Legacy of the Tranchet Flake:
Or How Two Texas Archaeologists Ended Up in the Maya World

Harry J. Shafer

This is the story of how an ancient Maya tranchet flake, aka "orange=peel flake," changed the lives of many professional and student Texas archaeologist (Figure 1). It all began in 1975 at the Annual Meeting of the Society of American Archaeology in Dallas. It happened with a serendipitous invitation when Thomas Hester invited me to join him for lunch with a group hosted by Dr. Norman Hammond of Cambridge University of England. Norman was conducting an archaeological survey of northern Belize (formally British Honduras), and recorded the Maya site of Colha that had an unprecedented amount of worked chert workshops and artifacts. To this day Hammond regards Colha as the largest industrial site known in the Maya Lowlands. Hammond's crew consisted of a vagabond group of British and American students who were not familiar with or knowledgeable of lithic artifacts or technology. Lithics were not regarded as prestigious avenues of research in Maya archaeology at that time, so no lithic specialist was on board; ceramics, architecture, and tombs were the paths to notoriety in that context. Hammond's survey crew had found a most unusual artifact at the site called the "orange peel flake," a term coined by the then current landowner John Masson, and Hammond's team was perplexed as to the artifact's function.

Figure 1. Dorsal and ventral sides of a tranchet flake from Colha, Belize.

Several graduate students from American universities attended the 1975 lunch gathering, including one (from the University of Arizona) from Hammond's team who thought he knew something about lithics. Hammond passed around several of the strange artifacts and gathered a variety of opinions. Some who spoke thought the artifacts were some kind of tool, including scrapers, or as the Arizona student suggested, to make canoes. When they passed the artifacts to me, I looked closely at them, saw the distinctive curved uniface flaked edge that others focused on, but I also noticed something others had ignored. That was a subtle bulb of percussion on the underside opposite the flaked edge. That indicated to me that these were

flakes struck from well prepared cores and not tools. I had seen a miniature version of this kind of flake from debitage research on the upper Colorado River at the Robert Lee Reservoir and from burned rock midden sites in Pecos, Crockett, and Val Verde counties. Tom was well aware of my previous Texas research and I think he knew I would see the similarity. I told Hammond that I thought they were the flake byproducts from some kind of tool manufacture. Intrigued by my answer, Hammond, who alone recognized the industrial tool production evidenced at the site, asked if I would like to see a larger sample. I replied in the affirmative and some weeks later I received two cartons of artifacts from his field survey at this site.

My suspicion was that the "orange peel" flakes were removed from the ends of a macro-flake to make an axe-like tool by creating a sharp bit formed by the intersection of the flake scar and the underside or ventral side of a macro flake (Figure 2). Two large axes in the sample that Hammond sent me did have bit ends formed by the removal of a transverse flake. I also recalled seeing something like this technique in Neanderthal artifacts when I was on the Tabun archaeological project in Israel, a Mousterian tool type called a cleaver created by the removal of a transverse flake across the distal end. The Neanderthals used a similar technology that the Maya used, albeit the Maya example was much better made, larger, and had more core preparation. The term used for this flake by Old World Paleolithic archaeologists was "tranchet" or transverse. We used the term tranchet to describe the "orange peel" flake since it was well established in international literature. The bit was created by the removal of the tranchet flake and the intersection of the ventral side of the large macro flake. The tool from which the tranchet flake was removed was called a tranchet tool, which could be either an axe or an adze (Figure 3).

In the meantime, Hammond and Tom planned to bring archaeologists together who were interested in or had published on Maya stone technology (Hester and Hammond 1976). There were very few given so little attention was bestowed on Maya lithics. They organized the first Maya Lithic Conference in Orange Walk Town, Belize, in 1976. Among the attendees were: Don Crabtree, a master flint knapper, Payson Sheets from Colorado, Jay Johnson from Mississippi, Tom, me, and others.

A field visit by the group was made to the lithic production site of Colha during the conference. We visited several lithic workshops that day. In one in particular I searched for an example of a tranchet bit tool failure to demonstrate to the skeptics that the tranchet flakes were indeed byproducts. It was not long that examples were found that sealed the discussion (Shafer 1983a). We discovered that tranchet tools were produced throughout the Late PreClassic to Late Classic sequence (Figure 4).

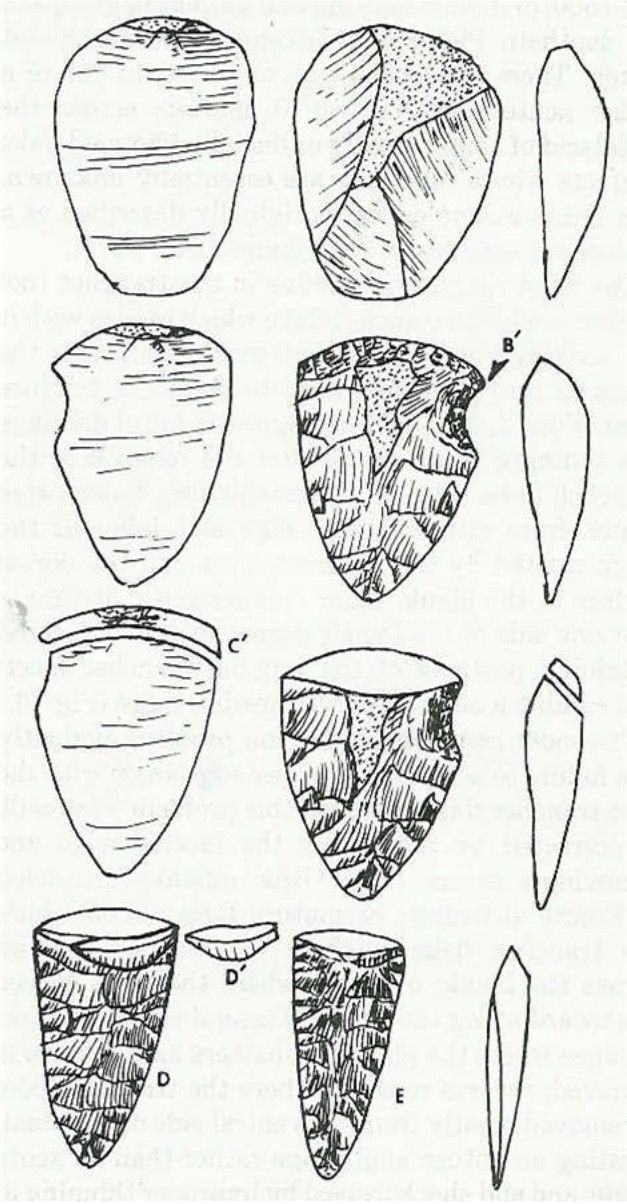

Figure 2. The original model of how tranchet flakes were produced and why (from Shafer 1976).

Figure 3. Bit angle formed by the removal of a tranchet flake.

Figure 4. Examples of tranchet flake artifacts from Colha, Belize.

At the concluding session, the attendees recommended that Tom and I take on Colha to study the stone tool industries at the site. Why? Because the attendees felt that Texas archaeologists knew lithics and solved the mystery of the "orange peel" even though neither of us had included Mesoamerican archaeology as an area of study. Truth was they were correct. Any archaeologist who spends nearly 20 years in Central and South Texas archaeology has to know lithics. The area is not known for pyramids, tombs, or ceramics like the Maya region. We have to contend with cultural material made of Edwards chert. Tom took on the task of Director and proceeded to raise funds to carry out the field work and succeeded doing so for many years. He raised a team that included experienced Mayanist R.E.W. Adams and Jack Eaton, flintknappers like Don Crabtree, Glen Goode, and experienced graduate students and colleagues. I served as co-director and focused on workshop sampling and factoring out the production technology.

Numerous Late Preclassic, Classic, and Early Postclassic lithic workshops were sampled over the years ((Figure 5). Production estimates for the workshops is in the millions and Colha-made tools were traced to many sites in northern Belize and beyond (Hester and Shafer 1991; Shafer and Hester 1983; Shafer and Oglesby (1980). We were able to show the regional distribution and consumption of Colha-made tools at consumer sites by analyzing lithic collections from numerous sites across northern Belize (Figure 6) (Dockall and Shafer 1993; Hester and Shafer 1994; Shafer 1983b; Shafer and Hester 1991).

Figure 5. Profile of a Classic Period lithic workshop deposit at Colha, Belize, showing the extent of debitage.

The Colha Project kicked off the careers of a number of graduate students who became accomplished Maya archaeologists, including Fred Valdez, Marylyn Masson, Kathy Reese Taylor, Shirley Mock, Eleanor King, Debra Walker, Palma Buttles, Richard Meadows, Leslie Shaw, Steve Black, and Dan Potter, as well as others who became accomplished archaeologists and anthropologists in their own right: Erwin Roemer, Diane Young (Holliday), Anna J. Taylor, Harold Drollinger, Dana Anthony, George Michaels, Lori Wright, and others. This forever changed the lives of many who went different directions in the field. The Colha Project lasted for 22 years and resulted in several hundred publications, including Master's theses, doctoral dissertations, monographs, monograph papers, book chapters, and journal articles, all thanks to the efforts of Tom Hester and the Colha team, and of course the tranchet flake. We like to say

that the tranchet flake was the key to opening the mysteries of Maya industrial lithic technology.

Figure 6. Tranchet axe from Pulltrouser Swamp in northern Belize.

In conclusion, there are several lessons to this story. First, all archaeological experiences are exponential; you learn something each time and you never know when or how that knowledge from specific experiences may be applied later. Second, it is essential in lithic technology to know how brittle solids fracture and how to recognize subtle attributes that could indicate a flintknapper's intended strategy or decision process. Third, to really understand the second lesson in ancient stone tool technology, one really needs to try mastering it in order to read the record and understand the strategies, methods, techniques, successes, failures, retouch, and recycling, and simply why things break. It is not rocket science, but it is science, and does entail intuitive knowledge of the physics of lithic fracture.

References Cited

Dockall, John E. and Harry J. Shafer
1993 Testing the Producer-Consumer Model for Santa Corozal, Belize. *Latin American Archaeology* 4(2):158-179.

Hester, Thomas R. and Norman Hammond (editors)
1976 *Maya Lithic Studies: Papers from the 1976 Belie Field Symposium*. Special Report No. 4. Center for Archaeological Research, The University of Texas at San Antonio.

Hester, Thomas R. and Harry J. Shafer
1994 The Ancient Maya Craft Community at Colha, Belie and its External Relationships. In *Archeological View from the Countryside: Village Communities in Early Complex Societies*, edited by G. M Schwartz and S. E Falconer, pp. 48-63. Smithsonian Institution Press, Washington D. C.

Hester, Thomas R. and Harry J. Shafer (editors)
1991 *Maya Stone Tools: Selected Papers from the Second Maya Lithic Conference*. Monographs in World Archaeology No. 1. Prehistory Press, Madison, Wisconsin

Shafer, Harry J.
1976 Belize Lithics: "Orange Peel" Flakes and Adze Manufacture. In *Maya Lithic Studies: Papers from the 1976 Belize Field Symposium*, edited by Thomas R. Hester and Norman Hammond, pp 21-34. Special Report No. 4. Center for Archaeological Research, The University of Texas at San Antonio.

1983a The Tranchet Technique in Lowland Maya Lithic Technology. *Lithic Technology* 12:57-68.

1983b Lithic Artifacts. In *Pulltrouser Swamp: Ancient Maya Habitat, Agriculture, and Settlement in Northern Belize*, edited by Billie L. Turner II and Peter D. Harrison, pp. 212-245. University of Texas Press, Austin.

Shafer, Harry J. and Thomas R. Hester
1983 Ancient Maya Chert Workshops in Northern Belize, Central America. *American Antiquity* 48:519-43.

1991 Technological and Comparative Analysis of the Chipped Stone Artifacts from El Posito, Belize. In *Maya Stone Tools*: *Selected Papers from the Second Maya Lithic Conference*, edited by Thomas R. Hester and Harry J. Shafer, pp. 67-82. Monographs in World Archaeology 1. Prehistory Press, Madison, Wisconsin.

Shafer, Harry J. and Fred M. Oglesby
1980 Test Excavations in a Colha Debitage Mound: Operation 4001. In *The Colha Project Second Season, 1980 Interim Report*, edited by Thomas R. Hester, Jack D. Eaton, and Harry J. Shafer, pp. 229-232. Center for Archaeological Research, The University of Texas at San Antonio, and Centro Studie Ricerche Ligabue, Venice.