

Dan Armstrong



talks about pick-ups and plastic guitars to Jeffery Pike

Dan Armstrong is a man of ideas. Inventor, designer, maker, musician, he's constantly expanding what you can do with the electric guitar. I called on him to get up to date on his latest guitars and gadgets, but he just *had* to tell me first about a new tuning he's been working on!

'I've found a whole new way of playing: you tune the guitar in even fourths throughout, that is, with the first string up to F and the second up to C. It gives you a whole new approach: everything suddenly makes sense.'

My face must have registered a blend of interest and scepticism, so he grabbed one of the guitars which litter his flat and demonstrated: 'All the major chords are this shape, this shape or that shape. Minors are this or this. There are only three possible shapes for no-root/fifth colours, except for ninths. You've got your fifth on top instead of the bottom, so you're out of the bass player's way entirely.'

'I've been working on these "colour" chords for several years, listening to piano players like Bill Evans and Chick Corea, the things they're doing with harmony. I found that they work well on the bottom four strings of the guitar: with the succession of fourths, any note is automatically harmonised — if you hear a C, you know it's going to have a G below it, an F above it. But when you get to that "note" in the tuning, the major third between second and third string, you have to relearn it all. So tune up the top two strings a semitone and it's regular patterns all the way through.'

'It's changed my whole appreciation of music. The piano looks different to me now, the keyboard makes sense, *music* makes a lot more sense. All the scale patterns, the melodic minors, diminished scales, whole-tone scales, they're all regular now on the guitar. Because you don't have to compensate for Spanish modal tuning. You're not playing Spanish modal music any longer.'

'There's a guy named Jim Ryan, a real good session guitarist, he's on Carly Simon records and so on. When I first started playing with this tuning, a few months ago, he'd come over, pick up the guitar and shout, "Ah, sabotaged again!" After I'd been at it for about a month, I said, "Before you tune it down, let me show you what it can do." He listened and went away to try it. Then he called me up and said, "Hey! I think you've got it there." Well, he's been at it for a month, and he's given up the regular tuning on all his sessions. He says he's pleased to listen to the playbacks now: he's not playing the usual hot licks he used to play. You know, everyone has their own bag of hot licks, but you just can't do them in a new tuning, they come out wrong. So it forces you to look for new things. And with this tuning, you're looking at a nice, even checkerboard pattern.'

Looking for new things is the keynote of the Dan Armstrong approach. Before we left the subject, he explained another fascinating tuning which he devised once when he was playing

A fine brace of Armstrongs



without a bass player: 'The guitar is tuned down a whole fifth, so it's A to A, instead of E to E. But the third and fourth strings are tuned an octave higher than they would be, higher, in fact, than the first two. Of course, you have to choose your strings with this in mind. Then you get plenty of separation between the chord voices on the top four strings and the bass on the bottom two. You can be a guitarist and a bass player at the same time, playing a chord solo and a bass part simultaneously. With conventional chord shapes, this tuning gives you inversions with major second intervals and things like that. I used that for a while accompanying singers.'

So much for Armstrong the guitarist. Armstrong the guitar-maker has a unique reputation for novel designs — including the famous see-through guitar. I asked him how his designing career started.

'By fixing my own stuff. Every time I found out what was going wrong and fixed it, I learned a little bit. Then I went to New York and found that the only guy who was doing any electric guitar repairs was going out of business. So I went over and helped him out for a few months, and saw that there was an enormous amount of business around. I opened my own shop and started doing the same kind of thing. There was a lot of work just re-wiring Telecasters and Stratocasters, because their wiring is so weird. Like, I figured out how to re-wire a Strat so you can get every combination of pick-ups. And I used to change the guitar tone control capacitor from a .1 to a .02, because the .1 just robs all the highs — you know any Fender players who ever use their tone control? Stuff like that. When you're repairing things, if you're a susser you say, Ah, this should have been made better to begin with, and you figure out how to rebuild it instead of just repairing it.'

I used to change the capacitors on Telecasters too — the top pick-ups used to wipe all the highs. So I had a standard job there, with a standard charge. Precision Basses — Oh man, just change the capacitor in a Precision and it makes all the difference in the world when you turn it down. The Jazz Bass I simplified, because their wiring is hard to get to. I made it more accessible. I put a lot of switches on Jazz Basses . . . that sort of thing. Then I got into understanding how pick-ups worked, what made a good pick-up good and a bad one bad, why the old Gibson pick-ups don't sound like the new ones . . .

'Then Ampeg got bought by a big company and they wanted to expand, so they bought the Grammer guitar company in Nashville. Ampeg came to me and said, Look, we own this guitar: what can

you do about it? I said, Look fellers, you're in the amp business aren't you? And you're not making any electric guitars are you? So Gibson and Fender are selling all the instruments that you're making the amps to play through.'

'They said, Oh really? You could do better? I said, I think so. So Ampeg said, All right then, what sort of guitar do you think we ought to make? I said, Well now . . .'

And the Dan Armstrong see-through plastic guitar was born. Why did he use Plexiglass for the body, and what were the problems involved in working in plastic? 'I just wanted to be as original as possible, not to copy anybody's anything. I wish I had: there are a couple of things I should have copied, like Gibson's bridges. The problems — well, everybody thinks you mould this stuff. You don't: the body is carved out of a solid board of plastic, like carving out of wood, except that instead of sanding it to finish it, you polish it off. Boy, it's expensive stuff! I don't know how the Japanese copies can build the bodies at those prices. The bare cost of raw materials for that body was around £6 — that's a lot for a body. We used perspex because it's hard and consistent, and you don't have to worry about grain. It gives good sustain, rather like a steel guitar. A lot of guys are using them for slide and they sound pretty steely.'

I recalled that the pick-ups on the early Dan Armstrong guitars were rather exceptional. 'Yeah, it seemed at that time like everybody wanted a hot pick-up. So I just made the loudest pick-up I figured I could make. Much too loud! We came up with a humbucker that was for all the world like the Gibson: it had the same size wire, the same amount of wire — the only difference was, we used a magnet that was about five times as hot. So you had a humbucker with a whole load of extra juice.'

'At that time I didn't really know that much about pick-ups. I knew how they worked, and I learned a lot from, for instance, the old Les Paul Junior — that was one hell of a pick-up. But there are lots of rules about pick-ups, and no literature on the subject. You have to find out the rules somehow. So I paid a guy £2000 to give me a crash course in everything he knew about pick-ups!'

Who, I wondered, might this knowledgeable person be? 'Guy called Bill Laurence — that's the Anglified form of his name: he's a German who's designed guitars and pick-ups for Framus. I met him in Chicago when he was over there, and I realised he knew a hell of a lot more about pick-ups than I did. So I said, Bill, how about \$5000 you tell me everything you know about pick-ups?'

Dan works a lot with the synthesizer ▶

Kitchen sink doubling as work bench ▼





Saddle to produce constant sitar effect

Bill obliged, and now Dan knows as much about pick-ups as anyone. He's been working on a new guitar, which should be going into production soon. 'We're still making tools for this one. You know, you can either sit down and make guitars one at a time, or you can sit down and make tools one at a time that will enable you to make guitars hundreds at a time.'

The new guitar has a fairly conventional wooden body, but a far from conventional pick-up. For a start, it's on a rod which runs from the end of the fingerboard to the bridge, and which adjusts up and down with the bridge. Thus your choice of tone is very wide: Dan demonstrated to me what subtle changes of timbre can be obtained by sliding the pick-up a very small distance along the strings. And the bridge is new: he's finally chosen to copy the Gibson bridge — 'but I think I've improved on it a little here.'

The 1973 Dan Armstrong pick-ups — on the new guitars and basses, and available separately — show evidence of all he has learned on the subject. 'These are something new altogether. They are low impedance, they go through a transformer. If you put the transformer next to the amp, you can use about twenty miles of lead and there's no noise, no high-frequency loss, no trouble. They're extremely light — you can even screw one into your pick guard. Now most low-impedance pick-ups have still got whopping great magnets in them, like the Gibsons and the Fenders, where those big magnets are pointing straight at the strings. If you fit the pick-up too close to the strings, the field of the magnet sucks them in and spoils their natural vibration patterns. But you can get these up real close, and get plenty of magnetic field soaking the string without sucking it down. I've been working on these pick-ups for a long time, many years. I don't think they could be improved now. Not until I learn something new. Right now, I'm real happy with it. The output is high, the noise is low, it's not microphonic . . . it's a good pick-up.'

It is indeed, but that's not all. Thanks to a simple wiring innovation in the tone control, you can convert a double-coil humbucker to a single-coil pick-up: 'You can do this with any double-coil pick-up. Consider the coil windings: the finish of one coil joins the finish of the other, the start of one goes to earth, the start of the other goes out. So if you put ground in at the point where they join, the coil that has ground at both ends doesn't do anything. I've arranged this tone control so that if you turn it right

up, you ground one coil.'

The result is impressive: you have a regular tone control, rolling the double-coil pick-up through the full range bass-treble. Then suddenly, you turn it a bit more and you're into a clean, Fender-style treble sound. Add this to the sliding pick-up feature, and you will appreciate that a Dan Armstrong guitar is capable of a whole load of interesting sounds. But even that isn't enough for Dan the inventor. In recent years, he's designed and produced a bewildering range of electronic additions to the guitarist's armoury. He demonstrated some of them.

'This here's the "Green Ringer". How's your maths? The simplest way to tell you what happens is, any complex signal it gets, of more than one frequency — no, let's say you put into it two notes of different pitch, from two instruments or both from the same instrument, the output you get is not either of those notes, but the sum and the difference of their frequencies. So if you put in a 400-cycle note and a 600-cycle note, you get out a 1000-cycle note and a 200-cycle note. When you play a fifth it gives an octave down, because the difference between those two is an octave below the lower one. Now if you put in a single note, the reason it gives you an octave higher is that it treats your one note as two identical frequencies: their sum is then double the frequency (an octave higher) and there is obviously no difference.'

All this fits into a little box about four inches long which plugs directly into the guitar. Lurking in an identical box, but rejoicing in the name 'Red Ranger', is a booster that gives treble-boost, bass-boost and an overall power boost, each separately controlled. Like the Green Ringer, it is not impedance-conscious, thus overcoming impedance mis-matches. 'If you're playing into an amplifier that is much too tight and loads guitars down — a lot of transistor amps will do that — this buffers all that. So you can plug into a tape-recorder, which always robs highs, and now it doesn't rob the guitar at all.'

Dan reckons he'll be producing one new gadget a month in the foreseeable future. His living-room shows evidence of this industry: 'That thing over there is a genuine treble-and-bass tone control, for use with the guitar. You know, bass cut and boost, treble cut and boost. It's kind of different when you do it on the guitar from when you do it at the amplifier, you're delivering to the amp a different kind of signal. Another thing will be a sort of fixed filter, so you can get a wah-wah at any place you want in the frequency range. It'll be built into this same format, the same little box, with the knob, so you can get a wah-wah if you want. But otherwise, you can lock it in any filter position: you get some filter on, then put some boost on the filter, so you deliver a nice, tight peak into the amplifier. Then you can aim at the frequency range where the amp likes to distort best. Then there's going to be an out-of-phaser, and a whole new kind of fuzz, not fuzz at all really, just tight, squeezed distortion . . .'

Dan broke off from his list of magic little boxes, dived under a chair and fished out something which even I could comprehend straight off: a length of flexible wire, with a rubber band at one end and a loop at the other. He hooked the rubber band round the strap peg at the base of a guitar, wound the wire twice round the volume control and put his little finger through the loop. Then without changing from his normal right-hand playing position, he achieved the swell, wah-wah and tremolo effects that guitarists like Jan Akkerman get with their finger curled round the volume control.

'You can use this to take all the attack off a note, or to hold the volume just on the brink of feedback. I can't figure out a way to produce this as a fit-all-guitars commercial proposition. I'm seriously thinking of doing it in a little box with a Velcro pad and a nylon ring you can grip with your finger — which will always be in the same place . . .'

Like I said, Dan Armstrong is a man of ideas. As he talks, they tumble out thick and fast. He mentioned in passing that he'd figured out a way to make a much better Mellotron, and also a polyphonic synthesiser! With such a fertile mind, was there a danger that he would outstrip public demand and fail to find a market for his revolutionary ideas?

'No, I think people are always ready to look at something that may be useable. There's nothing in this that's revolutionary for the sake of being revolutionary: the object is to improve things. If my things were so far out that you had to learn something new to play it, then it would be difficult. But I always remember that I'm making things for guitar players who may not necessarily be mechanics. I try to keep it as simple as can be.' ●