

SHIFT to MIREDS

When young Billy Kelvin (later Lord Kelvin P.C., M.G.C.V.O., F.R.S; 1824—1907) took his horse to the local smithy to be shod he noticed that the colour of the fire, and the horse shoe in it, changed

for the brighter and the bluer as the temperature was raised. For sure he did not look upon the phenomenon with colour photography in mind, but later, when he had become an eminent mathe-

matician and physicist researching heat and thermo-dynamics, he quantified the colour quality of the light which such black bodies took on as they became hotter, and the Kelvin Scale was born.

For want of a better system, degrees Kelvin have been applied to colour photography as a means of measuring the relation of the light by which we photograph to that of the sensitivity of the photographic material we use.

Unfortunately, however, in the part of the spectrum in which we must operate the system doesn't work at all consistently. For instance, a difference of 200 K between 3,200 and 3,400 K (the colour temperatures of photographic tungsten and photoflood lamps) is significant. However, at 5,500 K, the "colour temperature" of average daylight, a difference of 200 K is neither here nor there.

Very much later, someone had the bright idea of dividing Kelvins into one million to even out the effect and called it "Micro-Reciprocal Degrees" (Mireds for short) and by that system 3,000 K is 312 mireds, and 5,500 K is 182 mireds.

In the newer system a difference of 200 K at the 3,200—3,400 K level is a mired shift of 18, and at about the 5,500 level a mired shift of 18 is a difference of 600 K, which is more like it.

Now, as we all know, we use amberish (or blueish) filters to convert the colour of the light by which we photograph to suit the colour sensitivity of our film (lesson one), and if we use a Wratten 85B filter it will match 5,500 K light to 3,200 K. A difference of 2,300 K. And, of course, an 85B will also convert 4,400 K to 2,800 or 6,800 K to 3,600. Differences of 16,000 and 3,200 K respectively.

Continued overleaf

THE COLOUR OF LIGHT

$$\text{Mireds} = \frac{1,000,000}{\text{Kelvin}}$$

$$\text{Decamireds} = \frac{100,000}{\text{Kelvin}}$$

Approximate colour temperature values

Source	Kelvins	Mireds
Artificial light		
Domestic electric light bulb	2,900	345
Photographic incandescent bulb	3,200	312
Tungsten Halogen bulb	3,200	312
Photoflood	3,400	294
3200° bulb with blue filter	3,400	294
" " " ¼ " "	3,600	278
" " " ½ " "	4,100	244
" " " full " "	5,560	182
1 volt drop in power supply to lamp, each	— 10	
Carbon arc, LCT carbons, Y1 filter	3,200	312
Carbon arc, WF carbons, full CTO filter	3,200	312
" " " " ½ " "	4,030	248
" " " " ¼ " "	4,650	215
" " " " WFG filter	5,550	182
Daylight		
Dawn or dusk	2,000	500
One hour after sunrise	3,500	286
Early morning and late afternoon sunlight	4,300	233
Summer sunlight	5,500	182
Overcast Sky	6,000	167
Sunlight blue-white sky	6,500	154
Light summer shade	7,100	141
Average summer shade	8,000	125
Summer sky	<30,000	>33

Wratten Colour Conversion and Light Balancing Filters

Amber filter	Mired shift	Exposure increase	Blue filter	Mired shift	Exposure increase
85B	+131	2/3 stop	80A	-131	2 stops
85	+112	" "	80B	-112	1 2/3 "
85C	+ 81	" "	80C	- 81	1 "
81EF	+ 53	" "	80D	- 56	2/3 "
81D	+ 42	" "	82C	- 45	2/3 "
81C	+ 35	1/3 "	82B	- 32	2/3 "
81A	+ 18	" "	82A	- 18	1/3 "
81	+ 10	" "	82	- 10	1/3 "

SHIFT to MIREDS

Continued from preceding page

You could almost call them con-fusing filters. Much better to label our colour conversion filters by the mired shift they cause and to do the whole thing that way. Thus, an 85B can be stated to have a mired shift of 131, an 85 + 112 and an 85C, 81. The 81 range varies between a mired shift of +53 for an 81EF and 10 for a Wratten 81.

Another interesting fact is when filters are doubled up it is just a matter of adding together their mired shift numbers to ascertain what the combined effect would be; thus an 85 (+112 mireds) put together with an 81A (+18 mireds) has about the same effect as an 85B (+131 mireds).

Blueish colour correction filters, which cool the light and are used to raise the colour temperature of light either to balance it with ambient daylight or to make it possible to film with filmstock balanced for daylight, have "minus" mireds shifts. Thus an 80A has a mireds shift of 131, and so on.

If you have been in the business for 101 years to change your thinking from Kelvins to mireds

INFORMATION RECEIVED

THE HUMAN FACTOR

<i>Cameraman</i>	Mike Molloy
<i>Operator</i>	Bob Smith
<i>Focus Puller</i>	Laurie Frost
<i>Clapper Loader</i>	Tony Brown
<i>Grip</i>	Ken Atherfold

'SILVER DREAM RACER'

<i>Cameraman</i>	Dick Bush
<i>Operator</i>	John Maskall
<i>Focus</i>	Mike Rutter
<i>Loader</i>	Martin Hume
<i>Grip</i>	Denis Fraser

2nd Unit

<i>Cameraman</i>	Dudley Lovell
<i>Assistant:</i>	Bob Ryan
<i>Camera car driver</i>	Tim Coker

takes a bit of doing, but if you are in the pride of youth and wanting to be 'with it' there is no time like the present.

Not many of us would now like to go back to shillings and pence from decimal currency, but to imagine an old timer telling his gaffer to "put a minus 132 mireds jell on that there 2K up there" is pushing it.

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ESTHER, RUTH AND JENNIFER

1st Unit	
<i>Lighting Cameraman</i>	Tony Imi
<i>Operator</i>	Tony White
<i>Focus Puller</i>	Chris Howard
<i>Clapper/Loader</i>	Beaumont Alexander
<i>Grip</i>	Albert Cowlard

2nd Unit

<i>Camera Operator</i>	Peter Pozey
<i>Focus</i>	Julian White
<i>Clapper/Loader</i>	Howard Baker
<i>Underwater</i>	
<i>Cameraman</i>	Egil Woxholt

THE PROFESSIONALS

<i>Lighting Cameramen</i>	Dusty Miller
	Norman Langley
<i>Camera Operator</i>	John Maskall
<i>Focus Puller</i>	Robin McDonald
<i>Clapper Loader</i>	Simon Hume
<i>Grip</i>	Peter Hall

THERE GOES THE BRIDE

<i>Lighting Cameraman</i>	Jimmy Devis
<i>Camera Operator</i>	Alec Mills
<i>Focus Puller</i>	Colin Davidson
<i>Clapper Loader</i>	Miki Thomas

MINDER

<i>Lighting Cameraman</i>	Roy Pointer
<i>Camera Operator</i>	Brian Elvin
<i>Focus</i>	Mike Andrews
<i>Clapper Loader</i>	Malcolm Cross
<i>Grip</i>	Nick Pearson

'CLASH OF THE TITANS'

<i>Cameraman</i>	Ted Moore
<i>Operator</i>	Mike Roberts
<i>Focus Puller</i>	Tony Gaudioz
<i>Clapper Loader</i>	Mike Bulley
<i>Grip</i>	Jim Spoard

N.B: Director of Clash of the Titans is Desmond Davis — late of the Camera Department.

We offer our apologies to Tony Gaudioz, who appeared in these columns last month as Tony Gandig(!) — the kind of error we like to describe as human. Sorry Tony.

Continued on back page

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INFORMATION RECEIVED

Continued from page 23

EMPIRE STRIKES BACK

Lighting Cameraman: Peter Suchitsky
Operator: Kelvin Pike
Focus Puller: Maurice Arnold
Clapper Loader: Peter Robinson
Grip: Denis Lewis

2nd Camera

Operator: David Garfath
Focus Puller: Chris Tanner
Clapper Loader: Madelyn Most
Grip: Brian Osborne

A NIGHTINGALE SANG IN BERKELEY SQUARE

Lighting Cameraman: John Coquillon
Camera Operator: Herbie Smith
Focus Puller: Tony Breeze
Clapper/Loader: Jeremy Gee
Grip: Joe Garrett

OMAR MUKHTAR

Lighting Cameraman: Jack Hildyard
Operators: Jimmy Turrell
 James Bawden
Focus Pullers: Dave Worley
 Roger McDonald
Clapper Loaders: Eammon O'Keefe
 Steve Keith-Roach
Grip: Peter Butler
Camera Maintenance: Norman Godden

SOS TITANIC

Lighting Cameraman: Chris Challis BSC
Operator: John Palmer
Focus Puller: Tony Strachan
Clapper Loader: Mike Bulley
Grip: Ray Hall

'RED SATURDAY'

Cameraman: Chris Menges
Camera Operator: Clive Tickner
Focus Assistant: Steven Tickner
Clapper/Loader: Erika Stevenson
Grip: Kenny Atherfold

YESTERDAY'S SONG

Cameraman: Alex Thomson
Camera Operator: Mike Fox
Focus Puller: Keith Blake
Grip: Jim Kane

CHARLIE MUFFIN

Lighting Cameraman: Aussie Rawi
Operator: Peter McDonald
Focus Puller: John Campbell
Clapper Loader: John Keen
Grip: Frank Batt

'ILLUSIONS'

Cameraman: Tony Richmond
Camera Operator: Gordon Haymon
Focus Assistant: John Golding
Clapper/Loader: Derek Soutar
Grip: George Beavis

'DICK TURPIN'

Lighting Cameraman: Ken Higgins
Camera Operator: Ian Henderson
Focus Assistant: Keith Blake
Clapper/Loader: Terry Potter
Grip: Chunky Huse

Introducing

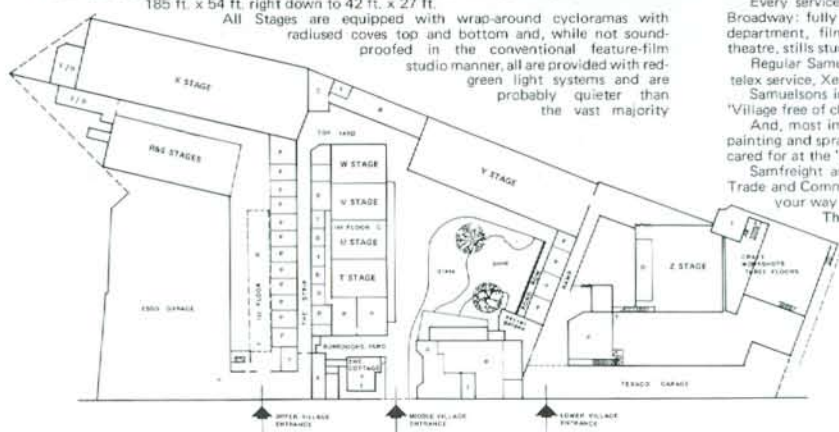
THE PRODUCTION VILLAGE

Samuelson's Mini-Studio Complex in downtown Cricklewood

The Production Village will come to represent many things to many production companies. As a working environment it will be without equal — but its primary role is to be a functional, cost effective film and television production tool. No effort has been spared to put at the customer's fingertips the widest possible range of production services including those of skilled and experienced craftsmen backed by comprehensively equipped workshops.

When it is complete, The Production Village will comprise 9 stages varying in size from 185 ft. x 54 ft. right down to 42 ft. x 27 ft.

All Stages are equipped with wrap-around cycloramas with radiused covers top and bottom and, while not sound-proofed in the conventional feature-film studio manner, all are provided with red-green light systems and are probably quieter than the vast majority



of places where film is shot 'on location'.

Every service expected of a studio will be there, or at Samuelson's in nearby Cricklewood Broadway: fully furnished production offices, rehearsal rooms, crowd rooms, cutting rooms, art department, film vaults, props storage, scene dock, viewing theatres, post sync and effects theatre, stills studio, music and sound-effects libraries, equipment test rooms etc.

Regular Samuelson facilities are available to clients, including sound transfer, telephones and telex service, Xerox copying, offset litho, and dyeline printing.

Samuelson's incomparable camera, lighting, sound and ancillary equipment is delivered to the 'Village' free of charge. There are good restaurant facilities, a bar and a canteen.

And, most important of all, there is good and skilled labour. The crafts of set construction, painting and spraying, engineering and metalwork, plaster and fibre-glass work and so on, are well cared for at the 'Village'.

Samfreight are there to handle your freight and forwarding, and the London Chamber of Trade and Commerce actually has an Export Carnet office located in the 'Village' to speed you on your way to foreign locations.

The Production Village is only four miles from Marble Arch, five minutes from the Brent Cross Shopping Centre, six miles from Wardour Street, and, like Samuelson's of London, will be a seven-day-a-week operation.

It's a new idea in mini studios based on the proposition that if the environment is right creative thoughts, deeds and actions will follow.

The Production Village is where the action is.

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SOAPBOX

The Editor,
GBCT News

Dear Sir,

9th May 1979

It is very kind of Jerry Dunkley to take the time to do the writing and for you to allocate a whole page of your journal to review the Panaflex 'X' camera in depth. However, I believe Jerry may have missed the whole point of the 'X' concept and so perhaps you will allow me to comment using, I hope, less than a page of your next edition to do so.

First of all I want to make it clear that Bob Gottschalk did not introduce the 'X' as a development of the regular Panaflex, rather as an addition to the Panavision range. It is not an alternative to the regular Panaflex (whatever could be?), in a way it is an alternative to the PVSR for it has all the features of that illustrious studio camera — which came into our lives 11 years ago — but put together in a light-weight package.

I do not believe it is absolutely right to say that the only member of the camera crew who can benefit from the use of the 'X' is the Director of Photo-

graphy. The assisting grades, who are the ones who traditionally do most of the humping, will, I believe, find some benefit from the 39lbs. of the 'X' (with a 1000' mag) compared to the 102lbs. of a PVSR similarly equipped.

There are others too who are interested in the wellbeing of the camera crew and particularly what it costs to provide them with the best there is. I mean the Producer, the Production Manager and the Accountant, the ones who approve the rental bills. The basic 'X' outfit saves £200 per week when compared to the regular Panaflex with the same accessories, and that is interesting to those guys. All that cash saved and yet, other than not having the hand-hold convenience, there is no reduction in the amount of efficiency and time-saving that comes with the compactness and lightness of the Panaflex, I ponder sometimes, how *do* we do it for the money and, remain solvent. . .

As Jerry has stated, Panavision did originally suggest the 'X' as a second camera to back-up the full Panaflex. But what has happened is that it has now become a personality in its own right especially for the kind of shoot where a camera rides on a head, or legs or on a dolly, and Panavision Inc. is as happily surprised that this has

come about as anybody else is.

To sum up, Sir, the 'X' sits nicely between the state-of-the-art sophistication of the Panaflex and that husky veteran, the PVSR. Your correspondent is obviously unhappy about not having all the Gottschalk goodies — Panaglow, rotatable viewfinder et al — available on the 'X' but, to Jerry and all other fans, I say that there is no problem; when you need the ultimate, rent a full Panaflex. After all, we have 21 of them available and, so far, only 5 'X' 's. It will be interesting to see if the 21 to 5 ratio changes as the year goes on as more crews have the opportunity of associating with the 'X'.

I am sure Jerry accepts that sometimes, to get from A to B, we have to travel Ford, we can't all go Rolls Royce all the time, can we?

Any further dialogue can be conducted with me on a personal basis as I have an office in the Guild headquarters building.

Yours sincerely,
Panavision Corporation of
California Ltd.

Sydney W. Samuelson
Managing Director
303 Cricklewood Broadway,
London NW2 6PQ

By Bicycle to the Wall of Fame

Continued from page 11

being reported missing over the Channel. He was overdue because of bad weather conditions and a change of course obliged him to make a forced landing in a field at Marck (near Calais).

With Freddie Young he was one of the founder members of the BSC and played a very active part in its early formation and subsequent activities.

Two of Desmond's favourite leading ladies, who were happy to be photographed by him were Hedy Lamarr and the late Martine Carole. The latter, an artiste of great charm, especially asked him to go out to Tahiti (with an all

French Company) to photograph her latest production.

In his early days Dicky spent much time abroad, if not working, in visiting the major continental studios. At UFA in Berlin he met and enjoyed many conversations with the famous Fritz Lang. It was Lang who had asked that the old silent (glass) studios should remain standing, and they did so until the war.

Space will not permit a fuller account of Desmond's life in the business he was so fond of. A lot of time has elapsed and much hard work, especially on the theory of film (for which he was renowned), since the days when as a lad he used to cycle to work from Surbiton to Croydon.

Ray Sturgess

WELCOME ABOARD

In recent weeks, as in the past, applications for membership continue to arrive at the Guild office. We are delighted to announce the following technicians are now included on the G.B.C.T. roster of members:

<i>Cameramen</i>	John Alcott H. Atherton R. Bridger
<i>Asst. Cameraman</i>	Stan Andrews
<i>Clapper/Loader</i>	George Binnersley
<i>Grips</i>	A. McKellar Nick Pearson

Always nice to have an Oscar winner amongst our ranks — the rest of us are (we like to think) only *future* Academy Award material. Watch this space.

CHARITY BEGINS

One of the most noticeable of recent movements within the Guild is to be of some service in a good cause and to participate in appropriate forms of charity activity. Already we are involved in the Gunnar Nilsson Cancer Treatment Campaign and there is a plan to help the BFI to publicise its vintage equipment collection and organise ways of preserving and improving it.

There is also in train a scheme whereby someone already experienced in the organisation of All Star soccer benefits and fight promotions has agreed to promote an event designed to help the family of a technician, the untimeliness of whose death has left his dependents in need (Yet another example of the desirability of a GBCT Group Insurance Plan).

The Guild was happy to provide a crew recently to help the Variety Club and its organiser Michael Samuelson with their cinema trailer in aid of the Cinema Trades Benevolent Fund, a cause already supported with distinction by Harry Secombe, Felicity Kendall, Ernie Wise, David Essex, etc.

The crew consisted of Paul Beeson, Director of Photography; Kevin Kavanagh, Operator; David Lenham, Focus Assistant; and Brandon Apps, Clapper/Loader. They were all delighted to assist the Variety Club in its good work and Michael Samuelson in his untiring efforts in the organisation of it.

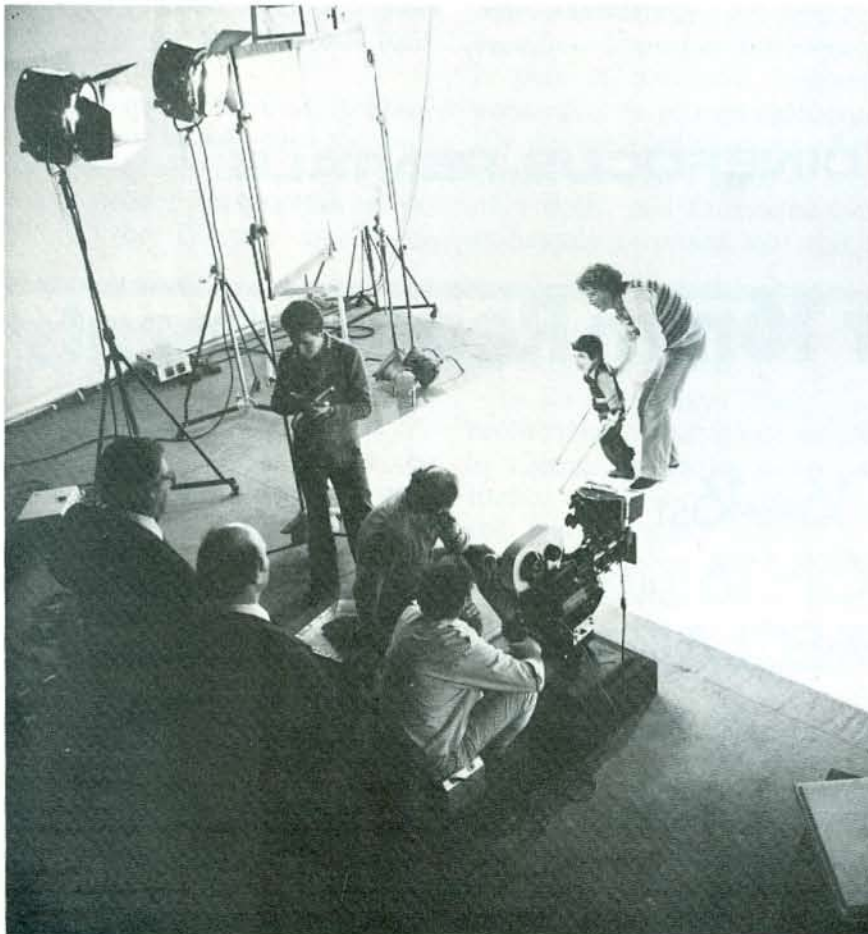


Photo: Elaine Grant

Guild crew at work for Variety Club charity. Cameraman Paul Beeson, Operator Kevin Kavanagh, Focus David Lenham, Clappers Brandon Apps. The Producer is Michael Samuelson and the Director Pat Hayes.

To Err Is Human... But So Often?

The writer responsible for last month's squib entitled 'What's In It For You?' was, in a couple of regards a little less than accurate. He wrote: (The Group Insurance) 'will also pay medical expenses up to £2000 and will get you home from overseas if you find yourself ill and stranded'.

In point of fact the sum of £2000 is set aside purely for the expenses of getting the policy holder home for his medical treatment.

The writer also suggested that GAS is the cheapest of the answering services available. Not so. That distinction belongs, at the time of writing, to TABS.

NO INSURANCE SCHEME

'Oh yes definitely - I'll have some of that! It's something we've needed for years.' And other similar remarks were the unsolicited replies to the Accident and Sickness Insurance Scheme - Oh Yeh? So far we have in our hands 65 returned proposal forms. In the hope that either some of you have mislaid your forms or have temporary amnesia, we've decided to put the closing date back to July 31st. The reasons for the scheme are obvious: the fact that there are no exclusions for our type of (Hazardous) work at the amazingly low premium should have prompted a deluge of replies, instead of the trickle so far received at the office.

In order to start we must have 150 people. If you have lost your form (and freepost envelope) tell us at the office and we will hot foot one to the nearest post box. This is positively your last chance - if you trip over that lens box tomorrow and have to take six months off work *please let me know* - 'cause I want to say I told you so.

Brian Harris



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