19.--FISH BECOMING BLUE AND RIGID DURING TRANSPORTATION.*

By J. STANGE.

An instance of fish becoming bluish and rigid during transportation has recently happened, which seems to throw some light on the subject.

After the fisheries in one of my carp ponds, located about 14 hours' journey by wagon from my residence, had come to a close, the carp were put into a large and long barrel, which on the upper side had a square hole measuring 40 centimeters $[15\frac{3}{4}]$ inches] in diameter, which is lined with boards 24 centimeters [94 inches] high; this barrel was placed on the wagon and filled with water up to the edge of the hole. Besides this barrel there was put on the wagon a low tub filled with water and containing two pike. As the weather was rather warm, I told my driver to go fast, which is generally considered advantageous under the circumstances. As the entire length of the road was paved, the water had been spilt out of the low tub, so that the pike touched the bottom. They were lying on their side and did not move, not even when I took them from the tub, with the exception of the eyes and gills, which they moved in a feeble manner. It struck me at once that these pike, instead of a yellowish, had a bluish color. I immediately placed them in a fishtank, through which passed a current of spring water. The barrel containing the carp was still full of water; the fish were sound and lively.

The next morning the two pike lay on the bottom of the fish tank. I took them out; their color was still blue; they were not dead, and moved their eyes and gills, but otherwise appeared as if they were paralyzed. The body was flexible, as in sound fish, but had lost the faculty of motion. I again placed the pike in the tank, and examined them every day, but for four days there was no change; the pike remained alive, but the faculty of moving did not return. When I came to the tank on the fifth day, it had been broken open, and the pike unfortuntunately had been stolen.

The rigidity of these two fish had probably been caused by the circumstance that, after most of the water from the tub had been spilt, the fish, by the bumping of the wagon against the stones of the rough pavement, had repeatedly been thrown with their abdomen against the bottom of the tub; and that thereby the body had become rigid. I presume this all the more because the carp in the barrel, which, when it reached its destination, was still full of water, were, without exception, in a normal condition. If fish, during transportation, are to remain sound, they should therefore have plenty of water.

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