

"TALE OF AN OLD SMOOTHIE"

I was wandering round a country market a few months ago when I spied a battered wooden smoothing plane. The plane had obviously given years of service, the mouth had been repaired and steel bottom had been added. "Yours for five dollars" said the stallholder. Against my better judgement I handed over the five dollars and the old plane had a new owner.

On returning home the old plane was consigned to that box that we all have where tools awaiting restoration reside. A few months later I had some spare time and decided to have a close look at the old smoothie. The maker turned out to be "John Moseley and Son" 54-55 Broad St., Bloomsbury, London. Made between 1862-1894, nothing remarkable in that; there's probably hundreds still around. Further rubbing however turned up another name, James McEwan & Co. A phone call to McEwans revealed that James McEwan started trading in 1852. This was now getting interesting.

An owners name was also on the tool "J.Fly". A perusal of the phone book found only six Fly's. I started from the top and on the third call I found myself talking to John Fly's great great grandson. He referred me to his father who was a mine of information. He remembered being taken to see great grandfather when a boy. John Fly had emigrated from England in 1850 at the age of 20. He and his brother Charles had set up as builders in Bendigo and much of their work remains today; one example being the "Eaglehawk" lock up.

Many of the names we find on tools remain anonymous. It's a pleasant change to be able to put some background to one now and again.

Tony Derrett

FOUNDRY WORK

1. Development

At our recent foundry night our instructor told us that the art of founding was essentially unchanged from earlier times. It is probably no surprise then that the Chinese were early leaders in foundry work. Following the unification of the Chinese empire in 221 B.C. under the Emperor Shi Huangdi, many military and civil products were standardised, thus allowing for a high level of technological specialization. This promoted large-scale mass production of cast-iron weapons as well as of items such as cart and chariot axles. "Roads To Xanadu", John Mersen 1989 remarks that "As early as 119 B.C. there were at least 46 state-run iron-casting centres throughout China. In Henan (Henan), the scale of cast-iron production was massive by any standards. The core or salamander left from one of the damaged crucibles used in smelting was found to weigh 20-25 tons, a capacity not reached in Europe until well into the eighteenth century. in A.D. 806 China was producing 13,500 tons of iron a year but by 1078 during the Song (Sung) dynasty this had risen to 125,000 tons. This period also marked a high point in Chinese industrial development, which could be described as an industrial revolution of sorts."

2. Green-Sand Moulding

(Reference ICS Reference Library, no.10A, 1903)

Founding is a trade that involves some knowledge of almost every operation required in the making of machines; and men well versed in the mechanical arts assert that the art of founding demands greater mechanical skill, caution, and good judgement than any other of the allied trades. The art of founding is largely dependent on the hand, eye, and mind for results, machinery having played but a small part in the work of moulders compared to that which it has done for workers in most other trades.

There are three branches of moulding, termed, respectively, green-sand, dry-sand, and loam, moulding. Green-sand moulding involves the making of castings in moulds which are composed entirely of sand in a damp state, or which have their surfaces skin dried only.

The following are the definitions of some of the most common terms used in founding:

Box, Moulding Box, or Flask. - A frame or box that keeps the sand in place while the casting is being made. Boxes or flasks may be made of wood or metal, but are generally of cast iron. A box or flask is composed of two or more parts. When composed of two parts, the one that stands underneath while the mould is being poured is called the

drag, or bottom box, while the portion that is moulded last, and which stands uppermost while the casting is being poured, is called the cope, lift, or top part. When a box or flask has more than two parts, the portions between the top and bottom boxes are called intermediate or middle parts. These terms are applied both to the parts of the box and to the part of the mould contained in the box.

Pattern. - In connection with the foundry, a pattern is understood to be a form by the use of which a mould may be made.

Gate or Runner. - An opening in the sand, through which the metal is poured. A round tapering wooden plug, the gate pin, is put in position where the opening is required, and the sand is built up round it; it is then withdrawn, leaving the gate required. This gate is termed a pouring gate, and below it is a skimming gate, into which the metal passes with a whirling action, and which is intended to separate and retain the scum from the metal.

Parting Sand. - Any material used to prevent two surfaces of a mould from adhering. It is usually sharp or burnt sand.

Riddle. - A coarse sieve. the terms riddle and sieve are sometimes used interchangeably in the foundry.

Trowel. - A flat metal tool having a suitable handle and used in smoothing the sand in a mould. Also, it is used in place of a small shovel.

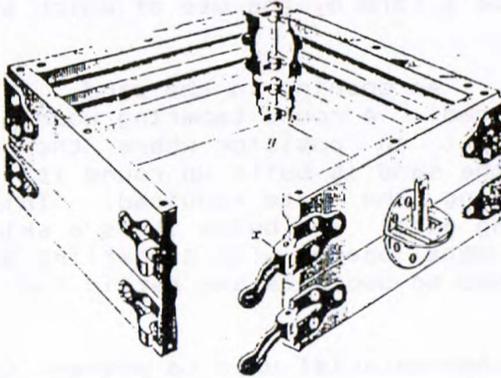
BENCH MOULDING

Appliances and Processes

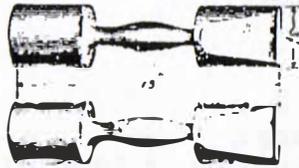
Advantages of Bench Moulding. - In order to save time and labour in making some kinds of small castings, benches are used to support the boxes during moulding. There are many firms who make a speciality of bench moulding with snap boxes or flasks only. The workmen are called bench moulders. Some bench moulders will make from 75 to 100 moulds per day, according to the size of the box and the character of the pattern used. The chief skill involved in bench moulding generally lies in getting up the pattern and moulding board. In some cases, a dozen or more patterns may be attached to a plate or pattern board, and the whole finished in such a manner that, as soon as the plate is withdrawn from the mould, the cope can be put in place. While there are many founders making a speciality of bench moulding only, there are many large foundries which could utilize benches and snap boxes for making some of their very light castings.

instead of moulding them on the floor after the manner of heavy work.

Snap Boxes or Flasks. - A very large number and variety of small light castings are made in what are called snap boxes or flasks. For common use on the bench, these range from 10 to 16 inches square.



Bench Rammers. - In rramming boxes on the bench, two wooden rammers, as shown, are generally used.



Making a Bench Mould. - Fig. 17 (a), (b), (c), and (d) shows the first operations of bench moulding as carried on in a stove foundry. The drag and cope of a wooden snap box are shown at (a) and (d) Fig. 17 (a). The pattern (b) is placed on the moulding board, (c) ready for use. The drag (d) is placed on the moulding board with the dowel pin of the drag between the nails, or other fastening, on the moulding board, as shown at (f), Fig. 17 (a). The riddle (g) is placed on top of the box and shovelled full of sand from the heap under the bench.



FIG. 17

The sand is now riddled over the pattern, as shown in Fig. 17 (b),



Fig. 19



until there is an inch or so over the face of the pattern, after which the rest of the sand in the riddle is thrown into the box and more sand is shovelled in until there is a heap above the box. The moulder then rams all round the edge of the mould close to the box with the handle of the shovel (k) as shown in Fig. 17 (c). All the motions are quick and forcible. Next, with the bench rammers (l) held flat, he rams the sand all over the middle of the mould, pushing both rammers down together, as shown in Fig. 17 (d). Having gone over the mould once or twice in this way, he rams down hard with the flat ends all over the mould, as shown in Fig. 18.

The next operation is to strike off the mould, which is done by taking a straightedge and see-sawing it backwards and forwards across the top of the mould in a zigzag way, leaving the top smooth. The top is then sprinkled over