

TEN YEARS HAVE GONE BY

***since the following notes were set down. Perhaps the right time to publish them has finally come. Anyway, here goes:

NOTES BY IVOR DARREG COMPILED ON 2 MAY 1971
reprinted 12 January 1981

=====

Viewing the Audio Engineering Society Exhibition in downtown Los Angeles on 29 April 1971 brought more sharply into focus the distinctions between scientist and engineer, and between artist and engineer. All in all, it was a disturbing experience, which does not paint a bright future for the EAT or such groups.

The equipment used in recording studios, broadcasting, and allied fields, for manipulating signals corresponding to sounds, has become Big Business, but it exalts the means over the end. It ignores the total system which system is its only *raison d'être*! There would be no music without composers; and no point in listening, if some human being had not originated the music in the first place. Both the composer AND the listener were unreasonably ignored; some obeisance is paid the PERFORMERS, quite as though they were the true composers!

Imagine how this would work with painting or sculpture.

(In all fairness, there has been a slight improvement at later and later exhibits, especially the one in 1980)

John Rockwell's unfavorable review of the U C L A Schoenberg Hall electronic music concert (19 April 1971 and review on 21 April 1971 in the L A TIMES) coincided with my opinion in great part. He put down the Bach interpretations by way of synthesizers, without knowing why. (Organ tone-qualities were imitated, but they forgot to have multiple pitch-levels such as suboctave, unison, octave, twelfth, double-octave, as all organs of any dignity do this chorusing or doubling or reinforcing the individual voice-parts; so no matter how good the timbre imitations, it will not sound like an organ unless this is added.)

Frankly, electronic music generally should not be in the concert hall. Only as background for sound-film or the like is it acceptable there. (Using electronic music in the sense of recordings or automatically played instruments or computer outputs.) Instead this kind of music should go directly from composer's livingroom to listener's livingroom, and in this case the listener is the interpreter each time he/she plays the tape: each playback can be altered so that every performance is as different from the previous performance of the recording as the repetition of pieces at various violin or piano recitals are different. That, after all, is what those knobs and levers and gadgets on the hi-fi set are for.

Back to the first topic, the scientist asks WHY? but the engineer or technician asks HOW? and forbids everybody, including the scientist from whom the basic information was stolen, to ask WHY. The engineer and the music teacher both demand that the musician and the composer stop asking why and take everything for granted without the slightest backtalk or grumbling or dispute or inquiry. It is dogmatic like the most narrowminded of religions or occult rituals or tribal superstitions.

Is it any wonder, then, that EAT (Experiments in Art and Technology, a movement that started back then and now is never heard of anymore) didn't function smoothly? The wonder is that it ever was started at all.

The place of mathematics: is it art or science, or what? Paradox of paradoxes: As Bertrand Russell said, the surer we are of the truth of a proposition, the less we know what the hell we are talking about, and vice versa. The Ancient Greeks placed mathematics near music; whereas 19th-century musicians and mathematicians were bitterly contemptuous of one another. To the point of anger, slander, polemics, and various unfortunate consequences which we still suffer from. The Romantic Period was almost a complete divorce between art and science.

TOLERANCE, in the engineer's and manufacturer's sense. Consider the electrical engineering textbook, which quotes Ohm's Law as $E = IR$ or the other obvious forms. These books contain dozens of such abstract statements. But what happens when we go into the real world? Voltmeters necessarily consume power from the circuits being measured, so that they will have errors due to the current used up in the voltmeter itself. Ammeters necessarily lose voltage across their coils, thus taking power enough to move the needle across the scale. Then there are other losses. (In 1981, there are now new kinds of meters which have negligible effect on what they measure, so this example is now kind of dogeared. Sorry about that.) A resistor is marked so many ohms, or is color-coded for the first digits of its value. If it has no tolerance-indicator, this means it may be as much as 20% above or below that nominal value. There are various markings to indicate 10% or 5% or tighter tolerances. And those tolerances command higher prices. The result is the the designer of electronic equipment must design for the worst case, where several parts by chance will be way off their values; the circuit must still work then. (Although the individual parts in an integrated circuit are sealed up and hidden away, similar considerations may apply.) This is quite far from the mathematician's and theorist's idealized entities.

Very similar factors are involved in the design and manufacture of musical instruments--for instance the difference between calculating the placing of frets on a guitar and the actual sounds that will occur when said guitar is played. So this isn't just electronic stuff.

Mathematics is all in the mind, yet the materialists lay claim to it. Its abstractions are projected onto the real world with a drastic two-way abstracting process, leaving characteristics out when proceeding in either direction. This uncomfortable paradox does not lessen the importance and necessity of mathematizing.

I once asked an electrical engineer about the characteristics of a choke coil (it would now be called an inductor). Immediately he rejoined that he could not calculate for it without knowing all about the iron (in the core around which the wire of the coil was wound). That is, he had no mathematics that would at all fit REAL IRON; he would have to experiment with real pieces of iron and steel and real copper wire in order to find out enough to insert in the formulae to make them apply. Thus in a sense, I was now worse off than if I hadn't asked him, for it bred a distrust in my own experimenting with other things.

Similarly, Joseph Yasser's THEORY OF EVOLVING TONALITY book, which contains high-pressure dialectic-style arguments for the future adoption of the 19-tone equal temperament, argues by analogy from the 5- and 7-tone systems and their relation to the 12-tone (e.g. $5 + 7 = 12$), to what the next step in musical-tuning-system evolution "must" be: $7+5=12$ and $12 + 7 = 19$; and for a later evolutionary stage, $19 + 12 = 31$, and $31 + 19 = 50$, and so on to infinity. Nowhere is this elaborate persuasive

reasoning checked by definitive experiments such as trying out different kinds of instruments built to the system in question, and a significant body of compositions in the system as well as arrangements of existing music. Indeed, it is implied that generations will pass away before the first step of moving from 12 tones per octave to 19 will be far enough along to matter. So persuasive is Yasser's argumentative technique that many people will believe all he says and then never DO anything about the 19-tone system. (Recent reprinting of this 1930s book by Dover Publications may aggravate that situation.) The result has been to retard musical progress rather than encouraging it as was Yasser's intent. This is the kind of harm that can be done by propaganda FOR something! Obvious enough about all the polemics written AGAINST the non-twelve musical systems--so we needn't elaborate on those. In both the pro and con cases, high-order abstraction, never coming down to earth, never checking with reality * * * and do you know what emerges from this? Why, the much-maligned aesthete, the artist, the composer, is actually closer to objective reality than the psychologist or Behaviorist or ivory-towered scientist or textbook-writer or economic statistician.

Sullivan's SCIENCE IS A SACRED COW has more examples of this sort, but it will never, never be heeded by anyone who needs it because the author was a Catholic, and of course in this day of cruel hardboiled hopelessness any Dualist is condemned without any chance to defend himself. Fanaticism is equal on the sides of unbelief as well as belief.

"The computer accomplished the mass production of metaphor." This modern folk saying refers of course to the programming and evaluation of the output, as well as to the hardware of the apparatus itself.

Mathematics has been called the most extensive of all metaphors. Very well; the computer permits an unbelievable proliferation of metaphoric process, usually called SIMULATION. Someone says, "Let us pretend that these symbols being put into the computer mean such-and-such" and further "We shall pretend that the printout IS such-and-such and will behave as the real thing it stands for will behave."

Then John Q. Public blames the Computer for the consequences, when what has happened is a sort of engineers' Applied Poetry--poetry in this case done by those very people who usually ridicule all poets.

Elated by the successes of applied physics, the writers on psychology, economics, sociology, etc. have tried to state the concepts in their fields with mathematical precision. The result is very, very sad. It is just as ridiculous as the psychological cultists who connect their clients or acquaintances to a skin-resistance-meter and then solemnly announce the meter says they committed some crime in a past lifetime so and so many billion years ago at 3 PM on August 9.

In Spring 1971 I had heard another report from a fanatical adherent of the movement called Technocracy (today the word technocrat has more innocent and general meanings than it did in 1940 when I met that fellow) that he had tried and failed to convert a group of Hippies near Santa Monica to his way of thinking. That is to say, he tried to induce them to trade their harmless flower-child contentment for his 35 or more years of angry impotent frustration, that the Master Plan of his organization had not been allowed to save the North American Continent from ruin. What more do we need to prove where mechanistic materialism leave you? What good had any of his diligence and sacrifice and devotion and self-discipline and yes, masochism, ever done?

"Out of the frying pan into the fire." In repudiating his parents' Scottish Presbyterianism, with Calvinistic predestination, he embraced rigid mechanistic determinism in the organization's pre-planning form. The average person hearing about the movement would have thought it was for more inventions and more scientific research and progress, but alas! it was for merely using up the Knowledge Capital of the 19th century and APPLYING what already was known in those 19th century terms. His stifling hatred of any contemporary music was also evidence of his reactionary refusal to encourage pure science or modern art. He was dead set against any use of computers. Automation to him and his group meant the 19th century factory with heavy machinery and plenty of smokestacks.

How's this for objectivity: A television set or an electric refrigerator or a Diesel engine works just the same, whatever the philosophy or religion of those who built it or sold it or are using it. So no point getting mad because someone else insists you have a mind or insists neither you nor he has a mind.

Milič Čapek in THE PHILOSOPHICAL IMPACT OF CONTEMPORARY PHYSICS (this was about a 1970 book) takes the sting out of that horribly fatalistic 4-dimensional space-time continuum model--the well-known static picture with world-lines and time shown as if it were a dimension of space. He removes this sting by insisting on auditory, not visual, analogies for time. Would there were more thoughtful authors like that.

AFTERWORD

The recent newspaper accounts of the death of Marshall McLuhan recall to us that back in 1971 his fame had reached its height, and many of his enigmatic disturbing sayings titillated the counterculture---but ironically enough McLuhan didn't join them. This might have had something to do with his outliving his reputation and notoriety. The value of some of his and others' writings was in the publicizing of a profound change in public attitude toward many things.

There has been a certain amount of positive feedback effect, in that better and more rapid communications spread the news of the new attitudes and caused more people to change their own attitudes.

Another development of just this last decade has been *samizdat*--affordable self-publishing even in very small quantities such that the average person can now use the constitutionally-guaranteed freedom of the press, and it is no longer just for the large companies and big organizations that always could afford a regular printer. With new copying methods existing writings can be reassembled in new orders to please a single reader, and copying something at the library no longer leads to painful writer's cramp and hurried scribbles.