

CONTENTS

- 2 -

HONORARY MEMBERS
HAVE A SAY

- 3 -

DATELETS

- 4 -

LET'S HEAR IT FOR SOUND

- 6 -

FANTASTIC FANTASIA

- 9 -

WARNING

- 10 -

VISIT TO TECHNICOLOR

◆
FILM COMMISSIONER LETTER

- 11 -

NEWS

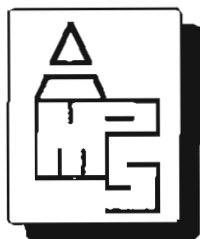
- 12 -

AMPS ANNOUNCEMENTS

◆
GORDON STRONG RETIRES

◆
FOR SALE

100 YEARS
OF CINEMA
1886-1996



AMPS

CONTRIBUTIONS & CONTENT

As I prepare each Newsletter I worry a little about the amount of what might be regarded a 'a bit historical'.

I must confess that I'm fascinated by the archaeology of Motion Picture Sound and over the past eighteen months have been investigating patents pertaining to the development of our craft, filed with the UK Patents Office from 1800 onwards. Incidentally it's quite amazing how much technology we now regard as present day state-of-the-art was actually patented 70 or 80 years ago. Someday I hope to get it all together and compare the old patents with today's technology. However, I am straying from the real intention of this article which is to remind members once again that it's your Newsletter so please make good use of it by contributing items to be published.

As there are many technical journals such as Studio Sound, Audio Media and Pro Sound News that are available free to all involved in audio; plus those that can be purchased from good newsagents, I feel it's rather redundant endeavouring to emulate those publications by placing highly technical articles in the Newsletter

The Newsletter should be about the doings and experiences of the membership, their reactions to new technology, how it compares with the old, what they would like to see in the future, ideas on how motion picture sound could be improved. The pages are yours. Even if you don't consider yourself an author please write down your ideas and Keith and I will pull them together

I have had promises in the past but they've not come to fruition. I hope that this may jog the memories of those who said they would contribute and haven't managed to as yet. I know if you're busy with earning a living it's difficult to find time for anything else but please if you can, try and find a little time for your association newsletter.

By the way, if anyone did come up with a highly technical article we'd print it like a shot!

Bob Allen

This Newsletter is edited by Bob Allen and Keith Spencer-Allen and is published by the Association of Motion Picture Sound for distribution to all members. AMPS can be contacted through Brian Hickin, The Admin Secretary, 28 Knox Street, London W1H 1FS. Membership enquiries to Robin O'Donoghue, AMPS Membership Secretary, Twickenham Film Studios, St Margarets, Twickenham, Middx TW1 2AW. Any communications with the AMPS Newsletter should be addressed to The Editor, AMPS Newsletter, Old Post Office Cottage, Old Post Office Road, Chevington, Suffolk IP29 5RD.

HONORARY MEMBERS HAVE A SAY

Dear Robin. I acknowledge with many thanks your recent mailing containing my Honorary Membership certificate and a copy of the Directory. Having for long professed indifference to the doings of the Association, I concede that it has reached maturity and I wish it every further success, together with recognition and support by the film and television business. It surely parallels the BSC.

My own personal position remains that of close, if slightly detached, interest. I was glad to be of some help at the outset because I felt that the profession of sound engineering for film needed an identifiable core. And what a strong core it has become!

However retirement brings about a change in one's perspective - a lack of day-to-day involvement. Consequently, the forward march of the technology and the ever-changing nature of the business which gives us our livelihood, leave one almost with gratitude that one can simply be an onlooker.

After six years of being a 'gentleman of leisure', I have no regrets or yearnings. I remain busy in my own affairs seeing some more of the world, following hobbies, and glad to read about what the rest of you are up to! In short, I am happy to be an honorary member amongst my old friends and colleagues.

Sincerely

Geoff Labram

Dear Robin. Thank you for my Honorary Membership. I am really thrilled to be remembered. My whole working life has been in the film business, that includes my camera operator son Neil and my dear wife, known as 'Binney Wardrobe' who died recently. She used to co-operate with floor mixers on noisy costume scenes. When making up her dress charts she would always find a way to satisfy the mixer regarding the very noisy rustle caused by satin materials and the like. In those days recording of all that rustle sounded dreadful.

I have many happy memories of my years in the business with some extraordinary stories to recall.

Best wishes

Frank Binney

We'd like to hear them Frank and how we wish more wardrobe people were as sound conscious as your dear 'Binney Wardrobe' was. Ed

*A few letters
from the
Membership
Secretary's
post bag*



Dear Robin. Thank you for my Honorary Membership Certificate.

AMPS is an excellent move. I have so often been amazed at the ignorance of sound cutters of the difficulties of production mixers, particularly on location: or with an awkward director of lighting cameraman; likewise mixers who have little knowledge of what tracks a sound editor needs to prepare the film for mixing. Some years ago one mixer had clappers announce 'Guide Track' on each shot on location. The Americans said "This sound guy is good - you hardly ever hear from him", but there was an awful lot of unusable sound.

Do you think sound is becoming too perfect and clinical, lacking atmosphere, such as stuffing a mic down the horn of each instrument compared with recordings made in a basilica or a building with good acoustics and bags of ambience. With new technology you sometimes gain a bit and lose a bit. I remember David Lean saying to a mixing crew during a bit of a crisis, "We did some pretty good dubs when we had to go straight through the reel!"

Enough of these ramblings

Yours

Win Ryder

Dear Robin. Very many thanks for your letter. I must apologise for the delay in my reply but I am still suffering from post operation pain. It is somewhat better but still disturbing. I am just able to write without too much trembling, so I hope you can read it OK.

Thank you for the enclosed references to *The Small Back Room*. I sure remember working on it. Michael Powell gave me quite a hard time. I was fairly young for a production sound mixer compared to others. It could be he didn't have confidence in me.

I must tell you that some years later in Australia I was once again with Powell on *They're A Weird Mob* and expecting more trouble. But would you believe it he would never hear a word against me. If any problem should arise he would say "If Alan wants it that way, so be it - he knows what he's doing". He was pleasant to me throughout the production.

Yours faithfully

Alan Allen

DAT LEVELS



The best way to start any discussion on digital levels must be to come to some understanding of a common reference point (eg analogue level) and the way in which film recordists work with this level. The best description to emerge at the recent AMPS general meeting was Richard Daniels' 'Window' or what I would prefer to term 'Working Window'. On a Nagra the working window is about 35dB as shown on the Modulometer.

When recording a tone at the head of the tape the operator sets a reference level for this window. If a '0 dB' reference tone is recorded, the working window would be from +10dB to -25dB. Above +10dB the saturation of the tape would act as a limiter: below -25dB the noise from the tape hiss would be unacceptably high. Due to the behaviour of tape, the working window is more severely limited at both high and low frequencies from a 35dB window to 25dB or less.

Up to this point I have not mentioned nanoWebers/metre (nWb/m) or milliMaxwells/millimetre (mMx/mm), which are both measures of the flux density on tape. This has changed over the years as tapes have developed. In the case of analogue this has meant a gradual increase in flux level on tape allowing a gradual widening of the working window. The flux level on tape has changed over time and remains variable from recording engineer to recording engineer, test tape to test tape.

Digital recording has changed this situation. The available working window has widened to at least 50dB and that does not have any limitations at high and low frequencies. The sound recordist is not constrained by his equipment to narrow his working window. He has only an absolute upper limit as set by OFS (maximum digital level).

Whilst an absolute reference level on digital machines (eg -18FS for +4dBm out) may help, they are not a solution. One problem mentioned at the meeting was that it is possible to line up a DAT so that full modulation will clip the preamp! Your Nagra replay has a level pot so that you can line up on the reference tone at the head of the tape, not all DAT machines include this. Where necessary an external level control or pads should be provided.

The introduction of digital recording has caused a problem in the transfer bay. The digital tapes received by them can have much wider dynamic range than analogue tapes. Two new types of problem have emerged as follows:

1/ The transfer recorder now has to handle the same wide dynamic range as the Nagra in the field. Too often the electronics in the film recorder are not up to this. They do not have Nagra electronics and large peaks that would be naturally compressed by tape compression are clipped by the record electronics.

The solution: Update the electronics and where that is not possible use a limiter to reduce the peaks. I would recommend the same type of limiter as developed by the BBC for use on transmitters and before A-to-D converters, a slow limiter followed by a diode clipper. This has a much better sound than a fast limiter. The limiter side chain should include pre-emphasis to mirror the clip level of the recorder. A suitable limiter is the F601 from Audio Design which I designed some years ago.

2/ Where the floor mixer has taken advantage of the wider working window available in the digital format and recorded a wider dynamic range than would have been possible on analogue, the transfer operator may have no possibility of copying this onto the narrower working window of analogue.

Here the solution is more complex. If the final working medium is film then this should not occur since the responsibility for the dynamic range has been passed from the floor mixer to the transfer operator? Where auto-conform is used this responsibility has been passed to the editor or dubbing mixer. The solution must be in good working practice.

Good working practice should include pre-testing of the transfer bay by the floor mixer. He should discuss with the transfer operator working levels, tape flux levels and if any compression should be included in the signal path. It is of little use to complain if you have not followed this route.

CORRECTION & APOLOGY

Readers of Reg Sutton's excellent Movietone article in the last Newsletter may have been puzzled by and unable to make sense of the text between the end of page 4 and the start of page 5.

Unfortunately a line of text went missing. The editors should have spotted this and they apologise to Reg and readers for this oversight.

The last sentence on page 4 should have read 'A source of light modulated by sound passed through a hairline slit in a quartz strip on to the negative'. The top of page 5 should have read 'Later the light valve system was used with noise reduction'.

AMPS

Let's Hear It For Sound

In the early days of talking pictures, sound was said by many, to have ruined the motion picture as an art form.

Those who were opposed to sound claimed that the technical requirements of recording, restricted directors, prevented camera mobility, inhibited actors and caused great problems for cameramen.

Many were the dining out stories told, of the power the sound engineers had over directors and the prima donna activities of those responsible for recording.

What is overlooked is the fact that sound not only revitalised the sagging box office takings of a waning industry but also caused a great many technical improvements on the picture side and motion picture production in general.

One of these improvements was the standardisation of camera speed to an exact 24 frames per second. For successful sound recording, speed of the recorder must be constant and for successful reproduction the speed of the reproducer must not only be constant but exactly that of the recorder. Before sound, although there was supposed to be a standard of 16 frames per second, nothing demanded that that speed be adhered to. Cameramen would often over or under crank to help their exposures. Directors would likewise ask for speed variations to give dramatic effect to the action.

However, the main disregard for constant speed of movies was in the cinemas, where projectors equipped with variable speed electric motors would be run fast enough to enable the management to get in an extra show each day. To thwart this, directors would have their camera men crank faster so that the action in his film wouldn't look ridiculous.

Stanley Watkins, the British engineer who was in charge of Western Electric's sound on disc development, investigated cinemas to ascertain what speed cameras should run at for photographing talking pictures. He found that projection speeds varied widely, anything from 80 to 100 feet per minute. He decided upon 90 feet per minute, 24 frames per second, a 50% increase on the supposed 16 frames per second standard.

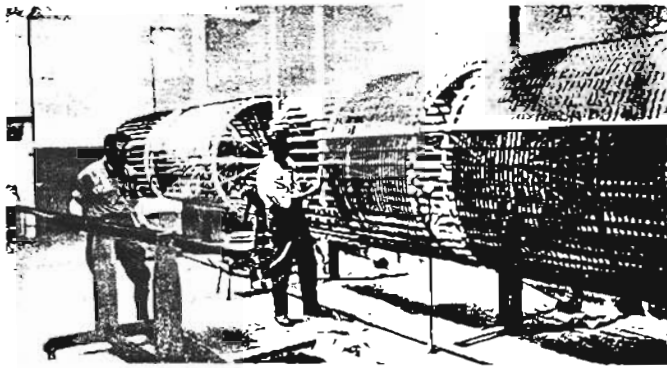
Regardless of the problems sound is said to have given cinematographers, few people seem aware of the photographic improvements sound brought to black and white cinematography.



For studio interior filming, arc lighting was necessary to expose the slow blue sensitive Orthochromatic film then in use. Red sensitive Panchromatic film had been produced by Kodak as early as 1920 but as it cost more than Ortho, producers were not interested in using it. Its first use on a feature length film was by Robert Flaherty in Samoa for 'Moana'. He used it because it gave much better skin tone to the brown skinned Samoans. Photographed with Orthochromatic film they looked black.

Sound came. The arcs then in use made a loud noise and caused interference on sound equipment. For sound shooting they were out. Cinematographers had to use quiet incandescent lighting which is in the red end of the spectrum, so getting an exposure on blue sensitive Ortho film was almost impossible. Producers had to agree to using Panchromatic film stock with its superior quality and lower lighting possibility.

Prior to the introduction of Panchromatic stock all picture negative was developed 'rack and tank'. The exposed film was wound on to racks holding approximately 200ft. The rack was dunked into a tank of developer for the time required to produce an image, then into a tank of hypo for fixing the image. After a thorough washing to clear away all trace of chemicals, the wet film was wound off the racks by hand, on to large revolving drums in a drying room.



Transferring film from developing rack to drying drum

Orthochromatic film could be developed in a low level of illumination containing no blue, known as a 'safelight'. An expert experienced person, known as the 'Negative Developer', watching the latent image emerge on the film was able to judge the desired amount of development by eye.

Because Panchromatic is sensitive to all colours of the spectrum it must be processed in total darkness, visual judgment is not possible. At this time, machine processing was still fairly much in experimental stages and not popular with producers because of the risk of mechanical failure ruining expensive negative.

When optical sound came in, replacing sound on disc, much research went into perfecting machine processing. Rack and Tank was unsatisfactory for sound negative because eddy currents at the top and bottom of the rack caused disastrous photographic density variations. For satisfactory results, the sound negative has to have controlled continuous development, which can only be done satisfactorily in long lengths by a machine. As a result of this, processing machines became safer and even reliable enough to develop the precious picture negative.

To sum up the good sound did for movies - As a result of enthusiasm stimulated by talking pictures box office takings shot up by 50%. In America admissions leapt from 57 million in 1927 to an average of 110 million in 1930. This success partly explains why the film industry survived the Wall Street crash and the Great Depression.

- Standardisation of exact speed ensured movies being projected in all places at all times at the speed and edited pace intended by the director.

- The adoption of panchromatic film stock resulted in a vast improvement of black and white tonal quality plus because of its increased sensitivity picture making in lower light levels became possible.

- Sound's necessity for continuous negative development brought about the introduction of reliable processing machines which were also of great advantage to black and white picture negative processing.

- The introduction of Sensometric control necessitated by the precise requirements of sound negative and print densities also benefited both picture negative and positive development. Motion picture film processing became an exact science.

In spite of all the claimed horrors the sound department imposed, the operational limitations were short lived. Once sound engineers, mostly recruited from the radio and telephone companies, got the idea of film requirements they worked hard

YOU HEAR HIM MAKE LOVE!



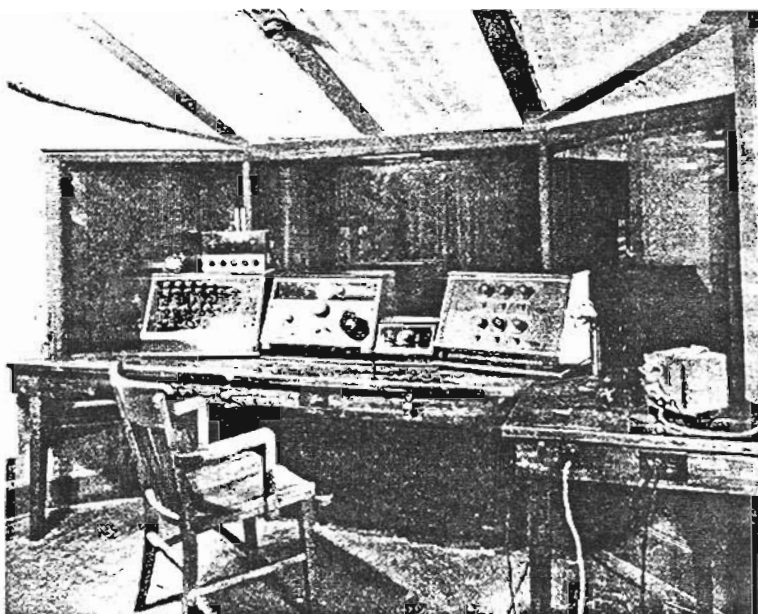
Dix—
the dashing soldier!
Dix—
the bold adventurer!
Dix—
the throbbing lover!
His first all-talking
DRAMA!

RICHARD DIX
in *The Wheel of Life*

Dangerous love! Thrilling adventure on the sun-baked desert! Soldier romance! Dix, the splendid young officer! Telling his love to glorious Esther Ralston! You have laughed with Dix in his first all-talking comedy, "Nothing But the Truth". Now thrill with Dix in his first all-talking drama! Directed by Victor Serrizinger

A Paramount Picture

Monitoring bay of Fox Studio stage installation



to find ways of overcoming the difficulties. It was not long before microphones on booms and mobile cameras in blimps were in every day use.

From then onwards there has probably been in sound, more research, more technical advancement and improvement in technique than in any other operation connected with motion picture production.

So let's hear it for sound, after all it did come first.

BOB ALLEN

JOHN ALDRED TELLS THE STORY OF DISNEY'S MASTERPIECE

PART ONE

Towards the end of 1937 when sound films were barely ten years old, Walt Disney conceived the idea of making a cartoon short using a well known piece of classical music which lent itself to animation. He had been doing a similar thing for some years with his *Silly Symphony* series. *The Sorcerer's Apprentice* was the musical item he selected, a piece which had just been publicly performed and was considered a great success. Written by the French composer Paul Dukas, who had taken his theme from a two thousand year old fable, the story concerns an apprentice magician who dons his master's hat and pronounces magic words to give a broom the task of fetching water from a well. But he is unable to stop the broom and takes an axe to it. The broom splits into two halves and even more water is fetched for the well. Disney's idea was to interpret Dukas' music pictorially using Mickey Mouse as the Apprentice.

Just by chance Disney met the legendary Polish conductor Leopold Stokowski in a Hollywood restaurant, and after Disney had explained his idea Stokowski agreed to co-operate. He convinced

Disney that an ordinary photographic sound track had an insufficient volume range to give a dramatic effect. Stokowski had already had some experience of this with the Diana Durbin film *100 Men and a Girl*, having spent the previous twenty years giving concerts, recording for RCA, and experimenting with different seating arrangements for the musicians, he suggested splitting the orchestra up into sections and reproducing the music through several channels to spread the sound over a wide area - as in an actual concert. Disney agreed and the problem of creating a recording and reproducing system which would do this, and at the same time increase the dynamic range of photographic sound, was given to Disney's chief sound engineer William Garity.

RECORDING BEGINS

Garity set out to design an effective multi-channel system, something which had not been attempted previously. He was helped considerably by Disney's chief rerecording mixer J.N.A. Hawkins, and H.M. Tremaine (author of the *Audio Cyclopaedia*). RCA also took an active interest in developing the new

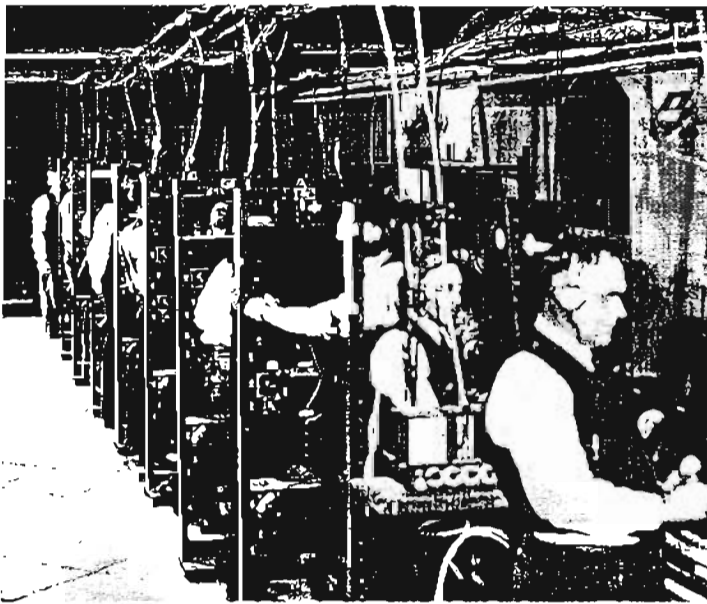
techniques. Garity's idea was to use several standard RCA mono photographic channels for the original recordings with a different section of the orchestra on each one. Although he had already built several reproduction systems, and explored many more on paper, at this stage he did not know what his final equipment combination would be. He decided to record everything in push-pull, which was the 'state-of-the-art' at that time. It had been found that push-pull systems cancelled out a lot of the photographic distortion caused by image spread, as well as most of the noise due to film joins. Class A and Class B systems were in use, obtained by

placing different shaped masks in the optical system. Both types were used for original recordings, and required a special reproducer with two photocells connected out of phase. Class B was preferred by some studios since it did not require and noise reduction shutters, and Republic Studios had already converted all their recorders. Garity chose to use Class A, mainly because one half of the track could be replayed on a standard reproducer not equipped for push-pull. RCA also fitted ultra-violet filters to restrict the exposure of the negative to the surface of the emulsion in a further



attempt to reduce image spread. Even with film stocks available in 1938, Garity found that he could record up to 9kHz which coincided with the galvanometer resonance.

Recording of *The Sorcerer's Apprentice* took place over a three hour session with 84 musicians, commencing at midnight on 9th January 1938. This late hour was Stokowski's idea as he thought that the musicians might be more alert! A production stage at Pathe's Culver City Studio was altered acoustically for the occasion to increase the reverberation and a circular orchestra shell installed to Stokowski's instructions. This shell was divided into five sections with plywood partitions in an attempt to provide some acoustical separation between each section of the orchestra. Unfortunately it was found that low frequencies passed right through these partitions, whilst at the same time the musicians in each section complained that they could not hear each other properly. Nevertheless after some seating adjustments a satisfactory recording was finally made.



View of eight recording channels at the Philadelphia Academy of Music

After many hours of sound mixdown sessions and weeks of animation, the completed two reels of the Sorcerer were judged to be terrific. But the cost exceeded all expectations and Disney decided that no short film could ever recoup such a large outlay. So Walt and his brother Roy decided to record further musical selections and produce a full length film and that is how fantastic *Fantasia* came to be made.

SCORING

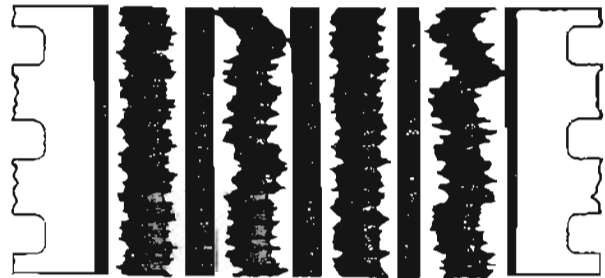
Disney had just settled into his new \$3 million studio at Burbank, when he invited Stokowski and the composer/critic Deems Taylor (who introduced *Fantasia* on screen) to a meeting. After considering a long list of suggestions the final programme chosen was Bach, *Toccata and Fugue*; Tchaikovsky, *The Nutcracker Suite*; Dukas, *The Sorcerer's Apprentice*; Stravinsky, *The Rite of Spring*; Beethoven, *The Pastoral Symphony*; Moussorgsky, *Night on a Bald Mountain*; Ponchielli, *Dance of the Hours*; and Schubert's *Ave Maria*.

For the remainder of the music sessions it was decided to abandon the Sorcerer's set up in favour of using the well known Philadelphia Orchestra in its own home at the Philadelphia Academy of Music. Here the acoustics were excellent and the musicians were enjoying a high reputation for their musical talent. Garity was still undecided about his final reproduction system, so to provide for maximum flexibility he installed eight photographic channels in the Academy basement. Since the inside of the building was of wood construction, no more than one spare magazine per channel of nitrate sound negative was allowed on the premises. So a truck was parked outside and converted into a mobile darkroom. Having witnessed a nitrate fire I can confirm that these measures were strictly necessary.

Recording took place over a two month period during the summer of 1939, using a total of 33 microphones. Six separate channels were employed to record a close mic pick-up of violins violas, cellos, basses, woodwind, brass and percussion. The seventh channel contained a mix of the first six channels and the eighth channel a more distant pick-up of the entire orchestra. The mixer handling this last channel enjoyed the luxury of loudspeaker monitoring, whilst all the other mixers had to make do with headphones. Garity decided to use oscilloscopes on all channels as level indicators, as he thought that this was the best way to see any overload. Over 400,000 feet of sound negative was exposed during the eight weeks of music sessions and it must have become quite hot down in the Academy basement. Photographs taken at the time show the eight sound camera operators stripped down to their waistcoats and braces!

FANTASOUND

Remember that in the late 1930s sound entertainment consisted of AM radio and 78rpm records. You had to visit the cinema to hear the best sound reproduction. At around this time the Bell Telephone Laboratories had conducted an ambitious experiment to record a full symphony orchestra on to multitrack photographic film reproduced through three loudspeaker systems, in an attempt to make an orchestra sound like an orchestra. The Bell system used three audio tracks



FANTASOUND
THREE SIGNALS - ONE CONTROL

Fantasound soundtracks and control track as used in *Fantasia*

and one control track, all printed on a single strip of 35mm film. Since the volume range of photographic sound was found to be 50dB, whereas a symphony orchestra was 80dB, Bell used a compression and expansion system to restore the missing 30dB. By recording a separate control track carrying tones of 250Hz, 630Hz and 1600Hz, they were able to adjust the gain of the record and replay amplifiers to match the original orchestral volume range.

Disney was very impressed with the Bell demonstration and thought it would be an ideal release format for *Fantasia*. Messrs Garity and Hawkins, together with RCA, set about adapting the Bell system to their own needs. They decided to keep to three audio tracks and one control track, and the same three control frequencies. But the



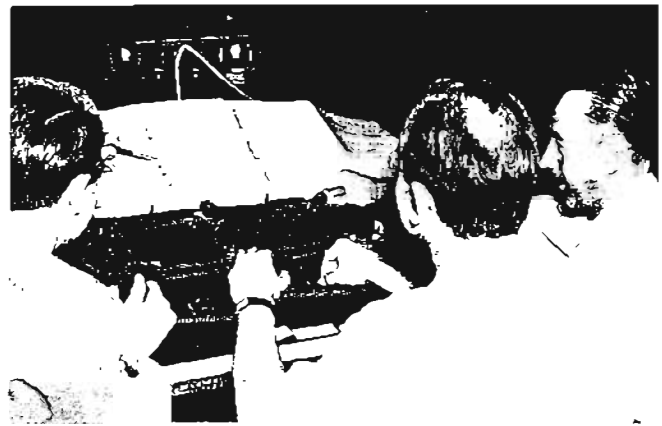
View of some of the mixer positions at the Philadelphia Academy of Music

control track was only used to control the gain of the replay amplifiers, rather like an automatic fader. Class A push-pull tracks were used and it was decided to include some form of surround sound to enhance the overall effect. The sound prints were also unique in that they were made on a specially designed optical printer with an anamorphic lens system. This gave an image ration of 1 to 1 in the direction of film travel, whilst at the same time doubling the track width. Disney's system instantly became known as Fantasound, and only survived for the one film.

RERECORDING

It is interesting to read in the SMPTE Journal for August 1941 how quickly Fantasound was developed. In 1939 several rerecording systems were tried out in the old Disney Studios in Hyperion Street. But in the following year the sound and music departments moved to the new Burbank studios, where enough equipment was installed in the rerecording theatre so that system changes could be made in a matter of minutes by means of a few patch cords. Many combinations of channels and loudspeaker placements were considered, including the Mark V system which was so complicated that the Musical Director (Ed Plumb), the Music editor (Stephen Csillag), and the mixers themselves could not remember from one rehearsal to the next what should come out of where!

One of the first requirements was to make a sound 'move' back and forth across the screen whilst maintaining a constant volume level. It was found that by fading between two loudspeakers spaced 20 feet apart, it was possible to simulate a moving sound source. A special two circuit volume control was designed called a differential junction network, which was instantly christened a 'pan-pot'. This new device was also found to be extremely useful to provide constant level fades between a close and distant mic pick-up, thus giving an accurate control of reverberation.



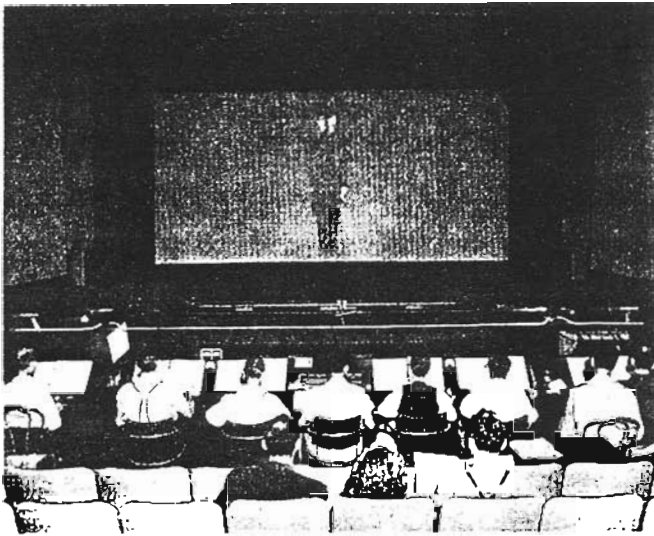
View of the 3-channel mixing position used in scoring the Fantasia vocal numbers at Burbank

The rerecording system finally chosen was the Mark VI, which had three stage loudspeakers for left, centre and right, three audio tracks, and a fourth track carrying the control tones. Auditorium loudspeakers were also installed for surround sound, which was quite a novel idea at the time. They were switched in manually as required throughout the film, replacing the stage left and stage right loudspeakers. The 'brain' of the Fantasound equipment was 'TOGAD', a Tone Operated Gain Adjusting Device, which consisted of a variable gain amplifier and a tone generator for each channel. These were used as required to increase the replay sound level. This set up required ten rerecording mixers each with three rotary faders, and a further three mixers to handle the control tones. This proved to be rather unwieldy, so by designing a three circuit pan-pot the problem was simplified and allowed six mixers to handle up to 24 channels of sound.

The rerecording process meant running eight to ten separate mono tracks according to the sequence being handled, which were panned and mixed into three audio channels and fed into three mono push-pull photographic recorders. It was decided at this stage that it would be far easier to record the composite control tone track as a separate operation after the main mix had been completed, thus making the fourth sound negative. These four negatives were then synchronised for printing on to the composite quad print. It is interesting to note that Disney's RCA recorders were all fitted with noise reduction shutters, whereas in 1940 the biased galvo system of noise reduction was gaining favour as the preferred method. All three channels were also combined to make a standard sound negative, so that normal married prints could be made. This provided a back-up track should the Fantasound equipment fail - which it seldom did.

FANTASOUND RISE AND FALL

The development of Fantasound did not end with the first mix. There followed the Mark VII system which was the first to be built entirely by RCA at a cost of \$100,000. It was identical to the Mark VI



View of the programme dubbing console in operation

which was the first to be built entirely by RCA at a cost of \$100,000. It was identical to the Mark VI used for the mix, but included improved control tone circuits which changed the tone-programme amplitude characteristic. The Mark VIII system consisted of the Mark VII rearranged physically and the second mix of *Fantasia* was done through this system. This set of equipment was eventually installed in the Broadway Theater, New York, for the World Premiere on 13th November 1940. The amplifier and power supply racks stretched for over 30 feet and used 400 vacuum tubes. The power amplifiers delivered 120 watts per channel, and each loudspeaker system contains eight low frequency units and a large cellular horn to which four high frequency drivers were attached. Two additional 50 watt amplifiers fed 22 small speakers mounted on the sides, back and ceiling of the auditorium.

With re-recording completed *Fantasia* was now ready for release upon an unsuspecting public. In the next Newsletter I will describe what happened when the film was finally shown.



Part 2 next
Newsletter



Excerpt from an interview with rerecording mixer Les Fresholtz CAS by David M Weishaar CAS on the occasion of his presentation with the CAS Career Achievement Award, first published in the Journal of the US Cinema Audio Society in May of this year.

DW: *I went to a theater to see Jurassic Park in digital. I experienced what I consider to be dangerously high levels (dBs) of sound. I wonder, where are we going with this? It was painfully loud. This sort of playback level worries me a bit. What are we re-recording mixers doing to ourselves on a daily basis? Since our livelihood requires good hearing, this should be a concern to all of us (mixers and editors).*

LF: It worries a lot of people. We are going way beyond necessary SPL (sound pressure level). Most of the stages in town, and I am sure they are going to feel the need to do this in here, are going to have enough monitor amp power to practically blow the consoles back. Now they (producers and directors) are asking for more and more level because they know about these capabilities. It is getting a little dangerous (for us that is). Also, with the digital release format you do not have to worry about optical compression or clash. Now you can really hurt peoples hearing. I remember people complaining at the Academy when we were running 70mm mag tracks, that it was too loud. They really should have meetings on this level situation and look at governing this a little better.

DW: *Are we going to set some sort of governor on the level of the final digital release?*

LF: I believe so. Some of the mixers here just finished a fairly loud show with Stallone in it. It had nothing but explosions. They would do a reel and then have to walk out and take enough of a breather for their hearing to decompress. Give their ears a rest. Because they, the clients, were calling for louder sound. More, more. With our technology today, and the size of our power amps, we can deliver.

DW: *Yes I guess in the past we had our technological limitations to keep us from going overboard.*

LF: Yeah, you'd say you had limitations, it's going to get squashed or something like that.

DW: *Any last thoughts, Les?*

LF: Well yeah, hopefully we will all do something about this before someone says to you "Hey, can you pull those crickets down a little...."

.....and you think, "What crickets?"

Brian Hickin reports on

A VISIT TO TECHNICOLOR

The journey down the A4 from London to Technicolor is one I always embark on with some trepidation. I have been making this pilgrimage on a fairly regular basis for over 30 years and the Technicolor chimney is one of the few landmarks on this stretch of the Bath Road that does not change with the regularity of the seasons. It does however appear to move further away from London. Triffid fashion, every time I turn my back.

On the 19th July, twenty of us gathered in a room very close to that chimney, guests of Paul Stapley-Tovey and James Winterbon, both AMPS members and Technicolor employees, who had arranged this evening to show us the final stage of producing a film soundtrack - the optical negative. The optical negative is the essence of all our labours. It could be said that our very reputations hang on each and every mod, be it analogue or digital.

We were fed and watered to a very high standard, as is Technicolor's custom, prior to being divided into two groups to tour the laboratory and then to take a very detailed look at the optical camera and the resulting track. Following this in-depth explanation we went into Technicolor's preview theatre to listen to sections of the sound tracks (with their associated pictures) of *Braveheart* and *First Knight*, both hard hitting (loud!) action movies, comparing analogue with digital, Dolby with Sony and vice versa. Tim Partridge from Dolby, also an AMPS member, joined us at this stage to help sort out and answer some of our many questions.

Due to restricted space we had to limit this expedition to only twenty. Perhaps Paul and James could be coerced into arranging another evening in the not too distant future, allowing those of our members who were unable to attend on this occasion to enjoy Technicolor's generosity and be exposed to the intricacies of optical sound.

I think the editor of the Newsletter was expecting a technical diatribe explaining such things as the meaning of cross mods, flux meters and exactly how an optical track is produced. I have to tell him, and you dear reader, this information is available on application to Technicolor's sound department on 0181 759 5432 !

UK Film Commissioner Impressed



Gentlemen

Thank you so much for sending me a copy of issue 14 of your Newsletter. Such an excellent, readable journal. AMPS members are fortunate in having such an interesting publication, linked to themselves.

I was touched by the non-alphabetical running order you selected when listing the two recently announced Knighthoods!

I remember Cyril Crowhurst very well so it was interesting to read your piece about him on page 3. I may have, from time to time, crossed swords with microphone operators of his, those handlers of hefty Mole trolleys with massive booms and large areas of RCA hardware hanging off their ends - affectionately known to those of us in the camera department as shadow machines.

It was a pleasure to read Reg Sutton's piece on Movietone. Later in his career, Reg was the General Manager during the formative years of Samuelsons. He joined me as 'Chief of Sound' (at that time our sound department consisted of him only) in our half shop at the Burroughs, Hendon. Subsequently he helped to build the company with my brothers and myself and Samuelsons owes a great deal to him. He brought us technical expertise, management skill and wit, an unbeatable combination of qualities. Sadly, his wife and life-time partner, Faye, passed away only a few weeks ago. I am happy to say that Reg remains the same old Reg - outspoken, feisty and witty, all at the same time.

You kindly mentioned the Friends of the Academy fund raising scheme at BAFTA. If any company, organisation or individual is interested in participating at one of the levels - gold, silver or bronze (£1,000, £500, £250) I hope they will feel free to contact me direct.

I look forward very much to AMPS issue 15

Yours sincerely

Sir Sydney Samuelson CBE

THE JOURNAL

"When I'm caught between two evils, I take the one I've never tried" Attributed to Mac West

'STEREO' NOW OLD HAT

Members may have noticed that Dolby Laboratories have removed the word 'Stereo' from descriptions of their various film technologies and logos. Catherine Unwin, Dolby's marketing services coordinator, tells us that earlier this year, in-depth research regarding the habits of frequent cinema goers found that people tended to associate 'Stereo' with older technology and simple left right speaker arrangement,

As a result Dolby have decided to streamline their logo identification for their various film sound formats as follows



This logo is used to identify films presented in the original Dolby analogue sound format (formerly known as Dolby Stereo).



Dolby SR 'Spectral Recording' analogue sound - long recognised as the high quality standard for analogue soundtracks.



Used to identify films with Dolby Digital soundtracks

NEW DAT MACHINES OF INTEREST

New from Tascam is a compact portable DAT machine intended for professional use. Designated the DA-P1, it is a fairly standard non-timecode machine but offers a number of features of note - a built-in limiter to protect headroom; and a 'margin function' that tracks and displays remaining headroom with warning indication of any clipping during a take.

Quite different and a departure from DAT standards is the Pioneer D-9601 DAT recorder. A mains powered machine it offers high sampling rates of 96 and 88.2 kHz as well as 48 and 44.1 kHz and the ability to convert high sampling rates to standard outputs. The main advantage is the extension of the HF response out to 44 kHz but for most of us it should probably be taken as a warning that not all DATs are now standard. So watch out for anything labelled *HS DAT* as it will not play on a standard machine. It's available only from HHB.

SOUNDCRAFT SURROUND POST CONSOLE

Soundcraft have added a surround sound version of their new DC2020 post production console. It contains a version of Interact Systems Magtrax Surround Sound Interface offering four, five and six channel working with monitoring routing and dual LCRS panners.

NEW COMPANY, NEW AUTO-ALIGNMENT

AMPS member, Jeff Bloom's new company Synchro Arts has launched a software package for automatic synchronisation and alignment of dialogue in ADR work. VocALign is being made available initially for Digidesign ProTools but Avid AudioVision will follow. This is a development of the technology that some may know as Audio Magic or WordFit. The cost is quoted as under £1,200 which opens new possibilities for wider use.

INTERNATIONAL RADIO MIC STANDARDS

The European Telecommunications Standards Institute is due to publish recommendations for type approval of radio mics which it is hoped will form the basis for a Europe wide standard rather than the existing 25 different standards. There is also work underway on frequency harmonisation as the Central European Post & Telegraph (CEPT) issues a second Detailed Spectrum Investigation asking for interested parties to respond to it. At present there are moves to move radio mics to the 29MHz to 34MHz bands across Europe.

DAR OPEN MEDIA RECORDER

Announced but not yet shown is a new 8-track disk based recorder from Digital Audio Research that is based around an optical disk system but also able to record on hard disk. Fully featured, it included the ability to record in the OMF1 compatible disk format.

LOW-NOISE SADiE

Cambridge-based CEDAR Audio has custom designed a noise reduction system specifically for the SADiE digital audio workstation. Known as De-Noise, it is a stereo broad-band system that will be part of the SADiE3 system for release at the end of the year.

SOLID STATE NAGRA FOR RICHMOND FILM

Richmond Film have taken delivery of the first production models of Nagra's new ARES-C solid state ENG recorder. Although designed initially as a radio recording system there is a general assumption that other applications will follow.

3D TV

Amongst the proliferation of Dolby Surround systems in home cinemas and high tech computer games at the consumer Live 95 show, was the large stand of Sanyo almost totally dedicated to 3D TV. They've been working in this field for years and had several systems on show that required the use of electronic glasses. But perhaps the most stunning were the foot square LCD TVs that created 3D without glasses only requiring the viewer to keep an approximately central position for maximum effect.

An Ad-agency want to hire my armpits - do you have a deodorant that smells like money?



LES GIBBARD

GORDON STRONG RETIRES

Many members especially those in feature film post production will know Gordon as Chief Projectionist at Pinewood Studios, while many others will know him from phoning to make seat reservations for AMPS Theatre 7 film shows.

Gordon joined Pinewood Projection Department in 1956 after earlier training and experience as a cinema projectionist. Since 1980 he has been Chief Projectionist and now in 1995 he retires after a total of 39 years at Pinewood.

In recognition of the help given to AMPS and his long service to the motion picture sound industry, the Council decided unanimously at their August meeting to make Gordon an Honorary Member.

So congratulations Gordon on your retirement and Honorary Membership. The Council is sure all members will join them in wishing you a long and happy retirement.

THE QUINE QUINA

"I well remember the grim satisfaction I felt when for the first time in reproducing a photographic record of my voice I was able to clearly determine whether or not it was being run backwards"

- Dr Lee De Forest, sound on film pioneer, circa 1920

AMPS & THE INTERNET : YES OR NO?

The Council are investigating the possibility of joining the Internet and of what benefit it could be to the Association and members. Sandy MacRae is undertaking the research and would very much like to know how many members are already online and 'surfing'. His E-mail address is sandy@macrae.demon.co.uk

If you aren't already involved but are considering it he would also like to hear from you. His Royal Mail address is 2 Silvertrees Drive, Altwood Road, Maidenhead, Berks SL6 4QT and his steam telephone number. 01628 35305.

HAVE YOU CHANGED YOUR PHONE OR FAX NUMBER?

Our first Directory of Members was published last January so we feel a page of updates may called for shortly. Please let Peter Musgrave know any changes to your phone or fax number, any errors in the first edition or members recently deceased.

Send them to 25 Bury Street, Ruislip, Middlesex HA4 7FX. Sorry but this applies *even* if you have already informed the Admin Secretary of such changes.

FOR SALE

TIMECODE NAGRA 4S. Fully refurbished / overhauled with new heads and timecode version 1.9 fitted last year by Nagra UK. Mains power supply included. Superb condition - £6,250, no VAT. Call Steve Hunter on 0161 442 2256 or 0831 236899

FRANCE - UNIQUE PROPERTY for sale, about 1.5 acres. 18th Century, beautifully renovated water mill on the River Seine about 50 miles from source in small Champagne producing village but only 5 miles from Bar Sur Seine with good shopping centre and four supermarkets. 270 miles south of Calais of which 260 on motorways. Also close to Dijon and Chablis (Burgundy). Large well stocked (trout, carp, bream, roach, tench, barbel, chub, pike and perch) mill pond in gardens - 3 islands in the Seine accessible by private bridges - more than 150 yards fishing (trout etc) from private banks to Seine. Accommodation: 3 large bedrooms, 2 bathrooms, kitchen, toilet, massive oak beamed lounge (aspect - river one side, mill pond the other!), massive bam adjoining house, barbeque, original mill pulleys etc. massive beams. A nature lover and fisherman's paradise - unique. Bought 5 years ago, reluctant sale. Contact Harry Hutchings at HML, 01737 244823