Charles Fisk

The Organ's Breath of Life

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THE ORGAN IS NOTHING BUT A MACHINE, whose machine-made sounds will always be without interest unless they can appear to be coming from a living organism. The organ has to seem to be alive.

A motorcar is the same. Bucket of bolts we may call it, but the very epithet reflects simultaneously our affection for it and our wonder that a thing made out of bolts et cetera can seem to be so truly alive. And its makers, knowing well what they are about, give it two eyes, a nose and a mouth, sleekness, a look as if crouching ready to spring, the pretty name of a creature. For they know that if the car is to be loved, it must be loved as though it were a living thing.

Some people think of the human body as a machine. Never does it seem more so than when the life has gone out of it and we are left asking, What is this life-catalyst that takes the nuts and bolts of this world and binds them into so mysteriously marvelous, so transcendent a being?

For the organ, the ultimate source of life is of course the player. We organ builders have trouble remembering this. We would gladly build if we could a machine which would do all that is musically possible without the player. Yet past efforts to bypass the player have resulted in works of only temporary attractiveness, and underneath we know our job is to make instruments which faithfully transmit the player's aliveness-when he is alive-and (unfortunately) his deadness when his playing is dead. Whence comes the remark, "A good organ will sound both better and worse than a poor one."

Granted that the player's role is transcendent, what are the ways in which we organ builders can enhance the as-if-alive quality in our instruments?

For well over a decade our journals have belabored the pros and cons of ideas which contribute to it. All the talk about the responsive touch of tracker action and the lively effect of unnicked pipes on slider chests is germane here. Yet the talk, centering always around specifics, has not told us everything, and meanwhile all of us tire of hearing about the specifics, particularly when adherence thereto does not necessarily bring about the construction of an artistic instrument. There must then be other specifics than the now-familiar ones and beyond them must be a generality, a single principle which generates them.

A prime characteristic of the life force on earth is what Wallace Stevens calls the passion for order. In organ construction it seems that those terms which promote order, organization, integration-those which pull the instrument together-are the terms which foster the as-if-alive quality. The note channel of the slider chest tending to synchronize the frequencies of the pipes standing above it; the tracker action tending to bind the player physically to his instrument; the chiff of lightly-nicked pipes tending by their unanimity of speech over the same note channel to express the solidarity of the "werk"; these are all well- known examples of integrating forces. And all are part of this life-oriented passion for order, which does indeed seem to be the single principle underlying any good musical instrument.

What are some of the less understood specific forces for order that are rightfully a part of an organ? Let us now discuss the least understood of these, namely, the wind.

As everyone knows, the standard test for the wind system of an organ is to draw all the stops, hold a note in the treble, and repeat a thick chord in the bass. If the treble note gives out not a tortured sound, but remains serene as the Star of Bethlehem, the organ is said to have a "perfect" wind supply. Yet, when we apply this test to the best instruments of ages other than our own, we find scarcely one that passes it. In virtually all of these instruments the wind is unsteady by our standards. Of course, the matter may be dismissed by observing that only in the twentieth century has it become possible to obtain steady wind, and the ancients would no doubt have provided. steady wind if they had known how. But by now we should know enough to give this kind of argument its skeptical due; works of art founded on inadequacies always turn inadequacy to their own account: The inadequacies simply become essentials. And so it often is with the unsteady wind of old organs.

Consider as an example the organ at Steinkirchen in Germany, a two-manual organ by Schnitger, with much pipework from even earlier builders. This instrument is a national monument, has a pedigree is a good example of what Schnitger was all about. It has slider chests, tracker action, individual cabinets for each division, nickless flues, open toes, i'mitation carved casework-all the officially prescribed nutrients of a healthy North German antique. It is in a farmer's church, and its sound has the endearingly naturalistic, homesp'un, homely, barnyard quality it ought therefore to have. And what contributes more than anything else to this quality? The wind supply. If you attempt to apply the standard test for steady wind to it, the organ sounds as if it would positively tip over. Steinkirchen has the most elastic, loose-connected sounding wind system imaginable, and- the entire effect 'of the organ is colored by it. Indeed, this writer presumes that if the wind supply at Steinkirchen were to be replaced by a system of the modern *Schwimmer* type, or the Universal Air Chest type, the organ's very special quality would vanish.

Steinkirchen is folk art; therefore many of its features cause us to smile. The unsteady wind surely seems to be a joke-and yet it is the kind of joke which, at the right moment, can bring tears to the eyes. Another time it can be a rude joke, out of place-ugly, even. The very variableness of the effect of the wind upon music of diverse kinds suggests the instrument has a temper, that it likes one player but not another, one composer but not another. It seems alive. You even seem to hear it breathing.

What characterizes the wind of organs like Steinkirchen, and what is the physical origin of the sounds created? Such organs were always hand-blown. Two or more bellows-diagonal bellows like fireplace bellows, only much larger, perhaps one yard by two yards-were situated by the builder in some convenient place well behind the organ, often in the church tower. These were set horizontally, each bellows with its lower leaf fixed. Each upper leaf, free to rise and fall, was loaded with enough stone to yield the organ's wind pressure, say, 21/2 inches. The organ blower's job was to go from one bellows to the other lifting the upper leaves one by one (bellow's inhaling) and gently letting them rest "on the wind" (bellows exhaling). As long as at least one bellows was exhaling, that was enough to keep the organ playing. Whenever the organ blower saw that his last bellows was about exhausted, he would raise the upper leaf of a neighboring bellows to be sure the organ would not run out of wind. Note that these bellows combined the functions of feeder and reservoir.

From the bellows stack a single wooden duct of modest rectangular cross section (say, 4 inches by 10 inches) traversed the distance to the organ case. There the duct divided into ducts of somewhat smaller section and these led to the windboxes of the several windchests in the organ. It is significant that these windboxes were seldom much larger in cross section than the ducts which fed them.

Under such an arrangement, when the organist plays a key and the corresponding chest valve opens, the windbox and duct, being small, cannot provide out of their own "compression capacity" the necessary first flush of air. Therefore the chest pressure must drop momentarily, and chest pressure is not restored to normal until the long air column leading back to the bellows is set in motion. The result of opening the valve is thus a single downward pulse in the chest pressure, lasting a fraction of a second. (In the best wind systems the single pulse is all that occurs; there are no attendant repercussions of pressure, such as may occur in systems where the cross section of the windbox is much larger than that of the duct which feeds the windbox.) In corollary fashion, if the pallet valve has been open for some time and is then shut, the exact reverse occurs; there is a single upward pulse in the chest wind pressure due to the overage of wind sliding along the long duct and crowding into the wind chest after no more wind is needed. Often this positive, pulse on closing is more audible than the negative pulse on opening.

One's first thought is that these two kinds of pulse, negative and positive, would be detrimental to the making of music. For most of the old music, quite the opposite is true. For example, consider how the pulses contribute to clarity in counterpoint: Assume a five-voice fugue of the classical sort being played on *organo pleno*. Ordinarily it is easy to hear motion in the soprano and bass lines because they are "on the outside." But what of motion in the tenor line while the other four voices are sounding, but momentarily fixed-how will this motion ever be heard? At Steinkirchen, each time you move the tenor voice- each time one pallet is shut to end one note and another is opened to begin the next-there is in the wind a positive pulse followed immediately by a negative pulse, both of which will be manifest as fluctuations in the sustained tones of the other four voices. In this way the sustained voices help to *mark* the cornings and goings of an inner part, instead of simply masking it.

Quite certainly this effect has had to do with the very origins of organ counterpoint in late medieval Europe. After all, why sustain parts at all, when what you wish to hear is the motion of an inner part? And why write music for several voices in which, for example, there is without fail a change in at least one voice on every eighth note of the piece? We hear motion in the soprano and bass lines because they are "on the outside." But what of the inner voices? We have always known music of this sort was something of a game whose object it was to see which voice would change next, and how? But is it not also a game to see what the organ wind will tell us, through the non-moving, sustained notes?

The whole subject of the wind is fascinating and elusive, and this writer makes no pretense at a thorough understanding of it. He can, however, put forth questions which, either in this country or abroad, might provoke further thought:

1. Classically, isn't a fine legato touch simply the art of closing one pallet just at the exact moment of opening the next, in order that the positive and negative pulses in the wind shall cancel out, leaving the wind undisturbed?

2. Is it possible that the apparently drab fantasies and voluntaries, particularly those out of sixteenth and seventeenth century England, are primarily essays in the handling of organ wind? When to disturb the wind deliberately, and when not? These pieces always come to life on the instruments of their time, instruments whose small-bore wind systems labor over the stable production of so much as three voices of counterpoint.

3. Is the lack of chiff in early English organs (and consequently in the earliest American organs) due to the fact that the wind pulses are actually a substitute for chip The whole art of English chamber organ building seems to center around artfully starving an organ of its wind.

4. What role did unsteady wind play in the evolution of ornamentation in European music? After all, in many old organs, every time a pallet opens to make a pipe sound, the attendant negative pulse causes the pipe to swoop up to its note slightly, after the manner of an upward appogiatura. In the Rückpositivs of some old organs where the wind ducts are particularly undersized, the wind supply gives actually a little port de voix at the beginning of each note. Did these "obligatory ornaments" suggest the use of ornaments generally? Or were the multitudinous ornaments in the early French and English music put there to cover up these repercussions in the wind, or perhaps to give the organist control over them, I.e., to make them the organist's thing instead of the organ's thing?

5. If we accept that, for the organ, wind is one of the unifying forces mentioned previously, isn't it then probable that all divisions of an organ should draw their wind from the same bellows? This means that the pulses from one keyboard will be marked in the sustained notes of another; it also means that the sounds of full organ, coming as it were from one giant pair of lungs, will have a unity of mass achievable in no other way. The ancients

pursued this policy except in their large instruments.

6. What about the tuning of organs? Our current concern over fine tuning presumes a very steady wind supply originating with an electric blower. But with the ancients there was the bellows boy whose every bored indiscretion no doubt shook the wind to the tuner's distraction, and there was the variation in pressure due to the fact that a bellow's pressure increases between the nearly open position and the nearly closed. Clearly, tuning at that time was not as good as we should like it. Yet there is reason to believe that detuned pipes are not as much of an annoyance in an old organ as in a new one. Recall that in a modern organ the bothersome thing about a mixture note out of tune is, every time the note returns in the music you are subjected to exactly the same burble', and after a while it "gets to you"; you become sensitized to that one note. Now suppose that instead of being rock-steady, the wind supply is full of all sorts of ripple, partly due to the pulses of valves opening and closing, and partly due to manual organ blowing. This ripple causes, in all notes of the mixture, burbles which appear to combine with the burbles of detuning, but because they add a random component, the mind does not become sensitized-the mind can see through the "defect' and is therefore free to concentrate on the music. To be sure, the defect will remain noticeable, and may cause us to smile, but it will not become an obsession.

Like all of the integrating terms which are part of the passion for order, the introduction of the right sort of unsteady wind into an organ increases the problems for the organist. just as the fidelity of tracker action makes it essential that the player get his notes rhythmical and right, so the unsteady wind creates a problem for the player which can be likened to the problem of small-boat- handling. The feeling of commencing a piece on unsteady wind is somehow like stepping from a low, solid dock onto, the floorboard of a rather tippy dory-one does it with care, one feels the water give under his weight, one realizes that if he steps too near the edge he may capsize. A serene legato is like rowing this dory flawlessly across the harbor, so that all you can hear is the click of the oar locks. Rougher music is like rough water: She labors in the troughs but is buoyed up on the crests. (The sense of buoyancy is very strong,in the old organs.) Notice that one says "She labors. . . "--a sure sign that a boat is an as-if-alive thing, and that it has been so regarded for centuries. Indeed, if one thinks about it, one realizes that organs and sea-going craft have a great deal in common.

The writer would not have the reader imagine that a complete return to the winding principles of Steinkirchen is really practical. No organ builder today would dare to build an organ exactly like Steinkirchen unless he had a specific order to do so. One cannot build a service instrument which shakes like a willow on a Mendelssohn anthem accompaniment, however buoyant its Buxtehude may be. But it is possible to make wind systems which are a flexible compromise. Too many hard-sounding wind supplies are being built today, especially in Europe. Modern European organ building practice has taught us much, and still has many things to teach us, but this writer does not believe the winding of an organ is one of them. We need to apply our own minds and our own ears to the task of discovering what makes organ music come alive under the player's fingers.

Finally, the writer wishes it understood that only a certain kind of instability is desirable in a wind supply. Most of the instability encountered, especially in organs built in the twentieth century, is gross to say the least and is, in fact, what has given wind flexibility a bad name.

[Barbara Owen's note: "The Organ's Breath of Life" is perhaps the best known of Charles Fisk's writings, not the least because of the controversy which briefly followed it in the letters-to- the-Editor column and elsewhere. There were the usual accusations of "antiquarianism," some misunderstandings, and some agreement. In a letter dated October 22, 1971, to Mark Stansbury, who had written to express his agreement with Fisk's views, Fisk elaborated on and clarified some of his statements:]

I was pleased to receive your letter of September 11. To date it represents about one third of the total fan mail I received as a result of my article in The Diapason. Indeed, the primary result of the article has been to cost us a couple of contracts, our' respective clients Suddenly having noticed that p the organs we have been building. all these years had slightly unsteady wind, which to these people didn't seem right. Prior to the article the instability had passed unnoticed.

Nevertheless I am absolutely certain that my thesis is correct and that it will one day become canon.

You are quite right that Clutton's "lipping effect" at Steinkirchen is largely due to the wind characteristic. Just after the valve first opens, there is a deficit of wind. As air moves down the wind trunk to eliminate the deficit, the pitch of the pipe rises, causing what could be called a lipping effect. This whole affair is the negative pulse of which I speak in the article.

You are also right in assuming that a greater length of wind duct produces more flexibility. This is a complex problem indeed, but if one regards the bellows or reservoir as a source of steady pressure, then the elasticity of the air in a long duct, leading away from a stable source, invites pressure fluctuations at the remote end. Actually, of course, the fluctuations produced at the remote end then travel the length of the duct and disturb the stability of the bellows itself, so that bellows and duct are actually a single vibrating system.

My impression is that if the duct in question is fairly large in cross section (say one foot square) and quite long (say, thirty feet) the natural frequency of the system becomes so low that it no longer disturbs the listener. I have never had opportunity to verify this by experiment.

To achieve the results of antiquity it seems essential to keep the pallet box of the wind chest small in cross section; in other words, the pallet box should not be significantly greater in cross section than the duct which feeds it. This rule is continually breached by modern organ builders, and makes for an unpleasant unsteadiness, particularly in pitman chest organs.

In my opinion the worst habit of the modern organ builder is the (growing) use of the schwimmer, the quick-responding regulator built into the bottom of the wind chest. This device precludes any unsteadiness of wind except for vibrations in thetange of the vibrations produced by the pipes themselves, which the ear tends to attribute to the speech of pipes rather than to fluctuations in wind pressure. Not only does the schwimmer thus give the illusion of steadiness while upsetting the speech characteris- tic of the pipes; it also denies the possibility of pleasant fluctuations of the wind supply. Although I hardly mentioned it, the schwimmer was what I was really writing against in my article.

Unless I receive a whole lot more mail like the letter you sent me, I shall not be writing any more articles for the journals. On the other hand, a useful purpose would-be served if persons such as yourself would write The Diapason raising the wind issue again. It is far from a dead subject. The more people train themselves to listen for this aspect of tone production in the organ, the more they will come to recognize it as an essential part of the old music.