Frank Hubbard

INTERVIEWED by TOM McGEARY

No one involved with the harpsichord today is unfamiliar with the work of Frank Hubbard. Much of the impetus and direction of the revival of the harpsichord during the last two decades has been due to his work as a builder, restorer, and historian. Mr Hubbard was among the first builders to begin making harpsichords after historic models—in contrast to other modern builders who took their inspiration from the twentieth-century piano. He accomplished what Ralph Kirkpatrick called 'the major revolution of this century in harpsichord building'. His book, Three Centuries of Harpsichord Making *(Cambridge, Mass.: Harvard University Press, 1965), is the single most important work in the field, valuable for its scholarly presentation of many historic documents concerning the harpsichord, its detailed description of instruments, and its attempt to describe actual building practices of the past.*

After World War II Mr Hubbard returned to Harvard University to pursue graduate studies in English literature. He soon found the study of literature to have little meaning for him. His particular sensibilities required a field where he could exercise his imagination and capture a vivid personal sense of the past and, by the study of documents and objects, try to recapture and experience the life of the past.

It was quite accidental that Mr Hubbard turned to the study of the historic harpsichord—due to the fortunate location of his library reading stall near the stacks holding books on musical instruments, his interest as an amateur violinist in violin making, and the interest of a boyhood friend, William Dowd, in the harpsichord.

We begin our interview with Frank Hubbard by asking him about his early years of involvement with the harpsichord.

Tom McGeary: After you had decided to revive the historic harpsichord, how did you go about acquiring the skills of such an obsolete craft ?

Frank Hubbard: The only makers of such instruments I had heard of (at least those not speaking outlandish tongues) were Arnold Dolmetsch in England and his disciple, John Challis, in Detroit. Since I had G.I. Bill support, I decided to go to England. Carl Dolmetsch generously waived his usual apprenticeship fee and I entered his employ. At Dolmetsch's my questions were sometimes, but not always, answered. Still, by watching, if not by doing, I learned something of woodworking. What I did learn from the Dolmetsches was the kind of compulsiveness that makes a real craftsman, a respect for good work, and integrity of both materials and work. Of the history of the harpsichord or the glorious examples still extant, 1 learned nothing.

It was from Hugh Gough, with whom I worked for a year, that I gained a great deal of information about the history of the instrument and the general approaches of the musical historian in this field.

While in England I also had a brief connection as a third rate 'gamba student with the editor of this magazine, Edgar Hunt. I inflicted my presence on him in order to get the subsistence allowance that the G.I. Bill offered. I had to be a student somewhere, so 1 was a student at the Trinity College of Music. He had the thankless job of teaching me to play the 'gamba, an instrument which I had no time to practise at that stage of my life.

Tom McGeary: You have spent some twenty-five years working with and studying historic harpsichords; what have you found to be the important features of the tone of a good harpsichord ?

Frank Hubbard: Well, I am sure there are two basic criteria. One is an historical one. A good harpsichord is one that sounds like one that the composer expected to hear. The other conforms more to an abstract aesthetic, and that of course is more complex to describe.

There is a very good description of the tone of a good harpsichord that the harpsichordist Hullmandel, a pupil of C. P. E. Bach, gave in his article in *l'Encyclopedie methodique* where he speaks of a 'quality, fullness, and equality of tone'. I would translate that into two things. First, the harpsichord must stay out of the way; you must be able to hear what the player is doing, what his thoughts are. The second is to contribute something to the music; that is, to add some beauty of sound which might not be immediately imaginable to you if you were looking at the notes on a page. One you might regard as a negative quality, that of not interfering; and the other as a positive commentary.

Further, in the best harpsichords you will find surprises, such as a sudden reedy brilliance in the tenor, or a profound bass, or the clarity of a bell-like sound in the treble. But all this must be very carefully tempered. The instrument must not have sustaining power that is too great, because one note will then obscure the one that follows; you must not have one part of the instrument that is too effective at the cost of another. Of course, it is difficult to find an instrument which is perfect for all things.

Tom McGeary: Do these desirable features of a good harpsichord vary with type of instrument or style of composition ?

Frank Hubbard: Yes. A French eighteenth-century composer would be directing his compositional efforts very much toward exploiting the beauty of tone of the instrument, making it sound well; and in many ways he is the favourite composer for an instrument maker because he is the most flattering. An earlier composer, on the other hand, would probably be dealing with more abstract musical concepts, where one is directing one's attention to the specific musical line and the technical compositional devices the composer is employing. For these earlier composers the Italian type of harpsichord would be the best; but the instruments that were being made in northern Europe at that time which resemble them closely— being of lighter construction, with shorter scales, short sustaining time, and so on—would also be appropriate. Therefore, with the earlier instruments you have to concentrate to a greater extent on an instrument which stays out of the way, which clarifies the music. Whereas with the later, more powerful instruments you can permit yourself the luxury of those elegancies of sound. As to the big German instruments, I have never found any great beauty of tone in them; the smaller German instruments, however, are very like the French ones.

Tom McGeary: You have been referring to the sound quality of various types of historic harpsichords ; to what extent do you think we really have an idea of how harpsichords sounded three hundred years ago? After all, the surviving examples may have changed or deteriorated in the intervening years.

Frank Hubbard: I think that question could be answered 'yes' and 'no'. Probably, we've heard the sound; but whether we have been conscious of the sound is another question. I think probably we have, to a certain extent, rejected the sound when we heard it, or felt that it wasn't suitable—our imaginations weren't sufficient to see what could be done to some of those sounds. I have seen this happen in my own life-time. In my book I mentioned that I felt that the seventeenth-century native tradition of French making was feeble and weak. I would now revise that entirely and say that it was highly suitable for its purpose. If you have sufficient imagination, musical tones which at first, in an arbitrary way, do not seem beautiful, in point of fact are much more useful frequently than ones that do seem beautiful. You can see this in organ building. Very often the best stop is not one that is seductive if you play only one note; rather, it is the one which combines well and is useful in many different contexts.

Tom McGeary: In general then, what elements of sound quality should a harpsichord maker try to develop in his instruments?

Frank Hubbard: Well, obviously balance. An instrument in which different sections of the compass can be used simultaneously and not overpower one another. Related to this is a change of timbre from one end of the instrument to the other. Much music is really registered, exploiting this change. For example, Scarlatti will have a phrase which is first sounded at the top of the keyboard, then lower, and finally still lower. This effect is the very same thing as changing stops. Therefore, I think that for many purposes an instrument with a great change of colour from one end to another is useful. However, if we are playing a standard, learned fugue, this change of timbre to some extent gets in the way and can be confusing. Therefore, I think this quality is specific to the music; colouristic music requires it, and music of a more substantial style possibly doesn't.

And certainly the length of sustaining power is extraordinarily important. John Challis once stated to us as an *a priori,* that the longer the sound sustains the better the harpsichord. This is absolutely false! You find that instruments which sustain a long time sound confused (this is characteristic of some eighteenth-century German ones). In other words, something is still continuing that has become irrelevant and should have been stopped. However, a certain tone quality, a certain clarity and freshness of sound gives the illusion that a sound is sustaining and continuing, when in

fact it has been almost entirely attenuated. So an instrument with that clear kind of freshness gives an illusion of sustaining power which is very useful, since that illusion is frail enough not to interfere with a compliment of voices. One can certainly tolerate a longer sustaining power in the bass than in the treble, although it is possible to find instruments that sustain too little in the treble.

And then there is the sheer pure beauty of sound, and who can describe that? It is the something which moves the listener. It usually gives a new dimension to the imagination; one hears a sound that one could not have thought of before. When one hears a very beautiful sound emerge from an instrument there is an element of surprise, of eloquence which was not necessarily inherent in that moment of the music, but which is a pleasant discovery.

Tom McGeary: And what elements of construction are important for a harpsichord builder to control in order to achieve these desirable properties of tone?

Frank Hubbard: First, of course, is the basic design of the harpsichord. This you have usually taken to a large extent from some old model. By this I am speaking of the scale, the plucking point, the placement of the bridge on the soundboard, of the enclosed volume of the case, of the ribbing on the underside of the soundboard, of the thickness of the soundboard at various places, of the materials —especially those that soundboard, bridges, and ribs are made of; but to some extent also the case and frame (at least to keep the mass below a certain level). Other factors the maker must control are the manner in which the instrument has been voiced, how the stops balance one another and balance themselves from end to end of the instrument, the material the plectra are made of, and the material the strings are made of. Even the pitch to which the instrument is tuned is highly significant.

Tom McGeary: Based on your years of working acquaintance with historic instruments, what insights can you pass along to performers ?

Frank Hubbard: Well, I would say that for the player, as for the maker, there must be a continuous effort of the imagination. We are given certain fairly clear statements from the past. I think most of these directives are clear enough that the player, as Gustav Leonhardt has done, is obliged to examine them with imagination to see how he can reconcile the data that the facts provide him with the data that his intuitive processes suggest to him. There is too much of a tendency for people to sit down and say 'it won't work', 'this won't go', or 'it is patently obvious that. . .'.

Tom McGeary: Any suggestions dealing specifically with playing technique ?

Frank Hubbard: Obviously the cautions are to avoid the pianist's way of playing back in-between the sharps; you must play out at the front of the keyboard. There is much less involvement of arm weight in the process; and you must pay much closer attention to the questions of both agogic accent and of overlapping, even more than on the piano because there is no saving yourself with either the pedal or the manipulation of dynamics. The illusion of crescendo is astonishing that can be created by beginning one note before releasing the previous one.

To my mind there are two different styles of players, and both are good. The first is the sort who makes an instrument sound well. Within three minutes of sitting down to an instrument he has found the things that the instrument does well. He has adjusted the degree of separation between notes, the phrasing, and even the tempo to the instrument. There is the other sort of player who is rigid from that point of view. He may be an extraordinary musician; given a respectable instrument that happens to suit his style, he can play exceeding well. But, he hasn't got this quality of playing the instrument.

Tom McGeary: Have you any suggestions about the choice of instruments for particular styles or composer? For instance, J. S. Bach; you mentioned that German instruments, however, aren't very interesting musically.

Frank Hubbard: To begin with, we have no reason to connect Bach with those large instruments from Hamburg that immediately spring to mind when we think of German instruments. My feeling is that Bach probably was playing on instruments of the Saxon school. We should think of his instrument as not being very different from that of Rameau or Couperin.

Tom McGeary: Could you describe these Saxon harpsichords?

Frank Hubbard: I divide German harpsichord-making into two schools—the school around Hamburg and the Saxon school around Dresden. In the north, the Hamburg instruments were those monsters with 16' and 2' stops and all the rest. Despite the 'Bach' instrument in Berlin, there is no reason to think of Bach in those terms. The Saxon instruments had a tendency to be 2x8', 1x4' doubles, and were very similar in many ways to instruments in the Franco-Flemish tradition. I should think that an instrument capable of playing Bach should have clarity of articulation, transparency, evenness, and above all balance. It has to be a rational rather than an emotional harpsichord.

For an instrument capable of playing Rameau, one would probably pick one that was a bit more lush in the tenor, and with a bass-drum boom in the bass. A certain amount of that lush quality would have been sought after even back in Louis Couperin's time.

On the other hand, for playing music of the

English virginalist school you would seek above all an instrument of rhythmic interest, with a rapid decay and sharp attack. An Italian harpsichord would be ideal.

Tom McGeary: What about English virginals proper? Or do they appear too late?

Frank Hubbard: Well, they first appear about 1640, but I am not going to say because these are the only ones to have survived that there weren't earlier ones. We think of 'virginals', as we know, because of an accident in terminology. Certainly the inventories that one gets give us the impression that instruments were being imported into England from both Flanders and Italy, but the emphasis probably being on Italy. So I should say that the standard English virginals composer's instrument would have been an Italian harpsichord.

Tom McGeary: This would be about 1575-1610 or so.

Frank Hubbard: That's right. A little later on you begin to find more Flemish instruments. But even then you're dealing with a 1x8', 1x4' instrument of a very clear, well-balanced kind of statement; by no means is it a sensuous instrument.

Tom McGeary: Finally, Scarlatti; doesn't he also seem to require an Italian harpsichord?

Frank Hubbard: Well, Scarlatti presents a problem because he was obviously writing just at the moment when the piano was about to appear.

Tom McGeary: Aren't some pianos listed in the inventories of Queen Maria Barbara at the Spanish court ?

Frank Hubbard: That's right. And notice that in the inventory there are pianos that he might very well have used. We always used to think of Scarlatti as *par excellence* the harpsichord composer; play him on a Steinway grand and no question it's terrible. But I am not so sure that some of the qualities that you hear in a forte-piano might not be desirable for Scarlatti. You want a sharp clarity of attack and not too much sustaining power to get in the way; and you want a clear sort of tone quality that will bring out those dissonances that he is so fond of using. Now of course there was at the court at that time a big Flemish harpsichord. The close connection between the Spanish court and Flanders at the time would obviously imply there were many Flemish harpsichords from Antwerp in Spain during his time. But he was certainly raised on Italian harpsichords; he was an Italian musician after all. However, the very flavour of his compositions tells us that he was influenced by his long stay in Spain and Portugal— and there are lots of Spanish elements in his music. So whatever instruments he was finding in Spain undoubtedly coloured his music.

Tom McGeary: Your activities as a commercial builder have been building copies of historic instruments. How do you go about deciding which harpsichords to copy ?

Frank Hubbard: Before choosing a model to copy, the maker must define his purpose. Is he seeking an instrument for all periods and styles of music or is he planning an instrument of more limited purpose? I happen to feel that any commercial maker (and I use the term with a wistful sort of resignation, only wishing it were so) must supply some sort of general purpose instrument at the head of his list. After that, he may indulge special clients and his personal pleasure with instruments of more specialised type.

Now, this general model must meet two criteria. First, the model must be historically significant with a large body of first-class music clearly appropriate to it; but secondly, the instrument must not be entirely inappropriate for as much other literature as possible. This rules out the possibility of a sixteenth- or seventeenth-century model for a general purpose instrument. It would not have enough range or offer sufficient scope in registration for the later music. This fact also, sadly, condemns the earlier music of the repertoire to less than ideal performances on instruments of much later date.

Tom McGeary: What sort of harpsichord, then, would be suitable as a general purpose instrument?

Frank Hubbard: In the eighteenth century there were four schools of harpsichord-making whose products are complex enough to be considered as models for a general-purpose harpsichord: the, French, Flemish, the German-Scandinavian, and the English. I eventually chose the French instruments as my model.

Tom McGeary: What factors ruled out instruments of the other schools ?

Frank Hubbard: The eighteenth-century Flemish school represented by such makers as Dulcken, Bull, and Delin has much to be said for it. Its style is descended directly from the great sixteenth-and seventeenth-century makers of Antwerp, and yet that style has been sufficiently aggrandized and complicated to make it appropriate to any demand of eighteenth-century music. There is more emphasis on tricky dispositions and a greater length to supply noble basses. The weakness of the eighteenth-century Flemish school is an historical one: no composers of real merit can be directly associated with the eighteenth-century Flemish style of harpsichord.

The German and Scandinavian makers, of course, had a great school of keyboard composition to lend significance to their efforts. However, their instruments are not as useful models as one might expect. To begin with, the German style was not well unified—it is more difficult to choose a typical example. The large instruments with a 16' are each one-of-a-kind. It would be difficult to find enough consensus in design and disposition to

settle on a model. They are also rare and it is likely that they always were so. It would seem perverse to choose so unusual an instrument as a model. Among the smaller 2x8', 1x4' instruments one could probably find good models, though few makers have done so.

The most visible of old harpsichords are the English; but such are not necessarily the most significant. When I was casting about for models, the commonest of large old harpsichords were the English. Every collection seemed to have one and they were seductive. Soundly constructed, of a restful and rational decor, they glowed with the patina of fine old walnut and mahogany. The actions had the solidity and precision of an English tall clock. I succumbed and attempted several copies. Now, there is nothing wrong with attempting to make a harpsichord in the English style; but it is not the place to start. We failed to ask what music was peculiarly appropriate to this type of harpsichord—that of Dr Arne and Dr Pepusch? Even Handel had, after all, been raised on other styles of harpsichord and was rumoured to have had a Ruckers.

Tom McGeary: But what of the various types of Italian harpsichords?

Frank Hubbard: It is ironic that nearly all twentieth-century makers are unanimous in declaring the Italian-style harpsichord too limited in colour and range to stand as a candidate for the general-purpose instrument; and yet, during the seventeenth and eighteenth centuries it more nearly fulfilled that purpose than any other type of harpsichord. Are we once again blinding ourselves to the obvious ?

Tom McGeary: A number of myths and controversies have developed within harpsichord circles concerning certain details of construction; perhaps you can comment on some of these. The use of soft iron wire, for example; how does this affect an instrument ?

Frank Hubbard: Well, I think it is important. There is no question that if you string an instrument with hard steel music wire and then string the same instrument with the softer wire that it sounds different. The change is similar to that when you lower the pitch of an instrument. There is a move in the direction of being a little bit falser, a little more fragile; one is a little less certain of the exact way the note is going to sound. I think probably the string is more flexible and therefore has a tendency to break up into more vibrating segments; as a result harmonics are heard that would not be so apparent in a stiffer wire. My experience has been that especially at the lower pitch, instruments sound better with a more flexible wire than with modern music wire.

The old brass wire is different, though, for another reason. Modern brass is made from copper and zinc. Old brass was made by reducing a natural mineral which contained zinc along with the copper. But there were other trace impurities, mainly iron, which appeared in all brass, but which do not appear in our modern brass. Thus, the old brass had a higher tensile strength and was stiffer than modern brass. This is why in certain cases modern makers have felt impelled to use phosphor bronze for certain strings. Phosphor bronze was never used in old instruments; but it is harder and stiffer than brass.

Tom McGeary: Crow quill was used in probably 99 per cent of the old instruments; is it possible to reproduce the qualities of crow quill using modern delrin plectra?

Frank Hubbard: Almost, but not quite. I have tried this experiment several times—using an antique instrument to eliminate bias. I scattered delrin quills among crow quills, and I have scattered crow quills among delrin; and it is possible to voice them so that they can't be found. But that is still not to say that they won't make a difference; because when you play seven or eight notes simultaneously it's a different matter from playing them one note at a time. A very small difference is then multiplied seven or eight times. Thus, I think that there is difference; old instruments sound slightly different with quill from the way they sound with delrin.

Tom McGeary: How would you describe that difference in sound?

Frank Hubbard: Subjectively one would say that quill was more focused. I think that probably means there is a more significant ictus at the moment of plucking; that somehow, aesthetically, this sound tells us that the note is now beginning.

I think delrin has a bad name, to some extent because it has been abused. People voiced it at a volume level which is not possible with crow quill. And, of course, when I said that delrin sounds like quill, I am assuming that it has been discreetly voiced at a volume level which is possible with crow quill.

Tom McGeary: A myth often associated with violins is that they improve with age, or that they need to be kept 'played in'. What is your experience applying this to harpsichords?

Frank Hubbard: I should say, to begin with, that there is no way of answering that question. Who can play a Stradivarius violin as it was the day he made it? And I should go further and say that observations which have been made over a period of years are extremely questionable, because I deny that the observer can retain an absolute standard over that period of time.

However, I will say that, over a short time span, there is no question that playing changes perfectly measurable things about an instruments. I have made instruments which had wolves on certain

notes. (A wolf on a harpsichord is a note with either a falseness, a beat, or a metallic timbre.) I have made lists of these wolves with the idea of later coming back and trying to eliminate them by changing strings. When I come back to the instrument after it has been played a couple of weeks, sometimes they simply are not there—something has happened in that interval.

There is no doubt that brass strings become brighter and clearer with playing. This anybody can hear. You put on a new brass string and it sounds dull. A week later, or even sometimes hours later, after it has been played a while it sounds better. The only explanation I can think of is work hardening. As you are stretching the string in several tunings, you are reducing the diameter and it has become harder.

Tom McGeary: Is the presence of a rose crucial for an instrument ?

Frank Hubbard: It has too small an area to make any difference at all. There is a far larger area between the belly rails. I have made instruments both with and without roses, and there is no difference. Schudi and Kirkman made instruments which were very similar; they are both very good instruments. But Schudi never used a rose, and Kirkman did.

Tom McGeary: And about the varnishing of soundboards ?

Frank Hubbard: On old instruments the soundboards were never varnished—at least almost never, except for the English. So I think the answer is no. My feeling about varnishing them is that it makes them look wrong; and if your effort is to make an instrument sound like an old one (which it must be), by varnishing the soundboard you are interposing an obstacle in your path for no good reason.

Tom McGeary: In addition to your activities as a builder and restorer you have made a major contribution to our knowledge of harpsichords with your book, *Three Centuries of Harpsichord Making,* and your contributions to the *Galpin Society Journal.* How would you assess the present state of historical harpsichord research ?

Frank Hubbard: Well, an enormous amount has been done. Many very valuable corrections have been made to my own earlier efforts and many new bits of information have been brought out. Edwin Ripin and Dr John Henry van der Meer have unravelled many difficult problems in the area of Flemish harpsichords. A whole series of English writers have told us a great deal about harpsichords in England. There is a group of young French researchers who have unearthed an enormous number of old instruments. I wrote that there were very few French harpsichords in existence; that is no longer true, there are instruments being turned up all the time and this is of the greatest value. There is no doubt that many details have been refined; some of my own dicta have been overturned; many of my own opinions I've changed —as I mentioned about the seventeenth-century native French harpsichords.

Tom McGeary: What areas further need to be investigated ?

Frank Hubbard: I can't put my finger on a field of research that would yield instant returns; I think that is simply a matter of unearthing more instruments and sharpening our perceptions. Of course, the great enigma is where it all came from—the early period of the harpsichord; but that is something that is very difficult to throw any more light on. Less is known than should be about the development of the harpsichord in Germany.

I think probably that work in various archives of the world would prove valuable; these are, after all, our frontiers, and there is new data to be unearthed. A lot of this may seem like very small potatoes—things like the man had three benches in his workshop, and so on—but the fact is that you can draw many conclusions from these tidbits. We need these documents; so I should say the primary effort should be to unearth more documents. There are guild records missing in Antwerp that would be fascinating to find. There are missing papers that were presented to the Royal Academy of Science in France; there are inventories and lists which have been lost; rather little has been done in the examination of the records of various other scientific academies in the eighteenth century.

Tom McGeary: But the fact that these inventories and papers describe particular features doesn't mean we want to assume that they actually existed or reflected actual building practice.

Frank Hubbard: No, but very often one can make deductions from these papers as to what normal practice was, even though they are describing abnormal practice. For example, a work that I quoted at length in my book, the *Verhandeling over de Muziek,* was a treatise on how to make some god-awful concoction. None-the-less, it gave you a lot of insight into harpsichord building techniques. Now, so far as I know that is a unique copy—Leonhardt has that. There are probably other efforts on this level that are buried here and there in other libraries.

Tom McGeary: Our knowledge of historic instruments and building techniques has increased greatly in the last two decades, as you have just pointed out. What changes have you seen in the practice of harpsichord building over the years ?

Frank Hubbard: It used to be said that the essence of a harpsichord was that which could be expressed in a plan view: the lengths of the strings, the point along the string at which it is plucked, the distance from bridge to bentside and to 4' hitchpin rail, the placement of soundboard ribs, the thickness of the soundboard, and of course, the range and

disposition of the instrument. Many 'copies' have been made which do not resemble their prototypes except in having a common plan.

As the movement toward authentic style and technique in performance became more refined, the actions of harpsichords came under closer scrutiny. Now we are concerning ourselves more with the details which can be imparted by the elevation: the lengths, thicknesses, weighting, balance point, and method of guiding the key lever; the key dip and point at which the dip is arrested; the weight of the jack; and the type of cloth padding at various points in the action.

These things are all essential, but even attention to this formidable list seems insufficient. There is a new emphasis on materials. Differences which seemed insignificant some years ago now appear vital. Delrin replaced leather plectra because it sounded more like crow quill. Now with subtle insight several makers have discovered that crow quill sounds even more like crow quill than delrin does.

And case materials have also become more esoteric. A few years ago most modern harpsichords were made of plywood or stable woods like mahogany. Now makers are beginning to use the lime or poplar most often found in continental harpsichords. American makers have been satisfied to make soundboards of Sitka spruce for many years. Now several makers are importing Norway spruce, the species most often commonly used in old harpsichords.

The endeavour now is to duplicate the light touch, and the silvery vibrant tone, light yet expressive, which are found in the best old harpsichords. The most successful makers have achieved this end by attention to detail and by applying a mixture of scientific common sense, historical imagination, and aesthetic perception to the problem.

Tom McGeary: As one of the most esteemed builders working today, can you share with us your philosophy towards harpsichord building?

Frank Hubbard: To build harpsichords is to operate a sort of historical laboratory. My endeavour, after all, is to resurrect history, to make instruments that sound like the old ones. However, ones historical conjectures must be subjected to empirical proof. It is routine enough, even if laborious, to ferret out information about a specific type of old harpsichord. One must measure, examine, weed out later accretions from original parts, compare one extant example with another, and then view the resulting data with suspicion in the light of any available written documentation.

Then the difficult part comes. The instrument whose design results from these procedures must be appraised, and not on the scale of arbitrary taste, but with a taste consciously deformed by acquired knowledge of the expressed opinions and preferences of old authorities and composers. It is hopeless and possibly undesirable to expect to eliminate completely all modern bias from ones judgement and technique. Yet, to the extent that he is able, the harpsichord maker should attempt to direct his decisions by reference to the past and not by an absolute and arbitrary aesthetic standard. The harpsichord is an instrument of the artistic purpose of other times; the syntax of its speech stems from a language that is not ours. To forget these facts is barbarous. Such is what I conceive to be the most effective philosophy for the present day harpsichord maker.

Tom McGeary: And one final question; your reputation as a builder in England, and in other areas no doubt as well, has had to rest primarily on kits which have been assembled by other people. Have you any reservations about this?

Frank Hubbard: Well, kits can be embarrassing. I am constantly being faced in public with an instrument which somebody will refer to in passing as made by me, which wasn't made or voiced by me. Even when the workmanship is good I frequently think that the voicing is dreadful. But this is a cross that a kit-maker has to bear. However, let me say this: if the kit is well put together, whatever is wrong with it when it is finished is something that a competent maker could put right in a few days work. It is a question of re-regulating the action and re-voicing it. While my reputation may suffer because the things are mis-adjusted and poorly voiced, this after all is not important. What is important is that there are a lot of potentially good instruments in the world that otherwise would not be there.