

This work will not deal with the latter, however important and interesting those developments may be, but will continue its research amongst hand held tools. Suffice to say that neither machines nor computers would be around with out mans early extension to his physiological limit - the hand held tool.

W.L. Goodman in his classic work on the "History of Woodworking Tools" commences his history in the Mesolithic period of Europe and Middle East at about 8,000 B.C., but the use of tools goes back much further into the Palaeolithic period which (somewhat incomprehensibly) goes back 1,750,000 years. There is firm evidence of tool use at the 300,000 year mark and whilst we have no way of telling whether it was by design or chance we see the rudiments of certain tool shapes as we know them today.

This period was characterised by tools of naturally shaped or crudely chipped stone. The next era, the Mesolithic period, which extended from 10,000 to 8,000 years B.C. was really a transition period when evidence indicates a change from chipped stone to polished or ground stone - the principal characteristic of the next period, the Neolithic period. This latter period lasted from 8,000 to 3,000 B.C. when the smelting of metals first began.

It is essential for the reader to realise that the above dating is not precise and that it applies to the most advanced areas of "civilization". It should be remembered also that in some areas such as Australia and Papua/New Guinea, the Stone Age lasted until the coming of the European, and well into the 20th Century.

In order to get early history into some perspective it is necessary to try to compress the large amount of time into some dimension that can be readily understood.

Thus Fig. 2 in the form of a series of column charts, shows principle tool using events. Remember there is no more a Universal Stone, Bronze or Iron Age, than there is a universal age of infants or grown men; for races have been in the past like individuals, some in infancy and some in decay. The use of iron was known 3 to 4 thousand years ago but, it wasn't used or available by some races until relatively recently.

Tools and man are thus linked inexorably together and no doubt it will be ever thus. It is sad in a way that "to work with the tools" has tended to become a derogatory form of description as man's need for superiority leads him into different directions. Modern craftwork may be finding a way back! Delving into the history of tools is

a somewhat humbling experience because it places our time span into a total dimension of man's time on earth and how apparently, he has always used tools to shape his form of civilization and the environment he lives in.

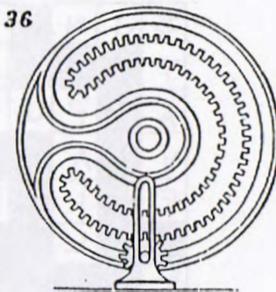
How long has the simple chisel been under development and will it be different or even extinct in another 300,000 years?

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MECHANICAL MOVEMENTS.

36. Mangle-wheel and pinion—so called from their application to mangles—converts continuous rotary motion of pinion into reciprocating rotary motion of wheel. The shaft of pinion has a vibratory motion, and works in a straight slot cut in the upright stationary bar to allow the pinion to rise and fall and work inside and outside of the gearing of the wheel. The slot cut in the face of the mangle-wheel and following its outline is to receive and guide the pinion-shaft and keep the pinion in gear.



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