

Thoughts on the Restoration of Harpsichords

by **Michael Thomas**

This article is deliberately based from the point of view that in restoration the instruments should be made to play with the minimum of change. In my opinion any changes which do not prohibit the instrument being played or inhibit the tone should be left.

The difference in attitudes was perhaps shown clearly in 1957 when I visited the principal museum in London and saw many of the instruments in a kind of basement. I said that I wanted to both play and hear these instruments and interpret the early music on them. The curator or assistant curator said

that he would never add new parts such as keyboards or jacks to an instrument, and that Raymond Russell had recommended leaving a number of the instruments in an incomplete state. My argument was that a set of jacks in those days cost £20 as did a keyboard and if the case and soundboard of the instrument existed the whole thing could be heard playing again for less than £100. The case and soundboard should be left alone as much as possible so that no historical evidence which they contained should be lost or altered. These historical parts would be in no way invalidated by the introduction of mechanism which was obviously new to make the instrument sound. The reply to this was that no new parts should be added to an old piece of furniture. I said that the furniture aspect of the instruments was far less important than the musical aspect, which to me was capable of the most moving experiences of my life. I remember adding that at the moment I was engaged in trying to find out what was the thickness of the old strings and their gauges. If the gauges that I was finding out were correct then the old strings were very thin and would not harm the old cases.

Over the years I have not changed my attitude very much, because large alterations to instruments usually come from some pre-conceived idea that the restorer has formed from some other instrument. But we know only a small percentage of the instruments that were made in the 17th century. Very few have been described in the books. As we get to know more we find a far greater variation than was previously thought, far greater links between the various parts of Europe and it is quite unsafe to assume that one instrument will be the same as another which may bear the same signature. Consider the variations that go under the name of de Quoco or Pisarenensis.

This attitude of restorers approaching instruments with pre-conceived ideas was well exemplified in an amusing occurrence when one who had restored several important instruments gave an impromptu talk about what he would do with a certain instrument which was for sale at a well-known auction. The onlookers were told, as I said in the Galpin Journal Vol. XXIV, that he would use .010" for the top string of an Italian instrument (nearly four times the weight of the original pieces of wire which were found and marked gauge 12). Brass wire was recommended which would add 10% to the tension although the old pieces were hardened iron. There was discussion about the way the two stops should face yet an examination of the old pins showed quite clearly that originally the instrument had had only one set anyway; so it would have ended up with eight times the tension it was meant to take. The small soundboard bar 3/16 ins. was described as part of the frame as it went under the rose and was 'in the wrong place for a bar' (this actually is the place in a single barred instrument). By tapping the soundboard four fictitious bars were 'discovered'

which as we later found out didn't exist at all. The wood of the case was maple and identified as cypress. Had it been an examination on harpsichords it might have been possible to give him &% as a charity mark for knowing it was a harpsichord!

One change of bar on the soundboard, one change in the wood of such a bar, will completely alter the tone of an instrument. One may ask how it was possible to describe a harpsichord down to the minutest detail - wrongly! The answer is of course that this restorer was not really observing anything, but reciting the ideas of an Italian harpsichord expressed in Russell and few other ideas about the barring which were current twenty years ago. The instrument he was looking at was not of a type described in any book that I know of. It was very different from the well known percussive Italian type of harpsichord with cross bars under the bridge. Yet this is what he was pretending to see and describe.

I remember when Raymond Russell sent me a copy of his book, Mrs Maddeau Stuart asked me what I thought of it. I replied that I thought it was an excellent book as there was a great deal of new information in it, but that the emphasis was not well directed. The differences between the national schools were high-lighted whereas what is more important is the tremendous variation within the national schools and the trends which circulated internationally in instruments which were used for similar styles of music. The book discusses the superficial mechanical aspects of instruments, the plucking point and string lengths, all given in great detail. Any maker knows that good instruments can be and indeed were made with string lengths of 10" — 15" even in the same country, a ratio of tension of 100:225 and that some old instruments plucked very near the end of the string and others near the middle e.g. both are found in instruments ascribed to Pisarenensis.

Russell says, page 31, that the Italian compass is either GG-c³ or C-f³. He states a possibility 'that they cover the same range of notes, one model serving the purpose of a transposing instrument, a practice common in the low countries'. These may be common compasses for virginals although GG is rare. But it in no way reflects the common harpsichord compasses. After examining almost every Italian instrument in Western Europe, I am prepared to say that the string length of harpsichords is, in all unaltered instruments, very consistent (say 10 1/4" to 12W for c²). In all altered instruments, with only one possible exception, it is possible to see how these instruments could easily, and usually obviously, have 11" (give or take a little for local variations). This was essential as the Italian harpsichord, unlike the virginal, was used for accompaniment to the cornetts and had to go with their pitch.

Russell's comment has led to much misunderstanding as people discover low-pitched harpsichords always altered, all over the place. Thus it is often

believed that the Trasuntino at the Royal College of Music was low pitch C-F³, a compass never yet seen in an original instrument of its size. In fact the present compass is GG (short octave) to c³, a most common and likely compass. The size of the instrument thus produces a normal (i.e. 11" t 1") 10.7" to c² and there is no reason to think that the changes were for other reasons than to change the compass. For many years some of us have maintained that this was a dangerous theory that could cause large, and unwarranted changes in restoration. In the last few weeks a previously unknown, and unaltered Trasuntino of the same size has been found in Paris. The compass — GG to c³

So all the instruments which appear not to have been altered are singularly consistent, so I prognosticated 20 years ago that we would have undue emphasis and arguments about string lengths and plucking positions, whereas the deeper aspects of a good instrument would be neglected, and this indeed has been so. Raymond Russell in his book goes into great detail about the later instruments and quotes letters on the subject of leather plectra and other mechanical superficialities, and many restorations since have been either with leather or plastic plectra. I said then that one has to look hard to find details about the case and soundboard. The earlier instruments of the 16th century and 17th century are often made to sound as though they were not very useful instruments with quint stops etc. a fact which I have been able to find no strong evidence to support. Raymond Russell's idea of the quint stop and quint pitches in Italians may have been an unconscious attempt to excuse the limitations of the double pitch and limited range of many Ruckers harpsichords. There was an old belief that the Ruckers harpsichord was one pole and the Italian harpsichord the other pole with a few intermediary harpsichords in between. This is very dangerous for restoration as instruments tend to be altered into instruments of according to the ideas of either one camp or the other by restorers. Observation of the instruments themselves before they are restored shows a vast number of so-called intermediary instruments but they are not much written about and are often unsigned. These are the ones that can be changed so easily. Examples of both poles can be seen in Italy and in the north, so the poles don't really exist at all. If there were poles, it was between the French resonant sustaining instrument and the Florentine cross-barred instruments which are the most extreme.

The appearance of Raymond Russell's book was marvellous twenty years ago and should have led to people going around and looking at instruments for themselves. Instead it, together with Frank Hubbard's book, which only describes two kinds of Italian harpsichords, have been taken as gospel. People are too anxious to make rules to give themselves a safe harbour as to what the old makers did and did not do. Only a tiny percentage of the old work is known and

most restorers have only seen a tiny percentage of that which remains. One cannot limit one's knowledge of the different types to those which were known and described twenty-five years ago. For instance recently I've had students make the following comments to me: 'Italians never used bone key covering'; 'Italians never used black keys'; 'Italians never used thin double slides' or 'thick cases'; 'instruments before 1720 did not go down to GG'; 'German bridges were never moulded'; 'the 16' stop didn't exist'; 'the 4' on Italians always faced to the right'; 'English and Irish instruments didn't have bars under the bridge'; and so on. All these 'rules' of the 'thou shalt not' type are illogical because we haven't seen everything that was done and instruments exist which disprove all of them.

It could be argued that when restoring instruments people will notice how they have been constructed originally, that for instance the restorer referred to above would have realized eventually that his initial judgement was completely wrong. Yet, so often, the alterations are not obvious, neither should it be assumed that the original was identical with some other instrument, from the same country, or even the same maker.

Nevertheless nearly every 17th-century soundboard in France has been altered to the 18th-century Northern type by mis-informed restorers. A great number of Italians have had heavier 4' hitch-pin rails added. The Thibaut instruments have had the boudin altered from pear wood to beech, so I am told. Changing this piece of wood completely alters the character of an instrument more than altering the design. There is a case of a double-manual Ruckers being cut down to turn it into a single manual and another double-manual Ruckers altered back to a transposing instrument. I understand that the museums in question are now rather sorry that they have reduced interesting musical instruments back to mere copies of other instruments in other museums, of little practical use. Who can say for certain that these instruments were exactly similar to the instruments they have now been made to resemble? One has only to measure the strings of old instruments and compare them with those used in restorations to realize that people let their own ideas on metallogy or the false concept of equal tension throughout an old instrument, run away with them. I spent several years of my life trying to save the instruments which had gone through the hands of one restorer who was cracking sides, soundboards and bridges of the most beautiful English harpsichords. In order to find out what the early string gauges were I had to go around Italy and the northern countries looking for remnants of old strings and instruments which had not had the gauge numbers, often marked in ink or even a kind of pencil, cleaned off in restoration. It was therefore necessary to find instruments which had not been restored in museums and to examine them before they got there. I once rang up the museum of a

college of music in London and told them that I had the string gauges of one Tranuntinus and would like to measure the old strings of their instrument before it was restored. I was told that they were just old strings on it! They would let me know when it had the proper strings put on by a restorer and I could measure it after it had had these which would be of interest to organographers!

Recently the attitudes to soundboards have been getting very much better. The attitude expressed by restorers a few years ago was that it made no difference how many bars were put on or how one cut them. The truth is rather that the instrument can be changed from a melodic instrument to a percussive one by the addition of only one bar which will completely add new notes to the soundboard. Further bars show up less until in the end one cannot hear the difference when yet another is added. Recently I took 19 bars and one block of wood off the bottom of a beautiful Kirkman soundboard which had been restored by a maker who claimed to copy Kirkman harpsichords. Certainly the string lengths of his own harpsichords were original. As for a member of the earlier school he believed this to be a most important factor. Everything else had been changed. The resulting tone did not resemble that of a Kirkman or any other historical maker.

This restorer was connected with Fenton House and I mentioned that similar heavy barring existed in the early Venetian instrument in the collection there. Unwittingly I did a great deal of harm for they had a huge hole cut in the bottom of the instrument to have a look. They did not realize that the bottom of an instrument, especially a light-cased instrument, was the back bone around which the whole thing was constructed. I find that nearly all badly restored instruments have got holes cut out of the bottom for repairs and many like the Venetian instrument in question have had their soundboards cut out with a boy-scout knife. Another rule which must be made is never to cut an original part and always to soak the original joints of the instrument to separate them. It follows that when the pieces are joined together again old fashioned slab glue must be used so that they can be soaked and repaired again. (It seems extraordinarily difficult to get people to do this). Resin glue should only be used on parts which have been hollowed out by worms, or cut with a 'boy scout knife', and which were originally integral parts.

The different attitudes of different schools of restoration have some amusing sides. Our attitude was that the wood, the resonance air volumes, the soundboard thickness and barring, and the vibrating areas must be as original. String lengths of new instruments were less important. To prove this, in 1956 we made a number of originals, with string lengths for c' of 10 ins. to 16 ins., a tension ratio of 100 to 256. It was hardly possible to hear the difference. We also made some harpsichords pluck right down the string, like N. Fleisher while others

plucked almost at the end, a tone like a lute, similar to some French 17th century instruments. People liked both.

We have always claimed that a long quill from a feather, lifts the whole string, giving a strong fundamental. However, since it is also sharp and clean at the end, it also produces many harmonics. In other works, we wanted to feed into the harpsichord a wider harmonic spectrums from natural quill and allow a sensitive soundboard to sort it out. We were hampered by Russell's statement that serious players would not play on quill. So in the north of England somebody constructed a harpsichord with plastic and real quill plectra mixed. People were asked to distinguish between the two. Well, of course note against note you cannot, especially if the quill is bad. Indeed a quilled harpsichord will take quite a few plastic plectra without harm. It is when one gets all plastic plectra together that there is an unpleasant edge which is perhaps built up by a regular harmonic in all the plastic.

At a later stage we were known as the 'cranks in London' who thought that the case affected the tone. One poor lady, a ticket to Kings Cross in hand, even cried on the pavement before coming to see me as she was convinced that such a belief could only spell insanity. Indeed, evidence of the Russell School's attitude is shown in some square pianos converted to clavichords or large pianos converted to harpsichords. I have been asked to find homes for two only this year.

I think time has changed things. Certainly recently we have heard a lot about making quill more reliable and pupils of mine have requilled harpsichords for famous players all over the world. As regards the case, Mr W. Zuckerman told me the other day that his kits sound quite differently if they are veneered, from the way they sound if painted. My own interest is the earliest and, in my opinion the best, harpsichords has lead me to treat every piece of the instrument as though it were soundboard. That is to test each piece of wood for low specific gravity, for resonance, then to string it lightly, as being so resonant it does not need heavy strings, and to feed into it a neutral signal with wide harmonics such as a quill.

The latest generation of restorers and makers is, of course, more prosaic than we are. Every hinge, leg, and other detail has to be exact and authentic. This is really funny as Ruckers family appeared to have worked very fast and in no way followed detail in their printing etc. However, I do think that people are not working fast enough to produce a knowledge of what causes the tone, which necessitates making a large number of instruments. Instead people are taking the musical design of kits, or of plans from museums as gospel, and going into great detail with the extra musical decoration and appendages.

Having said all this I must add that Raymond Russell did do an enormous amount of good. He pointed out that two eight foot stops, and one four

foot stop, would suffice for nearly all harpsichord music. In the old days we used to build reasonably authentic cases but we always asked for 16', quints, 2 foot stops (I like these better than 4') extra leather stops, nazard 16' etc. and this completely spoils the simple working.

I think that our principles, despite derogatory remarks from the Russell strongholds, have been proved right. There were, perhaps, five makers working in the fifties and early sixties making authentic cases for their instruments. (There were three, forgotten and unsung, before even Arnold Dolmetsch started, making excellent instruments). These early instruments were better than we thought at the time. Nowadays, perhaps with a little retouching and simplification, they often sell at ten times the original price. They have stood up in strength and tuning. Meanwhile the heavy piano type of cases, or converted pianos, have caused the instruments which they form to be almost valueless.

The obvious application to restoring is again, don't change anything. In those days most restorations were too fundamental, added foreign material, often added metal bars in order to overstring, and plucked with leather or plastic which, of course, suits thicker strings. Add a few soundboard bars and there is a homogenous instrument; all wrong; sounding like the new harpsichords of their day. As remote from an old harpsichord as many modern 'copies' seem to me today.

CONCLUSION

The first priority in restoring an instrument is to make the instrument play again in the form in which it is found. Thus if it has existed as a reasonable double during the previous period when it was playing, this is the form in which it should be left. There should be no attempt to put it back according to some theory of transposing instruments and no other attempt to change parts and substitute copies of the parts from another original instrument. In this way several rare instruments have been made to conform with the few types already described in print. It is a false assumption that we know all the types, and the theory of 'poles' is dangerous. Any new parts which are added must have the same mechanical weight and leverage as the old parts and be capable of holding the original type of plectra firmly. Whether they look exactly the same is less important.

As far as we know adding more wood to the frame only alters the tone gradually, providing the same wood is used as is already there. Wood of a different nature, and of course metal make far more difference. It is essential that the case should not buckle or that the leader isn't broken as in so many instruments of the Kirkman Shudi type. This must be repaired for the resulting pressure on the soundboard inhibits the tone far more than extra pieces of wood in the frame. No old wood should be cut and

it is essential to work backwards through the order of assembly of the harpsichord. This can usually be determined by examining how the bottom was constructed and at what stage it was put on. The theory of 'poles' between the Italian and Flemish is very dangerous here, because some Northern instruments have knees as well as struts which were put on after the bottom was in place; so one mustn't work through the bottom. Conversely some Italian instruments have a thick straight side and a thin bent side, as did some early French and English instruments, and in these instruments struts may be found so that the thick side supports the thin side. It is always safer to work through taking out the soundboard except in a few late instruments where the hitch pin rail (boudin) is part of the frame. The order in which the frame and case was constructed seems to depend more on the wood used, how easily it bends and the thickness of the various parts, than on the district in which the instrument was made. All old parts should be kept so that any restoration is reversible and all old strings should be retained. The glue should be of a reversible type so that it can be unglued if necessary.

We now have the string sizes for nearly every kind of harpsichord and if anybody wishes to write with a specific question to me c/o the editor, I should be glad to try to help. It must be remembered that strings which are too thin do no harm. In conclusion I would like to say that the work done in Britain on the whole has been excellent except for the tendency to over-string.

Despite the attitudes that I have criticized, most of the instruments in England have not been put back according to the various theories but have simply been repaired and very well repaired. Much credit must be given to the work of Mr Hugh Gough and the late Captain Lane.

A much more sad fate has befallen the Italian instruments. They have, both at home and abroad, been over barred to strengthen the soundboard. This may be why people failed to recognize that all the international types of soundboard existed there in Italy. The instruments have been stored in damp, worm filled cases both in Italy and abroad. I have bought many instruments to save them being made into dressing tables and, in the case of organs, book cases. It is necessary to buy the pipes separately, usually back from a scrap merchant who, it would seem, crammed them into a case with the help of an elephant. Then, of course, there were the 'cut out' soundboards; cut out to add bars and 4' stops. If not by cutting the soundboard, 4' stops were added by cutting holes in the bottom. I personally have tried to save every instrument I have seen in peril, regardless of cost. Alas, many instruments in pine appear intact till one touches them. One then finds the worm has hollowed out all the wood.

Poor old Franciolini. He has been blamed for a lot, for which, at a later date, I will try to prove he was not responsible. He was no worse, and probably a

lot better than many other dealers whose instruments I've bought. His fakes and replacements stick out like a sore thumb and are easy to identify. Many other instruments, except for added dates and inscriptions and the keyboards and roses being mixed up, are virtually untouched, or one can see the original parts. At least he sold them as instruments. One museum I know, got rid of all the instruments that might have passed through Franciolini's hands. Did they get rid of unique treasures and exchange them for an old piano? Franciolini was dealing with the most important historical links with the 16th century and an examination of original features in instruments which appear not to have been touched has led some of us to see many possibilities and unknown side shoots of harpsichord building. Now, instruments are confirming what we guessed.

Mr John Barnes, writing in some essays published in Edinburgh describes a keyboard with divided sharps. This is, of course, the most altered Franciolini ever re-launched. Its present keyboard was repaired from two, as it was made into a double with 4' stop. A Cambridge student took it back to one manual with only one stop, perhaps he did wrong? But the previous alterations were very badly done and the soundboard had been cut out as usual. I examined the instrument in 1958 and I think the

cutting was not done by Franciolini. I decided that the case was an old outer case, and that another soundboard and another keyboard had been fitted. Nevertheless, I think that all the parts were original but not from the same instrument. Later we found similar cases, similar soundboards in the Venetian style and similar keys in other instruments which were authentic. So I think Mr Barnes was justified in describing it even though it was a 'Franciolini'. Franciolini could be summed up by Mr Alec Hodsdon 'One never knew what one was going to get, a beautiful unaltered instrument or an entire fake'. On the other hand, in France I believe if it hadn't been for the care and observation of Mr Bedard the whole tone and variation in structure of the 17th century French instruments might have been lost. Indeed, two types may have been lost! I can only judge Germany by the quality of their new instruments but I imagine that the research of Rainer Schutzer will greatly help things there in the future. It would be a very good thing if before any restoration were carried out several people, with different experiences, were asked their advice. By the time each person had pointed out the various possibilities of original condition hopefully all that would be done would be to repair as simply as possible and make instruments play music.

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