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Paul Thies: One of the earliest, and some say the first, science fiction films in movie history is the French film, *A Trip to the Moon*. Released in 1902, the film was written, directed, edited and produced by French illusionist Georges Méliès, who also starred in the picture. Widely celebrated in its day for its production values and special effects, the production staff included just two camera operators, a costume designer, and an art director. Contrast that to today's blockbuster films, which employ thousands of highly specialized artists and cutting edge technology to create stunning visuals that push the envelope of what's possible. How films of today get made is an awe-inspiring mix of collaboration and a constant drive for process and technical innovation.

Hello, I'm your host, Paul Thies. On this episode of *If/When*, my guest was Todd Busch, first assistant editor at Marvel Studios. Todd's career as a film editor and visual effects editor has spanned three decades and has seen him assigned to some of the most iconic film franchises in movie history, including films in the *Star Wars*, *Spider-Man*, *Terminator*, and *Fast & Furious* franchises. He recently finished an assignment as the first assistant editor on *Guardians of the Galaxy Vol. 3*. He shares with us a behind the scenes look at the incredibly complex mechanism of teams and technology necessary to pull off these marvels of cinematic entertainment.

Todd, thank you so much for joining me. I know you've been really busy lately, just finished wrapping work on *Guardians of the Galaxy Vol. 3*. Before that you were working on some of the Marvel shows and the DC shows like *Peacemaker*, and then, of course, *One Division* and *The Falcon and the Winter Soldier*. Really excited to be able to sit down with you and get an inside look on how movies are made and all the hard work that goes in on that. Thanks so much for taking the time with us today.

Todd Busch: Thanks for having me, Paul. Yes, I'm excited to be here.

Paul: Let's dive in. Can you tell us a little bit about the work you do at Marvel Studios? You're an assistant film editor. Give us an inside look on how movies get made.

Todd: My work at Marvel comes through being hired for hire by the Union as a Local 700 member. The editors actually hire their assistants and the studio and director, particularly in this case, which James Gunn, hires his editors. It's kind of like once our guy, mine being editor Fred Raskin, gets hired and has the job then, I follow suit and jump on and start getting things ready for us to go. Usually we start about a week before production. In this case, because Fred Raskin works-- He's been working with James since the first *Guardians* movie, so, for quite some time. We were finishing *Peacemaker*.

Actually, to be honest, Fred came off of *Suicide Squad*, which they were editing right through the pandemic, and we jumped on *Peacemaker*, which James wrote during the post-production on *Suicide Squad*. Fred was finishing the mix on *Suicide Squad* and editing the first couple of episodes of *Peacemaker*. Actually, it got to be so much so that he was throwing a few scenes to me on the second episode because James had wanted him to focus on the first episode to lock that one up. We had a template

for what that series was going to be like. I got to do a little bit of cutting on that second episode of *Peacemaker*.

Then, during *Peacemaker*, of course, we were getting ready doing screen tests and things for *Guardians*. *Peacemaker* was about a year long. At the end of that, we were tailing off into *Guardians*, which started at Marvel. Again, it's like all these things were going on in the background, but for me, I was able to jump from, say, HBO Max over to Marvel Studios. I had worked there before, so I know the post-team and a lot of the people over there, and in particular visual effects, because my previous experience had been on, say, *Falcon and the Winter Soldier* was pre-vis, leaning towards visual effects.

WandaVision and *Spider-Man: Homecoming* were both in visual effects, so this was a slight change for me. What was exciting was that I got to be part of the team working with visual effects. I feel that there's sometimes a bit of a-- It's an interesting mix between visual effects and editorial, because the work that the editors do greatly impacts visual effects. As the process goes, both turnovers and lock sequences necessary for visual effects to turn over to their vendors, is imperative and fundamentally based on the editors locking these sequences. The better and the closer that these two departments can work, the better for the project.

Quite frequently, because both departments have their own deadlines, and the editors are not always looking forward to making a turnover date weeks after a year-and-a-half long post-production schedule, in the terms of like, *Guardians of the Galaxy*, the first thing that was shot was the motion capture flashbacks of Rocket. Not to give anything away, but there's a lot of back story to Rocket in the movie. The first two days of the shoot were actually slated as the test shoot days. We shot the sequences all on a mocap stage for Rocket, and those sequences had to be turned over.

Just for a context, production started in November 2021. Those sequences needed to be delivered to Framestore by May, I believe, of 2022. I only got about a month after production ended. Those things had to be locked and delivered, and Framestore was going to start working on them before we were anywhere near a first assembly. It's those kinds of things that impact these departments and sometimes create stress between these two departments. This project was phenomenal in that we worked very closely with the Visual Effects Department, and successfully.

Of course, it helps because we had a great lead over there. Steph Ceretti was the visual effects supervisor, and Susan Pickett was the producer. They've both done a number of Marvel films. They were very prepared on set and with all their delivery material and the vendors they worked with. Needless to say, we all got along really well, and it was a really nice journey with that whole team.

Paul: I've got to imagine that you have, in your career, you've also served as a visual effects editor, too, if I'm not mistaken. I'm assuming that that helps inform some of the work that you do as a film editor and vice versa. You understand those disciplines and how they work together. I know enough about just having seen how some films have come together and how they're chopped and cut and everything and film editing. It really is an art to be able to draw forth the story from, I think sometimes, hours and hours of footage. You talked to us a little bit about what it's

like dealing with the pressure of working on a huge blockbuster project like this. You're getting all this footage and whatnot, and visual effects footage and things. What's it like to try to pull that all together knowing there's a lot of money, there's a lot of pressure, and there's a lot riding on this?

Todd: Well, we have a great crew that I got to work with. I'll start off just naming them. The editors were Fred Raskin and Greg D'Auria. They also were two of the three editors on *Peacemaker*, so we had a good run. Those two have actually worked together for a number of years. Greg assisted Fred years ago, so I've stepped into Greg's shoes now, assisting Fred. Then my co-first assistant was Jeff Steinkamp. We also had two seconds, which Erin Lynn Horst and Madeline Crusher and Mary Moll was our apprentice. Also, during production, we had three second assistants back in Atlanta that were just handling dailies which actually was really nice because they were three hours ahead. By the time I got into the cutting room, a majority of that work was already done. Those assistants were Rick Ives, Andrea Nieto and Jenny Lindamood. We had a good team in editorial. Then to your question about how we get these big Hollywood movies made, editorial is the hub of all of post-production. That includes visual effects, sound mixing and editing, music. All the departments look to us to deliver the current edit. We have to track both the visual effects as things are changing and the edits and which version of edits have gone to all these other departments.

As they change, we have to update all those departments regularly. Also another thing that was happening which is a part of sound is ADR. Frequently, James would be changing a few lines, adding some lines that were necessary for the storytelling of the movie. Those would be added to our database of material that needed to be re-recording for technical issues and we also know the actors also do efforts and other things. We're constantly collecting which actors need to do which lines and then scheduling all that. There's all this that's going on behind the scenes, that's in just a constant flux, and not withstanding all of the visual effects because they're constantly doing daily updates to each shot.

Early on, visual effects on their end it's a little quieter for editorial. The vendors are developing the look concept art, the 3D models for all the characters and sets and everything. Then as production goes forward, they start implementing that material into shots. The first cut of the movie-- I would say there's three big sections in the flow of how post-production works. We have production when we're receding all the dailies. Then we have the director's cut, where the footage is assembled and we for the first time see the movie all as one entity one thing.

Then once we have the movie, we screen it, we have audience screenings and really tighten the movie because I think our first cut of the movie was maybe 2 hours and 50 minutes. The final cut is 2:30 with credits. I think we got it down to 2:20 just from picture in picture out. That process of trimming the movie occurred while we were doing our screenings. I think we had six or seven what they call friends and family screenings at the studio. Then once that movie gets close to being locked, we go into the final phase which is the mix and the final turnover.

Paul: Let's talk about teamwork for a little bit. I'm amazed at how complex today's filmmaking process is and so by way of comparison, one of my favorite movies of all time is *Jaws*. I love *Jaws* and Verna Fields who is the front editor of that movie.

She's legendary, and she really doesn't get the credit she deserves, everybody focuses on Steven Spielberg and John Williams, but Verna really her hand is all over that movie. She really brings the story together and the cuts and things.

The reason I bring up *Jaws* is it's a running joke with me and one of my daughters, we love *Jaws.* We watched the end and when you watch the credits at the end of Jaws, there's like maybe a dozen people. It's very short credits. It's amazing and you contrast that with today's blockbusters, and they literally seem to employ thousands upon thousands of people. It's like a small country, basically. Let's talk a little bit-- We'll unpack some of the technical changes that have-- How you keep up with new technologies and that sort of thing, but let's first talk about teamwork.

You mentioned all the great people that you're working with. Given how complex today's modern blockbuster is, how have you seen it change over the last 30 years or so that you've been a cinematic professional of working together and all these different crews and bringing it all together to successfully bring home a finished product that's very satisfactory and everybody recognizes is a great movie? What's the secret sauce of getting all these teams, in your experience at any rate, get them talking and working together towards a common goal?

Todd: As you just mentioned, I've been working in the business for 30 years and when I started, it was the early '90s, and we were still editing on film at the time. The system that is used to edit movies these days is Avid, and that didn't come out until 91. In 1993 it took over television by storm and was able to handle the short sitcoms because of the disc storage issue. That was something that was new. When I started, I was working for Lucasfilm's EditDroid company and what they were doing was putting the media on laser disks. They'd sync it and transfer it and then you could edit those, but you could only do a scene or two, and then you'd have to reload the disk players and then you could jump to the next scene. It really wasn't practical for a feature film when you're intercutting and decide to move this scene from the end of the movie to the middle or something.

Avid was a system that accessed multiple hard drives and eventually could store an entire movie. In my first feature was in 93, the *Radioland Murders* which was done up at Lucasfilm, and that was-- At the time, it took 40 minutes to boot up our computer. By near the end of the movie, let's say when all the footage was available to us, and we could only-- Even on the hard drives, we could only see three quarters of the film. The editor would let me know he and the director were going to work on the front half of the movie that day or the back half of the movie that day.

Then they did reshoots and there were characters that were scattered throughout the movie as reoccurring characters, so I had to put that on a Scuzzy hard drive that they could access all the time, so that he could intercut that into both halves of the movie. That's where we started. Through the years, they've integrated the machines so that the Avids could be accessed by multiple editors and assistants at the same time, and that was something that I was part of beta testing the hardware necessary for navigating all these drives.

This began the communication that just in editorial, editors would start developing systems where they would version their sequences. They would hand off sections to assistants to work on sound simultaneously while they were working on picture, and

then also going out to other departments. The Avid system had very good lists for delivering to sound, so that sound departments could be working on stuff and this that and the other thing.

This process has constantly been improved to the point of where today on *Guardians*, one of the big innovations on this movie was to incorporate sound into the Avid, the sound mix. Once we got into the director's cut, it was decided that-- What normally happens in the past is that when you get near the end of the movie and you're going to start screening, they would deliver a cut to in our case Skywalker Sound. David Acord was our supervisor. They would receive the reels and edit and mix these reels.

Although they're constantly evolving, they would start working on them, budgets and schedules as they are and because Marvel likes to do multiple screenings there on the lot, we were limited. In fact, they didn't want to do any mixing until we got into the final phase of the film.

From Fred's experience, Fred Raskin, talking about the editor, was very involved in the mix for *Peacemaker* because James was already working on *Guardians*, so he couldn't be present at the mix. Looking forward, he knew that James was going to expect and prefer a 5.1 mix for the screenings, being the best that we could get out of our Avid system. The Avid is now such that you can actually work in stereo, the editors could work in stereo because that's the format that they deliver edits to James. Who actually was in Aspen prior to him coming out to LA to transition over to the DC world. Once they wrapped production in Atlanta, James got a place up in Aspen.

We were working remotely, something carried over from COVID that James really prefers and like s to work remotely, so that that was something that we were doing. He was looking at cuts in stereo and in the background they're over at Disney Studios. We had three guys, well they were consecutively mainly because of their schedule moving to and from other movies. Those guys I should give them credit. There was Chris Diebold, who began the process and he's actually a trailblazer in doing this process.

Then Ian Chase and Ron **[unintelligible 00:21:22]** came in after him. Chris is now working with another editor Dan Leventhal, and Chris who on our our film what the trick was, was these guys who are mainly familiar with Pro Tools that's the system that's used for editing sound. They had to learn the Avid and they were editing and mixing in our reels on the Avid. They had their own space and their own 5.1 setup and we could turn over a reel to them and they would make a pass or or a section of a reel and they could make a pass, and mix that in 5.1.

Then when we got up to a screening rather than what the old model was, is to walk or latch a reel and turn it over to sound and have them begin working. As we get that week prior to a preview or screening, a picture edit might change. Every time it changed we'd have to send an update to the stage and the stage would have to conform and then the director editor would go to the stage once that reel is mixed and watch the reel.

There becomes this whole other process for them. All of that was being done in the Avid. The guys Chris Diebold doing the sound would mix right there and Fred would be working in the same reel. He could get an idea in stereo, what the 5.1 was like, at least where the sound was and the design effects. Then prior to the screening he Fred Raskin and Greg the other editor would come in and sit with the sound editors on the Avid, and listen to the 5.1 version of that. What they've been hearing at home.

It greatly improved and sped up the amount of time that it took to do the sound post. This was a huge innovation. The other editor that's utilizing this process right now is Dan Leventhal. He finished *Dungeons and Dragons* and now I think I mentioned that Chris Diebold who was our editor, he's sound supervisor on this new *Beverly Hills Cop* sequel that Dan Leventhal is cutting.

It's a new wave of opportunity for **[inaudible 00:23:48]** sound editors to be doing something like that because that's a big responsibility. That was something that was really new and made available to think that years ago when it was so difficult for two or three Avid systems to be working in unity, we now had multiple departments working on the movie simultaneously. It's a big advance.

Paul: Well, let's unpack that a little bit because I think analogous to what we see in other industries, there are experts who they have built their careers around certain technological platforms, certain ways of doing things. Then when you come in with new technology, even when it's a benefit, it's disruptive, because you have to like there's that learning curve and you have to learn how to not just master the technology but work it into your workflow and all of that.

I imagine in filmmaking, in particular, especially the filmmaking that we see today, where every year it's like the audience is just it's never satisfied. It's like we need more, we need more over the top effects and things and it's you've got to continually wow us. There's this pressure I think for the technology to just always be pushing forward, which then puts pressure on professionals such as yourself to keep up with the new technologies, new ways of doing things, these innovations like you're saying. What's been your take on that? How do you keep up to date on these new technologies and how do you contend with potential disruption for your craft and keep it all in check?

Todd: It's been a challenge since the beginning, and when I like said when I came in film was in its death rows, and the digital technology was just waiting at the door to come in. I knew that, and I enjoy making movies, and I knew if I wanted to do that I needed to learn whatever was the latest. I feel like early on there were competitors say for post-production. With editor there were multiple laser disks and videotape editing systems.

Then once the Avid came out, there was a light work system, there was a couple of other digitally based systems, and the truth was is that the Avid had a huge financial influx of cash that gave them a head start. Also it had that this certain aspects of the architecture and the list based system made it a better tool for as like I said editing's the hub of all these different departments. In order to communicate with them you need at the time it was you needed to turn over lists and later on it just became edits and time code and this kind of thing.

We still do change lists which are in a digital pdf, digital paper format, but they still kick those out of an Avid for departments like music and sound. All of this made Avid the tool that if you understood what it took to get a movie made, which is communicating with all these different departments Avid was the one you needed to jump on. It was stuff like that early on, that I understood. and would get in debates because with other editors or assistants because the other editing systems had a nice interface and they did.

Certain editors liked when they're editing the flow of their work, they prefer this system or that system. It's just you have to look at in the long run what is it that's going to do the job that makes this industry as large as it is now manageable. How do you communicate with all these departments? In that case it was the Avid. Through the years there were a number of times where we tried a variety of different things. In my each show I would try and implement something a little bit different, to try and speed up the process.

What's interesting is, and as we're talking about sound with these guys doing the sound work, you tend to lean towards speeding up a process that eliminates a person in the process because that extra person is obviously having to do an extra task, which takes more time, but then what I've also found is that as we streamline the process, there's multiple features, tools, other opportunities for the assistance or sound or visual effects for these other artists to use, to feed into the storytelling process.

We have visual effects editors doing rough temp comps and they'll jump onto after effects or other tools to do comps. We have again now the sound guys that were helping us do this the 5.1 mix. They were helping speed up this process and give us a really good sense of in *Guardians* you have all this fantastic sound design, and great music from John Murphy. He was writing new score constantly, and James would listen to it, and give him notes and we cut it into scenes. All this is happening simultaneously and kept in check and on track with our sequences versions and the time code for each reel that's sent out to all these departments. This is how we're speaking to each other, and at the end of the day, all the visual effects and all the music and sound, everything drops into the edit and we screen it. On the day, it's got to be all in sync and happening and working just the way that James wants it to. The point is what I found is that as we speed up the process and eliminate people, we create new opportunities for more people to enter into the process, and that's what you're seeing in these credits. You're seeing where we're going-- Actually, I would say more than 50% of those credits are visual effects houses.

What you're seeing is all the people at these other vendors, these outside companies contributing to the movie, and each vendor"s doing different sequences. Victoria Alonso has been really good, she was the head of visual effects over there at Marvel, has been great about being sure that all the artists who contribute to the movie are in the credits. That's what you see. It's a good thing. It's a cool thing because those artists love to see their name even though they're a little bit buried sometimes. They're a part of the process, and they're part of the movie. They like to see their names up there on the big screen, but I do think in the long run the technology has never made it easier but has created more opportunities for artists to contribute to the storytelling process.

Paul: Fascinating. Well, Todd thank you so much for taking the time to sit down with me. I know you're in the middle of another film editing assignment. Seems like you never rest. There's always the next movie and the next movie and the next, but I really appreciate you sitting down and wish you the very best with *Guardians 3*. It's a tremendous trilogy and so I'd love to see it succeed and all the hard work that you and Fred and everybody else on the team put in to bring James Gunn's vision to life. Thank you so much for your time today.

Todd: Thanks, Paul. Happy to be here.

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