Talking to Bruce Jackson about audio is about as simple as talking to Picasso about art. Where do you begin? (Okay, so it might be harder talking to Picasso for obvious reasons, but with the right clairvoyant… well, you know what I mean.) Whole stories could be written about Bruce’s establishing of Apogee Electronics, his preparations for the Olympic opening ceremony sound, his amazing history of doing FOH for Elvis and Bruce Springsteen, or his involvement with (US sound production giant) Clair Brothers and the product design work there, or even, closer to home, his establishing of Jands in Australia (that’s right, Bruce Jackson put the ‘J’ into Jands).

So where to start? Well I almost didn’t. I’d arranged to meet Bruce before the start of the second Barbra Streisand concert in Melbourne a few months back. Bruce was the sound designer for the tour and there was a lot on his plate. On the previous evening a news reporter decided to make a name for himself by going on record declaring that the concert’s sound was dreadful – and Bruce Jackson was singled out by name. The comments sent the whole Barbra entourage into a flat spin. The PR machine moved into overdrive and so did Bruce. I was able to observe Bruce in action over the course of much of that day and never once did I see him lose his cool. Everything was done quickly but methodically, until by 5:00pm after the sound check everyone was nodding their heads in approval and musical director, Marvin Hamlish, concurred: “I don’t know how it sounds out there, but whatever you’ve done on stage Bruce, it’s worked.”

Afterwards, over dinner in the canteen, Bruce seemed
content but still visibly taken aback by the whole affair.
Here was a man who has singlehandedly probably done
more to further the fidelity of live sound than anyone else
on earth, taking the rap for an alleged Barbra Streisand
‘hold the front page’ disaster. It didn’t matter that the
Australian shows would subsequently be almost universal-
ly hailed as an audio success, these types of barbs hurt.

Weeks later I was pleased to be able to get the real
story from the man himself.

Christopher Holder: What did happen in Melbourne
Bruce?

Bruce Jackson: We had a minor glitch in Melbourne
with a rogue reflection. Our problem was we ran out of
material to completely drape all the empty seats, so we
had a location around the centre of the field that was
getting a little slap.

CH: I think it was Roger Daltrey who said that
Melbourne’s new Colonial Stadium was “a great place
to watch football but crap for hearing music”. Do you
agree?

BJ: It’s a tough venue. We would have been dead had the
stadium not co-operated in the beginning and spent a
small fortune on permanent drapes. They put tracks in
and fitted really good quality, heavy wool serge drapes
from England – they’re the best I’ve ever run into. They
had many kilometres of material and they claim that it
cost them $700,000. Without the drapes, and with all
those glass surfaces of the corporate boxes all tilted
straight down at the field, we couldn’t have done the
show. In fact, that’s what we told the stadium early on in
the piece – “look we can’t even think about doing it here
if we don’t control some of this stuff”.

The problem we ran into was mainly caused by empty
seating areas in the stands. The seats were empty
because they were in the ‘shadow’ of three large towers
which were there to satisfy Barbra’s need for
teleprompters. She’s willing to sacrifice those seats for her
comfort, but it means you have hundreds of empty plastic
seats all causing a lot of unwanted reflections. I wanted
all those seats covered, but we ran out of material before
they were 100% covered. So before the second
Melbourne show we quickly went out and bought $6000
worth of heavy felt. The felt drapes are actually designed
as road building underlay and very inexpensive. We were
using it in Sydney as well. The outdoor stage we used in
the Sydney Football Stadium’s has a concave plastic roof
above it that focuses all the sound that goes up into it
back down to the stage. So I had them line the whole
underside of the roof with absorbent material – this road
felt. And that’s what we did in Melbourne, we got a whole
bunch more of that on very short notice. We threw it over
the remainder of the seats, and then we were fine.

Overall, I’d say the quality of coverage for that concert
was first class, and I think everyone got to hear a great
show, even those at the very back.

CH: I noticed you were using your trademark ‘afterburn-
er’ delays to hit those seats at the back of the arena.

BJ: Those delays make a real difference because you do
get a load of highs absorbed over distance, and those

after burners kick it off nicely.

CH: What inspired you to use the afterburners in the
first instance?

BJ: I pioneered it through need when I was doing the
sound for Bruce Springsteen in the early ’80s. In those
days he was very fastidious about the sound and he
would walk around with me at every venue and we’d work
on the sound of the band – the poor old band would have
to play the same song over and over again. After walking
around he would say, “you know, when I’m back here it
doesn’t sound as nice as it does over at the mix position,
what’s the problem?” And I’d tell him why, and how that’s
the way things are, but he wasn’t satisfied. He said, “fix it.
Whatever it is that you need to do, I’m right behind you.”
That was fun being able to do all sorts of enhancements,
which typically no other shows did, because no one
would let you spend the money. And so we pioneered
these delayed super highs and regular delay cabinets, and
with Barbra it was just an evolution of being able to do it
more and take it even further. Barbra’s another one of
these rare breeds that’s behind these extra measures
100%. I can’t think of any other performer who would
allow me to go to the lengths I have to provide the best
possible sound.
Bruce Jackson discusses Elvis, Springsteen and the early days, with Dave Lockwood.

DL: So how did you get started in live sound engineering?
BJ: I was making guitar amps and strobe lights in the 60s and dropped out of university in Sydney and formed a company called Jands – which stands for Jackson and Story. We would rent out strobe lights, guitar amps, and speaker cabinets and PA columns on the weekend, servicing all the clubs. We were just 17 or 18 years old when we started it, and most people said that two kids could never be successful starting up a company. But fortunately things went well and Jands grew and grew until my partner and I started disagreeing and I decided to take off to London, which is where all Australians used to go.

But I never actually ever made it. I met up with Roy Clark when he was in Australia with Blood Sweat and Tears – I knew a guy in over the back fence of Randwick race course, and me and my friend Russel Dalliston snuck in, saw the show and were absolutely amazed. In Australia, we were still using columns and WEM Audiomasters and Bandmasters, and all of a sudden here’s a system with W Boxes and compression drivers and tweeters, and technology never seen in Australia. It sounded just amazing.

I spoke with Roy Clark, and he and I got friendly, and he said he had this tour coming up with Johnny Cash, and he’d like to leave the equipment in Sydney. So he left it with me, and when he came back, I actually did the tour with him. Then he said, ‘why don’t you stop by on your way to London?’ So I headed across to America, after selling Jands, and went to visit Roy, and he invited me to come out on tour with Blood Sweat and Tears – so that was how I did my first tour in America. I’d never driven a big truck before in my life, but he put me in this really big, 14-speed truck and said, ‘take it back to Pennsylvania’. No licence, nothing! So I jumped in the truck and off I went, and that was the beginning of my career in America on the road.

At the time Elvis Presley had come out of retirement, and he was doing some concerts around the place, but back then tours didn’t really use one sound company. So when he came into our region, Clair Brothers were called to do the sound. However, Colonel Parker, Elvis’ manager, wanted to sell every seat in the house and obviously you stack the PA on the stage, you block lots and lots of seats. But hanging technology didn’t exist back then, so we stole a technology idea from the ice shows, which is now the standard, the CM upside down mounted horns. We were the first to use those motors from a sound point of view, and the interesting thing is, it wasn’t for better sound, it was for better gross profits! We developed a cluster using Community Light and Sound horns in this aluminium frame, which was way too heavy for the motor. Initially we used one motor to pick it up, and then we added a double purchase block and took it from one ton to a two ton, but it was still overloaded – it would actually start to run backwards when we stopped it until the brake would catch properly. It was just scary. I got along well with management and Clair Brothers essentially did a good job, so they asked me, representing Clair, to be the sound contractor for the tour all over the country, and then they went from that to saying ‘we want you to do all the shows’.

So, over the period of six years, I developed a very good, close relationship with Elvis, which reached the point where he had a lot of confidence in me. He even got me to come to Las Vegas, where I wouldn’t do anything – all I’d do was stand beside the stage, and he’d look over and say the lights are too bright, and I would pretend to go and fix something up, or he’d tell me that the monitors are too loud and I’d do something where I could, and other times it was just a matter of being there. And I got to experience lots of fun stuff as well. It was always fun to travel with him because we’d leave the concert in the limos and we’d have the police escort – he was a very favoured guy by the police – and we’d roar out to the airport. He had five jet planes at one point, but before he bought a plane for himself, we used the black Playboy plane, with the bunnies serving us. When Elvis decided he wanted a plane, he didn’t want ‘one of them two engine planes’, he wanted ‘one of them four engine planes’, so he bought a Convair 880, which is kind of like a very sleek looking 707. He actually looked at a Qantas 707 before he decided on the ex Delta Airlines Convair. It was set up for 18 people, and Elvis and a queen size bed in a bedroom in the back, and there was a guest bedroom and a conference room, with a long conference table. Once I got a call at three o’clock in the morning – the boss wants to see you! So I staggered out of bed, pulled my jeans and T-shirt on and went up, and there’s Elvis sitting in bed with his karate jacket on, sitting up with his gold-plated gun right beside his bed. And he said, ‘Bruce, the goddamn sound system on the goddamn plane is all f**ked up. I don’t care what it costs, fix it or I am going to shoot the goddamn thing out!’ Everyone became very nervous because they knew he had the potential of actually shooting the damn thing out.

I put in a whole bunch of new power amplifiers and parametric EQ and ten JBL Control monitors – this whole big sound system on his plane that weighed several thousand pounds. Normally with aviation, just a few pounds is important, but the plane was empty all the time, so a few thousand pounds didn’t make any difference. But the funny thing was, all he used to listen to was Monty Python anything – most people just can’t imagine the concept of Elvis Presley listening to Monty Python! After that, Bruce Springsteen had just come out on the road again in ’78, after going through all sorts of problems with management. They wanted help with the Darkness on the Edge of Town tour, so I went out and did that. Bruce and I hit it off really well and we became friends – I was able to give him a lot of input as far as the way material came across and the way arrangements would be working, and he was always open to that input. He then convinced me to stay, and I spent ten years touring with Bruce, mixing FOH for every show from that Darkness tour all the way through to towards the end of Tunnel of Love, when my son was born and I decided that was it. I’d had enough, and I retired.

DL: So how did the PSTEast connection come about?
BJ: Well, she had decided to do two shows in Las Vegas to open the MGM grand, but she’s very picky and knows exactly what she wants. Her management kept asking around who would be the best person for the job and my name kept coming up, as I had been associated with a lot of different performers who were said to be up for the job. So they approached me, and I said no. They persevered and I eventually agreed but on the understanding that I could really just do whatever I wanted. I stuck up a very good working relationship with Barbra and she basically gave me carte blanche to do things like carpeting the facility in Las Vegas – they were still building the facility up until the day we did the show, still welding and grinding! I put extensive delay systems throughout, and just did all the stuff you’d like to do in the PA world, but never get the budget to do, and it was very successful.

Although, Barbra was still very uptight. I went backstage in the intermission and she was saying how nervous she was, and was saying, ‘oh, you’re just doing fantastic out there, and how does it feel?’ And she said, ‘well, you know the orchestra’s a little bit soft’, and a bit of this and a bit of that, and so I went out there and worked with Jim Devenney, my crew chief and also the monitor mixer. We made the adjustments, and then she came back after the intermission and started singing Evergreen, and she actually changed the words and sang, ‘Oh Bruce, it feels marvellous up here now’, to this audience paying seven million dollars to see the show! After overcoming her nervousness about doing that show, she then agreed to do 24 more shows.

This interview with Dave Lockwood appears courtesy of Audio Media magazine: www.audio-media.com
different kind of thing. You don’t get that great big ‘wall of sound’ with the chest-thumping bass you get with Clair’s other, more rock’n’roll oriented, cabinets. The line array gives a very pristine, clean, accurate image, and when you listen to it you hear a very discrete left and right signal – you don’t get the wall of sound in your face that’s been part of the live experience for so long. I think somewhere in between these two extremes there’s a compromise which has to be made for driving rock’n’roll. There are rock acts that are using line arrays, but it just doesn’t have the old feeling that I like, which is to go to the concert and get immersed in this huge experience of feeling the sound all around you. I think that feeling makes the live experience different and more exciting than listening to your hi-fi speakers at home.

CH: But you’d agree that line array systems are pointing to the way ahead?
BJ: Yes, line arrays are very clearly the future.

CH: How did you rig the i4s?
BJ: These cabinets have a 90 degree horizontal coverage, and they vary in their vertical coverage from 2.5 degrees for the long distance ones and five degrees to 10 degrees for the cabinets that tilt right down. The theory behind these cabinets says that you should just have one cabinet covering one discrete area of the audience. But, after hearing a good number of line array shows, I didn’t really like that effect at all. So what I did was to have overlapping patterns. Actually I had these patterns overlapping a lot, so even those people around the sides, except for the extreme sides, heard it as a stereo image.

CH: Didn’t that cause some nasty phase problems?
BJ: That was predicted, but I didn’t hear it at all. Remember, we’re dealing with unknown territory here, this was the first outdoor show that used this new Clair system. You listen to some people and they’ll say that these line arrays have perfect coverage and perfect projection, that sort of stuff. But the reality is you’re still dealing with the physics of the air. You can use smart design to cut through the air better, but I still think you need those delays to help out at the back of the arena.

CH: So what’s your overall impression of the new i4 system?
BJ: I was very happy with it. You don’t have the interference patterns of conventional systems, the vocal quality is much better than Clair’s older systems… but the main thing is the coverage. If you have an i4 cabinet aimed at a certain seating area and then you walk up to the seats just above that area, the sound goes away! You just wouldn’t think you’d have that sort of control. Naturally, the lower frequencies allow for less control, but the more cabinets you have the more overall control you have. This control allows you to stop the coverage into areas where there are no audience members…..usually where there are reflective walls and surfaces.

As I say, I think the vocal quality is really very good, you don’t have to apply all this crazy EQ to try and clean things up, it naturally comes out nicely. The only criticism I have is that the bass is a bit lacking in my book. I think Clair are addressing that by adding more bass cabinets to the range. There are rules with how you juggle this technology in a line array system, and it depends on the wave length of the sound and the spacing of the speakers – so you’ve got to work within that criteria – but Clair can still abide by the rules and get some more punch. I think that’s my only complaint, it doesn’t ‘kick’.

CH: So it’s not as easy as augmenting the system with some conventional ground-stacked subs?
BJ: I don’t like putting the subs on the ground. I think that’s a shitty solution, it just bathes all those front rows in a kind of wooliness. They’re the important seats after all.

CH: Were there many changes in your specifications since Babra’s last shows in 1995/96?
BJ: It was pretty much derivative. Saying that, these shows were the most complicated Clair have done, and therefore probably one of the most complicated shows done worldwide. But it’s not a complicated production because I enjoy playing around with truck loads of gear. It’s done because Babra’s pretty fussy, and is very quick to complain if she doesn’t like something. Although, we had almost zero complaint from her department, except for the one time in Melbourne where she commented, when the music stopped, that she could hear an echo. Which is what the newspaper picked up on.

CH: Was there much in the way of acoustic treatment on the staging?
BJ: We had carpet all over the place. Almost all of the vertical and horizontal surfaces were carpeted then painted. Then underneath the risers we installed these giant ‘pillows’ that were about 16 feet long. I had the opportunity to work with David George the set designer and I told him that I really wanted to separate the orchestra sections out, I didn’t want all the trumpets and trombones blowing into the string section. I wanted to lift up the brass, and that worked in with his Egyptian theme, which put the brass higher up the ‘pyramid’. So I got to really separate the sections out, much more than ever before. That was great, because it’s hard to
Each of the i4 cabinets addresses a discrete portion of the audience

protect those strings.

CH: I noticed that the strings operated on pick-ups?
BJ: They’re not actually pick-ups. We used Sound Lab mics which go inside each instrument, and they were rounded off with Shoeps overheads. Those Shoeps overhead mics can be a disaster, they pick up on everything around them — but they sound nice. So the Shoeps mics captured the ambience while the Sound Lab mics got the richness and fatness of the instruments. Those Soundlabs mics actually use a little Sennheiser MK2 capsule. Sound Labs have worked out a set of standard EQ in small boxes that follow the mic, which compensate for the fact that the mic is sitting inside the instrument. The result is surprisingly rich, capturing the subtleties of both pizzicato and bowing better than you’d think.

CH: You kept on-stage noise to a minimum with in-ear monitoring?
BJ: Yes. The rhythm section were on custom moulds while the rest of the orchestra were on little off-the-shelf Sony earpieces.

CH: But Barbra prefers conventional monitoring? I noticed quite a few wedges on stage.
BJ: And that’s the struggle. I need to keep the rest of the stage as quiet as possible so I can then deal with all those monitors and the fact she tends to sing into her mic sideways — I keep having to bug her to stay on top of her mic.

When I was first asked to work with Barbra I was told that she’s always hated every monitor she’s heard since the ’60s. So I thought, ‘That’s interesting, wonder what that’s about?’ The main thing that’s changed since the ’60s is the advent of the compression driver. At the time, Apogee Electronics were distributors for Roger Quested’s studio monitors. So I talked to Roger and built my own speakers using the ATC soft dome drivers that Roger used in all of his big Soffit-mounted studio monitors. I combined those with a Morel tweeter. The soft domes also create pretty ‘friendly sounding’ bleed into surrounding mics, unlike most compression driver type monitors, which can be very edgy. Everyone was very nervous about Barbra’s response to those monitors, but the first time she heard them, that was it, she never made another comment — so I thought, ‘Okay, this is pretty painless’.

CH: I was wondering how robust those monitors would be, but I suppose you didn’t have to worry about her throwing a vocal mic into one or pouring a bottle of Jack Daniels over it.
BJ: They’re not built to be very loud. We had 16 of these monitors on stage and we were going for coverage and quality. But I was still surprised that we didn’t lose any drivers. I thought we’d be losing tweeters and the occasional soft dome, but no. The worst punishment those monitors got was when my Clair crew chief and Barbra’s monitor mix, Jim Devenney, would go up there and do his ‘check one two’ on stage. He’s got the most destructive voice I’ve ever run into! But I also knew that he’d be the one in charge of changing anything that blew, so…

CH: What’s Barbra’s vocal mic of choice?
BJ: She was using a Shure 87, not a Beta 87. The Beta was too tight and had too much of a nasty top to it. Plus, the fact that she gets right on the very side of the mic, means the more forgiving, wider response of the 87 is better suited. The other interesting thing is that you have to go through and select 87’s individually. They all sound slightly different — although Shure won’t tell you that. She was also into the colour of the mic — she decided that the mic needed to be a certain metallic colour to match her dress. Then I showed her an Shure SM81, which they call ‘champagne’, she said, ‘that’s exactly what I want’. I got it made and mentioned that the special colour has a little bit of gold in it. My mistake… she told me, no, she didn’t want any gold in it, so we redid it with the right silver, and no trace of gold. But that’s how she is, she’s in it to the nth degree. Nothing escapes her, no matter how subtle.

Next issue Bruce discusses developing Apogee’s UV22 process, selling Fairlight samplers to the world, and his latest pet projects. Also thanks to Jim Devenney for his assistance with this article.