject ratio may be directly read on the focusing scale. As the lens is focused, the numerals on the top portion of the focusing ring are aligned with the index mark. The selected aperture is then set at the matching color dot for proper exposure.

The Macro-Takumar lens and Pentax Spotmatic camera make an unbeatable combination because, with the Spotmatic, there is no need for the extra exposure adjustment normally required for extreme close-up photography. Just focus the lens and match the needle in the Spotmatic's brilliant viewfinder for perfectly exposed negatives or slides!



Taken with the Macro-Takumar lens at a distance of 4 feet.



Taken with the Macro-Takumar lens at a distance of 2⅛ inches.

70-150 mm

Cat. No. 827—70-150mm Zoom-Takumar, f/4.5; fully automatic; 14 elements; minimum aperture f/22; minimum focusing distance 6 ft. (with close-focus lens); 35°-16.5° angle of view; wt. 39.5 oz.; in leather case with lenshood and close-focus lens **$395.00**

A true zoom lens that remains in exact focus throughout its entire zoom range, this 70-150 lens offers the best quality possible in zoom lens construction. Its infinite choice of focal lengths between 70 and 150mm, superior resolution, satin-smooth operation, and fully automatic diaphragm are some of the reasons why independent testing authorities have called this the finest zoom lens available for single-lens reflex cameras. The serious amateur or professional who demands the ultimate in performance will appreciate its quick, easy handling, especially in fast-action situations where the ability to change focal length and perspective is important.

Taken with Zoom-Takumar at infinity, with lens in 70mm position.

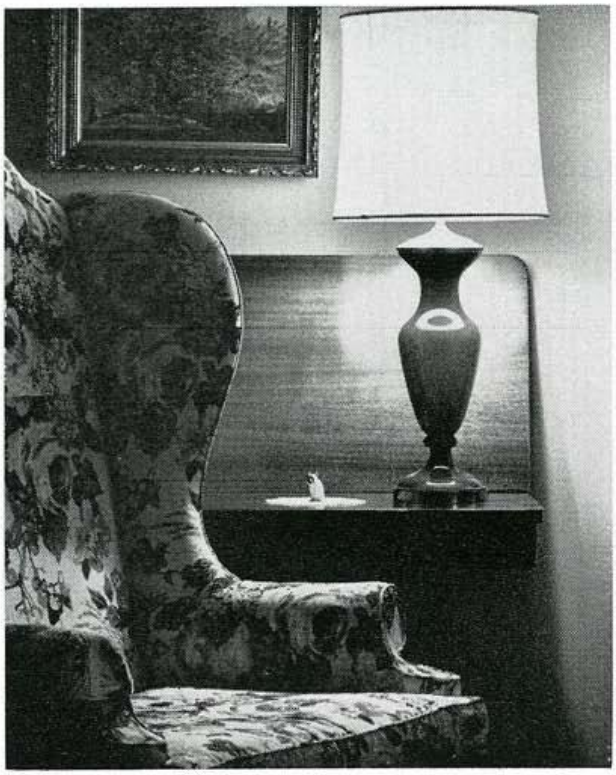
Taken with Zoom-Takumar and close-up lens at distance of 6 feet, with lens in 150mm position.

100 mm

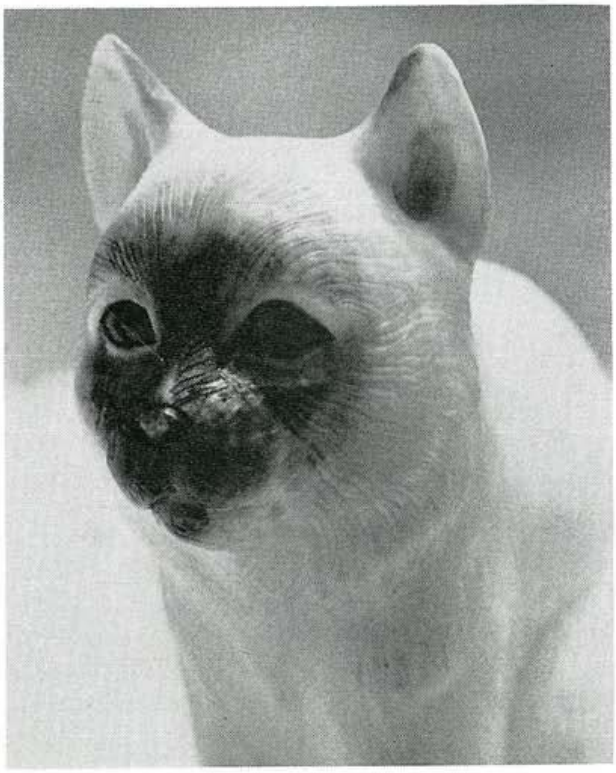
Cat. No. 826—100mm Bellows-Takumar f/4.0; pre-set; 5 elements; minimum aperture f/22; minimum focusing distance 6″ (using Pentax Bellows II); 24.5° angle of view; wt. 4.9 oz.; in leather case with lens-hood. **$84.50**

This 100mm lens is designed for use on a bellows, but it allows you to photograph from infinity to as close as 6 inches from a subject. With it you can take pictures of distant mountain scenes or greater than life-size negatives of stamps or coins with equal ease and clarity. It is, therefore, a new and valuable tool for both amateur and professional photographers.

The Bellows-Takumar is particularly suited for use with the Pentax Bellows II on the Spotmatic camera, which will automatically compensate for the exposure factors involved in extreme close-up work. The focal length of the lens not only provides ample image sizes and convenient working distances for tightly cropped photographs of small objects, but also makes it ideal for portraits. The photographer who owns the Bellows-Takumar lens will find himself putting it to a range of uses he never thought possible.



Taken with the Bellows-Takumar lens with Bellows II Unit and Spotmatic camera at a distance of 10 feet.



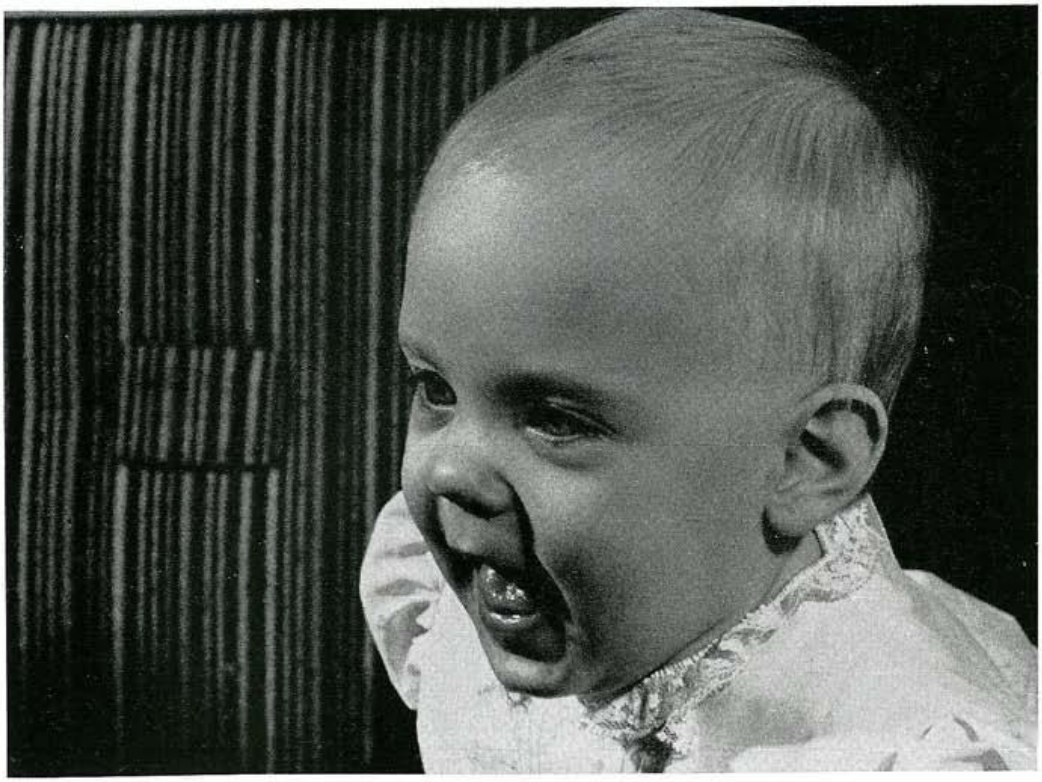
Taken with the Bellows-Takumar lens with Bellows II Unit and Spotmatic camera at a distance of 6 inches.

85mm

Cat. No. 870—85mm Super-Takumar, f/1.9; fully automatic; 5 elements; minimum aperture f/16; minimum focusing distance 2.75 ft.; 29° angle of view; wt. 12.3 oz.; with lenshood in leather case. . **$169.50**

The medium focal length niche in the Honeywell Pentax System is occupied by the 85mm Super-Takumar f/1.9 with fully-automatic diaphragm. This lens has excellent light-gathering properties and a wide range of applications. The illustration at lower right demonstrates how the 85mm focal length is ideal for eliminating unwanted detail in pictures taken at moderate range. This lens is equally at home in the studio or outdoors, and will prove ideally suited for portrait work, sports coverage, and nature photography. You'll find an 85mm lens handy to have along whenever a picture possibility demands a lens with a focal length just slightly longer than that of the standard lens to lift it out of the ordinary.

Taken with the standard Super-Takumar 55mm lens.



From the same spot with the Super-Takumar 85mm f/1.9 lens.

105mm

Cat. No. 738—105mm Super-Takumar, f/2.8; fully automatic; 5 elements; minimum aperture f/22; minimum focusing distance 4 ft.; 23° angle of view; wt. 10.2 oz.; in leather case with lenshood **$129.50**

For moderate telephoto effects, the Pentax System offers you the fully-automatic Super-Takumar f/2.8. It is light in weight for easy handling, and is perfect for sports work, photojournalism, portraiture, and many other applications.

The 105mm lens is also ideal for portraits, as the accompanying pictures demonstrate. Its medium-long focal length enables you to shoot from a distance and still obtain a full-frame image. This is especially advantageous when photographing children, who are usually camera-conscious and inclined to "ham it up" when pictures are made at close range. A 105mm lens is an investment in good pictures, and will prove a much-used part of your camera outfit.

Taken with the standard Super-Takumar 55mm lens.

From the same spot with the Super-Takumar 105mm f/2.8 lens.

135mm

Cat. No. 743—135mm Super-Takumar, f/3.5; fully automatic; 5 elements; minimum aperture f/22; minimum focusing distance 5 ft.; 18° angle of view; wt. 12.4 oz.; in leather case with lenshood. **$149.50**

Long regarded as **the** long-focus lens for 35mm use, the 135mm lens is among the most popular accessory lenses in the Honeywell Pentax System. Extremely light and compact, a 135mm lens is indispensable for distant subject matter and excels at close-ups of animals or birds, pictures of sports events of all kinds, and aerial photographs.

Because it will focus as close as six feet, many photographers consider the 135mm lens to be the ideal portrait lens. It allows a comfortable camera-to-subject distance, while filling the image area with the subject's head and shoulders, and avoids the distortion of features caused by close-up photography with a normal lens. Because of its maximum aperture of f/3.5, the 135mm Super-Takumar is suitable for use under all average light conditions, and will produce a brilliant, sharp image over the entire film plane, even at full aperture. You'll find that you'll use your 135mm lens again and again for some of the most spectacular pictures you've ever taken.

Taken with the standard Super-Takumar 55mm lens.

From the same spot with the Super Takumar 135mm f/3.5 lens.

200mm

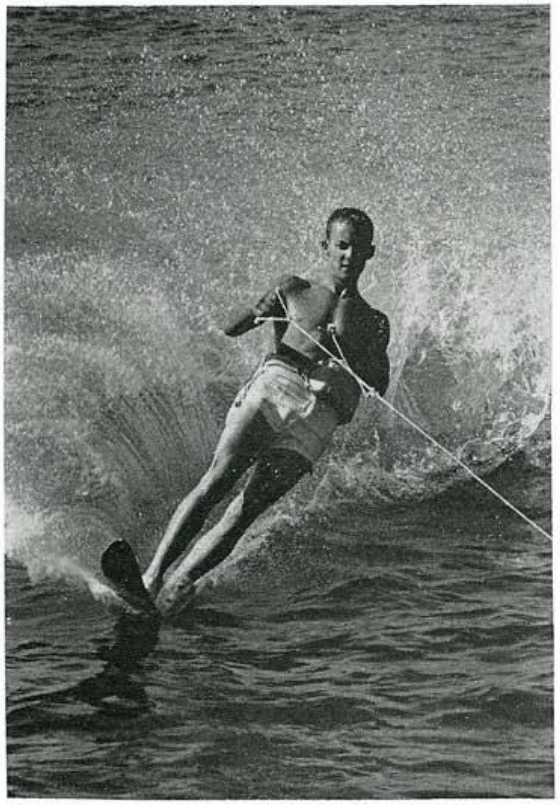
Cat. No. 719—200mm Tele-Takumar, f/5.6; pre-set; 5 elements; minimum aperture f/22; minimum focusing distance 8.2 ft.; 12° angle of view; wt. 14.2 oz.; in leather case with lenshood. **$119.50**

Cat. No. 728—Takumar 200mm, f/3.5; pre-set; 4 elements; minimum aperture f/22; minimum focusing distance 8.2ft.; 12° angle of view; wt. 30.8 oz.; in leather case with lenshood. **$189.50**

Either of these 200mm lenses will add an exciting new dimension to every picture you make. Each is ideal for sports action, news coverage, spectacular pictures in the theatre or concert hall, or for outstanding nature and wildlife photography.

If lens speed is not important, the budget-priced Takumar f/5.6 represents a fine value in telephoto optics. Extremely light and compact, it is well-balanced and very easy to use. For those who need a long lens which can be used where poor light conditions prevail, the Takumar f/3.5 is the answer. Also a true telephoto lens, it is light enough to be used hand-held, and is easy to carry thanks to its over-the-shoulder case. Whichever 200mm lens you choose, you'll find it to be a most welcome and useful addition to your equipment.

Taken with the standard Super-Takumar 55mm lens.



From the same spot with the Takumar 200mm f/3.5 lens.

300mm

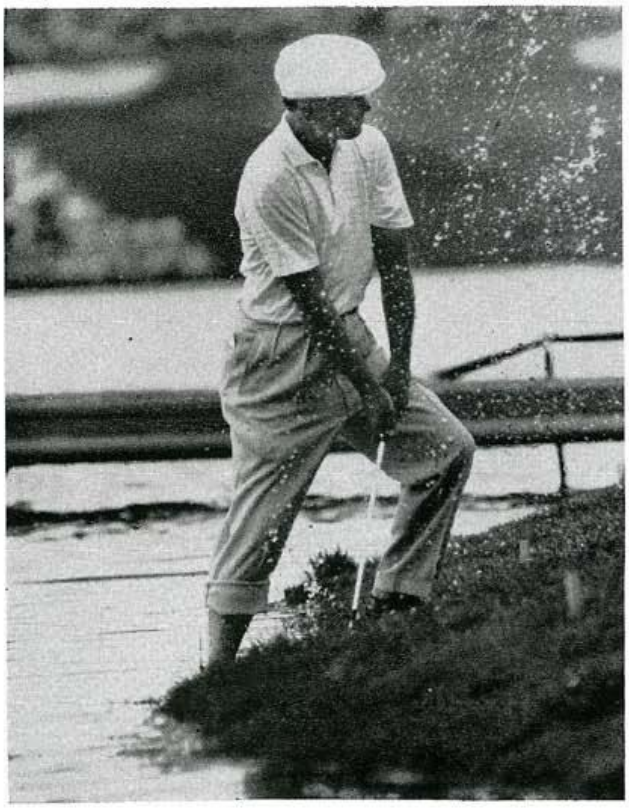
Cat. No. 729—Takumar 300mm, f/4.0; manual; 4 elements; minimum aperture f/22; minimum focusing distance 18 ft.; 8° angle of view; wt. 55 oz.; in leather case with lenshood. **$279.50**

Cat. No. 824—Tele-Takumar 300mm, f/6.3; pre-set; 5 elements; minimum aperture f/22; minimum focusing distance 18 ft.; 8° angle of view; wt. 25.7 oz.; in leather case with lenshood. **$159.50**

In the 300mm focal length there is a choice of two lenses, similar to the option in 200mm lenses described on page 28. The f/6.3 pre-set model is the ideal choice for those photographers who specialize in outdoor telephotography. If lens speed is important, your choice should be the faster f/4.0 manually operated lens. Both are fully corrected to produce razor-sharp resolution to every corner of the picture, even at full aperture, and both are light enough to be used without a tripod if desired.

An all-around focal length for use when pictures must be made at a considerable distance from the subject, the 300mm is equally useful for achieving extraordinary telephoto effects. Both models represent an exceptional value in long-focus lenses and are the choice of many professional and advanced amateurs who require an extremely versatile telephoto lens.

Taken with the standard Super Takumar 55mm lens.



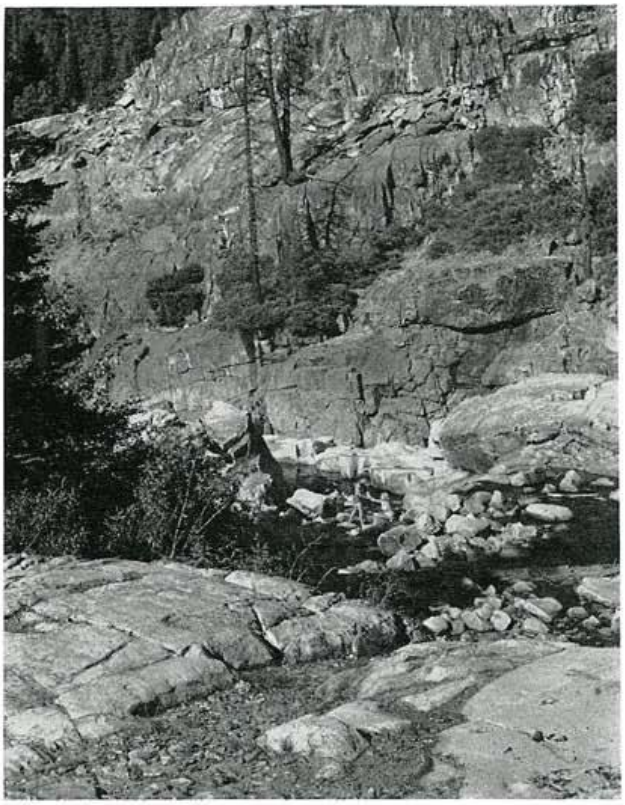
From the same spot with the Takumar 300mm f/4.0 lens.

500mm

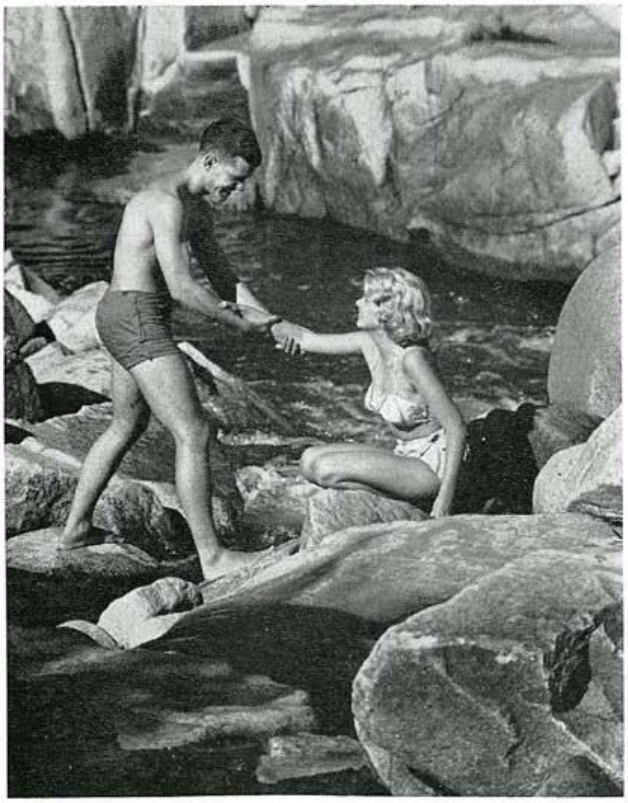
Cat. No. 822—Takumar 500mm, f/4.5; manual; 4 elements; minimum aperture f/22; minimum focusing distance 32.8 ft.; 5° angle of view; wt. 7 lbs., 11 oz.; in leather case with lenshood. **$450.00**

Comparatively light and small for its performance, this powerful long-focus lens brings the inaccessible within reach, as the accompanying illustrations demonstrate. Its bright f/4.5 image simplifies composition and focusing, and it produces edge-to-edge coverage of high resolution.

Smooth helicoidal focusing and a built-on lenshood are two of the features of this highly useful lens. It is prized by news and sports photographers, and has been successfully employed in such diverse applications as accident insurance and criminal investigation work and celestial photography.



Taken with the standard Super-Takumar 55mm lens. The boy and girl are barely visible just below the center of the picture.



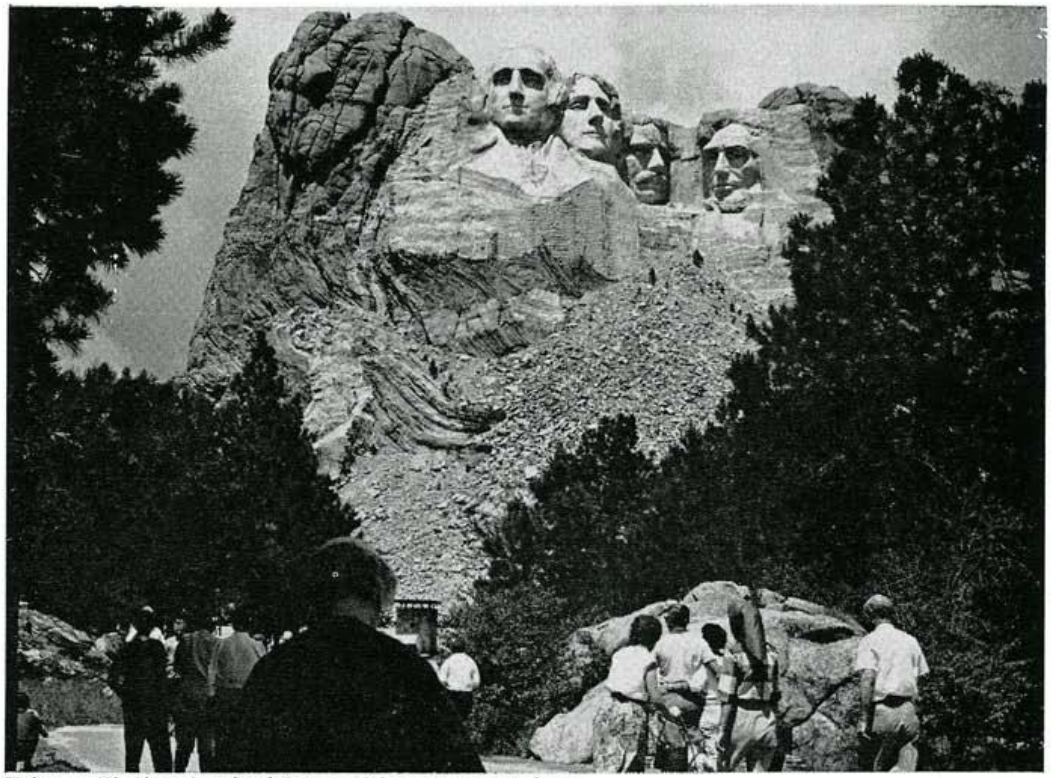
Presto! Taken from the same spot with Takumar 500mm lens.

1000mm

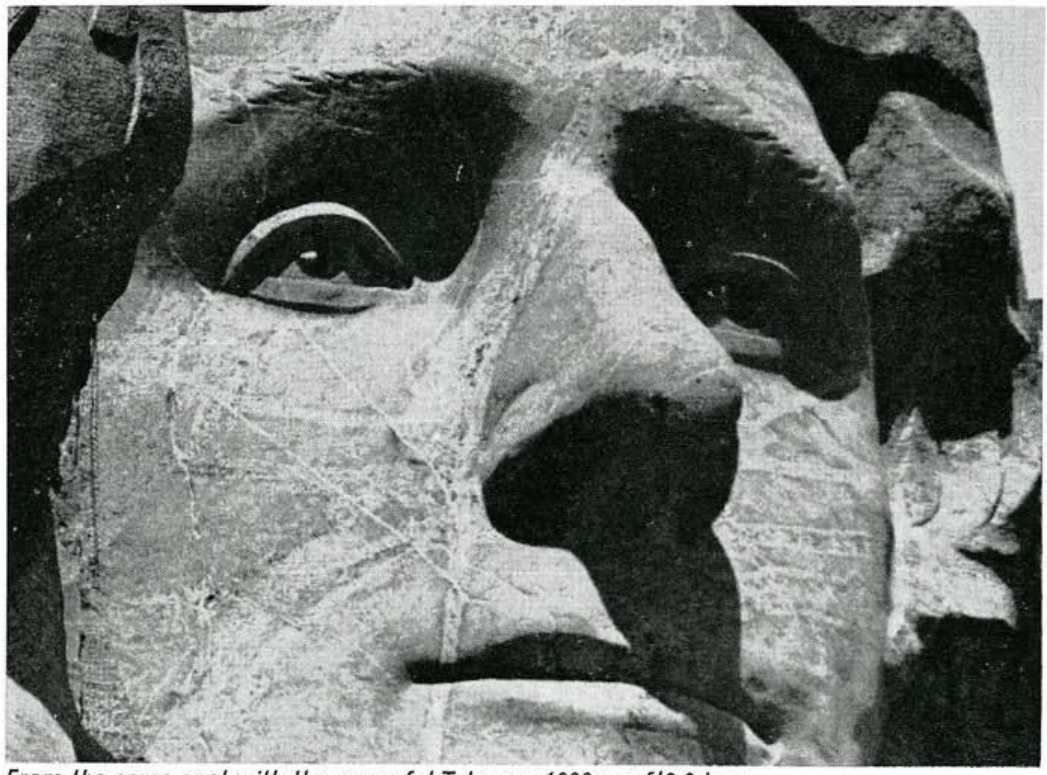
Cat. No. 731—Takumar 1000mm, f/8.0; manual; 3 elements; minimum aperture f/22; minimum focusing distance 98 ft.; 2.5° angle of view; wt. 16 lb., 9 oz.; with metal tripod (29 lbs., 15 oz.) and lens-hood, in wooden cases. . . . **$1195.00**

The "big gun" of the Honeywell Pentax System, this ultra-powerful f/8 long-focus lens will photograph subjects so distant as to be almost invisible to the naked eye. Focusing is by positive rack and pinion, and the diaphragm is manually operated.

Furnished with built-on lenshood, metal tripod, and sturdy wooden cases for both lens and tripod, this outstanding Takumar lens is the ultimate in fine optics for the photographer who specializes in sports, news, scientific, or wildlife photography.



Taken with the standard Super-Takumar 55mm lens.



From the same spot with the powerful Takumar 1000mm f/8.0 lens.

CARE OF FINE LENSES

Given proper care, a photographic lens will last indefinitely. To assist you in getting the best results from your Takumar lenses, we offer the following suggestions on lens care.

Lenses are subject to damage through accidents or misuse in two areas: the optical elements, and the mechanical components—the barrel, diaphragm, and actuating levers or rings. Let's consider the optical elements first.

Since optical glass is softer than other kinds, and since the coating used on lens elements is extremely thin, lenses should be handled with utmost care. One of the best forms of insurance against damage to the exposed elements of a lens is the practice of keeping a cap on the front of the lens when it is not being used, and if the lens is removed from the camera, the rear element should also be capped. All Takumar lenses for the Honeywell Pentax are supplied with both front and rear lens caps, as well as a protective case in which the lens should be kept when not in use. Another form of protection used by many photographers is the practice of keeping an Ultra-Violet filter over the lens at all times. The filter will not affect exposure in any way, and will guard the lens from damage, dust, and mositure. For UV filters to fit Takumar lenses, see page 35.

Unless your photography is confined to taking pictures in a completely dust-free atmosphere, your lenses will require periodic cleaning. Dry dust should be removed only with a soft camel's hair brush or by blowing it off with a small ear syringe. Never blow or breathe on a lens element! Your breath contains moisture which will leave an almost imperceptible film on the glass, impairing the lens' ability to transmit light.

Lens surfaces should *never* be touched with the fingers. Fingerprints contain acid perspiration which, if allowed to remain on the lens, will etch the glass, resulting in permanent damage. Should you accidentally touch the surface of a lens with your fingers, the glass should be gently polished with special lens cleaning tissue. Do not use the tissue dry; instead, place a drop or two of a good commercial liquid lens cleaner on a piece of folded tissue and wipe the glass with a circular motion. A handkerchief or other cloth should never be used to wipe a lens, since the lens may be scratched by dust and grit embedded in the fabric. Facial tissues are not recommended either, as they leave great amounts of dust and lint on the lens.

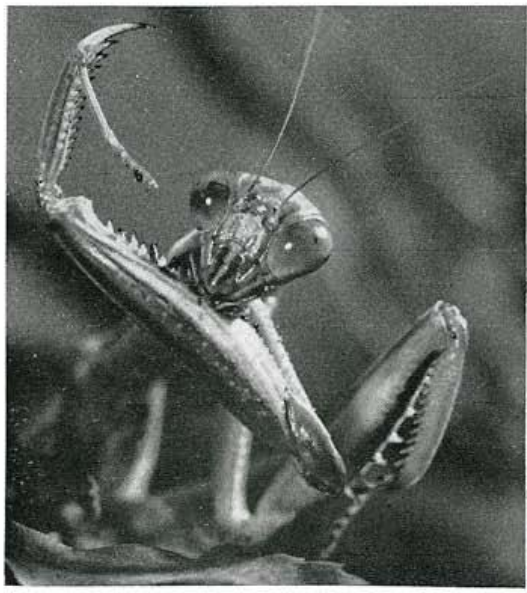
The mechanical elements of a lens very rarely malfunction, but should a mechanism fail to operate, the best advice is "Leave it alone!" Usually, a diaphragm or detent ring will jam only if a lens is dropped

or abused in some manner. If this happens, don't attempt to fix the lens yourself; return it to your Authorized Honeywell Pentax Dealer with an explanation of what happened. He will forward the lens to the Honeywell Pentax Service Center where it will be repaired by competent technicians. A photographic lens is a precise, complex instrument, and only those with the proper tools and specialized training should attempt to undertake even apparently simple repairs.

Despite the advanced lubricants available today, the grease used in lens barrels will thicken slightly in extremely cold weather, causing the lens to focus rather stiffly. Never attempt to remedy this by using a supplementary lubricant. The oils and greases used in cameras and lenses are highly specialized, and to contaminate them with improper lubricants merely invites trouble. In normal use, your lenses will require no attention other than an occasional cleaning to keep them performing perfectly, picture after picture.

MACROPHOTOGRAPHY AND PHOTOMICROGRAPHY

The worlds of macrophotography (pictures taken from an extremely close distance) and photomicrography (pictures taken through a microscope) are fascinating, indeed. On the next page, you will find selected accessories from the versatile Honeywell Pentax System which will bring these little-seen worlds within your reach.



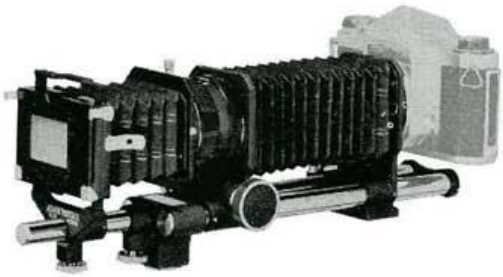
Macrophotograph of a praying mantis, made with the aid of a Bellows Extension Unit.

Photomicrograph of philodendron epidermis; 100x magnification.

MACROPHOTOGRAPHY AND PHOTOMICROGRAPHY ACCESSORIES

EXTENSION BELLOWS UNIT

An extremely flexible accessory for close-up photography, this unit permits use of the camera's own lens with a special calibrated gear shaft.
Cat. No. 786.....$29.50



EXTENSION BELLOWS II UNIT

A dual-track extension bellows unit of maximum rigidity, the Bellows II achieves 3.2x magnification at maximum extension with the standard 55mm Takumar lens.
Cat. No. 832.....$59.50

SLIDE COPIER

Shown here attached to the Bellows II, the Slide Copier affords precise slide positioning and positively eliminates lens flare when copying slides.
Cat. No. 833.....$29.50

EXTENSION TUBE SET

Three precision extension tubes (7.5mm, 15mm, and 30mm. Cat. No. 785 for H1 and H2 cameras; 9.55mm, 19.0mm, and 28.5mm. Cat. No. 744 for H1a, H3, H3v and Spotmatic cameras) which, when placed between the camera body and lens, allow pictures to be made of objects as close as 3½ inches from the front element of the lens. $18.95

RIGHT-ANGLE FINDER

A convenient accessory viewfinder which fastens to the viewfinder frame of Honeywell Pentax cameras. Ideal for macrophotography, it is also extremely useful for low-angle pictures.
Cat. No. 788.....$29.50

MICROSCOPE ADAPTER

A necessity for photomicrography, this adapter fits between the Pentax camera body and the microscope tube. The microscope's own optics are used in place of the camera's lens.

Cat. No. 787 ..... $25.00

CLOSE-UP LENS

Ground and polished to Takumar lens standards — screw-in mount for lenses of 49mm thread. Provides for subject field size of 4¼" x 2¾" with 55mm Takumar lenses. Steps down to 46mm thread with adapter No. 820. Magnification of 0.32 to 0.15 at subject-to-film plane range of 11" to 18½".

Cat. No. 821 ..... $11.50

PENTAX COPIPOD

Lightweight, but extremely sturdy. This portable copying stand fits all models of the Pentax and can be used anywhere for copying documents, artwork, etc. Consists of lens board complete with adapter rings for 46 and 49mm lenses, and four calibrated telescoping legs. Fits neatly into small pouch-type case.

Cat. No. 717 ..... $24.50

Honeywell Pentax H1a

Catalog No. 705. Traditionally fine Honeywell Pentax quality at a budget price. 20-36 exposures. Features eye-level pentaprism finder with fresnel lens viewing; instant-return mirror; focal plane shutter with speeds from 1-1/500 sec. plus Time and Bulb on single, non-rotating dial; single-stroke film advance which automatically cocks the shutter; rapid rewind crank; automatic reset film counter; threaded lens mount; 'cocked' indicator; FP and X flash terminals; film type reminder dial. With Super-Takumar 55mm f/2 lens and fully-automatic diaphragm. $149.50

Honeywell Pentax H3v

Catalog No. 706. Features instant-open fully automatic diaphragm with manual depth of field preview control; shutter speeds from 1 to 1/1000 sec. plus Time and Bulb on single, non-rotating dial; eye-level pentaprism finder with improved fresnel viewing lens incorporating focusing grid; instant-return mirror; short-throw film advance lever which cocks shutter; automatic reset film counter; integral self-timer; 'cocked' indicator; FP and X flash terminals; threaded lens mount; film type reminder dial. With Super-Takumar 55mm f/1.8 lens and fully automatic diaphragm. $199.50

Cat. No. 707, same as above, but with Super-Takumar f/2.0 lens. $179.50

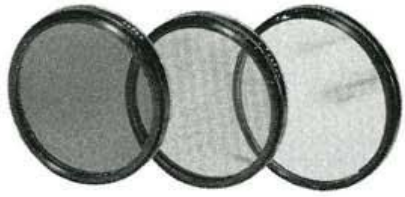
Cat. No. 823, H3v with Super-Takumar 55mm f/1.8 lens, black finish. $209.50

Honeywell Pentax Spotmatic

with behind-the-lens exposure meter

Catalog No. 880. Absolutely correct exposures are simple with the Spotmatic. Its sensitive metering system reads the in-focus image made on the ground glass by light passing through the taking aperture of the lens — **exactly** the same image that strikes the film plane. All you have to do is to match a needle in the viewfinder by turning the f/stop ring or the shutter speed dial—it's that simple! With any focal length lens, or with bellows, extension tubes, or filters, proper exposure is automatic, foolproof, and accurate. Yet the Spotmatic is the same size and classic design as the H3v. In addition to the general features of the H3v, the Spotmatic also includes a ratchet type film advance lever and is furnished with a Super-Takumar 50mm f/1.4 lens. $289.50

Recommended for use whenever possible to guard against off-angle light rays which cause flare, a lenshood is especially valuable when shooting against the light. Honeywell Pentax lenshoods are precision



threaded to fit the lens, except for the lenshood and adapter ring for the 35mm f/2.3 and 28mm f/3.5 lenses, which are of the clamp-on type. Lenshoods are available in the following sizes:

CAT. NO. 782—Lenshood, 46mm, for 55mm f/2, 55mm f/2.2, 105mm preset, and 135mm preset lenses $6.95

CAT. NO. 783—Lenshood, 46mm, for 35mm f/3.5 lens $6.95

CAT. NO. 784—Lenshood, 49mm, for 50mm f/1.4, 55mm f/1.8 or 55mm f/2.0 (Super) and Auto-105mm and 135mm lenses $7.25

CAT. NO. 830—Lenshood, 49mm, for 35mm Super-Takumar f/3.5 lens $7.95

CAT. NO. 878—Lenshood, 70mm, slip-on for 35mm Super Takumar f/2.0 lens $9.95

CAT. NO. 779—Lenshood, 55mm, for Auto-85mm f/1.8 lens $6.95

CAT. NO. 780—Lenshood and Adapter Ring for 35mm f/2.3 lens (can also be used with filters on 200mm lens) $13.95

CAT. NO. 760—Lenshood, 60mm; slip-on, set-screw for 28mm f/3.5 ..... $7.95

Honeywell Pentax filters are precision ground, polished, and coated with the same care that goes into the manufacture of Takumar lenses.

FILTER, 46mm—For 55mm f/2, 55mm f/2.2, 35mm f/3.5, 105mm (725), 135mm preset, 500 and 1000mm lenses. 761 (UV), 840 (Y-1), 762 (Y-2), 763 (O-2), 841 (YG), 842 (R-2), 843 (Skylight), 844 (81-A), 845 (82-A), 846 (80-C), 847 (80-B) ..... $8.50 each

FILTER, 49mm—For 35mm (742), 50mm f/1.4, 50mm Macro, 55mm f/2 Super, 55mm f/1.8, 100mm Bellows, 105mm (726, 738, 739), 135mm (735, 743), 200mm (719), 764 (UV), 848 (Y-1), 765 (Y-2), 766 (O-2), 849 (Y-G), 839 (R-2), 851 (Skylight), 838 (81-A), 853 (82-A), 837 (80-C), 855 (80-B) ..... $8.50 each

FILTER, 55mm—For 85mm. 773 (UV), 774 (Y-2), 775 (O-2), 856 (Skylight) ..... $8.50 each

FILTER, 58mm—For 28mm f/3.5, 300mm f/6.3, 85mm Super f/1.9 776 (UV), 777 (Y-2), 778 (O-2), 836 (Skylight) ..... $9.95 each

FILTER, 65mm—For 35mm f/2.3 with 780 lenshood and adapter ring. 770 (UV), 771 (Y-2), 772 (O-2), 858 (Skylight) ..... $22.50 each

FILTER, 67mm—For 70-150mm zoom, 200mm f/3.5. 815 (UV), 816 (Y-2), 817 (O-2), 859 (Skylight) ..... $22.50 each

FILTER, 70mm—For 35mm f/2.0, 861 (UV), 863 (Y-2), 865 (O-2), 866 (Skylight) ..... $22.50 each

FILTER, 82mm—For 300mm f/4. 767 (UV), 768 (Y-2), 769 (O-2), 835 (Skylight) ..... $22.50 each

HONEYWELL PENTAX EXPOSURE METERS

For consistently good pictures, an accurate exposure meter is a must, especially with color films. Honeywell Pentax meters are easy to use, and constructed to give years of faithful service. They will guarantee you correct exposures every time.

HONEYWELL CLIP-ON METER

Catalog No. 895. Easily attached to the pentaprism housing of Honeywell Pentax H-1, H-3, H1a, and H3v cameras, this new meter couples directly to slotted shutter speed dial and is extremely convenient to use. Cadmium Sulfide cell offers high sensitivity; measures an angle of 40°, which results in complete exposure control. Operates on one 1.3v battery and has battery check position. Complete with battery and leather carrying case.....$29.50

HONEYWELL PENTAX 1°/21° Exposure Meter

Catalog No. 718. Selective exposure photography . . . a new concept in reflected light meters. The 1°/21° Meter utilizes an optical reflex system with a 1 degree angle of light measurement from the center of a 21 degree field of view. This restricted angle is read by an extremely sensitive CdS cell, allowing you to accurately measure precise areas for perfect exposures. Exposure is calculated quickly from circular scales on meter. ASA range from 3 to 6400; aperture range from f/1 to f/128, and speed range from 4 mins. to 1/4000 sec. Complete with batteries and leather case. $129.50

DISCONTINUED TAKUMAR LENSES

CAT. NO. 721—35mm f/2.3 lens semi-auto
CAT. NO. 722—35mm f/4 lens manual
CAT. NO. 723—55mm f/1.8 lens semi-auto
CAT. NO. 724—83mm f/1.9 lens pre-set
CAT. NO. 725—105mm f/2.8 lens pre-set
CAT. NO. 726—105mm f/2.8 lens semi-auto
CAT. NO. 727—135mm f/3.5 lens pre-set
CAT. NO. 730—500mm f/5.0 lens manual
CAT. NO. 732—55mm f/2 lens semi-auto
CAT. NO. 733—35mm f/3.5 lens semi-auto
CAT. NO. 734—85mm f/1.8 lens semi-auto
CAT. NO. 735—135mm f/3.5 lens semi-auto
CAT. NO. 736—55mm f/2.2 lens semi-auto
CAT. NO. 739—105mm f/2.8 lens pre-set

For additional information on Honeywell Pentax cameras, lenses, and accessories, contact an Authorized Honeywell Pentax Dealer, or write: Honeywell Photographic, P. O. Box 8776, Denver, Colorado 80217

Honeywell
PHOTOGRAPHIC

October, 1965