

concern was securing suitable material for his stone tools. The lithic student must ^{also} first know his material and it is ~~also~~ well, if possible, to know its source. What may appear to be ideal material may, upon testing, be found lacking in the qualities necessary for controlled flaking. If possible it is well to visit quarries, for here we can study and learn ^{how to select suitable stone} ~~from~~ prehistoric mans rejection of certain materials and also observe ^{prehistoric mans} ~~his~~ quarrying methods. Gould has told me of observing the aboriginies of Australia spending hours selecting and analyzing their materials before they begin chipping.

At present there is keen interest in the transportation of obsidian from in situ occurrences. ^{Due to its malleability & sharp cutting edges,} Obsidian was highly esteemed by prehistoric man as a stone tool material but its natural occurrence is often limited and restricted to geologically recent volcanic areas. But in non-volcanic areas the aborigine made fine implements of other stones and found highly siliceous materials very responsive to flaking control. For the mineralogist archaeologist, the horizons are unlimited for ~~his~~ study of the evaluation of the mineral constituents, in situ occurrences, natural transportation, gravitation - whether by water or glaciation, and the nature of alluvial deposits. When we find stone in a region which does not conform with that geological area, we can safely assume it has been transported by man. This can be an important part of our study of the movement of man. The quantity of aboriginally worked material found in a given site will often depend upon the quality of the stone and whether it is native to the region or has been transported. This may afford the archaeologist the opportunity to pinpoint by triangulation the known or unknown sources of material.

Lithic materials used to aid in the manufacture of ^{stone tools} artifacts also present a wide open field for study. By ^{this} that I mean lithics used as abrasives, for sawing, grinding and polishing. These are very important to the process of manufacture. Also lithic materials suitable for pecking were carefully selected by the toolmaker and most of these have yet to be oriented archaeologically.

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The student of lithic technology must also become familiar with which stone will respond to thermal alteration, for we now know that past artisans heated ^{and cooled} their materials ^{under controlled conditions} for better flaking control. According to Denise de Sonneville Bordes, thermal treatment of stone has been observed as far back as the Solutrean. Visual examination of the raw material ~~is~~ ^{is not enough to determine} ^{if it will respond to} thermal treatment. One must experiment with each material on an individual basis and note its response to heat temperatures, color changes, heating and cooling times, etc. Some materials will change color and texture while others will only alter in texture and still others will not respond to the heating process. There is a wide range of critical temperatures and each material reacts differently to varying temperatures, duration of heat exposure, color changes, water content and other idiosyncracies. Some material even becomes more crystalline when subjected to heat. The ideal method of alteration is a sophisticated process and the aboriginal technique of exact temperature control is still unresolved by experimenters. The working quality of quartz crystal, basalt and obsidian is definitely improved by thermal alteration yet there is little or no visual change. ^(Vol. 17, #1, 1974) The current issue of "Tebiwa" contains a comprehensive account of thermal treatment by Barbara Purdy and is recommended to all interested in heat treatment of stone.

We now face the definite possibility of dating surface material which has been intentionally altered by man. Dr. John Fremlin, a noted British nuclear physicist, has been achieving excellent results in dating firepit rocks by using new thermoluminescence approaches but during his research he was unaware that siliceous materials were intentionally altered by man to improve their flaking qualities. ^{It is hoped that his tests will help us date surface artifacts.} (personal communication) [¶] Another approach to dating surface finds is the knowledge that altered flint-like materials have a tendency to revert to their original texture. ^{If the return to normal is constant, it may be possible to measure and relate lithic materials to the time of the original alteration.} Research of altered lithic materials - whether by nature or man - is unlimited and we need more dedicated workers in this field.