

THE STUDENT'S ART BOOKS

LINE ENGRAVING

By

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CHAPTER TWO

BEFORE describing the production of any particular composition or subject, I think it would be most helpful to explain in detail the different types of tools required for engraving, and the various other materials which are necessary.

Two distinct types of single-line graver are most generally used. One is the square graver, which is made from a piece of steel about four inches long, this length being subject to alteration to suit the executant's comfort. It has a very gradual taper for about three parts of its length, and the remaining portion is sharply pointed to enable the tool to be fitted into a handle. This type of graver is made in several different strengths, ranging from size No. 1, which is exceedingly delicate and is therefore only suitable for the very lightest work, to size No. 6, which is rather stronger than is necessary for the use in copperplate work. The sizes mostly used for this purpose are Nos. 2 and 3.

The lozenge graver, which gives its description by its name, is made from a diamond-sectioned piece of steel, but it is not tapered as is the tool I have just described, except for the part which is to fit into the handle. This graver can be adapted for two definite types of line work, when the point or cutting facets are being made on the graver tip: one with the diamond section vertical, so that it would ultimately cut a deep, narrow line, and consequently would act as a very keen ink receptacle; the other with the diamond section horizontal—the graver used in this latter way would cut a shallow, wide groove, producing, when printed, a much softer effect.

Fig. 3 (1) shows the general shape of the ordinary square graver when fitted into a handle, and Fig. 3 (3), (4), (5), (6), and (7) gives details of the shapes of the steel sections for the following gravers: square, lozenge vertical, lozenge horizontal, "V" chisel, "U" chisel.

Good quality gravers are made by many English manufacturers, but the French and Swiss seem to be the specialists in this business.

Other types of graver are made—for instance, the thread tool, which is manufactured from a hexagonal piece of steel which is usually set at a slight curvature, this bend being necessary for ease in handling. On the outside of the curve deep parallel lines of equal distance are cut.

This type of multiple graver can be obtained in many different widths, with curves set at different shapes and with the thread lines cut in various degrees of fineness or coarseness, as the requirements may be.

Fig. 3 (2) illustrates the shape and design of the thread tool; (8) and (9) explain the sections of the steel used for this type of multiple tool.

Several other types of graver are manufactured; the section of one of these has an appearance very similar to a miniature half-circular chisel, another has a section which is V-shaped, and a further V-shaped graver is made which is constructed from a piece of steel which is solid and triangular instead of hollow. The sections of two of these tools are shown in Fig. 3 (6) and (7).

These gravers are naturally manufactured for a purpose, but as they are so seldom used on copperplate work it is unnecessary to discuss them further.

It is advisable to explain at this point, particularly to the student, that gravers made specifically for wood-engraving are definitely unsuitable for engraving on copper, not being designed for this work. The steel from which wood-engraving tools are made is not suited to stand the strain of cutting through such a tough metal as copper; also, the cutting facets, or "whets", as they are most commonly called, are not arranged on this tool for use in the type of work usually engraved on copper.

This fact can be realized when one considers the comparison of using a wood chisel for work on metal; it might perform reasonably well on lead but it would be very ill adapted to cut with any exactitude on copper.

For a graver to work successfully on copper the steel must have a tough consistency. Should the steel be too soft, great trouble and inconvenience will occur, as the graver will not retain its sharpness for any length of time, but will bend upwards very slightly at the tip. Should the material be too hard, however, the point of the graver will snip off. These

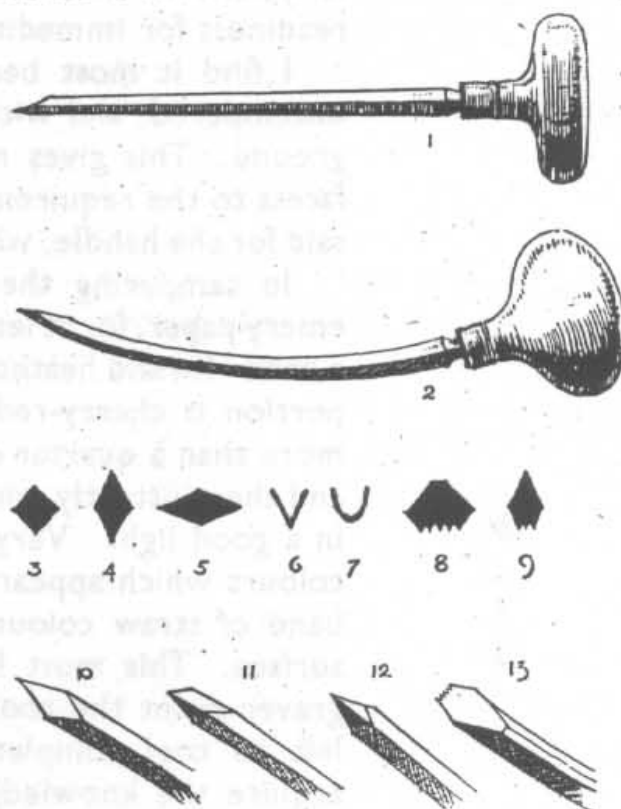


Fig. 3. (1) One Graver. (2) Thread Tool.
(3)-(9) Section of Steel used for Gravers.
(10)-(13) Facets applied to Gravers

blemishes, although seemingly so slight, are sufficient to render the graver practically uncontrollable.

As I have mentioned previously, engraving tools can be purchased ready for use, complete with handles fitted, but even when buying in these circumstances one is liable to be unfortunate in obtaining one which is faulty through some small blemish or flaw in the material from which it is manufactured. These faults are very difficult to detect, and it is advisable to purchase several of each size, of the type one uses most regularly, and to keep two or three of these in perfect working condition in readiness for immediate use should the necessity arise.

I find it most beneficial to obtain my gravers in their rough state, untempered, and without a fitted handle, but with the top facet roughly ground. This gives me the greatest opportunity to arrange the cutting facets to the requirements most suited to my own hand—this might also be said for the handle, which requires a different setting for each cutting angle.

In tempering the graver all four sides are polished with very fine emery paper, for at least one inch from its point; it is then firmly clamped in a hand vice and heated in a gas flame until at least half an inch of the polished portion is cherry-red. On reaching this state, the end of the point, not more than a quarter of an inch, should be dipped sharply into cold water, and then instantly withdrawn; and the tool, while still hot, should be held in a good light. Very careful attention must now be given to the various colours which appear on the steel; amongst these tints will be noticed a band of straw colour slowly creeping down to the end of the polished surface. This must be very keenly observed, and when it reaches the graver point the tool must be immediately plunged into cold water and left to cool completely. Usually a little time is needed in order to acquire the knowledge to judge the heating and cooling processes; but as usual, practice makes perfect.

It is advisable, during the process of tempering gravers, to have everything necessary immediately to hand, and to temper several, using the complete process separately for each tool.

The thickness of the graver should always be taken into consideration during the process just explained, as thicker gravers, particularly the thread tools, take longer to heat, and allowances should be made accordingly.

The tempering having been completed, the graver is next fixed into a suitable wooden handle. Several types are popular—the plain, turned shape with brass ferrule, and another almost similar, but with a portion of the handle sawn off, producing a flatness on the under side.

There is also an American type of holder manufactured which has a

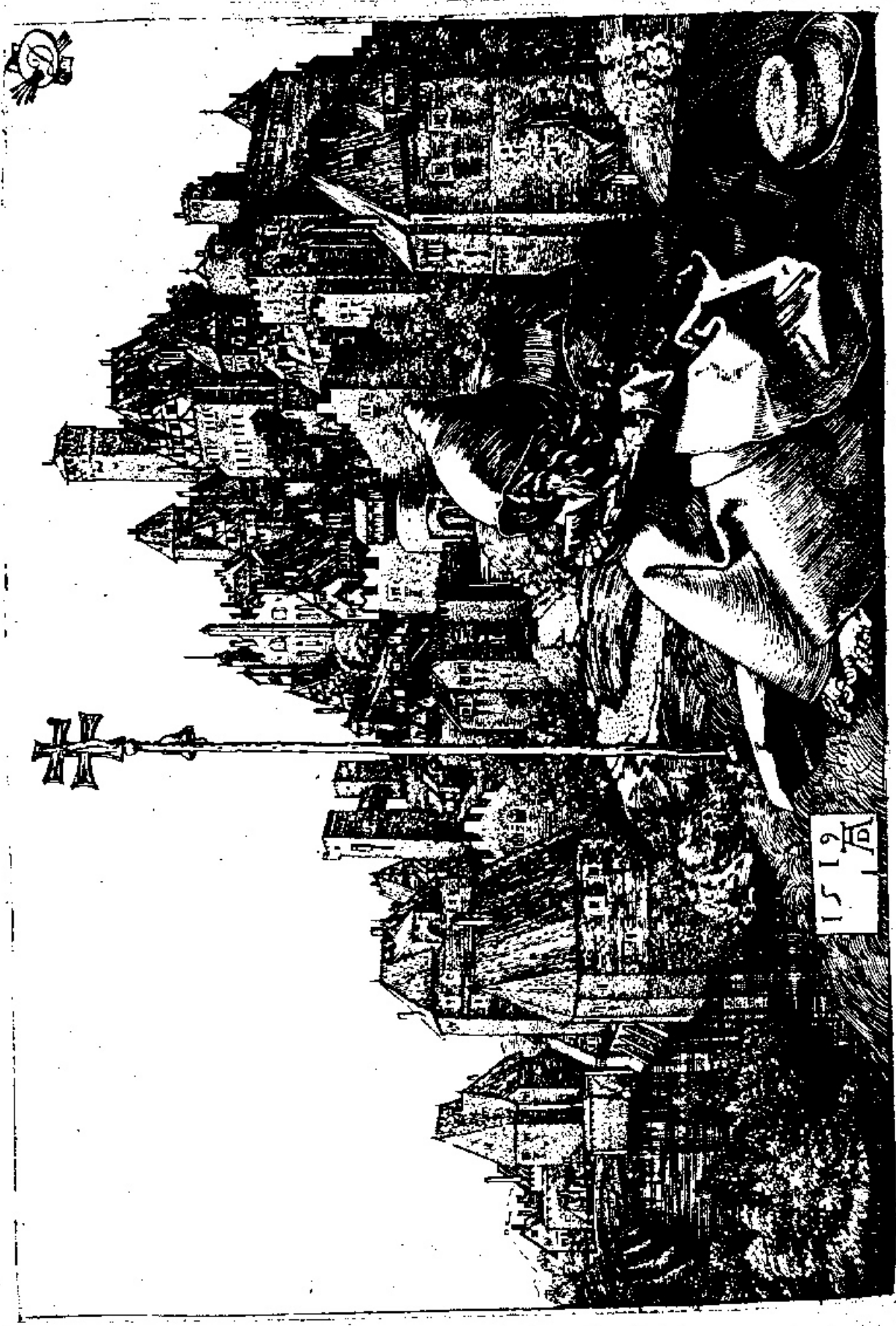


PLATE I
ST. ANTHONY THE HERMIT
By Dürer
By courtesy of the British Museum



PLATE II
LINCOLN

By court. G. A. J. Francis, Esq.

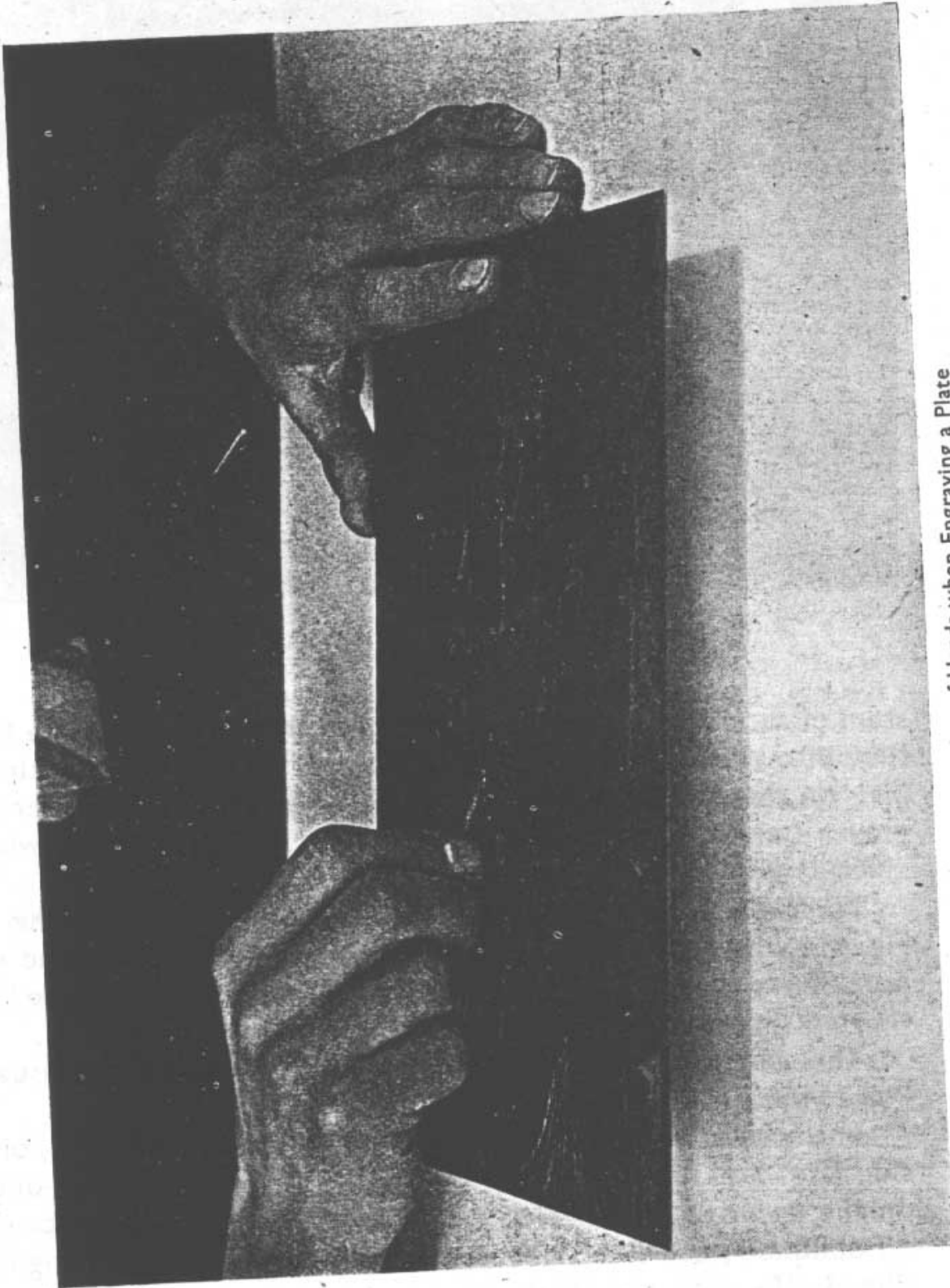


Fig. 4. Position of Hands when Engraving a Plate

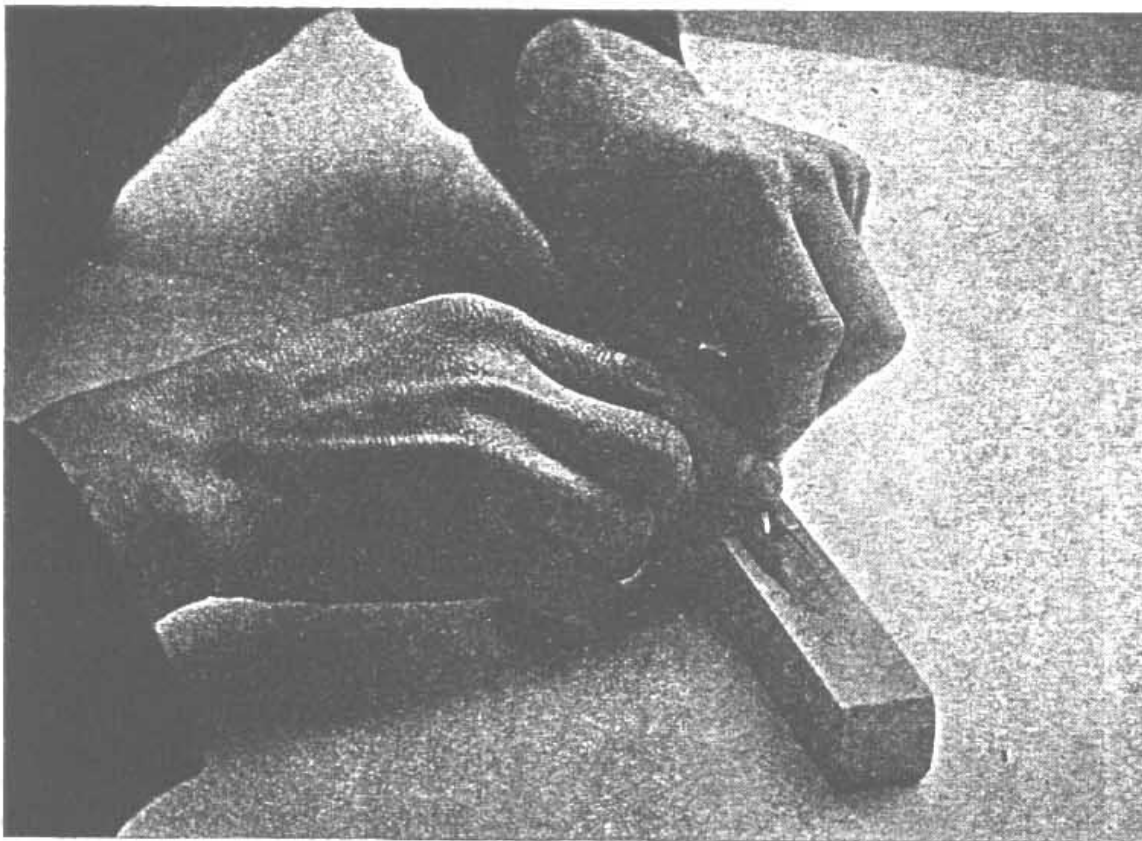


Fig. 5. The Whets being Applied to a Graver

stem of about three inches in length; an inch of this is made from a brass tube into which are fitted three small, adjustable jaws, as with a brace and bit; on the outside of this is a milled adjusting screw. Different types of graver can be fitted quite easily into this type of handle, which is most efficient when in use.

For those who prefer to work with the hand close to the plate, as in Fig. 4, I would advise the use of the handle already described which has a portion sawn away on the lower half; for should the handle be fully shaped, there is a tendency for the bottom part to scratch the plate.

The cutting facets have next to be applied—this is usually termed “the whetting process”.

In the case of the thread tool, only one facet is required, on the upper side (Fig. 3 (13)), but on the gravers three are required—one large one on the upper surface, which gives the graver the appearance of being cut off obliquely, and two smaller ones on the lower half, triangular in shape (Fig. 3 (10), (11), and (12)).

The correct cutting edge is obtained by the correct conversion of these

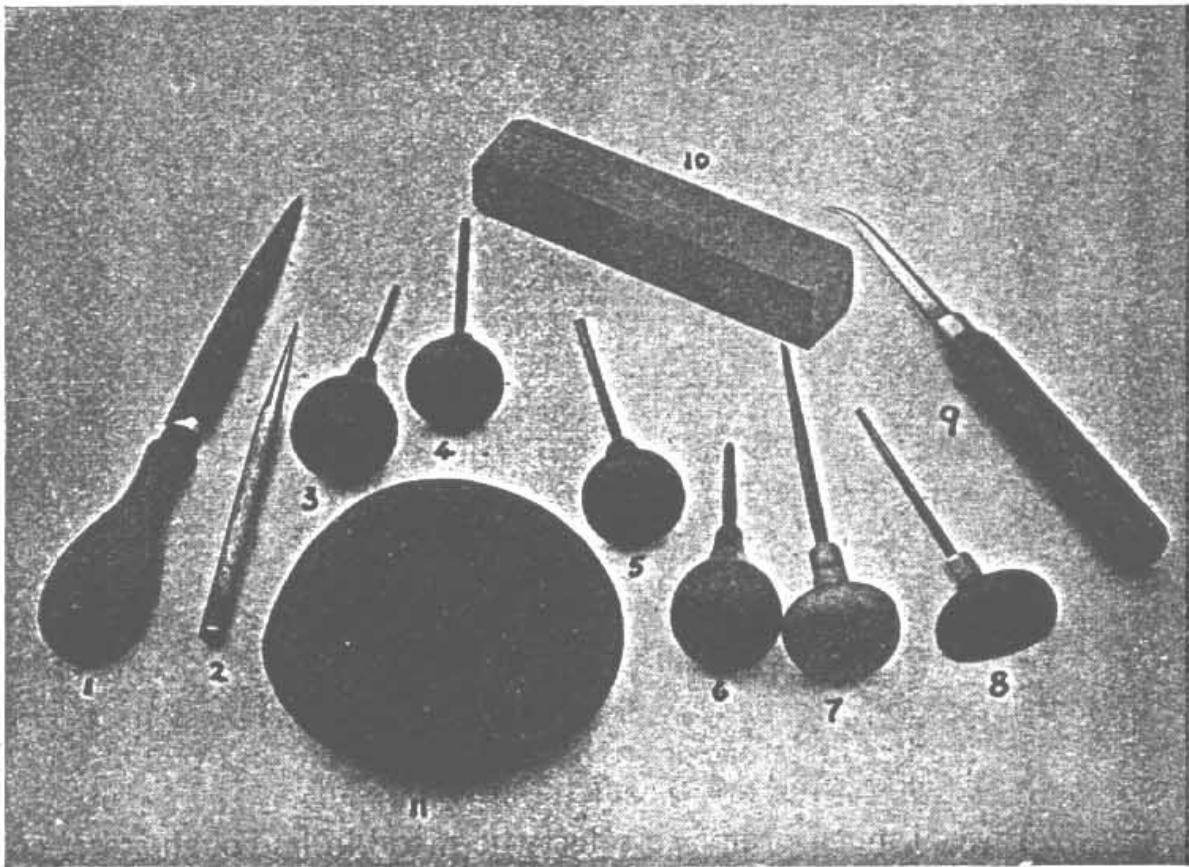


Fig. 6. Tools and Instruments used for Engraving

(1) Scraper. (2) Drypoint needle. (3) Narrow liner. (4) Coarse liner. (5) Fine liner. (6) Square graver. (7) Lozenge graver. (8) Square graver. (9) Burnisher. (10) Whet-stone. (11) Leather pad.

three facets to the graver point. To create these facets the graver point is steadily rubbed on the surface of a very fine-textured oil-stone until a diamond-shaped upper facet is made (see Fig. 5). Great care should be taken during this process, and oil should be freely applied to the stone.

Overheating, caused by keeping the tool on the stone for too long a period at a time, would ruin the temper of the steel, and would consequently make it necessary to temper the graver again.

The operation of whetting the lower facets is then continued, care being taken to keep them alike in size. Variation can be made in the length of these lower facets, according to the taste of the user. Should they be long, the graver would, when in use, need to be held in a low position; should they be short, however, it would be necessary to hold the graver at a distinct angle to the plate.

It is useful to include in one's engraving kit, together with the tools I have described, one or two good needles as used for drypoint and etching, a burnisher, a scraper, a pair of scribers, and a few leather sand-bags of various sizes.