CAJSA LUND

A Medieval Tongue-(Lip-)and-Duct Flute

DURING archaeomusicological work in the Malmö Museum in the spring of 1979 I came across a flute whose construction and technical playing possibilities impelled me spontaneously to interpret it as a tongue duct flute. From the knowledge I then had of such flutes, however, it seemed rather improbable that this type of flute could be found among archaeological material, and I therefore recorded it as an 'atypical block-and-duct flute'. Shortly afterwards Dr Ernst Emsheimer published the essay, now reprinted in this JOURNAL, in which he suggests in conclusion that tongue duct flutes might very possibly be hidden in archaeological collections. This gave me every reason to inspect the Malmö discovery more closely. The find is now described here at the suggestion of Dr Emsheimer, to whose article it may be seen in the light of an appendix.

The flute (Pl. VIII *a*) is made of a sheep's right tibia. The lower part is broken off, but otherwise the bone is largely undamaged and well preserved. The present length of the flute is 13 cm. The blowing end, which is by nature triangular (3.4 cm high, 2.7 cm wide), is evenly and obliquely carved as shown in Pl. 4*b*. At 1.2 cm from the blowing end is a triangular window 1.1 cm wide and 1 cm high. It was the location of the window in relation to the obliquely-cut blowing end (Pl. VIII *b*) which led me at once to associate the flute with the tongue-and-duct principle. Was there really sufficient room for a block (e.g. of wax, wood or resin) in the seemingly narrow space between the blowing end and the edge? In my own belief and that of other archaeologists as well as osteologists the present construction of the blowing end is the original. Two fingerholes (4 mm in diameter) are located 7.0 and 9.2 cm respectively from the blowing end. At the point where the bone has been broken off there are traces of working that could be due to yet another fingerhole. The window possesses no specially-worked edge and is, like the fingerholes, rather coarsely and unevenly carved out. The flute has no remains of a block, or wear and tear marks from one, that are visible to the naked eye.

The flute was discovered in 1971 in the course of municipal archaeological excavations in Malmö (building No. 1 of the 'Kronan' block).[1]

It lay, together with a pottery shard, alongside a wooden barrel which had probably been used as a well. From the type of well and the pottery shard the flute can be dated to the late 13th century. It lacks an inventory number. The excavation itself has catalogue No. MHM 4527 and archive No. 28:03.

The flute is remarkably easy to play as a tongue duct flute. The evenly-cut, oblique sides of the blowing end are placed *against the performer's under lip* and the upper part of the opening *under the upper lip*. (The upper part of the blowing end is worn, but it can clearly be seen that its naturally sharp, uneven corners have been smoothed out so that they do not irritate the lips or gums.) The tongue, loosely 'curled up', is inserted into the blowing end, and when one blows the air is directed via the tongue towards the edge of the window (labium) in order to produce the sound, which is rather sharp and piercing (Pl. VIII *c*).[2]

As mentioned earlier the flute could also be a block-and-duct flute. In order to gain more facts by which to judge what type of flute it is I had the two following experiments carried out. 1. Laboratory (chemical and microscopic) analyses to discover any existing remains of a block in the blowing end.[3] 2. Practical attempts to reconstruct the flute in order to test the possibility of playing it with an artificial block.

1. The *laboratory analyses* were carried out in January 1980 by Dr Lars Haraldson of the Institute for Analytical Chemistry, Lund University. Dr Haraldson reports that there are traces of a film of fat all over the inside of the flute. This probably stems partly from the bone's natural fat and partly from the (according to reports) unusually high fat content of the archaeological layer in which the flute was discovered. (The flute was rinsed with water when it was found in 1971 but has never been treated with any preservative.)

The analyses did not reveal any traces of a block made of wax, resin or such materials. Dr Haraldson believes that it would have been possible to establish whether such a block had been used, because the inside of the blowing end is extremely porous. The only 'foreign' material to be found in the tiny holes is sand. Neither did he find signs of wear or any other interference on the inside of the blowing end that could have been caused by a wooden block. The laboratory analyses necessitated some very minor damage to the flute. A total of about 3 cubic mm bone was removed from the inside of the blowing end, but in such a place that the technical possibilities for playing the flute were not altered. Due to the porous surface the operation is not visible to the naked eye.

2. The *reconstruction work* was carried out in February 1980 by Mr Åke Egevad, an instrument maker from Ovesholm, Skåne. He received no prior information on the questions at issue but was only asked to make a reconstruction with a suitable block. Mr Egevad, to whom I always turn for practical experiments with archaeomusicological material, achieved the closest possible duplication of the flute from having succeeded in finding a sheep bone of much the same size and shape as the original bone. He was also able to place a block of beeswax in the flute (i.e. the reconstruction) so that the flute functioned as a 'traditional' block-and-duct flute. It is interesting, however, that Mr Egevad questioned whether the original flute was played at all with an artificial block. He reported: 'It is unnecessarily complicated to insert a wax block (and thus equally a block of, e.g., resin) into this flute. I tried first with a wooden block but in fact I reject the possibility that such was originally used. An absurd degree of precision work is required in order to carve and, above all, to fix a wooden block suitable to the purpose in the narrow and uneven space between the blowing end and the edge. Of course a wooden block might have been used that was fastened with wax or something similar. In that way the block would have been held in place and functioned even if the wood had shrunk. But (concluded Mr Egevad) why go to so much trouble? I simply use my tongue and, which is in fact even better, my lower lip as a block!' Nor did the laboratory analyses reveal any traces of wax or the like as a fastening material.

Thus the results of both the practical and the laboratory experiments increase the probability that the Malmö flute really is a tongue duct flute (or lip duct flute). As far as I can understand it is simpler to make a tongue duct flute than a block duct flute. A tongue duct flute's edge, for example, obviously does not need to be made with any special accuracy, and, as mentioned earlier, the Malmö flute has no specially-worked edge.[4] From the manufacturing point of view the most essential feature of the Malmö flute has undoubtedly been to carved the blowing end both smooth, and also at a 'correct' angle to the window. This operation is, according to information from Åke Egevad, considerably simpler than the working of the edge and, further, the mounting of an artificial block, particularly if making flutes from brittle material such as plant stalks.

I venture to think that the tongue-and-duct principle was generally employed in both the ancient and the medieval periods in Northern European history. But presumably people mainly fashioned tongue duct flutes of readily available material like plant stalks, or wood rich

in pith, like elder, and such have naturally not been preserved. Yet, like Dr Emsheimer, I want to urge keen alertness to the possibility of tongue-(lip-)and-duct flutes existing among, e.g., the material of archaeological block duct flutes. Hopefully more surprising discoveries await us to confirm his hypothesis that tongue duct flutes have been more widely distributed in time and space than has hitherto been recognized.

NOTES

1 'Dit S:t Petri klockor nådde' by Dag Widholm (pp. 12–14), *Aktuellt från Malmö museum*, 5, 1971 (Malmö museum).

2 The flute can also be blown with the lower lip serving as a block (i.e. the lip-and-duct-flute principle). The choice of tongue or lower lip seems to be obvious, depending on the shape of the performer's mouth. For me it is most natural, and thus easiest, to play it as a tongue duct flute.

3 Dr Emsheimer suggests such analysis; see p. 105 above.

4 Cf. e.g. the carefully carved edge on the hitherto oldest known block-and-duct flute in Scandinavia (from Falköping, Sweden; Neolithic Period). Published by Cajsa Lund in *Fornvännen*, no. 1/1979 (Stockholm), pp. 1–9.

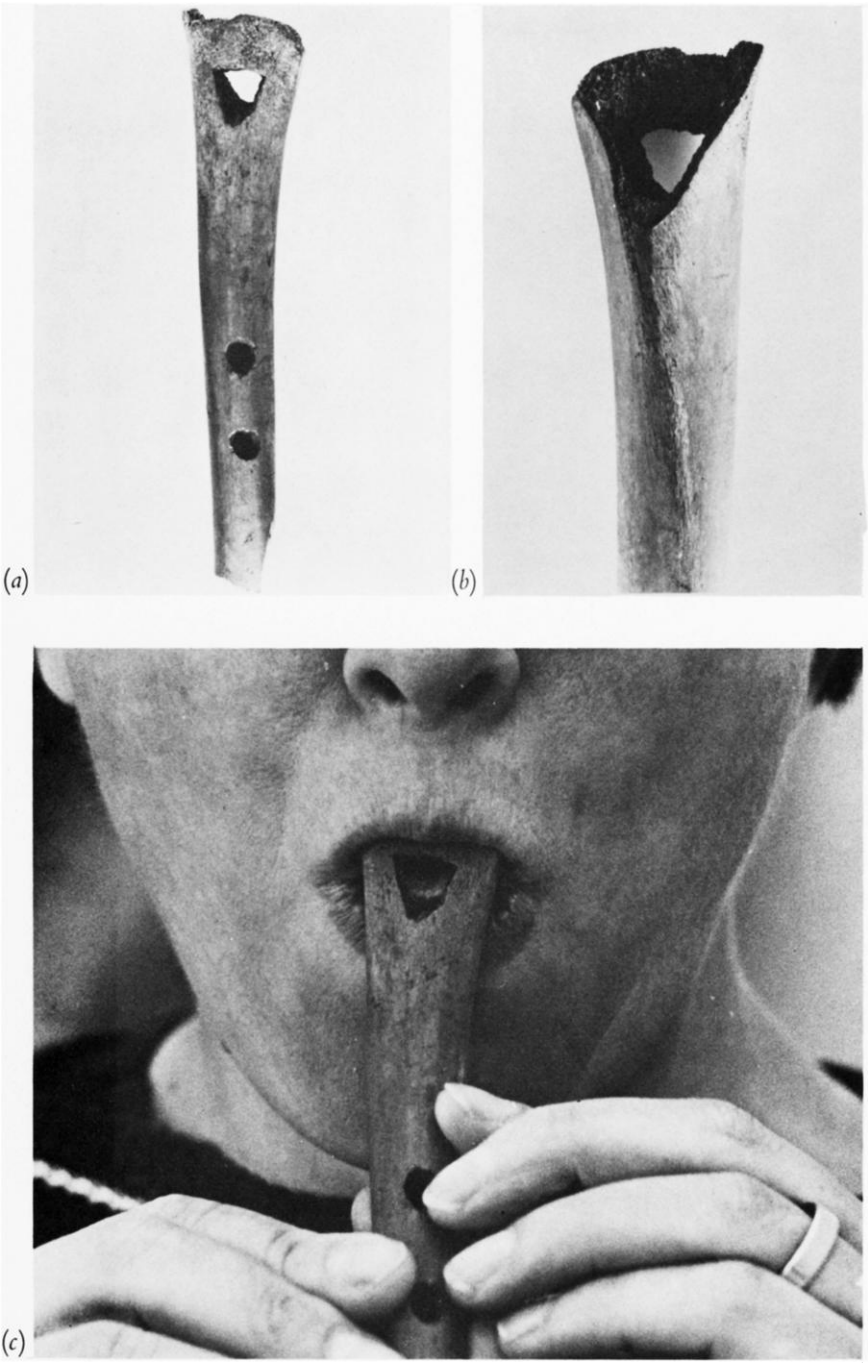

PLATE VIII

A Medieval Tongue Duct Flute (*see p. 106*)