The Early Pioneers

The Science of Geology was established little more than 200 years ago. Before that, in the Lake District, as in many other areas in Britain and Europe, collecting rock and mineral specimens, recording of fossil remains, portraying the rock outcrops and their structures and extolling the scenic wonders of the area had long been pursued. Many of the important discoveries had been made by men of leisure, by no means always eager to publish their findings, or by early miners seeking out the mineral wealth of the region. Towards the end of the Eighteenth Century and into the early years of the Nineteenth Century, however, a more systematic approach was emerging. The linking together of the disparate strands and the formulation of a more unifying 'earth history' began to take place. Gradually it was being realised that within the rocks themselves, the minerals, the fossils and the nature of the landscape was a coherent record of earth events awaiting to be deciphered.

In the Lake District four pioneers, Otley, Ruthven, Bolton and Sedgwick dominated the scene and typified this earliest phase of geological discovery. Each in their own way were true pioneers – original investigators, initiators, men who went before others and prepared the way for those that followed. Otley, Ruthven and Bolton in particular, working largely independently, pursued their curiosity and applied enquiring minds to the district. By processes of careful observation, detailed recording of what they saw around them, collecting and categorising specimens, prodigious walking of the ground and constant questioning of their observations, they initiated the building up of a picture of the earth history of the district. Most importantly for us they all took the step of publishing their observations; Otley in his Guide Books and papers, Ruthven with a geological map and Bolton with his book of *'Geological Fragments'*. As the following accounts show, Sedgwick on the other hand, played a different pioneering role. Very much the academic pioneer he built on the work of the others, painted the broader picture and put Lakeland geology into the national picture.

All four of these early pioneers were Cumbrians by birth. Otley, Ruthven and Bolton were true amateurs. All lacked formal training and instruction in geology or science and had limited early education. Through the sheer strength of their personalities they were able to make important early contributions. For all these, geology was a leisure time pursuit to be

fitted around the hard task of earning a living. The Lake District was, however, profitable ground. Not only was the district geologically interesting and varied, it also offered commercial opportunities for mineral collecting and for guiding visitors and tourists who were at the time beginning to explore the scenic delights in increasing numbers.

The material on which these accounts of the earliest pioneers are based is somewhat fragmentary. As all of them left their geological observations in various published forms, so we have a fairly good picture of how they viewed the area in their day. Some bibliographical details of Otley, Ruthven and Bolton however, are yet to be tracked down, but the three accounts published here do present fairly comprehensive and hitherto unpublished evaluations of their work. The literature available on Sedgwick, however, is of a different order. Several comprehensive accounts of his life and work already exist. The account here, written by David Oldroyd focuses on a particular aspect of his work and presents some original research on Sedgwick's notebooks and the way he assembled his findings on Lakeland geology.

1. Jonathan Otley (1766-1856)
Father of Lakeland Geology

Alan Smith

Outside Cumbria the name of Jonathan Otley is not well known and in national geological circles his contribution to Cumbrian geology is scarcely noted. In any review of the 'Geological Greats' of the district, however, he rightfully must come first. His pioneering work in the district was acknowledged by Adam Sedgwick in the 1830's and J.E. Marr in 1916 gave him the title of 'Father of Lakeland Geology' (Fig. 1).

Fig. 1 – Jonathan Otley in later years

Otley was the true pioneer; the local man who walked the ground and came to know it like the back of his own hand. He had the eye not only for the local detail but the

amazing ability, so early in the Nineteenth Century, to see the broader picture of this structurally complex region. Otley unselfishly fed this local knowledge to Sedgwick and others, and has remained the unsung hero. Otley led Sedgwick on a number of excursions around the district, starting in the summer of 1823. This was the start of a long association between the two men. Fortunately much of their correspondence remains and provides a great insight into the early geological work in the district. Otley also corresponded with many other eminent scientists of the time, including John Dalton, (another Cumbrian), G.B. Airey, the then Astronomer Royal, and the geologist Professor John Phillips, the Museum Curator at York. He also met William Smith and accompanied him in his fieldwork although their meeting was apparently not totally amicable.

Jonathan Otley was born in October 1766 at Loughrigg, near Grasmere in south Lakeland. Although he was a child from a humble family he was encouraged to study and attended schools in both Langdale and Ambleside. Up to the age of 25 he worked with his father making wooden sieves and baskets, but he also developed the skills of watch and clock repairing. In 1791 he moved north to Keswick, where, within a short time, he had established himself in a small town centre cottage and workshop to be known locally as 'Jonathan Otley's up t'steps'. From there his business as a clock and watch repairer flourished, but, more importantly, this was the base throughout his long life for the exploration of the Lake District, and for his interests in map making, geology, meteorological observations and natural history. Fittingly the building still stands (Fig. 2) and his life and work are commemorated in a plaque alongside the old steps to his cottage door

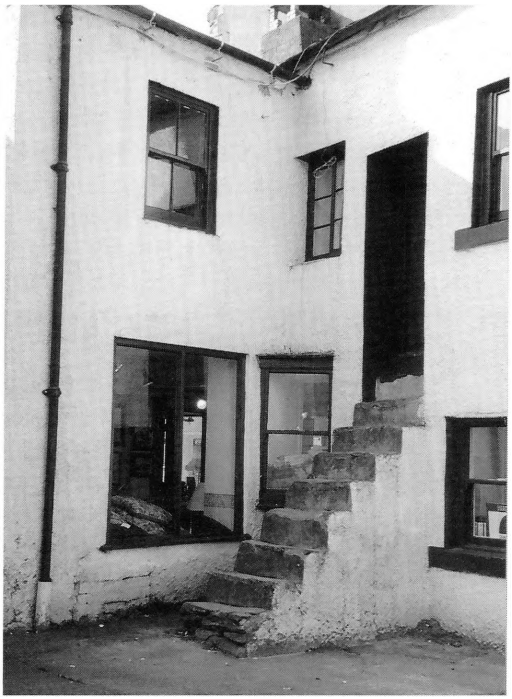

Fig. 2 – 'Jonathan Otley's up t'steps' – his cottage in King's Head Yard, Keswick