

**MARINE RESOURCES RESEARCH INSTITUTE
RADIOCARBON DATES I***

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In January 1975 a radiocarbon dating laboratory was established at the Marine Resources Research Institute for geochemical and geologic studies. A liquid scintillation system is employed according to the method of Noakes, Kim, and Akers (1967). A Searle (Nuclear Chicago) Isocap 300 liquid scintillation counter is currently being used for counting. This system is a duplicate of the one formerly used at Texas A & M University except for the counter (Mathews *et al*, 1972).

Yields have been ca 70% over-all, using a V₂O₅-alumina catalyst with activation of 300°C for 2 hours *in vacuo*. The activation procedure of Coleman *et al* (1972) was initiated in an effort to improve yields, but maximum yield to date is still < 80%. Experimentation in activating the catalyst was undertaken in an effort to obtain higher yields.

Ages are calculated using a half-life of 5570 years for ¹⁴C with NBS oxalic acid as a reference standard. All samples are calculated to ± 1σ with respect to sample, standard, and background after counting times of at least 2000 minutes. Since no mass spectrometer is presently available, all δ¹³C values are estimated, *ie*, 0‰ for carbonate samples and -25‰ for wood and plant material (Sackett *et al*, 1968). All ages were calculated using the equation of Williams, Oeschger, and Kinney (1969).

Initial work was conducted at an archaeological site at de Bordieu Beach, N of Georgetown, South Carolina. The preliminary archaeological survey of the area indicated that one surface portion of the site was occupied for ca 300 years (R Engelmayer, pers commun). The object of this study was to determine whether *Crassostrea virginica* shells are as reliable as *Mercenaria* sp shells for dating purposes, using this relatively narrow archaeological time frame for a reference. Due to the paucity of unrecrystallized shells of either species, however, it was not possible to ascertain conclusively that *C virginica* shells are unreliable, although they did tend to give younger ages than *Mercenaria* sp shells from the same stratum. Additional archaeological sites were chosen to help clarify the point.

ACKNOWLEDGMENTS

Field work was conducted with the help of F W Stapor, Jr and R Engelmayer through the cooperation of Wallace Pate, de Bordieu Beach Colony.

SAMPLE DESCRIPTIONS

All samples in this series were either oyster or clam shells obtained from de Bordieu Beach, South Carolina (32° 24' N, 79° 10' W) at an excavation conducted by R Engelmayer, Anthropol Dept, Univ South

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Carolina Coastal Campus, Conway. Each sample was visually inspected in the field for signs of recrystallization. Up to 50% of each shell was acid etched to eliminate possible contamination.

de Bordieu Beach Object 1A

Uppermost 23cm sandy soil overlying sterile sand. *Comment* (RE): occupation at site from AD 500 to 800 based on pottery and projectile types.

MRRI-5.	Shell (<i>Mercenaria</i> sp).	1230 ± 60 AD 720
MRRI-10.	Two shells (<i>C virginica</i>).	1050 ± 180 AD 900
MRRI-13.	Two shells (<i>C virginica</i>).	780 ± 140 AD 1170
MRRI-14.	Shell (<i>Mercenaria</i> sp).	1310 ± 170 AD 640
MRRI-15.	Replicate of MRRI-13.	910 ± 180 AD 1040
MRRI-16.	Shell (<i>Mercenaria</i> sp).	1600 ± 130 AD 350

de Bordieu Beach Object 2A

Adjacent to Object 1A ca 16m N, sandy soil, 10cm maximum depth. *Comment* (RE): site occupied from 300 BC to AD 800 based on pottery types.

MRRI-17.	Shell (<i>C virginica</i>).	690 ± 150 AD 1260
MRRI-18.	Shell (<i>Mercenaria</i> sp).	620 ± 150 AD 1330
MRRI-19.	Shell (<i>C virginica</i>).	850 ± 150 AD 1100
MRRI-20.	Shell (<i>Mercenaria</i> sp).	850 ± 160 AD 1100
MRRI-21.	Shell (<i>Mercenaria</i> sp).	1100 ± 170 AD 850
MRRI-22.	Shell (<i>Mercenaria</i> sp).	1500 ± 230 AD 450

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