



association of camera operators

Message from a father of four daughters...

Diversity... the watchword for modern times and so it should be... is being tackled for the good by the ACO.

With some incredible dedication to the cause, Lucy Bristow, until recently our only female full member, Ilana Garrard, a recently made up full member and Agnieszka Szeliga have produced an extensive database of female members of the UK camera department from DP through to trainee. They've given it the title "Women Behind the Camera" and paired it with a genius logo which I hope will become instantly recognisable in years to come. This was some undertaking but so important if we are to direct our efforts more accurately and target getting more women onto the crew.



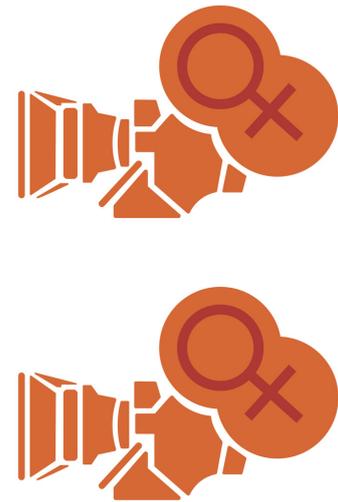
The first action undertaken by Women Behind the Camera was to ask for the ACO's help to create a one day workshop in June focusing on geared heads, remote heads and telescopic cranes. Man or woman, we have to admit that operating the "wheels" often appears a bit of a dark art. We hope to introduce 10 or 12 women operators and 1st AC's to the delights of this equipment.

Volunteer tutors will in the space of the day pass on some of their knowledge, tricks and maybe a few anecdotes. Numerous volunteers have come forward to camera assist and grip on this day which I have to say was incredibly encouraging and that it shows we all want to work towards the same thing. Equality in the department.

Very importantly Warner Bros Studios Leavesden leapt at the chance to lend us the required space and Panavision were so kind in supplying all the camera equipment, heads and a Technocrane!

Women Behind the Camera and the ACO intend to make these workshops a regular event continuing with a Steadicam day hopefully in September. Cinematography and Operating have no boundaries... nor must we.

Sean Savage



Women Behind the Camera

We are excited to present a new website 'WOMEN BEHIND THE CAMERA' which aims to promote women working in the camera, lighting and grip departments in the UK Film & TV industry. This began when the Association of Camera Operators asked Lucy Bristow ACO to look at the reasons for there being so few female camera operators. She thought that it would be a useful tool to create a database – which could be used for getting / sharing work, spreading the word about events, for research purposes, etc.

'WOMEN BEHIND THE CAMERA' has been created by three women who are camera operators - still an area where women are very under represented. Lucy Bristow, Ilana Garrard and Agnieszka Szeliga are hoping that by making this female talent more visible, it will encourage and inspire more 1st and 2nd A/Cs to choose camera operating as a career.

WBTC will highlight the vast number of women working at every level of the camera department in the UK Film & TV Industry. At one time a very male domain, camera departments can now be truly diverse in terms of gender – some studios are now demanding this equality in crews 'We are hoping that as a database, this website will help Directors of Photography, Producers & Directors to put together camera crews that are genuinely 50 / 50 male/female.....not just the token woman as trainee or central loader!' - says Lucy Bristow. The WBTC are proudly announcing that in June the ACO are organising a

geared head/crane workshop for 11 women (camera operators and 1st ACs in transition to operating). This is one of several planned workshops aimed at helping women to gain more experience as camera operators.

Please visit:

<https://womenbehindthecamera.co.uk>

Follow them on the Instagram

[women_behind_the_camera](https://www.instagram.com/women_behind_the_camera)



Whose operating on **WHAT?**

*Busy times in the UK and world wide for ACO operators
- To be mentioned in the next newsletter please
message Sham Whittaker with what you are up too and
send some pics please we want to see you!*



ARRI CREW - **CHRIS PLEVIN** - finished a month of additional photography on the Voyage of Dr Dolittle in March followed by dailies on Kingsman second unit and Maleficent.

GBCT - **PETER BERGLUND** – DoP/Operating in Florida on a remake of “DOA” – 1950’s film noir

RICHARD CORNELIUS – Steadicam & B-Camera Operator on “AMMONITE” – period drama

CHRIS MCGUIRE- A Camera/Steadicam Operator- Finished “Bad Boys for Life” Sony Pictures. His next project will be “Hillbilly Elegy” for director Ron Howard.

PRINCESTONE

SIMON BAKER Shot some dailies for “LITTLE BIRDS” in Spain with Ed Rutherford as DP. 2 weeks as B camera on “PETER RABBIT 2” with Will Gluck as director and DoP Peter Menzies Jnr. Currently shooting MILITARY WIVES, additional photography as B camera op & Splinter Unit as D.P. Peter Cattaneo is director & Ruairi O’Brien is the D.o.P.

ROB HART is currently shooting “ALEX RIDER” with DP Ben Wheeler and director Andreas Prochaska

TONY JACKSON has been shooting dailies on the Netflix drama “CURSED” with DoP James Friend BSC

TONY KAY has been shooting dailies for various drama series and commercials. “COBRA”, “GANGS OF LONDON” etc.

JAMES LAYTON will be starting prep soon on the next series of “HIS DARK MATERIALS”. James has also shot some dailies for the feature “DREAM HORSE”.

NIC MILNER is has working on the feature for Cornerstone Films “DREAM HORSE” with D.o.P. Erik Wilson and director Euros Lyn.

DAN NIGHTINGALE is on “DRACULA” for Hartswod Films and Netflix. With Claes Bang in the title role. 1st block director is Jonny Campbell and 3rd block Paul McGuigan. D.o.P. for both is Tony Slater Ling

JOE RUSSELL is currently shooting the Netflix/Hartswod drama “DRACULA” with D.o.P. Julian Court having previously spent time in Romainia shooting the stunts sequences for “ALEX RIDER” Next he’ll be prepping the 3rd series of “KILLING EVE”.

PETER ROBERTSON is about to start prep on “THE NEVERS” DP Seamus McGarvey BSC and for director / writer Joss Whedon. A Victorian Sci-fi for HBO.

SEAN SAVAGE is still shooting “PENNYWORTH” a Batman spin-off series for Warner Horizon Television starring Jack Bannon, Ben Aldridge and Paloma Faith. He is working with directors Danny Cannon, Bill Eagles, China Moo-Young, Clare Kilner, Jon East, Rob Bailey and D.o.P.s Mark Patten BSC, Sam McCurby and Jake Polonsky.



Whose operating what? cont.....

SARA PUTT

ANDREI AUSTIN currently on location with Strike Back as 2ndUnit DoP/Camera Operator

JON BEACHAM has been busy operating on Pennyworth, and will start on the new series of Discovery of Witches soon

DANNY BISHOP continues on operatin A Cam for the first 5 episodes of Cursed for Netflix - James Friend BSC and Stuart Howerll are DOP's

ED CLARK will start on Normal People later this month for Element Pictures.

ILANA GARRARD Currently B Cam/Steadicam on Sex Education.

JAMES LEIGH continues on Doc Martin on location in Cornwall *pic attached of James on S.Cam

VINCE MCGAHON has just started on The Witches which is shooting at Leavesden and stars Anne Hathaway and Stanley Tucci

JULIAN MORSON will start on Black Widow next month as B Camera Operator

SCHNEIDER ENTERTAINMENT AGENCY

PETER CAVACIUTI is currently working as Camera/Steadiam operator on 1917 with Roger Deakins.

IAIN MACKAY has wrapped on the musical 'Cats', and is now B camera operating on Jane Austen's 'Emma', also a Working Title production.

MICHAEL HEATHCOTE is working as A Camera/Steadicam Operator on "The Many Saints of Newark" aka Sopranos prequel working with Kramer Morgenthau, DOP.

MICHAEL CARSTENSEN is currently working on Outlander in Scotland

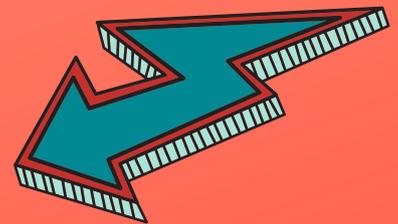
RICHARD BEVAN also working on Outlander.

Bob Shippy continues his work on the series Cursed as B camera operator

Benjamin Treplin is working on Das Boot Series 2 lensed by David Luther and Philipp Blaubach BSC



ACO, 10th Anniversary Party.



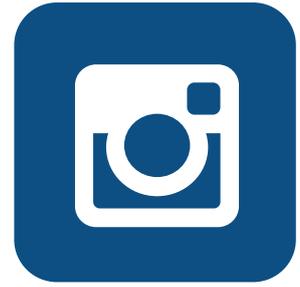
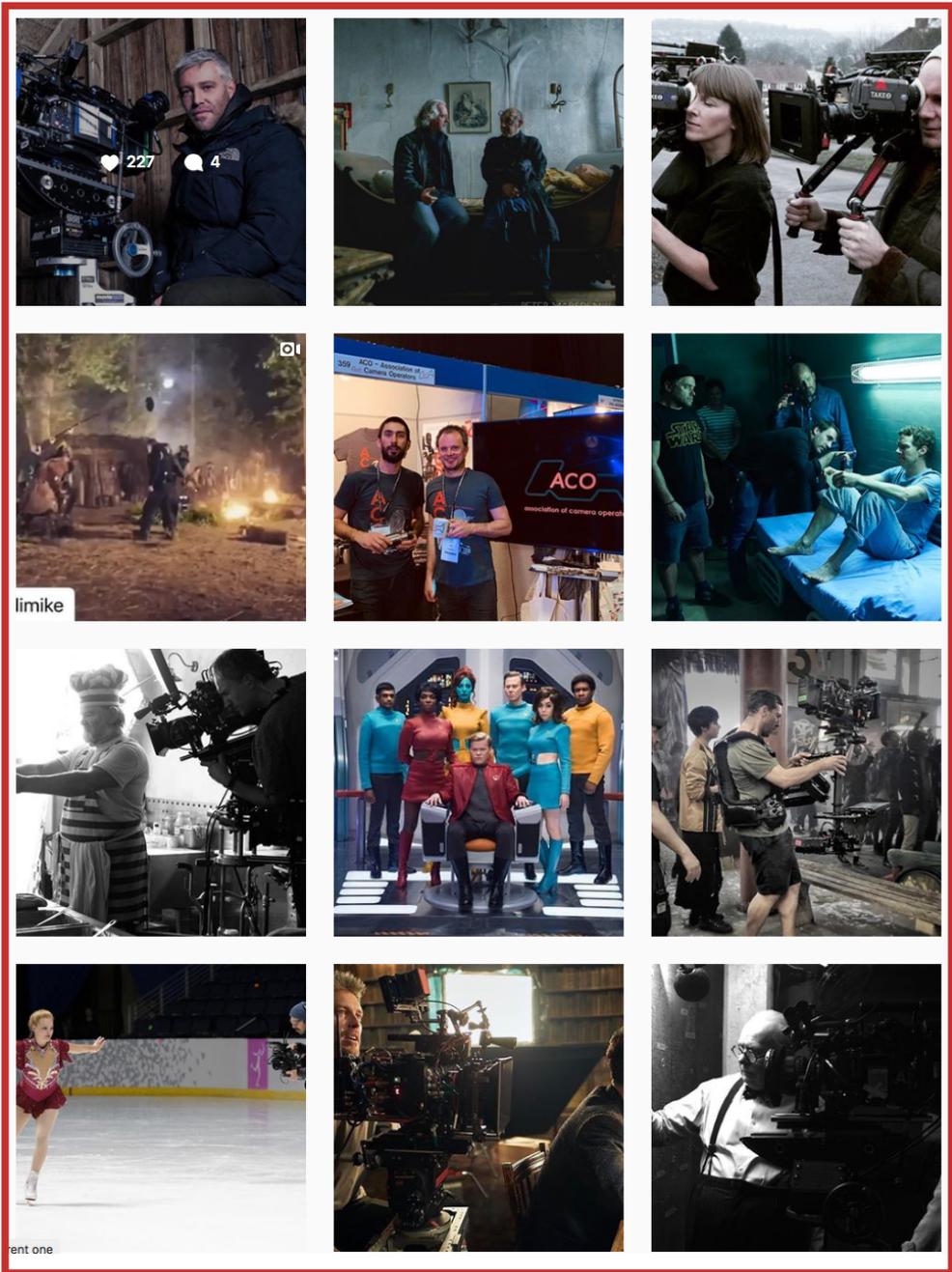
A meeting these familiar faces had in the photo in 2009 prompted the start of the ACO

Dear Members....

I hope by now you will have received your lovely invitations to our 10th Anniversary Summer Party. Please do come along with your partners and children and celebrate this milestone in the ACO 's history. Come and enjoy the day but most of all come and meet your fellow operators, swap those stories you've been waiting to tell.

Really looking forward to seeing you all there.
Sean Savage ... President ACO

Saturday 27th July. 3.00pm till late. The Marlborough, 46 Friars Stile Rd, Richmond TW10 6NQ | please RSVP office@theaco.net



Do you know?

Social media is so important to spreading the work of the ACO and its operators.

Please will you send photos from you at work to editorial or please tag us on instagram @aco_uk

Over the coming year Sham will be reaching out to members to take over the ACO Instagram feed to show case the operators work and what we do. So please reach out if you'd like to be involved - otherwise expect a phone call. :)

@aco_uk



**PLEASE
CREDIT
THE
ACO**

**PLEASE REMEMBER TO GET PRODUCTION
TO USE THE ACO CREDITS**

**AT THE START OF A SHOOT
WRITE ACO AFTER YOUR
SURNAME ON THE START
FORM AND MENTION TO
PRODUCTION ITS PART OF
YOUR CREDIT...**



COOKE TOUR LEICESTER APRIL 2019

By Zoe Goodwin - Stuart ACO

It was now time to move through to the factory floor to witness the first process of the lens manufacture. Every single lens that leaves this factory is hand built by skilled technicians. Master crafts men and women, though these finely honed skills are coupled with modern methods and machinery, which are so precise it's hard to comprehend.

Our tour starts in the polishing room where glass chucks and bought in from two different suppliers. For obvious reasons the glass is larger that required as grinding and polishing will make each piece smaller. This rough glass is opaque and this takes us on to the polishing. State of the art multi-axis CNC machines are used and each piece of glass is placed on a head and polished to the correct shape and thickness. Moving on from here was the real treat as Cooke don't only use modern technology but in tandem use polishing machines that date back to the early 1900s.

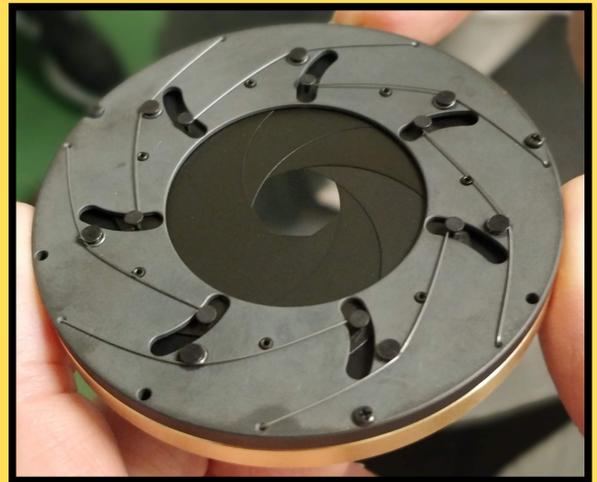
A technician makes sure each lens is brushed with an abrasive and that the process is carefully monitored. Both of these processes are used, as they are specific to certain areas of the polishing.

Once polishing has finished they are painted with a black peelable coating for protection. Still at this stage it is unknown if any microscopic faults or imperfections may lie within the lens.



Having recently been accepted into the Association of Camera Operators I was thrilled to be invited to the Cooke Lens factory in Leicester as my first ACO event. Greeted by fellow members Jamie Harcourt, Rodrigo Gutierrez and Lucy Bristow we were soon dressed in white coats and introduced to our guide Alan Merrills, COO at Cooke.

A brief history of Cooke from Alan begins in 1893 where they famously started making telescopic lenses, which eliminated softness at the edges. Then, in 1921, Cooke began making their well-known Speed Panchro Series I lenses, which cemented "The Cooke Look" and laid the foundation for some of the greatest lens making in the world of cinematography. If you've ever shot on a Cooke Lens then it almost certainly has come from this factory. There's so much history in and around the reception and Alan's office, it certainly peaked all of our excitement.



Coating is the next stage where Alan explained to us that we could not view this as it occurred in a clean room. However, we were told that the lenses are now placed on trays and slotted into a machine which chemical dusts each lens with what can only be described as Cooke's "Secret Sauce". It's basically where the lenses get most of their signature characteristics. This takes place within a vacuum so that the chemical compound rises in the machine coating each lens. The lenses are then turned over and the process is repeated. Next was the edging room where again some of the traditional crafting techniques are on show. The lens is placed onto a chuck using an age-old process of warming a tar stick and carefully rubbing a small amount of the tar onto the chuck.

Therefore creating a malleable adhesive which the lens can stick to whilst its optical centre is found by eye. This makes sure that the optical centre lines up with the actual centre of the lens. From here now the lenses are on the chucks they can be edged to the exact sizes required. The lenses are now blackened around the edges to prevent unwanted light refraction when finally mounted within the lens housing. Another process done completely by hand. I'd just like to mention at this point, that during each of these processes the lenses are cleaned more times than one could count. It is a painstaking job and is as important as all the manufacturing.

Quality Control was our next area of interest. This is as the name suggests is where each piece of glass is individually checked and evaluated. Each one must be up to the Cooke standard otherwise it doesn't make it through to the following assembly room. A hive of activity and where finally all the elements are put together and insured that all of them fit together perfectly. These are then taken apart and once again a cleaning process occurs this time hydrosonically and in a dust free environment.

Only one technician then assembles each lens. This is in order to maintain ultimate quality control. Technicians measure the full throw of each lens in terms of focus so that each measurement can be truly exact. Cooke does not make batches of lenses. Each Lens is made to order so they are all made in one go to insure the consistency of those lenses.



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One of the most beautiful parts of the lens almost everyone on the tour could agree on was the handmade iris. They are so delicate and intricate. Interestingly enough each wire that opens and closes each leaf is a guitar string..

Each lens then completes its journey by being etched and having its engraved numbers and lettering hand painted with the signature yellow, white and red paint. There are no lenses on shelves here waiting to be sold. Each lens is made per order. For example each Anamorphic SFi (special flare) will have a totally different flare, completely unique to that lens.

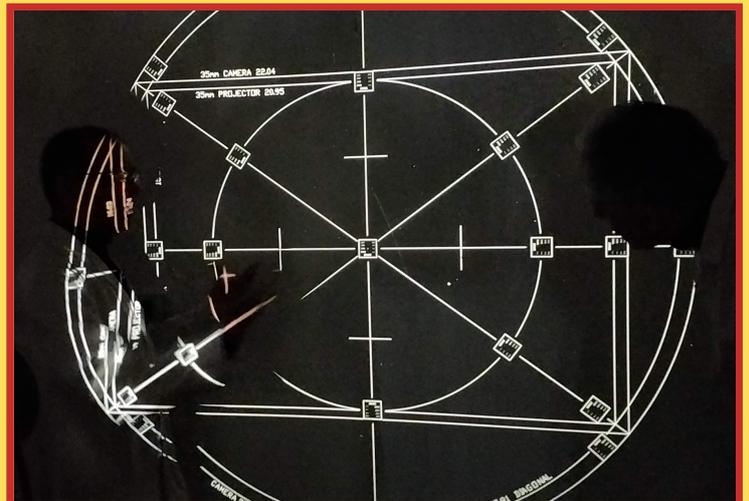


The tour over we were invited into the testing room where lenses were shown to us on a projector to really show us the gorgeous focal drop off each Cooke Lens has.

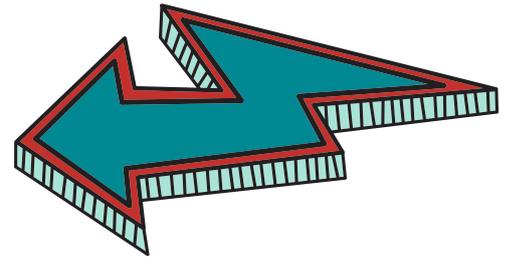
From S4's to Panchros to the new anamorphic full frame we were gifted with seeing them all. Each lens truly is handcrafted to perfection and the amount of care and precision that goes into each one is incredible.

We were then ushered upstairs to a boardroom for a debrief, Q & A and an introduction to Cooke's new website and social media platforms. Carey Duffy, Head of Sales Europe showed us some really interesting information, videos, interviews, camera tests and technical information. All can be found on Cooke's website and social media platforms. Finally, we were gifted some imperfect lens glass and the all-important Cooke badge. Coming back into the reception where Cooke's Oscar for Outstanding Scientific and Technical Achievement in Cinematography sits in a glass cabinet you really understand how and why this award is so deserved. For some of us we are lucky enough to have shot on Cooke lens, some even luckier ones own a set of Cookes. But, however we get to shoot with these lenses, coming to see how they are crafted into being, truly is a memorable experience.

by
Zoe Goodwin-Stuart ACO



MMF Foundation Caps



Mark's daughter, Alice Milsome (13) has designed a cap in honour of her Father for Father's Day. The hats are available now in our the shop section of the MMF website. Alice drew inspiration from Mark's own favourite caps and her design is now also on sale at Panavision. We will soon be adding an 'Old School' sew-on badge to our shop and would encourage you you add them to bags, ruck sacks, jackets to support the foundation.



IS YOUR PROFILE PIC MISSING??

Please can you take the time to email your picture to the ACO editorial for the new website. A Lot of people went to a great deal of effort to get the new website built and wed appraicte your responce... ASAP

Please send to editorial@aco.net



Visit to Vitec O'connor

Recently

Peter Robertson, Jamie Harcourt and myself took up an invitation to visit Vitec O'Connor in Bury St Edmunds.

I'd met Steve Turner who is the Product Manager for Vitec at Camerimage a couple of years before – we'd had a long chat in the bar about the heads we are all familiar with on set and we got into some detail about new developments and refinements. This led to a visit by Steve to the Game of Thrones set in Belfast where he watched how the heads were used and the problems presented to the operators by some difficult shots.

Steve gave us a complete tour of the factory, which makes O'Connor, Vinten and Sachtler heads, all companies owned by Vitec. A sister factory in Costa Rica with identical facilities manufactures a similar range of products and the subsidiary companies share technology and resources. The acquisition of these companies has given Vitec a near monopoly in the broadcast and film industries with their products featuring in high end feature film production, broadcast, natural history, documentary and sports.

The factory is vertically integrated and except for some castings for Vinten pedestals makes most of the parts for the products in the factory. We were shown an amazing machine resembling the Stargate, covered in bobbins of carbon fibre ribbon which with the aid of a couple of robots spins a carbon fibre mesh 'sock' which is pressure injected with epoxy, baked and turned into hollow precision carbon fibre sections for a new high tech Sachtler set of legs.

We looked at the components used in O'Connor's flagship model the 120EX. The drag units are composed of a stack of precision made stainless steel discs coated with a Teflon like material contained in a sealed housing and submerged in a hydraulic fluid. Changing the drag levels results in spacers changing the spacing of these discs resulting in more or less drag, based on the concept of shear flow, for those of you who are into fluid dynamics!

The clever counterbalance system in these heads involves the fitting of some ferociously powerful springs which store a huge amount of potential energy. The varying level of compensation from the springs needed to support a hefty camera package as it is tilted from the horizontal is regulated by a precision machined cam, with a profile determined by some heavy mathematics. Backlash, stiction and other potential problems are eliminated by a range of crafty engineering solutions and an incredibly precise manufacturing and assembly process.



It is interesting to note that operators first testing the heads were able to distinguish individual models which showed up as identical under the test and measurement procedures; accordingly O'Connor uprated the accuracy of their test regimes and the increased accuracy showed that the operators were correct in their observations – proof of the subtlety and sensitivity of the human part of the process!

Whilst the domination of the film and broadcast market by Vitec might seem to be either an incentive to rest on their laurels, or that more familiar concepts of the business world might apply to sell more heads – built in obsolescence, limited lifespan etc, it seems that a different philosophy applies here – a process of constant improvement and R&D which will persuade owners, perfectly happy with their reliable fifteen year old 2575 heads – and I am one – to upscale due to an ever increasing level of excellence in the products. The factory is a clean, orderly high tech facility turning out truly excellent engineering products which help us to accomplish those difficult shots we face as operators every day.

If you'd like to visit the factory then please let Sham Whittaker know and we can negotiate some dates for small groups to visit.

Steve is also very keen to visit as many sets as he can and talk to working operators as part of an ongoing process of feedback and consultation which will help with the improvement of their product line. ACO members will be involved in the development and testing of some of these, which is pretty exciting, although we can't yet give you any details.

I did tell him how annoying the safety head lock on the later 2575 heads is (if accidentally tripped this paralyses the tilt, leading to much embarrassment during a take!) and he promised to look into a modification for this! All in all a very interesting day and we must appreciate the fact that they are a patron who really want to be fully engaged with as many members as possible, and this needs support from all of us in the ACO.

By Chris Plevin ACO

Magnificent 8

8 questions to Nicholas Milner ACO

"The Crown"

1) What was it that got you into being a camera operator?

As a teenager I was always out with a camera and made my own films on Super 8. As a young inexperienced loader (2AC) I had the opportunity to work with Peter MacDonald (before he became a director) on a short musical. In those days loaders were responsible for the zoom on the jib on the dolly. Being a part of making a short and watching and learning from Peter was inspiring.



2) What three movies inspired you when you were younger to pursue a career as an operator?

I've always liked films where the cinematography really enhances the story.

- (i) Gandhi – who doesn't love an epic. Oscar winning cinematography from Billy Williams BSC and Ronnie Taylor BSC and operated by Chic Anstiss
- (ii) Cabaret. A great story with Liza Minnelli at her best. Great songs and choreography with Oscar winning cinematography from Geoffrey Unsworth BSC and operated by Peter MacDonald.
- (iii) The Sicilian. More great story telling where the camera is always moving. Brilliantly photographed and operated by Alex Thomson BSC





3) Introduce us to your team on this season of The Crown

I was lucky to have such a great team. Nathan Mann as 1stAC who I've worked with many times before – nobody better. He was assisted by Graham Smout 2ndAC and our trainee was Charlie Curtis. Our grip was Jody Knight who I first met on the Harry Potter films who has great timing and a natural understanding of what we wanted to achieve with our camera movement.

4) With a huge show like The Crown, do you feel the need to research the seasons that have come before it?

I've been fortunate to have worked on seasons 1 & 2 of The Crown so was able to use my previous experience to help new (for The Crown) established German director and DOP team Christian Schwochow and Frank Lamm.

5) How did the dynamic of DOP/Director/camera operator work on The Crown?

This was the first time Frank and Christian had worked with an operator. The recce's were invaluable as they enabled me to get to know Frank

and Christian, how they liked to work and what their ideas were. Once shooting Frank was very happy to let me get on with the operating side of things and we had a very harmonious relationship.

6) How did you approach the camera work on this season?

The Crown is a series as opposed to a one off. In terms of the camera, whether its choice of lens, angle or camera movement I tried to be aware of and maintain a consistency of the style originally created by Adriano Goldman RSC, ABC. Without deleting the vision of Frank and Christian.

7) What do you enjoy most about being an operator?

Being part of a team working with the DOP and Director that turn the written words of a script into storytelling images for an audience.



8) If you had the choice what would you like to do a next?

I would love to have the opportunity to do a musical. In an ideal world it would be shot on film and I'd have an optical viewfinder.