



SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093

September 29, 1977

Ms. Linda Burton
 Department of Philippine
 Cultural Studies
 Xavier University
 Cagayan de Oro City
 Philippines--8401

Dear Ms. Burton:

I have completed the analyses of the three bone samples from Mindanao which you sent me earlier this year. The preliminary results are as follows:

| Sample # | Estimated Age from Cultural Materials (yrs) | D/L Aspartic Acid* | Aspartic Acid Age (yrs) |
|-------------------|---|--------------------------|--|
| SU-1 [†] | 14th-16th Century, ~450 yrs <i>14th-15th Century</i> | 0.090 | $k_{asp} = 1.4 \times 10^{-4} \text{ yr}^{-1}$ |
| SU-2 | 14th-15th Century, ~550 yrs <i>1300-1400</i> | 0.119 | 640 (1337) |
| HU-3 | ? | 0.241 | 1600 |

[†] Sample used to calculate k_{asp} "calibration" value.

* Samples hydrolyzed for 4 hours.

Sample SU-1 was used for site "calibration," so there is no age estimate for this sample. The calculated k_{asp} value corresponds to a temperature of 27°C, which I believe is probably a reasonable yearly average temperature for the sites. Could you please send me the name of any moderately-sized towns or cities which are close to the two sites? I could then check our world temperature tables to see how our calculated temperature compares with the actual present-day temperatures.

As you can see, the aspartic acid age for SU-2 is slightly older than the age you estimated, but our age should be considered fairly approximate because of the small D/L ratio which was measured. It will be interesting to see how our age for HU-3 compares with your estimated age.

I'll be anxiously awaiting your reply.

Sincerely,

Jeffrey L. Bada
 Jeffrey L. Bada