The Provision of Plans
at the
The Bate Collection of Musical Instruments
Faculty of Music, University of Oxford

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Why do we do it? Why do we go to the trouble of providing plans?

There is, of course, a number of reasons. The most basic, and one that we would probably only admit to among ourselves as a prime reason, is to make money. How the rest of you are placed, I don't know, but until we got our Friends organised, and through them a capital fund which provides a little interest each year, we had no purchase fund, and we still have nothing from the University for this purpose. And yet we've bought a lot of instruments in the eleven years that I've been Curator, most recently the only Hieronymus Albrecht Hass clavichord in Britain – very frustrating, we've had it for more years than anyone can remember as a loan, and then every curator's nightmare, the lender who needed money – so we had to raise a great deal of money, just to keep what we already had. And this is the main way that we do raise money, by our sales. We sell guides, catalogues, postcards, and so on and so forth, and plans of our instruments.

We are very fortunate. Our own publications are written on my computer and printed on the Faculty's photocopier. Thus they are very easy to produce, and I would encourage other curators of small collections like ours, 1500-2000 instruments, to produce Check Lists and small sectional catalogues like these which are extremely valuable as references, to know what is in a collection. A result of this mode of production is that the profit margin is high! Most of our plans are published the same way because all woodwind smaller than bassoons will fit an A3 sheet; we don't make as much profit off bassoons because we have to pay to get the plans printed in the local architects' copy shop. But we have been very lucky with plans, too. Initially we inherited two plans from Edgar Hunt when we bought his recorder collection, both of the famous Bressan treble recorder, one drawn by Fred Morgan and the other by Friedrich von Huene. Both of these gentlemen permitted us to sell copies of these drawings. Then Ken Williams got a grant from the Australia Council to come to England to draw plans of as many of our instruments as he could during a summer, to provide a resource for Australian instrument makers. Ken was a member of FoMRHI, the Fellowship of Makers and Researchers of Historical Instruments, and it was in that context that he'd got the idea of doing this. We, of course, supported very strongly his application to the Australia Council because I knew that we would benefit too. Several other people have drawn plans because they wanted the information and they were kind enough to draw a saleable plan for us in return for being allowed to measure it. Others have done so in return for hospitality while they've been in Oxford, and for payment of their fares to travel to us. So we have built up a big list, second only to the Gemeente Museum in The Hague, as you'll know if you've looked at that very useful list that Rob van Acht got Moeck to publish, and we are increasing it all the time.

I glanced just now at another reason for providing plans: as a resource for makers. This, leaving aside the need for money which affects us all when we see just the instrument we want appearing in the sale room, this is the real and by far the most important reason for providing plans. As we all know, there aren't enough original early instruments around for everyone who wants to play them, and anyway nobody in the eighteenth century was playing on instruments two hundred and fifty years old. The only way to have enough early instruments, and the only way to have ones that aren't two hundred and fifty years old, is for modern makers to produce

reproductions. And for that, they need plans.

Or at least they need to have measurements of the instruments. Which brings us to a third reason for providing plans. Every time an instrument is measured, it risks being damaged. Quite apart from the risk of being dropped when it's handled, contact with measuring tools is inevitably a risk. If we provide plans we can forbid any further measuring of those instruments for which we have plans, unless and until the person who wants to measure it can prove that the existing measurements are inadequate in some respect.

I mentioned contact with measuring tools. One of our bugbears has been the use of metal measuring tools, and it's one that we need to look at again. I'd agree that we must ban hardened steel caliper gauges – they are dangerous in even the most careful hands. But T-gauges are another matter. A T-gauge with very smooth and properly rounded ends such as the Mitutoyo is a great deal safer than some plastic discs I've seen. I've had people come into the Bate, quite reputable makers, too, with plastic discs with edges just as sharp as their reamers. Obviously, they want a nice clean cut-off point for the measurement. But if I'd let them use those discs on our instruments, we'd soon have instruments with stepped bores. They were surprised that I banned the use of their plastic, at least until they had rounded off all the edges, and more surprised that I permitted a steel T-gauge, but gentle use of rounded, smooth steel is infinitely safer for the instrument than the use of sharp-edged, rough plastic.

Ideally we need a non-contact system, but I've not found one yet that works and is affordable. X-rays are no use because of parallax problems, although of course they're always useful for additional information. The best I've met yet are machines like Rod Cameron's and a rather better German version that reads out digitally or into a computer instead of on a chart recorder like Cameron's; it didn't need as much setting up, calibrating, and checking as Rod's, either. These are still invasive contact machines, but the contact is very light and the result is a complete picture of the bore rather than a series of steps, which is what you get with T-gauges or discs. As so often, it comes back to money. There are better methods used in industry, but while they can afford a few thousands or tens of thousands of pounds to make sure that their aeroplane engines or atomic energy components are the size they wanted, we can't. We can't even afford to buy one of Rod's machines, or one of the German ones, and then pay somebody to measure all our instruments so they never have to be touched again. And certainly I've not got the time to do it. Nor could one insist that all visiting makers could use only such a machine even if we were to provide it, for some wouldn't have the skill. Though if we could afford to buy one, it would be a very strong temptation to insist on just that; if this is the safest method I know, would it not be right to make that the only permitted one? Especially if it is also the most accurate method that I know when it is properly handled.

Which brings me to the next problem. Are our measurements accurate, our plans adequate? Fundamentally no. No maker really trusts anybody's measurements except his own. Here one just has to be tough and say, "What we have is good enough and anyway it's all you're going to get".

Is any plan adequate? And here again the answer is no. It lacks one essential element. It is silent. A good plan should, of course, have a table of pitches. Some of ours have, and some, because the measurer was not an oboist or whatever, don't. Anyway, I don't really believe that it's possible to produce definitive pitches on any instrument that requires a reed. Two players with two reeds will produce radically different results. Our oldest oboe, the anonymous so-called Galpin, was noted by one player as playing at A=407 Hz. Bruce Haynes was sure it was A=392. Both were right – with their reeds and their playing techniques. Even two players with the same reed will get different results.

Pitch isn't the main problem, though; it's the tone that counts. If the copy doesn't sound like

the original, it isn't a copy. John Koster pointed out that sound changes over the centuries. Nevertheless, the sound of the original instruments today is the only evidence that we have of what they did sound like. Either we take that as evidence or we proceed by guesswork. How do you find out whether the copy does sound like the original? I will allow makers to play the instrument, especially if they bring an example of their own reproduction. If the reproduction is at the same pitch as the original, and if it's made accurately, I'll allow them to mix the joints, our top, their middle, and so on. We have learned quite a lot that way, among other things that no plan is adequate. It will get you so far, but unless you are Bressan, you're never going to produce a Bressan recorder. It's like a map in that respect. It'll teach you how to get from A to B, but it won't tell you that Antwerp is a beautiful city; it won't tell you what the streets smell like, how the stones feel under the foot, or what it feels like to be here. Nor will the new technology of computer virtual reality tell you these things either. You have to be here. And you have to play the instrument. If you can't, one dimension is missing from the information, and this, depending on the local rules, may mean that all the plans from certain museums may be missing that dimension. A recording, however good, isn't the answer, either; that's like the computer virtual reality; it's virtual, but it isn't real.

We still have other problems. We can't yet provide plans of our early cors anglais; we've not been able to think of a way to get accurate measurements round the curves. We can't provide plans of any of our brass. Partly again the problem of accurate measurements round the curves, but with most of them the sheer problem of getting a tool of any sort through the bore. Anyone can measure the outside, of course, but that doesn't tell you what the inside is like, and it's the air on the inside that makes the noise. My ears tell me that this is the problem with most of the modern reproduction brass instruments on the market today; they don't sound much like the originals, and while some of it is due to bad playing practice and the use of modern mouthpieces, a good deal of it is due to the instruments themselves, which quite simply aren't accurate copies, and they aren't accurate copies because nobody is providing accurate information about the bores of original brass.

What I said just now brings me to my final point. And it takes us back to where we started. Why do we do it? Why do we go to the trouble of providing plans if makers are going to fake up their instruments with plastic bores, with extra holes, with modern conveniences, and if players are going to stick modern mouthpieces in them and play them with modern playing techniques? Put like that, there isn't a lot of point in the whole process, is there? I suppose from the museum point of view it's part of the documentation of the instrument. From the didactic point of view, and most of us believe in educating the public rather than just entertaining them, like the many Disneylands we all have around us, we are providing information about the instrument and teaching people more about it. And from the early music point of view, there are a few players in all the areas who do care about original sonorities, who care passionately about making the right sounds, who don't want to fake their instruments or their playing techniques. Ultimately we provide our plans for them and for the makers whom they inspire and who inspire them. Maybe, with the information we provide, new and better craftsmen will appear, and one day again there will be a Bressan, a Ruckers, a Stradivarius. And once again we shall hear the real sound of music.