



In Commemoration of the 150th anniversary of the death of William Smith (1769-1839)

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TRAVAUX
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Hugh TORRENS
In Commemoration of the 150th anniversary of the
death of William Smith (1769-1839).

COMITÉ FRANÇAIS D'HISTOIRE DE LA GÉOLOGIE (COFRHIGEO) (séance du 31 mai 1989)

It is sadly remarkable that this anniversary is likely to go quite unnoticed in the country of Smith's birth. So I accepted an invitation from France, to attempt this short appreciation of William Smith, with particular delight ; as Smith was one who made, and can be shown to have made, a great original contribution to geology. But I have tried not to be motivated by any chauvinism ; a concept of which the English seemed strangely unaware until educated from France !

RECENT HISTORIOGRAPHY.

William Smith has suffered enormously at the hands of recent historians. We have been told of a "suspicion" that the importance of the verbal dissemination of his results and ideas, before he himself published his major works from 1815 has been "overrated" (Laudan, 1976: 211), but without evidence being adduced. At the same time we were told that "for a long time [Smith's] discoveries remained more or less unknown". He had got it into his head, unfortunately, that his data were of great commercial value, and he accordingly tried to keep them a close secret until his final *magnum opus* should appear (Allen, 1976: 57). We were even told that Smith "did not have time to identify the strata by their fossils, but used other primary criteria" in his mapping (Laudan, 1976: 210, 212). We are more recently asked to accept that Smith is simply a "cult" figure, not "a figure of historical reality", created in some conspiracy by members of the Geological Society of London to bolster their own work in 1831, when in reality "men like [George] Greenough and [James] Parkinson would be more deserving of any such title as 'Father of English Geology'" (Rupke, 1983: 191-3).

It is perhaps a truism to say that if one repeats something often enough, people will believe it. Present historians certainly face problems in assessing Smith's contribution to geology. In the face of such recent historiography, Smith's main problem seems clearly to stem from his having been the subject of four separate attempts at proper biographical study, none of which have been completed. As a result, there is no definitive study of his life and work, since that of 1844 by his nephew John Phillips (1800-1874), a situation which can only encourage thoughts of nepotism and theories of conspiracy.

PROPER HISTORICAL ANALYSIS.

We have a duty as historians to understand the work of those who developed the science we try to document. While we must always avoid *chauvinism*, we surely have an equal duty to properly justify any *revisionism*. I believe all the quotations given above to be simply this. To be true historians we must try to enter the brains of those we study and see through their eyes what they saw and the problems they faced. We have a duty to understand and not to judge, and above all to make close and careful study of original sources (Ellenberger, 1988: 3). Nor are these sources, especially in the case of a practical man like Smith only printed. Such "papyrophilic" attitudes produce, I believe, serious distortions of history (Torrens, 1988). Sources for Smithian history *must* involve collections of specimens in museums and study of outcrops and field areas where Smith and others worked ; yet historians continue to issue judgments against William Smith, without using either of

these as sources.

A recent new claim draws attention to Smith's scientific isolation ; in his very earliest years a valid enough point, but then 'confirms' this 'isolation' by commenting that "Smith's [surviving] papers contain ... almost no books or articles on geology, British or foreign ... so that he was almost entirely unaware of work going on on the Continent" (Laudan, 1987: 164). While this, if true, would make Smith's contributions even more *original*, might not the historian's proper duty be to ask whether there are other possible reasons for this absence of evidence ? Any forensic scientist knows such negative evidence can be misleading.

ASSESSING SMITH.

Should historians not take account of Smith's six week imprisonment for debt in London in 1819, a fact on record now for 20 years (Eyles, 1969: 137) ? It has been on record even longer that "the amount of printed matter preserved in the [Smith] collection is comparatively small, for Smith had been obliged to part with all his books [and printed papers] in 1819" as well as his "furniture and collections" ; because he was then in a debtor's prison and his creditors had to be appeased. Even "any [publications] he accumulated in later years were presumably sold on his death" (Phillips, 1844: 91 & Cox, 1942: 10). So much for an absence of printed papers and books in the Smith archive. Smith's very great, and long continuing, financial problems, which become even clearer from recent research, should form a central part of a historian's focus. When we consider him properly, we can only agree with the judgement of Dietrich (1961: 259) when comparing Smith and Baron Ernst von Schlotheim, that "in origin, character, social status and calling the two men have hardly anything in common".

As for the oral dissemination of Smith's work, before his financial problems with publication were solved in 1813, should we not also ask if it might have been possible for others to have then disseminated his ideas for him ? Joseph Townsend (1813: V) records how before publication "with unparalleled disinterestedness of mind, Smith scorned concealment, and made known his discoveries to everyone who wished for information". One who played a major role in this diffusion of Smith's results was his fellow land-surveyor and polymath John Farey (1766-1826). Recent work (Torrens & Ford, 1989) reveals the enormous influence Farey then had in many British scientific, agricultural and engineering circles and lists his incredible volume of publications, over 250 in number, many of them urging Smith's case and widely disseminating his results from 1806 on.

Other voices have been raised against recent Smith historiography or 'villainography' as we might call it. Morrell has shown how the idea of any Smith cult having arisen in 1831 is seriously inaccurate chronologically (Morrell, 1989) and how can the claim, noted above, that Smith did not make use of fossils in his stratigraphic work, have been made without any proper historical analysis of the large collection of some thousands of fossils he certainly did have time to make between 1795 and 1818, and which so largely (at least 75%) still survives (Torrens, 1988: 87) ?

Smith was not a major contributor to the development of geological theory and as he got older any theoretical ideas he held certainly got ever more divorced from the consensus that slowly developed amongst many of those he had earlier influenced (Cox, 1942 & Berkeley, 1988: 221). But as a land and mineral surveyor he emerges as a craftsman with a truly incredible eye for three dimensional analysis and the "lie of the land". His major aspiration, which he proudly announced in his first *Prospectus* of 1801, for a book never published again for clear financial reasons, was as a 'Practical Man' ; to help Land-owners, Farmers, Miners, Canal engineers, Builders and others find the raw materials they needed in a rapidly industrialising Britain (Smith, 1801).

With such practical activities as mapping and prospecting for minerals it is vital historians use all sources of evidence and especially non-printed ones. My personal private celebration for this 150th Smith anniversary was to take a Russian stratigrapher friend to the tiny chapel of St Giles at Kellaways in Wiltshire ; to show her the stratotype on which the international Callovian Stage of the Jurassic System had been based. Smith first came across the Kellaways Stone rock unit here, and the fossils which he showed so well characterised it, whilst draining near Thomas Crook's house at Tytherington Kellaways in 1800 (Phillips, 1844: 35). A historian has asked us to believe that as Smith mapped each stratum, he would have to "climb slowly up the western [sic !] side of the outcrop of each stratum and then descend rapidly down a sharper scarp slope on the far side" and then that this distribution would allow Smith to everywhere "predict the stratum that would outcrop" (Laudan, 1976: 214).

But there is simply no such natural scarp pattern or outcrop here of any rock unit, now or in Smith's time, since it is only between 2.7 and 4.3 m thick (Cope et al., 1980). Just as Smith stated "this extraordinary stone from

neither its thickness or consistence can properly be called a Rock ... Its course is known only by a few excavations in it, chiefly for road materials which in a country abounding so much with clay [which over and under lies it here] are very scarce. It no where forms any characteristic surface, or rarely a hill or other feature which is distinguishable to any but those who know where to look for the Stratum... From the great obscurity in the course of the Kelloways Stone, the organised Fossils of the Stratum can only be found in excavations, and in the stone used on the roads" (Smith, 1817: 23). Early in 1805 when Smith visited Somerset he found a trial Pit for coal being dug in the Oxford Clay near Bruton, way above any possible productive Coal Measures. This had then reached this Kelloways Rock 37 metres down. Fossils of *Gryphaea* from these excavations allowed him to predict on the spot and with total certainty that this coal trial was an unscientific prospect (Phillips, 1844: 66). This is Smith's real skill and his contribution to science, as a mineral prospector ; a skill in which he has had few equals, and which must also be analysed 'in the field' and from museum material. His skill as a land surveyor must also be judged in the field. I defy anyone to walk the Hackness hills and outcrops in Yorkshire with Smith's 1832 lithographed map, at 1 : 9500 (or 792 feet to one inch !), in hand to see this as the production of anyone other than a genius at mapping geologically. The tragedy is that the map is now so rare that few can have the chance to have done so (but they might try by study of the material reproduced by Sheppard, 1920: 167-174 & pls xvii-xix).

I have purposefully said nothing about Smith's originality. Proper international assessment is needed here, especially of French antecedents in the use of fossils in stratigraphic analysis. One's view depends largely on whether one wishes to assess only strict 'priority' questions or whether the greater achievement, is more to put something into real and continued practice, than to have the idea in the first place. The former I believe is the case with such a practical subject as stratigraphy. I believe we have much to learn here from historians of technology, who believe any 'palm should be awarded' to those who actually make things work.

We have also still to reserve judgement on Smith's influence in France until more original research is undertaken. The first publication by the Geological Society of London to make a full reference to Smith's work was duly translated into French (Parkinson, 1813: 291) but since this was a literal translation from English, any priority for Smith stated there need only reflect English perceptions, in the absence of any French editorial comment. The main problem for historians is to allow for the fact that between 1793 and 1815, exactly the years of Smith's major achievement, England and France were engaged in a long and bitter war. Indeed Smith later stated that this was one major reason why he had had such financial problems. But scientists on both sides were in very free contact in this period (De Beer, 1960). A fascinating historical question is posed in one of Joan Eyles' last papers (1985) , in which she points out the great likelihood that Smith's stratigraphic results must have been diffused to France during the short Peace of Amiens in 1802-3. Her paper, which raises questions, is the sort of history of which we should have more.

CONCLUSIONS

We should commemorate this anniversary with a plea to the historical community not to judge, or even worse misjudge, the past. Instead we ask they should try to understand it ; in Smith's case by proper study of his, and his contemporaries' many, publications as well as of his collections which still survive in the British Museum (Natural History) in London. We should urge historians to venture into the natural 'laboratory' which Smith made so particularly his own, the sequences and outcrops of the Carboniferous to Mesozoic rocks all over England. I personally have no doubt, from this third source, that nearly 200 years ago Smith knew parts of these sequences much better than anyone alive today. This is an achievement few living scientists can claim but one which helps to explain the particular problems and pleasures of geology and the importance of its history. I hope, but not with much conviction in view of the philistine treatment of scholarship in British Universities these last ten years, still to be able to celebrate 1994 with a proper biography of Smith. This will be 150 years after the only other such study by his nephew and pupil [John Phillips](#), who may thus not have been the most objective judge of his uncle's work. Certainly there is a desperate need for a properly balanced assessment of Smith's life and work from an international perspective.

Grateful thanks are due to many in my 25 year long attempt to understand Smith's failures and successes ; but particularly to [Francois Ellenberger](#) and Joan Eyles both of whom have encouraged me when so few others did, that what I was doing was worth doing.

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Take a look at the [Biography of William Smith on Wikipedia](#).