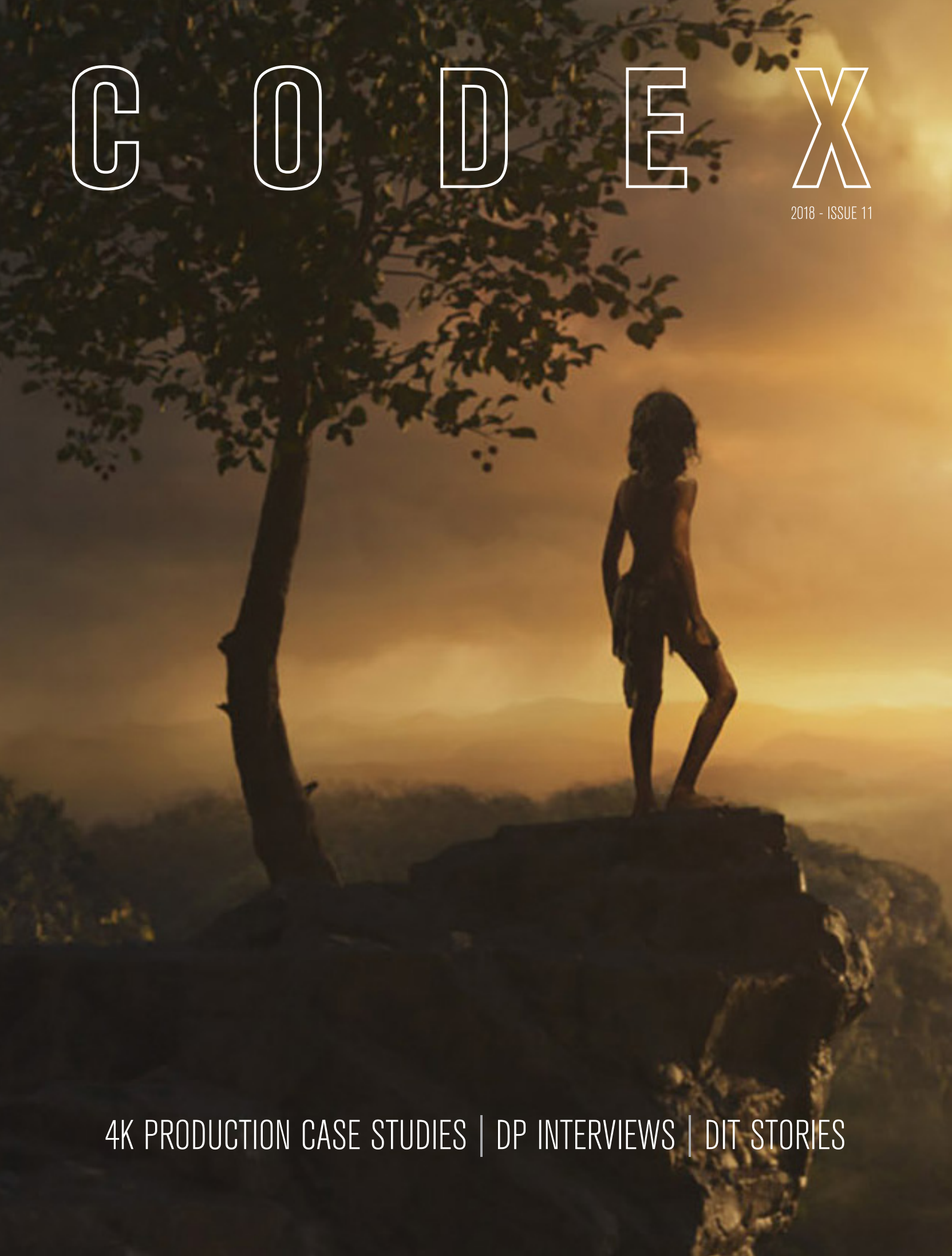

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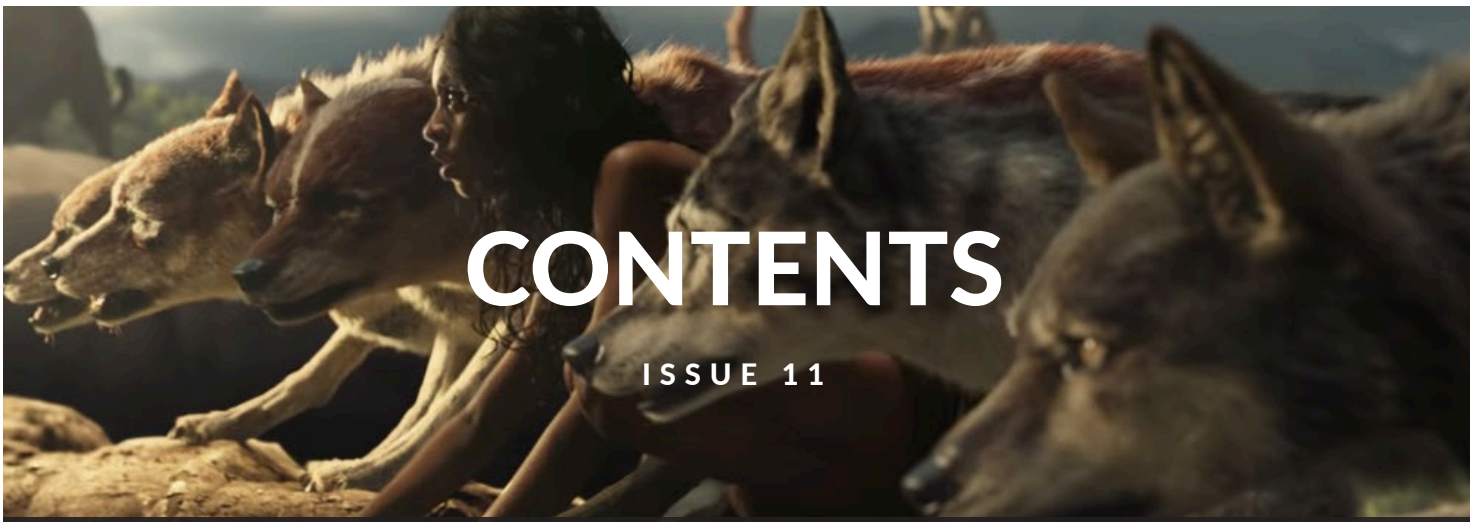

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MOWGLI

WHO TO BLAME

Editorial Team and Contributors:
Marc Dando, Brian Gaffney,
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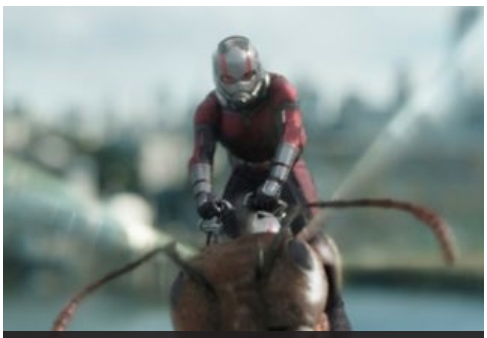
Craig Hildrew, Gareth Ewers



ANT-MAN AND THE WASP

BETTER CALL SAUL

PAUL KEANE DIT

CAPTURED ON CODEX

SUCCESS STORY: MOWGLI
CINEMATOGRAPHERS: MICHAEL SERESIN
RELEASE: 2018

A DARKER TELLING OF THE JUNGLE LEGEND

London-Based DIT Joe Steel takes us behind the scenes on making *Mowgli*

Joe Steel is a London-based DIT and his work behind the camera extends to projects such as *Disney's Beauty and the Beast* (2017), *Mary Poppins Returns* (2018), *The Foreigner* (2017), *Darkest Hour* (2017), and *Ready Player One* (2018).

Codex was able to grab some time with the talented DIT and discuss his recent work on Andy Serkis's film, *Mowgli* (originally titled *Jungle Book: Origins*). *Mowgli* is based on the beloved story by Rudyard Kipling and is a darker version than what fans are used to.

> This was the first time I had worked with Codex and SHED all the way through production and they made it so easy
>
> Joe Steel

How did you get to be a DIT? Tell us about yourself.
DITing found me rather than the other way around! My first steady job was in post-production first as an assistant and then as a Supervisor looking after machine rooms - edit suites grading theaters, etc. To be honest, I found post-production a bit dull (not the process but having to work in an office environment) and I wanted to get back to working on set which I had done briefly as a runner. So, I decided to retrain in the camera department. I worked as a camera trainee for a while and then I started loading film. Just as I was starting to get busy as a film loader, digital cameras were becoming more popular. At the time, the busiest digital cameras for me was the Red One and the ARRI D21. With my post background, I felt very comfortable with digital cameras at a time when a lot of assistants were shying away from them. Then my DOPs would ask me to DIT for them so I started doing that. In 2010, I was asked to DIT 2nd Unit on *Pirates of the Caribbean* in London, which became the film that made me realise that DITing, as we know it today, is what I should be doing.

What do you enjoy most about it?
Working with the DOPs is by far the best part. Some prefer you to be in the background and only call on you occasionally; whereas other DOPs want you right up in the forefront advising, grading every shot, and collaborating. This can be a lot of fun. Especially as I've been so lucky to work with so many DOPs whose work I grew up with and admired for so long. Also, I love to travel and the DIT role is one of those job roles onset that when the production moves across country you never get left behind!

How did Codex help you with your workflow?
This was the first time I had worked with Codex and SHED (at the time Digilab) all the way through production and they made it so easy. The test material was all screened at their facility in Poland Street, London which is where we created the LUT. They provided the lab service using 2 Codex Vaults, which was great to know, since we wouldn't have any headaches at that point, and they also provided a dailies screening service. Having one facility who could advise on capture right through to viewing was great – it made the whole process very smooth.

How was it working on Mowgli?
Mowgli had some quite unique challenges for us. For every slate we did, we would perform three or four repeat passes for the VFX (action pass, character pass, clean pass, balls pass, stuffy pass). Using the Codex Vault to collate and deliver each pass to the appropriate department was made simple. We built the jungles on stages at Leavesden, all the trees and vegetation were real. In between shots and all the way through the night, the greens department would have grow-lamps on and they would constantly water the vegetation to keep everything alive during the three months while we were indoors. Because of this, the studio was constantly hot – probably the hottest I've experienced. The 90% humidity was a concern. The ARRI ALEXA cameras with Codex recording and drives fair exceptionally well. We had no issues with them.

The last month was spent on location in South Africa. Having the lab entirely Vault-based made the transition and backup between London and South Africa very easy.

The value of RAW for image capture is high, however, people perceive it as a challenge. How do you feel about managing RAW workflows with Codex?
I've worked with every format and I don't see RAW as any kind of conceivable challenge. Obviously, you have more data, but for me the cost of the data is far outweighed by the advantage to the whole film of shooting RAW.

What's in store for you over the next few years- any projects you're able to discuss?
My assistant keeps on telling me not to discuss jobs before they happen for fear of jinxing them, so I'm not allowed to discuss anything! However, there is one film that will be released later this year that I worked on: 7 Days in Entebbe, shot with ALEXA on ARRIRAW and Codex Capture Drives and Codex Thunderbolt readers in the lab.

Mowgli was purchased from Warner Bros. by Netflix and is reported to start streaming in 2019.

Camera equipment provided by: ARRI Rental UK

CAPTURED ON CODEX

SUCCESS STORY: JURASSIC WORLD: FALLEN KINGDOM
CINEMATOGRAPHERS: ÓSCAR FAURA
RELEASE: 2018

BUILDING A JURASSIC FILM

Codex meets up with DIT Paul Deane on the set of the latest prehistoric blockbuster.

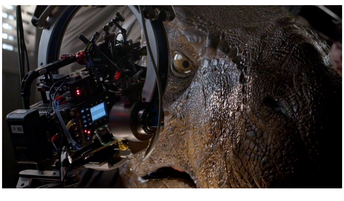
Codex had the pleasure of talking with Paul Deane, a DIT whose recent film accolades includes *Jurassic World: Fallen Kingdom*. We were able to snag an interview with him on his work on the film and how Codex played a role in bringing this prehistoric summer blockbuster to life.

Codex: How was working on *Jurassic World: Fallen Kingdom*?
Jurassic World: Fallen Kingdom was a really exciting project to work on. It was my first time working with the ARRI ALEXA 65 and it allowed us to capture some stunning images. I also really enjoyed working with our 2nd Unit Co-Directors, Eugenio Mira and Patrick Loungway, who was also our Director of Photography. This meant my station was always set up with the director's monitors right next to the action. Every day I would receive graded stills from the main unit DIT, Francesco Giardiello, with all the relevant metadata and the CDL used for that scene. That allowed me to set up everything to match what the main unit had shot. Patrick and I would then discuss the lighting and make any adjustments needed to make sure we were consistent throughout the scene both in what we were shooting but also consistent with the main unit. Because of the large amount of data involved when you shoot on the Alexa65 we tried to reload the cameras as often as was practical so my Data Manager, Kristin Davis, could start backing up the footage using the Codex Vault and performing a final check to make sure everything was consistent and making any needed adjustments. The footage was then passed onto Pinewood Post for transcoding, and archiving to LTO.

> **Codex was the cornerstone of our workflow on Jurassic World**
> Paul Deane

What do you enjoy most about being a DIT?
I really enjoy the collaboration with the Director of Photography. For me, the most important aspect of this job is making sure their vision is realised, from the moment the image is captured on the sensor through to my monitors and on to post production and final exhibition. We are therefore constantly discussing and adjusting the lighting, the exposure and the colour to make sure we are accurate and consistent throughout - from shot to shot - and from scene to scene. Communication is key in this regard and having a good relationship with the DoP, the camera crew and post production is essential. I also really enjoy the problem-solving aspects of the role. Every new job, location or technology presents its own challenges.

How did Codex help you out with your workflow on Jurassic World? Describe your setup.
Codex was the cornerstone of our workflow on Jurassic World. We shot mostly on the ALEXA 65, occasionally using the ALEXA Mini and SXT. Shooting ARRIRAW on the ALEXA 65 creates a huge amount of data but using the Codex Vault allowed us to back up this data quickly and securely. It also meant Kristin could review the footage straight away, adding and adjusting important metadata using the filecard system. The speed and efficiency of this system meant that myself and Francesco could review stills from each setup shot throughout the day to ensure consistency before the footage was sent to post production. Transcoding and archiving could then begin immediately when the footage arrived at Pinewood Post so that editorial could start working on the scene first thing.



The value of RAW for image capture is high, however, people perceive it as a challenge. How do you feel about managing RAW workflows with Codex, compared to other formats such as ProRes, RED, IntraAVC, etc.?
The amount of data involved when shooting RAW can seem daunting especially with a camera like the ALEXA 65 but the quality of the image captured is unparalleled. Working with Codex, using either the Production Suite software or ideally using the Vault, means that the data can be managed quickly and efficiently while also giving the maximum level of control and security. All capture formats present their own challenges, the key is carefully planning the workflow from the start.

> **Codex allows us to capture amazing images of unrivaled quality**
> Paul Deane

What did you like most working with Codex?
Codex allows us to capture amazing images of unrivaled quality and using Codex hardware and software means we can manage a large amount of data and metadata quickly and securely. I also know that if anything goes wrong, there is always someone at Codex available to help solve any issues quickly.

What's in store for you over the next few years? Do you have any projects that you can discuss?
I've just finished working on the final season of *Game of Thrones* so I'm looking forward to seeing that released next year. I've worked on the series since season five so it will be the culmination of an epic journey.

Jurassic World: Fallen Kingdom was released Summer 2018 and totalled 1.672 billion USD at the Box Office.

Cameras: ARRI ALEXA 65 , ALEXA SXT and ALEXA Mini
DIT: Paul Deane

CAPTURED ON
CODEX

SUCCESS STORY: ANT-MAN AND THE WASP
CINEMATOGRAPHERS: DANTE SPINOTTI, ASC
RELEASE: 2018

CAPTURING A MICRO SUPERHERO

Codex and SHED managed the super-size data capture on Marvel's *Ant-Man and the Wasp*.

As a production, *Ant-Man and the Wasp* called for all the usual technical derring-do required for today's Marvel extravaganzas, with the additional complication of scale – Ant-Man's main superpower is the ability to shrink himself (as well as other people and objects) to the size of an ant. Russell Carpenter, ASC shot the 2015 forerunner to this film, the twentieth in the Marvel oeuvre.

In his course of nearly 50 years in filmmaking, master cinematographer Dante Spinotti, ASC, AIC had previously encountered similar photographic challenges. But Spinotti knows as well as anyone that each time out, advances in technology provide opportunities for a new and hopefully improved approach to visual storytelling.

> **Once again, Codex delivered the goods**
> Daniele Colombera

"Prior to meeting with [director] Peyton Reed, I was thinking of the hero in a very classical way, connected to the comic book idea, where you don't really need to explain why you do something," says Spinotti of his initial approach. "Maybe there's a light coming from the top, and the hero in his costume looks amazing. And with today's technologies – the ALEXA 65 and its big sensor, and the LED lighting – the classical way becomes very updated and hip.

"But Peyton reminded me that the character portrayed by Paul Rudd is kind of an anti-hero," says Spinotti. "So, we went forward with the scouting and a long testing period with that vague idea, which we finessed along the way."

Like many of Marvel's recent productions, *Ant-Man and the Wasp* was based at Pinewood Atlanta, where three on- or near-set Codex Vaults formed the backbone of the workflow. The core group of principals included production designer Shepherd Frankel, visual effects supervisor Stephane Ceretti, and producer Charles Newirth."

"Charles is a great guy and a great producer," says Spinotti. "He was incredibly supportive through all of the complexities of this project and very helpful. It was a fantastic group."

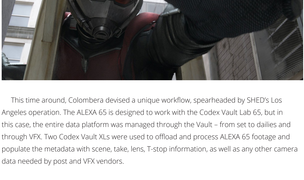
The main unit cameras were large format ALEXA 65s, which pair with the Codex Vault 65, and a wide array of lenses, ranging from ARRI DNA glass to Frazier systems modified by Panavision to shoot at T-45 for maximum depth of field. The ALEXA 65s were backed up with a couple of ALEXA XTs. The physical sets were reportedly more extensive than is standard with Marvel shoots, but there was no shortage of green screen work and digital set extensions.

> **Stephen Ceci at SHED was instrumental in creating a rock-solid data workflow**

"I tried to be as inventive as possible," says Spinotti. "One scene was meant to be a trip into the quantum realm. Figuring out how such a scene should be lit, I imagined several fast-moving clouds in all directions. I had a huge silk over the set, bellied towards the centre. I centered eight or ten spots on top with slightly different colours. We wanted to keep the colors very subtle so they could be easily modified later when the scene was composited. With all the dynamics of the action, it was fantastic."

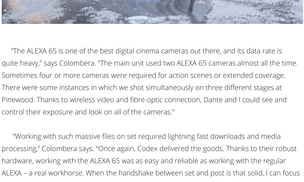
Generally, however, the lighting was designed to keep things believably realistic. DIT Daniele Colombera has worked with Spinotti on numerous projects, handling the workflow details so Spinotti can concentrate on the creative aspects. He came to Spinotti's set directly from Marvel's latest *Avengers* movie, which had been shooting next door at Pinewood. He gives Spinotti the ability to create - on-the-spot - an image that is very close to the result he imagines.

"At least it should be a very good indication for everyone involved, including the effects people, of what we're aiming at in terms of atmosphere and colour," says Spinotti. "Daniele takes care of the details of how that is accomplished."



This time around, Colombera devised a unique workflow, spearheaded by SHED's Los Angeles operation. The ALEXA 65 is designed to work with the Codex Vault Lab 65, but in this case, the entire data platform was managed through the Vault -- from set to dailies and through VFX. Two Codex Vault XLs were used to offload and process ALEXA 65 footage and populate the metadata with scene, take, lens, T-stop information, as well as any other camera data needed by post and VFX vendors.

Stephen Ceci at SHED was instrumental in creating a rock-solid data workflow approved by post supervisor Jennifer Bergman. 8TB Codex Transfer Drives were shuttled to the dailies lab on site, while original camera media was safely stored near set until the LTOs were verified and QC'd by the editorial department. SHED processed and created dailies via Vault, and Marvel VFX did LTO pulls via their Vaults in LA.



"The ALEXA 65 is one of the best digital cinema cameras out there, and its data rate is quite heavy," says Colombera. "The main unit used two ALEXA 65 cameras almost all the time. Sometimes four or more cameras were required for action scenes or extended coverage. There were some instances in which we shot simultaneously on three different stages at Pinewood. Thanks to wireless video and fibre-optic connection, Dante and I could see and control their exposure and look on all of the cameras."

"Working with such massive files on set required lightning fast downloads and media processing," Colombera says. "Once again, Codex delivered the goods. Thanks to their robust hardware, working with the ALEXA 65 was as easy and reliable as working with the regular ALEXA – a real workhorse. When the handshake between set and post is that solid, I can focus on working creatively with the cinematographer, knowing that we safely got the shot."

Spinotti appreciates the ability to see accurate, timely dailies that show his intentions to his collaborators without causing headaches or technical distractions.

"Back in the film days, you had to have the experience to be able to say, 'go in peace, because tomorrow you're going to see some great dailies,'" says Spinotti. "Now, you see the dailies when you shoot. That gives everyone confidence. Honestly, I'm not especially interested in the technology, but I have a sense of what it is. I know enough to get the results I want. But then I have all these great people around me who really know the details. That allows me to have a clear mind to think conceptually and creatively about the lighting and the images."

Ant-Man and the Wasp was released on July 6, 2018.

Cameras: ARRI ALEXA 65 and ALEXA XT
Lenses: ARRI DNA, Frazier
DIT: Daniele Colombera

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SUCCESS STORY: BETTER CALL SAUL
CINEMATOGRAPHERS: MARSHALL ADAMS, ASC
RELEASE: 2018

LIGHTING THE NIGHT IN ALBUQUERQUE

Marshall Adams, ASC discovers colour at night shooting *Better Call Saul* with the VariCam Pure

Marshall Adams, ASC is currently in the midst of photographing season four of *Better Call Saul,* the *Breaking Bad* prequel/spinoff. Fans of *Breaking Bad* haven't been disappointed. The fascinating backstory of smarmy but lovable lawyer Saul Goodman, aka Jimmy McGill, delivers the same masterful writing, acting, and direction that made the original show a hugely influential hit.

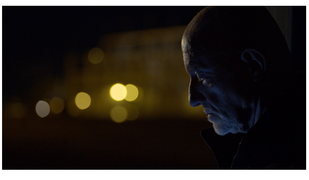
Breaking Bad was shot mostly on 35 mm film, but Adams is currently shooting a blend of RED cameras and the Panasonic VariCam Pure. The switch from film was made in part because Netflix, which insists on a 4K RAW deliverable, is the exclusive video-on-demand provider for the series. Why the unusual mix of cameras? Just prior to interviewing for the job of director of photography on season three, Adams had done some tests with the then-new VariCam. He had also used it for a night exterior shot on the series *Rush Hour*.

> I really appreciate that Panasonic and Codex got together and figured out a way to make the pure so user-friendly
>
> Marshall Adams, ASC

"I was just blown away by the camera, and really wanted the opportunity to shoot with it some more," Adams recalls. "I thought Vince and Peter [co-creators Vince Gilligan and Peter Gould] seemed like guys who would embrace new technology."

The first two episodes of the third season were to be directed by Gilligan, who said they included more night work than did the first two seasons combined, as Mike Ehrmantraut (Jonathan Banks) follows a tracking device – the screen of which is sometimes the only light – all around Albuquerque. The VariCam's astonishing ability in low-light situations come in handy for the extensive night shoots, but the post workflow was set up around the RED. Eventually, a compromise was hammered out, and by episode five, the VariCam was on hand whenever the script called for extensive night or low-light work.

A couple of factors conspired to make the VariCam a commonly used alternative. Chuck, the main character's brother, suffers from a severe sensitivity to electricity and spends much of his time in a gloomy, darkened house lit only by candles and gas lanterns. Episode five called for a seven-page scene in Chuck's house lit only by candles. The show's creatives also planned to make nighttime Albuquerque a more prominent presence in the background of exterior wide shots.



On season four, the *Better Call Saul* team upgraded to the VariCam Pure, usually paired with Cooke primes or Optimo zooms, or ARRI/Zeiss Master Primes if the extra stop was needed. The Pure, billed as a "co-production" of Panasonic and Codex, combines the existing VariCam 35 camera head with an internal Codex VRAW 2.0 Recorder and offers a 4K RAW solution in a lighter and smaller body, at up to 120 fps. The VariCam Pure boasts dual native sensitivity, with a base ISO of either 800 or 5000. The Codex VRAW 2.0 brings a flexible and reliable uncompressed 4K workflow including VRAW 4K 12-bit and 4K 10-bit options, but with the simplicity of a ProRes workflow. With the Codex Virtual File System, files can be transcoded to other formats including Panasonic VRAW, Apple ProRes, and Avid DNxXR.

The VariCam Pure's rich image files result in advantages in grading, VFX and archiving, and added protection for future HDR deliverables. But on the set, Adams and his team make use of the camera's flexibility in low light, which has practical as well as creative benefits. On this season of *Better Call Saul*, they are carrying three RED cameras and two VariCams full-time.

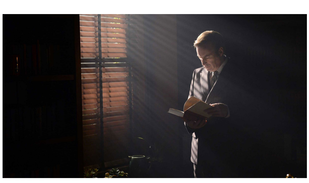
"Everybody is absolutely sold on the VariCam Pure camera system and the way it works," says Adams.

On those vast, signature exteriors with the lights of Albuquerque twinkling in the deep background, Adams worries more about controlling light than generating it.

"Wrangling the light can sometimes be as difficult as it used to be to put the big light in," says Adams. "But at the end of the day, you get a much nicer, more natural-looking image. The Condors and scissor-lifts that used to be a no-brainer for our night exteriors, we don't use very much at all anymore. It becomes more about working closely with the art department. You're getting practical light put in, and lighting essentially from within the set. The ability to fall back and do these expansive wide shots at night is just an absolute gift – not to mention the speed with which we seem to be able to move at night because we're not moving Condors and generators around."

Adams pushed the VariCam to ISO 10,000 for a scene in which Chuck ventures to a pay phone on a street where the surrounding electro-magnetic energy is torturing him. The neon signs, streetlamps, and bright storefronts burn with an over-the-top intensity that communicates Chuck's pain.

Another particular night scene finds Jimmy McGill (Bob Odenkirk) scrambling over the highway, trying to gather papers as they flutter and scatter in the wind. "We ended up with a 20X20 wind bounce over the top of the scene," says Adams. "It's a giant, expansive shot looking down into Albuquerque, and we started out with a 5K, and what we ended up with was a 650-watt, essentially a tweenie, supplementing the headlights. That was all we needed. It has definitely taken some getting used to for me and my gaffer, Steve Litecky, in order to know which lights to call!"



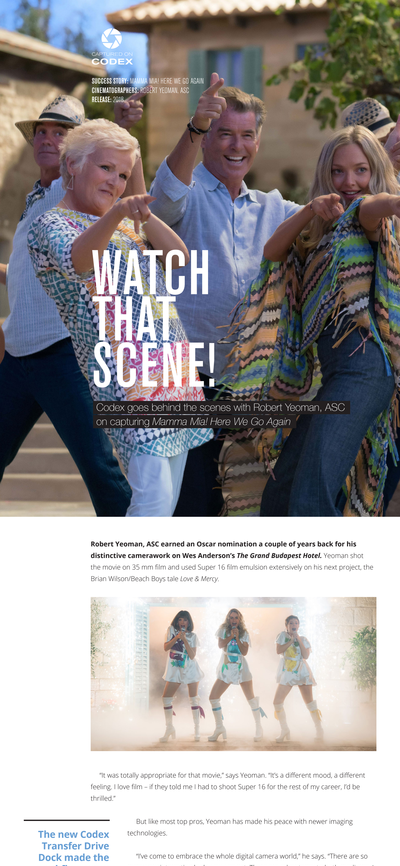
"The signal that you get out of the camera is just incredible," Adams adds. "The blacks are so rich and the colours are beautiful. You wouldn't think that when pointing at the sky in a night exterior with a moon and some lit-up clouds, you would get great blacks, but you do. That camera - when it goes black - is black and it is beautiful. You do get city light pollution, but you have to be willing to embrace that. Sometimes we have to wait until it's dark enough and shoot a little later than usual. But it's so worth it. And in the final colour, colourist Ted Brady at FotoKem's Keep Me Posted (KMP) TV post facility, has plenty of room to move given the big files."

Adams says that there's never been a problem with reliability. "I really appreciate that Panasonic and Codex got together and figured out a way to make the Pure so user-friendly," he says. "I absolutely love that camera, and I count on it – it's a real game-changer."

Season four of *Better Call Saul* will air on AMC in Autumn 2018.

Cameras: Panasonic VariCam Pure
Lenses: Cooke Primes, Optimo Zooms, ARRI/Zeiss Master Primes
Rental House: Panavision

SUCCESS STORY: MAMMA MIA! HERE WE GO AGAIN
CINEMATOGRAPHERS: ROBERT YEOMAN, ASC
RELEASE: 2018



WATCH THAT SCENE!

Codex goes behind the scenes with Robert Yeoman, ASC on capturing *Mamma Mia! Here We Go Again*

Robert Yeoman, ASC earned an Oscar nomination a couple of years back for his distinctive camerawork on Wes Anderson's *The Grand Budapest Hotel*. Yeoman shot the movie on 35 mm film and used Super 16 film emulsion extensively on his next project, the Brian Wilson/Beach Boys tale *Love & Mercy*.

"It was totally appropriate for that movie," says Yeoman. "It's a different mood, a different feeling. I love film – if they told me I had to shoot Super 16 for the rest of my career, I'd be thrilled."

The new Codex Transfer Drive Dock made the workflow more production-friendly, and kept costs down...
Ben Appleton

But like most top pros, Yeoman has made his peace with newer imaging technologies.

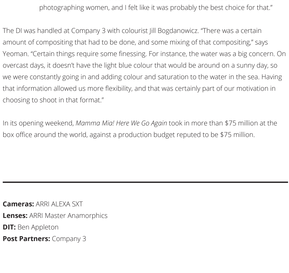
"I've come to embrace the whole digital camera world," he says. "There are so many very interesting looks you can get. There are advantages to both mediums. I love shooting film but it's a different process. When I shoot the ALEXA on interiors and night scenes, I can work with a lot less light. You're seeing exactly what you're going to be getting later, which sometimes allows you to be a little more daring in low light situations. The ALEXA and other digital cameras have achieved a great contrast range. They're pretty amazing cameras. It's just a different feel and a different look."

On Mamma Mia! Here We Go Again, Yeoman primarily used ARRI ALEXA SXT cameras equipped with Codex Capture Drives set up to record in the data-rich ARRIRAW format. The lenses were ARRI Master Anamorphics, chosen in part because their edge to edge consistency would help ensure a flattering image across the many group shots the story called for.

Mamma Mia! Here We Go Again takes up the story five years after the 2008 film, which was shot by Haris Zambarloukos, BSC. Meryl Streep, Pierce Brosnan and much of the original cast return. Some scenes are set in the past, and a significant chunk of the movie was shot in Croatia. The music plays an important role. The director/writer was Ol Parker, who has roots in theatre and is known for writing *The Best Exotic Marigold Hotel* and its 2015 sequel.

"Ol and I wanted to maintain the joy of the first film, but we were out to create a world that was a little bit different," says Yeoman. "We didn't feel like we had to shoot things the way they did. We shot tests at Shepperton on 16 mm, and we took some ALEXA footage and tried to match that look. We agreed that the look was interesting but not reflective of the spirit of our film. Given the expectations of Universal, we ended up going in a different direction."

Some scenes take place in the 1970s, but Yeoman kept the differences subtle, affecting the image mostly in post. "I think it was important for the whole film to feel seamless in a way," he says.



At Shepperton, the main sets were a hotel exterior on the H Stage, surrounded by blue screens. The sea and landscape in the distance would be composited later – another reason that abundant data was important.

Regarding the musical numbers, Yeoman says, "We tried to give each song its own stage, and its own camera style. There are certain transitions that we created, with each song built up as part of the overall story and not standing out from it."

For the song "One of Us," the filmmakers built side-by-side sets in order to shoot a phone conversation where the character Dominick is in New York, singing a duet with Donna, who is in Greece. They moved smoothly back and forth between the two locales.

"I'm personally a big fan of the Francis Ford Coppola's *One From the Heart*," says Yeoman. That under-appreciated film was shot by Vittorio Storaro with a very stylised theatricality. "I took a lot of my cues from that film, the way they move from one set to another. What we did is a little unreal, but we felt like it was a fun way to depict the song, and we didn't use that camera style in any of the other musical numbers."

DIT Ben Appleton set up the workflow to suit Yeoman's approach. His rig included a Sony BVM-x300 with LiveGrade and Qtake. The data manager would ingest the cards using the Codex Vault S, and convert the footage shot with ALEXA Mini to .ARI files. Metadata was then added and CDLs applied. The Transfer Drives were then sent to the dailies company, which made use of the first production edition of the Codex Transfer Drive Dock to ingest, taking the CDL directly from the .ARI into the system.

"The new Codex Transfer Drive Dock made the workflow more production-friendly, and kept costs down as we didn't need a second Vault in the lab," says Appleton. "The Codex Vault once again was invaluable, going from studio mode to on a boat in just a few minutes, with the ability to apply CDLs to metadata, instead of passing CDL files to dailies. This locked our colour pipeline."

Yeoman says his main goal for the workflow is the ability to work uninhibited.

"I have never been overly technical, so I try not to let the technical aspects in the digital world affect me in any way," says the cinematographer. "I use a DIT, and I let them handle all of the technical issues. I work with them on the set to come up with a look by manipulating contrast, colour saturation and the highlights. When you get to the DI and you have all that information, you can do a lot. We recently spent a couple of weeks reshaping the movie. A lot of what you can do now was not available to us 25 years ago. It's a whole new world, and you have to be cognizant of all the post production techniques, because a lot of the movie is realised in post now. That's very exciting to me as well."

The Codex Vault once again was invaluable, going from studio mode to on a boat in just a few minutes...
Ben Appleton

Yeoman adds, "ARRIRAW is the best quality, and that's what we wanted, obviously. The more information you have, the better. The ALEXA has been my camera of choice since we went into the digital world. I find it's an easy camera to use, and it has the most film-like quality for me. It's not quite as sharp and HD-looking as some of the other cameras. It's a friendlier camera on people's faces. We were photographing women, and I felt like it was probably the best choice for that."

The DI was handled at Company 3 with colourist Jill Bogdanowicz. "There was a certain amount of compositing that had to be done, and some mixing of that compositing," says Yeoman. "Certain things require some finessing. For instance, the water was a big concern. On overcast days, it doesn't have the light blue colour that would be around on a sunny day, so we were constantly going in and adding colour and saturation to the water in the sea. Having that information allowed us more flexibility, and that was certainly part of our motivation in choosing to shoot in that format."

In its opening weekend, *Mamma Mia! Here We Go Again* took in more than $75 million at the box office around the world, against a production budget reputed to be $75 million.

Cameras: ARRI ALEXA SXT
Lenses: ARRI Master Anamorphics
DIT: Ben Appleton
Post Partners: Company 3

Captured on
CODEX

SUCCESS STORY: CHRISTOPHER ROBIN
CINEMATOGRAPHER: MATTHIAS KOENIGSWIESER
RELEASE: 2018

TWO WORLDS- TWO FORMATS

Director Marc Forster and DoP Matthias Koenigswieser mix formats to create a nostalgic look for *Christopher Robin*

The latest Disney property to undergo a live-action representation is Winnie the Pooh – or more accurately, Pooh's pal Christopher Robin. (Pooh himself is still CG.) There's nothing make-believe about the box office receipts, which are approaching $150 million after about a month in release.

The story and characters led director Marc Forster and director of photography Matthias Koenigswieser to shoot partly on film emulsion and partly on ARRI ALEXA. The formats subtly underscore the contrast between the "modern" post-war world of London and the halcyon world of the Hundred Acre Wood, about whose virtues Christopher needs reminding.

I live very much in the lower end of the exposure spectrum when I shoot digital, so it's essential to have all the fatness of the data
Matthias Koenigswieser

There's no fantasy world where terabytes of data flow untethered from an ALEXA. But with the Codex Vault XL and 8TB Transfer Drives, filmmakers can smoothly manage tremendous amounts of data, focus on filmmaking – and even learn from Christopher Robin that a relaxed family life is necessary and possible.

Forster and Koenigswieser had previously worked together on 2016's *All I See is You*, a visually striking tale of a blind woman who regains her sight.

"My initial feeling for *Christopher Robin* was to 100 percent use film," recalls Koenigswieser. "The story holds so much nostalgia, and with the available light and contrast in the forest, and various colours of green and red that are prominent in nature, film was my gut instinct."

The studio argued for digital, however, and Forster had recently done a commercial on the ALEXA 65, which he favoured. Weeks of testing and further debate led to the hybrid approach, with the differences smoothed somewhat by Panavision G, C, and E Series anamorphic lenses.

"I felt that narratively there was a good opportunity to do mixed formats," says Koenigswieser, "shooting the forest all analogue and keeping the London portion all digital. Finding a way to bridge them was important because I never wanted to draw attention to either format. I didn't want people thinking how good the film looks and how sharp the digital was. We felt the ALEXA 65 was too revealing for this story. It's a period film, so it was OK to embrace artifacts. Hopefully, the organic look lets you forget that you're looking at an electronically or even artificially produced image altogether, and you just get lost in the story."

The division was not absolutely strict – Koenigswieser used ALEXA Mini for some low angles on the diminutive critters in forest scenes. And for some wide shots in the natural setting, he went with 65 mm film and spherical System 65 glass.

"Basically, the 65 mm shots are nature's point of view," he says. "You're seeing Christopher Robin as a small creature walking in that world. The 35 mm scenes are Christopher Robin's point of view and the general view of the forest. I really wanted to keep the language as consistent as possible within each world."

With the delicate balance of formats and the desire for an overall unified feeling, it was important for Koenigswieser to capture the digital imagery with the maximum resolution and colour depth. The ALEXA cameras and in-camera Codex recording were set up to record in ARRIRAW format.

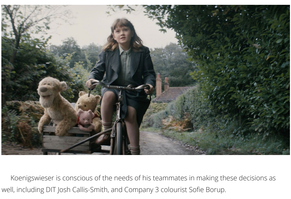
"The ARRIRAW format is massively important," he says. "With the heavy visual effects, you have to have raw. Also, I live very much in the lower end of the exposure spectrum when I shoot digital, so it's essential to have all the fatness of the data. I take it to the limit because I like digital when it's getting into underexposure. In the forest, with dappled light, you're dealing with tremendous exposure differences. You don't want the image to fall apart.

"That gets me closer to the aesthetics of film because you're really protecting the highlights," he says. "I usually shoot 1280 or 1600 ASA in the daytime, and then 800 at night. In extreme cases, I go to 500 at night in low light. So I approach shooting digital like shooting reversal film. It's a positive image, so you want to protect the highlights. Blown-out highlights I can't stand. And I enjoy the noise I'm getting from the ALEXA. You don't want to overdo it, but it's nice to have a bit of texture."

I felt that narratively there was a good opportunity to do mixed formats
Matthias Koenigswieser

Master cinematographer Conrad Hall once said that the job of the cinematographer was to push film stock until it began to fail – that's where the interesting images are. Koenigswieser agrees. "I realised that with early digital cameras, I had to step on it so hard and break the image to get something that could be mine, aesthetically. Each new camera that came out, I learned to change everything. It's my point of view that you cannot use a digital camera out of the box - it's a disaster that could not be any more boring."

The ALEXA is Koenigswieser's digital camera of choice. "The ALEXA is the best if you want quality pixels over pixel count," he says. "With colour, it's especially important – more important than resolution in my opinion. I never cared about resolution. Large format is intriguing because it allows us to use large format lenses and get that shallow depth of field – images with a different feel. So it's not about the sharpness of the pixel. We're actually now entering a new aesthetic realm, and that's exciting to me. But how many pixels we're squeezing onto a 35 chip, I couldn't care less."



Koenigswieser is conscious of the needs of his teammates in making these decisions as well, including DIT Josh Callis-Smith, and Company 3 colourist Sofie Borup.

"Josh is extremely supportive of my way of working," says Koenigswieser. "I'm a very analogue person and I don't micro-manage the DIT's work. I gave him his freedom and he gave me mine. The change from working on film to working digitally was sudden and extreme, but he is a very comforting person at that moment. He was great with helping me create the right LUTs when we were bouncing back and forth. Josh was key to the whole mission of creating a post-war world that wasn't too modern, and he was very sensitive to the photographic style of what we did in the forest. And it was nice being able to trust him because I enjoy operating the camera, and I didn't feel like I had to jump into the tent constantly to make sure everything was OK. I was very happy with the dailies."

With more than 1400 visual effects shots, the camera team needed to work closely with visual effects supervisor, Chris Lawrence, and animation director Michael Eames. "It's so important for the cinematographer, especially as our work continues to extend into the post realm," says Koenigswieser. "You need a strong symbiosis – the integration of these animals, and getting them as real as possible, required lots of communication. I really think when you see the film, you'll forget about effects and completely lose yourself in the story. It's pretty incredible what they do."

Cameras: ARRI ALEXA 65, ALEXA Mini
Lenses: Panavision G, C, E Series, System 65
DIT: Josh Callis-Smith
Post Partners: Company 3

CAPTURED ON
CODEX

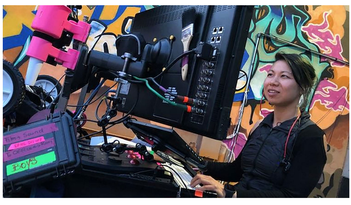
SUCCESS STORY: POLAR
CINEMATOGRAPHER: PAR M. EKBERG
RELEASE: 2019

DIT RANY LY'S TAKE ON VRAW

DIT Rany Ly talks to Codex about Netflix's *Polar*

Netflix's latest production, *Polar*, is an upcoming film adaptation of the action noir comics series written and illustrated by Victor Santos. Directed by Jonas Åkerlund, it's based on a spec script written by Jayson Rothwell. *Polar* follows the story of an international hitman, Kaiser Black, who comes out of retirement to contend with a group of young hitmen.

Codex had the pleasure of catching an interview with Rany Ly, an effervescent female DIT, who gave us a thorough behind the scenes look at her work on Netflix's latest film shot on the Panasonic VariCam Pure.



Describe working on *Polar*. Describe your setup and using the Panasonic VariCam Pure.
Working on *Polar* was a definite learning experience. Out of town, long hours, and it was my first time working with a non ARRI or RED camera. The menu system on the Panasonic VariCam Pure was different than what I'm used to and trying to decipher what it can do in the manual versus what it can do in real life was a bit of a new challenge for me. For example, in the manual it stated in Hi-Speed mode it can do 60-120fps, but what it didn't say was that it can only do increments of the base frame rate - not like the RED or ALEXA where you can type in the frame rate. Formatting new mags and entering our cavalry was a challenge, the Pure needed a mag to be formatted in a specific way in the Codex Vault, otherwise it was unable to format in-camera.

Codex support was also very helpful and got me the licenses to the Vault very quickly
Rany Ly

M. Fawcett at Panasonic and Ken Rice from Sim were very helpful with the process. Since this was a Netflix production, they had specific requests, such as MD5 checksums. Offloading RAW .vrw files onto Codex mags with MD5 was very time consuming. My days were long and we also shot a lot of footage as well. I believe it was around 6 hours of footage a day and as high as 120 setups a day.

When it came to colour space, I had the amazing help of Nick Paulozza from Deluxe Toronto who helped me figure out the range and the curves. Steve Mahrar from Panasonic and Nick and I collaborated to help the colour space work better in certain conditions.

In the Pure's menu system, having the choice to choose SDI settings between 3G and 1.5G was amazing. Also, the Panasonic engineering team were always at my disposal, with someone aiding me in nearly every time zone. They were willing to help whenever we had issues.

Being able to build a beautiful LUT in a legal space for the show was a success as well. The show LUT was beautiful, based on the Kodak D65 film look. The dual camera ISO mode was an amazing help. It saved time and it was not noisy to just bump up to 3200 base ISO. The highlights were beautiful - anything that had a little shine/ sweat on the skin tone - it just popped. The camera certainly is great for low light and creating beautiful colours.

Codex Support was also very helpful and got me the licenses to the Vault very quickly.

For my setup, each camera was a client on a wireless network. The mobile network stick was built by another DIT, Jasper Vrakking. And with this setup, I could use Pomfort Livegrade to control the CDL in the camera, offload the mag via MD5 program via Terminal, take footage and put it into DaVinci Resolve, import the CDL into the first node under the ShowLUT node, and colour and nitpick in Resolve - then export the project file for Deluxe Toronto packaged with reference stills and footage. The DP also gets a still from every setup so that he can see his looks from the day.

What has been your proudest production?
I can't say the name, but I remember the DP saying he doesn't usually work closely with DITs, but wanted to hire me because the camera team wanted a DIT. In the interview, he said he wouldn't come to my tent at all – however, after he realised that I was able to live grade, 1.5 week in - we were working side-by-side.

How do you feel about managing RAW workflows?
I like working with RAW because it's less intense during playback, it is less processor intensive compared to other formats. I use Resolve to do my grades for dailies, with the PURE, Resolve converts it the .vrw files to DPX frames. Even though it didn't have any raw control at the time, I was really impressed by the colours and the ways I can push and pull a certain element. The only challenge I saw (working with RAW) was the MD5 offloading part.

What's in store for you over the next few years? Do you have any projects that you can discuss?
There's a few potential projects, but nothing is set in stone until the first day of work. However, I am lucky enough that on *Polar* I was able to work with a super awesome camera crew and made new friends. Friends who support my personal projects. (My personal project currently consist of training to be like Jackie Chan.)

What's your favourite thing about being a DIT?
My favourite thing about being a female DIT is that I can make as many "dirty" jokes as I want. There's no expectations about being reserved or conservative – especially since I'm a woman. It's very empowering to be a female in a male-dominated industry.

Polar is expected to premiere on Netflix in 2019 and stars Mads Mikkelsen, Vanessa Hudgens, Katheryn Winnick and Matt Lucas.

Camera: Panasonic VariCam Pure
DIT: Rany Ly

SUCCESS STORY: *THE HOUSE WITH A CLOCK IN ITS WALLS*
CINEMATOGRAPHER: ROGIER STOFFERS
RELEASE: 2018

STRIKING VISUALS ABOUND

DoP Rogier Stoffers' inventive and rich visual take on *The House with a Clock in Its Walls*.

***The House with a Clock in Its Walls*, the Amblin Entertainment feature film starring Jack Black and Cate Blanchett, has earned close to $100 million in its first three weeks of release.** Made for less than half that amount, the project required an inventive and collaborative approach to cinematography and visual effects. Director of photography Rogier Stoffers and visual effect supervisor Louis Morin worked with director Eli Roth to create a visually striking style with comparatively limited resources.

"It was essentially a Tim Burton-style movie without a Tim Burton-sized budget," says Stoffers. "Neither Eli nor I had ever done anything quite like it."

Stoffers's varied background includes a Golden Frog at the Camerimage Polish film festival for the memorable Dutch film *Karakter*, as well as Emmy and ASC Award nominations for *Hemingway & Gellhorn*. Other highlights of his resume are *John Q*, *Quills*, *Disturbia*, *School of Rock*, and *Brimstone*.

The House with a Clock in Its Walls takes place in a creaky old house with a mysterious ticking heart. Bringing the tale to life meant big studio sets, major visual effects, and a strong comedic element.

It was essentially a Tim Burton-style movie without a Tim Burton-sized budget
Rogier Stoffers

"You want to be in the story with the little kid," says Stoffers. "We often shot with wide lenses with people moving within the frame, so you see a lot. It's almost an old-fashioned approach, but it was nice to differentiate it from the way so many smaller movies and television films are made now. Economics and time restrictions often mean that you have to shoot with longer lenses, and the camera is less of a storytelling element. On this film, we wanted to take people on a journey using the camera and lenses."

The cameras were ARRI ALEXA XTs, with ARRI/Zeiss Master Anamorphic lenses. Stoffers insisted on shooting anamorphic "to get that richness."

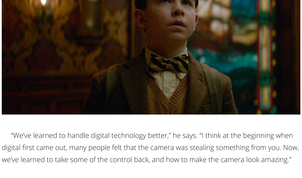
"What I love about doing close-ups on a wider lens is that you can place people in their environment, yet still make it about the face, and get that presence," he says. "I was very lucky to get Greg Irwin, an amazing focus puller. I could shoot the movie almost wide open, which wouldn't always be possible."

Codex recording within the ALEXA XT enable capture in the ARRIRAW format, which was essential, he says.

"It's fantastic that we can shoot RAW now because it was only about three or four years ago that people would have a heart attack if you mentioned RAW," says Stoffers. "In theory, the difference between ProRes and RAW is not that big, if you just look at the image. You don't see that much difference to begin with. But in reality, the control and ability to change and influence the image later is a major advantage."

Stoffers manages colour on-set, working with LUTs he has developed over the past several years that are adapted for each project. His DIT was Mark Gilmer, a frequent collaborator.

"When the ALEXA XT first came out, cinematographers were worried because the camera could see everything," Stoffers says. "The LUTs I've developed have much higher contrast. In the dark house with wood panelling, you don't even see it unless I put reflections in. That way I can choose what I see. It gives me more of a film-like look, and you really have to light. It's a beautiful look that is almost like drawing on paper. It's not right for every movie – sometimes you can lose the presence of things. To me, choosing the LUT is like choosing the film stock. I try to see every image I make as if it's a little painting that I only have so much time for. I strongly believe that I can only do it in camera. That way there is some consistency throughout the whole movie."

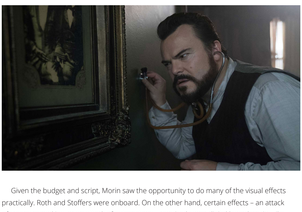


"We've learned to handle digital technology better," he says. "I think at the beginning when digital first came out, many people felt that the camera was stealing something from you. Now, we've learned to take some of the control back, and how to make the camera look amazing."

It's fantastic that we can shoot RAW
Rogier Stoffers

"Production designer John Hutman's house set was ingeniously built," says Stoffers. The shoot had to be planned around the 10-year-old lead actor, Owen Vaccaro. And visual effects were a major consideration. Morin, whose credits as a visual effects supervisor include *The American*, *I'm Not There*, *Wonderstruck*, *Sicario*, *Beauty and the Beast*, and *Arrival* was a constant presence, which Stoffers says made for a smooth communication.

"Louis was right there with the team throughout the project," says Stoffers. "As a result, he was aware of what we liked and what we didn't, and what we were trying to do. I learned a lot from him. It was a great experience working together like that."



Given the budget and script, Morin saw the opportunity to do many of the visual effects practically. Roth and Stoffers were onboard. On the other hand, certain effects – an attack of creepy pumpkins, or an attack of automatons – required some digital legerdemain. Like Stoffers, Morin points to a learning curve in the early days of digital production.

"When I started, we were shooting everything on film," says Morin. "When digital first evolved, I thought it was going to be so easy – but it was quite the opposite. In the beginning, it was extremely complicated as far as workflow. Now, the ARRIRAW workflow is one of the most stable and user-friendly systems there is. The quality of the images is very good at low levels. We do use a lot of light because we want our actors to look great, but we have that extra range. You don't have to empty the lighting department to light the night scene anymore. You can keep darker blacks and still have visual information. And it's very important for us that the workflow works well and everything is efficient."

Morin says that the film required extensive changes and additions in post production, where the rich ARRIRAW files made the work easier. Stoffers did the digital intermediate at EFilm with Mitch Paulson.

The film was number 1 at the box office on its opening weekend. Critics compared it to past Amblin hits like *The Goonies* and *Harry and the Hendersons*. Stoffers has since gone on to *A Dog's Journey* with director Gail Mancuso, and Morin is currently working on *The Aeronauts*, an adventure story starring Felicity Jones and Eddie Redmayne.

Cameras: ARRI ALEXA XT
Lenses: ARRI/Zeiss Master Anamorphic
DIT: Mark Gilmer
Post Partners: EFilm