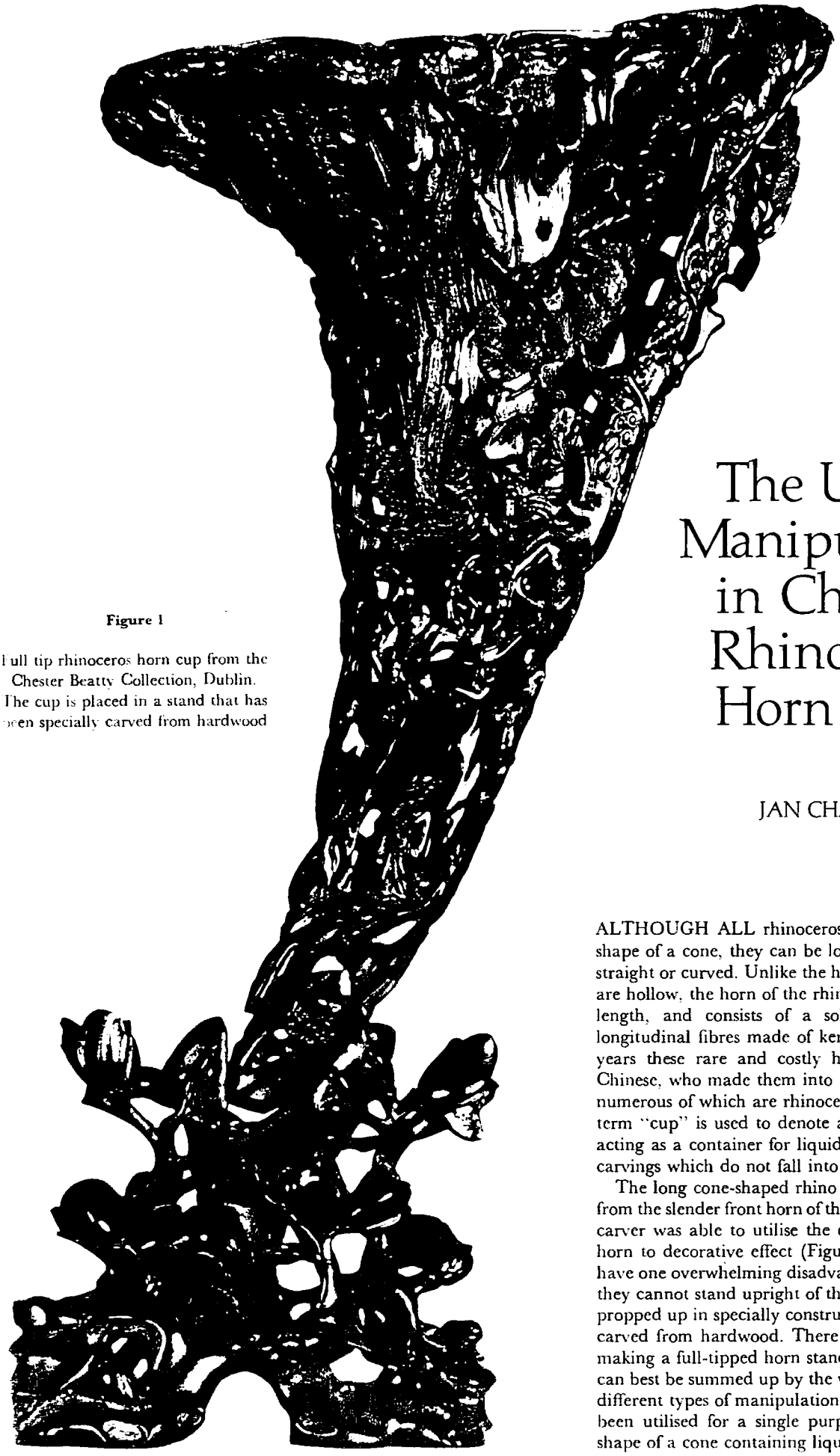

Figure 1

Full tip rhinoceros horn cup from the Chester Beatty Collection, Dublin. The cup is placed in a stand that has been specially carved from hardwood

The Use of Manipulation in Chinese Rhinoceros Horn Cups

JAN CHAPMAN

ALTHOUGH ALL rhinoceros horns share the same basic shape of a cone, they can be long or short, thick or slender, straight or curved. Unlike the horns of oxen and sheep which are hollow, the horn of the rhino is solid for nearly its entire length, and consists of a solid mass of closely packed longitudinal fibres made of keratin. For over two thousand years these rare and costly horns were treasured by the Chinese, who made them into a variety of articles, the most numerous of which are rhinoceros horn drinking cups. (The term "cup" is used to denote any horn which is capable of acting as a container for liquid. There are some rhino horn carvings which do not fall into this category.)

The long cone-shaped rhino horn cups, intricately carved from the slender front horn of the African rhino, show how the carver was able to utilise the entire surface of the precious horn to decorative effect (Figure 1). But these full tip cups have one overwhelming disadvantage. Because of their shape they cannot stand upright of their own volition, but must be propped up in specially constructed stands which are usually carved from hardwood. There is, however, a technique for making a full-tipped horn stand upright; and this technique can best be summed up by the word "manipulation". All the different types of manipulation described in this article have been utilised for a single purpose—that of so altering the shape of a cone containing liquid that it becomes possible to

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Figure 2

A three-legged ting from the Chester Beatty Collection of Chinese carved Rhinoceros Horn Cups, Dublin. The legs of the cup are formed from the original tip of the horn, which proves that a softening process must have been used

stand it on the ground without the aid of a supporting stand.

There are only two ways of re-shaping the pointed end, or tip, of a rhinoceros horn: these are either to slit the tip and open it out, or to bend it. And, since the horn itself is naturally rigid, it follows that in order to accomplish either of these two objectives the horn must first be made soft and pliable. I am told that one way to bend horn is to heat it, but unfortunately I have not been able to experiment with this method. Another technique is to soak the horn in liquid in order to soften it. A recent report by a zoologist working on the structure of rhinoceros horn revealed that when he placed the horn of an Indian rhino into caustic soda he found that it swelled and softened without affecting the organic structure. (Ryder, M. L. "Structure of Rhinoceros Horn" in *Nature*, volume 193, March 24th, 1962, pages 1199–1201.)

The rhinoceros horn cup illustrated in Figure 2 is proof of the fact that a softening process must have been used. Unless the horn had first been made extremely pliable it would have been impossible for the carver to grasp in turn each of the three vertical slices he had cut into the tip of the horn and then carefully pull them outwards. This cup is shaped like an ancient Chinese bronze ritual vessel called a *ting* which stood on three legs and was intended to contain food. Close examination of the cup shows that the longitudinal fibres inherent in the structure of the horn are unbroken; which proves that the legs of the cup are not separate pieces of horn glued onto the body, but are in fact formed from the original tip of the horn.

The second technique used for manipulating the horn is much more drastic than that used for creating the three-legged ting. In order to achieve the shape of a water dropper (see Figure 3, side view), the tip of the horn must be bent upwards to such an extent that it is level with the base of the cone. In so doing, the newly created shape is able to sit on a flat surface without additional support. Water droppers are made in many different materials, the most common of which is porcelain. They are part of the equipment necessary for grinding ink—their purpose being to hold a small quantity of water which the scholar can pour, drop by drop, onto an inkstone as he grinds his solid block of ink into a liquid pool. In order to fulfil their function, water droppers must have a spout. To make a water dropper from solid rhinoceros horn, the carver must first cut a narrow channel through the solid area of the cone to the end of the tip (see Figure 3, interior). Next, he must either heat or soak the treated area and, when it is sufficiently flexible, bend it upwards so that the hollow tip is on a level with the tip of the water container. Figure 4 shows a variation on the same technique of bending the tip of the horn, but in this case the object does not sit on part of the tip area as it does with the water dropper. Instead, the horn is placed with its base downwards.

Bells carved from rhinoceros horn are extremely rare, only two so far having been recorded. (A bell which was once in the collection of Sir Percival David is illustrated as No. 376 in *Arts of the Ming Dynasty*. Transactions of the Oriental Ceramic

Figure 4

Bell carved from rhinoceros horn, from the Chester Beatty Collection, Dublin. Only two such bells have so far been recorded

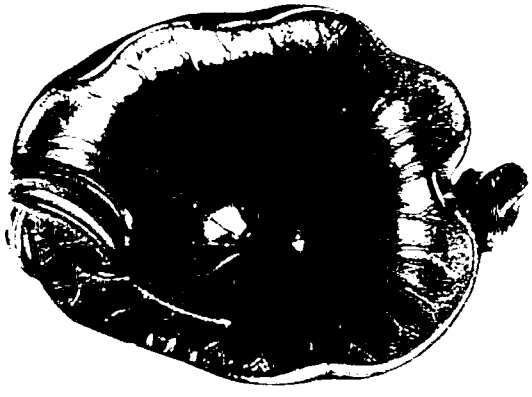


Figure 3

Side-view (opposite page) and interior view (above) of rhinoceros horn water droppers from the Chester Beatty Collection, Dublin. To achieve water dropper shapes involves more drastic manipulation

Society, London, 1957. The bell was sold at Sotheby's on December 14th, 1976.) The technique is not as complicated as the one used in constructing a water dropper, since there is no hollow channel running between the cup and the tip. The Chester Beatty bell has been hollowed out to about three-quarters of its length to produce a very deep and rather narrow cavity. Only about one quarter of the length of the horn has been bent round to meet the body of the bell before being carved to resemble a dragon's head. The narrowness of the base of the bell suggests that only the solid part of the original horn was used, which would have meant that the carver sliced off and discarded all the hollow base of the cone. Support is lent to this theory by the fact that the flat edge of the bell on which it sits is much thicker than one would otherwise expect.

By far the most difficult and complicated technique of manipulation involves both pulling apart and bending. Both of these techniques are necessary in the construction of rhinoceros horn rafts and, since all of those that I have examined have shown a very high degree of skill in the decorative carving involved, it is scarcely likely that any but the most skilled carver would have attempted them.

Figure 5 shows two views of a rhinoceros horn raft with the figure of the Chinese explorer Chang-ch'ien on board. Chang-ch'ien lived in the second century B.C. and on one of his journeys is said to have brought back to China grapes and the knowledge of how to make wine. This doubtless accounts for the use of these strange shaped vessels as wine containers. After Chang-ch'ien's death numerous legends grew up around his name, one of which was that he set off alone in a hollow log boat to search for the source of the Yellow River.

Rafts fashioned from rhinoceros horn are rare. During the past few years less than twenty examples have come to light, in addition to five similar rafts cast in silver. Rafts are the only type of rhinoceros horn cup so far known which are intended to be viewed from a horizontal position; in other words, with the side wall of the horn placed on the ground surface. For this reason, one side wall of the horn must be softened and then flattened so as to increase the area of contact with the ground.

Most, though not all, the rafts have a spout which is constructed from the hollow tip of the horn in the same manner as for the hollow spout of the water dropper already discussed. But, whereas the water dropper has a rather narrow opening which allows the water to be poured drop by drop from the well of the cup and along the spout, the rafts are considerably more hollowed out so as to allow the wine to pour freely. We can surmise that as much solid horn as was necessary was first removed from the interior of the horn, without causing damage to the side walls. After this had been done, the entire piece would have been placed in a liquid solution before the major task of re-shaping began. Not only was one side wall of the cup made flat to provide a suitable bottom surface, as already mentioned, but the entire tip of the horn was bent gently upwards so as to emulate the prow of a boat.

Figure 5 is a typical example of those rafts which have long

These two photographs are by Otto E. Nelson

projecting pieces of horn alongside their spouts. In the more elaborate rafts there can be as many as three long projections which are carved to resemble tree branches. The technique used to create these branches is exactly the same as that used for making the three legs of the ting seen in Figure 2. In other words, the carver has sliced into the solid tip of the pliable horn and pulled the pieces outwards from the spout section.

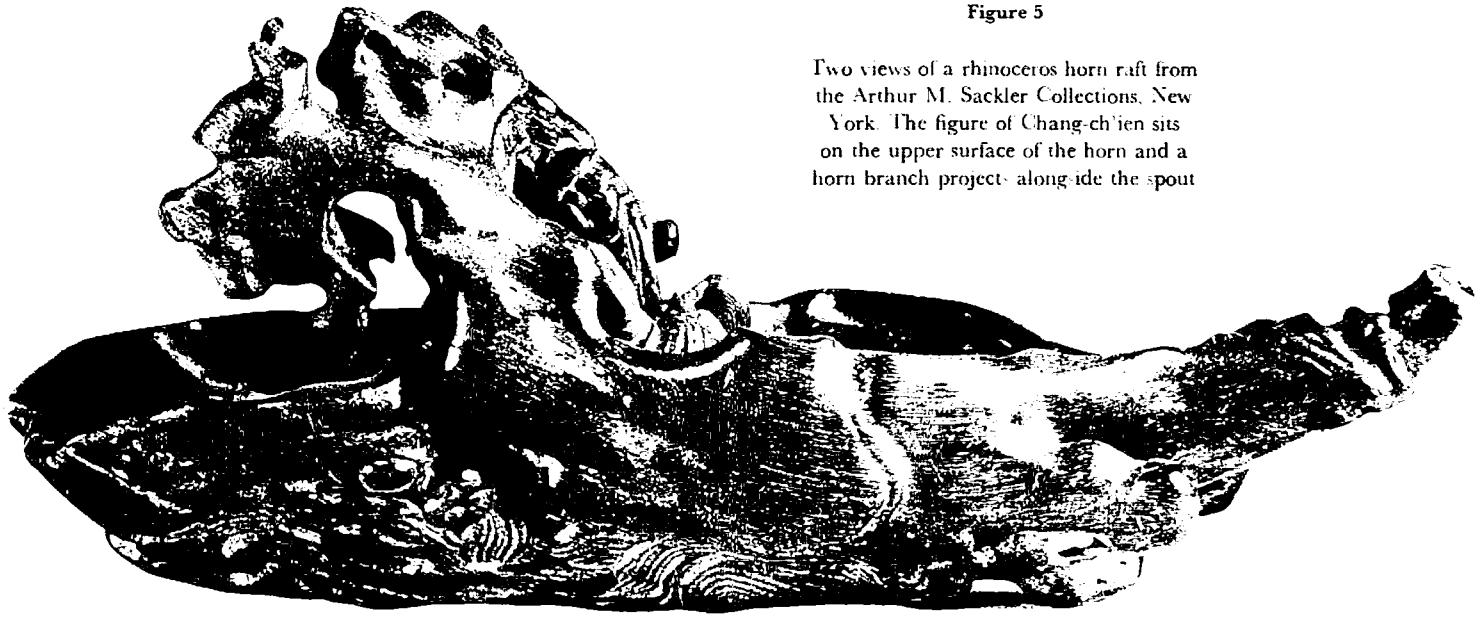
All known rafts made of rhinoceros horn are constructed so that Chang-ch'ien sits on the upper surface of the horn, unlike the silver boats which show the figure sitting on the floor of the raft. In most cases there are two openings—a small oval cavity between the prow of the boat and the figure of the explorer, and a much larger opening behind the figure. (The only cup I have so far discovered that has only one opening is from the collection of the late Edward T. Chow of Geneva. That cup is remarkable in that Chang-ch'ien sits on the back of the cup with a very large oval opening between him and the prow.) In some rafts the figure of Chang-ch'ien is almost certainly carved from a solid piece of horn that has been obtained by cutting out and bending upwards two sides of a rough triangle from the upper side wall of the horn. When this solid flap is raised upwards to a vertical position, it automatically creates the front opening of the raft. But it must be remembered that there is always the likelihood that the piece of horn from which the figure is carved may be stuck into position with glue so cleverly that the fibres give no indication of any addition (see Figure 6).

A raft in the collection of the Musée des Arts Décoratifs in Paris (Figure 6) shows how the figure of Chang-ch'ien is usually placed below an overhanging piece of horn carved to resemble a semicircle of wood. In this case the carver clearly intends the wood to be a branch of flowering prunus blossom, but some rafts are less elaborate than this and show him resting against a block of rough-barked wood. Figure 7 will clearly show that this arch is an integral part of the horn and, moreover, has been made from the deliberately distorted base of the horn.

It was whilst examining in detail the construction of the four rafts in the Chester Beatty Collection that I realised that the balls of my thumbs fitted exactly into the folds of the stern openings and along the back of the arches. This in turn led me to speculate that the carver had first softened the circular base of the horn, and then gently moulded it in his fingers so that

Figure 5

Two views of a rhinoceros horn raft from the Arthur M. Sackler Collections, New York. The figure of Chang-ch'ien sits on the upper surface of the horn and a horn branch projects alongside the spout



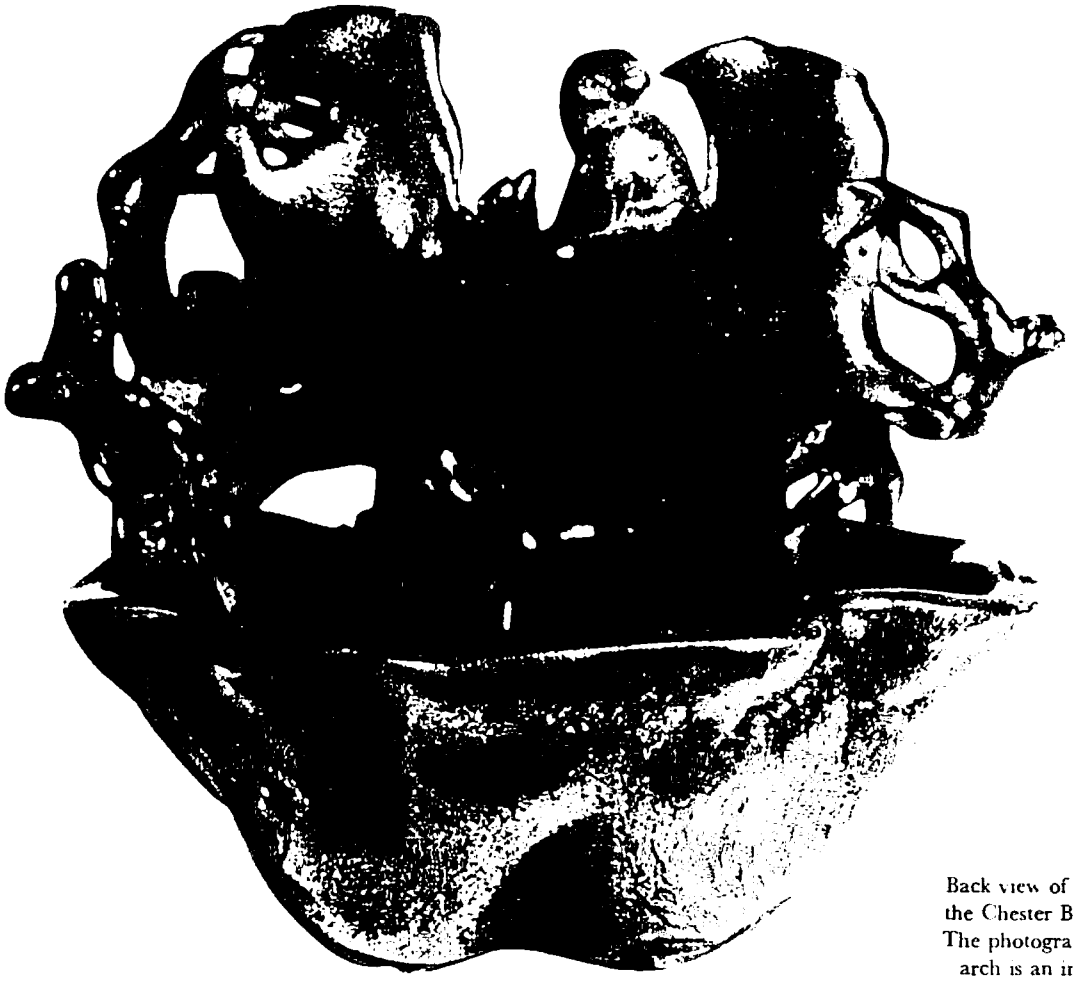


Figure 7

Back view of a rhinoceros horn raft in the Chester Beatty Collection, Dublin. The photograph shows clearly that the arch is an integral part of the horn

the stern of the raft would be upturned and the edge nearest the prow would be raised to a vertical position in order to create the bower effect.

Every rhinoceros horn raft so far discovered is different. As a general rule it would seem that the shorter rafts with the simpler carving are earlier in date than the longer ones with rich elaboration of detail, but this argument will be developed in a forthcoming article which will discuss all known examples of these raft cups.

In describing the various methods of re-shaping the full tip cups so as to allow them to stand on the ground surface without support, I do not wish to give the impression that examples of this type are commonplace. On the contrary, they comprise only a small fraction of the fifteen hundred or more cups that I have examined. It was, after all, so much easier for the carver simply to slice a section from the pointed end of the horn and stand the horn upright on the newly created flat surface. This, surely, is why the majority of rhinoceros horn cups from all the collections in the world are shaped like goblets.

Figure 6

The explorer, Chang-ch'ien, sitting under an overhanging semicircle of horn that is carved to represent a bower of flowering prunus blossom. Photo: Musée des Arts Décoratifs, Laurent Sully Jaulmes, Paris