Table 1

**Duration of different steps in making a bronze sculpture**

The time required for each step depends on many parameters, including the size of the sculpture, its desired finish quality, the casting process employed, the number of parts requiring assembly, the amount of repair and fettling necessary, the type of patina used, and more. Time also depends on the available technologies and the production environment (e.g., a specific commission in a small workshop versus industrial production of a replica in an industrial foundry). Some extreme examples are given here based on historical documents and direct knowledge of recent fabrications.

Table 2

**Common names of casting processes in English, French, German, and Italian**

Table 3

**Casting processes used in selected modern art foundries worldwide**

Table 4

**Physical characteristics relating to different casting processes observable on a bronze sculpture**

For more details on casting processes please refer to the General Introduction. Warning: It is essential to read the full details in the text ([I.1](#I.1)) to avoid any confusion. Whereas the presence of a particular feature can rule out a particular process, the reverse is not true. For instance, the absence of a fingerprint on a cast does not discount the lost-wax process as the method of facture. Further, the features mentioned here are the most common ones encountered for a given process carried out under “normal” conditions, but any accident may imply diversion from the usual process and generate unexpected features. If, for example, in a direct lost-wax process some of the core has to be reworked in order to adjust the inner thickness of the wax before pouring the bronze, small spherical globules and/or fingerprints may appear on the internal surface of the finished bronze.

Table 5

**Examination and analytical techniques used in the study of bronze sculpture, sorted by process steps**

Refer to [tables 10](#table10) and [13](#table13) and the relevant chapters in volume II for the signification of acronyms, and advantages and limitations of each examination and analytical technique. For each process step, there are numerous risks of misidentification/misinterpretation, so refer to the relevant chapters for more details.

Table 6

**Main properties of different copper alloys used for bronze sculpture**

Castability ratings are based on {Schmidt and Schmidt 1992}, 1155; weldability ratings are based on {Rogers 1993}, 1874; color names are based on {Tyler and Black 1992}, 815.

Table 7

**Chemical symbols of main copper alloying elements and impurities encountered in bronze sculpture**

Each element may impact the physical and chemical properties of the metal. The effects are various and depend on how the different elements are combined; see {St. John 1931}.

Table 8

**Common names used to describe copper alloys for bronze sculpture**

As determined by eighteen CAST:ING group members, who include specialists in a wide range of disciplines and fields. Their agreement or disagreement on nomenclature is reported through the percentage of people using a given name. The preferred names of the author are reported in the gray cells. Arsenical bronzes, aluminum bronzes, and more exotic alloys such as copper-antimony, cupro-nickel, and tumbaga are not reported since they are rarely if ever used in bronze sculpture. For exotic prehistoric and historic copper alloys, see {Northover 1998}. The author wishes to recognize the contributors to this table, namely J. Bassett, A. Boulton, M. Castelle, P. Dandridge, L. Garenne-Marot, J. Kreutner, A. Lacey, S. La Niece, E. Lebon, B. Mille, L. Morigi, P. Motture, D. Reid, D. Robcis, D. Strahan, S. Sturman, and J.-M. Welter.

Table 9

**Hardness and machinability of various modern as-cast copper alloys**

After {Tyler and Black 1992}, table 3. Machinability is scaled against the most machinable alloy, namely “free-cutting brass C3600” (35.5% Zn, 3% Pb). Names of alloys are those most commonly used for bronze sculpture.

Table 10

**Scientific analytical techniques used in the study of bronze sculpture**

Table 11

**The four main types of defects on a bronze sculpture**

Each defect type may in turn be divided into several subcategories (see **fig. 816**).

Table 12

**Trilingual summary of the seven most common casting defect categories**

As adopted by the metallurgical industry (after {Mascré, Thomas, and Hénon 1952} and {Hénon, Mascré, and Blanc 1971}). In industry, each category is hierarchically subdivided into three levels (not shown here), and thus any defect can be precisely characterized using a three-character code.

Table 13

**Technical examination techniques used in the study of bronze sculpture**

Table 14

**Common abrasives used on modern bronze sculpture**

Table 15

**Appropriate usage for various detectors used in radiography of bronze objects**