

# Detecting the Fakes: Connoisseurship in Chinese Ceramics

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The history of any category of Chinese art has all along been dominated by a veneration of ancient traditions, to the extent that many works of art have been reproduced, painted, written or fabricated in imitation of the styles of earlier masterpieces. Initially, these were copies made to look similar or identical to their prototypes without any intention to deceive. However, copies of art objects in the hands of shrewd and dishonest dealers intending to cheat buyers for profit, are fakes or forgeries. From very early in the history of collecting Chinese antiquities, fakes and forgeries have existed. But the situation has become worse in recent years, following the opening up of China and the escalation of prices of good collectors' items.

Forgery is hardly new in the art world worldwide, but China has been considered a leader in the field, ceramics in particular. A good example is a Yuan 14th century blue-and-white jar decorated with a story scene taken from the legend of Gui Guzhi, the teacher of Sunzi, the Master of War. It was auctioned in Christie's London in July 2005 at a record price of £15,688,000. Less than a month later, another piece appeared in a newspaper published in Beijing argu-

ing that it was a genuine piece, and that the Christie's piece was a fake! Within the last three years, this author has come across at least ten other similar pieces, with their owners all claiming them to be from the 14th century. All of them were of course, fabricated after the one sold in London using the excellent panoramic illustrations from the catalogue as a basis for painting the main narrative scene (Fig. 1).

Knowledge is the key to avoiding mistakes, or at least to reduce them to a minimum. And this is very important for a serious collector because mistakes will mean financial loss - sometimes even a fortune - through the unintentional acquisition of a piece of forgery. Thus, before anything else, one should read profusely, and get well acquainted with the history, technology, development, style, forms and jargon in Chinese ceramics. He/she should be able to distinguish the difference between various types of ceramics - see table below.

The collector should also be able to tell the forming process of a piece of ceramic, whether it is hand-modelled, coiled (Fig. 2), moulded, thrown on the potter's wheel, or plaster cast. The last is, of course, a very modern production technique. Then he/she should be very sensitive to the decoration (both techniques and motifs) found on a piece of ceramic, and to be able to distinguish those done before the firing from those applied after the firing, viz. polychromes, over-glaze painted colour enamels, *famille rose* and *famille verte*; under-glaze decoration with pigments like cobalt blue and copper red, and the contrasting (or dove-tailing) colours - the so-called *doucai* palette used by the Chinese which in fact is a combination of under-glaze blue outline with over-glaze enamels and done with double firings.

If it is feasible, the collector should work with scientists and laboratories to use high-tech equipment to conduct scientific examination and test his/her ceramic pieces. Analytical methods include surface and cross-sectional microscopy by scanning electron microscopy (SEM) and optical microscopy to examine the body and



Fig. 1. A 14th century blue-and-white jar auctioned in London in 2005, with a panoramic scene of the main band of decoration and three fake ones fired recently in China.

Table 1

TYPE	COMPOSITION	COLOUR	TEMPERATURE	POROSITY
Earthenware	Clay	Vary	600-1150°C	Permeable to water
Stoneware	Porcelain Clay	Vary	1150-1300°C	Impermeable
Porcelain	Kaolin + Porcelain stone	White	1280-1400°C	Impermeable



Fig. 2. The coiling method in forming a jar and a detail of a Neolithic jar showing the coils in the interior of the neck.



Fig. 4. Samples need to be taken for TL-dating. A: by a rotary saw; B: by core drills.

## TL-dating

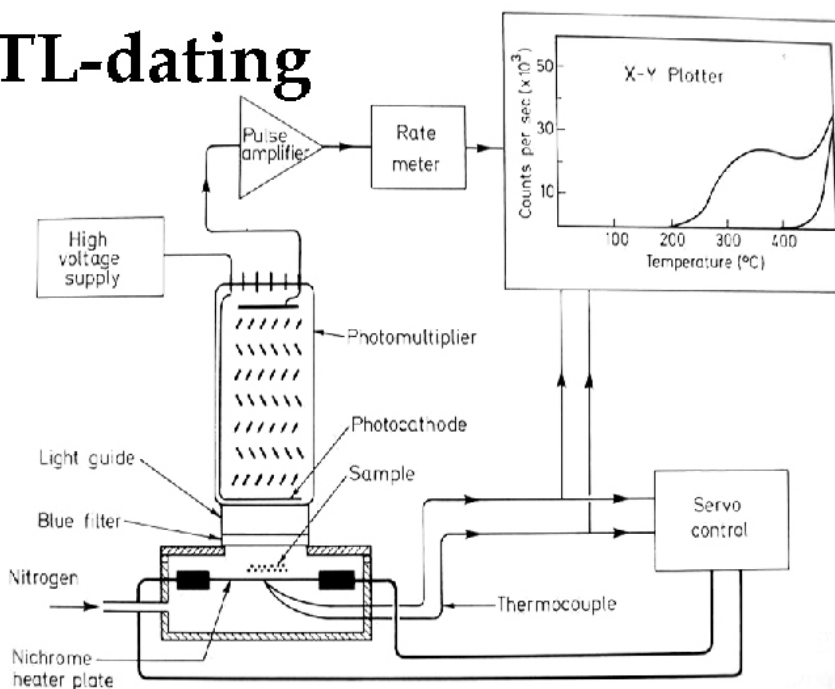


Fig. 3 (left). Set-ups for TL-dating.

insulator or semi-conductor when heated. The light is generated by a release of energy stored in the form of trapped electrons, through absorption of nuclear radiation. A firing of clay sets a piece of ceramic's 'TL-clock' to zero. Its TL then grows with time. So the date of a pottery or porcelain piece may be measured by the following formulae:

$$\text{Age} = \frac{\text{Overall Radiation Dosage}}{\text{Dosage per year}}$$

One must, however, bear in mind that TL-dating is destructive to the piece of ceramic under test. Tiny samples are required for the TL-tests. A TL laboratory technician will need to take a tiny chip of the piece, either with a core-drill or with a rotary saw, usually

from the bottom or foot-ring, leaving some unsightly holes or chips (Fig. 4). The other high-tech methods mentioned above for compositional or surface science information may be destructive as well, although, after a test, the piece may look perfectly 'untouched', but its internal molecular or physical structure may have been altered. Hence, all scientific techniques have their limitations, because completely non-destructive techniques in dating have yet to be devised, identified or perfected.

glaze structures and other surface science features. In using SEM, the sample needs to be conductive, therefore, very often a thin layer of metal will be coated on the specimen before a SEM image is obtained. Scientists can conduct compositional analysis by using sophisticated instruments like X-ray fluorescence spectroscopy (XRF), Neutron activation analysis (NAA), X-ray diffraction (XRD), Energy dispersive X-ray analysis (EDX), Optical emission spectroscopy (OES), Particle induced X-ray emission (PIXE), or by a combination of two or more of the above techniques.

Large laboratories like those of the Institute of Silicate Studies in Shanghai and Beijing have maintained huge databases of body and glaze compositional information of all the major wares of Chinese ceramics. These are very useful in the finer-print identification and comparison of ceramic samples of unknown age and provenance.

To obtain a more scientific dating of ceramics, collectors usually send their pieces to Oxford or other well-established thermoluminescence laboratories for a Thermoluminescence (TL) dating test and to obtain certification of the test results (Fig. 3). TL is the emission of light from an

In order to be totally non-destructive, experienced collectors will prefer to conduct all the tests using their own 'pair of eyes' instead. There are many factors and signs which can produce evidence and bring to a conclusion that an item is authentic or not. There are also some generic tips for detecting fake ceramics. Their knowledge and experience are built upon serious research by studying lots of reference material, handling as many genuine pieces as possible, making numerous trips to museums, and seeking advice and opinions from scholars, experts, or second opinions from reliable dealers, curators and collector friends.

The very first step in an authentication process for



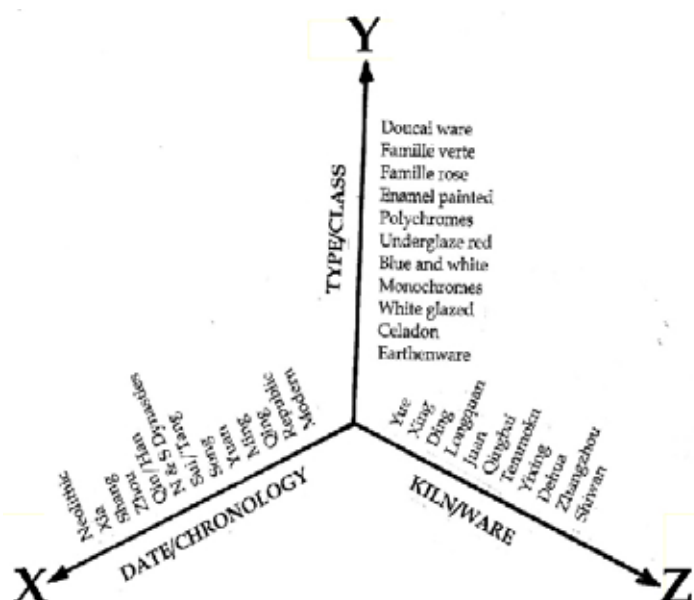


Fig. 5. X,Y, Z axes for a memory database chart for a collector of Chinese ceramics.

a collector is to conduct a preliminary visual examination of the ceramic item in question. It can be done in the following way: get a feel of the object by picking it up with both hands - feel its weight, judge the thickness of the body wall, notice its cross-sectional shape and degree of symmetry, see if there is any warping in the firing. Tap it lightly and listen to the sound of the ring. Porcelain, stoneware or pottery, with different firing temperatures, degrees of vitrification and different ingredients in the body composition, will sound differently. Then hold it in front of a strong light, notice the translucence. Examine the glaze surface, see if it is smooth, with a lot of dimples, or if there is any crawling of the glaze.

With a magnifying glass (the favourite for most people is a low power 10x lens) together with a pen-light, one will be able to extend observations beyond the naked eye, and to see details such as tool marks, repairs, mineral weathering features as well as trace mineral deposits on the



Fig. 7. Form of feet and footrings from 7th to 14th centuries CE. A: Tang dynasty, 7th - 8th centuries CE; B: Late Tang dynasty, 9th - 10th Centuries CE; C: Northern Song dynasty, 11th - 12th Centuries CE; D: Southern Song Dynasty, 12th - 13th centuries CE; E: Yuan dynasty, 13th - 14th centuries CE.

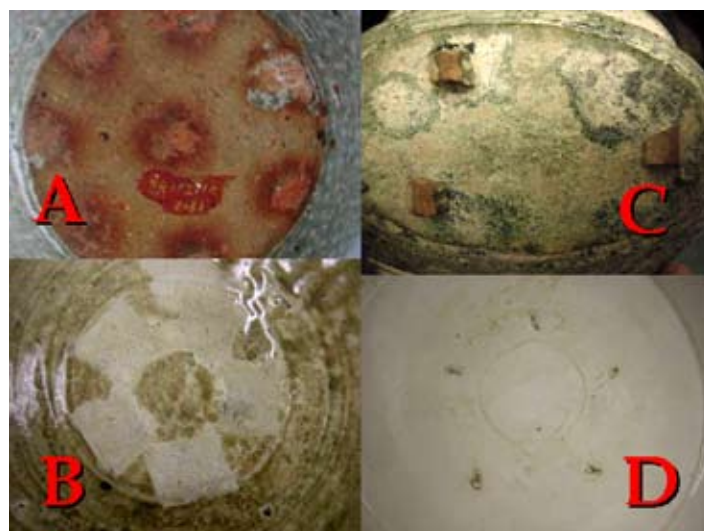


Fig. 6. Firing supports on bases of Chinese ceramics. A: Jin dynasty, 4th century CE; B: Late Tang dynasty, 9th century CE; C: Eastern Han dynasty, 1st to 2nd centuries CE; D: Song dynasty, 12-13th centuries CE.

surface (e.g. precipitates of metallic crystals on the glaze surface like the 'hare's fur' on Fujian *temmoku* bowls); air bubbles in the glaze, textures, drips and running of cobalt blue in blue-and-whites; over-glaze painted enamel details, interior structure; earth encrustations; and possible restorations and later polishing of the glaze surface.

Similar to laboratories specialising in the analysis of ceramics to maintain a vast database of compositional and surface science information, a serious collector also needs to construct his/her own memory graphical database of Chinese ceramics. The three axes of a collector's 3-D chart (Fig. 5) for the identification of Chinese ceramics may make up of the following:

X - TYPES/CLASS:

e.g. monochromes, polychromes, celadons, etc

Y - DATE/CHRONOLOGY:

e.g. Neolithic, Shang, Zhou, Warring-States, Han, Tang, Song, Qing, etc

Z - KILN/WARE/PROVENANCE:

e.g. Jingdezhen, Longquan, Ding, Fujian, Guangdong, etc.



Fig. 8. Potter's finger-nail marks along a footring.



Fig. 9. Flaking and degrading of glaze. A: Yaozhou ware, Northern Song dynasty, 12th century CE; B: Early Eastern Zhou dynasty, 7th - 6th Centuries BCE; C: Yue ware, Early Northern Song Dynasty, 10th -11th centuries CE.

The collector's 3-D memory chart is best constructed by experience, knowledge and exposure to ceramics. The three axes are plotted using a genuine ceramic specimen that the collector has come across. Whenever an unknown item is encountered, the chart will be useful for comparison purposes and to assist the collector in drawing a conclusion or forming a verdict on type, date and provenance of the piece in question.

Apart from the above there are other useful features that go with a genuine piece of ceramics, such as:

- Right firing techniques and remains: *Firing supporting spurs, and devices* (Fig. 6)
- Correct base and foot: *From solid disc foot to wide-ring, to foot-rings, to central nipple* (Fig. 7)
- Glazing and potting features: *e.g. potter's finger-nail marks along foot* (Fig. 8)
- Oxidation and reduction firings: *e.g. secondary oxidation (reddish brown) of celadon wares*
- Natural degrading: *e.g. Flaking and mouldy degrading of glaze* (Fig. 9); *Silvery iridescence on lead glazed pottery* (Fig. 10); *Fine crackles on Tang sancai tri-colour ware*; *'Tree-roots' (fungi growing in the burial)* (Fig. 11); *Barnacles from shipwreck ceramics* (Fig. 12), *but this can be easily faked*



Fig. 12. Barnacles found on ceramics pieces savaged from shipwreck, c. 1500 CE.



Fig. 10. Silvery iridescence on lead glazed pottery. A: Fake iridescence on a modern copy; B: Good iridescence on an Eastern Han piece, 2nd century CE.



Fig. 11. 'Tree-roots' (fungi growing in the burial) on the surface of two Han dynasty pottery, 1st Century BCE to 2nd Century CE.

- Imperfections and defects in the original firing: *Natural crackles and crazing on certain wares*; *Heaped-and-piled effect on early blue-and-whites*; *Iridescence on late 17th and 18th centuries famille verte ware*; *Rippling effect on 19th century glaze surface*
- Right forms and shapes of the period.

Collector friends always come to me for advice. I have found the following very useful because at least for myself, for the last 30 years I have been doing the same thing and I still find them educational, practical, informative and rewarding:

1. Examine and handle at close quarters as many genuine objects as possible. Always attend reputable auction previews and visit dealers' shops with reliable guides.
2. Visit museum collections and conduct field trips to kiln sites.
3. Read more reliable books and references on Chinese ceramics, especially those with good illustrations.
4. Think, reason and compare.
5. Apply what you know and what you read into practice - check whether it is true with actual pieces.
6. Construct and fill in the gaps in your own memory database chart. Use it as a yard-stick to judge pieces of unknown date and provenance.
7. Always be receptive and listen to comments and criticism from friends.

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