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EDITOR/PUBLISHER



THE NIKON JOURNAL

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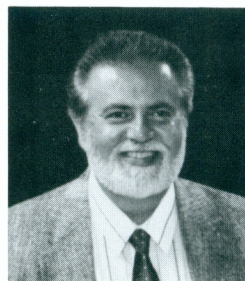
NEXT ISSUE

The deadline for the next issue of our NIKON JOURNAL, #59, is March 1, 1998. This will be the last issue before NHS-Con6. To get ready for the convention I would need all contributions to me by the above date in order to get #59 out on time. Thank You!

EDITORIAL

You will notice a few things missing from this issue. Items such as Letters, Back Issues, NHS Products, some ads and our traditional cover! However, you will find something new just for this issue: **four extra pages!!!** What is going on here? More pages but items missing? What we have here is a **special issue** of the *Journal*, the largest we have ever had and the first time that nearly an entire issue is dedicated to a single subject! By now you know I speak of the truly awesome 5cm/f1.1 Nikkor! This massive article has been in the works for months & was delayed twice as the result of the efforts of its co-authors, Peter Lownds & Tony Hurst, to bring together within the pages of a single issue as much information as possible on this most impressive lens! When they told me that it would not fit our normal 24 pages I committed to the idea of adding 4 pages just this time to make it fit, since we all agreed that to split it up between two issues would reduce its impact. The result is a 28 page Journal show-casing the F1.1 literally from **cover-to-cover!** Not only did Tony create our back cover with his usual expertise, but he also duplicated my cover photo (which just might remain this way...any feedback on this?). The article itself consumes 20 pages with words by Peter Lownds & many fabulous Hurst photos illustrating the fastest lens in the RF series as only he can. Unlike past coverage of important items, the F1.1 article takes a more illustrative and artistic approach to describing its subject. I believe the results to be a unique achievement making this issue of the *Journal* a special one indeed. I know that those of you who own an F1.1 appreciate the special place it holds in the history of the Nikon range-finder system, to say nothing of Nikon's reputation as an optical manufacturer "par excellante", and value your examples highly. Those of you yet to obtain one for yourself will surely feel the urge to escalate your efforts after seeing this article. Since my beginnings in Nikon collecting the 5cm/f1.1 has always been a truly awesome piece of glass. Whatever your feelings, the F1.1 Nikkor is and will always be the most impressive high speed normal from the golden era of the rangefinder 35'. I can only hope that this special tribute here in the Journal does it justice. From cover-to-cover Peter and Tony, and those who assisted them, have put together a landmark issue of the Journal!

Concerning NHS-Con6....our show chairmen have informed me that it looks good for April in New York! No exact dates yet, but their projected itinerary should make this a very interesting meeting. Info will be mailed out to all as soon as dates are set!!!!



ROBERT ROTOLONI
EDITOR/PUBLISHER

AWESOME GLASS!!!!

by Peter Lownds/Photos by Tony Hurst

It's that time of the year when all the Nikon boy scouts gather around the camp fire, throw on another log or two, bunch up a little and sing some old songs, which we don't know the words to (well, only the dirty version), and drink gallons of hot chocolate. So go and get yourself a warm jumper and put on a thick pair of socks and join us. With the permission of the old brave wolf, our troop leader Bob Rotoloni, this entire issue has been given over to just one lens! We are going to see if we can burn holes in that old jumper and set the grass alight with the aid of a very special bit of glass! So for those of you who want to earn your lens badge, make notes because I will be asking questions later.

This issue is a unique approach for the NHS Journal. We will be talking about one lens, the 5cm/f1.1 Nikkor, so for those of you couldn't give a tinkers cuss about this lens, now would be a good time to go out and wash the car, or paint that window that your wife has been nagging you to do for the last 6 years, and while you're out there "get a life"! For the rest of you this issue will be like a big juicy steak, or a drive with a fast lady in a slow car...heaven!!!!

Tony Hurst and myself have been talking about this project for quite some time. No one person has dared to write a single word about this most desirable of lenses. Taking a quick flick through past Journals and you will see more than just Nikon within its pages. All the optical colors of the rainbow have found their way into these hallowed pages...Canon, Fuji, Old Delft, Zunow. This Journal we see a first....coverage of only the F1.1 Nikkor, literally from cover-to-cover! When we first began the idea was to give the F1.1 the same sort of coverage that most other major Nikon items have had, but we soon found out that there was another part of the F1.1 story which needed telling. As strange as it may seem we need to go back to the first weeks of August 1945, and two nuclear bombs being dropped on Japan.

Thursday October 9, 1997 Rotterdam

Yesterday evening I had been in Belgium to pick up three 5cm/f1.1 Nikkors from an NHS member who wants to remain anonymous (but who's real name is Ivor Biggen!), and was kind to lend them to me. Now I need to go and dig my lenses out from my secret hiding place under my daughter's bed (whoops!, keep it to

yourself!). Tony had asked me if I would bring over my collection of NASA Nikons, a cut-a-way F3, and a few other tasty items. He wanted a few shots for his slide show planned for the next Convention (if that's not worth coming to the Convention I don't know what is!). I had my pilots case full, plus a large hand case. It must have weighed about 30kg (65 lbs for you Americans). My biggest nightmare was that Air Lingus were going to ask me to check my bags. I walked up to the ticket counter, "do you have any bags to check sir?". No, just carry ons (keeping the larger of the two bags behind me). I made it, phewwww!!

The security at Schiphol is tight and, yes, you guessed it, after my bags went through the X-ray machine, "sir can we take a look inside your bags?". I had to unpack everything! Just my luck, on a Friday afternoon with 8 Nikkor f1.1s. The security people found my cut-a-way F3 and it became a talking point. One hour and 20 minutes later I'm in Dublin. I had to walk what seemed like a mile, got outside, and there was Tony. After a long walk to his car my cases were getting heavier and heavier.

Dublin Ireland, October 10, 1997

We drive out of the airport into a wet Dublin evening. It's raining, we are talking buckets, both outside and inside! Tony's car leaks! To use the word leak would be like saying that the Chrynobil nuclear meltdown was just a bit of a crack in the lid! After a half hour drive we arrive at the Hurst castle, water dripping from clothes, but who cares, it's Ireland. Always nice to see Tony again, and we very quickly start talking about how we are going to capture on film all these beautiful Nikkors! I had made a wooden box. This was an idea I had to give the impression of how it might have been at the end of the production line some 30 years ago in the factory. I had quite a job explaining to Tony over the phone what I had in mind. We spent 16 hours in his studio on Saturday, and now I know his secret! He paints with light! His brushes are his lenses using the light that surrounds him. He has no respect for his equipment, it gets dropped, banged, dinged, thrown and run over. The only important thing is to get it on film, and to do so he uses any means possible. Whatever it takes...brown paper, string, tape, bits of wood and plastic, broken mirrors, lots of tripping over cables! But what photos!!



How would like to find this little box under the Christmas tree? Sorry if all you got were some socks! This is the shot we dreamed up to suggest how it might have been at the factory back in the fifties. The original "Hurst" photo

really looks great. Write to Tony. For a paltry sum the magician can conjure one up for you. It would be worth a place of honor on your wall, and could be used to cover up that damp patch as well!

The occupying forces under General MacArthur, together with the post war Japanese government, had to set up a program to X-ray in mass and check and re-check the health of about 60 million people, who had from very small to large exposures to atomic radiation. The Japanese scientists were aware the X-ray teams needed some sort of protection from the high doses of radon, such as a glass screen and lead apron. But the very people that Japan was trying to help were being given another sort of radiation. We have seen and read in past issues Mike Symon's article on the 6x6 X-ray camera and its beautiful lens, the Regno Nikkor. Worth looking up those old Journals and reading Mike's work again. Take a second look at that lens because that was the starting point for the F1.1 Nikkor!

The Dutch company, "Old Delft", succeeded in making large aperture light sensitive lenses for use in X-ray machines. Late in 1949, the Japanese government brought together five of the top optical manufacturers in Japan, politely requested (in the way the Japanese do) they start work and pool their technical resources and information on the production of new & improved glass types. They had as a goal an F0.65 or F0.85 lens for use on the Japanese X-ray machines.



This is the Old delft lens used in the Phillips X-ray machine from the late 50's in Europe. It is named after German inventor, Roentgen. Notice the very short 58mm focal length and the f/0.88 aperture! Canon, eat your heart out!!!!

We need to look a little bit at how an optical lens is designed. We know that the Japanese would recycle optical glass used in spectacles, and that some was transported in submarines from Germany during the war years. Germany, Britain and France had more than 150 years of optical glass research and production, with a wealth of knowledge about the various properties of glass. The design of a lens was a time consuming job, one which involved teams of mathematicians and engineers working tirelessly with stacks of paper and slide rules. Just to give you some idea of the daunting task, Dr. Paul Rudolf of Zeiss, spent the best part of 3 years calculating the famous Planar lens!

Most photographic lenses have been developed from existing forms with relatively few minor changes. There have been, however, a few cases where a lens design has made a quantum leap & been the basis for the development of other lenses. One such lens is the F1.1 Nikkor!

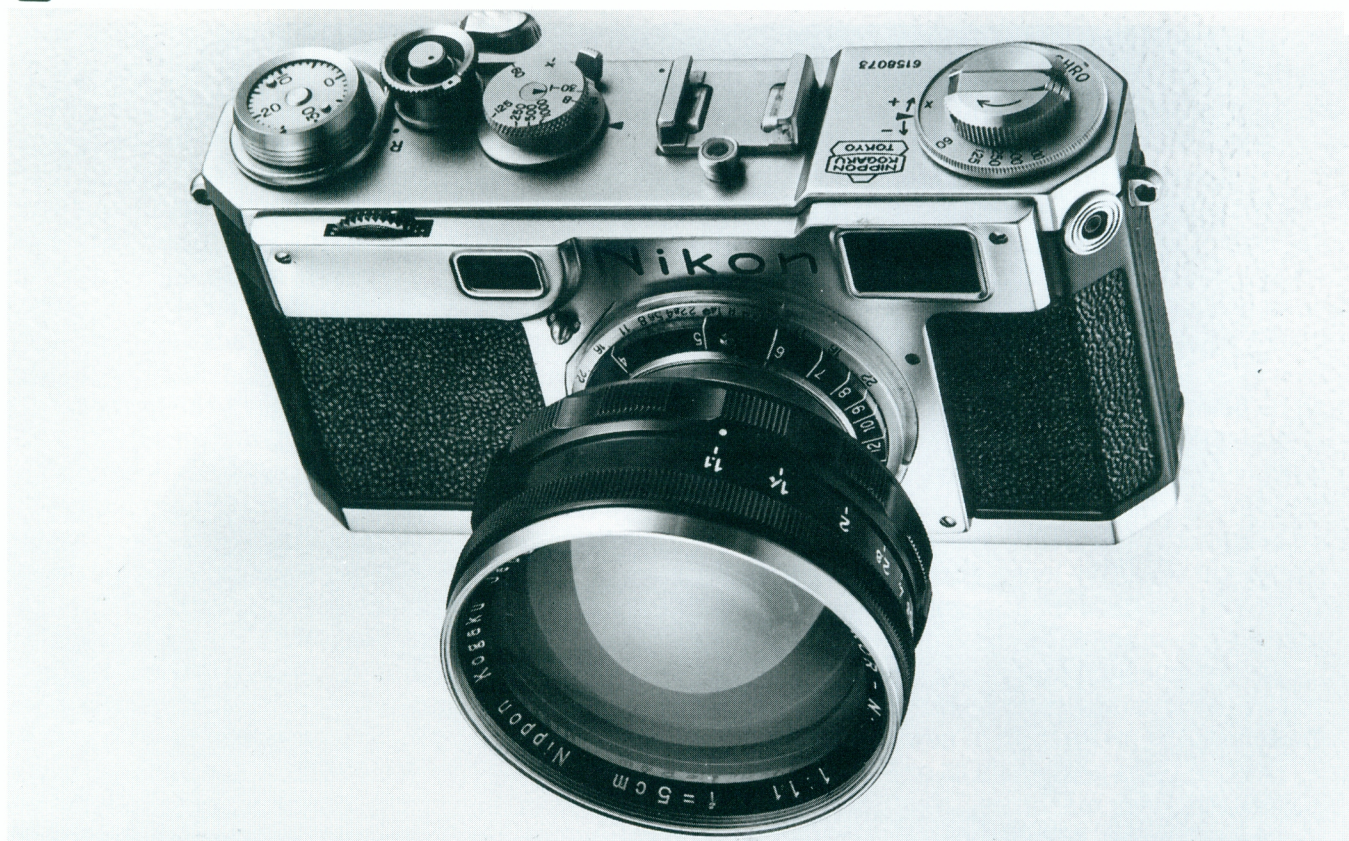
Lens life on earth started with the simple meniscus lens, or single element lens. Focusing was simplicity itself....the element moved up and down a tube, one step removed from the pin-hole in a shoebox. Today the lens designer has at his disposal more than 200 types of glass and banks of high speed computers programmed with the very latest software and capable of designing the most complicated lenses. Still, quite often it is impossible for the engineers to turn a complicated design into a workable lens.

To determine the performance of a lens with the utmost precision, it is necessary to use an optical bench (well, we haven't got one, so you'll have to make do with our test instead). We tried using my Black & Decker Workmate as an optical bench, but we were not getting the results we wanted! On a lens bench various types of aberrations can be detected. Those of you who know what aberrations are can skip this part, the rest of you had better read this, because we will be asking questions later.

Abberations:Who Wants Them & Where Do I Buy Them

Any failure to meet the requirements of perfect imagery constitutes an aberration. Since the ways in which a lens can fail to meet the requirements are limitless, aberrations are potentially infinite in variety. However, the behavior of rays of light near a focus point fortunately fall into a few distinct patterns, and these may be taken as typical of the performance of an imperfect lens. Seven types are common to lens calculation ; five are independent of color in the sense that they exist in light of every color with values determined by each wavelength. In essence the five have the same

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THE "SUPER" NIKKOR!!!!
AWESOME 5CM/F1.1



character in all wavelengths while the remaining two are dependent on the light passing through the lens. One type has no relation to sharpness but causes distortion. Two types are chromatic aberrations and offer their own complications.

ABC's of Lens Troubles

An aberration is an optical defect in the design of a lens. The lens does not bring all the rays of light to an exact focus. There are several different types of aberrations, each a contributing factor to image quality.

- **Achromat**-an objective corrected for one wavelength and with the lowest relative resolving power (N.A.)
- **Achromatic**-color-corrected optic used to produce true specimen color.
- **Alignment**-condition in which all optical elements are centered on the same axis.
- **Aperture**-a fixed or adjustable opening or hole through which light may pass.
- **Apochromat**-the highest color corrected objective (3 wavelengths) and, therefore, the highest relative resolving power. The manufacturers call them "APOs".
- **Chromatic Aberration**-an optical defect seen as color fringes or halos, which causes different wavelengths of light to be focused at different distances from the lens.
- **Fluorite**-an objective corrected for two wavelengths and, therefore, with a higher resolving power than an Achromat (there are exceptions). Manufacturers call them "Fluor, Neo-Fluor".
- **Fully (Anti-reflective) Coated**-coating of a lens which improves its ability to transmit light more efficiently.
- **Image Plane**-a plane which is at right angles to the optical axis at the image point.
- **Lens**-optical glass which has 2 polished surfaces and is used to converge or diverge light rays.
- **Plan Objective**-corrected for flatness of field so that when you view the specimen it is in focus all across the field. We then have Plan-Fluorites, Plan-Achromats and Plan-Apochromats.

Spherical Aberration-a defect in which the lens fails to form a sharp image. Rays of light passing through a lens near its edge are converged to a point nearer the lens than those passing through the center.

- **Wavelength**-light travels in waves varying in length. Measurement is from the top of one wave to the top of the next and is usually measured in nanometer (nm) or Angstroms (A)

Most books on pre-war Japanese lens design make mention of "crown glass". This type of glass was well within the capabilities of the Japanese glass makers. One of the biggest headaches for the glass maker is not melting the silica sand into glass, but cooling the finished product. After melting, the crucible of molten glass took about 14 days to cool down to room temperature. For those of you who have used those long E.D. lenses, ever wonder why they cost so much? A large percentage of the cost goes into cooling the glass down from 1100° C to room temperature. It can take as long as six months! Nikon must receive gas and electric bills as long as your arm, so that around 10% of the price of these long lenses could be from the gas bill!

At the first meetings of the five optical makers a goal was set to produce a light sensitive lens of great speed for the X-ray machines. The five companies were:

- Fuji Kogaku
- Konica Kogaku
- Minolta Kogaku
- Nippon Kogaku
- Ohara Kogaku

Three groups were set up to accomplish specific tasks.

1. Development of new glass types
2. To determine if a sharp light sensitive lens could be produced from only crown glass using then current Japanese technology
3. Design a new lens incorporating the new glass types other than crown glass.

After two years of intensive work, the X-ray part of the program was finished. The five companies had gained a great deal of knowledge from their collective efforts both in the design and construction of a light sensitive lens, and this expertise could be put to good use in the production of high speed lenses for the now growing photo industries.

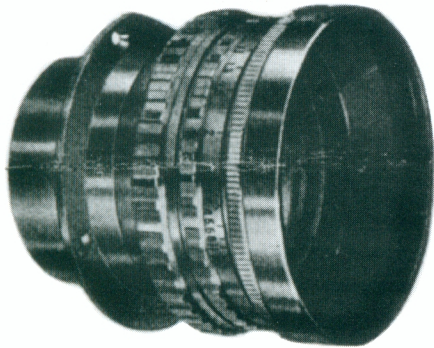
Tokyo Kogaku (Topcon), who had not been involved in the X-ray project, had, using exciting glass types, managed to produce a very high speed lens for use on their rangefinder camera. I heard the following story about six years ago: Back in the 50's it was not unknown for photographers passing through Tokyo, to be invited by various manufacturers to visit their factories. They

50 mm F:1.1 STANDARD LENS FOR EYEMO



Lens elements	: 9
Angle covered	: 46°
Camera mount	: Standard-Eyemo
Focusing range	: 3.5 feet to 100 feet ∞
Minimum f stop	: F:16
Stop indicator	: with click stops
Weight	: 480 gr. (light metal 420 gr.)
Coating	: All air-glass surfaces hard coated

50 mm F:1.1 STANDARD LENS FOR MITCHELL



Lens elements	: 9
Angle covered	: 46°
Camera mount	: Flange
Focusing range	: 3.5 feet to 100 feet ∞
Minimum stop	: F:16
Stop indicator	: with click stops
Weight	: 600 gr.
Coating	: All air-glass surfaces hard coated

Above are excerpts from an early Japanese pamphlet from the Zunow company. The two versions of their 5cm/f1.1 originally designed for the 35mm cine frame are illustrated. It must be remembered that the cine frame is 18x24, not 24x36, therefore, the Zunow was not designed to cover the full 35mm frame, yet it found its way into the market because of the need for super fast lenses. Because

of this it was never known for its sharpness, yet it sold in good numbers. (Pamphlet courtesy Bill Kraus) Below are both the F1.1 Zunow (right) and the 5cm/f1.2 Fujinon. The letter "N" is engraved near the rear element denoting that these lenses were meant for the Nikon! We can see that both Fuji and Zunow painted the rear ring black!



would be shown around and allowed to inspect the very latest products in order to observe their reactions. An American Army captain had expressed a wish to have a tour of Topcon. Our Japanese friends were only too happy to spend half a day showing potential users around, letting them play and handle their latest products. This army officer was made most welcome, so much so that he was shown into the lens design department. The chief lens designer at that time showed our friend a brand new prototype of a 5cm/f1.0 Topcon lens for use on a rangefinder camera! The army captain was left alone for some time. The lens designer returned to his office and, yes you guessed it, both the army captain and the lens had gone for a walk! For some strange reason, best known to Topcon, nothing was heard or seen of this lens again. So out there somebody has in their collection a very hot F1.0 Topcon. I know a Topcon collector who would love a picture!!!

Zunow had taken a different route. In October 1952, they announced to the photographic world a brand new lens for the 35mm cine industry; "the Zunow 5cm/f1.1"! They had taken the easy route, using crown glass. We must take into account that a 5cm lens in cine mount would give a photographer an acceptable image because the cine format is the vertical 18x24 and not the 24x36 as in still photography. The lens was never designed for full frame 35mm still cameras. It found its way onto still cameras by default, because of a want, and need, to take available light shots. We must remember that color film at that time gave an exposure of "two weeks at f11"! Today's modern enlarging papers are faster!!

In 1954 Konica Kogaku introduced a 60mm/f1.2 lens in Leica screw mount. Some of the new glasses were incorporated into this new lens.

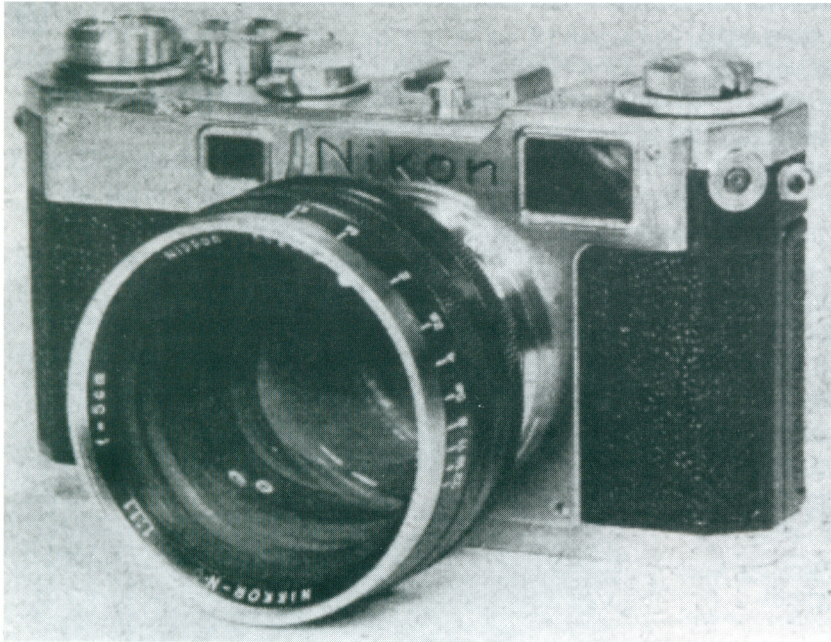
Fuji introduced in 1955 their new high speed 5cm/f1.2 lens using new glass technology together with an improved design.



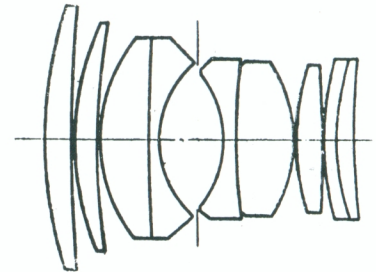
We can now start with the main item, the Nikkor 5cm/f1.1 lens. I've always had a soft spot for this lens and every time I see one for sale I can't control myself, I go weak in the knees and my hands shake! Out comes my wallet, there goes my slush fund! I've had 18 lenses in the last 10 years and been able to keep five. Why five? It's not decent for one man to own more than two. But look carefully, that's right we see five different variations! Tony and I have spent the last two years picking the rest of the known Nikon world's brains, but to no avail. It's been a great surprise to find out how little is known about this lens. The entire Journal has been given over to it and I hope it won't be the last time that it appears in these pages. After reading this I want you all to go to the metal box under the stairs, or in the aluminum case in your daughter's room, you know the one under the bed, dig out your F1.1 lenses and take a good look. We are searching for differences. Bob would love to hear from you with lens numbers and types you possess.



ALL PHOTOS
by
TONY HURST



50ミリ F1.1 の外観



50ミリ F1.1 の構成図

On this page we have a selection of vintage photos of the prototype 5cm/f1.1 Nikkor!. Clockwise from above... First photo seen in the Japanese literature. Note the aperture scale! The same prototype with its optical formula. What are the two lines of Japanese characters talking about? I wonder. The same lens from the exact same angle! But note the inside filter thread. Is it painted black? Lower right is the famous shot from Tydings' Nikon book. Again the very same lens from the same angle! All 3 shots appear to be the same photo, yet the last 2 "appear" to have a black filter ring. All have the prototype aperture scale not seen on any production lenses! Finally, below is what can be seen in the famous Wright's Manual. This time, however, we have a non-prototype regular production lens. Note the aperture ring arrangement.



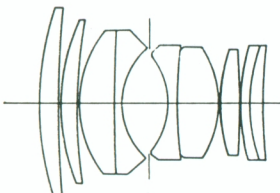
50mm f/1.1 (N.C) NIKKOR

introduced 1956 9 elements
 click-stops to f/22
 focus to 3 feet
 couples to Nikon range-finder
 diagonal angle of view: 46°
 (26°x39°)

Nikon bayonet 12 3/16 ounces
 lens accessory size (Series IX)
 62mm snap-on; screw-in
 screw mount (Leica thread)

15 ounces

(same accessory size)



Greater light-gathering power than any other lens with comparable acutance and freedom from aberrations. Introduced 1956, after surface coating and glass technology made radical redesign with split elements and air-spacing possible.



The f/1.1 lens of 50mm focal length.

When Nikon introduced the 5cm/f1.4 lens to the market in 1950, it was the fastest 35mm normal lens made! After only 4 years of research and development, Nippon Kogaku had surpassed all the leading European and American glass and lens makers. High speed lens design work continued and in by February 1956 an even faster Nikkor was born!

The research group under the watchful eyes of Mr. S. Murakami, head of the lens design program, had, in less than 9 years, achieved their goal of producing the "fastest 35mm lens in the world..the Nikkor 5cm/f1.1!!!"

After years of visiting all the restaurants and night clubs in Tokyo, our search has brought forth fruit. With our water running low and only enough food for 3 more days, we came across a small night club which had been frequented by the lens design team. We are proud to put on show, for the first time anywhere, the very table cloth on which the design of the 5cm/f1.1 was drawn! We see that it is still intact, complete with the original knife and fork in place. What a remarkable find! This is not unlike the Shroud of Turin!

Now for a really good look at the F1.1 Nikkor. I would hate to fall into the "Leica syndrome" of counting rivets and measuring screw heads, but we will be looking at very small differences we have uncovered by taking a close look at this Nikkor. We know the whereabouts of three prototypes: one is in the collection of our scout master, wise old brown owl Bob Rotoloni. The whole Nikon world was napping the day of the second Stan Tamarkin auction in New York, because this prototype was in the sale! I'm still kicking myself!



This is the unusual lens mentioned in the text. It has the same serial number as that seen in the original Japanese ads in Asahi Camera! However, that lens is prototypical like that seen on page 8. What is this lens? Is it the same

The second prototype , an external, we had the privilege of being able to play with on our trip to Tokyo for NHS-Con5. I, like many others, wanted to take a few shots of it, but I might as well have tried to photograph a nuclear weapons base in the former Soviet Union. No way!!! (This 2nd lens has been seen in various Nikon literature. It is an external lens but with an internal type serial number. In addition, the number has an extra digit at the end, which looks to have been added later. The number is 1196121. I knew of its existence for years but we were all surprised when it appeared on the table at the convention! Currently I am trying to obtain photos of it, and the other prototypes we saw that day, from Nikon. If I do they will run in a future issue. RJR)

I'm sure that we all have spent hours looking at the Kenneth Tydings book. The 3rd prototype can be found on page 92 where we see a photo of an F1.1 internal that looks different. Look at the aperture ring! The numbers are facing the wrong way! The front lens element has been air-brushed. Wouldn't be nice if we could read the serial number occasionally? Makes you wonder if the writers knew at the time that this would be of great interest to collectors 30 years down the road, and is now laughing at us!!!!!!!!!!!!!!

I've been talking to fellow collectors about the F1.1 lens for some time. On our trip to Japan, I got into a conversation with NHS member Takashima-san. I was asking him about his collection of screw mount F1.1s, because he has four! And I was interested to know if he had found any differences in his lenses. A few weeks later the kind man sent me a picture of his collection of lenses. Four screw mounts, side by side. Outside of the factory, this must have been the most screw mounts in one spot at one time! He had enclosed a second photo of two internal Nikon mount F1.1s showing the very same differences I had discovered about a year earlier. and had been able to show to our learned body of Nikon historians at the convention in Holland. We can see, from the fabulous photos taken by Tony, these differences.

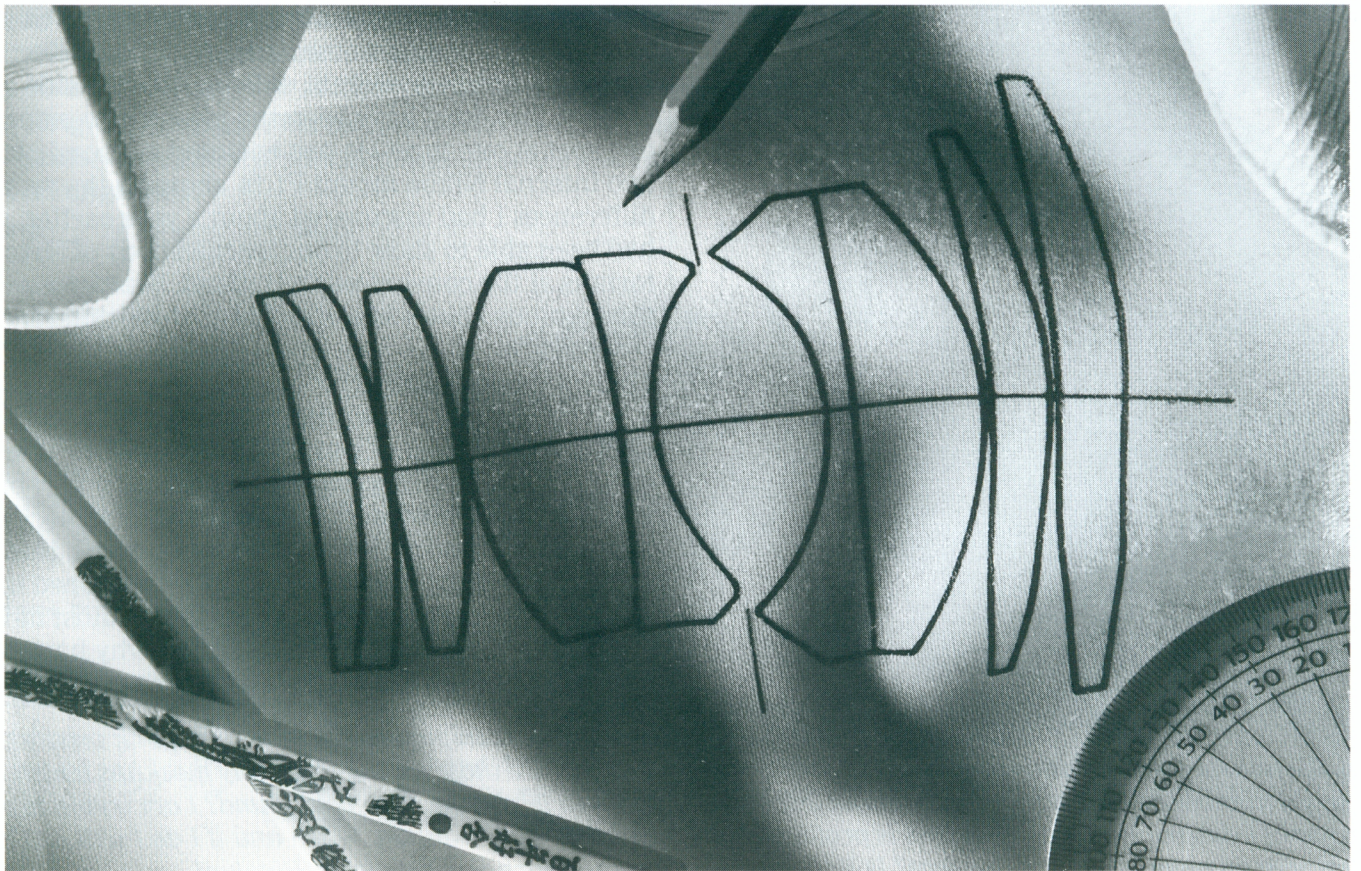
TYPE ONE INTERNAL

I've had quite a few internal mount F1.1s and I am sure that, like most of you, never bothered to take a closer look. If we feast our eyes on the back part of the lens, we see a difference in design. The first block of numbers (119xxx) all have, as far as I can tell, this back design. This must have been the lens mentioned in the 2 letters from Joseph Cooper. These lenses must have been factory matched to S2 bodies, but why have we hardly seen an S2 box marked for the F1.1? I have only

one pictured on page 8, but remounted in a production barrel? Are those on page 8 simply mockups which would explain why none have been found? I am trying to obtain more info from Japan. When and if I do I will run it here in the Journal. Photo by R. Rotoloni.



Above we have the classic Nikon SP with f1.1 Nikkor. This outfit has graced the cover of your Journal since its very beginning. Below is the "famous" table cloth on which the design of the 5cm/f1.1 was drawn. What a find!



been able to find one photo of this box in the late Dr. Kuno book on page 166. We see a copy of a photo showing the 5cm/f1.1 box for the S2. No others have turned up to date (I know we will now have 50 members sending in photos of their boxes!). Might the box have been for the case? Quite often we find camera boxes with no serial numbers on their bases, and yet S, S2 and SP/S3 cases were shipped using these boxes.

THE TWO INTERNALS

Placed against the type 2, we now see a difference in design for the first time. Look closely as this is not something that can be easily spotted by the untrained eye. On the right is Type I lens #119xxx, which must have come on a factory matched S2; on the left a later Type II #120xxx. Note the slope and shape of the rear most black section and the black ring around the very edge of the rear element group. This edge ring may have been necessary to correct internal reflection problems. This part protrudes into the camera body and can be seen with the back removed and the shutter on "bulb". The change in rear mount configuration may have been needed to more correctly mount the lens and could be the reason that later F1.1s "did not" have to be matched to a particular body!

THE EXTERNAL MOUNT

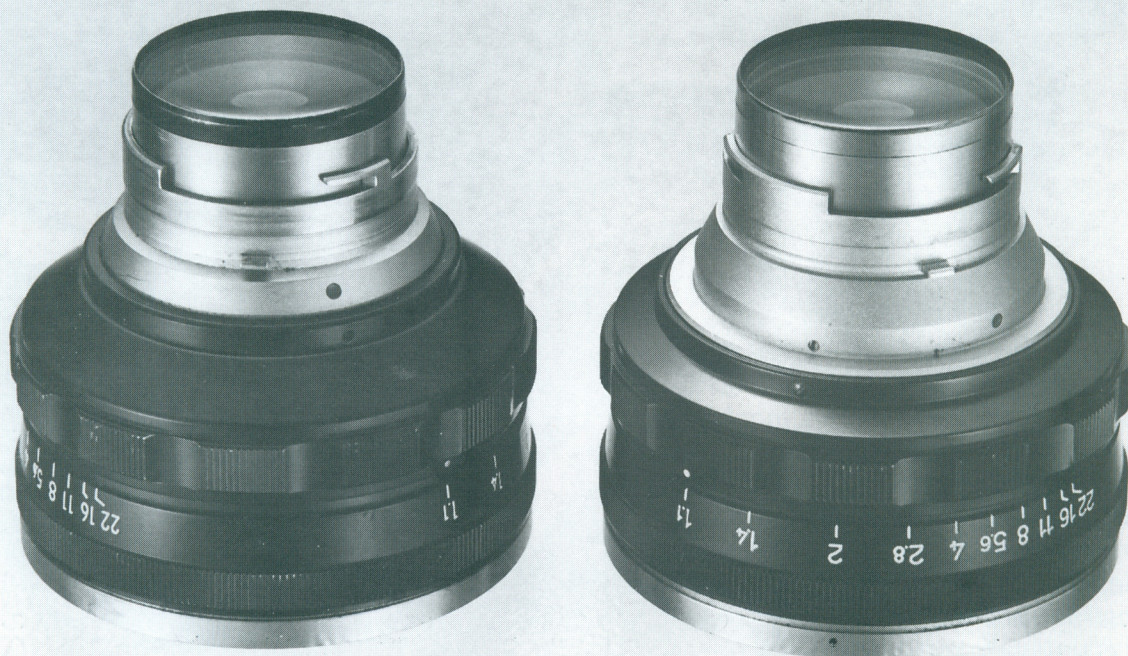
This lens has been our symbol, nailed to the NHS flagstaff, adorning the cover of the parish magazine for the 14 years it has been in existence. The combination of a black SP with motor drive and the 5cm/f1.1 Nikkor must surely be the high point of the Nikon rangefinder system. Quite often a lens can be very rare, and yet not a great looker. This lens has everything going for it. It is the big guy on the beach, ready to kick sand in your face! Should chance come your way, this is a lens that every Nikon Historical Society member worth their salt should have in their collection.

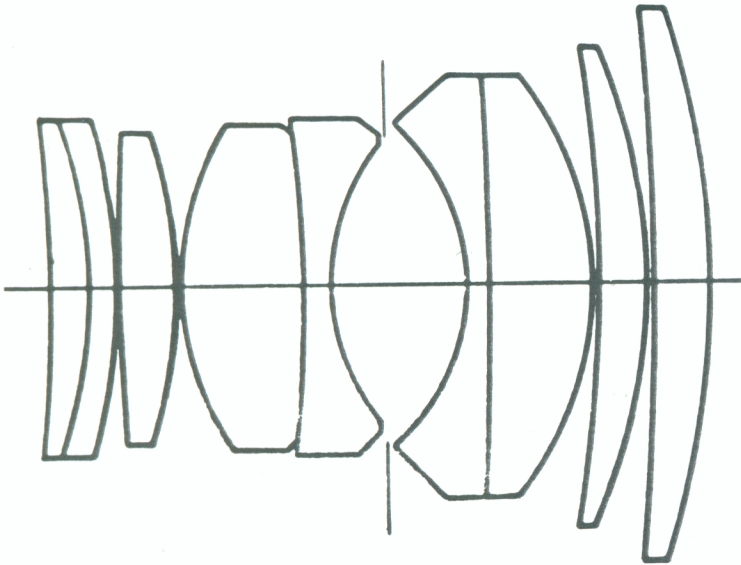
I'm hoping that this will not be the last time that we have this wonderful lens under the NHS microscope. I look forward to your reaction. *PETER LOWNDS*

PS..I would like to thank the following NHS members for their support and assistance in the production of this article, without whom which it could not have been done! Tony Hurst (for all the fine photos); Danny Tuyelaars; Mike Symons; Bill Kraus; Ernst Thiel; and my brother in law, Jaap Korten. Thank you all...Peter Lownds.

Look closely at the 2 lenses pictured & see the differences I have been talking about. The lens on the right is an early 119xxx type, which must have left the factory matched to a specific S2. On the left is a later 120xxx type. Note the black painted rear edge. This part of the lens protrudes into the camera body and Nikon must have felt it needed to make this modification to avoid internal reflections. Also note the obvious difference in the shape and finish of

the barrel from the focusing mount back. Why was the shape changed? Does the later design mean these could now be used on any body? Do these later lenses mount more accurately? Does it put less stress on the body focusing mount (which is the main reason the external version was made, the outer lugs allowing for a more secure and solid fit with less strain on the rangefinder cam and, thus more accurate focus.)





Clockwise from upper left...The ground breaking optical formula of the 5cm/f1.1 Nikkor. The external version calibrated in feet meant for the large U.S. market which took 80% of the total production at that time. Towards the end of the fifties the powers that be at Nikon could see that Europe was on the road to recovery and a need for lenses in the metric system arose. However, they are seldom seen today. Does anyone know of other examples? The first type internal lens with the early version of the lens cap, which is unique to this Nikkor!

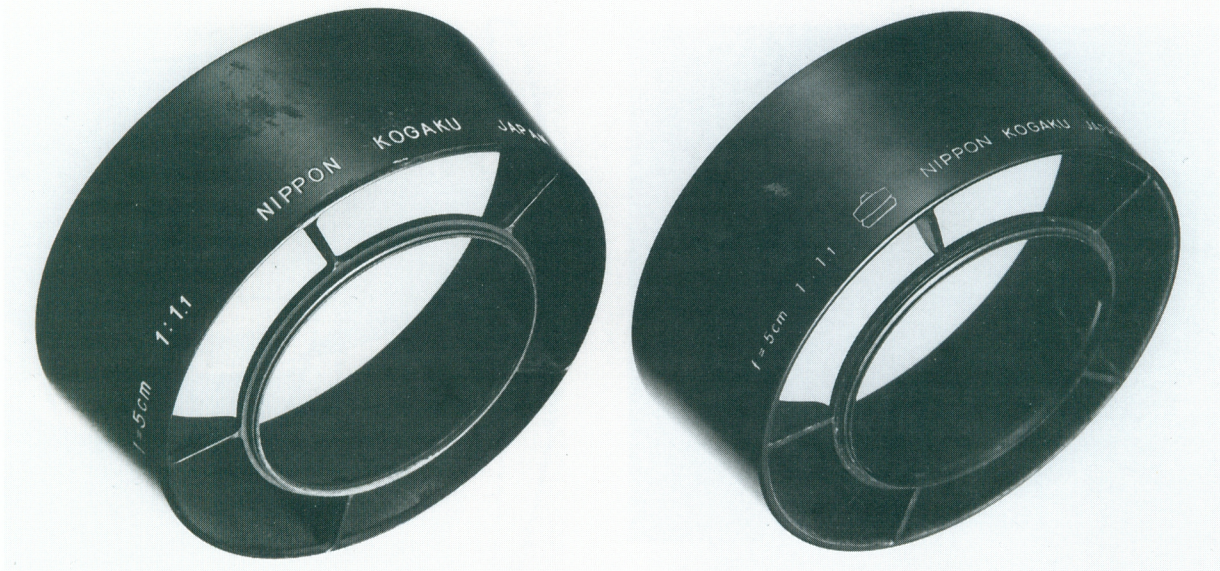


The very desirable screw mount 5cm/f1.1 Nikkor! This version is quite uncommon and I estimate only about 150 were made, which means it must have been sold at a loss. The cost of tooling up for this lens could not have been recovered from the sales. Although not as "big" as the bayonet versions, it is still an "awesome" lens in its own right, and quite beautiful as well. All have numbers within the internal mount batch, not the later externals. This could mean it was discontinued at about the time the external was released, namely mid-1959. Below we see it mounted on a Tanack body. Quite impressive. It was sold with its own unique 5cm black briteline finder which was mounted onto a special rear cap. This finder was needed



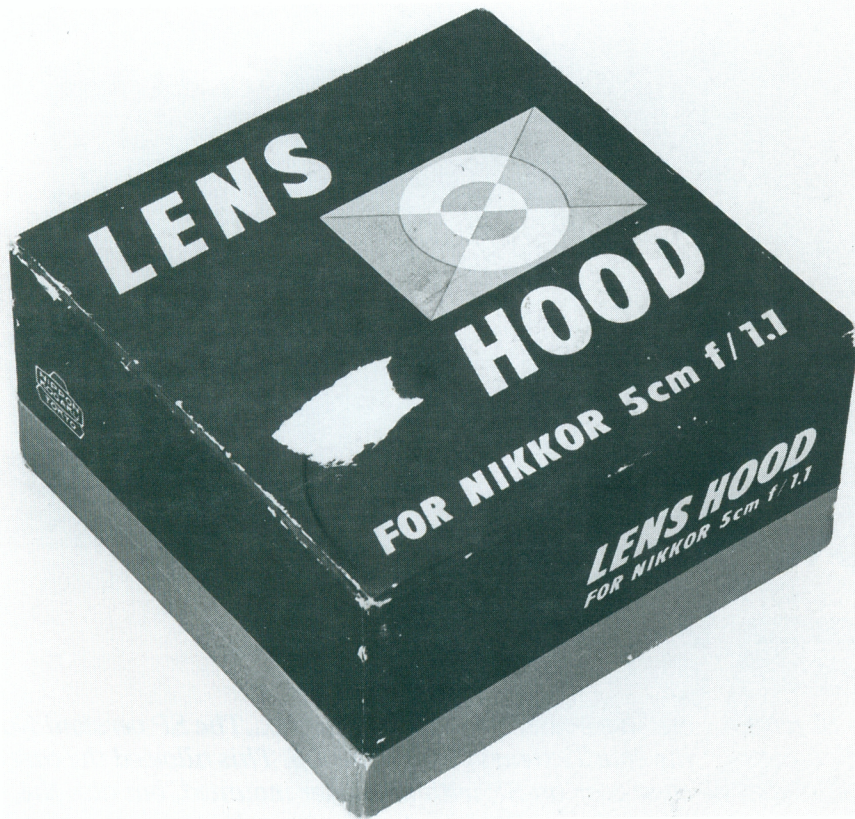
because the shade (same as the bayonet type) intruded into the viewfinder of Leica-type bodies, so Nikon made the finder. It is quite rare today and we thank Alan Brody for its photo for this special Journal.





Above... Two versions of the equally awesome shade for the F1.1 Nikkor! On the left is the shade every owner would give his wife's right arm for, the metal version! I checked with the shop where I work, 'how long would it take to make this shade from a lump of metal?'. The answer, 'about 3-4 hours!' His comment, 'very fine workmanship!' It is very well made and I think the largest shade made for any 35mm lens. Note the different engravings & missing logo. Below... The beautiful case for the shade. It was made using a very old process of soaking the leather in water and then stretching it into the correct form and letting it dry. Quite a time consuming job. Left... We can see how the case holds the shade with space in the lid for a filter.





We see in this photo how much work went into printing the box cover! This is one of the great designs of the famous Japanese designer and photographer, Ken Kamakura. The box has a gray lower part with no printing, but the top is a sea of blues. Some shades have shown up in the much more familiar gray boxes.

Below is the little known case for the external mount F1.1. This is, as far as I know, the only case which has a tapered design and is tailor made for one lens. Pay special attention to the bottom part, the case opens half way down. The designer has made the case a very tight fit, yet the lens can be removed and mounted onto the camera body in one very easy movement. Clever people!



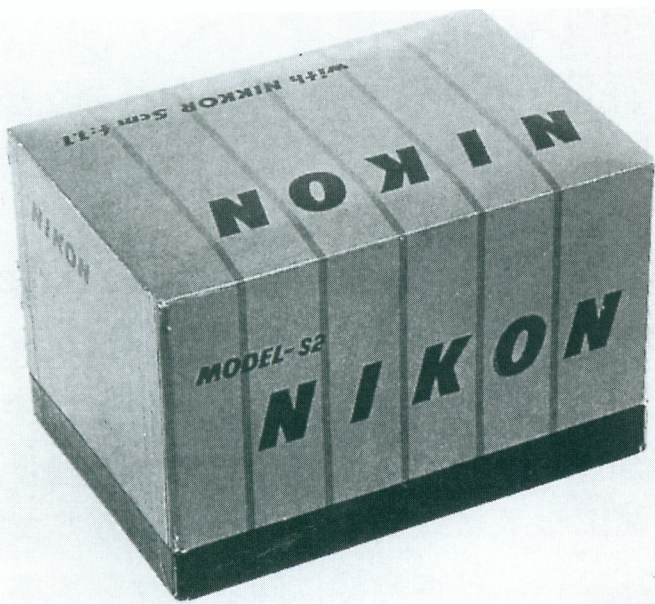


Top...This is the special case made for the Nikon S2 with 5cm/f1.1. So much time and money went into such a piece, yet it suffers from the same old problem of a weak hinge at the lower front. Old brown owl "Rotosan" has this case in black, not brown, and it looks original. Does anyone

out there have a black one? Below...The SP version! Note the small extension near the top. This allowed the case to close over an SP with the meter mounted, but also the Rangefinder Illuminator. A nice pair!



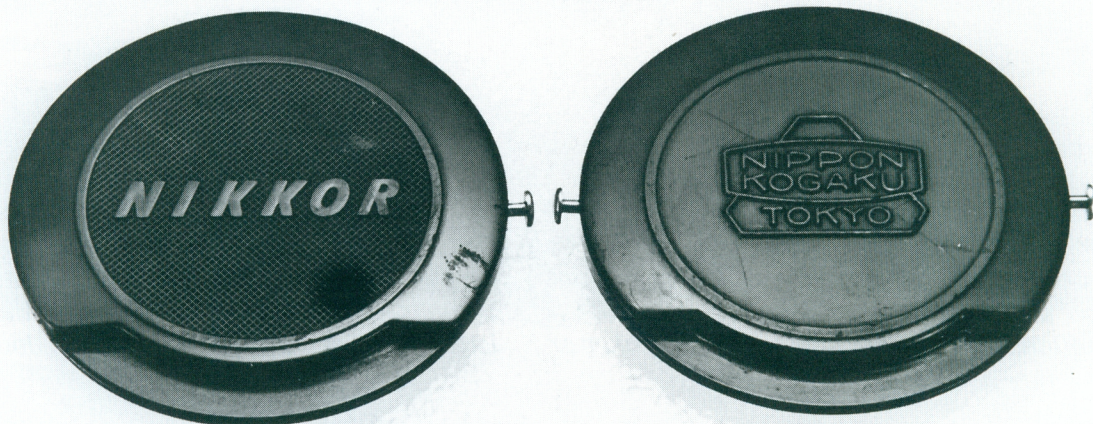
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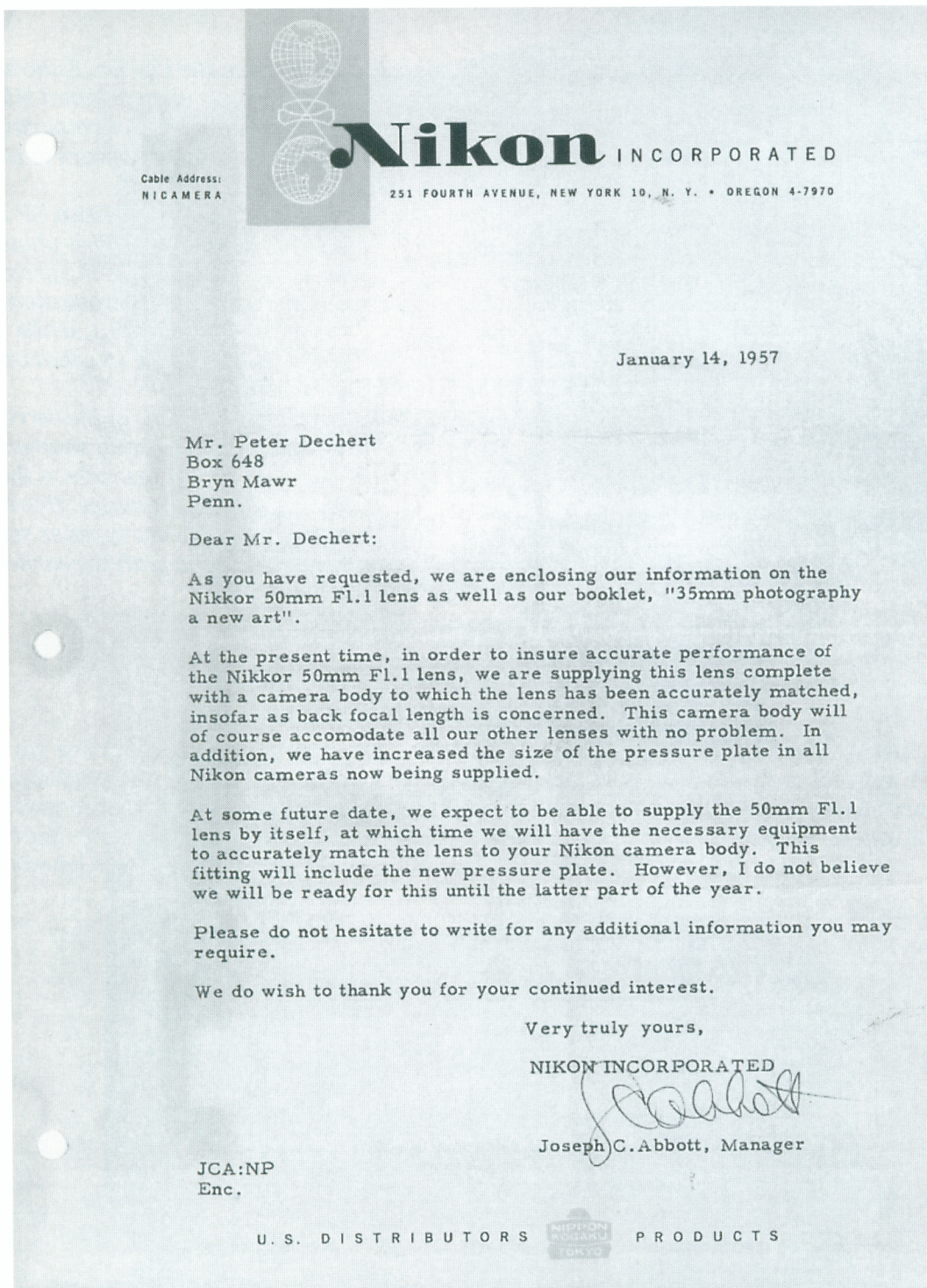


Left...This is a photo from the late Dr. Kuno's book, page 166. Here we see an example of an original Nikon S2 box marked "with NIKKOR 5cm/f1.1". Comparing this photo with others in his book, this one appears to be a copy and not an original photo.

Below...An example of an original Nikon SP boxed also marked "with NIKKOR 5cm/f1.1". This photo was provided by member Alan Brody who is the proud owner. Naturally this particular boxed combination would have included the later external mount f1.1, while the S2 box above would have held the earlier internal version. Photo courtesy Alan Brody .

Bottom...The two known versions of the correct lens cap for the 5cm/f1.1 Nikkor. These 62mm snap-on caps are unique to this lens. The one on the right is the earlier type while that on the left is of later vintage. However, there is not a clean break between the two types as some external mount lenses have been found with the earlier cap.





Nikon INCORPORATED

Cable Address:
NICAMERA

251 FOURTH AVENUE, NEW YORK 10, N. Y. • OREGON 4-7970

January 14, 1957

Mr. Peter Dechert
Box 648
Bryn Mawr
Penn.

Dear Mr. Dechert:

As you have requested, we are enclosing our information on the Nikkor 50mm F1.1 lens as well as our booklet, "35mm photography a new art".

At the present time, in order to insure accurate performance of the Nikkor 50mm F1.1 lens, we are supplying this lens complete with a camera body to which the lens has been accurately matched, insofar as back focal length is concerned. This camera body will of course accommodate all our other lenses with no problem. In addition, we have increased the size of the pressure plate in all Nikon cameras now being supplied.

At some future date, we expect to be able to supply the 50mm F1.1 lens by itself, at which time we will have the necessary equipment to accurately match the lens to your Nikon camera body. This fitting will include the new pressure plate. However, I do not believe we will be ready for this until the latter part of the year.

Please do not hesitate to write for any additional information you may require.

We do wish to thank you for your continued interest.

Very truly yours,

NIKON INCORPORATED

Joseph C. Abbott, Manager

JCA:NP
Enc.

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PRODUCTS

I have mentioned that the original F1.1 was first shipped matched to a specific Nikon S2 body. Above is a reproduction of a letter from Joseph Abbott to NHS member Peter Dechert verifying this point. Documents such as this are very important to the researcher and historian since they often cover subjects that are not mentioned in the regular promotional material produced by the maker or

distributor. It gives us a more personal insight into the everyday process of promoting and explaining such an intricate mechanism as the Nikon. I would like to thank Mr. Peter Dechert for allowing this letter to be released for publication. Also I want to thank member Mike Symons, who is the current owner of the original of this letter, for making it available to the Journal.

INSERT 16C



A farewell family portrait of the three versions of the 5cm/f1.1 Nikkor, front and back! On the left is the very uncommon screw mount version, probably made concurrently with the original internal bayonet mount type seen on the right. These two lenses share the same serial number batch, at this time with a known range from number 119601 to 121144, suggesting a production of approximately 1544 units. Bob has only 12 screw mount lenses recorded, but looking at how close some of the

numbers are we can assume that they were made in small blocks of 10 or 20 pieces. The later external version is in the center. First announced in mid-1959 its serial numbers currently range from 140703 to 142498, or 1796 units. I wonder how many F/1.1 Nikkors died in battle at the hands of Mr. Watanabe, the famous head of lens quality control! The story goes that he could fell a lens with one single blow from a hammer and used 50 gallon drums to hold those lenses that didn't meet his requirements!



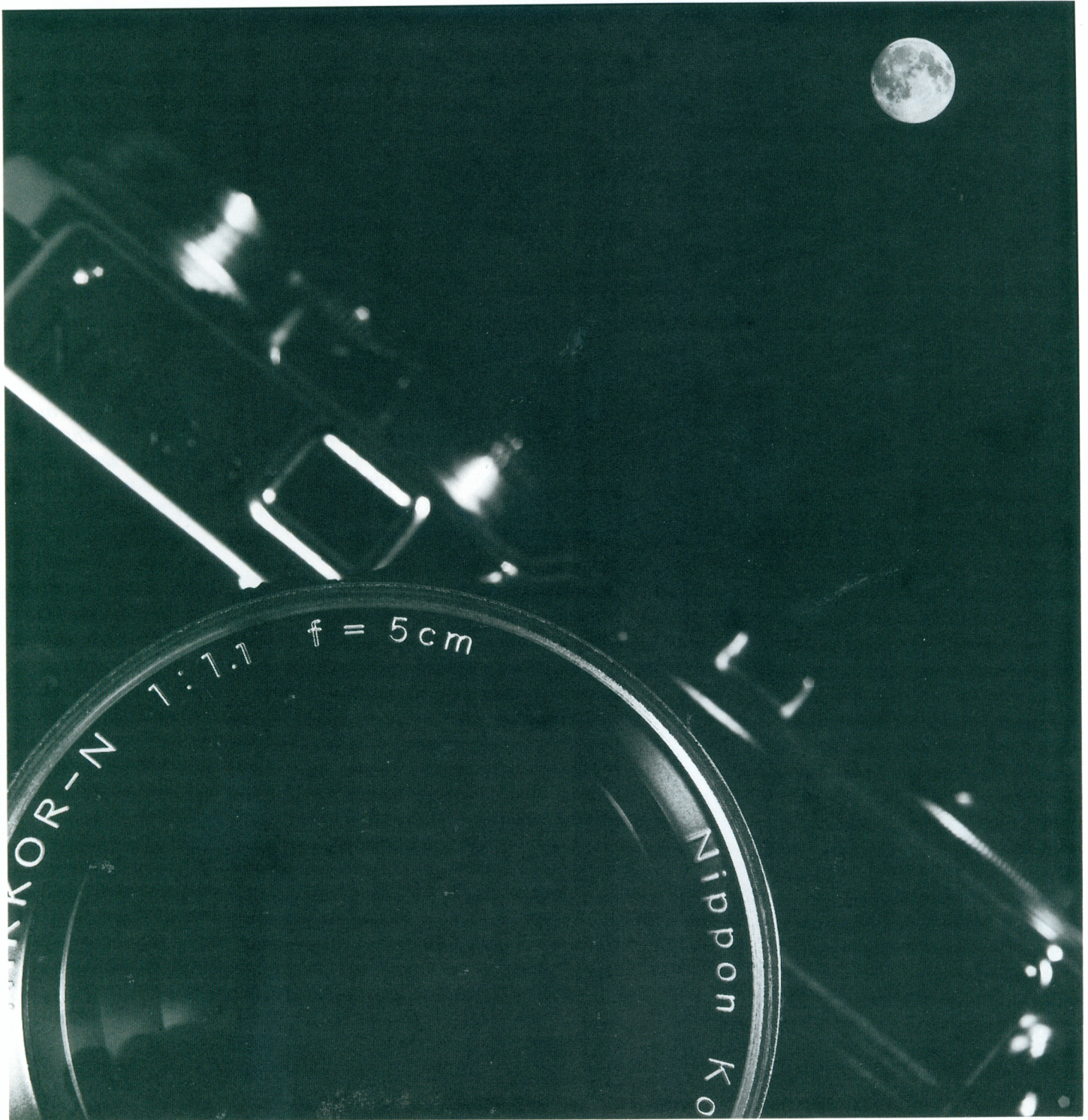
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'NHS' SHOWCASE

by Biagio Guerra

Even before I received the material from Peter Lownds and friends on the 5cm/f1.1 Nikkor for this special issue of the Journal, Biagio Guerra mentioned that he wanted to do another photo for our "NHS" Showcase feature.

Since he had just acquired an F1.1, and I knew this issue was in the works, it was decided to try to do something with this lens. Here is Biagio's "Moonshot"!



TAKING AVAILABLE LIGHT PHOTOS WITH YOUR NIKON

PART IV...

LENS CHOICES & OPERATIONAL CONSIDERATIONS

by Alan Morris

New developments....

Nikon has produced two new autofocus lenses, the 105mm/f2.0 AF-DC and the 135mm/f2.0 AF-DC, where the "DC" stands for "defocus control." With these lenses, the photographer can optionally adjust for blurring in either the foreground or background area, a sort of elective, controlled Bokeh (for details on Bokeh, see Part III). Canon has two "IS", or "image stabilization" autofocus lenses, where a section of the optics shifts rapidly up and down to compensate out pitch tremors (up and down shaking) of the camera; one lens is a 75-300mm zoom, f/4.0-f/5.6, & the other is a 300mm/f4.0. The "IS" feature reportedly provides up to a 2 EV gain, to enable the photographer to obtain a satisfactorily sharp shot at two shutter speeds slower than what would normally be required for hand-holding the camera with a 300mm lens. Note that the maximum aperture of these IS lenses is f/4.0, & the IS feature will not compensate out yaw tremors (left to right shaking).

Application of wide angle lenses....

There have evolved a number of 35mm and larger film format cameras having fixed focal length wide angle lenses. For example, there is the Ricoh GR1 35mm with a 28mm/f2.8 lens that is tested by "Modulation Transfer Function" technology (see "MFT" in Part III). Then there is the Fujifilm GA645 professional camera, a roll film camera using 120/220 film, with a 60mm/f4.0 lens, a focal length giving the same field of view coverage as would a 37mm lens on a 35mm camera. It is possible to take excellent portraits with wide angle lenses so long as the photographer takes steps to ensure that (a) the field of view includes the head plus the entire torso, (b) the camera is held at the mid-position of the subject, and (c) the camera back is held parallel to the subject. For available light photography with the F and F2, there are various Nikkor lenses in focal lengths of 28mm, 35mm, and 50mm. I add the "normal" 50mm lens to this wide angle group because a 50mm lens cannot be used to take a head shot without risk of unpleasant distortion; thus a 50mm lens is better used for "head plus torso" shots. Any of these three lens types can also be used to take photographs of a group of people where shooting room is limited. The 28mm and 35mm lenses

were made in f/2.8 and faster versions, any one of which will work on an F or F2 camera. The 50mm/f2.0 was made in non-AI and AI versions, while the 50mm/f1.8 was available in AI and AIS versions.

The f/2.8 Aperture....

While, for example, a 35mm/f1.4 Nikkor will certainly serve, should that lens already be in your collection, if you want to obtain a wide angle Nikkor for available light photography, you can set your sights on finding an f/2.8 lens, likely at far lower cost than larger maximum aperture lenses. The "gain" in EV can be more interestingly achieved through increased film EI ratings, and thus I have chosen to standardize on f/2.8, as this lens opening happens to correspond to the maximum aperture of the Nikkor 135mm & 180mm lenses. With f/2.8 held as a constant, then using your spot exposure meter you need only relate the EV reading of the subject to the shutter speed. And, of course, since you must provide all of the lens "stabilization", you will want to particularly use the longer focal length lenses at their maximum f2.8 aperture in order that you may use the highest possible shutter speed.

Think then of the way lens maximum apertures "go" with increasing focal length. Calling upon the "reciprocal-of-the-focal-length rule" (Part III), you can see that a wide angle lens used in available light photography is far more forgiving of slow shutter speeds than would be the case with lenses of modest telephoto focal length (e.g., 85mm, 105mm, 135mm, 180mm). Another way to drive this concept home is to consider the many zoom lenses that have a varying maximum aperture as the lens is zoom out to longer focal lengths. Say a zoom lens ranges from f/4.0 to f/5.6 at its focal length extremes, or say a point-and-shoot camera is equipped with a zoom going from f/3.6 at 38mm to f/10.2 at 140mm, we see that these lenses "go" the wrong way, meaning the maximum aperture gets smaller as the lens is zoom out. If anything, what the photographer needs is a larger maximum aperture at the longer focal lengths. If someone were to ask me to use the point-and-shoot with is lens at 140mm with an aperture of f/10.2, I'd reply "Where's the heavy tripod I need?"



Page 18..Top Photo....Two daughters reading a poetic tribute at their mother's 60th birthday party; ordinary table lamp room lighting, TMZ EI 6400, 105mm/f2.5 Nikkor at f/2.8, 1/125th second, Nikon F2.

Page 18..Bottom Photo....Three good pals standing under a pool of light from a ceiling recessed spot in a condominium party room; the plane of sharp focus lies at the right lapel of the man on the right. The out-of-focus image of the middle man is rendered with gradual but fully recognizable transition: an example of Bokeh (see Part III). TMZ EI 6400, 85mm/f1.8 Nikkor at f/2.8, 1/125th second, Nikon F2.

Optimum lens choices....

When setting out to take available light photos, you will have some idea of the room size at the location, and an idea about head shots or group shots. These factors will lead you to the choice of a focal length that you will need for most situations expected to be encountered at the location. You then will not be bothered with either frequent lens changes or with having to hang two heavy cameras with different focal length lenses around your neck. Thus you will be able to concentrate your efforts on getting well exposed, well composed and accurately focused photographs.

I have found that the 85mm, 105mm and 135mm Nikkor lenses are the focal lengths most suitable for use in available light photography. The 85mm is excellent for two-head shots and the 135mm for one-head shots, while the 105mm fits between and can be used for either type. The 180mm Nikkor works well in larger rooms to get "closer" and to isolate a single head, but with this lens you need a faster shutter speed to ensure a sharp image. The longer focal length lenses, 85mm and up, begin to overcome the weight of the camera body, so the support position provided by your left hand has to move out along the barrel of the lens to provide the balance needed, meaning that you must be careful not to upset the focus, once obtained, with your focusing hand.

Operational considerations....

Recalling the second general rule, i.e., with constant scale (size) of the object and at a given f-stop, the depth of field will be the same independent of focal length (Part III), we see that if we select and maintain f/2.8 as our standard aperture, the degree of care that we exercise in focusing on the subject as accurately as possible remains the same whatever focal length lens we use when taking single head shots. Thus we must select the focus point, and that point is at the eyes of the subject. Commonly available focusing screens for the F and F2 are the "A" screen (with horizontal rangefinder split) and the "L" (with 45' diagonal rangefinder split). Both these screens work well with lenses of f/2.8 and larger maximum aperture, but my experience shows that the "A" type works best for available light photography as the horizontal split is aligned with the axis of the camera body, thus providing the photographer with a constant and readily recognizable orientation of the split as the rangefinder circle is placed upon the subject. This feature is not true of the "J" screen, although the range-

finder circle diameter of the "J" is equal to that of the "A" screen. There is also the "K" screen that has (a) a horizontal split like the "A", and (b) a microprism focusing annulus surrounding the rangefinder circle. But the circle on the "K" is smaller than the circles of the "A" and "L" screens, and the narrow annulus of microprisms provides no focusing aid in available light applications. When using the "A" screen with the 180mm lens, you must keep your eye centered in order that one-half of the rangefinder circle does not go dark, preventing focusing.

Focusing can be accomplished by either turning the focusing ring of the lens while keeping yourself fixed in one position, or by moving your torso back and forth slightly to obtain sharp focus while the focusing ring is not further manipulated. Often, a combination of these two focusing techniques is needed because the subject rarely stays entirely still and, further, you wouldn't really want your subject to maintain a rigid, unflattering posture. Available light photography is not the same as studio photography, where your camera is on a tripod and your subject is in a fixed position.

As examples, we can take data from the Nikon lens tables. The 135mm/f2.8 when focused at 7.0' has a reproduction ratio of 1/13.7, and the corresponding object field size is calculated by scaling the 35mm 1" x 1.5" film format by the reproduction ratio; thus the field size at 7.0' is 13.7" x 20.6". The depth of field at f/2.8 runs from 6.94' to 7.06', giving a total depth of 0.12' = 1.44". By comparison, the 105mm/f2.5 when focused at 5.5' has a reproduction ratio of 1/14.0, a ratio selected from the 105mm table to be as close as possible to the 1/13.7 ratio selected from the 135mm table. Then at the 5.5' focusing distance the 105mm object size is 14" x 21"; the depth of field at f/2.8 runs from 5.43' to 5.56', giving a total depth of 0.13' = 1.56".

From the two examples given above for a "head shot" field size, using either a 135mm lens at f/2.8 or a 105mm lens at f/2.8, we see the requisite criticality of focus and of steadiness for successful available light photography. Taking the average depth of field to be 1.5", and taking the subject's interocular distance to be, say, 70mm = 2.76", then a trigonometric calculation shows that the subject's head can be turned away from the axis of the camera lens by as much as 36 degrees while still maintaining both of the subject's eyes in sharp focus, the eyes being the extremes of the depth of field.

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FOR SALE...Send S.A.S.E. for list of Nikon F items to:
Dan Hausman c/o Image Mart, Inc., 6646 Sawmill Road,
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WANTED...Nikon literature for rangefinder and Nikon
F. Manuals, instruction books, etc. Tony Hurst, 35
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SELLING/TRADE LIST...My latest list is available and
has everything from the Nikon One to the S4, and lenses
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reflex items are included. If you are not already on my
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FOR SALE...Nikkor-Q Auto 200mm/f4.0 #518289, 1973,
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DP-1 Photomic finder for F2 #263013, 1973, like new,
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SALE LIST...Available for early Nikon F items, includ-
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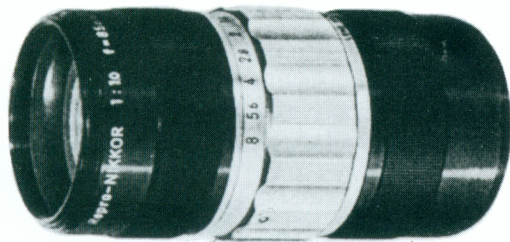
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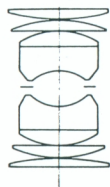
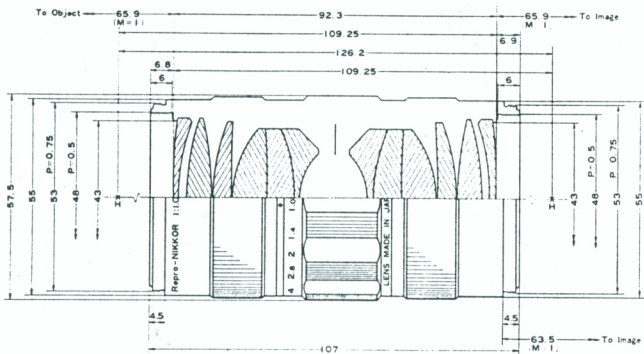
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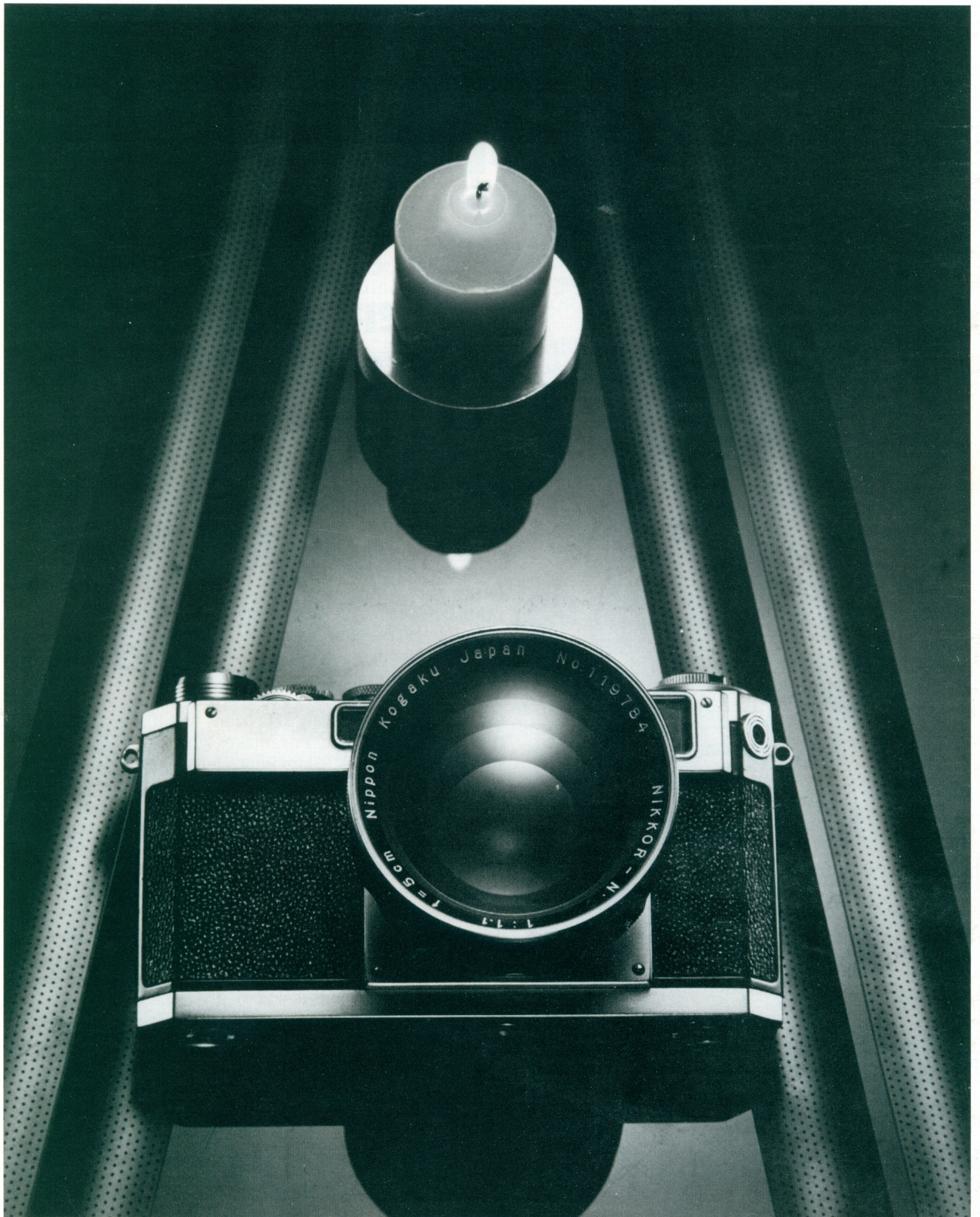
85 mm F/1.0



85MM/F1.0 REPRO-NIKKOR MEMBER FEEDBACK SOLVES THE RIDDLE!

We have some member feedback on the 85mm/f1.0 Repro-Nikkor featured last issue.....From Hayao Tanabe of Tokyo....I have excerpts from the June 1968 Nippon Kogaku industrial lens catalog, which lists three Repro-Nikkors; 85mm/f1.0, 100mm/f2.8 & 170mm/f1.4. These lenses were designed for semi-conductor chip production, movie printing & other precision uses. They are of symmetrical design & complex construction. The 85mm has 12 elements in 8 groups. Lens diagram is enclosed. From Harry Verschuren of Austria.....I send you a copy of a Swiss Nikon brochure code NR-Lens 1365/8000 d D. On page 21 it describes a Repro lens just like yours. A literal translation is..."For images with a reproduction ratio of 1:1, this new 35mm Repro lens is practically aberration free. Because a common lens with a maximum aperture of f/2.0 for reproductions with a ratio of 1:1 has to be stopped down to f/4.0, the maximum aperture of this new Nikkor lens really is f/2.0 for reproductions in full format. For normal use it even has an effective maximum aperture of f/1.0. This lens is fully corrected for reproductions with a ratio of 1:1 and perfect sharpness to the corners is guaranteed. The lens can be used as a relay lens for images produced by another optical system. By means of its extremely long work-distance this lens is widely used in a number of photographic areas". As you can see the enclosed photo is the same one as in Cooper/Abbott using the Repro-Nikkor as a relay lens. *(I really enjoy it when a question is raised in the Journal and then answered by feedback such as this. Thank you gentlemen for sharing your information with all of us. RJR)*





Created For The 'NHS' by TONY HURST