

THE FIRSTS

(CONTINUED)

BLUEGILLS

AFTER the successful importation of smallmouth bass in October 1937—which had been achieved at last after two years of striving—negotiations were resumed with our Legation in Washington and with Mr. Powell in Maryland for shipments of bluegill sunfish and spotted bass to be sent in charge of Mr. Vida aboard the *City of New York*. And so the whole volume of voluminous correspondence, ship meeting and anxiety for the attainment of the project was resumed.

On March 3, 1938, Mr. Powell wrote that he was planning a June shipment of bluegills and, if possible, would add a few more smallmouth bass. The wooden tanks which had been returned to him on the vessel would be used again, and he told Mr. Vida that he intended to construct a special housing for the electric motors and air-pumps to protect them from the sea spray and avoid a repetition of the previous trouble.

In May 1938, both Mr. Lambooy of the Legation and Mr. Powell wrote that all arrangements had been made for shipping the tanks on June 1st. As it was well known that the various species of sunfishes were prone to cross-breeding, resulting in sterile hybrids, Mr. Powell had obtained some pure bluegill stock from Mr. Fred Tresselt of Thurmont, Maryland, a commercial grower of ornamental and game fish. The few extra smallmouth bass which would be sent were some of the same breeding as those received in October 1937. He regretted that spotted bass could not be sent with this shipment, as they would have to be obtained from Ohio at a later period of the year.

Nothing more was heard about the shipment, and so on June 1 a radiogram was sent to Mr. Vida—this time full of optimism—"How many fish?" As the ship was still seven days out, the reply was chastening—"Six fish alive". The kind was not stated, and as we wanted to inform Natal, another radiogram was sent, "How many bluegills?", but to this there was no reply. It transpired that Mr. Vida did not know "from the view of their backs in the tanks"; but there were four bluegills and two smallmouth when they were taken off at Cape Town.

It had been yet another lamentable occurrence and things had gone sadly amiss. As before, Mr. Powell had brought four tanks on the 200-mile journey from the Lewistown Hatcheries, Maryland, to New York docks, with 40 bluegills and 16 smallmouth bass; but he found that not a word had been received from the head office of the American-South Africa Line and the consignment was not on the ship's manifest. Moreover, the loading of cargo had been delayed and was still in progress, and in any case the tanks could not be slung aboard. Very reluctantly, Mr. Powell had to leave them on the dock and return to Maryland. Unfortunately it was a Saturday afternoon and the officials who had been approached by our Legation had left the office. The tanks remained on the dock alongside the ship for 24 hours and Mr. Vida had to watch impotently whilst stevedores poked the fish with sticks! Finally, by the kindness of the captain, who had promised to help where he could, the tanks were hoisted aboard after all cargo had been stowed. By then many of the fish were dead, and the rest of the casualties occurred during the first few days at sea. Owing to the fact that Mr. Powell was prevented from installing the tanks and equipment, the fish had to be left without attention and aeration for some time after the departure, until Mr. Vida could leave his duties.

On arrival, we found that the water in the tanks was clear and free of sediment, but had a rather bad odour and was slightly acid. Temperature records had not been kept, but at no time had the water temperature gone as high as during the October 1937 voyage. The four bluegills were put into the quarantine furrow at the Jonkershoek Hatchery, and they fed well on large bloodworms (*Chironomid larvae*), large *Daphnia* and other foods.

On July 22, one bluegill was $4\frac{1}{2}$ inches long—a brightly coloured male, another was $4\frac{1}{2}$ inches long—dull and of uncertain sex, the third was $4\frac{1}{2}$ inches long—dull coloured and very plump, and the fourth was quite small. On that day, the third bluegill was found dead. When removed for examination it was found that its under surface was completely devoid of scales and the tail rays were very much frayed. There was nothing to account for this condition, except that the fish had brought it about by rubbing against the cement or on the bottom sand. When the abdomen was opened, a stream of ripe eggs gushed out from the distended ovaries. Its scales showed that it had lived through two American winters. When it was shipped from Maryland at the end of May 1938 it was ripening for spawning, but such an event was prevented by its transportation. Since its arrival at Jonkershoek in the middle of the Cape winter, it had been kept in water of 50 to 55 degrees Fahrenheit—too cold for the spawning of this species—and its death resulted from the interruption of the normal climatic sequence. Jonkershoek Hatchery was not then equipped with warmed aquarium tanks, or an immediate breeding might have resulted.

Arrangements were then made with our Legation at Washington for funds to be provided for new and improved cypress-wood tanks, equipment and transport for a further attempt with bluegills in October 1938. The Legation also approached the shipping company and received the assurance that care would be taken to avoid a repetition of the hitch which had spoiled the chances of the June shipment.

Mr. Powell wrote on September 26, 1938, that he was sending 120 bluegill sunfish, from one to one and a half inches long, bred in May 1938. There were six cypress tanks of 2 ft. 6 in. by 2 ft. 6 in. and 2 ft. high, with electric motor, air-pump and air-compressor of a standard make.

An air letter written on October 3rd was received from Mr. Powell reporting that he had taken the fish to New York on the 1st, and as the sailing was delayed again (by a truckers' strike), he had set up the tanks in a local garage with the aerating equipment running. The shipping company had been most helpful, and this time he had been able to install everything in proper order aboard before the ship left on the 2nd.

On October 17, a radiogram was sent to the *City of New York*—"What fish alive", and this brought a much more satisfactory reply—"83 bluegills bring fresh water". Then on the Saturday morning, the 22nd, a further request was sent. "Phone news before noon"; and an operator's message was telephoned from the Slangkop shore station, "Water in some tanks salt removed fish from two tanks dont worry everything o.k. dont forget the freshwater".

On the Monday morning, October 24, 1938, she arrived, having encountered heavy weather. As before, the tanks had been placed on the fore-hatch cover and were subject to the effects of spray from head-seas, being protected only by their wooden covers and tarpaulins which were liable to tear loose in the wind. The aerating equipment was housed in a wooden case, but much trouble occurred with the motor from sea water, and there were lengthy breakdowns on three occasions. The maximum water temperature in the tropics had been 78 degrees Fahrenheit for about seven days.

Seventy-two bluegills were found to be alive in the four remaining tanks, but they were all very thin and weak after their long ordeal without food, and their fin and tail rays were worn and ragged. All were taken out and the tanks were scrubbed clean of slime and fungus, and the fish transferred slowly into clean hatchery water from cans brought from Jonkershoek. Thirty-six were then replaced in the shipping tanks to go on to Durban, and they were given a good feed of bloodworms and a supply put aboard for their journey up the coast. Twenty-seven were alive when the ship reached Durban and their condition had improved from feeding en route.

The share of the bluegills taken to the Jonkershoek Hatchery were a sorry sight and hardly one had complete tail and fins. They soon began to pick up in condition in the isolation furrow and took their food with avidity.

They pulled through the quarantine period and it was marvellous how they recovered condition. In addition to the very bad state of fin-erosion and fungus, within ten days of their arrival there was a really bad outbreak of "white-spot disease" amongst them. They were dotted all over the back and head with the white pustules—much worse than the smallmouth bass had been in 1937. They were not dipped, but the water in the furrow was turned on at good pressure and the sand and gravel at the bottom was blown with a strong hand-pump twice daily, so that the parasites, as they dropped off in the course of their life-cycle, were washed away into an oak wood at the side of the Hatchery.

By the end of December 1938, the bluegills were about 2½ inches long, and their fins were completely regenerated. They were then turned out into an unoccupied breeding pond, which contained a good crop of natural food, including many platanna (*Xenopus*) tadpoles. Their growth was very rapid for the next three weeks, and on January 24, 1939, a male of about 4 inches long was seen to be guarding a saucer-like depression, which had been visited by two females. Eggs were siphoned-off for inspection.

Then started a memorable battle with the crabs, which were swarming in the pond. The little male was the gamest of the game and was seen to butt fiercely at crabs almost as big as himself. The paraphernalia of defence was assembled in his corner of the pond, crab-traps, hand-nets and fishing rods. About a hundred crabs were caught in the first day, and the fish paid no attention when the gear was heaved-in or hauled-out—in fact he seemed to enter into the spirit of the thing, and would swim up to a trap to inspect the crabs therein.

The eggs hatched out in about three days in water reaching a temperature of 80 degrees Fahrenheit, and a good batch of fingerlings resulted. The precocious individuals in this batch of bluegills had thus bred when they were about eight months old. The three males surviving from the abortive importation of June 1938 were by then about 7 inches long, and were turned into the pond with the others. A large normal breeding occurred in the early summer of 1939/40. In Natal, early breeding from the imported bluegills also took place.

A.C.H.