

DON E. CRABTREE

Research Associate in Prehistoric Technology  
Idaho State University  
Pocatello, Idaho

Don was born in Heyburn, Idaho on June 8, 1912 and raised in the Idaho Salmon River country which at that time was still very much occupied by local Indians. Young Crabtree became interested in these people and the artifacts he found in the nearby deserts, but was unable to learn anything of their manufacture from the Indians. Apparently, even at that time, flintknapping was a lost art.

By the time Don was seven he had gathered quite a collection of artifacts which had only increased his curiosity about their fabrication. So he began to experiment with methods of manufacture to obtain replication. He tried many methods of holding and applying force with little success and much failure. But "failure" was a word Don would not accept, so he persisted with the experiments and by the time he was twelve had defined a holding technique and learned to use a deer antler or hammerstone for the percussion work and a deer tine for pressure finishing and could make a fair imitation. But Don is a perfectionist and was not satisfied with the results for he realized that the technique was not the same and what he was producing was an imitation and not a duplication.

For many years Crabtree continued the lithic experiments, each an attempt to duplicate a different typological point until he had successfully determined the techniques of many peoples in time and space. During this time he made copious notes of platform preparation, amount of force, angle of seating the tool, angle of applied force, termination of flakes, etc. until he was able to interpret many techniques of both the old and new worlds.

While hunting suitable material for experiments, he realized that the debitage found in the Indian campsite was more vitreous and showed a color change from the raw material of the quarry. It occurred to Crabtree that the Indians were successfully treating their flint and so he began to experiment with the alteration of lithic material. After much failure, he was successful in duplicating alteration by burying the stone in sand under a campfire and slowly heating and cooling the material. The obsidian, of course, needed no alteration for it is a volcanic glass, but the thermal alteration of the flint allowed greater control of detaching flakes and permitted Don to replicate many more techniques. Since his experiments in thermal treatment have now been published in "Tebiwa" by Butler and Crabtree, Dr. Francois Bordes of the University of Bordeaux and Dr. Jacques Tixier of the Institute of Human Paleontology, Paris, France have both experimented with the process under controlled laboratory conditions and Dr. Bordes now finds that the alteration can be traced to Solutrean and it may well be that pressure flaking is contemporaneous with thermal alteration. Not all flint was altered by prehistoric man for he desired the more unyielding quality of the raw flint for certain tools such as drills, etc.

Crabtree had studied geology and paleontology at Long Beach Junior College and so in the late thirties was employed by Dr. Charles Camp and

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Dr. Ruben Stirton as supervisor of the vertebrate and invertebrate laboratory at the University of California at Berkeley. During the summer months he was assistant to Dr. Stirton in field work in California and Nevada which allowed him time to discover more artifacts and, in the evenings, to experiment with replication. While at Berkeley, he was privileged to work with Dr. A.L. Krober and Dr. Gifford who, together with Camp and Stirton, were intensely interested in Crabtree's flint technology and encouraged him to continue the experiments and to eventually publish the results. Since Crabtree had devised his own techniques of manufacture, he was further stimulated when Dr. Krober told him that his holding and manufacturing methods were duplicate to those of "Ishi".

In 1939 Don was stricken with cancer so resigned his position at Berkeley to return to Twin Falls, Idaho for surgery. The surgery and subsequent X-ray treatment left him weighing a mere 70 pounds and with lymphatic phlebitis of the left leg. To regain his health, overcome the pain, and learn to walk again, Don concentrated from morning until night on his flint-knapping; and it was during this period he resolved many techniques, among them the making and fluting of the Folsom point both by percussion and pressure. In 1941 he was invited to demonstrate at the meeting of the American Association of Museums in Columbus, Ohio. As a result he was employed by the Ohio State Museum to continue his experiments in their lithic laboratory where he replicated most of the Eastern material and some from Meso-America, including the intricate "ceremonial" points native to that area. At the Museum he worked with Dr. Henry Clyde Shetrone and H. Holmes Ellis who further encouraged his experiments. Later he was called to the University of Pennsylvania as adviser on lithics and from there went to the Smithsonian to work with H.H. Roberts on an analysis of the Lindenmeier collection of Folsom material.

The war intervened and Crabtree interrupted his work to serve as coordinating engineer for Bethlehem Steel Company in California. After the war, he returned to Idaho where he worked as County Supervisor for the Department of Agriculture for Twin Falls County. But during these years he continued to experiment, making an effort to replicate more and more point types.

In 1962, Dr. Earl Swanson, Idaho State University, invited Don to open the first conference of Western archaeologists on problems of point typology which was held in Pocatello, Idaho. Here he explained and demonstrated the technological differences in manufacturing techniques and their relationship to typology. Later that same year, Don suffered a coronary occlusion and was forced to retire from his government position on a disability. However, the participants at the Point Typology session had become interested in Don's work through Swanson and so with their help he was sent by National Science Foundation to attend the Lithic Technology Conference in Les Eyzies, France. (November, 1964) There he worked with Dr. Francois Bordes, Director of the Laboratory of Prehistory of the University of Bordeaux, who for many years has been acknowledged the leading authority on percussion flaking and Old World typology. Together they lectured, demonstrated and explained to the participants the various techniques and their subtle differences - Bordes covering Old World techniques and Crabtree concentrating on the pressure flaking of the New World. Don felt rewarded for a lifetime of research and experiment when during the closing remarks of the conference the distinguished Dr. Bordes said "If this Crabtree had lived 40,000 years ago he could have taught ancient man a thing or two about toolmaking".

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As a result of this conference and thanks to some very good friends in the profession, National Science Foundation ~~has~~ subsequently issued grants to Dr. Earl Swanson, Idaho State University, to employ Don in his present position of research and to record on film and by publication the results of Don's experiments in lithic technology.

At the conference, Don also worked with Dr. Jacques Tixier, an authority on African typology and a very fine flintknapper. Bordes, Tixier and Crabtree have now become very good friends and both Bordes and Tixier have spent considerable time with Don at his home in Kimberly resolving various techniques. Here they have an opportunity to work uninterrupted - Crabtree helping these men with the pressure techniques of the new world and they, in turn, teaching him the percussion work of the Old World. During these visits, these distinguished Frenchmen have lectured at Idaho State University and have only praise for the university - particularly for the caliber of work accomplished in the Department of Anthropology. In April, 1969 the three men were together at the University of Arizona, Tucson, Arizona and the Arizona State University in Tempe, Arizona where they simultaneously lectured and demonstrated various techniques.

Don had always wanted to replicate some of the work done in Australia, but had never had a chance to review a collection and was fully aware that the Australian techniques was vastly different than the pressure work of this hemisphere, plus the fact that the knapper there used a wooden pressure tool for fabrication. In 1966 he was honored to have Dr. Norman Tindale of the University of Adelaide as a visitor in his home. Tindale explained his observations of manufacture and, together, they experimented until Don was able to make replications. At the end of his visit, Dr. Tindale said "The only difference between your replication of the Kimberly point is the difference in spelling of Kimberley and the fact that your replica is made of obsidian rather than chert". In 1969, he gained further knowledge of the Australian techniques when Dr. Junius Bird and Dr. Richard Gould made a visit to his home and together did further experiments in Australian technology.

In 1969, Dr. Swanson conceived the idea of holding a field school of lithic technology and in July of that year the National Science Foundation financed the first field school of this kind which was held in Twin Falls, Idaho with graduate students attending from New York, Idaho, Florida, California, Texas and Washington. The school was highly successful to the point where Dr. Swanson is receiving requests from major universities to continue the lithic technology course and increase the number of participants. The purpose of the school is not primarily to teach flintknapping but, rather, through the manufacturing techniques, to clarify typology. After the students have learned some flintknapping, they can more clearly and adequately define the technology; associate the technique with technological traits; and substitute experiment for theory - thereby improving their typology. A knowledge of manufacture also helps define the miscalculation, clarified the intentional from the unintentional fracture, and points out the importance of analyzing debitage and its use in reconstructing the point, blade, or core type when the actual artifacts are not found in a site. Finished artifacts show only the final stages of manufacture whereas the debitage can tell a lot about the final stages plus the primary and intermediate stages - an important aid to typology.

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In brief, Don's history is that of an Idaho boy who inquiring mind and admiration for the toolmaking skill of ancient man simply would not quit. His "waterloo" seems to be the Egyptian point which he has not, as yet, been able to replicate - but he is working on it. One of the highlights of Don's career was to participate in the making of the NBC T.V. Special "The First Americans" which was aired in March, 1969. In the special he demonstrated the replication of tools found at the Marmes Rockshelter in the State of Washington.

Both Don and the profession owe a vote of thanks to Dr. Swanson for the present accelerated interest in lithic technology for it was he who pointed out the importance of the manufacturing techniques at the 1962 Point Typology Conference. Dr. Swanson was unwilling to accept a morphological typology and felt it should be based on experimental results rather than theory. He felt that Don's knowledge of replication would be invaluable in determining the technological differences in tool types; explain the distinctive processes used by early people in diverse geographical areas in time; and emphasize the fallacy of assumptions and unfounded beliefs on which some statements concerning lithic techniques were based. Dr. Swanson has now completed one film of Don's work showing the quarrying techniques entitled "The Shadow of Man" which has been requested by many major universities and they are currently working on four films which will cover the techniques of pressure work, bladmaking, the cone principle, and percussion work.

Don is continuing his experiments and publishing the results and is deeply indebted to Dr. Harry Shapiro and Dr. Junius Bird for the invitation to demonstrate at the American Museum of Natural History and to again contribute in some small way to his beloved profession of archaeology.

Don's contributions to lithic technology are covered in greater detail in such books as:

- "The Old Stone Age" by Francois Bordes (World University Library)  
(Mc-Graw-Hill, New York)
- "The Emergence of Man" by John E. Pfeiffer (Harper and Row, New York)
- "La Prehistoire Moderne" by Denise de Sonneville-Bordes (Perigueux,  
Pierre FANLAC)
- "La France Au Temps Des Mammouths" by Francois Bordes (Hachette)
- "Earth Song" by Dr. Charles L. Camp (Univ. of Calif. Press, Berkeley)
- "Centennial" by James A. Michener A Random House Publication
- "The New World" by Warwick M. Bray, Earl H. Swanson, Ian S. Farrington  
an Elsevier-Phaidon publication

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Don is a member of:

1. International Association for Quaternary Research
2. American Society for the Advancement of Science
3. American Anthropological Association
4. Society for American Archaeology
5. Archaeological Society of Ohio
6. National Geographic Society
7. Society of the Sigma Xi
8. The Explorers Club

Don has given lectures and demonstrations at:

Canada:

University of Alberta	Edmonton, Canada
University of Calgary	Calgary, Canada
University of British Columbia	Vancouver, B.C.
Provincial Museum of B.C.	Victoria, B.C.

Europe:

University of Bordeaux	Bordeaux, France
Lithic Technology Laboratory	Les Uzies, France
National Museum	Paris, France
National Museum	Copenhagen, Denmark
University of London & British Museum	London, England.

Mexico:

School of Anthropology-Dr. Jose L. Lorenzo	Mexico, U.S.
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U.S.A.:

University of Maryland	College Park, Maryland
University of North Carolina	Chapel Hills, N.C.
University of Nevada	Reno, Nevada
Nevada State Museum	Carson City, Nevada
Nevada State Archaeological Society	Reno, Nevada
University of Utah	Salt Lake City, Utah
Idaho State University	Idaho Falls, Idaho
University of Colorado	Boulder, Colorado
Denver Museum of Natural History	Denver, Colorado
Washington State University	Pullman, Washington
University of Washington	Seattle, Washington
St. Martin's Abbey	Tumwater, Washington
Reed College	Portland, Oregon
Field Museum of Natural History Field School	Vernon, Arizona
University of Arizona Field School	Cibicue, Arizona
Arizona State University	Tempe, Arizona
Museum of Man	San Diego, California
Los Angeles County Museum	Los Angeles, California
University of California	Berkeley, California
University of California	Long Beach, Calif.
Southwest Museum	Pasadena, California
Mannix Site -(L.S.B. Leakey)	Barstow, Calif.
University of Oregon	Eugene, Oregon

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University of Eastern New Mexico Field School  
Southern Methodist University  
University of Indiana  
University of Maryland  
Smithsonian Institute  
Harvard University Field School  
Ohio State Museum  
Agate Basin Site (Wormington)

Bernalillo, New Mexico  
Dallas, Texas  
Bloomington, Indiana  
College Park, Maryland  
Washington, D.C.  
Hell Gap, Wyoming  
Columbus, Ohio  
Kersey, Colorado

Attached is a list of publications

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PUBLICATIONS

1. "Heat Treatment of Silica Minerals"; Crabtree and Butler; Tebiwa Vol. 7, # 1, 1964
2. "An Introduction to Crabtree's Experiments in Flintknapping"; Swanson; Tebiwa, Vol. 9, # 1, 1966
3. "A Stoneworker's Approach to Analyzing and Replicating the Lindenmeier Polson"; Crabtree; Tebiwa, Vol. 9, # 1, 1966
4. "The Flintknapper's Raw Material"; Crabtree; Tebiwa, Vol. 10, # 1, 1967
5. "Tools Used in Making Flaked Stone Artifacts"; Crabtree; Tebiwa Vol. 10, #1, 1967
6. "Experimental Manufacture of Wooden Implements with Tools of Flaked Stone"; Crabtree and Davis; Science, Jan. 26, 1968; Vol. 159 No. 3813, pages 426-428
7. "Meso-American Polyhedral Cores and Prismatic Blades"; Crabtree; American Antiquity, October, 1968
8. "A Technological Description of Artifacts in Assemblage I, Wilson Butte Cave, Idaho; Current Anthropology, Vol. 10, # 4, Oct. 1969
9. "The Corbiac Blade Technique and Other Experiments"; Bordes and Crabtree, Tebiwa, Vol. 12, 1969
10. "Archaeological Evidence of Acculturation Along the Oregon Trail" Crabtree; Tebiwa, Vol. 11, 1968
11. "Edge Ground Cobbles and Blademaking in Northwest"; Crabtree and Swanson; Tebiwa Vol. 11, #2, 1968
12. "Analysis and Description of Manufacturing Techniques of Hohokam Projectile Points"; Crabtree - in press for "Kiva"
13. "Flaking Stone with Wooden Implements"; Crabtree - ~~in press for Science~~, July 1970 Vol. 169, pp 146-153
14. "Glossary of Flintknapping Terminology"; Crabtree - in process
15. Mans Oldest Craft Re-created U  
Crabtree; Vol. 13, No. 3, 1970, Quarterly Publication of CHRATOR  
The American Museum of Natural History
16. The Cone Principal Applied to Lithic Technology  
CRABTREE; Tebiwa
17. An Introduction to Flintknapping  
Crabtree; Monograph Idaho State University, 1972
18. The Obtuse Angle as a Functional Cutting Edge  
Crabtree; Tebiwa, 1972

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Idaho State University Lithic Tech. Films

"Shadow of Man"

"The Flintworker"

"Ancient Projectile Points"

"Alchemy of Time"

"The Hunter's Edge"

other films Ohio State Museum  
Univ. of Alberta Edmonton  
Denver Museum of Nat. History

University of California at Berkeley Film:

"Blades and Pressure Flaking" - Bordes and Crabtree

N.C.B. News, New York, N.Y. (Craig Fisher) & Hugh Downs

"The First Americans"



- 1970 , Don Crabtree and Richard Gould, Exhibit of Prehistoric Technology  
The Curator
- 1971, Don Crabtree, Technology Of Stone Tools , Dictionary of Prehistory.  
Charles Schribners and Sons New York
- 1971, Don Crabtree, Hohokam Points, American Antiquity ?
- ~~1971, Don Crabtree, Comments on Using the Low angle of Stone Tools  
as a Cutting Edge. Tebiwa~~
- 1971, Don Crabtree, Glossary of Stone Working Technology .  
Tebiwa
- 1971, Don Crabtree, Bibliography of Prehistoric Stone Working,  
Tebiwa
- 1971, Don Crabtree, Review of Tools Of The Stone Age, by Jacques  
Bordaz, Natural History Press, Garden City, New York, 1970  
American Anthropologist
- 1970, Evaluation of The Cattail Fluting Tradition and its Complex  
-Determining Lithic Debris, by Floyd Painter. For Editor of  
American Antiquity.
- 1971,  
Don Crabtree, Evaluation of the Calico Hills Site, in Science  
News, Vol. 99, For Dr. Carl Behrens
- 1971 Don Crabtree, Comments on Using The Low or Obtuse angle of  
Stone Tools as a Cutting Edge, Tebiwa

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- 1970 , Don Crabtree and Richard Gould, Exhibit of Prehistoric Technology  
The Curator Vol. 13, No. 3, 1970
- 1971, Don Crabtree, Technology Of Stone Tools , Dictionary of Prehistory.  
Charles Schribners and Sons New York
- 1971, Don Crabtree, Hohokam Points, American Antiquity ?
- ~~1971, Don Crabtree, Comments on Using the Low angle of Stone Tools  
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- 1971, Don Crabtree, Glossary of Stone Working Technology .  
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-Determining Lithic Debris, by Floyd Painter. For Editor of  
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- 1971,  
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News, Vol. 99, For Dr. Carl Behrens
- 1971 Don Crabtree, Comments on Using The Low or Obtuse angle of  
Stone Tools as a Cutting Edge, Tebiwa

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