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SOME BRIEF REMINISCENCES OF THE EARLY DAYS OF FISH-CULTURE IN THE UNITED STATES.

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About a third of a century ago a strange story began to be spread abroad in this country that a man in western New York was hatching trout eggs—thousands upon thousands—and that he was rearing the fish and feeding them in ponds, and that there was literally no end to the number of fish he could hatch. The story naturally made a decided sensation throughout the country, but of all the people who heard the story there were very few at first who believed it. The present age of almost daily recurring marvels had hardly begun then, and people were more incredulous and slower to accept apparent miracles than they are now; and then again, the country being in the throes of civil war at the time, it followed that discoveries in peaceful arts did not attract the attention that they would have done in quieter times. But the story about the man who was hatching thousands upon thousands of trout steadily gained ground. Presently the great New York dailies took it up, and soon after it came to be an accepted fact that something very wonderful was certainly being done by this New York trout-hatcher.

In the meantime the man himself, quietly working away in Caledonia, had succeeded in actually proving beyond a doubt that the hatching of trout on an immense scale—not as an experiment, but as a practical industry—was within the easy reach of human skill. It was the first time that this had been accomplished. Amateur and scientific experiments on a small scale had been made by various persons at various times, and the method of hatching fish artificially had been known for a century, but it remained for Seth Green to introduce into America the hatching of fish as a practical and valuable industry, and to him belong the credit and the honor of opening the way to the vast practical work that has since been accomplished in this country in hatching and rearing fish, and to him eminently belongs the title, justly earned, of the “father of American fish-culture.”

A year or two after Seth Green had inaugurated American fish-culture at Caledonia, the writer established the Cold Spring trout ponds at Charlestown, New Hampshire, but strange to say, up to this time, although Seth Green's operations in New York had been so fascinating and so promising, no one else in this country had taken up the breeding of trout at which he had been so successful.

The time, however, was now ripe for the spread of trout-culture, and very soon after the establishment of the Cold Spring trout ponds trout breeding places sprang up in all directions. Raising trout suddenly became fashionable and popular. During the first two years of his trout breeding experience the writer received letters from almost every State in the Union, written by persons actually engaged in, or more

or less interested in trout-culture. The interest in trout-breeding became universal, and everything written about it was eagerly read by all who were interested in fish at all. These were the palmy days of trout-breeding in this country. Prices were high. Trout eggs brought \$10 per 1,000 and young trout fry \$40 per 1,000. Trout large enough for the table brought \$1 a pound at the ponds, and the city hotels paid 75 cents a pound for regular weekly consignments. There was a large demand for trout eggs and a fair demand for young fry and for trout for the table. Trout-breeding prospered, and with it all there was a novelty about the work which had not then had time to wear off, and the business of trout-breeding, for it had now become a legitimate business, came to be a pleasant, prosperous, and profitable occupation.

It would be interesting to describe more minutely the rise and decline of private trout-culture in the United States—for, alas! the decline came only too soon—but that would not come within the scope of this paper. Suffice it to say that competition soon brought prices of eggs and fry down too low to make the business profitable generally, and the market price for table trout falling at the same time, many who engaged in the business fell out for want of sufficient pecuniary encouragement, while others who raised trout for the enjoyment of it gave it up because of the many risks and difficulties which stood in the way of success.

It is a fact worth recording, and one that seems very strange in the light of present events, that while so many at first went to raising trout, no one seemed to even think that it was worth while to hatch any other kind of fish; and it is also a fact worth noticing that if artificial fish-culture had been confined to the raising of trout, as it was the first three years of its career in this country, the vast and beneficent work that is being done at present would have been unknown.

It again remained for the bold and adventurous spirit of Seth Green, with his far-reaching vision, to enter the larger and more important field of hatching fish that had a standard commercial value. Everyone knows of his attempts, his failures, and his final success in hatching shad. These efforts of Green, in demonstrating that other and more valuable fish could be hatched as easily as trout, did indeed open up a field for fish-culture so vast and beneficial to mankind that the previous trout-cultural work shrank into insignificance beside it. Thus it was that Seth Green earned a second time his claim to the title of "father of American fish-culture." All the present magnificent work of our State fish commissions and the United States Fish Commission owes its origin to Seth Green's shad-hatchery on the Connecticut in 1867.

In 1868 the writer, in connection with Mr. Joseph Goodfellow, erected a salmon-breeding station on the Miramichi River, in New Brunswick. This was on a large scale and was the first effort at systematic, practical salmon-breeding in America. As illustrating the high prices for fish eggs that prevailed then, I may mention that the writer received over \$1,000 for a good-sized water-pail of salmon eggs from the Miramichi in 1869. This station would have been a valuable source of supply for salmon eggs had not public sentiment in Canada been so strong against exporting Canadian salmon eggs to the United States that the enterprise had to be abandoned; but the Canadian government took it up soon afterwards and sold salmon eggs to this country for the enormous price of \$45 per 1,000, or nearly \$1,000 per gallon.

I must not forget to mention, as among the most important events of the early days of fish-culture in this country, that the State of New Hampshire, with singular foresight, established a fish commission in 1864, the same year that Seth Green began

operations in Caledonia. New Hampshire was soon followed by Massachusetts and other States, and in 1871 the United States Commission of Fish and Fisheries, through the efforts of Prof. Spencer F. Baird, was created by Congress, and the same year, also, the American Fish-Culturists' Association was formed, now the American Fisheries Society. By this time there were also innumerable trout-culturists in the field, and fish-culture in the United States may be said to have passed the days of its infancy and to be fairly on its feet.

In looking back over those early years and contrasting them with the present, when such an immense mass of information is available, one is forcibly struck by the almost universal ignorance on the subject that prevailed at that time. This was true not only of people generally, but of well informed men also, for even scientists who rightly deserved the name, and university graduates and accomplished scholars who prided themselves on the variety of their knowledge, and reading men who kept up with the magazines and newspapers, could tell you nothing of this new art of fish-culture. Yet this was not so very surprising, for books had not then been published in this country on the subject, magazine articles about it had not appeared, cyclopedias did not contain the information, or at most only the merest outlines of it, and unless one happened to come across the not easily-accessible reports of specialists there was no avenue open to the public by which more than a superficial knowledge of the subject could be reached. People generally were so utterly ignorant indeed of the whole subject that almost any story told about fish eggs would pass unchallenged. How different from the present day, when the minute fish life of the very bottom of the oceans is closely and thoroughly studied, and the fish food furnished by the microscopic life of the fresh-water lakes is measured and classified.

To go back in memory to those early days is not only to enter the enchantment that distance brings, but it is also to return to what was a real enchantment then. It seems as if we should never feel again—I know I am expressing the feelings of all the early experimenters in hatching fish—it seems as if we should never feel again, and we probably never shall feel again the thrill of excitement that tingled to our fingers' ends when we first saw the little black speck in the unhatched embryo, which told us that our egg was *alive*. It was one of the dearest sights on earth to us then. And when the first little trout emerged from his shell and wriggled in the water, why were we so excited and elated? Was it because we unconsciously felt that we were sharing with others in a great discovery? Was it because that little fish opened up to us a new world of promise, and because we had a dim vision of the countless multitudes of living creatures that this little embryo was the insignificant forerunner of? I suppose it was something of the sort, and now after those long years have passed and we coldly watch under a microscope, with half-scientific interest, the development of this little black speck, named by scientists the "choroid pigment," but which will always be dear to us as the "eye-spot," we can hardly believe that such a commonplace, matter-of-fact affair could ever have stirred our feelings and our imagination as it did once, when the sight and the sensation were both new, and the world of promise before us was untried and unknown.

Recalling those early years, two figures stand out in memory more prominently than all others. One is the figure of a strong-featured, broad-browed man, of a rugged frame and a rugged countenance. He had the bearing and the look of a man who thought no struggle too severe for him and no foe too formidable. He looks the strong man that he is. He is of the Zachary Taylor "rough-and-ready" type, but withal he

has a hearty and genial manner, and a frank and honest nature looks out of eyes that show that no shallow mind lies behind them. Every fish-culturist knows whom I mean. I had previously visited Seth Green at his home in Caledonia, but it was not till I met and assisted him at Holyoke, in 1867, that his strong personality impressed itself on me. He was there conducting his first experiments in hatching shad. He was entirely alone when I visited him, and his first attempts at hatching shad had just ended in signal failure. The peculiar character of the eggs and the peculiar treatment required for them had baffled for a time even his keen-sighted genius, and he had in despair almost decided to give it up and return home. The fishermen he had hired to help him were laughing at him for what they called his "foolishness." But, although alone and depressed in spirits, and with no one to offer a word of encouragement, Seth Green kept on and, with dogged persistence and determination, fought and overcame one difficulty after another, as they met him, until at last he was rewarded, as the world knows, with overwhelming success. Perhaps I may be allowed to add that a warm friendship sprang up about this time between Seth Green and the writer, which continued to the day of the former's death.

It was a pleasant thing to see the change in Green's spirits that came with his first success in hatching shad. It seemed a little thing—nothing but some little delicate living embryos appearing in the frail eggs that he was working over. Little it was, but it was the herald of almost illimitable possibilities, which perhaps the man himself did not fully realize. But however that may be, it restored his spirits and made him almost instantly a changed man.

The writer once asked Gen. Phil. Sheridan what was the most thrilling moment of his career during the war of the rebellion. General Sheridan answered laconically, "When the tide turned at the battle of Winchester." I think that perhaps Seth Green's feelings at Holyoke, when his first shad eggs showed signs of life, might have been somewhat similar. He was attempting what no one else had ever thought of accomplishing and vast results were depending on his efforts. The eyes of all the fish-cultural world were on him. Thus far he had failed. He was for the time being defeated. Then the tide suddenly turned, and almost literally in a moment the whole thing was changed and he was victorious in a great battle, the far-reaching results of which will doubtless survive even the great nation that Sheridan fought for.

Green's strong traits of character were not the only things about him that called attention to the man, for united with these were a sound judgment and many rare gifts of genius. He had the happy faculty of seeing and fixing his mind on the one essential point to be attained, to the exclusion of everything else, and he had the fine discrimination which enables one to retain all the means necessary to accomplish his object and to eliminate all others. This enabled him to reduce his inventions and methods to the utmost simplicity without impairing their efficiency—the sure sign of genius. Green's famous shad-hatching box, than which nothing more simple and effective has ever been invented for the hatching of fish, is a good illustration of this genius, and his world-renowned skill at fly-casting, rifle-shooting, and fish-catching are only further illustrations of the same thing. I regret that time and space forbid my giving anything more than this very imperfect sketch of this remarkable man, but I must hasten on.

The other figure which stands out prominently in my memory, as I recall the early days of American fish-culture, is that of one who has been called a plain man. He was a plain man, indeed, but one who was made after nature's largest pattern of

men. He was large in mental caliber and large in physical frame; large in his broad sympathies and in his wide scope of vision; large in his comprehensive grasp of great aims and large in his capacity for great undertakings; large in everything, but small in nothing. You at once, I know, recognize Spencer F. Baird, the first United States Commissioner of Fish and Fisheries.

The mere mention of his name strikes a chord of dear memories in the hearts of all who knew him. No man of our time has left a purer memory, a more stainless name, or a more animating and enduring influence over his special field of labor than Professor Baird. He was loved by those who knew him when he was living. He is revered by those who have survived him. He lived in a higher plane of thought and life and breathed a purer atmosphere than most men. Quiet and unassuming, with a nature as gentle as a child's, his natural superiority never failed to show itself when he was with other men, not even among the distinguished men who gather in the winter at the nation's capital. Yet he was thoughtful and considerate of his subordinates and always ready to give its meed of praise to any work well done by his humblest employee.

Professor Baird had the enviable gift of not only endearing to him all who came in contact with him, but of inspiring them with his own enthusiasm and energy. This made Congressmen vote all the appropriations that he asked for, for it was a common saying at Washington that Congress always gave him everything that he wanted. Like a good general, he had the personal welfare of his men at heart while he was Fish Commissioner, and they in turn wanted to do everything in their power for him, which, doubtless, was one of the secrets of his great success. It is a fact that his employees in the Fish Commission would voluntarily work a great deal harder for him than they would for themselves. It was the inspiration of this patient, disinterested, tireless, kind-hearted, and lovable man that made them work so well and also made that work a pleasure.

It is unnecessary to say that Professor Baird possessed extraordinary mental endowments, but I may perhaps mention one or two, as they are so rare. He had a quickness of apprehension that sometimes seemed almost supernatural. For instance, he would glance down along a printed page and comprehend in a moment what would take others several minutes to read. He had a marvelous memory, not only retentive of everything intrusted to it, but quick to call up anything that was wanted when it was wanted, a quality that most of us know well how to appreciate. His mind was also of the clearest type. No complications ever seemed to confuse him; he never became involved during his conversations, no matter what were the intricacies of his subject. His mind, like his placid temper, never seemed to be ruffled or disturbed. Extraordinary as his mental faculties were, he had evidently added to their efficiency by severe discipline, for he possessed that infallible mark of a well-trained mind, of having all his great and diversified stores of knowledge classified and grouped together in his brain according to subjects, so that he could call up his whole knowledge of any subject at a moment's notice. Another remarkable thing about his mental composition was that with a thoroughly scientific cast of mind were united qualities of the most practical character. He was a scientific man by nature. He loved science and scientific studies, but at the same time no man had a sounder judgment or a clearer head in the management of practical affairs. It is very rare to see scientific and practical qualities of mind united in such an eminent degree as they were in him.

Professor Baird was gifted with still another unusual mental endowment, which reminds one strongly of one of the traits of the first Napoleon. With that comprehensiveness of mind which takes in the broad features and large, general outlines of a great enterprise, he combined, as Napoleon did, a capacity for close and thorough attention to all the details of a subject, down to the minutest items necessary to success. This combination, as we all know, is a rare one. As an illustration of his wonderfully retentive memory and easy grasp of details, as well as his remarkable gift for a rapid dispatch of practical work, I may mention a little incident that occurred at Calais, Me., where I visited him in 1872, and which has fastened itself on my mind ever since. He had received twenty-seven letters by the mail of the day before—I remember the exact number that he told me he had received—and the next forenoon, after breakfast, he called in his stenographer for the purpose of answering them. As I, very naturally, rose to leave the room, he kindly invited me to remain and be seated, and I shall never forget the impression which the subsequent answering of those letters left on me. Assuming his customary attitude, when on his feet, of holding his hands behind him, one wrist grasped by the other hand, he leisurely walked up and down the room, dictating to the stenographer the answers, one after another, to all his letters. He did not, to my knowledge, once refer to one of the letters he had received, either to ascertain its contents or to get the address of the writer, but proceeded from one letter to another until all were finished. And, further, during this time he never showed the slightest hesitation, nor did his countenance betray any signs of mental effort or confusion. It was a remarkable feat of memory and of the methodical dispatch of business details which I can not forbear to mention.

In our subsequent acquaintance and correspondence, which was very extended, both personal and official, his letters were always marked by great kindness of heart and thoughtful consideration, which, it is needless to say, warmly endeared him to the writer. It is a great pleasure to me now to think that the United States Fish Commission station that I located and built up three successive times, on the McCloud River, in California, has kept the name which I gave many years ago to the little post-office on the river, and, as Baird station, contributes its mite to perpetuating the name of the great first United States Commissioner of Fish and Fisheries.

I said that there were two figures which early associations with fish-culture called up very forcibly to my mind. There is also a third. It is of a man who never has been in America, yet whose love for America, whose admiration for American fish-culture, and whose influence on fish-cultural work in America have been very marked. I mean the Count von Behr. With a thorough love of fish-culture and devoted to it, with an unusually enthusiastic nature which specially fitted him for inspiring others with his own love for it, Herr von Behr was to Germany in this field of labor what Professor Baird was to America. He was for many years the president of the Deutsche Fischerei Verein, the national fish-cultural organization of Germany, and during his whole connection with it he was the life of the association. He was also the animating spirit of the great International Fisheries Exposition in Berlin, which will forever remain memorable in the annals of the world's fish-cultural history. Though of a wholly different type from Professor Baird, he nevertheless possessed qualities which caused his influence to overshadow all other fish-culturists in his own country, as Professor Baird's did in this country, and made him *facile princeps* in conducting the cause of fish-cultural development in Germany.

It was the writer's privilege to carry on a delightful correspondence with Herr von Behr for several years. Dropping all official forms and, indeed, all formality whatever, his letters were earnest, confidential, and full of enthusiasm. They expressed the same love and admiration for Professor Baird that Americans felt for him at home, and never lacked in expressions of his great admiration of American fish-culture. They also record his sad domestic bereavements, and told how, after the loss of his three sons, he had resolved to devote the remainder of his life to the cause of fish-culture in Germany. I am aware that much criticism has been expressed because Von Behr's name has been given by Americans to a European trout since its introduction into this country; but whatever may be said of the judiciousness of the act, no one can deny that it was a fitting compliment to a man who richly deserved the honor, nor can anyone deny that it reflects credit on the kindly feeling which sought in this way to recognize America's indebtedness to Von Behr, and to perpetuate in America the name of the distinguished German fish-culturist.

The Count von Behr was a generous, warm-hearted, lovable man, and his contributions in labor and in influence to the cause of fish-culture can never be measured. He was one of those who formed the great triumvirate of the early history of practical fish-culture—*Green, Baird, von Behr*. Hopeful as we are of the future fish-cultural work of the world, we nevertheless confess to feeling a presentiment that "we ne'er shall look upon their like again."

I regret that this disjointed and imperfect sketch must suffice for the present for a subject that deserves better treatment. I would like to speak of Frank Buckland, of England, who did so much to encourage fish-culture in Great Britain; of Professor Milner, the zealous and conscientious colleague of the writer; of Robert B. Roosevelt, who edited the first newspaper column in this country exclusively devoted to fish-culture; of Theodore Lyman, of Massachusetts, the leading spirit in the first fish-cultural movement in New England; of Judge Bellows, of New Hampshire, who took the first steps in this country toward the public recognition of fish-culture; of Governor Horatio Seymour, of New York, who gave his powerful influence to its support, early in the seventies, and of many others who contributed more or less prominently to its early development. But both time and space preclude the possibility of this, and I can only congratulate my brother fish-culturists that there are so many devoted workers in the cause still living to fill the places left vacant by their faithful predecessors who have gone to their reward.