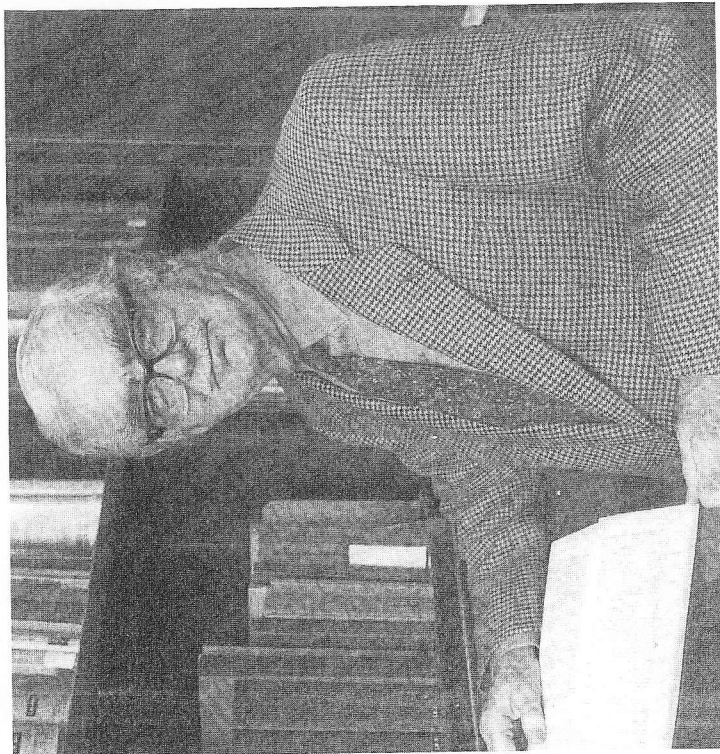


David Elliston Allen

Naturalists and Society

The Culture of Natural History
in Britain, 1700–1900



David Elliston Allen

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Natural history in Britain in the eighteenth century¹

INTRODUCTION

It is virtually a cliché that the eighteenth century was an age of transition. Nevertheless, like most clichés, it happens to be true. In a very recognizable way, the century started off feeling 'ancient' and ended up looking 'modern'. Its first twenty years or so seemed like a left-over from the previous era, a kind of moraine detritus abandoned in the retreat: indeed, historians today often speak of a 'long' seventeenth century which ended in Britain in 1714, with the arrival of the Hanoverians and the triumph of the Whigs. Then came the 'empty quarter', that middle period so depressingly inhospitable to detailed studies of every kind, yet so crucial for the gestating of new ways of looking at nature. Then finally came those wonderful last 40 years, bursting with new vigour, taking us into the Romantic Movement on the one hand and into the so-called Industrial Revolution on the other. Somehow 1760 feels closer in mood to 1860 than it does to 1700 or even to 1720. In those mysterious middle years Western Man suddenly grew up. In the fertile soil of scepticism a dispassionate distancing occurred, seemingly quite by accident. One result was that outburst of intellectual creativity that goes by the name of the Enlightenment; the other was a responsiveness to wild scenery and the birth of that empathy that lies at the heart of latter-day natural history.

Clearly, it was a century in which some very profound changes took place—against a backdrop which, confusingly, stayed much the same throughout. For until the closing years there is little of that sense of movement that the nineteenth century conveys: no repeated tides of reform, no ever-spreading railway lines thrusting their way through a virgin landscape, no obsession with Progress. Physically it is static, emotionally and intellectually it is dynamic.

DIFFICULTIES OF TRAVEL

The main reason for that stasis was the difficulty of moving around (on land, that is: on water it was a different matter). For the would-be traveller the only alternative to his own two feet was to be carried or drawn by horses, and owning or hiring horsepower was a privilege open only to a minority. Even the horse-propelled, though, were not that much better off, for roads were at best poor and at worst almost unbearably frightful. Although the trunk routes increasingly came into the hands of turnpike trusts as the century wore on, the tolls levied by these long fed through into improvements in a few cases only. Responsibility for the upkeep of all the rest lay with each parish through which the roads passed, and the six days' unpaid labour which its surveyor of the highways was empowered to require of the parishioners for

that purpose was liable to be obtained only by forceful individuals careless of their popularity locally. The consequence was that roads tended to be repaired only *in extremis*. Before that occurred, they had often deteriorated to the point of actual danger—in particular because of the unsuspected depth of the water that collected in their pot-holes.

Even when repairing did take place, the materials used were primitive and the surface they produced can rarely have been level. As a result, another of the miseries of travel was coach-sickness. Gilbert White is well known to have been one sufferer from this, which led him to undertake long, solitary journeyings on horseback instead. Yet that form of travel was not without dangers of its own, for in many areas the roads were infested with robbers and a lone rider who betrayed by the cut of his clothes gentlemanly status was sure to be an inviting target.

THE TAXONOMIC IMPERATIVE

Fortunately, to pursue natural history it was not essential to travel, or at any rate to travel very far. Even in southern England the more conspicuous sections of the local flora and fauna had still been but scantily investigated and there were notable discoveries waiting to be made virtually on every naturalist's doorstep. Any content to stay just within their own neighbourhood could be usefully occupied for many years, especially if, like Gilbert White, their primary interest was birds and they could therefore sit and wait for the rarities to come to them. For most naturalists, though, adding to science's stock of species constituted the greater lure, and to find those it was increasingly necessary to brave foreign parts—either by exploring Britain's remoter regions, in the footsteps of Ray and Willughby and Lhwyd, or by taking ship to distant lands, as Banks, most notably, was to do in due course.

The eighteenth century was the first great age of taxonomic description as a result. The drive to ransack the globe for its variety had originally been in the service of medicine: more and more now it was becoming an end in itself, an international competition to gather in as much as possible and to acquire the prestige of owning the richest collections. No longer was the accent on the useful or the merely curious: the aim now was to achieve comprehensiveness, to bring together under the eyes of science the entirety of Creation. As a result, under the sheer weight of novelty flowing in and requiring to be described, classification was falling into chaos. Latin names were long and cumbersome, insufficiently standardized and commonly applied to entities that their original authors had not intended. Worse, new names were continually being coined in ignorance, or even defiance, of the fact that the plants or animals that these were bestowed upon had received at least one name from someone else already. Descriptions in any case were often so inadequate, and the specimens on which they were based so fragmentary or poorly-preserved, that it was frequently impossible to be sure even what had been meant by them.

PRIVATE COMMUNICATIONS

Although collecting and describing were the sole concerns of almost all naturalists of that era, for the first two-thirds of the century the manpower was far too small for the size of the task that confronted it in this respect. Indeed, except in Europe's

largest cities there were still too few naturalists even to gather together and form themselves into societies. In London, thanks to the programme of field instruction regularly laid on by the Apothecaries from 1620 or even earlier, a large enough bunch of botanists had contrived to emerge by the final years of the previous century to coalesce into a kind of club, meeting informally in one or more of the city's then numerous coffee houses (Jessop, 1989). In the 1720s a thoroughgoing society, albeit one in miniature and mainly composed of students, grew out of that self-same soil and briefly flourished (Allen, 1967).² By 1740 there were even enough collectors of butterflies and moths in and around the Capital to constitute a society too (Allen, 1966)—the first in a long series of all sadly ephemeral bodies to be devoted to that study until the Thirties of the century following. Collective activity, alas, just did not prosper: once such a grouping suffered some major setback, in particular the loss of its leading light, it was generally incapable of renewing itself. In the absence of any jointly-owned possession, such as a journal or a museum, to help cement it together, it was as easy and painless for members to slip away as it had been for them to enrol in the first place. It was only with the founding of the Linnean Society, in 1788, with famously valuable collections as its core, that this perpetual weakness began to be overcome.

In default of societies to belong to, naturalists were obliged to develop networks of correspondents instead. These were one of the century's most characteristic features. In as much as they substituted for papers read at meetings or published in printed volumes of transactions or proceedings, letters necessarily ran to some length; so keeping one's network fuelled entailed a great deal of time and effort, far more than membership of a society would have required, just as the outlay on postage must have considerably exceeded over time the cost of annual subscriptions. That very expenditure of trouble, however, served to ensure that letters received were commonly preserved, some of them even, with luck, like those of John Ellis (Savage, 1948) or Richard Richardson (Turner, 1835) or the several recipients of the *Selborne* correspondence, perhaps eventually to have permanency and general access conferred on them by being reproduced in print. On the whole, though, it was inevitably a private activity and an enormous amount of information, which other naturalists would have found of value or at any rate of interest, and which we today would dearly like to have as historical benchmarks, must have failed to be kept, discarded as too banal to be fit for anything but refuse.

PUBLICATION

Further penalties of isolation were the difficulty of knowing whether one's identifications were correct or observations original and the great expense at that period of purchasing the necessary works of reference—always supposing that those were known about or had yet even been written. Books of all kinds continued to be expensive (even a novel cost at least 7s. 6d., a large outlay in contemporary terms, as much as five meals in a tavern), because printing continued to be unmechanised and the people who could afford to buy them, or even want to read or consult them, were still relatively limited in number. For learned works that number was inevitably smaller still, and publication of those was normally practicable only by public subscription. The collecting of subscribers, moreover, was an onerous and expensive

process in itself, especially as it was customary for a list of their names to be included in the eventual book—a custom for which, all the same, later researchers have much reason to be grateful (and the fruits of which have by no means yet been exploited to the full).

The high price of books even so had one helpful side-effect: it kept them as desirable articles of luxury, enabling them to serve as status symbols for the affluent. As often as not a rich library was more the mark of a deep purse than evidence of cultivation and learning, a room with merely tasteful-looking shelves. Publishers sensed this and played on the weakness accordingly. The result was an emphasis on what would nowadays be termed 'coffee-table' books: books which, in the words of one contemporary, were "maide for pompe to fill a Library & more for outward show than reale use, . . . having very little within."¹³ Such books sold, then as always, primarily on the strength of their illustrations, especially if those illustrations were coloured. And as there were few subjects that lent themselves so well to this as natural history, it consequently had the good fortune to develop an appeal commercially just at the period when more and more naturalists were producing book-length work that they wished to put into print. A reasonably workable compromise was the result.

That is not to say that the market for books on natural history that emerged was wholly or even mainly the product of what naturalists themselves chose to write. In the same way the purchasers of such works were very much more plentiful than the actual number of practising naturalists. This is something that we need to bear well in mind when we come across such deceptively bracing assertions as William Sherard's in 1720, that "Natural History of all sorts is much in demand,"¹⁴ or Peter Collinson's in 1747, that "Natural History . . . sell the best of any books in England."¹⁵ These statements do not refer to manuals of identification or even to the kind of recreational reading that naturalists write for one another; they do not necessarily refer even to books on the natural history of Britain. They merely tell us that the average library-builder was as keen then as ever on books with attractive pictures on reasonably elevating-sounding subjects.

Despite the great boost that the size and buoyancy of this 'popular' market in natural history books gave to the study in the stricter sense, it had two noticeable drawbacks.

Firstly, seductive illustrations came to be a *sine qua non* if a book of natural history was to attract a commercial publisher, regardless of the quality of the accompanying text. Some so-called authors were in reality just artists who relied on others to contribute the scientific 'meat', sometimes anonymously—legitimately in the case of Benjamin Wilkes's *The English Moths and Butterflies* (Whalley, 1772), illegitimately, because substantially plagiarized, in that of Eleazar Albin's *Natural History of Birds* (Stresemann, 1975: 48). Wilkes and Albin were both painters of miniatures by profession and presumably had no skill with the pen. But it is surely significant, even so, that it was their names alone that featured: the plates were what mattered, as far as the publishers were concerned. What is more, alas, the plates sold books even if they were badly done, so strong was the demand—at any rate initially. Albin was "as clumsy with the pen as with the brush and understood nothing of his subject" (Stresemann, 1975: 48) and the colouring in his plates has been described as

child-like, yet his *Natural History of Birds* evidently sold well enough to allow it to run to three volumes spaced over several years (1731–38) and straight after that to go into a second edition. Later in the century, however, buyers seem to have grown more discriminating as competition intensified and standards rose, and illustrations had to be good if they were to 'carry' a learned text and make its publication viable commercially. John Latham's own, rather humdrum engravings for his *General Synopsis of Birds* (1781–85) presumably fell down in this respect, for a switch to a different publisher after the first volume suggests that its sales had proved disappointing. Latham may even have had to resort to subsidising the work to enable it to continue to appear. Clearly, he would have done better to have teamed up with a specialist illustrator. John Ellis was canner when in the mid-1750s he sought to bring out his *Essay towards a Natural History of the Corallines*: he secured the services of Ehret, the country's foremost botanical artist, and the volume that resulted was to prove worth having for the superlativeness of the plates alone.

The second drawback was more subtle. Because naturalists in Britain, unlike those in other countries, had such comparatively little difficulty in getting learned texts published without the need for subsidy, they were tempted into opting to have their works brought out commercially in cases where this was contrary to their interests as scholars. To be sure of yielding a profit a book needed to be written in the vernacular—whereas if one's work was to have any real impact on the international world of scholars, it needed to be in the language of that world, which continued stubbornly to be Latin.¹⁷ As late as the 1780s the poet George Crabbe laboriously prepared an account of the British flora in English, only to consign his manuscript to the flames on being ticked off by a don at Cambridge (the Vice-Master of Trinity) for "degrading such a science by treating of it in a modern language" (Crabbe, 1834: 134; Groves, 1906). Naturalists on the Continent, unaware of the market pressure that their counterparts in Britain were prey to, tended to think that authors like Latham, Pennant and Lightfoot were merely being arrogant or eccentric in publishing entirely in English, in the case of the first two even down to the names that they bestowed on the new birds they described (Stresemann, 1975: 55). In Latham's case, unhappily, this practice was to prove disastrous. Only three years after his *General Synopsis of Birds* had completed its appearance all his many new species were renamed in Latin by the German naturalist Gmelin. Belatedly hoping to retrieve matters, Latham rushed out a suitably Linnaeanized two-volume summary of that work, under the title *Index Ornithologicus*. But by then, alas, it was too late: ever afterwards the names have had to be credited to Gmelin, and Latham's pioneering labours have effectively been buried as far as posterity is concerned.

The difficulty of knowing which audience to address is common of course to all learned pursuits which have the good or bad fortune to attract a substantial popular following. Nonetheless it is salutary to be reminded that natural history authorship was dogged by this dilemma even in such early days.

WEAKNESS OF PROFESSIONALIZATION

The existence of that dilemma is the more ironic considering an amateur-professional dichotomy had not yet emerged by this period—nor would one emerge, indeed, till after half-way through the century following. The world we are considering was still

a world of amateurs, more or less exclusively. Until the establishment of the British Museum in 1753 and the first appointments ten years later of qualified scholars, like Daniel Solander and Charles Konig, to help curate its scientific collections, there were no posts of a permanent, full-time character by which a naturalist could earn a living. Everything else was either short-term or part-time or only unofficially employment for such a purpose—and except in the universities subject to the whims and idiosyncrasies of individual private patrons. It was the age of patronage and the age, too, of great private collections, and these two practices could reasonably have been expected to converge to yield niches for many a professional naturalist. Yet the extent to which that happened can only be accounted disappointing.

There were teaching posts, of course, but those were all part-time as well. The one of greatest consequence to the natural history world, though ostensibly its purpose was medical, was that of Demonstrator of Plants to the Society of Apothecaries in the Physic Garden at Chelsea. As part of the duties was to take out the Society's apprentices and make them familiar with herbs in the wild, the holders of the office necessarily had to be field botanists of competence. As such it attracted over the years men of such ability as William Curtis and William Hudson; but as it was open only to Freemen of the Society, and for them was at best a mere crutch financially, it can only be classed rather marginally as a professional position as far as natural history was concerned.

Three of the universities, Oxford, Cambridge (from 1724) and Edinburgh, each had Professors of Botany and Edinburgh and Marischal College, Aberdeen had Chairs of Natural History in whole or in part. Cambridge even had a Chair of Geology from 1731. But these titles are deceptive. These were not yet subjects in which students were examined: they were still generally regarded as little more than decorative, part of a wider, extra-curricular fringe of studies of which a would-be gentleman of cultivation could usefully equip himself with a smattering. Theology, Classics and Mathematics were what really mattered—in institutions which at this period, at least in England, were a mixture of finishing-school and seminary. At Oxford and Cambridge the college Fellows were the only people who really mattered, and could live far away for all anybody cared. Their posts were essentially honorific, worth having only for the status they conferred in the world outside and for the free-lance commissions that flowed from that. Indeed, at the English universities (unlike the Scottish ones) they were taken so unseriously that they tended to deteriorate into sinecures. At Oxford, Humphrey Sibthorp allegedly gave just a single lecture in his 35 years in the Chair of Botany. At Cambridge, his opposite number, John Martyn, failed even to manage that for all but the first three of the 30 years of his tenure of the office, never so much as deigning to enter into residence. But at least Martyn had the excuse that the University refused to find the funds for the establishing of a botanic garden, without which the then accepted way of teaching botany was deemed to be impossible.

Yet at least it could be said for Martyn and Sibthorp that they were qualified for their positions: in other cases the two Universities simply plucked someone from quite another subject and left him to teach it as best he could. Behaviour of that kind is no more than we have come to expect of that shoulder-shrugging world of the eighteenth century; it comes as more of a shock, though, to find that it persisted well

into the century following. As late as 1818 the Woodwardian Chair of Geology at Cambridge went to one of the dons in Mathematics, Adam Sedgwick, who at least had the candour to admit that hitherto he had never so much as turned a stone. Nine years later, similarly, Henslow was transferred to the Cambridge Chair of Botany from a post in Mineralogy, despite the fact that, as he was later to confess, his botanical knowledge was only very slight. By good chance both of these, as it proved, were excellent choices; but, clearly, things could have turned out altogether differently—as all too often they had in the past.

THE GREAT RECESSION

What had gone wrong with the universities in England? These were not the institutions that had bred and nurtured men of the towering stature of John Ray and Isaac Newton, less than a century previously. Nor, for that matter, was the Royal Society anything but a shadow of the great arena of inquiry and debate for which it had won such renown in its Restoration infancy. What had become of the shining star which that brilliant constellation of minds had given to subjects like natural history as the seventeenth century drew towards its close? There is a mystery here that calls out to be explained.

The decline set in as the new century was moving into its second quarter. As if worn out by all its exertions in the 60 years previously, the entire world of learning settled back, gave a great yawn and was soon fast asleep.⁹ And not just in England either: in all the main countries of Europe the universities similarly went into retreat till early the next century—though in England the tendency was perhaps that much more extreme.

It is tempting to see some connection between this general abandonment of striving and the turning away from enthusiasm that equally occurred in religion. Europe as a whole had tired of all that fierce doctrinal quarrelling, which year after year, decade after decade, had plunged the continent into one long nightmare of anger and destruction. What it needed now was a rest; and in guarding against any fanning afresh of those mercifully dying embers, it was as if it was bent upon suppressing the slightest gleam of fervour in every other aspect of life as well.

'Slumbrous cynicism' are the words that have been used to characterize the eighteenth century's prevailing attitude to religion. But cynicism, too, and not so slumbrous, must surely have been induced by the peculiarly extensive web of corruption associated with the system of politics in force in Britain just at this period. The 40 years following the Duke of Newcastle's arrival in power as Walpole's Secretary of State in 1724 are notorious for the unparalleled degree to which patronage was used to advance the cause of one party and to solidify its position. Arrant jobbery and placemanship were extended down to the humblest levels of state and even much private employment, with the result that in the competition for office or preferment it was soundness politically that mattered rather than competence to perform the duties concerned. In such a system hierarchies based on ability are prevented from taking hold; would-be achievers, perpetually thwarted, eventually give up in disgust; all effort other than political effort comes to seem pointless. It is hardly an atmosphere in which scholarship flourishes.

It probably did not help, either, that around the same time the economy went into serious recession. For roughly 40 years, from 1725 to 1765, London's prosperity and population both stagnated (J. Landers, unpubl.). In the rest of the country matters were proportionately very much worse, so much so that the numbers of the rural poor thrown on to parish relief became so overwhelming that single parishes could cope no longer and resources had to be pooled in multi-parish 'unions' (Plumb, 1950: 20). In the Twenties the population of England and Wales actually declined, by about 1½%—though it rebounded in the Forties, with a vengeance (Wrigley and Schofield, 1981). In an age when most people in the middle levels of society were self-employed the general constriction in circumstances that these trends imply, and the pressures and worries accompanying them, can hardly have been conducive to the development of leisure interests (unless, that is, there is truth in the contra-cyclical notion that subjects like natural history flourish in times of adversity especially, when people seek them out as a balm and as a solace).

Whatever the explanations, there can be no doubting that during that very same span of years in which the economy of the country stagnated natural history stagnated too. By 1725 almost all the leading members of that group whose combined talents had given the subject such impetus in the period just before had either died or withdrawn from activity.¹⁰ The only major figure now was Dillenius, busily compiling field handbooks of authoritative and excellence; but he was a foreigner who had arrived only recently and was therefore outside the general trajectory. As far as *native* hunters after species were concerned, a serious generation gap increasingly yawned. Not enough had been done to ensure a succession: suddenly there were far fewer naturalists around than there had been previously and the handful who persisted accomplished noticeably far less. Tellingly, two youthful recruits to the study during the desert years that followed each had to look to 70- or 80-year-old veterans as their principal instructors,¹¹ so almost completely had the flow of middle-aged field men given out.

The words 'field men' are used advisedly, for it was natural history in the traditional sense that had gone into recession: it was the people who got their hands and feet dirty who had departed from the scene in the main. Natural history as a tasteful pursuit of the leisured and cultivated, on the other hand, the natural history more especially of the upper classes, was very much in the ascendant, enjoying as never before a modishness that originated, like so much else that was tasteful or merely modish, in Europe's fashion centre, France. Manifested there above all in the extraordinary popularity attained by the writings of the Abbé Pluche and, subsequently, of Buffon, this was an indoor taste in essence: a posture of the salons (Mornet, 1911). Nature was something to be sampled from a distance, to be wondered at and argued about,¹² not something to be peered at indecently closely. Though the cultivated eye was learning at last to look beyond the garden wall and appreciate the gentler portions of the landscape that lay outside, it tended to be focused on nature only as a generality, unconcerned with its constituent details.

Whether it was that the upper classes had walked away with natural history and made it in their own likeness, or whether it was that the middle classes had temporarily lost their grip, what had occurred was a wholesale inversion. It is this which makes the mid-eighteenth century such treacherous ground for the historian of the subject and which has long rendered it so difficult to interpret.

It was part of a wider shift that scholars have detected in one field after another right across the whole spectrum of learning: a shift from empiricism to more speculative and fanciful approaches: a shift out of the corset of rigour to more relaxed modes of both thinking and seeing, nicely signalled by a fashion for more loosely-fitting clothes—and by the displacement of Baroque by the languidness of Rococo.

Although there is evidence of the switch in Britain as early as the Thirties, it was not until the second half of the Forties that there were signs that the vogue was well-established in the upper reaches of society. This is neatly shown by a sudden, five-fold jump in the course of that quinquennium in the share of space devoted to natural history in that leading general periodical, the *Gentleman's Magazine* (Baesel, 1974). By the late Forties, clearly, journalists had begun to realise that this was one of the subjects with which the average person of cultivation expected to be acquainted. It was in 1746, it will be recalled, that Collinson had reported that works of natural history "sell the best of any books in England." It was in 1746, too, that Daines Barrington's sister married a Herefordshire landowner, whose great friend, Benjamin Stillingfleet, thereupon came to live on the estate and took up the study of grasses with a view to advising on the improvement of its pastures (Ketton-Cremer, 1944: 102). It was even before that, sometime between 1741 and 1745 (Miller, 1986), that the Earl of Bute, later to be chief minister and mentor to the young George III, occupied his time in the political wilderness by similarly harnessing a taste for botany to the agricultural development of his property in Scotland (as well as by submitting the writings of Linnaeus to a pioneer critical appraisal).¹³ It was in 1749 that the botanical artist Ehret discovered a lucrative demand for lessons in flower-painting among the daughters and wives of the nobility and gentry (Ehret, 1896). And it was by 1748-9 (Wilkinson, 1978) that sufficient wealthy subscribers had emerged—interestingly, no less than a quarter of them female—to allow Benjamin Wilkes to start bringing out serially his masterly paintings of *The English Moths and Butterflies* accompanied by a helpfully instructive text.

All through the Fifties the *Gentleman's Magazine* continued to pay natural history ever greater and greater attention. In the first half of that decade the percentage of its pages given over to the subject doubled yet further; by the second half they were taking no less than 17% of all the space (Baesel, 1974). But at that point the bubble burst: the fashion for the subject, it would seem, had finally run its course.

And is it sheer coincidence that it was precisely at this point that the older, empirical interest in the study began to show signs of resurfacing? Is it reading too much into things to see in the return of the middle classes the very cause of that waning of enthusiasm at the higher levels of society? By the Fifties the economy had more than recovered and in the ten years that followed it surged ahead, and continued to increase steadily for the remainder of the century. Better trade demanded better roads, and investment at last began to go into these, considerably improving the lot of the traveller. Christopher Hussey (1927: 101), the historian of the Picturesque, has noted how "the appreciation of scenery . . . increased in direct ratio to the number of turnpike acts"—and those grew almost fivefold between 1750 and 1790. In their wake came better maps, better horses and, perhaps most desirable of all, better coach springs. It was now that making tours, for no other purpose than to admire natural scenery, gradually became a comfortable proposition—and, in consequence, steadily more popular as a pastime. This introduced the countryside to large numbers

of people who had never properly stood back and looked at it before and tempted the more energetic even to leave their carriages and inspect its beauties on foot. That profound, immensely long-drawn-out and immensely complex process that goes by the name of the Romantic Movement, a sharpening and refining of the Western senses, began to be set in train as a result.

Two distinct attitudes to nature were now achieving a fruitful interpenetration: the hard and rational on the one hand, the soft and sentimental on the other. And in the merging of these two complementary approaches—the scientific and the aesthetic, the disciplined and the relaxed—there is to be found, surely, the explanation for the new quality that we begin to notice in natural history from this period: that “vivid, sensuous attentiveness” which Mabey (1986: 82) detects first in Gilbert White in 1761, in a long and detailed account of crickets which he penned for his private pleasure in that year. White, it seems, was one who had achieved a magical fusion of those otherwise contrary impulses, classical formality and genuine romantic feeling—an achievement which notably eluded his contemporary, the poet Thomas Gray, for example.

RECOVERY

And so finally we come to the great *risorgimento* of the last 40 years of the century: the marvellous rise to greater and greater popularity, almost even to cultural supremacy, of natural history as the kind of field study we have known ever since, as it emerged revitalised by the confluence of those two previously separate currents.

It was not quite the smooth upward path that the bare recital of events tends to lead one to suppose. Rather, it proceeded in a series of giant steps, each of them extending over roughly five years. The first took place in the mid-Sixties, the next in the second half of the Seventies, the third and final one ten years after that, in the second half of the Eighties.

The first step coincided with, and in large part was caused by, the impact at last in Britain of the ideas of Linnaeus. These had been rumbling for a long time on the horizon, and quite a number of naturalists in this country had considered them very seriously. Most liked the proposal that all organisms should bear just a two-word Latin name; many, though, were unpersuaded that the method of classifying plants by the number of their floral organs had sufficient intrinsic merit to warrant throwing over the well-established systems that attempted to group by natural affinities. Not surprisingly, those whose interests lay more in zoology, like Pennant, could see no benefit at all in switching to this rather quaint and frankly artificial method.

But eventually the barrage of Linnaean propaganda began to tell, particularly after the publication, in the Fifties, of the two mammoth compilations in which for the first time Linnaeus employed binomials consistently.

The *Species Plantarum*, the bible for the botanists, was first brought to general notice in Britain by a rave review (by Sir William Watson) in the *Gentleman's Magazine* at the end of 1754. In the very next year Israel Lyons took up field botany in Cambridge (Cooper, 1909) and at much the same time¹⁴ the study gained another first-class convert in the person of John Lightfoot. These may simply have been coincidences, but the opposite seems much more likely. All the same a strong botanical

current had been running in parts of England already, and we should not allow ourselves to be deceived by the Linnaeans into automatically assuming that all developments at this period were due solely to the influence of The Master.

Indeed, it is generally overlooked how extraordinarily slow was the progress made at first in Britain by the new Linnaean doctrine. Five whole years had to pass after that inaugural review before the first detailed exposition of the Artificial System for the general reader was produced (by Benjamin Stillingfleet, in his unappealingly-titled *Miscellaneous Tracts relating to Natural History, Husbandry, and Physick*). It was six years before James Lee, the Hammersmith nurseryman, published his *Introduction to Botany*, which was to prove particularly influential. It was eight years before there was the first fully-Linnaean handbook, William Hudson's *Flora Anglica*. It was nine years before any lecture courses at the universities were being given on the System. It was twelve years before a book on British fossils first used Linnaean binomials, fifteen before they were introduced to British entomologists and before they really came into currency among the country's collectors of Lepidoptera. Even after 23 years a local Flora (of the district round Faversham, in Kent) could still be published in which its author (Jacob, 1777) preferred to employ the pre-Linnaean names. People were set in their ways; books and other information circulated only slowly; there was a good deal of purely intellectual resistance to overcome as well. Allow for the time-lags produced by all those factors and it would have been only around 1765 that the first wave of Linnaeana arrived in the home of the average receptive reader.¹⁵ And that was the year, we now know, in which Gilbert White embarked on his first serious work in natural history. One year later, we also now know, armed with copies of Stillingfleet and Hudson, he was busily compiling his manuscript 'Flora Selborniensis'. Did he realise, one wonders, how privileged he was to be the owner of a copy of that invaluable handbook of Hudson's? For by then it was already exceedingly hard to come by, the stock of that first edition having mostly been lost in a fire. When Rousseau was botanizing in England that same summer he had to be content with Dillenius's 1724 edition of Ray's *Synopsis*,¹⁶ with its antiquated, cumbersome nomenclature. White, though, also preferred to use those older names, so perhaps the benefits of owning Hudson's work were altogether lost on him.

1766 is further hallowed as the year in which White's brother Benjamin was emboldened to strike out on his own as a publisher and bookseller and, encouraged by the latest surge of interest in the subject, to specialise in works on natural history. The very next year he was to publish Barrington's *Naturalist's Journal* and the year after that to start bringing out Pennant's *British Zoology* in its second, more complete, more portable, better-illustrated, no-longer-anonymous version. Thus did the two to whom the *Selborne* letters were to be addressed first arrive within Gilbert's orbit.

By 1775 Gilbert was reporting to his brother John: "Anything in the naturalist way now sells well" (Holt-White, 1901: 279). Soon he was telling him: "The love of such knowledge increases. Even bishops . . . in order to recommend themselves, study botany." And William Curtis was finding that people "from the other end of the town" call at his London botanic garden "in their coaches to desire private lectures for grown gentlemen" (Holt-White, 1901: 311).

We are now on the second step. And by this time the numbers of naturalists have indeed become impressive. By 1775 there are even enough collectors of insects for the first comprehensive field guide, designed to slip into a pocket, *The English Lepidoptera* by Moses Harris, to achieve a wide and ready sale. Three years later the much-needed fresh edition of Hudson's national Flora, now greatly extended, caters similarly for the fast-swelling ranks of field botanists. As if to accompany it, the youthful John Walcott starts issuing a series of accurate engravings of the common British plants, at a suicidally low price to allow the parts to be purchasable by all but the poorest. A plateau of popularity has been reached, in which books can be written and sold at last with the ordinary, humble practitioner of the subject predominantly in mind—instead of the libraries of the wealthy.

It was time by now for naturalists to be collecting themselves into societies once again. And, lo and behold, in 1782 the first-ever ones in Britain to be all-embracing in their scope came into existence, within a few months of one another, in London and in Edinburgh.¹⁷ Two years later J.E. Smith managed to purchase the library and collections of Linnaeus and soon after that there was a third body in being, the Linnean Society of London, which would long draw most of its strength from the enviable possession of those riches.

We are now on the third and loftiest of the steps. Natural history had attained such solidity that it had the self-confidence to take its continuance for granted and to begin to embark on long-term enterprises. And these were not only societies: in 1790 *English Botany* was launched, its authoritative text by Smith and its much-prized colour illustrations by James Sowerby. It would eventually run to 36 volumes and grace the shelves of just about every self-respecting library.

The years 1787–90 brought everything indeed to a triumphant climax, a climax for which its three star performances, so splendidly coinciding, seemed almost to have been saved up deliberately. The Linnean Society itself eventually emerged in February 1788 only after a gestation of twenty months or more. William Withering's *Botanical Arrangement of British Plants*, the most complete national Flora published up to that time,¹⁸ the first volume of which appeared in 1787, was a largely rewritten version of a Latinized flop of eleven years previously. And *The Natural History and Antiquities of Selborne* finally entered this world in the autumn of 1788 only after years and years of deplorable shilly-shallying on the part of Gilbert White. It was as if History had decided for once to collude with Art, so satisfyingly well-timed was this culminating upyielding of creativity.

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NOTES

¹ This is a slightly revised version of the opening paper at the Gilbert White Bicentenary Symposium, Selborne, 20 July 1989.

² This was not, however, the world's first formally-constituted society devoted to botany. One is known to have been in existence in Florence by 1716 and to have continued for nearly 70 years.

³ Thomas Knowlton to Richard Richardson, 31 October 1736, in Turner (1835: 350) and Henrey (1986: 149).

⁴ Stressemann (1975: 48) sees the progress achieved in taxidermy as one cause of the emergence of colour-plate books in zoology.

⁵ Sherard to Richardson, 12 November 1720, in Turner (1835: 160).

⁶ Collinson to Linnaeus, 16 April 1747, in Smith (1821: 18).

⁷ An expensive compromise was a text in both Latin and the vernacular. In Commelin's *Horri Medici Amstelademensis Rariorum* . . . *Plantarum* . . . *Descriptio et Icones* (1687–1701) the two languages were printed in parallel columns.

⁸ Nor is he known to have published any scientific work during that period. However, he did assist with the Botanic Garden.

⁹ Medieval scholarship in Britain, for example, "underwent during the eighteenth century not a development but a reaction. These studies between 1730 and 1800 made no advance comparable to that which had been achieved in the previous seventy years. The stultifying of so promising a growth . . . was a phenomenon in the development of English culture which was very remarkable" (Douglas, 1939: 355). Again: "from 1705 to 1778 there was a period of relapse when the Earth-sciences lay stagnant and forgotten" (Davies, 1969: 95). A similar retrogression has been reported in several other fields. Porter (1977: 91ff.), apparently uniquely, has argued to the contrary as far as British geology was concerned; but at least one of his reviewers (J.D. Burchfield in *Jsis* 1979, 70: 317) found his case "strained and unconvincing."

¹⁰ In just the same way the great tradition of Restoration historical studies came to an end as the last of its exponents died off one by one between 1710 and 1720 (Douglas, 1939).

¹¹ Joseph Dandridge acted as mentor to Benjamin Wilkes *ca* 1740, the Rev. John Bateman to his fellow Kent botanist Edward Jacob in the period 1734–44.

¹² Roger (1980) sees the gradual abandonment of the Cartesian philosophy as one of the two main reasons for the triumph of natural history (the other being the literary abilities of the writers on the subject). At mid-century in particular he discerns a dynamic antagonism in progress between the search for the causes of phenomena ('natural philosophy') and the mere description of what was found and observed.

¹³ It is noteworthy that these experiments in agricultural botany preceded by some years Duhamel du Moiteau's *Traité de la Culture des Terres* (1750), identified by Mornet (1907) as responsible for the 'Agronomie' which gripped fashionable France in the years 1750–61. It was the methods expounded by Duhamel which Louis XV began to put into practice at the Petit-Trianon in 1754.

¹⁴ Lightfoot states in the preface to his *Flora Scotica* (1777) that he had been pursuing field botany for over sixteen years prior to his tour of Scotland—which was in 1772.

¹⁵ In 1763 Emmanuel Mendes da Costa reported from London to the Rev. William Huddesford: "At present Natural History begins to revive somewhat in this capital" (Nichols, 1822: 475). That was also the year in which the *Critical Review* proclaimed that "Natural History is now, by a kind of national establishment, become the favourite study of the times" (quoted by Jones, 1937). These statements can be reconciled only by assuming that their respective authors understood two quite different things by the words 'natural history'.

¹⁶ His copy of this was given to him by the Duchess of Portland (Leigh, 1977: 348). It is now in the library of Jesus College, Cambridge and shows that he laboriously updated it by entering the Linnean names in the margins. At least he was luckier than his botanical contemporary in Guernsey, Joshua Gossein, whose remoteness condemned him to have to rely for over twenty years on Parkinson's *Theatrum*, a herbal published over a century previously (McClinlock, 1975: 25).

¹⁷ Respectively, the Society for Promoting Natural History and the Society for the Investigation of Natural History (otherwise Societas Naturae Studiosorum Edinburgena). The latter was formed by students at Edinburgh University (for a full account of it see Allen, 1978). Significantly, Smith belonged to both, before moving on to launch the much more ambitious Linnean Society.

¹⁸ Stephen Robson's *The British Flora* (1777) was the first botanical handbook aiming at a national coverage both written in English and presented on Linnean lines. But Withering's work of ten years later was much more comprehensive and clearly enjoyed a far greater sale.

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