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BLOOD CLOTS IN THE GILLS OF TROUT^e

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During the summer of 1935 the author had an experience with a gill disorder in brook trout (Wolf, 1935) which differed in its external symptoms from that described by Davis as well as from that more recently recorded by Fish (1935).

In mild cases the chief symptom was a sticking together of the gill platelets, or lamellae, so that the outline of the filament appeared smooth. Though no sections were cut of gills in this condition the cementing substance appeared to be slime and not epithelial tissue as in the disease described by Fish.

In more advanced cases the gills appeared congested, and blood clots were visible in the platelets. These clots were very distinct in freshly killed specimens and the larger ones could easily be seen with the naked eye. In many cases the gills were thickly sprinkled with clots, and among fish in this condition mortality was quite high.

Figure 1 shows a section through two diseased filaments. A comparison with the figures presented by Fish shows that the difference between the two diseases is quite distinct. The lamellae are, for the most part, clean - the preservative and treatment connected with sectioning having removed the slime from between the platelets. There is no such excessive proliferation of epithelial tissue as is shown in Fish's figures. Instead, the characteristic structure is the blood clots in the lamellae.

^e Investigation made while employed by New York State Conservation Department.

These clots, the result of a clogging of the capillary, swell some of the platelets to many times their original thickness. Sectioning revealed a tremendous number of small clots which had not been visible in a gross examination of the gill.

Whether the appearance of blood clots and the comparative absence of fusing and clumping of neighboring filaments is enough to distinguish this disorder from those described by Davis and Fish is open to question. However, another difference appears in the response of the disease to treatment. In common with the disease described by Fish, no benefits were derived from copper sulphate treatments - in fact, quite the reverse. One-minute dips in 1:4000 potassium permanganate solution were beneficial. But ten minute-baths in three per cent salt solution, administered five days in a row, were most successful of all in checking the mortality. These treatments were conducted in troughs. When salt treatments were tried in ponds they were not at all effective in checking the disease. That the beneficial effect was due to the salt, and not merely to the clean water in the troughs, was shown by the fact that a check group placed in a trough and not treated had a high mortality throughout the experiment.

No bacteriological study of the diseased gills was attempted, so nothing is known as to a possible bacteriological cause.

Conclusions

1. A gill disease of trout is described which is characterized by the appearance of blood clots in the gill lamellae.
2. This disease responds well to repeated treatments in three per cent salt solution, provided the fish are held in clean troughs. Treatments in ponds were unsuccessful.
3. The bacteriological aspects of the disease have not been studied.

Literature Cited

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