April 21, 1965

Mr. James E. Fitting, Curator
Museum of Anthropology
University of Michigan
Ann Arbor, Michigan 48104

Dear Mr. Fitting:

Pardon the delay in replying to your letter, but business interests have kept me too busy to do much reading and, therefore, I have done only a hurried review of your paper on the Holcombe Site.

I was happy and interested to read your paper and to note that you have introduced many new aspects of Site analysis. You are a keen observor of artifacts and debitage, and I am delighted to see you point out the economy and specilization of Early Man.

Since you have established a known source of material - Bayport Flint - one can accurately check to determine if the material has been altered by use of the thermal treatment. I am not familiar with the Bayport flint, so do not know what changes take place after the heat treatment in comparison with the un-treated stone. My method of identifying treated material is to compare the lustre of the ventral side of the flake with the dorsal side. If the flake has been altered prior to detachment from the core or preform, the lustre of the dorsal side will be dull, while the ventral side will be lustrous. The first series of flakes will have this character, while the second retouch will be lustrous on both sides.

On Page 21 you state "Most of the material is dull but occassionally lustrous examples are found". This could present a problem of identifying thermal treated and naturally lustrous material. To properly determine natural or thermal treated lustre, one learns from experience, or by conducting tests. You may like to try some of the tests on the Bayport flint.

A simple method of testing is to fill a Deep Fryer with samples - cover with fine sand - start heating at the lowest setting of the Fryer, leaving at this temperature for at least two hours - then raise the temperature 50 degrees for at least another two hours and so on until the maximum temperature is reached - 450 to 500 degrees Fahrenheit. Then let cool for at least 12 hours. After the material is thoroughly cold, remove a sample, detach a small flake to compare the inner surface with the original outside surface for the texture change. On Page 69 of your paper, correct the word Centigrade to 400 to 500 degrees Fahrenheit.

If a color change takes place in heating the material, the degree of intensity of change is relative to the length of time the stone is heated. The color change is more obvious in material having the presence of iron. Certain elements will oxidize when heated over a long period of time - 24 hours or more. The Bayport material may darken from carbonaceous material in the flint.

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Potlidding can occur from too rapid heating of the stone, if the material has self-contained moisture. However, certain contained minerals may cause this same potlidding without heat.

The "block fracture" you mention in your paper may be the result of freezing instead of heating. Block fracture should show a disfused bulb of force. Block on block, being similar to anvil on anvil technique, breaks with the character of the disfused bulbs - being similar to certain types of burin fractures, only the block fracture occurs on a larger scale.

Please refer to page 68 of your paper. Your statement " newly discovered technique of preparing preforms by the applicating of heat", I believe is misleading and should be clarified. I think this should be explained that the preform is thermal treated prior to pressure flaking.

I would have liked very much to have been able to attend the Annual meeting of the Society at Urbana so that I could have had the pleasure of meeting you and discussing, further, your important work. However, the meeting with Bordes, in Berkeley, will be held at the same time and, therefore, I will be unable to attend. I am hoping, however, to send for some of the many interesting papers to be given at Urbana.

Your study of the proximal ends of flakes can be of further use to define the techniques involved in their manufacture.

Please convey my regards to Jellineck. We did so enjoy meeting and talking with him in France and hope to have the pleasure of meeting both of you in the near future.

Sincerely,

Don E.Crabtree