

Landing. This, however, is a rare form limited in its range to the Cape Fear and west Florida. The much more widespread horizon-markers of the Miocene—*Ecphora quadricostata* and *Fulgur maximum* var. *incile*, both of which occur in Duplin County, have not been reported from the Waccamaw. *Pyrula papyratia*, a typical Caloosahatchie form, is not uncommon in the marl at Neill's Eddy Landing. *Caecum*, a genus which first appears in the Yorktown, is represented by three species—*floridanum*, previously reported from the Duplin beds, the Caloosahatchie Pliocene, and the Recent *cooperi* from the Cape Fear River, the Pliocene of Shell Creek, and the Recent; and *carolinianum* from the Caloosahatchie. *Dentalium attenuatum*, so abundant throughout the Miocene formation, seems to have disappeared. A large number of minute forms have been determined which have not previously been reported from below the Pliocene. They do not, however, furnish reliable criteria for correlation, since they would be overlooked in any but the most detailed examination of a fauna. The determinations are not sufficiently advanced at present to warrant a computation of the percentages of recent forms occurring in the Waccamaw along the Cape Fear, but it is confidently expected that more complete investigations will bear further testimony to the Pliocene age of the beds.

"The paleontologic evidence for assigning the Waccamaw beds to the basal Pliocene is equally convincing. The fauna represents an early Pliocene facies in which a few of the more stable Miocene forms have survived in greatly diminished numbers, while many of the species which are to become prominent in the later Pliocene, such as the *Arca rustica* and *A. scalarina*, are only just beginning to make their appearance. While it may seem to be a mixed fauna, this is more obvious in the lists than in the collections, for in the former all species are equally prominent, while in the latter the forms suggestive of the Miocene and of the middle and upper Pliocene are inconspicuous elements.

"The Waccamaw River beds of South Carolina were some years ago tentatively correlated by Dr. William H. Dall of the Smithsonian Institution with the Caloosahatchie marls, the accepted standard of comparison for the east coast Marine Pliocene. The Waccamaw was at that time supposed to represent a cooler-water fauna than the Caloosahatchie, and by this hypothesis their rather striking dissimilarity was explained. From Dr. Dall's work published in Bulletin 37 of the U. S. National Museum and from later unpublished data generously loaned to the writer, it appears that fully 94% of the Waccamaw species represented in the Recent seas are living south of the Hatteras axis. This would indicate that the Waccamaw fauna is distinctly subtropical in character and that the difference in the general facies is due to a range, not in latitude, but in time.

"The correlation of the North Carolina Waccamaw with that of South Carolina is based largely on the similarity of the fauna from the Cape Fear River localities to that from Tilley's Lake, Waccamaw River, the only undoubted Waccamaw material which has been convenient for consultation. The two faunas are not, however, identical, the former being the more profuse and diversified.

"Conditions along the Cape Fear at the advent of the Pliocene seem to have been unusually favorable for the development both of the individual and the species. *Pecten eboreus* attained an altitude of 136 mm. and an equal longitude