

Why Ethno-organology?

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Why should we study the musical instruments of other cultures? Why is it essential to regard organology as a worldwide subject?

The answer is basic. Not one single instrument, that we know of, was invented in Europe before the beginning of the twentieth century, when we meet our first exception, and not one was invented in America until the middle of that century, where we meet our second.

When I say invented, I mean something totally new, invented *ex novo*, as distinct from improvements, remodelling, adaptations, and so on.

Our two exceptions are the products of scientific development, the first the *thérémin*, invented in Russia by Lev Termen, probably at some time not long before 1920. The second the synthesizer, invented in America by Robert Moog in the early 1960s, certainly by 1964.

The origins of most other instruments are lost in the mists of antiquity, though occasionally we can spot a place, even a name. Certainly we can often produce a first report, as one might say, for example an archaeological record of where an instrument first appears, an iconographic appearance such as a carving, a painting, a sculpture, but inevitably these are late evidence, doomed to be ephemeral – sooner or later an earlier example of evidence will appear. They are also often approximate at best – thus even with our two electronic instruments I could only write ‘not long before’ and ‘certainly by’. We know that Termen demonstrated his *thérémin* in 1920, and therefore he must have invented it and built it before that date, and equally, since Moog put the synthesizer on the market in 1964, he must have invented and developed it at least some months, perhaps a year or so, earlier.

Equally one can often give a date by which an instrument was known in our culture, but that also may, in many cases, be approximate at best, and often subject to later revision, and anyway may be centuries, even millennia, after its initial invention elsewhere.

I said that ‘occasionally we can spot a place, even a name’. We know that the organ was invented in Alexandria by a man called Ktesibios around 270 BC. I cheated a little above when writing ‘not one single instrument ... was invented in Europe’ – for although Alexandria was, and still is, in Egypt, not Europe, Hellenistic Egypt was really a part of European culture, so we should, if we were to be strictly accurate, regard the organ as a quasi-European invention. Equally, America, in its present post-Columbian state, the sense that I am using now, distinct from the history of that continent from the incursions by the initial immigrants across the Behring Straits and the arrival of St Brandon, the Chinese, the Vikings, once the later European explorers had arrived America was also part of the European culture, and to a great extent it still is, though one cannot call it so, for obvious reasons. It presents us with a difficulty over which we have no valid terminology to overcome other than ‘our culture’. To talk of Western music is silly – west of where? Istanbul? Los Angeles? Tokyo? To talk of European music is tactless. Even Euro-American, instead of ‘our culture’ leaves out a considerable number of composers and many famous players from other areas working in ‘our music’. At present ‘our culture’, ‘our music’ is the best we have, and even those phrases may still cause us to be condemned as ethnocentric.

We do have periods within ‘our culture’ when major steps in development and change took place. The early nineteenth century, is one example, when keys and valves were fitted to brass instruments, and the middle of that century is another, when woodwind reached what is essentially their present form. The third quarter of the seventeenth century was when wind instruments changed from their Renaissance pattern to that of the Baroque. The beginning of that century was

when the orchestra began. The late fifteenth century was when there was a revolution in bowed string instruments, combining *vihuela* and *rebab* in Spain to make the *viola da gamba* or viol, and combining the *lira da braccio* with the rebec to make the *viola da braccio* or violin, and the last quarter of the eighteenth century was when the violin family and its bows were radically reconstructed to take their modern forms.

We also have a reasonably tight date for when the ancestors of most of our orchestral instruments arrived in Europe, the first half of the thirteenth century, for between about 1260 and 1280 there is an outburst of illustration of new instrumental types, the descendants of which are demonstrably those in our concert halls and all our other musical venues today.

And this is why we need to take organology as a world-wide subject, for all those instruments came to us from the Muslim world, either as souvenirs brought home by returning crusaders, just as we bring back souvenirs from foreign parts when *we* go on a cruise, or by percolating across the Pyrenees from that one area where Islam, Christianity, and Judaism managed, at least for a while, to exist in an uneasy symbiosis, the Iberian peninsula before the *reconquista*. To these we shall return.

There were of course instruments in Europe before that date. When we look at illustrations in psalters and similar liturgical works (often our best source of early mediæval organology) we see King David, the psalmist, playing the lyre, usually plucked, sometimes bowed, an instrument confusingly called *hearpe* in Anglo-Saxon. This mediæval lyre derived from the Greek *kithara*, which later was also a Roman instrument, of course, though the Romans seem to have produced no instruments of their own other than military trumpets, but before Roman times it had been the *kinnor*, the instrument of King David himself in biblical Israel, and before the Greeks had settled in Greece it had been that of the Assyrians and Babylonians in Mesopotamia, where it was certainly known in Ur of the Chaldees, long before Abraham was born there. The Greeks, of course, said in their legends that they had invented it, but this is common in many cultures, the desire to emphasise that things are native rather than adopted. This, the ability to recognise the truth or otherwise of such statements, is another reason for the importance of ethno-organology and its associate discipline, palæo-organology.

We see bells in 'our culture', big enough to hang in church towers from about the ninth century, and there is some reason to believe that these larger bells were first cast in the Italian Campana (hence the *campan-* name, campanology and so forth for the study of bells) a century or so earlier. Certainly the ability to cast bronze bells of such a size was a new development, but the Romans had cast bronze bells, even if they were all table size, much smaller than a church bell, and so did the Assyrians and other earlier peoples.

We can see all over Europe what Vincent Megaw called penny-whistles, simple duct flutes with from four to six fingerholes, but these go far back into prehistory and nobody could say where they first arose.

Such duct flutes are used worldwide, and here I would digress briefly to discuss the two classic theories of the origin of instruments. Some would have us believe that each instrument, or instrument type, stems, like humanity itself, from a single source, and spreads thence across the world, changing and developing as it goes. Others would prefer to believe that what one musician can devise here, another can devise there, so that every instrument is invented time and time again, as each culture finds a need for it in its own music. Each is demonstrably untrue as a single universal theory – each is demonstrably true in some cases. Thus we can only say that some were invented once, or in some cases, perhaps, occasionally, and have diffused to many areas, whereas others were patently so simple and so universal that they were invented everywhere, and, in the vast majority of cases, that we neither know which is correct, nor ever shall.

The duct flute itself is clearly the result of independent invention – nothing so simple, so universal, could result from diffusion. It is arguably the result of a developmental sequence itself as widespread as the series of different types of hand-axe known to the prehistorians, which are universally accepted as a developmental sequence wherever they appear. The simplest flute is the stopped end-blown instrument – its traditional origin, in legend and history, is that someone heard the wind whistle across the top of a broken reed, and so was inspired to make music. Probably he was terrified when first he had heard that sound. In earliest times, as we may assume from anthropological research and the study of palæo-religion, every element was a spirit, most of them inimical – the wind spirits blew the hut over, the lightning god burned it down, thunder deafened him, rain drowned him, now even the reeds were out to get him. But power comes through control of the spirits, so our first flautist had the courage to pick the reed and blow it. Once thus established, two developments followed: first that the bigger the reed, the bigger the spirit, hence the panpipe, a series of reeds of different sizes, perhaps originally each held by a separate player, as in some places still to this day, among the Venda of South Africa and in Lithuania, for example, but eventually tied together in a bundle, as in New Guinea, or a raft as in very many places (and thence the organ, initially a mechanised panpipe). Second that it was easier to get a good sound from the reed if the end were chamfered, shaved down to make a sharpish edge, and easier still if that sharp edge were located at just one point, at the base of a notch. End-blown flutes are widely used, especially in Eastern Europe and Turkey as the *kaval*, throughout the Near and Middle East and in North Africa as the *nay*. Notch-flutes are also used in many areas, in Peru as the *gena*, in Japan as the *shakuhachi*, to name only two of each type. With both end-blown and notch flutes, the player has to be careful to hold the instrument so that the air-stream impinges on the edge at precisely the right angle – otherwise there is only a hiss and no musical sound. The solution is to move the notch a short distance down the tube and put a block into the end, perhaps initially the player's tongue (tongue-duct flutes are a fairly recent discovery but are becoming more widely recognised in various parts of the world now that the type is known), and then of pith or wood, so that the air is automatically directed at the correct angle to the voicing edge. This has been a widespread discovery and the instrument is popular almost all over the world because all that the player has to do is put it in the mouth and blow. Further ramifications, to tin whistle, flageolet, recorder, and many others is easy to trace.

The duct flute is so universal as an instrument that nobody could claim a single source for it. The transverse flute, in contrast, is so rare that one could postulate an invention in India, where it is of high antiquity and is particularly associated with Krishna, and its transmission thence to Europe, where it first appears in Byzantine manuscripts in the eleventh, and perhaps tenth centuries. Whether it went from India to China and thence to Japan, is probable but we do not as yet have sufficient information to date its first appearance in China to be certain. In pre-Columbian Ecuador and Peru, we have ample evidence to see Chinese or Malaysian influence as with some other instruments. We are then left with its use in Papua New Guinea and perhaps independent invention there. One of the problems with ethno-organology is that the archaeological record, even the anthropological record, is often so sparse that we lack datings. We do know that the transverse flute in Sulawesi was introduced by the German missionaries – we have no such knowledge about New Guinea, and the way the great eight-foot spirit flutes are used there is so different from anywhere else that we would have great difficulty in suggesting transmission rather than invention.

Werner Bachmann produced cogent evidence for the invention of the bow (not the musical bow but the bow which is used on violins and many other instruments) in Central Asia, roughly somewhere between the Aral and Caspian Seas. He dated this to around the eighth or ninth

centuries AD, far more recent than earlier writers had guessed. The first form seems to have been a roughened stick, before anyone thought of horsehair, and there are early Chinese references to a 'creaking fiddle'. Byzantine manuscripts again give us the evidence of whence it came into Europe, and we see illustrations in Mozarabic manuscripts, as early Spanish manuscripts are called, in the eleventh century.

We can trace the spread of the bow in all directions from Central Asia, but it is more difficult to do so for three other instruments, though there are strong indications that this was where they originated.

One of these is the gong. The Chinese stated clearly that they got it from the west. It appears to have been used in the Zeus cult in Crete by the fifth century or so BC, and quite possibly earlier, though we have as yet no evidence for any earlier date, and in mainland Greece at the Zeus cult site of Dodona. It was known in Corinth in the first century AD, for St Paul clearly expected the readers of his first Epistle to the Corinthians to know what a *chalkos echon* was.

The lute, in the sense of our mediæval and later instrument and the Arabic '*ud*', also may have first appeared there. Some of the earliest Arabic references and descriptions stem from that part of the world. One of the earliest illustrations that we have is on a Persian vessel of late Sassanid date, again in the eighth or ninth century AD, and the instrument there looks rather more Chinese than Arabic. This raises the possibility that rather than starting in Central Asia and going south to Persia and east to China, it might have started in China and travelled along the Silk Route to Persia. There is no doubt whatever that silk was imported into Europe and the Near East much earlier than that, and this trade route is one that we shall meet several times in this article.

The long trumpet, six or seven feet long, two metres or so, the instrument which we see in Europe from the thirteenth century onwards, is another possible Central Asian development. We find it today, looking exactly like the mediæval instrument (a fourteenth-century one was found quite recently in London so that we have solid evidence for its shape and construction, as well as all the illustrations in psalters and carvings), as the *kakaki* in Hausa Nigeria and the other West African areas which those and the other Muslim peoples inhabit. We know that they travelled to West Africa through Morocco, where it is still used and called *al nafir*, from somewhere east of Turkey, in other words in precisely this area of Central Asia. We see similar instruments still in use in that area, and frequently in mediæval Persian manuscripts and pictures. We also see similar instruments in northern India, though there more often either of cast bronze, rather than of the hammered sheet metal characteristic of all the others I have mentioned, or else much more widely conical than these, as they are today in Tibet and in Tribal India.

It was the Persian and Moroccan instrument that came into Europe. *Al nafir* in Arabic became *añafil* in Spanish. We do not know whether it came back with Crusaders (one of the earliest English illustrations is in the mid-fourteenth century Luttrell Psalter where it accompanies Crusaders dancing out of Constantinople) or whether it came across the Pyrenees from Spain (where it appears in the late thirteenth century *Cántigas de Santa Maria*), but without any doubt whatever, it was the Persians and the Arabs that we got it from. Before those dates, mediæval European trumpets were animal horns, bovine or ivory, or widely conical copies of these in metal. The cast bronze trumpets, the Scandinavian *lur*, the Irish end- and side-blown horns, the Celtic *carnyx*, had all been long-forgotten by the European Middle Ages.

And this brings us, for *al nafir* was only one of the instruments that arrived that way, to the great revolution in our musical apparatus of the thirteenth century, the results of what indeed one might call the mediæval renaissance. Life in what we might call the middle Middle Ages, say in the eleventh and twelfth centuries, between the early Middle Ages after the fall of Rome and the late Middle Ages of the fourteenth and fifteenth centuries which led into the true Renaissance, was

pretty crude – nasty, brutish, and short is not a bad description. Lower classes were serfs or not much better; upper classes usually became upper by murdering somebody else, or by descent from someone who had done so, and who had remained tough enough not to have been murdered in turn; middle classes, what little there were of them, were mostly traders who had not been robbed or murdered before they could sell whatever they traded in. Even for the upper classes there were few luxuries in life. Food was either fresh-killed or heavily salted to preserve it, and highly flavoured with whatever spices were available from passing traders to hide the traces of rot and decay. Home was a castle fortified against predatory neighbours, ill-lit by daylight through windows small enough to keep out raiders' arrows, but large enough to admit howling draughts, and by night by rushes soaked in tallow, with what light there was dimmed by smoke from the fire failing to escape through a hole in the roof for lack of a proper chimney. The floor was either beaten earth or stone, covered with straw in a vain attempt to keep the feet warm, and full of vermin feeding on the scraps falling from the table.

The people who lived like that were persuaded to embark on the Crusades, to wrest the Holy Places of the civilised world from 'the savage pagans who had conquered them under the heathen banner of Islam'. They were somewhat surprised to find that these 'savages' were in fact a great deal more civilised than they were. For one thing, the level of literacy and scientific knowledge under Islam was a great deal higher than in Europe, for universities were already thriving there; certainly most of the middle and upper classes were literate, which was true of very few in northern Europe. For another domestic comfort was much greater, with glass in the windows, carpets on the floors and hanging on the walls and, which brings us back to the subject I am supposed to be writing about, a variety of musical instruments greatly superior to those currently in use in Europe.

I have, of course, exaggerated in the two previous paragraphs, but nevertheless we do, quite suddenly, see from the mid-1200s a sudden burst of luxury in Europe on a level quite unknown before, and we do see marked elaborations of men's and women's clothing, carpets, wall hangings, and above all, for our concern, these instruments, for all of which we have earlier parallels, and often names, from the Arabic world.

We have the lute, whose name is a transliteration of the Arabic *al 'ud*. We have the rebec, with its wooden belly replacing the skin belly of the *rebab*. We have the various types of psaltery which were called canon, again a transliteration, this time of the Arabic *qanun*. We have the various plucked string instruments which led to the citole, cittern, gittern, and eventually guitar, names which derive ultimately from the Greek *kithara*, the lyre of Homer, Orpheus, and Apollo. They led, too, to the *vihuela* which, when played with the bow of the rebec, became the viola da gamba or viol. The instrument that we and the Spanish call the guitar is known in Portugal to this day as *viola*. We have the larger fiddles, larger than the rebec. We have the long trumpet, which I mentioned above. We have the paired small kettledrums, in English the *nakers* from the Arabic *naqara*, which we see so often hanging from the belt in front of the player's body. We have the shawm, *gaita* in several European languages from the Maghribi *ghaita*, transliterated to 'wait' in English, blown both by mouth and through a bag, when the melody pipe or chanter can easily be accompanied by one or more drone pipes.

From the latter part of the thirteenth century all these instruments proliferated through European iconography and they remained the standard European instrumentarium until, from around 1500 or a little before, they began to merge and develop into the instruments of the Renaissance. It was in the 1480s that the viol developed; it was a decade or two later that the three strings of the rebec were applied to the body of a small version of the *lira da braccio* to create the violin.

What is essential to any student of the history of musical instruments is the ability to recognise their origin and the willingness to see them still in use in the Middle and Near East and North Africa today and to admit their relationship to our modern instruments. Such influences often go in more than one direction. The *rebab*, for example, came into Spain from the Maghrib. When, with the expulsion of the last of the Moors, it returned to the Maghrib, it became the instrument of one of three distinct musical styles, the Berber, the Arab, and the Andaluz. Each style has its own type of *rebab*, each quite distinct from the others, and the *rebab andaluz* is identical in appearance to that which we see in the *Cántigas de Santa Maria*. It is still played in North African orchestras, but alongside it, and played in exactly the same way, held downwards with the base of the body resting on the knee or the ground, is the violin. The violin, too, is an Indian instrument today, again held downwards like the *sarangi* or *sarinda*, and in Burma violins are built in characteristic Burmese styles, but still recognisable under their South-East Asian decoration as violins. We shall meet other cases of bi-directional influence.

The wait-pipe which I just referred to was another example, a return to Europe, for the earliest evidence that we have for the shawm, a conical-bore instrument played with a double-reed, and therefore with a loud and piercing sound, is from a Faliscan bowl of the fifth century BC – the Faliscans were a sub-tribe of the Etruscans. Thereafter it can be seen in a variety of Etruscan and Roman reliefs, but it seems to vanish after the fall of Rome, reappearing in Persian late Sassanid art in the eighth or ninth century and thenceforth throughout the Middle and Near East. It is possible that the conical shawm had indeed been a European invention. Before that time, the reed pipe universally used under different names, the Greek *aulos*, the Roman *tibia*, the Egyptian *mat*, the Israelite *chalil*, had been cylindrical in bore and thus low in pitch and much quieter than the conical shawm.

Where the cylindrical-bore double-reed pipe originated is again a puzzle, perhaps another Central Asian development, or perhaps Egypt. This last may be illusionary – Egyptian iconography tends to be earlier than that of other peoples, and instruments, like other objects, survive better in the hot dry sand of that country than elsewhere. All the same, we can see it still today all down the Silk Route, a line of transmission to which I have already referred. In Turkey it is the *mey*, in the Caucasus it is the *duduk*, in Iran it is the *balaban*, in China it is the *guan*, in Korea it is the *piri*, in Japan it is the *hichiriki*. Each is recognisably the same instrument.

The same route can be seen for the conical-bore shawm, but there the names that are used betray the means of transmission, for almost all can be traced back to Arabic and the influence to Islam. The *zurna* or *zurla* became *shahnai* and *suona* – only in Java did it adopt the confusing name of *tarompet*.

One of the most widely travelled instruments, and again one that has travelled back and forth, exists in two sizes, large and small, identical in pattern, but played quite differently. Each, in its simplest and presumably original form, is a tongue slit in a slip of bamboo or metal, remaining rooted to the slip at its base. Bamboo examples are usually rectangular, rather than trying to cut across the grain, the root at one of the short sides; metal ones are often narrowly triangular, the root the short base. The small examples are set into the side of pipe or are cut idioglottally in its side and are blown; the large ones are too heavy to blow and are therefore plucked, either by twanging the base or by jerking a cord passing through a hole in the base.

The small ones are called free-reed instruments and while in some parts of South-East Asia they are used on a tube with fingerholes, like any other reed, though side-blown which is comparatively unusual with reed instruments, most are used on a tube without fingerholes, a group of such tubes being grouped into a common air reservoir as a mouthorgan, like the Chinese *sheng*, the Japanese *sho*, or the Thai *khaen*, and other instruments of that area.

The larger ones have an anomalous name, one that causes difficulties today, the jews trump or jews trump (the earliest name in English), and are therefore better known simply as trump. They are in no way an harp (nor a drum as in German *maultrommel* nor a piece of horse harness as French *guimbarde*) but they are a trumpet analogue for in their lower register they produce the same notes as the natural trumpet, as overtones of the fundamental pitch of the reed itself. Idioglot examples such as this are common from South-East Asia through to Mongolia and Siberia. In Afghanistan and India, a steel reed is fitted into an iron bow and it has been suggested that it was thence that examples came into Europe in Roman times. Some examples have been found in France in Gallo-Roman contexts, and English examples from Anglo-Saxon sites are well known. The instrument is widely used today, both as a toy and as a serious instrument, and it has become popular in Africa as a substitute for the musical bow, for again it produces the same notes as that instrument, and while nowadays the common patterns from 'our culture' are imported or made, a distinctive West African form also exists. In some areas where it is common (the first that came to ethnomusicological attention was Mongolia) a substitute is used: the human voice – double voice singing, overtone singing (there are different terms for it) was first reported by Lajos Vargyas in 1967, so here we have a definite date for its first recognition. Since then many other examples have become known.

The smaller size is by far the better known. It is said that it was when one of the Chinese mouthorgans was first seen in St Petersburg around 1800 that organ builders thought of using free reeds in our organs. It was in France, however, that small organs with no pipes but only free reeds were first devised, and thereafter the various types of harmonium and other reed organs proliferated like wildfire. The possibility to have the range of the largest church organ in a case little bigger than an upright piano, and even cheaper than a piano, and of adequate instruments the size of a small suitcase, ensured immediate popularity. Similarly, more portable examples, all the squeeze boxes such as concertinas, accordions, and the rest, and then our forms of mouthorgan as well, ensured that free-reed instruments were used everywhere.

Here again the wheel has gone full circle. It was not long before it was realised in India (as always I use the word for the sub-continent, to include Pakistan, Kashmir, and Bangladesh) that this was the ideal drone instrument, to accompany singers and other instruments. The *sruti-box*, as it is often called, plays as full a rôle in India as the harmonium and accordion in 'our culture' because the reeds can easily be tuned to the purer, less-tempered intervals of the Indian scales.

How, without the ethno-organological knowledge that I have been discussing throughout this paper, could one recognise the kinship between the *sho* of Japanese *gakaku* and the harmonium of the 'our' chapels, and the musical-historical link to the electronic organs of 'our' smaller churches today and to the Indian singers of *dhrupad* and other genres? It is useless today, especially with the proliferation of 'World Musics' to study the history of the instruments of 'our culture' in isolation. Humanity is worldwide and, with few exceptions, each people has influenced, and has been influenced by other peoples. So it is with instruments. 'The proper study of mankind is man' (Alexander Pope lived before it was improper to express such sentiments in such terms) – so too of musical instruments.