

WHAT HAVE THEY DONE TO MY ART?

Part 5

WHATEVER HAPPENED TO DYNAMICS?

When I was a lad and starting my composition studies at The Curtis Institute in Philadelphia, I thought that I would impress my composition teacher at my first lesson. In a suitcase, I brought in a tome that I had written, fully scored for large orchestra and as dense and orchestrated to the point that there was almost no white paper left showing. My teacher looked at it and remarked, "Walter, you sure know how to write notes - we'll spend the next four years teaching you how to write rests."

In classical music, one of the most dramatic things that composers do as a section builds and builds, is to culminate in — silence. A rest is written with a hold sign over it and this General Pause is often the most effective musical device in the composition. In much of the music that we record at Sear Sound, I long for a respite, a moment of silence. It never happens. Is this perhaps a fear of 'dead air'; any moment of silence on radio and TV where it is supposed that the listener has lost transmission and will tune to another station?

Another compositional tool that has existed throughout the history of music is a thing called 'dynamics'. This was a quaint concept that music would get louder and softer at strategically placed intervals. It seemed to make the music more communicative. This was, of course, before they invented the "11" setting on guitar amplifiers. I often wonder why guitar amp manufacturers went to the trouble of putting volume controls on their products since I can't remember ever seeing an amp when the pot wasn't 'full up.'

'LOUD' is the order of the day and compression is the subject of great grief to me. Mistakenly, many engineers equate "loud" with compression. If you compress it hard enough, it will sound loud. Wrong! Perhaps we should take a look at where compression came from and how we all went wrong.

In the early days of broadcast radio, there was a serious question about whether commercial radio would be operated by the government (as in England) or whether it would be a private enterprise. The story goes that a station operator had a cancellation of the local piano teacher who was scheduled to give a recital. The station manager had just purchased a record and in order to fill in the time, he began to play this record over and

over again. Much to everyone's surprise, there was a run on the local record store and the record sold out instantly. This ended any possibility that the government would run radio stations. The commercial possibilities were just too great.

The early radio stations were unregulated as far as broadcast frequency and range of transmission. There was great chaos on the airways with stations overlapping on the same frequency. The government stepped in and began to assign frequencies to stations and broadcast areas which were controlled by station transmitter wattage. The station engineers discovered compression. By compressing the program material at the transmitter, their broadcast range could be increased, they could reach more listeners in the 'fringe' areas, and hence, could charge more to their advertisers. Thus, the sins of compression were born.

Compression is the antithesis of music. It eliminates dynamic range and variety. It eliminates one of the more important devices which make music more communicative. I remember the recording session when I first encountered the engineer who put two compressors across the stereo buss. I asked why he was doing this. He replied that, rather than being at the mercy of the station's broadcast compressors, he would at least compress it the way he wanted it to be compressed. Since, at the time, radio was the principal method of selling records, he had a point.

With the advent of rock 'n' roll, the groups were often so untutored that they couldn't end a song together so they invented the fade. When this fade hit the station's compressors, they saw the signal going away and tried to compensate raising both the gain as well as the noise floor - as you can imagine, there were some pretty funny results. There are still a number of TV shows on the air where you can hear the compressor raising the noise floor whenever there is a pause in the dialogue. Very annoying.

There was another very common use of compressors. This was in the disc cutting chain. Just before you hit the cutting head, you inserted a compressor. This was used to clip any unexpected bursts of level which could easily burn out the cutting head. I remember Western Electric charged \$1,500.00 to rewind the head, a great deal of money back then, so we were very careful to be sure that we had the Fairchild 670 limiter in the circuit. You will probably notice on the Fairchild a lateral-vertical adjustment which is from the cutting room disc mastering days. Incidentally, the Fairchild limiters are going for over \$20,000 on the used market, and for very good reason. They are very good. Looking through my old Fairchild files, the price back in the '60's was not cheap. When I

factored in inflation, these used units are selling now for about what the new cost was then.

So, now that the example was set by the broadcast station limiters and compressors, the audio engineers discovered a new tool. Compress, compress and compress. First, there was tape compression, a very dangerous game. As you overload the magnetic analogue tape, you can reach a point of magnetic saturation - there just ain't any more iron particles left to magnetize. Tape compression is a misnomer in that the higher the level that you record at, the less transient information is being recorded. The ear is a very complex instrument. IT HEARS WAVE FRONT INFORMATION AS LOUDNESS, NOT DENSITY, NOT STEADY STATE SOUNDS. When we were trying to survive in the jungle, it wasn't the steady state wind noise that was important. It was when the tiger stepped on the twig which snapped that was important for survival.

I suggest that you try to record drums, piano and other percussive instruments at -5 dB, or even at a lower level. This will allow the additional head room to give you more of the attack transients which will make the instruments sound more real. If you want to hear the instruments louder, turn up the control room monitors. Try it; you may find that you get a better more realistic sound. In olden times, we tried to record at higher levels to escape from the signal to noise trap. With fear of analogue tape hiss (the noise generated by tape passing over the heads) becoming annoying, we tried to get as much level on tape as we could. With modern contemporary music and with the great improvement in both machines as well as tape, I think that this is a minor issue. Remember too, the higher the level that you hit the tape, the greater the print thru, from one layer of recorded tape to the next on the reel. I think that this noise consideration is much more important. Hit the tape a little softer and your noise levels will go down. Try it!

Now we come to compressors and limiters, these much abused devices. The basic concept is good and when used properly, they can enhance the music. When used improperly, or with a bad compressor, you become aware of the artifacts that the compressor is adding. Unless you are using the compression as an effects device, be careful. If you are a needle-bender, you will get what you deserve - distortion. A good compressor will compress with frequency linearity - the acoustical spectrum should not change with compression, nor should you set the compressor's parameters so that you hear the compressor cutting in and out (pumping).

If you are compressing to the point of eliminating dynamic range, you are

detracting from the music. During the late 70's, we got into the 'wall of sound' concept. When you mixed, the idea was to keep your VU meters locked on "0". I thought that we got over this bad concept. I was mistaken.

As I was taught, your compressor meter was the inverse of your program meter - on your program meter, you could flick into the red on occasion. The compressor meter was allowed to show occasional deflection. The music sounded nice and it sounded loud because there were a few attack transients left. Too often today, I find the reverse of this concept - the level meters are pinned against their stops at all times and the compressor meter is pinned out the same way in the wrong direction.

But then, who looks at the meters anymore, anyway.

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