you and your Camera No. 71, Vol. 5
Editor Jack Schofield

Choosing and using equipment

Lens test: Vivitar 70-210mm f3.5 zoom

Vivitar Series I lenses were introduced about six years ago. They were the first range to be designed on the Vivitar computers and made, in Japan, to those design specifications. The 70-210mm zoom was one of the first.

The independently made lens has a fixed mount. You can buy one to fit most cameras. It is a 'one-touch' zoom (one control for both zoom and focus) with a close focus facility. The lens sells for about £148.

The focal length range, 70-210mm, is one of the most popular because of its great versatility—from portrait to action in one movement. To see how good the lens is we gave it to three photographers with different levels of expertise. After they had exposed and studied six rolls of film we asked them for their opinions on all aspects of the lens.

Stuart Brown is an interior designer and keen amateur photographer. He uses 50 and 85mm lenses on his camera for beauty and fashion shots. He had never used a zoom lens before.

Jack Schofield is the Editor of *You and Your Camera*. In the past he has used and tested many different lenses and owns a zoom lens himself. He was looking for a zoom of about this range and agreed to fill our 'advanced amateur' slot.

Vincent Oliver is a busy professional photographer who uses different camera formats. He had already bought the lens and was glad to take part.

Construction

The lens weighs 940g and measures 158mm in length and 78mm in diameter. It is fairly large and heavy but this is to be expected for such a lens and all three testers found it acceptable. The appearance and feel of the lens was liked by everyone. Vincent told us that the black finish was now starting to show signs of wear.

The focal length range was popular. The *zoom ratio* is 3:1 (divide 210 by 70) which is a useful range. Vincent uses 105mm a lot, while Jack found 210mm his firm favourite. The aperture range is f3·5 to f22 (except with Konica mount lenses where you can only stop down to f16). This is a fairly wide maximum aperture for an inexpensive telephoto zoom but Jack and Vincent used f3·5 much of the time and wished that they had more leeway.

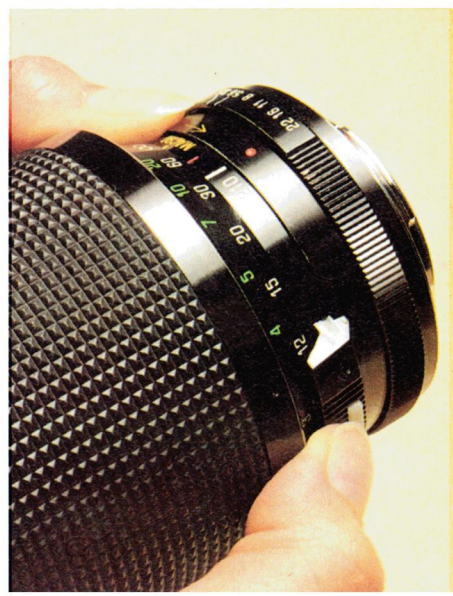
To have a wider maximum aperture like f2·8 would increase the cost and size of the lens dramatically.

Controls

The focusing grip is long and has a rubberized square pattern. Everyone agreed that focusing was smooth yet positive and had no complaints. There are clicks on the aperture ring at all half stop steps, except f16 to f22 (which Vincent

▲ Vivitar's perennial 70-210 zoom is available to fit most camera mounts, bayonet or screw fit. A front and rear lens cap are provided.

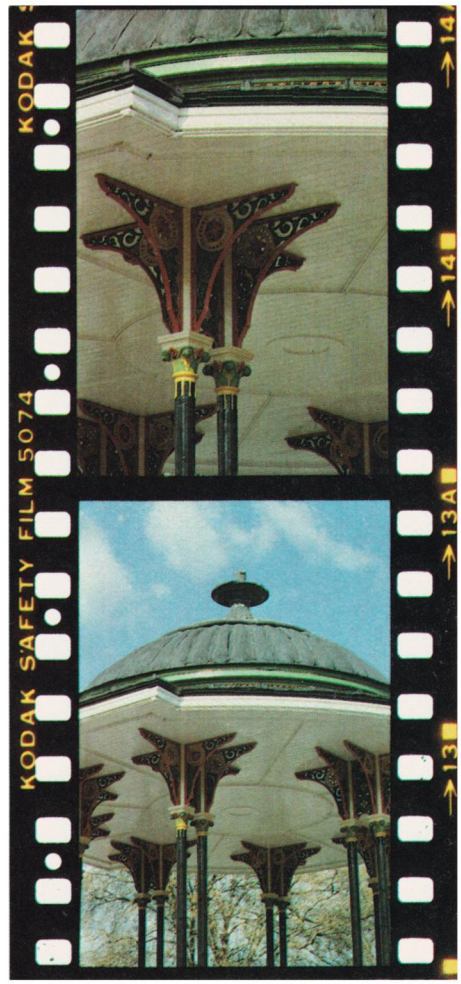
▼ There is only one way of setting the zoom lens to its macro mode. Unusually, the lens has to be at its longest focal length. Press in the white release. button and turn the macro selector ring until the yellow macro index line is opposite the red dot. This is normally done with the lens on the camera.



▲ On the other side of a busy road *Jack Schofield* used the zoom control to crop this colourful shop front carefully. He set it at about 95mm.

◀ This tile mosaic was photographed at maximum magnification (slightly less than half life size) and at maximum aperture. The subject is flat and shows the fall-off in edge quality clearly. The sides of the frame are fuzzy and lacking in detail. This improves dramatically towards the centre of the picture. For close-up pictures the lens does much better when stopped down or when interest is confined to the central area of the frame—such as a single flower.

▲ The 70-210mm zoom is about the same length as a 200mm fixed focal length lens. Whether the lens is set at 70 or 210mm the lens is the same physical size. Only focusing changes the length of the lens.



would have preferred). The clicks are extremely positive yet with no hint of stiffness.

To switch to macro focusing the lens must be set at 210mm and focused on infinity. There's a small white plastic button on the side of the lens barrel which, when pressed in, allows you to turn the focusing grip farther than for normal photography. It's almost impossible to switch to macro by mistake. Jack found it hard to switch *off* macro.

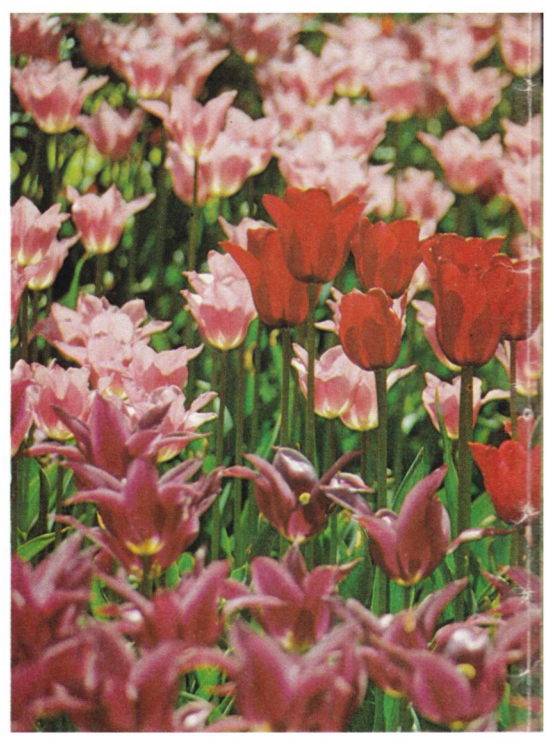
The normal minimum focusing distance is 2m. This wasn't close enough for Vincent when using shorter focal lengths. When you switch to macro you can focus as close as 29cm. The maximum image magnification possible is 1:2.2, or, slightly less than half life size. Although not a true life-size macro (and to be fair, Vivitar don't pretend it is) it's still a good magnification with such a versatile lens.

The zooming control is incorporated in the focusing grip. The 'one-touch' facility allows you to zoom and focus at the same time and with the same hand. Sliding the focusing collar back and forth over the length of the lens barrel changes focal length. When the collar is nearest to the lens front the shorter focal lengths are in use. 210mm is the end closest to the camera. During zooming, whatever focal length you set, the physical length of the lens never changes.

The focal lengths marked are in large white figures: 70, 85, 105, 135, 150, 180 and 210mm are the only steps shown. The testers found it simple to zoom in and out. Vincent said zooming was 'firm', yet on Stuart's sample zooming was said to be 'sloppy'. Jack had no complaints. For all three it was easy to find out the focal length in use, although in practice it is rarely necessary to check what you have set.

There is no depth of field scale provided because this changes with focal length. An infra-red focusing index is provided as one continuous red line running parallel to the focal length scale.

In general the testers found the lens easy to use and to handle. For Stuart it needed some practice to master all op-



erations after which he was very happy with construction, control layout and labelling. Jack particularly liked the solid feel of the lens, but pointed out that the front lens element is far forward—hardly recessed at all—and is therefore vulnerable to damage and flare. No lens hood is built-in, provided or mentioned in the handbook to offer some protection and reduce flare.
Vincent's main complaint is the ease with which he can change to macro without first setting the lens to 210mm.

Performance

Because of the position of the front lens element and the lack of a lens hood (we did not provide one) all three got flare in some pictures. Vincent found that it happened mostly between 135 and 210mm. You can buy cheap 67mm screw-in lens hoods which fit the filter thread.
In theory a zoom lens is designed to hold sharp focus when zooming in or out on a subject. The lens on test failed to do so, and showed a slight shift in focus. It was more noticeable when the lens was focused at 70mm then zoomed to 210mm without changing focus. It was present, but far less apparent, when the lens was focused at 210mm and zoomed down to 70mm. Vincent thought that it might be due to turning the focus ring slightly by mistake. (He prefers lenses with separate zoom and focus controls.) It might also be due to inaccurate focusing in the first place. It is more likely to be the lens. It is, however, easy to readjust focus.
Jack said that image quality is acceptable throughout the aperture and focal length range. Both he and Stuart noticed slight pin-cushion distortion, however. Stuart and Vincent thought enthusiastically that quality was well up to standard. Vincent was especially happy with performance at wider apertures. The quality of macro images suited Stuart well. Jack thought the

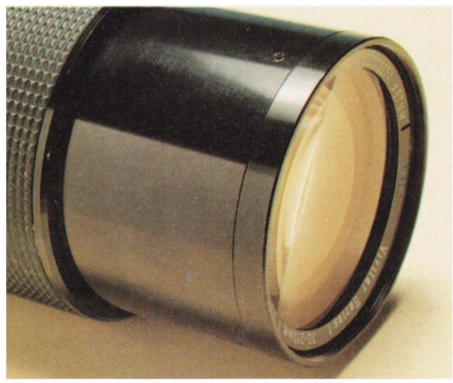
◀ ***Stuart Brown*** **set 210mm to show detail in the bandstand and zoomed back to 70mm for a general view without changing focus. With care and using a small aperture the focus remains sharp.**

▶ ***Jack Schofield*** **first focused set at 70mm then zoomed into 210mm. There is a slight focus shift exaggerated by a wide aperture (f5·6) and the shallow depth of field at longer focal lengths.**

▼ **Excluding macro, closest focusing is about 2 metres at all focal lengths.** ***Vincent Oliver*** **set the lens at 105mm for this colourful picture. He focused as close as possible and used f8.**

▼ **From 2 metres but set at 210mm you can fill the frame by singling out a few small subjects. Even at f8 Vincent was able to separate several blooms sharp against out of focus surroundings.**

▲ In awkward lighting conditions when light enters the lens directly or at an angle either side, the lens showed a tendency to flare as you can see here.



▶ Although multi-coated the front lens element is in a shallow recess making it easy for stray flare-causing light to enter. No lens hood is provided.

▼ Left: on occasion the lens vignetted slightly at maximum aperture (note dark corners). Right: at smaller apertures vignetting disappears completely.

macro quality was below his standards, but useful for quick close-ups. The 'dreadful' fall-off in edge quality made the macro setting unsuitable for Vincent's copying work (with flat subjects). He finds it adequate for pictures of things like flowers.

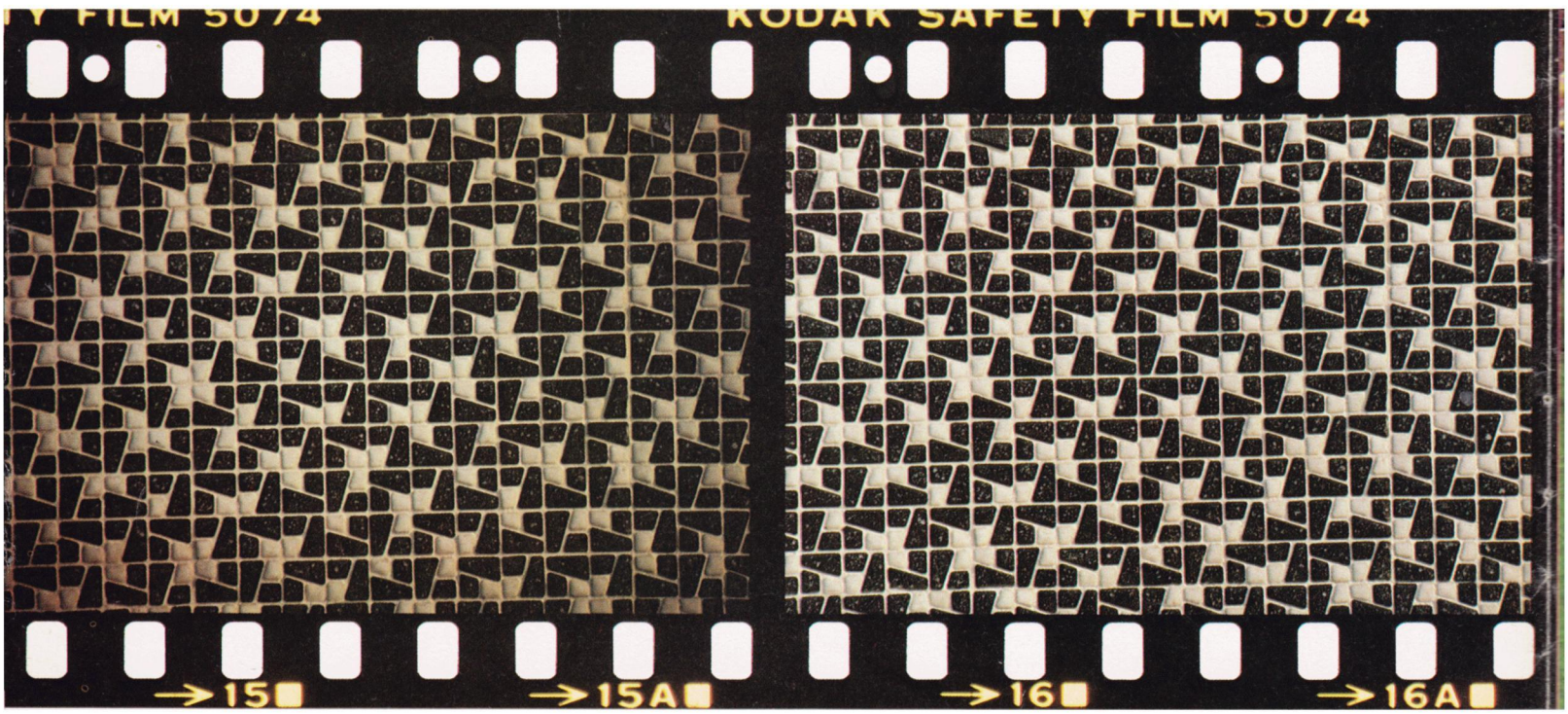
Picture edges are usually lower in quality than the frame centre with any lens. This is especially so at wider apertures. Although Vincent found this edge fall-off consistently through the focal length range, Stuart and Jack thought it far less noticeable in normal photographs than macro ones. On the whole Stuart was happy with performance, Vincent said 'it's very good', and Jack thought it acceptable. Jack noticed vignetting (edge cut-off), especially using f3·5.

In general

Everyone thought that the features provided on the lens worth having and easy to use. Because of its low image quality, Vincent could not accept the macro facility as an important consideration for buying the lens. Both he and Jack wanted a built-in lens hood. All three, rather optimistically, wanted f2·8 rather than f3·5.

The lens comes with a plastic rear cap and a push-on metal front cap. Like all other caps, these are easy to lose. No case is provided, so if you wanted to carry the lens unmounted you would have to buy your own packaging.

Stuart thought the lens good value for



Summary

Stuart Brown: "This is a very good lens. It has a good range of focal lengths. The macro focusing mode is most welcome and I think the lens performs well both at macro and other settings. As a new lens it took me a little while to get used to the feel and operation. With more practice I am sure it would be a useful lens to have around and I would buy it readily".

Jack Schofield: "I found this lens sharper and more usable than other telephoto zooms I've used where the zooming and focusing rings were separate. I really enjoyed using the lens at first—especially being able to frame pictures exactly. With more use I liked it less—I wanted to go back to lighter, faster, fixed lenses I find quicker to use, but this would be a lens I'd want to take on holiday.

Vincent Oliver: "At first I thought it would replace all my other fixed focal length lenses. It is a good lens to have and I can rely on it. But if it were to go wrong I would be short of a number of lenses rather than just one. As a professional this is a good extra lens. 'Macro' is only a good gimmick, but I would rather have it than not."

money and would not hesitate to buy it. Jack also thought it to be good value but would not buy it. His reasons were varied. The maximum aperture made it hard to take sharp hand-held pictures using 25 ASA film: the slow shutter speeds needed for correct exposures caused camera shake. Most of his photography is with wide angle lenses so for the longest focal length, which he used most of the time, he may as well buy a fixed focal length lens of about 200mm. The lens gave him sharp pictures at all focal lengths but he noticed pin-cushion distortion, vignetting at wide apertures and flare.

Vincent agreed that the lens is good value and would buy it again. He added that the colour rendition of the lens is particularly neutral and not too contrasty. He often makes 50 x 60cm prints from negatives photographed with the lens because he finds it an excellent performer, except on macro. Another of his reasons for not liking the one-touch zoom control is that, in hot weather when the grease gets thinner, the collar slips back and forth if pointing the camera up or down.

Conclusions

To sell a lens with so many useful features for a low price is commendable. The balance of price, features and quality is just right, and responsible for the continued success of the lens.

Zoom lenses usually give an inferior performance to fixed focal length lenses. Edge performance is always worse than centre performance when using wide apertures with any lens, zoom or fixed. So on balance the Vivitar 70-21mm Series 1 lens is excellent value for money.

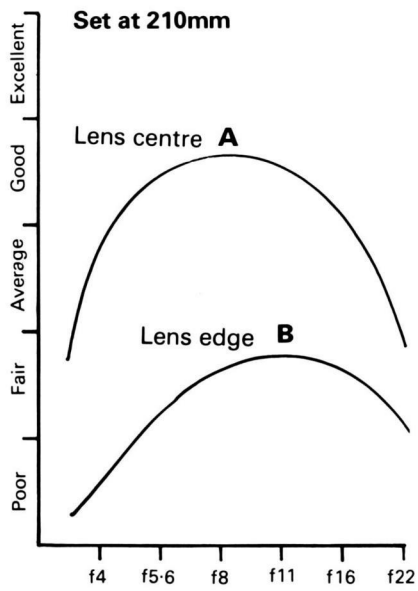
The quality of macro images is classed as only acceptable because of the fall-off in edge quality. By choosing subjects with main interest at the frame centre and using the smallest practical aperture you can overcome most of the problems. It's a useful feature to have when you are on a country stroll with the minimum of equipment, for example, and happen across a rare plant or insect which you *must* photograph.

Vivitar have not so far been tempted to replace this lens with an 'improved' version. As far as we can see there is no reason for them to do so.

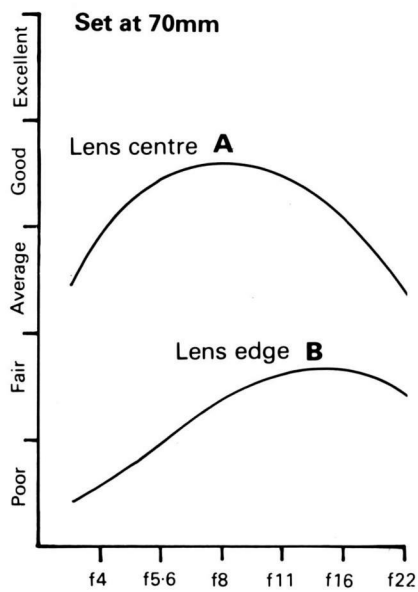
MAIN FEATURES

Focal length range: 70-210mm
Zoom ratio: 3:1
Construction: 15 elements in 10 groups
Aperture range: f3·5 to f22
Angles of view: 12° at 210mm to 34° at 70mm
Minimum focusing distance: 2 metres (macro 80mm)
Maximum magnification (macro): 1:2.2
Filter size: 67mm
Length at infinity: 158mm
Weight (approx): 880g (varies with mount)

▶ The lens was tested objectively at shortest and longest focal length. As expected centre performance is far superior to the edges, in fact it's very good between f5·6 and f11. Edge scores may look low but are as expected from any zoom. Overall this is a good performance.



A: Best centre performance f8
B: Best edge performance f11



A: Best centre performance f8
B: Best edge performance f11-f16