

A FURTHER ECOLOGICAL STUDY OF CALCAREOUS STREAMS IN THE 'BLACK MOUNTAIN' DISTRICT OF SOUTH WALES

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(With Plates 4-6 and 2 figures in the text)

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1. INTRODUCTION

In a paper recently published in this *Journal* the writer (1948) has described the summer fauna of four torrential streams in the 'Black Mountain' district of south Wales. Of these four streams one has moderately calcareous water and a rich fauna including about 130 species; this is the river Clydach, which flows on the northern slopes. The three streams flowing on the southern slopes have very soft water which is rendered acid to varying degrees by drainage from peaty soils, and all have a much poorer fauna, including few species other than insects. This first paper dealt with variations in current speed, in the hydrogen-ion concentration and mineral salt content of the stream water and the relation between temperature and air temperature.

The present paper describes the summer fauna of the river Sawdde,* the main stream on the northern slopes of the Black Mountain, and of which the Clydach is a tributary. It includes, also, a qualitative study of the microflora of the Sawdde and the Clydach and some observations on the feeding habits of the dominant insects in this stream system, based upon the examination of the gut contents of about 600 specimens.

2. THE RIVER SAWDDE: TOPOGRAPHY, CHEMICAL NATURE, FAUNA

The river Sawdde is one of the finest trout streams in the district and is protected by the Towy Fishery Board. It has its source at an altitude of about 1700 ft.

* Approximate pronunciation Sou'they; *sou* as in 'south'.

in Llyn-y-Fan-fach, a small lake lying beneath the western end of a long escarpment which $1\frac{1}{2}$ miles to the east rises to about 2500 ft. About 2 miles to the north-east is the source of the river Usk. For about a mile after leaving the lake the stream flows northwards and then turns west; at station A (Fig. 1) the river is about 25 ft. wide, its bed is composed of large stones and boulders with very little gravel or sand; the stream-bed gradient and current speed vary somewhat from place to place, but there are no pools. The stream is shaded by trees and bordered by narrow strips of cultivated land.

At B, the next collecting station, the river has widened to 35 ft. and its bed has become much more uniform in gradient, so that the water flows very steadily and is up to about a foot in depth at normal level. Here and there, near the banks, there are deposits of very coarse, red gravel. Most of the stones are 6-9 in. in diameter, some are grey and some are red, and in spring, when many of the stones are bright with green algal growth, the river has a striking appearance. The right bank is shaded by trees. About 2 miles farther on the Sawdde is joined by the Clydach, and now it enters upon a kind of gorge section about 3 miles in length; here the river has cut its bed down to a level 12-15 ft. below the valley floor, and at many points flows as a narrow, deep torrent between precipitous rocky banks. The valley itself is narrow and well wooded. In this section the river is so inaccessible that no attempt was made to study the fauna, but at one point (C) some riffles are accessible where there is a thick growth of submerged moss, and here some microflora samples were taken, as described in the next section.



Photo 1. The river Clydach near station F (Pont Clydach).
The pools in the foreground are about 12 feet wide.