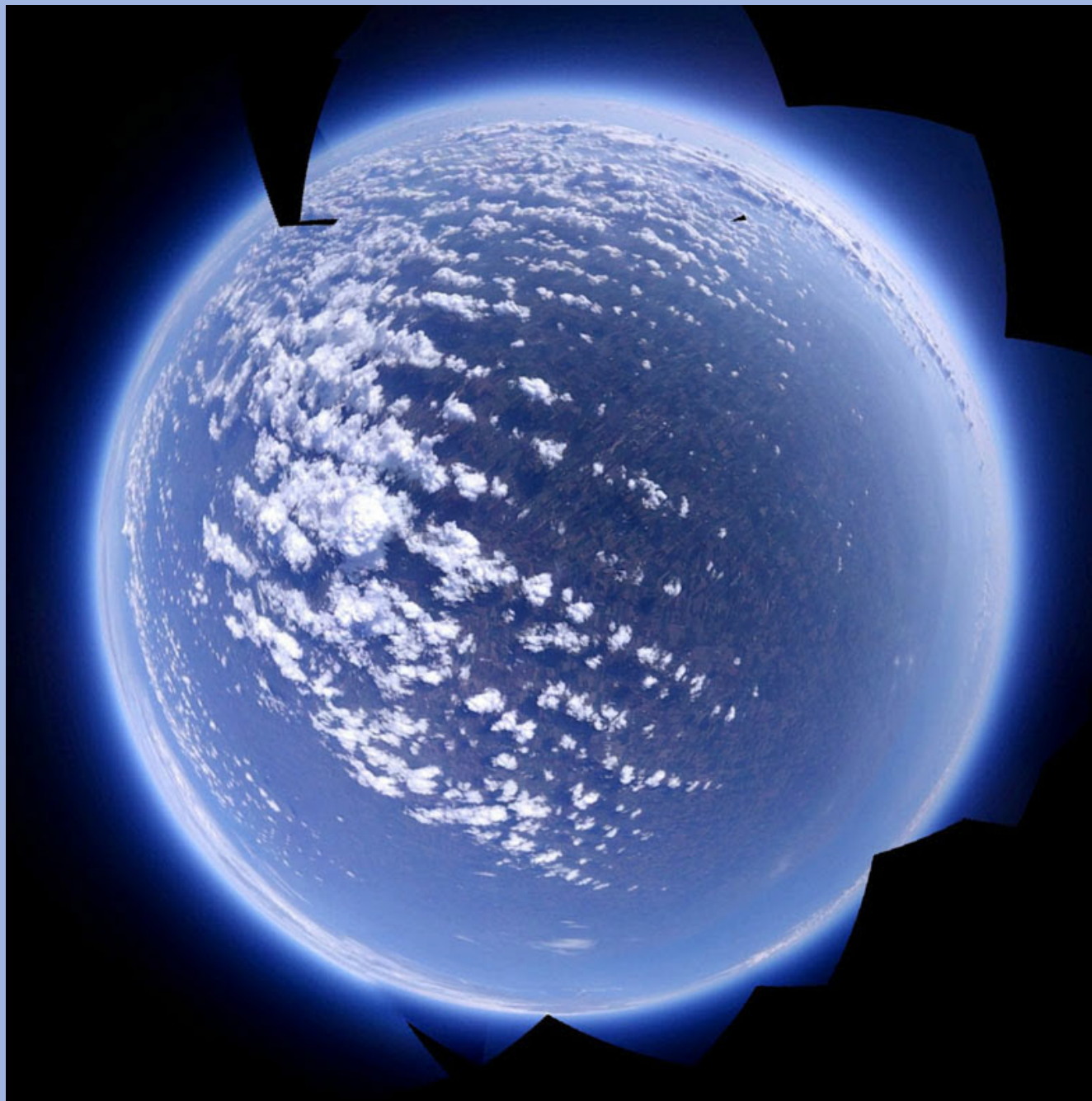


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PANORAMA

OF AMATEUR FILM & VIDEO

SUR LE FILM ET VIDEO



The Publication of the SOCIETY of CANADIAN CINE AMATEURS / SOCIÉTÉ DES CINE AMATEURS

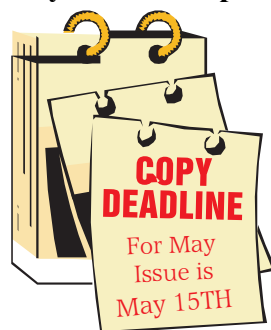
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Stereographic Panorama

By Alexei Karpenko



Editorial Board

Fred Briggs

Layout, Design
Fred Briggs

Distribution
Jim Town

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**NOTE
VACANCY!**

**ANY
VOLUNTEERS?**

Executive Panel

Honorary President
Christopher Chapman, C.M.

President

Fred Briggs, FSCCA
3 Wardrobe Ave. S.
Stoney Creek, Ontario L8G 1R9
(905) 662-4406

Pres@sccaonline.ca

Past President,

CIAFF Festival Director

Jon Soyka, Hon. SCCA
P.O. Box 60554
Mountain Plaza Outlet
Hamilton, Ontario L9C 7N7
(905) 388-5840 Fax (905) 388-5840

Director@ciaff.info

Eastern Vice President

Ben Andrews, Hon. SCCA
Box 10 Main Station
Barrie, Ontario L4M 5E1
(705) 737-2729

EasternVP@sccaonline.ca

Western Vice-President

David Fuller
5328 Arbour Lane
Nanaimo, British Columbia V9T 6E5
(250) 751-0142

WesternVP@sccaonline.ca

Secretary

Thom Speechley, FSCCA
#19 - 295 Wilkins St.
London, Ontario N6C 5C1
(519) 685-6197

Secrty@sccaonline.ca

Treasurer

Carolyn Briggs FSCCA
3 Wardrobe Ave. S.
Stoney Creek, Ontario L8G 1R9
(905) 662-4406

Treas@sccaonline.ca

Contest Chairman

Keith Gloster, ASCCA
10 Seneca Cres.
Brantford, Ontario N3R 1K2
(519) 752-5745

ContestChair@sccaonline.ca

Membership Chairman

Jim Town
540 Ingersoll Avenue.
Woodstock, Ontario N4S 4Y2
(519) 537-2014

Membership@sccaonline.ca

Publicity Officer

Fred Briggs FSCCA
3 Wardrobe Ave. S.
Stoney Creek, Ontario L8G 1R9
(905) 662-4406

Pres@sccaonline.ca

Film & Music Library

Fred Briggs FSCCA
3 Wardrobe Ave. S.
Stoney Creek, Ontario L8G 1R9
(905) 662-4406

Pres@sccaonline.ca

Honours Chairman

Thom Speechley, FSCCA
#19 - 295 Wilkins St.
London, Ontario N6C 5C1
(519) 685-6197

HonoursChair@sccaonline.ca

PANORAMA Editor

Joan Bochsler, ASCCA
475 Caithness St. E.
Caledonia, Ontario N3W 1E3
(905) 765-5408

Panorama@sccaonline.ca

Video Librarian

VACANT

PATRONS

T.V. Adams*
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PRESIDENTS MESSAGE



Photo by Joseph Bochsler Jr.

Fred Briggs, FSCCA

Things have been running rather smoothly lately, and there isn't a lot of weighty information to report.

A few last stragglers brought their Membership Fees up-to-date, and a very few declined to continue their membership for various personal reasons. Now with no members remaining uncommitted, we'll be able to update the SCCA Membership Roster and distribute it to you shortly.

The Entry Rules and Form for the CIAFF have been overhauled and are now available on the CIAFF web sites, <http://ciaff.org> and <http://ciaff.info>.

The Annual SCCA Contest Chairman has been away, but we expect to have the 2010 version of the Rules and Entry Form available very soon at <http://sccaonline.ca> and <http://s-c-c-a.ca>.

Next I'll have to work on getting the May, July and September 2009 PANORAMAs up on the web sites where they will be available to one and all. And then it will be time to get going on the May 2010 issue!

We're always looking for more contributors for articles, or even requests for things you'd like to see covered.

And so, with nothing pressing to add, I'm relinquishing the remainder of my allotted space to that 3D nut who never seems to be able to get to the point and finish his articles in the space available! ■

DUCK! COMIN' ATCHA! *Continued from Page 16*
man can't see 3D at all, but all the clues are there for him except triangulation from both eyes. I don't know anything about any real experiments one one-eyed people, but I suspect that they do have some depth perception, though I will concede that it won't be improved with stereoscopy! Beyond that, I have no doubt that there will be

differences between people in the strength of the perception of the third dimension, though I don't know how to measure and quantify the strength of the perception.

I do know that most people can train themselves to see 3D by what is called "[free viewing](#)" of stereo pairs. (You can find several web sites explaining this and guiding you if you Google *stereo free viewing*.) With practice I developed that skill at one time, but have long since neglected it. Many people were disappointed with those brief experiments on American network television, probably because they were short and some people need a little practice. If at first you don't succeed, try it a little longer, and on successive evenings, and I'm sure you'll find it works. To make your own Pulfrich Viewer get an old pair of sunglasses, pop out, push out, or smash out, one of the lenses. If you accidentally brought home one of those Real D 3D glasses in your pocket when you went to see Avatar, you can use those too. Those lenses are tough flexible plastic so to remove one you will have to cut up one lens with a box cutter or utility knife. Slice it into triangular pieces, cut out the middle, and then grasp the remaining segments and just tear them out with your bare hands. Crude, but effective. These lenses are lighter (shade) than the very dark sun glasses I generally use, but they work, although the 3D effect isn't as strong. Those Real D glasses are larger than normal sunglasses as they are made to fit easily over your own glasses if you need them, and they are very comfortable to wear with or without prescription glasses.

Something remarkable happened when I first began to wear Pulfrich glasses for watching television each evening. At first I saw the effect very quickly, and by spending an hour or more each evening wearing the glasses I reached the point in a week or two where I was able to see the effect **EVEN WHEN I WASN'T WEARING THE GLASSES!** But the biggest surprise came when I noticed that flat photographs of people in Time Magazine were in 3D without the glasses. Their noses stuck right out from the page! All the clues are there except a stereo pair, and it even worked with the black and white pictures. When I stopped wearing the Pulfrich glasses every night, both phenomena soon disappeared.

While I'm very impressed with the Pulfrich Effect, I must admit that not everyone was thrilled with the some of the large scale trials on American Network Television. Some of this may be because the segment was too short for the public to get adjusted

to it. I also believe in my own mind that one at least illustrates that those with a very little knowledge are quite willing to con those with no knowledge and extract large amounts of cash from them. Those people who set up and supervised the Halftime Show in Pulfrich 3D were very careful to insist on adhering exactly to the theoretical requirements (based on the swinging pendulum rather than on experience with film or television). Everyone used identical glasses, and all motion was planned in the direction supposedly demanded by the glasses. I believe if they ran the experiment through the entire football game, and let the players play the game as they should, the longer exposure to the use of the glasses, and the greater variety in the kinds and direction of motion, on field and in the cameras, would have produced a far more impressive result.

That isn't to say it can't go wrong. I have seen two scenes on television that looked terrible because of the Pulfrich Effect. One was a marching parade in which each row of marchers turned and marched back between the other files of marchers. The result was several files of people marching in opposite directions, on telephoto. Wow! The other was kids racing small motorcycles on a track that reversed direction several times. There were several kids going from right to left, with several going the other way behind them, and several going the other way again behind them, again on telephoto. In both cases I quickly removed my glasses, but it looked almost as bad in 2D! These were bad shots with or without the glasses! There was also some of that effect in Avatar, with too many people swinging on vines going in different directions at different speeds in different layers of background. The shots were unnecessarily complicated as if Cameron was saying "Look what I can do!"

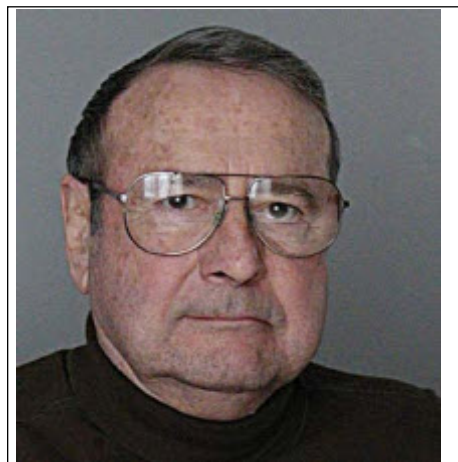
While I still want the real thing, the Pulfrich Effect will certainly tide you over until the real thing is available at an affordable price. And if they never come up with a way to turn 2D into 3D, we have our own way, and it's free. I just hope they don't come out with some variation on Pulfrich Effect with an expensive pair of glasses that isn't obvious because there are two lenses!

At the Joint SCCA/SAVAC Convention in Hamilton in 1993 I demonstrated the Pulfrich Effect, but I don't think people treated it seriously as there was very little feedback. At that same Convention, Stan White, the founder and Curator of the Canadian Stereo Museum, originally at Sheridan

Continued on Page 13

CLUB NEWS

By Thom Speechley FSCCA



This is a wrap-up of late winter club activities. Reports indicate that some clubs have good intentions for outdoor projects in the coming months. Others are talking seriously about preparing for the new season of competitions.

BRANT VIDEO MAKERS

Brant Camcorder News editor, Dan Kennaley

The scheduled subject for February was "Audio". This often-neglected subject will deal with all aspects of obtaining good sound for video production. Meantime, Dan Kennaley reports that he, Don Bradley and Randy Hinks have a small computer editing project underway. This will be an ongoing assignment. The subject announced for the March meeting is "Travel Video". Members are invited to bring in ten-minute clips of their own favourite travel records.

Dan Kennaley headlines his March newsletter with the title: "The Road to Hell is Paved With Good Intentions". He suggests that that could be the title of a video or the theme of a discussion on travel videos, which is the subject for the March 24 meeting. The newsletter contains reminders of many of the basic guides for good video, travel related or otherwise. Remember "Waldo", and take lots of shots of signs and recognizable landmarks to help the viewer know where you are. All this should make a great prep session for the coming vacation season.

BUFFALO VIDEO-MOVIE MAKERS

"Camerama" editor Chris Scioli

The January meeting was attended by almost two dozen people, a result of the still growing membership in the club. The evening was devoted to the showing of seven films. The first, "Anatomy of a Shootout", was helpful in its references to the use of 'storyboarding'. Two films by Alex Szatmary and one by Dan Copeland, both Hamilton club members, were also shown. Terry Kimmel opened an informal discussion on the subject of "How do you like to watch your movies". The question referred to 'where' and in what 'format' do you prefer to watch most movies. There were some interesting responses ranging from drive-ins to handhelds.

Guest speaker at the March meeting was John Harris, Hamilton club member and Professor in audio production at Mohawk College. He was introduced by Jon Soyka. His presentation was highlighted with a showing of a DVD transfer of the Andy Malcolm film "TRACK STARS". This film is a very helpful demonstration of the Foley process of creating sound effects for video production. Incidentally, this film is now available for viewing on both "Vimeo" and "[YouTube](#)". And while you are there, there are several other interesting videos on the same subject. Terry Kimmel showed the still controversial film from 1947, "Fireworks". Despite its "shocking" homoerotic subject matter, it still stands as a landmark film of its genre. It is reviewed [here](#), and you can see it on "YouTube" [here](#).

After the intermission Vice President Chris Scioli updated the Membership on the club's new digital efforts, which include the new BM-VM website www.bm-vm.com and the Facebook Fan Page. "This

outreach is geared towards furthering our goal of providing education, support, encouragement, assistance, and a showplace for filmmakers".

John Weiksnar introduced a subject which is probably going to generate a lot of discussion among serious amateurs in the near future. He writes: "We are barely into the HD/Blu-ray epoch and not even a year since the analog TV switchoff. Yet there is a new kid in town who's vying for our attention and dollars: 3D." John expects the technology to become very popular if the costs come down to anything close to current HD prices. An 'entry level' Panasonic 3D camcorder is presently offered at \$22,000!



Panasonic - Twin-lens Full HD 3D camcorder

HAMILTON VIDEO/FILM MAKERS

"Reel News", editor Dave Stewart

In his opening remarks, Jon Soyka devotes a full page of the newsletter to pay tribute to and to thank the many members who prepare the monthly refreshments, set up the equipment, follow up on membership matters and record the events both in word and with photos.

Starting with the new format, the February meeting was MC'd by Nestor Rosa. Another new feature introduced this evening was the Club's High Def projector and "Blu-ray" player. Those members now at that advanced level of video production may now see their work displayed in all its glory. The introduction was not without a few glitches, as the production crew, led by Jim Small worked through the extensive menus of both the projector and player. Two videos brought in for showing that night, could not be played or refused to be properly configured (aspect) for showing.

Dan Copeland introduced our guest speakers for the evening - Bill Reily and Steve Passmore of Smalltown Productions in Grimsby. They showed their 10-minute production, "Prick". Reviewer Jon Soyka, who now writes the Hamilton newsletter, feels that the subject

matter and it's treatment offer a good opportunity to review how films should be judged. He remarks: "Personally I feel that if you have to give a detailed explanation as to the meaning or content of a production, either before or after seeing it, then I feel that you have failed in your work. What do you think?" Food for thought.



February's guests, Bill Riley and Steve Passmore *Photo by M. Ernst*

A second film produced by Bill and Steve, "Nickel" was a very imaginative documentary style story about the life of a Canadian five cent piece from its issue in 1941 to present times. The video contains some interesting special effects created with the aid of Dan Copeland's camera crane.

Harold & Mary Cosgrove then showed their trip on the "Jewel of the Sea", a cruise liner in Boston and Bar Harbour. This was an unedited hi-def sampling which displayed the expected resolution of this format. Ken Davy's production titled "Pompeii" was shown next. It is a combination of video and still images. Ken and Iris made the trip in 2008 but when Ken realized he needed more material to create a complete production, he resourcefully located some still images and incorporated them. Rick Gaunt showed his musical and video talents with his "Over the Waterfalls", which was warmly received by the audience. Some suggested that it might be offered as a promotional piece for the waterfalls in the Hamilton area. Next, was a "Blu-ray" study of seasonal flowers prepared by George Gerula. Due to time constraints and 'set-up' challenges with the player, only a brief sampling was shown.

The final presentation of the evening was a video audition of an aspiring cast choice for the ongoing BBC production "Coronation Street". This had been shot by Paul Bentley, who brought it in for a critique. After the showing, he planned to remake a portion of the video, based on viewers' remarks.

The March meeting was MC'd by Paul Bentley.

Paul introduced two guests for the evening, Terry Kimmel of the Buffalo club and Robert Lypka, who composes musical scores for film and video. Jon Soyka made an announcement about the annual Hamilton 24HOUR film contest and Christine Whitlock reported on activities of her script reading group. The first film shown was a musical, "Gypsy Jazz", by Jack Simpson. Jack informed the group that this was his first editing effort using "iMovie 9" and invited members to offer criticism and suggestions for improving his work. Paul Bentley showed a severely edited version of his friend's "Coronation Street" audition, and the audience



Paul Bentley
Photo by Manfred Ernst

agreed that it was much more effective than the longer version shown at the last meeting. Evelyn and Nestor Rosa then showed their record of a rafting journey down the Colorado River in 2006. The audience enjoyed a brief reprieve from our Canadian winter. Rick Doelle then showed two very short HiDef clips from a trip to Bali and a visit to the abandoned Olympic site at Lake Placid.

A technical feature of the evening was Dan Copeland's demonstration of the still and video capabilities of the Canon Rebel EOS T2i. This demonstration prompted the comment from John Cook that he does not think that these 'hybrid' still/video cameras do a good job handling action. He feels there is too much digital motion artifact in most of the footage he has seen so far. He challenged Dan and Harold Cosgrove, who uses similar equipment, to a "shootout", filming an action scene from a common tripod setup.

He would like to see something arranged for shooting, outdoors, at the Legion Hall immediately before the next meeting. An audience of the members could offer their opinions during a showing of the results.

INSTITUTE OF AMATEUR CINEMATOGRAPHERS (IAC) **Film and Videomaker editor, Garth Hope**

Part four of Howard Gregory's excellent discussion of 'loud speakers' is featured in the February issue of Film and Videomaker. In this episode, he talks about speaker placement in halls and other venues, for optimal sound when showing film/video productions. The article points out the difficulties in producing sound which is intelligible and correct for the entire viewing audience. One key recommendation: "By and large, I would avoid corners, but a position against a side or rear wall can sometimes be a useful compromise."

There is an interesting report in this issue about a "North vs South Competition" amongst UK clubs. After the judging, the viewing audience was invited to try to predict the judge's results. It seems quite significant that the entry judged 1st by the judges was rated last (5th) by the audience. The judge's last choice, was voted first by the audience.

Tom Hardwick's feature this issue examines the possible demise of "tape" as a video medium. He cites the obvious advantages of solid state technology but suggests that this now reopens the questions of the best alternative for 'archiving' your productions. If tape does indeed disappear, does the memory card offer as reliable an alternative to tape and the other existing choices, such as HDD? The rest of Tom's article compares the professional Sony Z1 and the newer Z7, a hybrid which records simultaneously to both mini-dv tape and to a flash memory card. In this issue, Mike Shaw begins a two-part review of the latest version of "Band-in-a-Box". While it would be impossible to do justice to such a complicated program in



Photo by Manfred Ernst

a short article, Mike manages, in a six step tutorial, to demystify the most important and basic features of the program.

The April issue of Film and Videomaker continues the excellent review of "BIAB" by Mike Shaw. In another article in this issue, Mike adds a useful guide to choosing font styles and creating effective titling for videos. His primary rule is: "The presentation of the title should reflect the nature of the movie and complement it's mood". Mike explains the relative effects of font style, size, colour and placement. He also cautions about overuse of effects and title transitions which can adversely affect the viewer's response to the production itself.

IAC Chairman Alan Atkinson writes in his "Chat" column, that music copyright agreements which are part of the IAC membership benefits, have recently been re-negotiated. Current terms of use now extend to members' videos which may be uploaded to "YouTube" or which contain music legally downloaded via the Internet.

The final part of Howard Gregory's series on loudspeakers deals with the importance and choices of speakers for monitoring during video editing. He points out that much of the problem of getting good audio during the exhibition of videos is due to poor monitoring of the sound track during editing. Some people are satisfied to assess their video sound using only the speakers which came with their computer. His main advice is "Never buy audio equipment from a computer store". Howard also repeats his advice about the importance of speaker placement. He points out the specific advantages of using headphones for editing but emphasizes that the final production must still be appraised on a suitably placed pair of speakers.

In this issue Tom Hardwick revisits the subject of transferring film to video. He describes the traditional challenges of obtaining good results with film and how the digital electronic revolution has overcome virtually all those problems. Film frames reproduced in the article demonstrate how far we can now go to restore aged film or correct defects which were an expected part of the film experience.

LONDON VIDEOGRAPHY CLUB

From the [website](#)

The March meeting gave members an opportunity to view the results of the January "BagShoot". Two teams, each given a mysterious bag of goods, were required to write and shoot a complete production that night, using only the bags' contents. Subject is unlimited and quality is optional. The results this year were as surprising as ever. One group turned a "Light-Brite" toy into the inspirational message, "I Don't Care" in slideshow format.



They Don't Really Care photo - Doug Taplin

Another group composed a gripping (?) drama based on an antique set of the game of "Monopoly".



Two hoods scam a mark in a rigged game. photo – Thom Speechley

Club member Rael Wienburg gave a demonstration of uploading personal videos to "YouTube" and "FaceBook". In both examples, Rael worked from a laptop connected to his London Videography Club "FaceBook" page. If you are on that networking facility, you can see some club examples by logging on to your account and typing London Videography Club in the search box. In February, a few members visited the London Model Railroad Group Inc. The footage from that event is in the process of editing and copies of the finished video will be presented to the executive of the model group, in appreciation of their hospitality.

SACRAMENTO AMATEUR MOVIE MAKERS

From the [club's website](#)

Late winter weather in California has hampered efforts to continue with production of the film "Midas Sack Of Flour". Better shooting conditions are anticipated soon and a good locale for the 'saloon' scene has been identified in Old Sacramento. Filming should wrap up in April.

In February Eric Lorenz emailed other members a link to a very interesting article in "Videomaker" regarding regulations now in effect in the USA covering frequency assignments for low power transmitting devices, such as wireless mics. The new regulations result from reassignment of frequencies for the 'digital TV' revolution. You can still access [the article](#). The point of the article is that your present mics may be in violation or, your reception might be affected by the new frequency bandwidths.

Similar changes to the regulations are being prepared in Canada.

Intent

As announced in Canada Gazette Notice DGTP-011-09, Industry Canada is releasing this consultation paper to seek comments on proposed changes to the use, standards, certification and licensing for the operation of low-power licensed radiocommunication devices, including wireless microphones, in the band 698-806 MHz. If you are interested, you can download this paper [here](#).

Four DVDs from other clubs were shown at the March meeting. A comedy from the San Jose Club, a serious one from England dealing with a boy's reaction to the loss of his soldier father. "Eternal Rest" deals comically with the deceased. The fourth, an interesting documentary about the Viet-

nam War, called "Fallen Leaves" which used clips from the movie "Platoon" and others.

Sue White announced that she has a DVD containing a six-part "Interactive Digital Film Course" that will be introduced at the April meeting.

VIEWFINDERS DIGITAL VIDEO CLUB –

From their [website](#)

The March Program, Wednesday, March 10th, will be a presentation/demonstration of Celtx by Milt Kostner. Celtx is a media pre-production software package to help producers develop and manage a movie project. The April Program, Wednesday, April 14th, will be the night for De Anza College Film students to screen and discuss their latest productions. Shooting of "Under Wraps", the club's 2010 major production is currently in progress. Director Irv Webster, who wrote the story and screenplay for "Under Wraps", has polished the script in collaboration with Assistant Director Skip Stevens, Director of Photography Jack Gorham and Editor Milt Kostner. Production Manager Brian Lucas chairs the weekly production meetings and keeps the project on course. John Dietrich, Sound Technician, is working the sound script and is busy collecting or creating ancillary sound effects.

WINNIPEG AMATEUR MOVIE AND VIDEO CLUB

Bulletin editors, Wallace and Jeanette Robertson

President Al Ross opened the February issue of the Bulletin with the suggestion that some of the more brave members make a small documentary demonstrating survival in a typical Winnipeg winter. This might be instructive if shared with member clubs in more temperate climates. I appreciated Al's suggestion that the video might be shot from inside a 'warm car'. Al also announced an invitation from the Ottawa club to exchange videos for judging purposes. He asks the members to consider how such an arrangement might be formally set up, and reminds the reader about the CANUSA days. At the January meeting, the membership approved a motion to make a contribution to Haiti relief through Doctor Without Borders. During the evening, Fred Shlanda's video of the club's 2009 picnic was shown. The feature showed the members involved in a variety of physical competitions, carried out with due consideration for the risks involved! A second presentation was a "Powerpoint" slide show of "Riding Mountain National Park" and other natural locations, assembled with photos taken by Thelma and Al Ross. The production was considered to be an excellent promotional piece for Manitoba's great outdoors.

In his March message, President Al Ross suggested that the club might try to capture some interviews with older members talking about some of their more vivid childhood memories. He believes a collection of such interviews would form a valuable club "legacy". At the February meeting, a workshop on film transfer to video, at another location, was planned for the 20th. Also planned is a compilation of the work of past members John and Chris Gauthier, for presentation in DVD format to their daughters. Wallace Robertson showed a 3½ minute "time-lapse" production of a trip from Winnipeg to Brandon. The production was shot entirely 'in camera' as a series of single frames. Also shown that evening was a selection from a Sony video production titled "Shoot Like A Pro". Other parts of the production may be shown at later meetings, if there is sufficient interest. A more humorous look at video making was shown with the film "Making Real Funny Home Movies", featuring Count Floyd (Joe Flaherty, "Second City"). ■



In the November PANORAMA I promised to provide some information about another "3D Animation" program, Poser. If you didn't read the Introduction to C.G.I. in that issue, you really ought to go back and read it now before getting any deeper into this stuff. I also gave you some tips about some example videos and some free downloads from DAZ Studios. If you followed those leads and are still interested in this subject, read on!



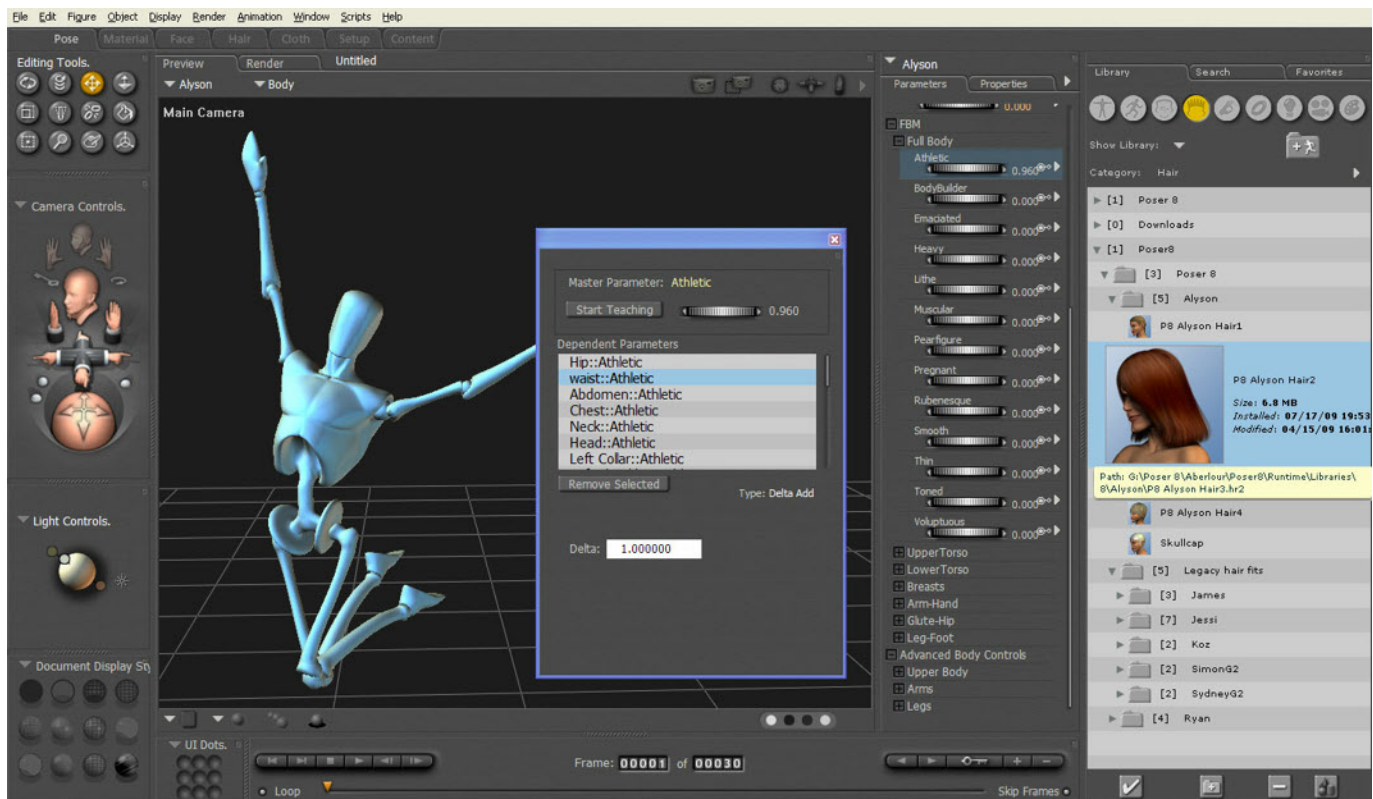
Some of you may have been interested enough to start exploring this subject further on the internet on your own, and found that there are several different programs offered, from several different sources, and are wondering why, and which one is best for you. The quick answer is that each program has its strengths and weaknesses, so most people involved in this hobby have more than one program.

Some will say "I have this one program (that I got for free, or have already bought) and I will learn to do just those things that I can do with it, and will be satisfied with its limitations." Others will say "I need to do this, that, and this other thing, and I'll pay whatever I have to, to be able to do it!" Most of us will be somewhere in between.

It's my intention, in this series of articles, to give you some leads to follow up without making your choices for you, or making any pronouncements about the merits or failures of any of these programs, or to tell you how to run any of them.

I suggested DAZ first because it provided free software and considerable material with which to try it out. I'm turning now to Poser because of its historical importance to the development of this "industry". Many of the techniques and standards they have established have been adopted by the majority of the other programs, and Poser produced elements (characters, poses, etc.,) can be directly imported into the other programs, so you'll notice in your own investigations that the name *Poser* comes up time and time again.

I could list here many of the details of the history of this development and the Poser innovations, but I would have to base my account



on the work of others (as opposed to personal recollections and experience) so it's more honest to direct you to the Wikipedia page on [Poser](#) where the information is well laid out for easy understanding.

I should add, however, that while the original Poser "characters" or models have been improved by DAZ, you can't beat DAZ's price, since the characters come free with their program which is also free!

However, if those characters are just not what you need or want, and you want to build your own characters from scratch, Poser seems to be the program most character designers use for modeling, except, of course, the boys and girls in Hollywood, with much larger budgets than you and I.

Without knocking the program I should point out that its main problem for beginners who aren't sure how long their interest in this hobby will last, is the price – US\$250! However, this is slightly ameliorated by the Special Sale Price of US\$200, good till March 31st. While that offer is still good as I write this, it will have expired by the time that you read it! Not to worry: you know as well as I do that there is a strong tendency for companies selling software on the internet to extend *Limited Time Special Offers*, or to follow them up with another, almost as good or even better, so you really ought to check [SmithMicro's Poser web site](#) for the current price! Here you can get a lot of information about the software (access Overview, More Info, Gallery, and Re-

quirements), and even download a FREE 30-DAY TRIAL! You can bet that after your Free Trial expires, you'll receive an email offering a Special Price to continue using the program!

You can also view 88 (eighty-eight) [Poser Tutorials](#) (not videos, but text with illustrations that you can move through at your own pace) as well as Tutorials for a few other SmithMicro 3D Animation Programs, some of which will be discussed in subsequent issues of PANORAMA.

In addition, there are many short tutorials available on Youtube:

[Poser 8 Review](#)
[Intro To Poser 3D Rendering Software:](#)
[What Is Poser 3D Animation & Rendering Software](#)
[Create A Character In Poser](#)
[Editing a Character's Face In Poser](#)

There are better, more competent programs available for the well-heeled. If you feel a need to support Canadian software developers, you might want to look at [Side Effects Software](#) from Toronto, who offers Houdini, an extremely capable and flexible set of programs. Houdini Master costs US\$7,995 (and that might get cheaper soon as our dollar rises!), but they also offer Houdini Apprentice, free for non commercial use with "all Master's features with a few minor limitations"! However, I'd probably have to spend almost that much to

upgrade my computer to handle the software!

[Autodesk's](#) Maya cost about half as much, and their 3ds Max is a little less than that. There are several other excellent products in these categories, but Do We Care?

Of course, they all have something in common besides high purchase price – the more flexible and capable a program is, the more complicated it is to run it. And that isn't good for newbies, especially all those among us who are having problems with their computers already!

And it's that complexity (and my satisfaction with the characters off-the-shelf for free, and having no interest in making my own goblins, gargoyles, leprechauns, and little green men) that has held me back from downloading [Blender](#), a free, **open source** modeling program. That and the fact that I would have to learn [Python](#), a free open source programming language. (I admire and approve of the concept, but I have too many things going on in my life already!)

Yet Blender does seem capable of almost everything I might want in order to accomplish the goals that I will have, and I may very well choose to learn the software, (and Python!), both of which are free, in preference to continually buying, trying and testing other programs in an attempt to do it all. Like I said before, just because it's done with a computer, doesn't make it easy!

STOP MOTION ANIMATION

JOHN COOK REPORTS ON THE FEBRUARY 27TH, 2010 WORKSHOP OF THE MULTICULTURAL CINEMA CLUB OF KITCHENER

INTRODUCTION

On Saturday, February 27, I attended another workshop put on by the MultiCultural Cinema Club of Kitchener. The purpose of this workshop was to give an introduction to stop motion animation.

It was presented by Grayden Laing, a professional animator currently working out of Toronto. Grayden has presented many animation workshops in the past, to adults as well as children. You can watch the animations created at his animation camps on the [MCC](#) web site.

Rather than trying to describe the sample animation clips Grayden showed us, I will describe the techniques they illustrated.

Definition

Stop Motion Animation is the art of creating a movie or video one frame at a time. The challenge is to make the resulting motion appear natural.

Frames Per Second

Before starting to shoot, we must decide what our target media is, as that will determine the optimum frame rate - 24 f.p.s. for cinema or 30 f.p.s. for video. At the low end frame rates we could pick 12 f.p.s. typical of home movies and double up the frames to 24 f.p.s. We would need to make twice as many frames per second, if we chose cinema mode of 24 frames per second, as used by Wallace & Gromit. Finally, we could pick the 30 frames per second used for video and TV. For the smoothest motion we choose the frame rate for the media at which we are aiming. If we use 24 f.p.s., the motion will not be as smooth on video as if we had used 30.

PHOTOGRAPHIC EQUIPMENT

Lighting and Exposure

You must ensure that the exposure is consistent from frame to frame. Artificial lighting is *de rigueur*. Ensure you are using a wide spectrum bulb, with a high CRI (colour rendition index - 100 being perfect) and properly white balance. As a bulb's light output varies with the 60Hz power

line, it is standard practice to expose for 1 second to average out the light variations. This requires a steady tripod.

Be careful not to accidentally move the lights around. You need everything anchored down firmly while you painstakingly manipulate tiny limbs and things.

Camera Selection

The camera of choice, for stop motion animation, is the digital single lens reflex for still images. Having the ability to interchange lenses is a big plus. For that cinematic effect of shallow depth of field you want to be able to use fast (large opening) lenses.

It is vital to ensure constant exposure from frame to frame. You don't want variable exposure flicker from frame to frame. Constant exposure is easier to ensure with a manual f stop setting on the lens, as opposed to the f stop being set by a motor controlled by the camera, like a Canon Digital Single Lens Reflex (DSLR) which may change the aperture slightly each time causing flicker.

If you are shooting video with your DSLR and planning to mix it in with your animation, be aware that a CMOS sensor scans the frame from the top down as opposed to reading the whole sensor for each frame as a CCD sensor does. The CMOS's scanning characteristic can be easily demonstrated by watching the LCD display while panning the camera side to side. Make sure you're panning across a bright vertical object next to something dark (like a white window frame next to a night sky). While panning over the window frame it will appear to lean side to side, like the Tower of Pisa, because the camera is scanning/capturing each line slightly after the previous one. This is called the "rolling shutter" effect and has been nicknamed "jell-o vision". To avoid "jell-o vision" put your camera on a tripod, use lenses with image stabilization, and if panning, do it slowly.

Camera Hot Pixels

You should hand select the camera you will be buying for animation. One pixel can

have higher sensitivity than the others. Sensors with objectionable pixel sensitivities at normal exposure durations, are rejected in production. Unfortunately, many sensors that have hot pixels at the long exposure of one second are passed. These hot pixels would spoil your animation frames. It's up to you to test the very camera you wish to buy, at exposures of 1 second, to ensure it doesn't suffer from hot pixels at the exposure durations you will be using for animation.

HD

Pictures shot with a DSLR can be easily converted down to HD. Remember, you will still need a powerful desktop computer, to edit the resultant HD video.

STOP MOTION

Studying Motion

Animators spend a great deal of time studying motion. Even a person's simplest motions are quite complex. If dialogue is involved, then facial motion complicates things greatly. We have the action of the tongue, lips, eyes, eyelids, eyebrows and ears to synchronize to the words.

Animators spend a great deal of time studying their own motions and speaking in front of mirrors. Animators can also shoot videos of actions they wish to study. Then they can study the motion, one frame at a time. Having a video editor that has a "scrub audio" feature for playing back audio and video at rates completely under the operators control, can be of great assistance for learning to animate speech. This scrub audio feature is also needed when adding speech and sound when editing.

Disney and his crew spent months studying the motion of deer, frame by frame, before they animated Bambi. In the large studios the master animator draws the key frames and his assistants fill the frames between them.

Giving Reality to Your Motion

There are many details to consider in bringing reality to motion.

Gravity affects motion.

Inertia - a ball gradually speeds up and slows down.

Ease in and ease out of motion.

Air drag and wind affect motion.

Follow-through - one action is finishing off after another has started.

Squash and Stretch - a ball deforms when it hits something. A fat belly jiggles.

Much action is based on interaction between objects.

Broadcast Motion

You should lead the eye to the motion, just as a magician does. You can do this by having a character look at the location of the event before it occurs. Tension and surprise results if action occurs away from where the eye is looking.

Animation Principles

Disney outlined 12 animation principles.

1. Anticipation
2. Squash and Stretch (ex. a ball bouncing).
3. Follow through
4. Ease In and Ease out
5. Arcs (movement is in arcs - NOT straight lines)
6. Staging (same principles as cinema for camera framing and lighting)
7. Secondary Action (helps add realism)
8. Exaggeration
9. Timing (for example 2 walking steps per second)
10. Straight ahead action and pose to pose
11. Solid Design (what you see should be physically possible, or in a stretch, believable)
12. Appeal (representation of characters, use of colours etc.)

Registration

Accurate registration is needed for the objects from frame to frame so they don't jump around from frame to frame. If you adjust a figure, you need to be sure that its main body hasn't been jerked around. You also want to be sure you haven't accidentally moved the camera or bumped a light.

There are two common software programs designed to let you accurately compare the location of an object from frame to frame. *Dragon Stop Motion* is available for the MAC or PC, while *Stop Motion Pro* is available for only the PC. While doing animation the output of your camera is constantly fed to your PC.

Positioning jigs can be used to locate key points from frame to frame. Grayden

showed us a frame from *King Kong* where one such jig was left in the frame.

ANIMATION TECHNIQUES

Motion Blur

If you examine real motion on video, frame by frame, you will see that in frames with rapid motion the image of the moving object is blurred. You can add this reality to your animation by moving the object the desired distance during your one second exposure. It's best to support your object from behind, where the support will be hidden, if this is possible. If you must support your object from the side, you could have it off to one side of the frame, so your support arm isn't visible. If the support is of a similar colour to the background it may not be noticeable in the final frame because it is blurred by the motion.

Out of focus blur can be used to simulate the animation blur of explosions where a broken piece is flying at the camera. These pieces are best supported directly from behind, or if that is not possible, the supports are painted the same colour as the immediate background and blurred out with the shallow depth of field.

You can see that a shallow depth of field is very convenient for hiding both supports and flaws such as in hand made backgrounds and props.

Suspended Objects

It may not be possible to suspend an object from the rear, or make a side support invisible by painting it the same as the background and blurring it by using motion blur or focus blur. A good **Photoshop** approach to use would be to shoot the frame with the object and support, then shoot it again with the object and support removed. In Photoshop we would put the frame with the objects and support on the top, and the frame without the objects and support on the back layer. Then we use the eraser to remove the support from the top picture and the picture below will show through, giving you a complete picture with no support in it.

Forming Characters

The most common material to use for forming characters is Plasticine, as in Wallace & Grommet and Pingu. It comes in many colours and is easy to shape and reshape between frames. Unfortunately, the plasticine available in North America tends to sag at higher temperatures, so if you're using clay from North America you have to be careful of hot lights. The clay that was

used in Wallace & Grommet was Newplast from England, and it does not melt or sag at high temperatures. Animators in North America without air-conditioning often avoid working on hot days. Mixing in some micro-crystalline wax can help stiffen plasticine.



Polymer Clay can also be used for objects that do not need to bend or stretch. Sculpey and Fimo are two commonly available polymer clay brands in many colours, which is baked in a normal oven to harden. You can use it to make objects that look similar to your Plasticine characters. Because Sculpey objects are comparatively robust they can be used as props for many of your productions.

There is really no limit, to the materials that can be used. Each animation is in its own little world. Animation probably offers the most freedom of all the visual arts.

Armatures (skeletons)

Plasticine, by itself, is not practical for humanoid characters larger than 2", as their thin legs and arms wouldn't hold up the body or hold their positions. It is common to use an adjustable skeleton, referred to as an armature, underneath the Plasticine. Aluminum wire is often used for this. The pieces of aluminum wire are wrapped around each other and glued with hot glue or 5 minute epoxy to form the skeleton.

Gluing the main skeletal joints, ensures that only the limbs you want to move, move, and the main joints inside the body, don't move, messing up the main body shape.

Stikfas action figures (reasonably priced a \$3 to \$12 each) are plastic humanoid armatures with ball and socket joints. Un-



fortunately, the wide variety of figures previously available has been slowly discontinued throughout North America. However, if you'd like to try them out you may still be able to order some limited items through Grayden, who is one of their Canadian sales reps. These plastic armatures do loosen up with use and fall apart, though a bit of laquer can be used to stiffen the ball joints.

Heavy duty adjustable metal armatures, which use tension adjustable ball and socket joints, are available for heavy duty use at heavy duty prices - we're talking \$400 and up per character.

The proper tension of a joint is important for animation. You want to be able to move a limb without deforming its shape, or the whole body, from too much friction in the joint. Of course, you don't want limbs to sag on their own. It can be a delicate balance.

Primitive skinny limbs can be made by dipping aluminum wire multiple times into latex paint to build them up.

The original Jurassic Park dinosaurs were built using a rubber skin stretched over a ball and socket frame. After the first Jurassic Park the producers decided that it would be cheaper to use computer animation and the subsequent dinosaurs were all made with CGI.

Moving Your Character Along the Ground

Your humanoid will not stay balanced on both feet, let alone on one foot, in mid stride. He needs to be attached to the ground by his standing foot. Plasticine is commonly used for a ground cover (roughed up green for grass) and the figure is often through-bolted, by a threaded rod attached to the bottom of the foot, and a wingnut is used to tighten it down from below. There's a bit of drilling and ground smoothing done between frames. If the character has a chunk of wood near the ground, drywall screws can be driven up to it from below.

Hot glue is often used to set things in position, and then if visible, can be covered with Plasticine.

If you use a steel table, you can then use the small super-magnets, to attach your character's feet to it.

Facial Motion

To give a character life and convey emotion, we move her lips, tongue, eyes, eyelids, eyebrows, ears, hair and every other facial feature we can manipulate.

When speaking, the lips and tongue follow very strict motion rules. There are in fact 12 mouth shapes to cover all speech. We would have these in a collection and apply as needed. In addition to the collection of mouth shapes, we would also have a collection of eyelids, ears, hair etc. for different expressions. One expression, currently used by cartoon characters, is the bottom eyelid coming up to signify annoyance.

Tears and dripping water can be simulated in stop motion using food grade gelatine. Make sure you mix it in hot water to avoid lumps. It can be attached and moved using toothpicks.

Mixing in Real Motion

Sometimes you may wish to mix in real motion, such as water dripping, or an object falling or breaking. Remember, because you are working with scale models, the actions will take place much quicker than at full scale. A drop of water will take much less time to fall the inch in the scaled down world, than at the simulated 2 feet. You therefore, would need to shoot at far more than 60fps, for the motion to look real at 30 or 24 fps. Unfortunately, high speed HD video cameras are not readily available.

I would like to offer two suggestions for slowing real time motion. The HDR-HC9, my Sony HD camcorder, has an excellent SLOW playback function, which plays normally shot HD video in flawless, stepless, HD slow motion. My video editing program, Magix Movie Edit Pro, can also produce excellent, stable, slow motion, from standard rate video with the bonus of adjustable speed control.

Backgrounds

The background is occasionally a rough sketch that can be made more acceptable if it is blurred by using a wide aperture (low f stop). You could also use photographs printed out on a colour printer and spliced together, carefully lit, to hide the joints.

You may be tempted to use green screen, but you must be very careful, as the short distances usually involved present the problem of green from your screen spilling onto your subjects, shifting their colours, or worse yet, making them transparent in spots. If you use a green screen use a large one, far back from your table and illuminate it evenly with 4 foot fluorescent fixtures. If you use a green screen you must avoid greens in your scenes. If you

use a blue screen you must avoid blues in your scene. These can be serious limitations.

OTHER STOP FRAME MATERIALS

Plasticine is not the only material you can use to make your animated creations.

Grayden made an animation using characters made of hollowed out and foam filled eggs.

Lego characters that have articulating joints can be used. You can build your props and whole worlds out of Lego. Facial expressions can be drawn in a convenient scale, then scanned and colour printed to the proper scale. It's then a matter of cutting them out and sticking them on, as required.

We saw samples of animation of creations made of sand, on glass.

In one clip, the artist morphed between paintings he had done.

Cut paper was used for background, foreground and action figures in another animation.

Disney used sheets of painted acetate.

Stop motion can also be done with actors. Frame - move - frame - move etc. We saw a sample of one boy riding another, as a skateboard.

Another was animated vegetables and kitchen utensils. Bubble-wrap simulated boiling water.

Grayden projected a video of a belly dancer, one frame at a time, on coloured paper and sketched her in simply for each frame. It is mandatory that the paper be accurately registered, with punched holes and register pins, to ensure that the images painted from the video are registered properly when photographed frame by frame for the animation.

ORGANIZATION

Because stop motion animation is so time consuming, it is worth the while to plan ahead well. Reshooting a 5 minute scene in a real time video takes 5 minutes. One 3 second animation shown took 7 hours to shoot. Plan using detailed story boards with careful consideration of timing for the various actions going on.

Don't forget the story is most important to an animation.

Starting in Animation

Perhaps the simplest place to start would be animating your titles. ■

GET THE SHOT!

BY FRED BRIGGS

I often have a need for a high angle shot, and while there are several solutions to this problem, all of them are problematic themselves, and different situations require, or offer, different solutions.

A few years ago I shot the dedication of a memorial park for those who were killed at Dieppe. As I often do, I enlisted the help of my friend Eckhard Kries, who shot the entire ceremony from a tripod placed on top of the wall that surrounded and formed the enclosure of the central area of the park, while I shot from a tripod on ground level with a clear view of the podium over the heads of the seated crowd. That worked fine until, in the intense heat, one veteran in the audience erected an umbrella to shade himself from the sun beating down, and completely blocked my view of the podium. I couldn't move my tripod because by that time there were so many standees around the perimeter that there wasn't any place to which I could move, so the camcorder came off and I got a large variety of handheld shots from the opposite direction, from behind the speakers, and even crawled in close and got tight close-ups of the surviving vets being presented medals by the Lieutenant Governor of Ontario!

Good Luck included another member of the Hamilton Video Film Makers unexpectedly videotaping the entire afternoon from another high position on top of the wall, and sharing his footage with me.

Good Planning included another camcorder placed on a tripod on a second floor exterior back balcony of a house on the adjacent property, that ran unattended and provided high angle distant views that served as cutaways! This was an opportunity – I didn't bring or provide the balcony!

Many years ago another member of the Hamilton club, Gerry Gerard, shot a Super 8 film which involved hiring a helicopter both as a camera platform and as part of the story, appearing hovering over the woods, and I have twice shot my beloved Beach from a small plane, once as a favour by the pilot, and once hired, but this can't always be done because of the cost, flight regulations and many other reasons. It's a lot of trouble and expense for a 10 second shot!

In the June 2008 issue of PANORAMA (*Get the Shot*), I wrote about two long poles I've rigged with cameras and a viewing screen, as well as the episode in which I was able to enlist the services of an Ontario Hydro employee to climb a particular Hydro Tower and get a shot I had long wanted.

In the following September issue I wrote about using a portable DVD Player as a viewer to monitor what the camcorder was seeing from its remote elevated location.

I have often entertained a notion of flying a camcorder from a remote controlled model plane, from a kite, or from a helium balloon. There doesn't seem to be any solution that will fit all situations: you can't fly an RC plane down a city street or over the heads of people in the park, kites are useless in the woods or on a day with no wind, and helium balloons are very difficult to control in even a light breeze!

I had only made a small start on a helium experiment when I was stopped by a catastrophe, as I started to relate in the *President's Message* in the July 2009 PANORAMA, ran out of space, and completed in *Get The Shot* in the September Issue.

Bouncing from one project to another as is my habit, I haven't got back to that problem, but a recent news item has excited my interest again.

One evening in late March there was an item on the Daily Planet show on the Discovery Channel in Canada, and you probably heard about it somewhere. An English hobbyist (Robert Harrison) had shot some spectacular photographs from a camera lifted into the stratosphere by a helium balloon. The balloon eventually burst, and the camera fell to earth, slowed by a small drogue parachute. The package also contained some GPS equipment and a transmitter and the man was able to track the balloon and falling camera, and recover it in good condition. The thing that made this especially interesting was the report that the entire project had only cost him \$150, or so I mistakenly thought they said. That other guy who had gone up in a lawn chair with a bunch of balloons was interesting, but it

didn't carry the suggestion that there may be information here that you and I could use, so I began to investigate this story.

Shots from 22 miles up would be hard to work into most of *my* videos, but there are a lot of distances in between that and the ground, and I'm thinking "tethered balloon". Good photographs can often be used to good advantage in a video, as I keep hammering home, but really I'd like to be able to shoot video from a bird's eye view, if only a crow's instead of an eagle's. I don't think I'd need the parachute or the GPS, but I'm interested anyway, so I did a little searching on the internet and I found some wonderful sites!

First, for a couple of fantastic photos, a diagram that illustrates the process, and a picture that show the payload, along with the bare bones overview of the story, click on the [Daily Mail Online Page](#). (For readers who may be unfamiliar with some of the British terms, loft means attic, and DIY is Do It Yourself - like Home Depot)

On the [BBC News Web Page](#) you can read a slightly different account, see a small picture that shows his balloon on the way up, and a little video that's probably a panoramic rendering from a single photo, as nowhere did I find that Robert Harrison has been experimenting with a camcorder in the box.

[Sky News](#) has a 2 minute video from YouTube with an interview with Robert that shows the launch and how small the balloon is. He may have had a camcorder onboard for this one, but more likely it is a series of stills looking down that shows the problem that would exist with video stability.

Robert Harrison is not the only one experimenting with this (nor even the first). Here's a [Telegraph](#) story of 4 teenagers in Catalonia, Spain who recently *did* do it for about \$150!

All these stories left me wanting more information about the circuit that operated the camera shutter, the GPS unit (it can't be "off-the-shelf" from the GPS Store, as they don't need all that street information and driving route software), and how the location is transmitted. [Project Iris](#), by 4 Univer-

sity of Waterloo Engineering Students, gives us more information about a more sophisticated project.

If you have any thought about doing this yourself for your own videos, you might prefer a tethered, steerable blimp to a balloon, and you might want to begin your investigations here, at [Mobile Airships](#) by RC Guys, in Brantford.

And if you're looking into various alternatives, check out [Bird-Shots](#) for AAP, KAP, BAP, PAP (Airplane, Kite, Balloon, and Pole Aerial Photography). All in all, in the end, the Pole seemed to be the wisest way to go, with fewer problems with respect to wind or the lack thereof. (Check out the video on setting up the \$1,200 pole by clicking on "Pre Lift Routine"!)

However, I know someone in the business of Aerial Photography, Todd Lilley ([Blimp Pics](#)), and I consulted him for more information. He uses an 18 foot blimp (that cost \$300 to fill with helium) and a large trailer to haul it inflated, a [fifty-foot tripod](#), and he has also built the Telescoping Pole as described and shown in the previous web site. He finds the pole (mounted on a trailer) difficult to use and he was always afraid of it falling in a wind and causing damage. He uses the tripod occasionally when the situation seems right for it, but it, too, is a problem in wind, even if only jiggling in the wind!). Routinely, he uses the blimp as he can easily move it left, right, backward, forward, higher, or lower to get all the shots he needs for his client, and if the wind blows it away he simply loses it, without causing any damage (and lawsuits) on the ground! Todd used the fifty-foot tripod to shoot the 360° panorama of the canal at the top of the web site for a group to which I belong, the [Beach Canal Lighthouse Group](#). Be sure to check out the high resolution version by clicking on the link in the black box at the left of the web page, or click [HERE](#) to see it!

Finally, I've saved the best and most spectacular web site for the end! This web site, [Halo2](#), was the source for the astounding photo on the cover of this issue! *Note that he assembled that view using [Autopano Pro](#) which we told you about in [Get The Shot in the November 2008 PANORAMA](#) (p 20), with a follow-up in the January 2009 Issue. They have recently released a new version which we'll try to get to soon!*

Alexei Karpenko's second flight, was made on October 8th, 2007 (well before Robert Harrison's first flight) and this web

site provides oodles of information so you can choose what's pertinent to you, a couple of dozen (or more) photos shot from the balloon, close-up shots of his equipment, including his circuit board (unfortunately, no schematics or parts list! :>)) and even his computer screen during the flight, lots of flight data, many comments from viewers (mostly congratulatory, some idiotic!) and even including the first contact from Robert Harrison on May 23rd, 2008, and Alexei's plans for improvements in the future.

Besides the photos in the body of the web site, there are links to many more of his pics and many 30 second videos from the camcorder on board! He hopes to add an HD Camcorder for the next flight.

And speaking of video, he has amateur video of the launch and retrieval, while leaving much to be improved in technique next time, that provides a wealth of invaluable information, showing just how things were done.

I contacted Alexei for permission to use his photo on the cover, and since his email address was .ca, I asked him where he lived. I was surprised to learn that he was in Waterloo and I wrote back to tell him that we had held an SCCA Convention in Kitchener in 1997, and "Steve Gray of Flite Craft Model Co. Inc. of Kitchener, who builds and flies model helicopters equipped with both film and video cameras for productions like Forever Knight" had addressed our convention and demonstrated his work. Alexei replied "I have met Steve some years ago at FliteCraft when I needed a servo to tilt the HALO camera; and he was telling me how they built a stabilized camera platform for a helicopter. [FliteCraft](#) is still in business (as of one year ago). I have bought some R/C airplane stuff from them." So that's another way for us to go!

He also informed me "There are actually two student teams at University of Waterloo planning to do balloon launches, if you are interested. One is [Project IRIS](#): (project seems to have stalled?) The other one doesn't have a website, AFAIK."

So Waterloo seems to be a hotbed of activity in this field!

And what's next for Alexei? **"I am currently working on a transatlantic launch attempt with some friends in the UK. First launch(es) will be without camera, but then I plan to use Iridium satellites to down-link pictures while over the Atlantic."** ■

ADDENDUM

The following was accidentally dropped from John Cook's Report on Composing Your Images in the January Issue.

It should follow "Knowing Your Subjects"

VERY HIGH DEFINITION

Video Applications of Very High Definition Still Images

It is very hard to properly time the panning and zooming of a scene to written dialogue, let alone unwritten dialogue. We inevitably wish we had timed the pans differently or perhaps zoomed in more closely to a particular object or for that matter actually zoomed into an object we'd missed.

If we had stitched together a very high definition still image of the scene, we could then write the dialogue and do the desired panning and zooming in our video editing program (digital zooming).

Edit Suite Digital Zoom Resolution

Let's put some numbers in perspective. If we were to use a 12Mpixel still camera and stitch together 9 images, we would end up with a 100Mpixel still. Since HD is a 2Mpixel image, we could zoom in 7:1 (square root of 50) without a loss of resolution in our HD video image. If we had done a single shot with our 12Mpixel camera, we would only be able to zoom a bit more than 2:1 and still maintain full HD resolution.

In SD, with its 0.35Mpixel resolution, we can zoom up to a useful 5.8:1 on a 12Mpixel still or 16:1 on a 100Mpixel stitched together still, without losing resolution. ■

[Continued from Page 3](#)

College at Oakville, and now about to be installed at the Art Gallery of Ontario, demonstrated a 3D camcorder, a [Toshiba SK-3D7K](#), that had already been discontinued. In 1997 at the SCCA Convention in Kitchener (Wideangle '97) we presented the first Canadian introduction of "Real Depth, Floating Images Inc. revolutionary new 3D system that is viewed without any type of glasses." I won't get into the details about either of these, as they are no longer viable.

As this is written it looks like we may have shutter-glasses at home for our television set, and Real D 3D glasses for a projection system to show our future 3D videos at our clubs. Time will tell! ■

DUCK! IT'S COMIN' ATCHA!

Fred Briggs

Things are happening so fast now in the world of 3D Movies/Television/Video that it's very hard to keep abreast of the announcements. There are all kinds of rumours, opinions, claims, misconceptions, half truths and falsehoods being repeated and spread by newspaper columnists and television news people who are ill equipped to comment knowledgeably. Frankly, many of them are still wet behind the ears, have no understanding of the history or technology of 3D, or technical training to enable them to understand what they are reporting! I wish I could sort through it all and give you the straight dope on what's coming up next, how it will be done, and who will do it, but I don't have a very good record picking winners! I was one of the first to buy Beta-max, and I have a very large library of tapes with no machine to play them, and a nice collection of expensive Laserdiscs and a dead player, to say nothing of all that SQ, QS, CD4, and Discrete 4-channel tape recorders. It's *caveat emptor* right now, so remember that early adopters pay through the nose, and often get stuck with dead technologies!

But there is a revolution going on right now and there's no telling which technology will be the winner in the marketplace, but I can tell you that it will be very different from what we have had up till now, and my broad and deep experience with 3D is about to become obsolete and this may be the last chance to unload it and share it with you!

I remember finding a stereopticon in the attic of the family who babysat me after school during WWII, and my boyhood experience with photography, developing my own film and printing my own pictures: I had an interest in trick photography even then. I made my own stereo pictures sliding the camera along a bar to get the two successive views with stereoscopic separation, and later a "beam splitter" attachment for a

35 mm camera that would shoot both the left and right image simultaneously. Even later I acquired a Viewmaster Camera and Projector and the cutter to make my own Viewmaster Slides.

But once I got into film making, what I always wanted was a way to make 3D movies. I found a Bolex 3D lens attachment designed to shoot both of the stereo pair simultaneously by splitting the frame vertically and putting one image on each half. The trouble was, it split the 3 X 4 frame into two 3 X 2 frames (narrower than that actually, because there is a diffused, out-of-focus zone between the two frames. That worked fine for shooting something through a door frame and showing the frame, but it stank for landscapes! I hit on the idea of mounting the splitter on the 16 mm Bolex camera at right angles to the way it was intended to be used, and turning the camera over on its side so the frame was about 2 X 4, more like widescreen, and, using the now prevalent term in the stereo business, over/under, instead of side by side. Then I had to build a wooden support that would turn the projector on its side too, and get a prism to superimpose the two stereo half frames to project the film!

Meanwhile, I researched everything I good find on the subject. I remember that during the 1951 [Festival of Britain](#) they screened four 3D films commissioned by the British Film Institute for presentation in the Festival Theatre that was built to accommodate movies, stereoscopic movies, and television for presentation to a large audience. Of course, I didn't know about it in 1951 (I was a kid then) but I heard of it later when I learned of a book with an emphasis on the scientific aspect of the films and their presentation, and I went after it. It turned out to be a very limited printing, and the only copy in Canada was in the Canadian National Library, presented by the British Government. I contacted the Library and they provided me with a copy. I don't think

it could have been a Xeroxed copy because I think it was before the introduction of xerography, but I received a package of loose pages that turned out to be mostly mathematics that at that time was way beyond me. However, I persevered, and figured out what most of it meant, and there was some text that was very useful.

I remember a detailed explanation about the difference between "screen space", and "theatre space", with the screen usually as the "window". The screen space was behind the window, and theatre space was the space nearer the audience. However, the "window" can be placed nearer to the audience, or deep into the screen, with the geometry depending on the amount of convergence or toeing-in of the projector lenses.

A man can stand in the screen space, behind the window, holding a pole so that it extends through the window into the theatre space, and how far it extends toward you in the audience, depends on how close you are to the screen! This can cause problems with your interpretation of the length of the pole and how big it appears at the end nearest you. If someone throws a ball at you, or a bird flies into the audience space, the ball or bird will appear to be different sizes depending on how far you are from the screen. Usually things in the audience space tend to look smaller than they ought to be.

If the man tries to walk "into the theatre" the bottom of the screen will cut off his legs and the audiences' minds won't accept that and will push him back, and you won't be comfortable with what you are asked to watch. This is what I meant by "geometry".

The four films were shot using different geometry (convergence of the two camera lenses, focal length of the lenses, etc.) and the audiences were asked to describe their experience for each film. Some complained about "miniaturization" in some scenes, while others complained of "gigantism" in other scenes. No doubt the codification of the variables has come a long way in the past sixty years, and Hollywood has this well in hand, as we don't seem to have these problems watching their recent productions on the very big screens. However, if and when these films are made available for use on the successor to Blu-ray, some of us will show them on a 48" screen and some on a 19" screen. How well will that work? Time will tell, but one of our members reported to me his visit to see one of Samsung's new 3D screens, and he complained to me of miniaturization!

Our main interest in all this is as a method of showing the 3D videos we will make when we get our 3D camcorder. In 1977 [Lenny Lipton](#) wrote a three-part article on "Shooting Your Own 3-D Movies" that appeared in Super-8 Filmmaker Magazine, and the Lipton Three Dimensional Film Making System was soon available through [Super 8 Sound Inc.](#) To use that system the film maker had to know all about the geometry of stereography, and make all the right adjustments, but in today's video market, the buyer wants it all easy and everything done for him! I haven't used a light meter for decades, or white balanced for years. How about you?

And speaking of geometry – recently I've heard (with no details, of course) that someone has come up with a way to make all the programs already in the can (or on the disc) 3D on the new sets. This may be a brilliant breakthrough, or it could be a miserable disappointment.

I haven't heard yet whether this is expected to be a process that takes place in the television set, upgrading 2D to 3D, like some of them now upgrade standard video to a higher resolution, or if it is expected that producers will take old 2D programming and manipulate it to convert it to 3D for a new release.

Let's look at the first case first. If you take two identical copies of a picture (drawing, photo, movie, video) and present them both with a little separation, you can create a "window" at any distance you want, depending on the amount of separation, convergence and overlap you use showing each of the two pictures to a different eye, the viewer will see a window, with a perfectly flat picture behind the window. That window could be well into your living room, with the "scene" behind it, but even behind the television, and a fast talking salesman could convince some of us that that's 3D, but I wouldn't be satisfied. Would you?

On the other hand, if they're talking about new releases of old programs, it's been known for a long time that if they provide one frame of a scene to one eye, and a second frame from a little later in the movie is presented to the other eye, they can simulate stereographic separation if the camera is panning slowly, or there is some movement of the subject from right to left or left to right. This isn't an easy conversion and would have to be done for each individual scene or shot, but with a mixture of skilled technicians and automation it could be done, just as they are now able to colour-

ize old black and white films! Hang on to this "time delay for spatial separation" principal as it will be critical later in this discussion.

Let's talk about various viewing methods. The earliest stereographs, those shown with the old stereopticon, consisted of two views, left and right, taken simultaneously from slightly different points. They were mounted side by side on a card, which was placed in a frame. You looked through two lenses that made it easier to focus at that distance, and there was a partition between the two pictures, running from the lenses to the vertical line between the two shots. That prevented the left eye from seeing the right eye's image, and vice versa. Something similar was available as coin operated machines at carnivals and other places of entertainment, and if a series of stereo pairs were shown rapidly, as by flipping a stack of cards, stereo motion pictures resulted.

But to show the pictures to a large audience (i.e. 2 or more) the pictures had to be projected on a screen. The pairs could be black and white (actually, grey scale) and the pictures were each projected through a different coloured filter, and the viewers wore glasses with the same coloured filters. However, the colours had to be mutually exclusive, or as close as possible to "opposites on the colour wheel". This was referred to as an anaglyphic system. Usually they were red and green, but sometimes red and blue, with those colour names used very loosely. That is, while both used red, it wasn't the same red!

Later, with the advent of colour film, the pictures could be in the proper anaglyphic colours instead of using filters on the projector. The result, of course, since both pictures were monochromatic, was that the audience saw essentially grey scale pictures.

Eventually, some movies were made in pastel colours, so that even with the anaglyphic glasses, the viewers saw some colour. I chased down everything 3D that I could find, and once I saw a mildly pornographic film, let's just call it a girly movie, that used this system with acceptable results, except that when a traffic light was red, the eye with the green filter didn't see much light at all – it was almost black, but when the light changed to green, the green became unusually bright for the green eye, and went out for the red eye! I've never forgotten that disturbing experience!

And chasing down 3D reminds me of the time I went to Buffalo in 1969 to see "[The Stewardesses](#)" (This film used polarization in the theatres, but has lately been

released on DVD in red and Blue.) This was legal in New York State, but today we would call it soft porn – very soft porn compared to what you can see after midnight on cable! A few weeks later it came to Hamilton, and since it was now so close, I went to see it again. The Ontario Censors had hacked out great sections and it was about half an hour shorter. But what I remember best was that the local newspaper Film Reviewer barely mentioning the 3D and going on and on about the film being hard to follow because of the lack of continuity!

But I digress. When else will I get a chance to tell that story?

By that time, of course, they weren't using only anaglyphic projection in theatres. Somewhere in there Edwin Land invented Polaroid, the inexpensive filters to control polarization. Polaroid and Anaglyphic projection coexisted for several years.

The Polaroid system requires that the two beams from the projectors be polarized in cross directions, the screen must reflect the pictures to the audience without depolarizing the light from each picture, and the filters in the audience let only the properly polarized light reach each eye. Most materials depolarized polarized light when they reflect it, but not metals! Hence, screens for stereography are covered with a thin coating of aluminum -- what we know as the silver screen.

I certainly don't know all, or much, about the latest developments in television/video, but I have doubts that there is any way for a television screen, to emit polarized light. I could very well be wrong: maybe in a rear projection system each eye's picture could be polarized differently and projected separately, passing the polarization through the screen.

What we definitely know is that with digital television we can rapidly switch between the left-eye image and the right-eye image, and electronic shuttered glasses can open and close the transparency of the filter for each eye so we see through only one eye at a time, but so quickly that we aren't aware of the switching. The hitch with this system is the cost, as the glasses are much more expensive than Polaroid glasses.

There is, or at least there used to be, a small problem with the polarizing solution. The occlusion of crossed polarization isn't perfect so the left eye sees a tiny amount of the image meant for the right eye, and vice versa. This, of course, is much more notica-

ble on bright objects that are returning the most light to the viewers. The result is called “ghosting” and the lighter ghost appears just to the left and to the right of the apparently solid image, and I have always found ghosting to be very disconcerting. This is partly because I have made a long study of 3D and have experienced just about everything. If may very well be possible that many people don’t even notice it, or at least, aren’t bothered by it.

The first 3D film without any ghosting I ever saw was *The Polar Express* at the IMAX theatre on Richmond Street in Toronto, and this was with Shutter Glasses that were only slightly uncomfortable. The next time I went there to see a 3D movie, I was disappointed to find that they were showing the 2D version! So I stopped going all the way to Toronto.

Since then I’ve seen a few 3D films at one Cineplex or the other in the Hamilton area, and they seem to be using polarized glasses that are smaller and lighter than the shutter glasses were, yet the 3D is top notch, with absolutely no ghosting at all. [Real D 3D](#) seem to have it beaten! And best of all, on their web site they show people watching 3D television in their home with what sure look like polarizing glasses! That would be a lot cheaper than buying shutter glasses for your family and guests!

Carolyn has been telling me for years that “Someday we’ll have 3D television with NO glasses!” Well, I hope she’s right, but I don’t see how yet! I keep hearing vague mentions of “lenticular”, but I don’t have very much hope in that.

Going back to the book I got the National Library to copy for me, there was a section on Russian experiments in 3D. They had devised a series of tall narrow lenses in front of the screen that would allow the audience to see the 3D without any glasses at all. Making a long story short (because I can no longer put my hands on the book!) it almost worked, but if a viewer moved his head slightly, or tilted it a little to one side, he lost the 3D.

I’m sure you’ve all seen those postcard size pictures with a plastic coating with the vertical “ribs”. I have the camera that takes those pictures – a [Nishika](#) with four (4!) lenses. You shot your film and sent it away to [i3DX](#) and they developed the film, made the prints and applied the lamellar plastic. Someday I’ll have to shoot a roll, if they’re still in business, but I don’t think they are.

I have a few larger pictures in frames, one right beside me on the wall that is about 11 X 15 inches. It’s a scene of boats in a

harbour, and people seeing it for the first time always stop and look at it. It’s in about 5 layers, lobster traps nearest the viewer on the right hand side, a boat on trunnions a little farther away on the left hand side, more lobster traps a little behind the first lobster traps (and farther away than the boat), another boat in the water, and an almost flat scene in the distance. The water is a little vague as to its position, but that may be because there aren’t any features on the surface that you can use to see 3D!

From about two feet away you can see everything in fairly good 3D, but if you turn your head the slightest, tip it sideways, or shift your weight onto one foot or the other, you have to begin moving around again to get the effect. The good thing is that at that distance the effect is achieved with a quite fine pattern of lines in the plastic face. Maybe it won’t be too bad on a larger television screen, but if it’s necessary to hold your head position, we’re liable to get a lot of stiff necks!

But there is an easier way, and it’s FREE. Read on!

Many years ago I was watching one of my own Super 8 films, with a scene shot from a boat moving slowly along a river bank at Silver Springs in Florida. An old Tarzan movie had been shot there, and some of the monkeys escaped, bred, and became part of the tourist attraction. A monkey was moving near the shoreline, in the opposite direction to the movement of the boat, and suddenly the picture looked three dimensional! I studied that shot for some time, and began to look for others like it in my other films. I found about ten or twelve, and removed each one from its film and spliced them all together to show to the Hamilton Movie Club, now the Hamilton Video/Film Makers. I don’t even remember if I got to show the clips, or if so, if the others saw what I saw, but I do remember that when I got home I had lost that little roll!

Some time later I came across references to the Pulfrich Effect. I won’t even try to explain this here because it’s difficult to explain, and if I did, you wouldn’t believe me anyway, so I urge you to read about it [here](#) and see an example on Youtube [here](#). Just use a pair of sunglasses as they suggest at the beginning of that short video.

Many years ago Jim Small, Eckhard Kries, Eckhard’s brother-in-law and I went to the Grand Canyon together and we went down to the bottom on the Mule Train. I shot the entire trip down on 16 mm film from the back of the mule, but when I got

home and had the film developed, it was all overexposed, and I was extremely disappointed, as you might expect. However, As an experiment (combining the “time delay for spatial separation” and the Pulfrich Effect), I had also shot the Grand Canyon from the top, perched with my tripod on the flat roof of the van we had rented to get there from the airport. The camera was aimed straight out to the canyon and the only thing moving was the van that Eckhard drove slowly along the road parallel to the rim at a Lookout.

Now, watching my terribly disappointing footage, I came to the shot from the moving van at the rim. I stopped the projector, backed up a little, and put on my Pulfrich glasses and viewed the shot. No matter how many photographs you have seen of Grand Canyon, you are never prepared for the immensity of the scene that you see when you finally arrive! I saw that immensity, that depth, again and I was so overwhelmed I couldn’t contain myself. My house couldn’t contain me either, as I ran downstairs and out onto the street, knowing how Archimedes felt, except that I was fully dressed and didn’t shout “Eureka”!

This was long before any of the public demonstrations on television of the Pulfrich Effect, and I began to explore it. I found that a darker filter was more effective than a lighter filter, and there didn’t seem to me to be any difference whether it was over the right eye or the left eye, and it didn’t matter whether the movement on the screen was from left to right or vice versa, regardless of which eye was filtered. Camera panning was very effective because everything was moving (even the distant background) as opposed to one object or subject moving. Panning in addition to onscreen motion was most effective.

Surprisingly, even with a very stable camera on a newscaster seated at a desk, what you see is three dimensional because the newscaster moves his head a tiny bit, and that’s enough!

If you managed to wade through that long and tough discussion on depth perception in the January issue you probably came to realize that the human mind wants very much to perceive the third dimension, if it can find any clue at all, and the clues of lighting, texture, perspective, etc., are all available even when motion parallax is minimal! Don’t be discouraged if you don’t immediately see the 3D when you first try – some learning seems to be involved. There is considerable variation between individuals. It’s often pointed out that the one-eyed

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