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FIGURE 1—The new field station of the Laboratory located near Wachapreague where mussel studies are centered. (*Photograph by the Va. Chamber of Commerce*).

Ribbed Mussels

Virginia's ribbed mussels have been used commercially since 1940 as the main source of vitamin D used in the manufacture of poultry food. Vitamin shortages arising from the war have given this particular source a special significance. To assure maintenance of the mussel beds and an adequate supply for the future, it became necessary to explore: (1), the effect of digging operations on the future productivity of the beds; (2), the available supply in Tidewater; and (3), ways, if any, by which the producing capacity of an acre of mussel bed may be increased and, if so, by how much.

Field studies on the life habits of the early developmental stages of the mussel and on its growth were undertaken by Dr. J. H. Lochhead and later continued by Dr. George M. Moore. Early in 1942, new experimental areas were selected at Carmine's Island in the York River and at Wachapreague, Virginia, where 80 acres of undisturbed marsh were leased. Here, a field station was established and a cultural program developed (figure 1). Various types of culch that proved successful on an experimental scale include rope mops, cemented pine cones, corn cobs and corn stalks. During the 1943 season, semi-commercial experiments are in progress using certain of those items of "culch" that have been found to be best. This work is being conducted at Wachapreague, King's Creek (near Cape Charles) and Carmine's Island.

Culturing mussels through the use of clumps of small individuals as transplants has proven to have good possibilities. One obstacle to this cultural method lies in the predatory action of blue crabs. Proper imbedding of the transplants and selecting a favorable time for planting when crabs are inactive are aspects of the problem now receiving attention.

Growth studies of the mussel for a period of over two years indicate that it grows slowly, in comparison with the oyster, reaching a length of 3 inches in about 3 years, and 4 inches in from 6 to 8 years. In marshes of comparable level and softness, there is no significant variation in growth rate at various widely separate points throughout Tidewater.

The effect of digging on the subsequent condition of the "tump" has been considered. While commercial digging results in some damage to the "tumps," generally a core of smaller

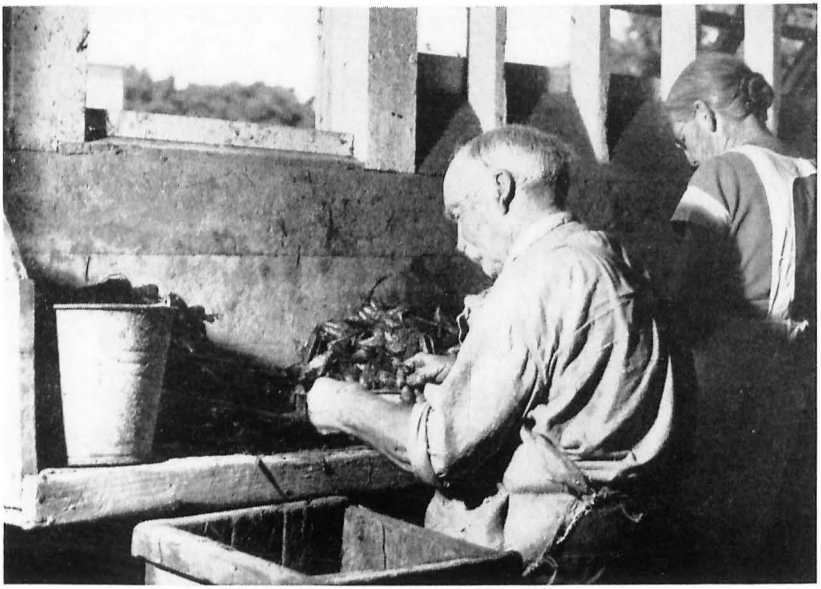

FIGURE 7—Scene at a mussel shucking house on the seaside of Virginia. (*Photograph by the Va. Chamber of Commerce*).

mussels remains. Also, there are numerous small patches and clumps of mussels left by the diggers. It appears likely, therefore, that digging operations will not permanently destroy the mussel population although it may reduce it to a point at which a number of years would be required for its recovery to normal productivity. A second point, bearing on recovery of the mussel marshes to commercial proportions, is the question of rate of natural propagation. "Strike" of mussel larvae during 1941 and 1942 in all the "tump" bearing marshes examined has not been heavy enough to suggest even a reasonably rapid recovery. But, the possibility that there are "heavy strike" years and that 1941 and 1942 were "lean" years must not be ruled out. Again, the slow rate of growth of the individual mussels and, too, the even slower rate of growth and recovery of a "tump formation" strongly suggest that cultural operations will soon be required if Virginia is to maintain a currently large, stable fishery (figure 7).