

126.—REPORT RESPECTING THE PRESENT CONDITION AND FUTURE PROSPECTS AT SAINT JEROME CREEK FOR THE WORK OF OYSTER CULTURE.

By JOHN A. RYDER.

I have the honor to report that, in my opinion, the place is eminently well fitted for the purpose of oyster experiments since the recent improvements there have been made, and, that with sundry minor improvements, it can be made to offer still greater advantages. These will be discussed in another part of this communication.

I have, as requested, instructed Mr. Ravenel in the art of taking oyster spawn successfully, and have also indicated the lines of experiment which I thought it desirable to follow in the administration of the work to be there conducted, as follows:

1. Artificial rearing from artificially fertilized eggs in some of the smaller inclosures now prepared.
2. The introduction of collectors of various forms into the ponds and open waters under the jurisdiction of the United States Fish Commission.

The collectors which I have recommended are the following:

1. Shells strewn upon the bottom.
2. Tiles, slates, bricks, &c., coated with lime, and then with cement.
3. Oyster shells strung upon wire and suspended from stakes.
4. Brush or faggots fastened about the margins of the ponds.

I have suggested sundry variations in the use of these devices which I have very fully explained to Mr. Ravenel, and I think he will make an effort to do his best to get favorable results.

The following suggestions I would respectfully submit, in the hope that a sufficient appropriation may be granted by the present Congress to carry out improvements which are still desirable, as follows:

The original pond, as it was when the Commission first obtained possession, is still in large part too deeply covered with mud over the bottom to be available in order to obtain the best results in oyster culture. I would therefore suggest that this portion of the property be dredged out during the coming winter in order to deepen this water-right considerably as well as to extend its area where the shores are marshy. This is now the more necessary since the canal has been cut from the creek to the original pond, as a consequence of which the rise and fall of the tide is so much greater that the water is too low at low water to rear and fatten oysters advantageously in this portion of the domain.

The ponds which have been excavated by Mr. Ravenel seem to be suitable for the work, and can be used in their present state for experiments in artificial impregnation and rearing.

The larger ponds which have been inclosed by the work of the dredgers are well suited for planting oysters, since those seen by the writer

had made a good growth during the present season. The bottom of these ponds also needs to be excavated in certain places in order to make them deeper and available for planting purposes. The bottom over almost the entire extent of these ponds is hard enough to support the planted oysters, so that no further preparation is needed in them than some slight excavating, which I think might be done at low tide with a scoop and a pair of horses or oxen.

The open grounds, or those not yet inclosed but which open to the creek, are also valuable, since there is an "oyster bar" on this part of the property which could be worked to advantage for supplies of seed oysters in "shelling" and ordinary planting, besides which it might be considerably extended by judiciously directed efforts.

The many desirable features which now unite in Saint Jerome's Creek Station as an experimental establishment would render it now in the highest degree impolitic to abandon the place, especially in view of the large expense already incurred in its equipment and the really valuable improvements which have resulted from that expenditure.

The fact that oyster spat could be taken at Saint Jerome's has been abundantly proven, as shown by my results in 1880; and I doubt if any other place on the Chesapeake offers advantages which in reality surpass those now existing at this station.

The work now to be done is of that character which will enlist the sympathy and interest of the oystermen of the vicinity. We have it in our power to do considerable this season towards demonstrating that the culture of oysters can be so greatly improved by simple and rational methods that the ordinary cultivator may safely undertake the work.

The cultivation of "cove" oysters must also be insisted upon, and inasmuch as Saint Jerome's really fulfills the conditions ordinarily found in the best "coves," the extension of that form of the oyster industry may be greatly aided at this station; since it is well known to dealers that such oysters are more valuable in the markets, and better in every way, it will be our province to show how this kind of work may be increased, as I have already shown why such is the case in former reports.

Altogether, I therefore report favorably to you of the station and its future, though I am not unmindful of the fact that it may happen that the effort to make improvements during the summer may cripple the experimental work; so that I would suggest that the experiments in culture and spat collecting be pushed with unremitting vigor from the 25th or latter part of June to the 1st of September next, so as to obtain as large a showing of valuable data as possible, and, if possible, not to permit any other work to interfere with the obtainment of tangible results.

The entire bottom of the canal, 5 to 6 feet in depth, is also available for cultural experiments to test the effects of currents in fattening and

growth. Observations which I have made from time to time have shown me that oysters grow as rapidly at Saint Jerome's Creek as at any place in the bay, and that they are exceptionally "fat" and "large in the flesh" early in the season, and that they are possibly on that account more prolific than the oysters from the open waters, which get less food than those in the waters of this creek, where the choicest food of the oyster is to a large extent held in by the partially land locked condition prevailing, while this food is generated much more rapidly in such places on account of the more effective action of the sun's rays in warming the shallow confined waters.

WASHINGTON, D. C., June 17, 1884.

127.—ON THE OCCURRENCE OF CORALS ON THE GRAND BANKS.

By Capt. J. W. COLLINS.

Relative to the occurrence of corals on the slopes of the outer fishing-banks, I beg to say that the place of greatest abundance—of the *Primnoa reseda* more particularly—is on the eastern slope of Banquereau, in from 150 to 200 fathoms or more, and latitude $44^{\circ} 28'$ N. This "spot," which is several miles in extent—the latitude given marks about its center—is covered to such an extent with a coral growth that it seldom happens that trawl-lines set on it are all recovered. The fishermen have learned to avoid the place somewhat, and they have given it the name of "The Stone Fence." Stones of considerable size (as large as the fishing lines will lift) are not infrequently pulled up, and it is possible that a proper investigation of this locality might result in securing some rocks containing interesting fossils.

On what is called the "Middle Prong" of Banquereau, in $44^{\circ} 13'$ north latitude and $58^{\circ} 02'$ west longitude, in from 250 to 350 fathoms of water, I found considerable many corals in July, 1879, and among others several specimens of the gold-banded coral, the latter being more plentiful than I have seen it elsewhere. This place is small, however, not more than three-fourths of a mile in diameter, and would probably be somewhat difficult to find, unless the weather was fine and clear.

Referring to the last-mentioned locality, I find the following in my journal, under date of July 30, 1879, the vessel then being anchored in 205 fathoms, latitude $44^{\circ} 14'$ north, longitude $58^{\circ} 03'$ west: "Four of our trawls were on the 'Spot,' which bears about southeast by east from the vessel, and is about two-thirds of a mile distant, to its nearest edge. It is about three-fourths of a mile in diameter; the bottom, 'catchy,' having a growth of corals of various kinds, including the following varieties: Gold-band coral (*Keratoisis ornata*), great tree coral (*Pavogorgia*), bush coral (*Acanella normani*), and tree coral (*Primnoa reseda*)."

WASHINGTON, D. C., June 6, 1884.