CC/NUMBER 35
AUGUST 30, 1982

This Week's Citation Classic

Elliott J M. Invertebrate drift in a Dartmoor stream.
Arch. Hydrobiol. **63**:202-37, 1967.
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Seasonal variations in the composition and quantity of invertebrate drift are described. Most species drifted downstream in greatest numbers at night. Less than 0.01 percent of the benthos was in the drift at any instant, and drifting invertebrates usually travelled short distances before returning to the benthos. [The *SCI*® indicates that this paper has been cited in over 135 publications since 1967, making it the 2nd most cited published by this journal, 1961-80.]

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June 23, 1982

"This paper was based on work described in my PhD thesis, completed in 1965. Closely related papers dealt with the daily rhythms of drifting and the importance of invertebrate drift as a food for brown trout. The data were obtained from a small trout stream on Dartmoor in southwest England. Dartmoor is a large granite intrusion at an altitude of c. 400 m. I started the monthly sampling toward the end of one of the coldest winters ever recorded on the moor and continued for a total period of 18 months. Each month, I camped next to the stream for about a week and my base was a small mountain tent. Drift samples were taken over 24 hours at three sites and the nets were emptied every three hours. Benthos and fish samples also had to be taken. I therefore spent most of my time emptying nets, eating, and occasionally catnapping. The stream was near the famous Dartmoor prison from which prisoners seemed to escape with monotonous regularity, usually when I was on the moor. I was therefore frequently reported to the police who became familiar with the strange 'fish-man' who caught insects all night.

"I am not sure why the publication has been so highly cited. One possible explanation is that it was one of the 'pioneer-studies' on invertebrate drift and its importance as a food for fish. At the time it was published, there were many freshwater ecologists who either did not believe that stream invertebrates drifted downstream in large numbers, or did not think that invertebrate drift was very important. Since then, over 250 papers and several reviews have been written on this subject and it is now accepted that there are both upstream and downstream movements of stream invertebrates as well as an upstream flight of adult females of some aquatic insects.[1]

"I have continued to work on the quantitative ecology of trout streams, both the fish and their invertebrate food, and have produced over 60 publications on this subject. The work includes experimental studies on the feeding, growth, and energetics of brown trout[2,3] as well as quantitative studies on the growth, mortality, production, and movements, including downstream drifting, of their invertebrate food. A recent example of this work is on a net-spinning caddis in a Lake District stream.[4] Although some of the ideas expressed in the 1967 paper have since been shown to be rather simplistic, I am pleased and slightly surprised that most of the conclusions are still valid and that my tentative hypotheses attempting to explain the chief causes of invertebrate drift have since been shown to be substantially correct.

"In 1980, I was awarded the Scientific Medal of the Zoological Society of London for work on the ecology of benthic stream invertebrates and fishes."

1. **Williams D D.** Migrations and distributions of stream benthos. (Lock M A & Williams D D, eds.) *Perspectives in running water ecology*. New York: Plenum Press, 1981. p. 155-207.
2. **Elliott J M.** Energetics of freshwater teleosts. *Symp. Zool. Soc. London* **44**:29-61, 1979.
3. ----------. Some aspects of thermal stress on freshwater teleosts. (Pickering A D, ed.) *Stress and fish*. London: Academic Press, 1981. p. 209-45.
4. ----------. A quantitative study of the life cycle of the net-spinning caddis *Philopotamus montanus* (Trichoptera: Philopotamidae) in a Lake District stream. *J. Anim. Ecol.* **50**:867-83, 1981.