XVI.—LETTERS REFERRING TO THE PRESENCE OF SHAD IN THE RIVERS TRIBUTARY TO THE GULF OF MEXICO.

GREENVILLE, ALA., *April* 11, 1872.

DEAR SIR: Your favor of the 4th instant to hand, and in reply state that the white shad are caught in Pea River, at Elba, Coffee County, Alabama. They commence catching them in fall traps about the 15th of March, up to the 1st of May. They commenced running in that stream about the year 1864, in small quantities, increasing in size and quantities every season. They also catch the hickory and gizzard shad, which are easily distinguished from the white, in size, flavor, and shape. The white shad's mouth comes together even, and is white. They are thicker and broader, have a dark streak on each side of the backbone after cutting open, and have a different flavor from any other fish, while the hickory shad's under lip is larger than the upper, and is black and extremely bony, and they taste entirely different from the white shad. Mr. John P. Reynolds, of this city, who was raised at Macon, Ga., and dealt in Savannah shad, was at Elba last week, and says they were then catching the genuine white shad.

Hoping that you may be able to stock the southern waters with them, and having no doubt that it can be done,

I am yours, respectfully,

JNO. T. KNIGHT.

MR. W. P. YONGE,
Spring Villa, Ala.

P. S.—The above statement is correct.

JNO. P. REYNOLDS.

YONGESBOROUGH, ALA., *April* 15, 1872.

DEAR SIR: By request of Col. W. Penn Yonge, I address you in regard to the breeding and stocking of the southern waters with white shad and herring.

Several years' residence in South Alabama and Florida gave me opportunities of noticing the characteristics of many of the numerous streams giving their waters to the Gulf. I have fished, and hunted the deer, on the Conecuh and its tributaries, the Big and Little Escambias. Tide-water flows as high up as the Molino Mills, twenty-five miles above Pensacola, by railroad, giving at least seventy-five miles from the mouth of Escambia Bay, to the highest flow. I think I can safely say there are no streams on the continent better adapted for the introduction and reproduction of the shad and herring from the Atlantic. These waters

are pure, the bottom sandy and pebbly, affording ample and the best of spawning-grounds. The Alabama, Tombigbee, and Bigby, penetrating the northern limit of the State, are equally as well adapted for the purpose as any streams in the South.

For its central location, its proximity and facilities of transportation to the waters of Georgia, Alabama, and Mississippi, point to Colonel Yonge's place, Spring Villa, as the southern fish nursery.

I have seen a letter from J. T. Knight, of Greenville, Butler County, Alabama, stating that the genuine white shad has been taken out of Pea River, a tributary of the Conecuh. At Elba, Coffee County, Ala., Mr. W. R. Thugan says he has taken a few white shad at his mill this season, nine miles from Greenville, out of Pigeon Creek, another tributary of the Conecuh. Mr. J. P. Reynolds, a resident of Greenville, who was raised in Macon, Ga., and an old fish-dealer, on a recent visit to Alabama, saw the shad that was taken out of Pea River, and pronounced them the genuine white shad. If the above be a true statement, which I do not doubt, it is no longer an experiment, but a fact, that the shad can be introduced into the southern waters.

We are too poor to make it an individual enterprise. We want help.

Yours, most respectfully,

ISAAC W. POLLARD.

Hon. W. A. HANDLEY,
Washington City, D. C.

HOT SPRINGS, ARK., *August* 13, 1872.

DEAR SIR: In reply to the query contained in your letter just received, I have to reply that shad are caught in the Ouachita River, Hot Springs County, Arkansas. Ye lovers of choice fish; ye epicureans of Roman taste; just contemplate a fine, fat, delicate broiled, or a selected white shad, (*Alosa præstabilis,*) nicely "planked," served up for your breakfast, dinner, or at a picnic lunch, fresh from the pure, cool, bright waters of the Ouachita. Yes, we have annually a supply of shad, in April and May, found in this stream, near its mountain source, over one thousand miles from the mouth of the Mississippi River. They are caught in a trap constructed of boards, just below the dam. This dam is the first mechanical or physical barrier found on the Ouachita. It was built by the late William Farr, to supply water for a saw, grist, and carding mill erected in 1858.

The fish-trap was securely fastened to the bowlders and bed-rocks, in 1860, in effort to supply the Hot Springs market daily with fresh fish. After a spring-rain and a good rise in the water, we found, (April, 1861,) among a lot of black bass, salmon-trout, red horse, drum, and goggle-eyed perch, five fine large shad secured in the trap. Being familiar with the fish, I secured the lot and encouraged the attendants to save me all of

the "strange fish" that they caught. Every year since the trap was erected shad have been caught. This year we had a large increase; the first of the season was brought in April 5, and the heavy rains offered advantages for trapping. Shad continued running until May 12, 1872. Wagon-loads of them were brought to the springs during the season. I send you a photograph of one that measured 20¾ inches in length. I regret that it was not more artistically portrayed. I have partaken of shad caught in all the waters of the eastern States, or the rivers emptying into the Atlantic, from the Kennebec to the Savannah Rivers, but never enjoyed a finer-flavored or more delicious shad than those found in our waters. The river-bed, from the natural (novaculite) rocky abutment that partly crosses the Ouachita River, at Rockport, for a distance of some fifty miles above, is generally rocky, with several rapids, formed of metamorphic rocks, between that point and Farr's Dam. This rocky river-bed contains good, fresh, pure living water, that is mostly supplied from spring rivulets and mountains streams. After heavy or continuous rains, the main stream sometimes rises very high, frequently twenty to twenty-five feet in a few days. The Ouachita, (pronounced Oo-che-taw, generally Wash-e-taw,) is an Indian name signifying *male deer*, called thus in consequence of the famous hunting-grounds afforded in the mountain section of its source. It was, according to the old chart, published in 1784, called Ox River, but now it is known only by the name given to it by the aborigines. It rises in the western boundary of the State, between 34° and 35° north latitude, drains a fertile section of Arkansas and Lousiana; it empties into Black River; Black River into Red River; Red River into the Mississippi River, all between 31° and 32° north latitude.

In an article contributed to the "Turf, Field, and Farm," in 1869, I called the attention of ichthyologists to the fact that "white shad" existed in the Ouachita River. I feel that naturalists are not well versed or familiar with the true habits of the shad. I believe that shad can be found, at certain seasons, in most of the principal rivers on our eastern margin of the American continent, from the Saint Lawrence to the Rio Grande Rivers. Young shad, eleven inches long, were caught in the trap at Farr's Dam in November, 1871. I feel fully satisfied that this variety of fish is yearly becoming more abundant in the Ouachita River.

On the authority of Capt. Charles B. Church, of Memphis, Tenn., I will inform you of a little circumstance doubtless of interest to you. It is a matter of record, he states, that two fine large "white shad" were taken in 1834 or 1835 at the falls on the Ohio River, between New Albany, Ind., and Louisville, Ky. These falls are about one thousand four hundred miles from the mouth of the Mississippi River.

I have the honor to be yours, respectfully,

GEORGE W. LAWRENCE, M. D.

Hon. SPENCER F. BAIRD,

United States Commissioner Fish and Fisheries, Eastport, Me.

FORT SNELLING, MINN., *December* 26, 1872.

Your two letters of recent date came to hand in due season.

In your first letter you wish me to state as near as possible the date at which the fish in question were observed by me. It was during 1856 or '57, in May, I think about the middle of the month, as it was after the corn-planting of the farmers, and during the spring of the year in which our State legislature passed an enactment to prevent the taking of fishes with the seine, which of course thereafter prevented the presence of the fish from ever becoming generally known throughout the community. Since 1861, I have only been a visitor at Mount Carmel twice. Because of the prohibition of seining it is more than probable that the fact that the true shad ever has been, or is now, a visitor of Wabash River, is only known to a very limited number. The four I saw taken in the Neosho River were caught about the middle of May; one bit at a hook, another was accidentally hooked in the abdomen by my wife, and two others were secured by some seiners; and all were seen by me in 1871.

Then, again, if some fortunate individual should in some future time take some of the trout from Neosho River, it would not surprise me, for during the winter and spring of 1871 I procured from Livingston Stone some 1,200 trout-spawn, and hatched quite a number of them, and turned them into a spring branch, (emptying into Neosho River,) about one hundred yards from its mouth.

I am respectfully, yours,

WILL E. TURNER, M. D.,
Acting Assistant Surgeon, U. S. A., Fort Snelling, Minn.

SPENCER F. BAIRD,
Washington, D. C.

P. S.—By referring to Illinois State laws against seining fishes in the State, the exact date can be determined.

UNITED STATES ENGINEER'S OFFICE,
Mobile, Ala., February 26, 1873.

DEAR SIR: Your letter dated January 29 was received this morning, having been delayed many days in Georgia.

On our survey of Flint River, I made many inquiries in regard to the existence of the shad, but failed to establish any satisfactory evidence of their ever having appeared in its waters. Many of those from whom I sought information were fishermen who had been raised upon the coast of the Carolinas, and were perfectly familiar with the fish and the time of their appearance. They all said that none had ever been seen or caught by them.

The river has no obstructions, even at extreme low water, preventing their movements up or down. The river is a series of pools of comparatively deep water, discharging over gentle rapids formed by strata of

soft limestone, crossing the river at an angle of about thirty degrese with its direction. I found no difficulty in ascending these rapids at all times in the boats used upon the survey. On the banks of the river, from Albany down, are numerous large springs—some are 25 to 50 feet in depth. They actually swarm with fish—black bass, rock fish, perch, bream, &c. The water being perfectly transparent, every movement of the fish, and their species, are easily distinguished. All these springs have open outlets into Flint, and are just a little above the low-water surface of the river. To give you an idea of the large spring near Albany, it was discharging a volume of water 60 feet wide, 4 feet deep, mean velocity about 3½ feet per second. There are also numerous subterraneous streams emptying into the Flint.

I do not know to what cause to attribute the absence of the shad. Every portion of the river seems favorable for their propagation, and its large springs and tributaries safe depositories for their spawn. The waters of its tributaries, the Cookewahee, Kiokee, Nochway, and Spring Creek, are clear and deep, but highly impregnated with lime, so much so as to make the water unfit for use, but the impurities become completely neutralized by mixing with the Flint.

Very truly, your obedient servant,

HOLMES A. PATTISON.