

SCIENTIFIC BIOGRAPHY AND THE CASE OF GEORGES CUVIER: WITH A CRITICAL BIBLIOGRAPHY

Dorinda Outram

University of Reading

The purpose of this introduction is to provide some interpretative tools for the reader of the body of secondary literature on Georges Cuvier which is examined in the attached critical bibliography. Criticism and analysis of existing work is therefore emphasized, and the problems involved in constructing a positive biography of Cuvier are only briefly examined. Not only strictly biographical studies, but also work on all aspects of Cuvier's achievement, have been so strongly informed by pre-suppositions about his character, that a knowledge of this bias and its characteristic expressions is necessary before previous work on Cuvier can be properly interpreted. This bibliography is thus also intended as a necessary clearing of the ground before further study of Cuvier's career can be undertaken. This is true not only because it is necessary to discover the precise extent of factual inadequacy in our knowledge of Cuvier's life and achievement, but also because we need to increase our awareness of the rôle which biographical inquiry has played in the history of science, for without this awareness, the full implications of the adoption of the form cannot be assessed.

Interest in Georges Cuvier has increased considerably during the last decade, but so far almost no account has been taken of the extraordinary biographical tradition through which we view him. Almost every presentation of Cuvier since his death in 1832 has been dominated by emphases which were established very soon afterwards, and which have continued to monopolize the attention of historians of the life-sciences until very recently. Clearly, we are faced with an unusual historiographical situation, and this paper is an attempt to outline this situation and highlight the urgent need for a critical awareness of the distortions which it has imposed upon our perception of Cuvier. Incidentally, it may also provide some clues for the location of stress-points within the historical development of the life-sciences, as revealed in their use of biography; and it may also cast some light on the means by which standard interpretations in the history of science arise and are maintained.

The source of the biographical tradition surrounding Cuvier can, in some aspects, be traced to Cuvier himself. Its persistence is partly a

measure of the success with which Cuvier put forward an image of himself through his public appearances, the parade of carefully chosen portions of his domestic surroundings,¹ and his self-dramatization as the “antiquaire d’une espèce nouvelle”, and made it come to stand for the image of the success of the life-sciences. His early biographers, both admirers and detractors, took over this preoccupation with personality and image, and did so in ways partly determined by Cuvier’s self-presentation in his own life-time, by the scale both of his claims and achievements, and by his impact on the contemporary imagination. Cuvier’s own concern with self-presentation also reflected many of the underlying concerns of contemporary science, and in particular the relationship between the character of the scientist and the quality of his observation of the external world. This concern caused biography to become probably the most important medium in the nineteenth century for the diffusion of the history of the life-sciences; and biographies of Cuvier hold a peculiar and important place in this tradition, for Cuvier’s character came to be seen as an important index of the state of the life-sciences, and, conversely, the life-sciences’ image of themselves came to depend upon the image they could present of Cuvier.

This did not mean, however, that the incidents of Cuvier’s life were subjected to searching scrutiny. We still know very little more about him than can be gleaned from the information gathered by his first biographers. Cuvier’s importance to the image of the life-sciences meant that he was treated in terms of closed systems of ideas, whose real concern was with issues quite other than the presentation of a complete biography. These issues are often presented through the use of carefully selected incidents from Cuvier’s life, which are designed to trigger appropriate responses in the reader. This strong polemical element in the biographical tradition has had several further unfortunate effects. We know little about the political aspect of his career and how it related to his work in natural history; we know little about his religious ideas; we know very little about the way his work related to other contemporary movements of thought; and, just as surprisingly, these deficiencies in our knowledge have themselves gone almost unremarked.²

The almost identical wording of most accounts of Cuvier’s life makes it pointless to examine a large sample of them, but I shall discuss in detail five examples which may be considered representative and influential. The eulogistic account of Cuvier issued in 1833 by his friend and protégée, Sarah Lee, is important, for all its apparent naivety, because for the first time it selects and uses stock incidents from Cuvier’s life to argue a definite case about the position of science.³ Her account was until 1964 the only one readily available in English and intended for an adult audience, which also included lengthy discussion or summary of his ideas

in the life-sciences.⁴ It is still used repeatedly in popular accounts.⁵ Mrs Lee knew Cuvier in Paris between 1818 and 1823, and was an intimate of his family until her own death in 1856. To compile her biography, she relied heavily on papers passed to her by Cuvier's widow, including the 'autobiography' which was also used in the *éloge* by Cuvier's pupil Pierre Flourens.⁶ She also included passages from the brief memoirs of Pasquier and Laurillard,⁷ as well as private information from Humboldt and Valenciennes.⁸ Disclaiming any confidence in her own expository powers, she reproduced long extracts from Cuvier's own works on such questions as the fixity of species, his principles of classification, and the idea of the harmony between the mode of life of the organism and its internal organization.⁹ Mrs Lee thus provided in an easily accessible form summaries both of Cuvier's own ideas, and of other accounts of his life. For most readers she thereby established a model of what were the important issues in Cuvier's work, and by giving sizeable extracts from the works of other writers, blocked the reader's interest in pursuing alternative viewpoints.

In spite of her humble disclaimers, the biographical part of her book is informed by definite purposes, which are supported by the literary tactics outlined above. Her approach has had a lasting effect. Few subsequent authors have abandoned the body of facts about Cuvier which she distilled from her sources, even though these facts were themselves chosen for their effectiveness in a highly contemporary debate. Mrs Lee and her first husband, the explorer T. E. Bowdich, were pre-occupied with the problems of the social and institutional setting of the sciences treated in the 'Declinist' debate, and were in contact with many of its outstanding publicists in England.¹⁰ A well-known feature of 'Declinist' tactics was to call attention to the comparatively flourishing condition of organized science in France, and to adduce such figures as Cuvier as evidence of the scientific developments made possible by organized financial and institutional support from governments. In making Cuvier into a reputable and sympathetic figure through whom to convince her English audience of the force of the 'Declinist' case, Mrs Lee was to some extent helped by the prestige his reputation had gained in England during his lifetime. English translators of his geological works had used him to bolster reassuringly literal interpretations of Mosaic chronology. In Scotland, Dugald Stewart had commended the anti-materialist implications of Cuvier's views on the functioning of the nervous system. However unjustified these interpretations may now seem, they had established Cuvier's respectability in Britain long before 1832.¹¹ The strongly hostile note of criticism of his character and achievements which was to be found in France, especially towards the end of his life,¹² was comparatively muted in England. In this sense, Mrs Lee's eulogistic tone did not strike a really

new note. The novelty of her account is in its polemical use of the biographical form, and the distortions it introduced into future ideas of Cuvier. A leading idea of the 'Declinists' was that men of science should work in closer cooperation with governments. On the other hand, increasing contemporary emphasis on science as a separate realm of experience and the scientist as a distinct kind of individual also tended to be accepted in 'Declinist' circles, and strongly implied that science should form a realm independent from public and political questions. Mrs Lee inevitably failed to resolve these different outlooks, and her attempts to treat Cuvier's political career in these terms were correspondingly distorted. In France and to a lesser extent in England, Cuvier had already been attacked for his political involvement, which was alleged to impair his scientific work, and to be accompanied by an arrogance unseemly in a man of science. This forced Mrs Lee to assert the contrary position, though by the means of making statements about the essential nobility of Cuvier's character, rather than a detailed analysis of his political career. Concentration on assertions about Cuvier's character in fact provided an easy way to sidestep the problem of the interrelation of Cuvier's scientific and political activities. Mrs Lee's solution to the problems forced on her by the contradictions of the 'Declinist' position in respect of the social and political role of the man of science therefore contributed much to the one-sided image of Cuvier, 'Cuvier the scientist', which has always dominated consideration of his life.

Mrs Lee was also obliged to combat criticism of Cuvier's character which had its origin in Cuvier's own self-presentation, which was not without a tinge of self-satisfaction. Hence her emphasis on Cuvier's home life; hence too her frequent references to the 'natural' quality of Cuvier's presence and lecturing style (pp. 167-8), and his genial social manner (pp. 286-7). She stressed the moral qualities underlying his scientific success in such a way as to divert attention from the less sympathetic aspects of his character. His simplicity of life, his disinterestedness, his kindness to students (pp. 325, 287, 297) are not only ideal qualities in the man of science, but also make such failings as hastiness of temper and a delight in the sarcastic rebuke, seem merely human foibles. Common anecdotes about his arrogance are explicitly examined and refuted,¹³ and his political moderation is stressed, not by means of connected analysis but through scattered anecdotes, often designed to prove that he stood 'above' politics (pp. 244-6, 21, 41). Conservative English readers worried by the radical tendencies of French science were thus reassured, and at the same time it was demonstrated that Cuvier's political activity had not somehow denatured him as a man of science.¹⁴ As a final element of strategy, Mrs Lee was careful to universalize Cuvier; he was not merely linked to France, not only the embodiment of the 'Declinist' case about

French science, but was the mediator, the image of truly scientific restraint and disinterest, in contrast to the recent excesses of French history :

He resisted the antipathy of his countrymen against those whom they chose to call barbarians; and with his whole force always tried to stem the torrent which their vanity and versatility occasionally poured out over that which was wise and useful (p. 229).

Mrs Lee was then at liberty to ram home the 'Declinist' case. References to the importance of assured financial support for the prosecution of scientific work besprinkle the book. On Cuvier himself, Mrs Lee rhapsodises that

. . . the income of the statesman furnished the savant with the means of carrying on his labours . . . the counsellor of his sovereign protected the naturalist . . . the "new Aristotle" became his own Alexander (p. 229).

A general result of Mrs Lee's work is as much to close off areas of discussion as to open them out. Her success in using Cuvier to support 'Declinist' arguments was achieved at the cost of shifting the attention of the reader away from sensitive and controversial areas of Cuvier's life, which would undermine her presentation of him in terms of the stereotype of the ideal man of science.

It was only in France that a hostile interpretation of Cuvier was fully worked out. Its earliest and possibly most powerful expression came in the work of Henri Ducrotay de Blainville, who crystallized the preceding thirty years of growing hostility between Cuvier, and Geoffroy St Hilaire and his friend Lamarck, in his account of Cuvier's life and achievements.¹⁵ Formerly Cuvier's deputy and collaborator, Blainville acceded to his chair in the Muséum in 1832, after a long period of hostility between the two men over Cuvier's alleged attempts to dominate and distort Blainville's work. Like Mrs Lee, Blainville made no addition to the body of factual knowledge about Cuvier; but from the same stock body of facts he produced a view of Cuvier dominated by conflict and hostility. Mrs Lee treats Cuvier's disputes with Geoffroy and Lamarck about the fixity of species as incidents whose handling reflected Cuvier's fairness of mind, as well as his scientific supremacy; but in her account as a whole, these conflicts do not occupy a very prominent position. For Blainville, on the other hand, they are central to his interpretation of Cuvier. Blainville established for the first time an extended, deliberate and public contrast between Cuvier and Lamarck, and this contrast has dominated all subsequent interpretations of the work of both men.¹⁶ The debate is again

conducted largely in terms of character. All the charges which Mrs Lee had worked to dismiss from the record are brought up in detail. Whereas Mrs Lee portrays Cuvier as the disinterested man of science, in Blainville's account it is Lamarck who takes over the same characteristics.¹⁷ The implication behind this strategy is that Cuvier's character did not permit him to carry out work as truly important as that of Lamarck. Both works exemplify contemporary preoccupations with character as an explanatory and didactic device: given the character of the scientist, the kind and quality of his work could be predicted. Thus, in contemporary terms, Blainville's attack on Cuvier is not trivial because it is personal. In fact the very reverse is true, because discussion of character not only raised important issues at the explicit level, but was also used as a vehicle for the discussion of the content and methodology of the new life-sciences, and of their social organization.

By the time Blainville was writing, the biographical tradition was so formed that it was possible for him to register a new position by appearing to take up neutral ground on the controverted issue of Cuvier's character and motivation. Blainville asserted that he would join neither those who

. . . l'ont grandi au dessus de son vrai mérite; secondé par son position politique, il leur a été facile d'en faire l'honneur de l'époque, l'Aristote des temps modernes.¹⁸

Nor did he wish to join those who

irrités peut-être par les faits de la politique ou pour d'autres motifs l'ont attaqué avec un acharnement trop violent pour n'être pas passionné (p. 371).¹⁹

His own attack was no less effective for lacking such obvious relish. By characterizing Cuvier's immense talent as a popularizer and image builder both as inherent in his genius, and "un écueil véritable pour la plupart des esprits qui en sont doués" (p. 372),²⁰ he escapes the necessity of taking seriously, as Mrs Lee was forced to do, the self-image which Cuvier had projected so powerfully onto his contemporaries. Lamarck, instead of Cuvier, was taken as the epitome of truly French science in the 'philosophical' tradition. In this context, Cuvier became merely an interesting "appendix" (p. 337). Once the underpinning of the eulogistic school of biography had been destroyed, Cuvier's other pretensions could be systematically attacked. In conformity with Blainville's revaluation of Lamarck, Cuvier's claims to justified dominance of the life-sciences were subjected to particular hostility. Pallas and Vicq d'Azyr were credited with the

foundation of paleontology and comparative anatomy (pp. 387–8). But Blainville's basic objection to Cuvier is his alleged refusal to consider "le terme philosophique et moral" (p. 374). Characterizing Cuvier as a "man of facts", Blainville argues that Cuvier's social and political power put him into a position of dominance which did not necessarily reflect his grasp of the conceptual problems of the life-sciences (p. 383). Here again, a deeper level of debate is being conducted through the medium of discussion of the character of the scientist. The question of the relationship which should exist between the character of the observer and the thing observed also implied the relationship between fact and theory in the life-sciences. Blainville's attack on Cuvier as the "man of facts" is thus a combined attack on a characteristic of his personality, and on the style of his science; in contemporary eyes the two could not be separated.

This image of Cuvier has influenced subsequent interpretations to an extent difficult to overestimate,²¹ and has seemingly removed all possibility of considering Cuvier as an intellectual figure amongst the others of his age. If Cuvier was merely a brilliant anatomist and popularizer of science, such an enterprise was obviously likely to be unrewarding, and to this day has never been attempted in any detail. Blainville further muddied the waters by making contradictory statements about the few ideas which he allowed Cuvier to have possessed. He launched attacks on him both for unsystematic eclecticism, and for pursuing the wrong kind of systematization (p. 373). He reproaches Cuvier for insincere conformity to religious orthodoxy in his theory of the Deluge; at the same time, he was not really a materialist, even though his religious views were so like materialism that many could be led astray by them (pp. 404, 411). Blainville here exploits Cuvier's own image-saving reticence on these sensitive areas; it was Cuvier's own silence which allowed Blainville to make such confusing and yet polemically effective statements about Cuvier's work and its relationship to his character.

Blainville's glorification of Lamarck as the man who conducted enquiry in terms of overall 'philosophical' principles,²² continues this debate on the methodology of the life-sciences. In his concern for questions of character, Blainville is typical of almost all writers on Cuvier in particular, and on the development of the life-sciences in general. Debates over the character of the scientist also implied other questions about the relationship between the scientist and the material of his observation, and hence about the definition of the body of knowledge which the 'good' scientist would produce. *Idéologue* mental philosophy had stressed the importance of the training of the moral perceptions at the same time as those of the natural world, because perceptions of good and evil, and perceptions of the external world, were so closely linked. The character of the observer could thus influence the perception of what was observed. At the same

time, an older tradition of scientific biography, through Fontenelle and Haller, had also stressed the importance of the character of the scientist, as a means of stressing the special nature of the scientific pursuit. In general history, individual action and character were of course still ascribed the preponderant role in explanation. All three of these factors meant that discussion of the methodology and subject-matter of the newly-evolving disciplines could convincingly be conducted in terms of that of the character of individuals. It was not only for reasons of pure polemics that Cuvier's character was awarded such attention by all schools of biography. The underlying level of their concern about the content of the life-sciences was intimately linked with their superstructure of concern with aspects of the character of Georges Cuvier,²³ in relation to that of the 'ideal' scientist.²⁴

After the publication of the *Origin of species* in 1859, new concerns began to appear in studies of Cuvier, though discussion of character remained the main medium of explanation. French unease about the impact of Darwin's theory rendered urgent a revaluation of Lamarck as the originator of an 'evolutionary' theory whose mechanics and emphases were distinct from those of that of Darwin. Given the assumption of conflict between Cuvier and Lamarck established by Blainville, and reinforced by his posthumously published work of 1890,²⁵ part of this task could be undertaken only through the denigration of Cuvier. Cuvier's obstruction of Lamarck could also be used to explain why French science had not been able to anticipate the impact of Darwin with a distinctive theory of its own. Flourens's continuing stress on Cuvier "the man of facts" in 1865 conveniently supplied additional ammunition to the Lamarckians. The second period of biography, after 1859, thus carried over earlier preoccupations with Cuvier's character. It also shows an interest in projecting back evolutionary concerns onto the life-sciences of the earlier part of the century, and injects an element of nationalism into the evaluation of the different approaches of Cuvier and Lamarck. "Cuvier the obstacle to transformism/evolution" was the product of these viewpoints.²⁶

The life of the Belgian malacologist Paul Pelseneer (1863-1945) almost exactly spans this second period. His main interpretative work on Cuvier, written very shortly after the end of the First World War, provides a distillation of this approach.²⁷ His evolutionary concerns are explicit :

La première fois que l'évolution fut constituée en corps de doctrine scientifique, ce fut par Lamarck (p. 53).²⁸

(Though Pelseneer speaks throughout of 'evolution', he distinguishes sharply between the Lamarckian and the Darwinian varieties.) Cuvier's

claims to be the founder of paleontology and of comparative anatomy are dismissed in terms of the claims, not of Pallas and Vicq d'Azyr, but of those of Geoffroy St Hilaire and Lamarck (pp. 67-68). The kernel of his attack is, however, provided by nationalist considerations. Taking up Blainville's previous accusations of Cuvier's hostility to theory, and of insincerity in conforming to religious orthodoxies, he links this to an idea of national characteristics in science. Cuvier's opposition to Lamarck to some extent depended on

. . . la rigueur de son protestantisme un peu étroit . . . puisqu'elle lui fit toujours défendre la lettre de la tradition biblique. Mais il semble que c'est essentiellement la mentalité germanique due à son éducation générale première (pp. 69-70).²⁹

Cuvier, like contemporary German schools of biology, was distinguished mainly by his lack of theoretical direction, and by the indiscriminate collection of 'facts'. Lamarck, being more truly French than Cuvier, adopted the opposite and more scientific course of awarding great importance to theory in the life-sciences (p. 88). The section concludes with an attack on the dominance of German scientific prestige in Belgium.

The effects of this kind of analysis are still being felt. If Cuvier was really already fully formed by his education in Germany by the time he reached Paris in 1795, no further examination of the intellectual influences to which he was exposed was really necessary; and we still know very little about this key area of his mental development.³⁰ Nor was the more favourable biographical tradition really interested in countering such claims by undertaking detailed factual research; the polemical stereotypes through which issues in the life-sciences were discussed were already to hand.

The 'Germanic' school of interpretation of Cuvier also linked up nicely with Blainville's attack on Cuvier's exploitation of his political position. Pelseneer argued that Cuvier's qualities were not those of the scientist, but rather those of the man of affairs,

. . . qui menaient à la conquête des situations et des influences, et qui manquaient à des hommes exclusivement occupés de travaux scientifiques, comme ses deux émules Ainsi, Cuvier bénéficiait dans le monde extra-scientifique et administratif, où il était gros personnage, du prestige de sa notoriété scientifique, et d'autre part, dans le domaine scientifique, il bénéficiait et *abusait* [italics mine] de sa situation et de son influence politique et administrative (pp. 70-71).³¹

The argument that Cuvier's 'Germanic' character, with its love of power, authority and subordination, made it impossible for him to fulfil criteria of scientific respectability, is here presented in a blatantly circular form.

Pelseneer's article is interesting not only because it represents an extreme form of the 'nationalist-evolutionary' reworking of Blainville's case against Cuvier,³² but because of the philosophy of science which accompanies it. In spite of the fact that the body of his analysis of Cuvier and Lamarck is carried out in terms of the character of the ideal scientist, just as Blainville's had been, on the explicit level Pelseneer's philosophy of science separates the scientist and the scientific idea to a far greater extent:

Quand les connaissances sont suffisamment avancées qu'une idée est mûre, elle surgit fatalement, automatiquement, dans le cerveau d'un homme possédant une science suffisante à son éclosion, et à défaut de l'un, chez un autre (p. 87).³³

Pelseneer appeals to the 'Germanic' qualities of Cuvier's character to explain his part in the slow acceptance of Lamarck's theories; at the same time, conducting his attack on Cuvier in terms of the behaviour of scientific ideas, rather than in terms of the behaviour of scientists, helped to make his interpretation more convincing because more in keeping with approved norms of 'objectivity' in the sciences. Most recent biographers of Cuvier have assumed that it is logically sound simultaneously to use explanations based both on assumptions about his character, and on assumptions about the behaviour of scientific ideas. But in reality, the implications of these two different types of explanation are so different that they cannot possibly be used together without introducing a very deep conceptual confusion into the account where they appear.

One of the foremost modern victims of this confusion is Franck Bourdier,³⁴ whose approach, diffused through the *Dictionary of scientific biography*, has influenced both French and English views of Cuvier. All the old stereotypes of Cuvier's character reappear in this account, but are accompanied by sections of 'objective' discussions of scientific issues. Cuvier is presented as a natural and life-long political conservative of an unsympathetic variety ("He dreaded the populace throughout his life"), and, as was only to be expected, displayed a rigid, Germanic, mentality ("Between the ages of 19 and 23, he acquired the basic ideas that he developed between 1804 and his death in 1832"). There follow the usual allegations of authoritarianism, political opportunism, and susceptibility to the grossest flattery (pp. 523-4). Cuvier "the man of facts" then reappears (p. 525). From this information, we are left to deduce the causes of his conflicts with Lamarck and Geoffroy. As a parting shot, Bourdier implies that Cuvier's scientific reputation was fatally damaged by the success of the

Darwinian theory, and thus links him again to the anachronistic evolutionary concerns so beloved by the immediately preceding generation of biographers.³⁵

William Coleman's recent book³⁶ is intended as a re-examination of Cuvier, and the need for such a work should by now be abundantly clear. However, Coleman's lack of awareness of the problems posed by the biographical tradition surrounding his subject leads him into the same conceptual confusions as those manifested by Bourdier. In keeping with the more recent school of biographers, he attempts to account for Cuvier's ideas in terms of 'purely scientific' debates, and in his preface explicitly limits his consideration of Cuvier to the 'purely scientific' aspects of his life. The anachronisms involved in such an approach should not need to be pointed out. Even more important are the assumptions about the relations between the scientist and his material which underlie such a biographical approach. Coleman relies heavily on the main points of the character-sketch of Cuvier which originates with Blainville. On logical grounds it is difficult to see how deductions drawn from ideas about Cuvier's character could serve as explanations for the 'scientific' parts of Cuvier's life, given the way in which Coleman has defined the 'scientific' area. The information on Cuvier's character and background, relegated to the opening and closing chapters of the book, yet plays such a large confirmatory role as to undermine the assumption of the rest of the book, that scientific ideas can be properly and fully explained simply in terms of other scientific ideas. For example, the image of "Cuvier the conservative" (p. 6) prepares the way for the explanation of Cuvier's adherence to the fixity of species and his rejection of transformism. "Cuvier seems to have been constitutionally unable to support . . . the basic idea of change" (p. 174). Since Coleman, rather than examine Cuvier's ideas on their own terms, has decided to set him firmly at the centre of a study of evolution theory, he is also faced with the problem of accounting for Cuvier's adherence to 'incorrect' theories. In terms of assumptions about the automatic advance of scientific truth, the question is unanswerable, and Coleman is forced back onto the older means of explanation in terms of character, which he inherits directly from the first generation of Cuvier's biographers.

But acceptance of the images of Cuvier generated by Blainville, by Mrs Lee, and through them by Cuvier himself, leaves Coleman no means of dealing with one of the most puzzling problems presented by Cuvier's work, that of the reticence he displayed on many important issues such as the relationship between geology and religion, the place of man in the natural world, and the question of the existence and reality of species. Explanations drawn both from the existing debate on Cuvier's character, as well as from the 'scientific' explanation of the history of science are inadequate to deal with this problem, without an enormous widening of

the spectrum of experience allowed to enter into the making of a scientific idea.

However, my purposes in this paper are not merely negative. An accurate depiction of the peculiarities of the biographical tradition surrounding Cuvier is obviously necessary before we can even pin-point the deficiencies in our knowledge of him, let alone make a serious assessment of his career. The biographical tradition was established so early, and by writers who had been so close to Cuvier, that one is also faced with the question of how far their images of him represent his own self-presentation, as well as his biographers' preoccupations. Cuvier's concern with style, image and publicity was enormous, and is reflected in his biographers' fascination with his working habits, appearance, mannerisms and domestic arrangements. At another level, Cuvier's self-presentation also indicates his awareness of the need of the man of science to live out a distinctive style of life, if science was to be endorsed as an autonomous pursuit, and thus reflected contemporary concerns about the social definition of science. The task of the modern biographer is thus not only to get behind the public image of Cuvier in ways which Mrs Lee and Blainville could not; it is also to evaluate the public image and the personality it reflected, as part of Cuvier's style of science.

Materials for the construction of a full-scale biography of Cuvier, on which the author is currently engaged, are almost overwhelmingly abundant. His official activities in education, in the Conseil d'Etat, at the Ministry of the Interior, and in religious affairs, as well as at the Muséum, the Collège de France, and the Academy of Sciences, have left an enormous mass of official correspondence. Material on his scientific activities is mainly to be found in the Fonds Cuvier of the library of the Institut de France, although there are also further smaller holdings at the library of the Muséum, and the Archive of the Academy of Sciences. That relating to education and religion, and to a smaller extent to the administration of the Muséum, is to be found in the Archives Nationales, Paris, and has been partly described in the author's own work (no. 104). However, most documents relating to the Conseil d'Etat in this period were destroyed under the Commune, and contemporary memoirs, such as those of Etienne Pasquier (see no. 145) are often disappointingly vague about his political rôle. However, the great number of letters deposited in the library of the Institut de France repairs these losses by providing a very detailed picture of Cuvier's social, personal, scientific and political life, and of the intricate ways in which all these spheres of activity overlapped. This collection has never been fully exploited, and only a fraction of it has been printed (see Section 10 of the bibliography).

Lastly, Cuvier himself prepared an autobiography, of which William Coleman is working on an annotated edition. Unfortunately, the only

version of this document now extant is a heavily abbreviated copy of the original, made by Mme Cuvier for the use of Cuvier's biographer, Pierre Flourens. Much material on Cuvier's political life was omitted, especially on his relationship with Napoleon, but enough remains to cast a strong and not always attractive light on Cuvier's personality. The problem of Cuvier's character could also be approached through such routes as the sensitive stylistic analyses of M. Becker (no. 123). But it remains true that the exploitation of this mass of documentary material, most of which remains untouched, provides the main method of constructing a coherent account of Cuvier's life and activities.

This account should also have indicated many peculiarities about the use of biography within history of science. It is obvious that the history of science has failed to cope with the problems presented to it by the life of Georges Cuvier, while its very fascination with these problems has produced an unparalleled flood of books and articles. How is this paradox to be explained? The image of science and the scientist which has dominated the history of science until very recently, has emphasized a picture of science as an objective, self-contained, value-free, emotionless, progressive kind of knowledge, and has fashioned the image of the ideal man of science in corresponding terms. Clearly, however, this ideology rules out of serious discussion problems such as the impact of individual personality and of extra-scientific activity on the development of science. Cuvier's political involvement and his forceful, obtrusive personality thus posed problems for biographers working within the established stereotypes of science and the scientist. The tensions generated by fruitless attempts to contain accounts of Cuvier within this stereotype have led to an acutely embarrassing inability to account for the career of the greatest naturalist of the first half of the nineteenth century in terms of the ideology of science which that century had evolved. Hence both the phenomenon of the endless return to the problem, and of the inconclusiveness of the attempted solutions.

Examination of the particular biographical tradition surrounding Cuvier seems to produce an image of biography in general as the refuge of the problematic areas in the history of science; of biography as a means of discussing, as do Blainville and Mrs Lee, the conflicts which lie behind the establishment of the stereotypes of the scientist and of his relationship with and effect on, his subject matter. But the polemical tensions underlying the biographical form are often so strong as to make it impossible to weld fact, hypothesis and explanation into a satisfactory whole. We have already seen how explanations of Cuvier's behaviour and ideas often seem to take on a life of their own, which is unrelated to the 'facts' from which they ostensibly spring. This split accounts for the peculiar double-images observable in many interpretations of Cuvier, probably most notice-

ably in the fascination of the biographical tradition with the question of the 'German' elements in Cuvier's character. As France gradually lost the lead to Germany in the pursuit of large-scale investigative science in the nineteenth century, images of Germany and German science came to have a specially emotive force in the history of science. Cuvier's 'Germanic' character came to be seen as sharing most of the characteristics of German science, in its authoritarianism, rigidity, arrogance, and lack of valid conceptual basis. A further implication was that his science was therefore invalid in the French context, because he "should have been" a German, and would have found a valuable place within the German tradition. Curiously, the internationalization of science so commonly ascribed to this period, has never been extended to Cuvier; much stronger has been a concern to define his achievement by external political criteria, whose use has the effect of removing the necessity to ascribe internal validity to his thought. These kinds of distortions in the biographical tradition has prevented any analysis of Cuvier's debt to German science, let alone the realization that in spite of his 'Germanic' temperament, he in fact disapproved of many of the tendencies of German science in his life-time.

The inability of the biographical model to take full account of Cuvier's non-scientific activities and of the peculiarities of his character, and the very prestige of the model as an expositor of stereotypes of the natural scientist, have combined to reduce attempts to discover more about Cuvier's life, and relate facts and explanations more closely. Biography has thus found it difficult to act as a guide towards a new perception of personality as a factor in scientific achievement, and hence towards a redefinition of the realm we call scientific. Until recently, the history of science has fully endorsed the ideology of science itself; with what harmful results, should now be obvious.

Acknowledgements

Material for this paper was collected during the tenure of the European Research Fellowship of the British Academy. I would also like to thank Karl Figlio, of the Wellcome Unit for the History of Medicine, Cambridge, and Ludmilla Jordanova, of New Hall, Cambridge, for their encouragement and criticism. Piers Vitebsky read the first draft, and Caroline Humphrey, of the Scott Polar Research Institute, Cambridge, contributed some of the ideas of the concluding section. The article is based on a paper pre-circulated to the Conference on New Perspectives in the History of the Life Sciences 1750-1850, held under the auspices of the British Society for the History of Science at Churchill College, Cambridge in March, 1976.

REFERENCES

1. *E.g.*, K. M. Lyell, *Life and letters . . . of Sir Charles Lyell* (2 vols, London, 1881), i, 249-50.
2. Apart from some murmurs of unease in J. Poirier, "Georges Cuvier, second fondateur de l'Université", *Revue de Paris* (July-August 1932), 85-115. Conversely, the few studies of his political career only mention his scientific pursuits in passing; *e.g.*, H. Puget, "Cuvier au Conseil d'Etat", *Revue politique et parlementaire*, lii (1932), 300-19.
3. There are about twenty of these stock incidents, and it may be found helpful to have a list readily available: his natal year shared with Napoleon, Scott, and Wellington; his mother's care and influence; his first encounters with works by Gesner and Buffon; his reading-circle at school; his declamation to the Duke of Württemberg; refused a place at the theological academy in Tübingen; his journey to Stuttgart; wins the German language prize; made a 'chevalier'; a tutor in Normandy; his first meeting with the Abbé Tessier, who is responsible for his first contacts in Paris (this is clearly incorrect); refuses to join the Egyptian expedition; various teaching posts in Paris, and membership of the Institut; his marriage and the death of his children, especially Clementine Cuvier; his daily timetable; his unceasing activity; his last lecture; his last illness; leaves only a modest estate; dies in the same year as Goethe and Scott; list of his other offices in the administration of education, religion, and the Ministry of the Interior.
4. W. Coleman, *Georges Cuvier, zoologist: a study in the history of evolution theory* (Cambridge, Mass., 1964), was the first serious book-length study since her *Memoirs of Baron Cuvier* (London and New York, 1833; translated into French by Théodore Lacordaire in the same year). Eulogies of Cuvier were also common in the serious reviews, but these, though often informative, would have reached a smaller audience than that of Mrs Lee. See [David Brewster], "Review of Mrs Lee and other works on Cuvier", *Edinburgh review*, cxxxvi (1836), 265-97. Mrs Lee gives extensive quotations from the *Règne animal* and from the *Histoire naturelle des poissons* (pp. 106; 123).
5. *E.g.*, D. C. Peattie, *Green laurels: the lives and achievements of the great naturalists* (London, 1937), 184-205; H. R. Hays, *Birds, beasts and men: a humanist history of zoology* (London, 1973).
6. *Eloge historique de Georges Cuvier* (Paris, 1834). Read to the Académie des Sciences on 29 December 1834. The 'autobiography' is now ms. Flourens 2598(3) of the library of the Institut de France.
7. E. Pasquier, *Eloge de M. le Baron Cuvier (Chambre des Pairs, séance du 17 septembre 1832)*; C. L. Laurillard, *Eloge de M. le Baron Cuvier . . . discours couronné par l'Académie des Sciences, Arts, et Belles-Lettres de Besançon, 24 août 1833*. Reprinted (Paris, 1834), both separately and as the preface to Cuvier's *Recherches sur les ossements fossiles des quadrupèdes* (10 vols, Paris, 1834-36), i, 3-78. The article in the *Biographie universelle* (ed. Michaud, Paris, 1852), ix, 590-600, is also based on his work.
8. Mrs Lee has also hallowed several factual errors about Cuvier's life: that his first contacts with Paris were through Tessier in 1795, whereas he had already published papers in Paris in 1792; that he became a member

of the Institut in 1796, whereas he did so in 1795; and that he married in 1803, whereas he did so in 1804. The first error is the most important, and may originate in similar statements by Geoffroy St. Hilaire, in his "Discours sur la tombe de Cuvier", *Annales des sciences naturelles*, xxvi (1832), 403: a speech delivered at Cuvier's funeral, 16 May 1832.

9. See ref. 4.
10. See their correspondence with Babbage, British Museum, Add mss. 37951, 37185, 37187, 37182. Bowdich's own career offers a good example of the kind of difficulties faced by the autodidact without assured financial support. His life is sympathetically described by another participant in the 'Declinist' debate, William Swainson, *Taxidermy, bibliography and biography* (Lardner's Cabinet Cyclopaedia, London, 1840), 135-7. Cuvier also contributed notes to Bowdich's *Excursions dans les îles de Madère et de Porto-Santo faites dans l'automne de 1823 pendant son troisième voyage en Afrique* (Paris, 1826). On the 'Declinist' controversy in general, see G. A. Foote, "The place of science in the British reform movement, 1830-1850", *Isis*, xlii (1951), 192-208. Charles Babbage, *The decline of science in England* (London, 1830) is the contemporary *locus classicus* for 'Declinist' opinions, and also uses Cuvier repeatedly to help to prove its case about the organization of science.
11. An interesting study could be made of Cuvier's reputation in England before 1832, but would go well beyond the scope of this paper. On Cuvier and geology in England, see L. E. Page, "Diluvianism and its critics in Great Britain in the early nineteenth century", in C. J. Schneer (ed.), *Toward a history of geology* (Cambridge, Mass. and London, 1969), 257-71. For Dugald Stewart, *Collected works* (ed. Sir Wm Hamilton, 10 vols and supplement, Edinburgh, 1854), iv, 387-8. (I owe this reference to Karl Figlio.)
12. For a thoughtful study of press attitudes towards Cuvier during the public debate with Geoffroy, see W. Lubosch, "Die Akademiestreit zwischen Geoffroy St. Hilaire und Cuvier im Jahre 1830, und seine leitenden Gedanken", *Biologische Centralblatt*, xxxviii (1918), 357-84, 397-456. Possibly the most detailed and sensitive study of these issues, Lubosch's work is also alone in recognizing that the historiography of Cuvier poses a problem in its own right.
13. See the accounts of the conflicts with Arago in 1830 (p. 310), with Geoffroy from 1830-32 (p. 129), and the brief account of the differences with Lamarck (p. 99).
14. In 1932, André Mayer still found it necessary to assure his audience that although Cuvier was a man of science, he had not preached violent revolution. See S. Peuteuil, *Les fêtes du centenaire de Cuvier* (Montbéliard, 1933), 118-23.
15. *Histoire des sciences de l'organisation et de leurs progrès comme base de la philosophie* (3 vols, Paris, 1845), iii, 335-466.
16. R. W. Burkhardt, Jr, "Lamarck, evolution, and the politics of science", *Journal of the history of biology*, iii (1970), 275-98, though correcting the usual presentation of Lamarck as Cuvier's helpless victim, nevertheless still envisages their relationship as one of unceasing conflict. This assumption has obscured their common ground in zoological thought, and has contributed to a lasting misinterpretation of the work of both men.

17. Blainville (ref. 15), iii, 351: "La vie de M. de Lamarck est une belle vie de savant, et elle nous montre comment il était apte à tous les parties des sciences naturelles".
18. ". . . have exalted him above his true worth; because of his political power, it has been easy for them to represent him as the ornament of his age, the Aristotle of modern times."
19. ". . . angered by political factors or for other reasons, have attacked him with a fury so violent as to be the result only of prejudice."
20. "a fatal reef for most intelligences so gifted."
21. For example, the articles collected in the memorial volume of the *Archives du Muséum National d'histoire naturelle*, ser. 6, ix (1932), emphasize this interpretation of Cuvier, to validate an onslaught on contemporary vitalism.
22. There is no full-length study of Blainville's thought, though valuable indications are given in H. Gouhier, "La philosophie positive et chrétienne de Ducrotay de Blainville", *Revue philosophique*, cxxxi (1941), 38-69.
23. It is interesting to note that these concerns are present through the entire range of accounts of Cuvier, and do not remain the exclusive property of 'academic' surveys of his life. The extensive literature for children and adolescents often differs from works by such writers as Lee, Pasquier, and even Flourens, only in the complexity of the language employed. Aspects of Cuvier's life which find particular emphasis in these accounts for young people are his achievements in classification and in paleontology, which emphasise the mastery of the human enquirer over nature in both space and time. No other scientist attracted such interest from popular writers in the first half of the century; partly this represents the success of propaganda for Cuvier at the higher 'academic' levels, partly Cuvier's own success as a popularizer; but the continuity of concerns throughout the spectrum also points to shared concerns at all levels about the problems of the social and personal role of the scientist which Cuvier's career seemed to contain. Examples of writing for young people, both to be found in the British Museum, are G. Day, *Naturalists and their investigations* (London, 1896), 98-131; and Mme Gustave Demoulin, *Cuvier* (Paris, 1881), a work designed for use in *lycée* classes, and written in a clear and pleasing style.
24. For the evolution of this ideal, see L. M. Marsak, "Bernard de Fontenelle: the idea of science in the French Enlightenment", *Transactions of the American Philosophical Society*, xlix (1959); O. Sonntag, "The motivations of the scientist: the self-image of Albrecht von Haller", *Isis*, lxxv (1974), 336-51. An interesting comparative study could be made along these lines by examining, for example, collections of funeral orations for and by members of the Académie des sciences, and would help to explore, on a wider basis than can be achieved in this paper, the exploitation of biography to establish the stereotype of the scientist.
25. *Cuvier et Geoffroy St. Hilaire: biographies scientifiques*. Blainville died in 1865.
26. Almost all studies of Cuvier have tied the events of his last years to evolutionary concerns, and this interpretation has only just begun to crumble. A forerunner here was J. Piveteau, "Le débat entre Cuvier et Geoffroy St. Hilaire sur l'unité de plan et de composition", *Revue d'histoire des*

- sciences*, iii-iv (1950-51), 343-63. However, the tendency to attempt to explain Cuvier by reference only to the scientific sphere of his life is also present in works unconcerned with the evolutionary debate. E.g., M. J. S. Rudwick, *The meaning of fossils: episodes in the history of paleontology* (London-New York, 1972), 101-63. In 1865, Flourens published *De l'unité de composition et du débat entre Cuvier et Geoffroy St. Hilaire* (Paris).
27. "Les premiers temps de l'idée évolutionniste: Lamarck, Geoffroy St. Hilaire, et Cuvier", *Annales de la Société royale et malacologique de Belgique*, 1-111 (1919-21), 53-89. On Pelseneer himself, see P. Brien, "Le lamarckisme de Paul Pelseneer", *Bulletin de la Société zoologique de France*, lxxi-lxxii (1946-47), 134-40.
 28. "The first formulation of evolution as a scientific doctrine was achieved by Lamarck."
 29. ". . . the rigour of his narrow Protestantism . . . which led him always to defend the letter of biblical tradition. But it seems that this was really due to his Germanic mentality, formed by his early education."
 30. I hope to provide some more information on Cuvier's early contacts in Paris in my forthcoming edition of his correspondence with the Tuscan physicist Giovanni Fabbroni.
 31. ". . . which led to his dominance of situations and influence, and which were lacking in men exclusively occupied, as were his two rivals, with scientific work. . . . Thus Cuvier benefited by his prominence in the extra-scientific world of administration, from his scientific prestige; and on the other hand, in the scientific world, he benefited from and *abused* his political situation and administrative influence."
 32. Another example of this reworking is E. Trouessart, *Cuvier et Geoffroy St. Hilaire d'après les naturalistes allemands* (Paris, 1909), which is almost entirely taken up with an attack on K. E. von Baer's view of Cuvier; and more recently, P. Huard and M. Montagné, "Georges Cuvier et son temps", *L'extrême-orient médical*, i (1949), 179-259, which also provides an extensive and inaccurate bibliography.
 33. "When knowledge is sufficiently advanced and ideas are mature, they arise automatically, irresistibly, in the brain of a man whose learning is sufficient to rear them; and if these qualities are lacking in one individual, the idea will come from another."
 34. *Dictionary of scientific biography*, ed. C. C. Gillispie, iii (New York, 1971), 521-7.
 35. As well as consecrating Cuvier's "somewhat Germanic mentality", Bourdier's article is also marred by factual inaccuracies: Cuvier visited England in 1818, not in 1817; he became a member of the Institut in 1795, not 1796 (see ref. 8); and Kielmayer was not the founder of *Naturphilosophie*, a movement which he detested.
 36. See ref. 4. This book was based on a doctoral thesis. Coleman's more recent work on Cuvier shows a considerable advance in the complexity of its viewpoint, and in its grasp of the whole context within which Cuvier operated. See, for example, the valuable article "Les organismes marins et l'anatomie comparée dite expérimentale: l'oeuvre de Georges Cuvier", *Vie et milieu*, suppl. vol. xix (1965), 225-38. It should also be noted that no reviews of Coleman's book showed any awareness of the special problems and implications of scientific biography; e.g., L. G. Wilson, *Isis*, lv (1964), 223, Gavin de Beer, *Journal of the history of medicine*, xx (1965), 80-81.

BIBLIOGRAPHY

Principles of selection

My concern in compiling this bibliography has been to evaluate the image of Cuvier formed through writings in English and French published after his death in 1832. Studies in German have been excluded, as forming part of a different tradition dominated by different problems, notably by debates on vitalism; such works could well form the subject of another project. I have also excluded works written about Cuvier before 1832; to have included such works would have involved the listing not only of most contemporary memoirs, but also most contemporary works in the life-sciences. For the same reasons of scale, only the most important later histories of biology and zoology have been included. Collections of Cuvier's own works have also not been taken into consideration, since several excellent bibliographical aids already exist in this field, and are accessibly listed in the bibliography supplied in William Coleman's study of Cuvier. A section has however been devoted to bibliographical problems arising out of Cuvier's works. A special problem was posed by works on the literary circles under the Restoration, in which Cuvier's *salon* played an important part until about 1828. It was decided to include only works which specifically examined Cuvier's impact on the contemporary literary imagination, or his relationship to such figures as Stendhal and Mérimée, or which indirectly supplied information on his domestic circumstances. In turn, this topic overlaps with the extensive literature on Cuvier's salon in general, which tends to concentrate on such celebrities as Humboldt, at the expense of his more typical acquaintances. The derivative nature of most of this material also imposed problems of selection, but in the hope of preserving a few otherwise unknown items of information, only the most trivial articles have been excluded. The numerous accounts of Cuvier produced in the last century for children and adolescents, of which there is a fine collection in the British Museum's holdings of juvenile literature, have also not been comprehensively included, though they certainly merit special consideration. Lastly, no attempt has been made to include every contemporary review of works by or on Cuvier, although a few of the more important are to be found in Section 11. The *Wellesley index* to Victorian periodicals here also proved invaluable in the identification of anonymous articles, and would also provide the obvious starting point for any serious attempt to evaluate Cuvier's reputation in the English periodical press of the nineteenth century.

Within these limits, this bibliography has aimed at exhaustiveness. Since there is no complete edition of Cuvier's correspondence, and very few published selections from it, it also seemed helpful to indicate with an asterisk those works outside Section 10 which also contain printed letters by him. Regretfully, it was not felt possible to introduce further subdivisions into the section on studies of Cuvier's scientific work, since most writers see his ideas in different fields as being closely related. The other divisions established in the material in this bibliography should otherwise be self-explanatory—as well as indicating the ways in which study of Cuvier has conventionally been compartmentalized.

Index to Sections

- (1) General surveys of Cuvier's life.
- (2) Genealogy, birth, marriage and death; centenary celebrations.
- (3) Aspects of Cuvier's scientific work.
- (4) His relations with Lamarck and Geoffroy St Hilaire.
- (5) His political career.
- (6) Cuvier and scholarly institutions.
- (7) His *salon* and its literary impact.
- (8) His interest in language and social sciences.
- (9) Funeral orations on Cuvier, and commemorative speeches of 1835 (see also Section (1)).
- (10) Printed letters.
- (11) Bibliographical issues in Cuvier's works; archive catalogues; reviews of works by or on Cuvier published after 1832.

(1) *General Surveys of Cuvier's Life.*

1. [ANON], *Cuvier and zoology: a popular biography, with an historical introduction and sequel* (London, 1854).
Dependent on Lee, Laurillard, Pariset and Duvernoy. Cuvier as a moral exemplar in science. It has proved impossible to identify the author, though it is tempting to ascribe it to John Macray (no. 26).
2. P. ARDOUIN, *Georges Cuvier, promoteur de l'idée évolutionniste et créateur de la biologie moderne* (Paris, 1970).
Dependent on Lee and Viénot (no. 34). Some interest in Cuvier and medicine. Concerned with proving Cuvier's Frenchness.
3. K. E. VON BAER, "Biographie de Cuvier", *Annales des sciences naturelles: zoologie*, vi (1907), 263-347.
Unfinished; edited by Ludwig Stieda. First printed in *Archiv für Anthropologie* (1896). Originated in von Baer's lectures of 1869 in the University of Dorpat. Concerned with ethical neutrality of science. Supports Cuvier against Geoffroy, emphasizes his debt to Kiehmayer. This approach was attacked at length by Trouessart (no. 33).
4. H. DUCROTAY DE BLAINVILLE, *Histoire des sciences de l'organisation et de leurs progrès comme base de la philosophie* (3 vols, Paris, 1845), iii, 335-466.
See Introduction. Originated in lectures delivered between 1839 and 1841. For the distortions introduced by the Abbé Maupied into the printed text, see E. Shuster-Aziza, "Note sur Henri de Blainville, historien de la biologie", *Revue d'histoire des sciences*, xxv (1972), 191-200.
5. H. DUCROTAY DE BLAINVILLE, *Cuvier et Geoffroy St Hilaire; biographies scientifiques* (Paris, 1890).
See no. 4, and Introduction.

6. FRANCK BOURDIER, "Cuvier", *Dictionary of scientific biography*, ed. C. C. Gillispie, iii (New York, 1971), 521-7.
See Introduction.
7. I. BOURDON, *Illustres médecins et naturalistes des temps modernes* (Paris, 1844), 1-146.
Written in 1835, from personal knowledge of Cuvier. See also his article in *Journal des débats*, 15 May 1832. Relies on Duvernoy, Lee, Laurillard, Pasquier. Long discussion of Cuvier's *Discours sur les révolutions du globe*, as an introduction to his method. Confused account of Cuvier's religious views; sees his political career as harmful to his scientific work. Details of his daily life.
- *8. A-P. DE CANDOLLE, *Mémoires et souvenirs* (Geneva, 1862).
Cuvier appears throughout, with especially valuable material on his life in Paris from 1795 to 1800. Penetrating and sympathetic analysis of his character. Reprints six letters from Cuvier to Candolle, dated between 1802 and 1813. See also nos 98 and 135.
9. ALPHONSE DE CANDOLLE, *Histoire des sciences et des savants depuis deux siècles, suivie d'autres études sur des sujets scientifiques, en particulier sur la sélection dans l'espèce humaine* (Geneva-Basle-Lyons, 1873), 1-285.
Cuvier's nationality; Cuvier and the professionalization of science.
10. L. CHAUVIN (ed.), *Savants français: éloges historiques prononcés à l'Institut de France, précédés d'une . . . notice biographique de Cuvier*. (Limoges, n.d. [? 1910]).
Intended for young people. Reliance on Flourens. Defends Cuvier from charges of political servility, emphasizes his success as a popularizer of science.
11. W. COLEMAN, *Georges Cuvier, zoologist: a study in the history of evolution theory* (Cambridge, Mass., 1964).
See Introduction, and Section 3, nos 53-56.
12. G. DAY, *Naturalists and their investigations: Linnaeus, Edward, Cuvier, Kingsley* (London, 1896), 98-131.
See Introduction, ref. 23. Egalitarian implications of scientific professionalization.
13. G. DEMOULIN, *Cuvier* (Paris, 1881).
See Introduction, ref. 23.
14. G. L. DUVERNOY, *Notice historique sur les ouvrages et la vie de M. le baron Cuvier* (Paris, 1833).
Originated as lectures delivered to the Faculty of Sciences in the University of Strasbourg, 15-16 November 1832. Contains an extensive bibliography of Cuvier's works, and highly edited versions of the letters between Cuvier and Duvernoy later reprinted in their entirety by Viénot (Section 10, no. 156). Dependent on Pasquier for details of Cuvier's political career.
15. P. FLOURENS, *Georges Cuvier: histoire de ses travaux* (Paris, 1845).
An expanded version of Flourens's funeral eulogium of Cuvier, delivered to the Academy of Sciences, 29 December 1834, which was

also refurbished as *Analyse raisonnée des travaux de Georges Cuvier précédée de son éloge historique* (Paris, 1841). Pays little attention to Cuvier's non-scientific activities, and often substitutes Flourens's ideas for Cuvier's without warning. See also no. 89.

16. [W. GRIFFITH], *The animal kingdom arranged according to its organisation, serving as a foundation for the natural history of animals and an introduction to comparative anatomy. Translated from the latest French edition* (4 vols, London, 1834-37), i, pp. iii-xvi.
Cuvier untainted by political life. Uses Lee's account of Cuvier's appearance.
17. E. and E. M. HAAG, *La France protestante ou vies de Protestants français* (Paris, 1853), iv, 150-169.
Reliance on Flourens and Duvernoy. Dismisses Blainville's attack. Cuvier wholly French, and more devoted to science than to politics. The second edition of this work (Paris, 1884, iv, col. 989-1018) gives a much more detailed account of Cuvier's geological views, and re-examines his relations with Lamarck in the light of Darwinism. Also shows greater disapproval of Cuvier's political career. Both editions contain a good bibliographical section, though, oddly, neither pays much attention to his religious opinions.
18. E-T. HAMY, *Les débuts de Lamarck, suivis de recherches sur Adanson, Pallas, Jussieu, Geoffroy St. Hilaire, Georges Cuvier, etc.* (Paris, 1908), 306-45, "Notes intimes sur Georges Cuvier, du Docteur Quoy".
First published in *Archives de médecine navale*, 1906. Quoy was a friend of Blainville, and shared many of his views on Cuvier.
19. H. R. HAYS, *Birds, beasts and men: a humanist history of zoology* (London, 1973), 190-204.
Reliant on Lee. See Introduction, ref. 5. A hostile account, linking Cuvier with evolutionary debates.
- *20. P. HUARD and M. MONTAGNE, "Georges Cuvier et son temps", *L'extrême-orient médical*, i (1949), 179-259.
See Introduction, ref. 32. Reprints a letter from Cuvier to Bourgerly, author of a treatise on anatomy, 1829.
21. W. JARDINE, *The naturalist's library: mammalia* (Edinburgh, 1834), 17-58.
Reliance on Lee and Pasquier. Cuvier's political career a tribute to his scientific eminence, and not to his ambition for power.
22. R. KNOX, *Great artists and great anatomists: a biographical and philosophical study* (London, 1852).
Knox met Cuvier in 1821-22. Reliance on Lee, and generally 'Declinist' tone. Cuvier's ideas have been misrepresented by English natural theologians. Argues for the value of naive observation, and is concerned with the conflict between human demands for utility from animal productions, and the beauty of nature. Unfavourably reviewed by E. Forbes, *Literary papers* (London, 1855), 141-4.
- *23. T. DICK LAUDER, *The miscellany of natural history: the feline species* (Edinburgh, 1834), 1-44.
Reliance on Lee, Pasquier, Pariset, and Duvernoy. Concerned to

establish Cuvier's simple goodness of heart. Reprints a letter from Cuvier to James Wilson, author of *Illustrations of zoology*, 3 June 1827.

24. C. L. LAURILLARD, *Eloge de M. le baron Cuvier . . . discours couronné par l'Académie des Sciences, Arts, et Belles-Lettres de Besançon, 24 août, 1833* (Paris, 1834); also reprinted as the preface to Cuvier's *Recherches sur les ossements fossiles des quadrupèdes* (10 vols, Paris, 1834-36), i, 3-78. The article in the *Biographie universelle*, ed. Michaud (Paris, 1852), ix, 590-600, is also based on this work. See Introduction, ref. 7. Cuvier as a classifier, and as the historian of nature. Refutes view that Cuvier worked to justify biblical geology.
25. S. LEE, *Memoirs of baron Cuvier* (London, 1833). See Introduction, passim, and ref. 4. The description of this work by Jean Tulard, *Bibliographie critique des mémoires sur le Consulat et l'Empire* (Geneva, 1971), 46, is inaccurate.
26. [JOHN MACRAY], "Baron Cuvier", *Foreign quarterly review*, x (1832), 266-8. See Section 1, no. 1. Emphasizes Cuvier's popularization of science, his remoteness from politics.
27. H. A. NICHOLSON, *Natural history: its rise and progress in Britain as developed in the life and labours of leading naturalists* (London and Edinburgh, 1886), 136-67. Based on the author's article in the *Encyclopaedia Britannica*. Comparative anatomy the true basis of scientific classification. The principle of the correlation of organs is liable to correction by the progress of science.
28. D. C. PEATTIE, *Green laurels: the lives and achievements of the great naturalists* (London, 1937), 184-205. Reliance on Lee. See Introduction, ref. 5.
29. J. PIZZETTA, *Galerie des naturalistes: histoire des sciences naturelles depuis leur origine jusqu'à nos jours* (Paris, 1893), 234-66. Some reliance on Flourens. Usual charges of political ambition and religious insincerity.
30. L. ROULE, *Cuvier et la science de la nature* (Paris, 1926). Second edition, 1933. Little discussion of his debt to his contemporaries apart from Bichat. No mention of the 1830 dispute. Concern to show relevance of Cuvier to modern biology.
31. L. ROULE, "La vie, la carrière et la mort de Cuvier", *Archives du Muséum National d'histoire naturelle*, ix (1932), 13-20. Cuvier not really interested by politics. The 'man of facts'. See Introduction, ref. 21.
32. W. SWAINSON, *Taxidermy, bibliography and biography* (London, 1840), 157-61. Reliance on Lee, whom he knew personally. See Introduction, ref. 10.

33. E. L. TROUËSSART, *Cuvier et Geoffroy St. Hilaire d'après les naturalistes allemands* (Paris, 1909).
See Introduction, ref. 32, and Section 1, no. 3. Also used as a source by Bourdier (Section 1, no. 6).
34. J. VIENOT, *Georges Cuvier, Napoléon de l'intelligence, 1769-1832* (Paris, 1932).
A weak study, concentrating on Cuvier's personal life. Until 1964 the only full-length account other than Lee in either English or French.
35. [M. WILKS], *Memoir of Baron Cuvier* (London n.d. [? 1850]).
Wilks knew Cuvier's household, and especially his daughter Clementine, at first hand, and was a Protestant pastor in Paris. Gives interesting details of religious life within Cuvier's own family. See also his memoir of Clementine in the *Evangelical magazine* of February 1828, and his *The flower faded: a short memoir of Clementine Cuvier* (London, 1832, 1844), on which this work is based.

(2) *Genealogy, birth, marriage and death. Portraits. Centenary celebrations.*

36. R. ANTHONY, "Le centenaire de Cuvier", *Revue scientifique*, lxx (1932), 449-52.
37. H. BOUQUET, "Comment mourut Cuvier", *Revue générale scientifique*, xliii (1932), 344-5.
38. M. BRIANCHON, "La jeunesse de Cuvier", *Société nationale havraise d'études diverses*, xli-xliii (1876).
Three studies, dealing respectively with Cuvier in Montbéliard, Stuttgart, and Fiquainville. Strongly hagiographical, but with detailed discussion of Cuvier's real names and birth date.
39. L. BULTINGAIRE, "L'iconographie de Cuvier", *Archives du Muséum National d'histoire naturelle*, ix (1932), 1-12.
Reprints letters between Lee and Cuvier's step-daughter Sophie Duvaucel (1831).
40. E. T. HAMY (ed.), *Luce de Lancival, Epithalame pour le mariage de Georges Cuvier* (Paris, 1907).
Disappointingly lacking in detail, especially as there is so little available information on Mme Cuvier, who was instrumental in producing the version of his 'autobiography' which remains to us. See Introduction, ref. 6.
41. CH. MATHIOT, "Les origines familiales du grand Cuvier", *Franche-Comté Monts Jura, Haute-Alsace, revue régionale mensuelle* (March 1932).
Also in book form (Besançon, 1932).
42. S. PEUTEUIL, "Les fêtes du centenaire de Cuvier", *Mémoires de la Société d'Emulation de Montbéliard*, li (1933), 99-162.
Contributions from L. Roule, J. Viénot, Weygand, A. Meyer, R. Anthony, A. Lacroix. Concludes with a bibliography of all centenary notices of Cuvier in the French daily press for 1932. See Introduction, ref. 14. See also nos 124, 44, 30-31, 34.

43. M. ROYA, "L'acte de baptême de Cuvier", *Nouvelles littéraires*, x (7 May 1932).

(3) *Aspects of Cuvier's scientific work.*

44. R. ANTHONY, "Cuvier et la chaire d'anatomie comparée du Muséum National d'histoire naturelle", *Archives du Muséum National d'histoire naturelle*, ix (1932), 21-31.
Cuvier the man of facts, the founder of the science of anatomy; interest in the role of theory in science. See Introduction, ref. 21.
45. M. BOULE, "Georges Cuvier, fondateur de la paléontologie", *ibid.*, 33-46.
Cuvier's popularization of paleontology. Accurate account of his views on geological catastrophes and their possible consequences.
46. G. BUGLER, "Georges Cuvier, biologiste moderne", *Bulletin et Mémoires de la Société d'Emulation de Montbéliard*, lxxvii (1969), 15-32.
Cuvier's attitude towards physiology.
47. A. J. CAIN, "Deductive and inductive methods in post-Linnaean taxonomy", *Proceedings of the Linnaean Society of London*, clxx (1957-58), 185-217.
Maintains usual opposition between Cuvier and Linnaeus.
48. G. CANGUILHEM (ed.), "Georges Cuvier: journées d'étude organisées par l'Institut d'histoire des sciences de l'Université de Paris les 30 et 31 mai 1969 pour le bicentenaire de la naissance de Georges Cuvier", *Revue d'histoire des sciences*, xxiii (1970), 1-92.
Contributions from C. Limoges, "L'économie naturelle et le principe de corrélation chez Cuvier et Darwin" (35-48); F. Courtès, "Georges Cuvier ou l'origine de la négation" (7-34); F. Dagonet, "La situation de Cuvier dans l'histoire de la biologie, I" (49-62); M. Foucault, *idem*, II (63-92). See also no. 62.
49. A. V. CAROZZI, "Une nouvelle interprétation du soi-disant catastrophisme de Cuvier", *Archives des sciences* (Geneva), xxiv (1971), 367-77.
A more detailed English version has been published as the introduction to Carozzi's edition of the *Discours sur les révolutions de la globe* (New York, 1972). Cuvier was nearer to uniformitarianism than is commonly realised.
50. V. CARUS, *Histoire de la zoologie depuis l'antiquité jusqu'au dix-neuvième siècle* (Paris, 1880), 483-97.
A translation by P. O. Hagenmuller of the original German edition (Munich, 1872). Claims Cuvier as a German. His interest in the function of the animal economy as a whole; confusions of his classification. His debt to Virey.
51. J. CHAINE, *Histoire de l'anatomie comparée* (Bordeaux, 1925), 265-91.
Cuvier upheld the fixity of species and combatted evolutionary ideas because of his religious convictions. Reliance on E. S. Russell for discussion of Cuvier's teleology (see Section 3, no. 81).
52. J. CHAINE, "La grande époque de l'anatomie comparative", *Scientia*, I (1931), 365-75.

53. W. COLEMAN, "Georges Cuvier, biological variation, and the fixity of species", *Archives internationales d'histoire des sciences*, xv (1962), 315-31. Awareness of post-Darwinian distortions of Cuvier. Tends to confuse Cuvier's debate with Lamarck and that with Geoffroy.
- *54. W. COLEMAN, "A note on the early relationship between Georges Cuvier and Louis Agassiz", *Journal of the history of medicine*, xviii (1963), 51-63. Reprints a letter from Cuvier to Agassiz of 1829. Adopts usual view of Cuvier's willingness to absorb flattery.
- *55. W. COLEMAN, "Abraham Gottlob Werner vu par Alexandre von Humboldt avec des notes de Georges Cuvier", *Sudhoffs Archiv*, lvii (1963), 465-78. Reprints a letter from Cuvier to Camper attacking Humboldt.
56. W. COLEMAN, "Les organismes marins et l'anatomie comparée dite expérimentale: l'oeuvre de Georges Cuvier", *Vie et milieu*, supplementary volume xix (1965), 225-38. See Introduction, ref. 36. Cuvier's relations with contemporary physiology.
57. H. DAUDIN, *Cuvier et Lamarck: les classes zoologiques et l'idée de série animale 1790-1830* (2 vols, Paris, 1926). Still the most thoughtful and detailed study of this topic. Contains an extremely accurate bibliography of Cuvier's works in anatomy and taxonomy.
58. J. B. DELAIR and W. A. S. SARJEANT, "The earliest discoveries of dinosaurs", *Isis*, lxvi (1975), 5-25. Cuvier's misidentification of finds by Mantell and Buckland.
59. G-F. DOLFUSS, "Le séjour de Georges Cuvier en Normandie: ses premiers études d'histoire naturelle, 1788-1795", *Bulletin de la Société Linnéenne de Normandie*, viii (1925), 156-78. Also printed as a pamphlet (Caen, 1926). Basically hostile to Cuvier, but realistically reconstructs the impact of the geography of Normandy on the direction of Cuvier's work.
60. I. GEOFFROY ST HILAIRE, *Essais de zoologie générale ou mémoires et notices sur la zoologie générale, l'anthropologie, et l'histoire de la science* (Paris, 1841), 135-52. Cuvier's classification and its relation to that of Linnaeus.
61. H. FALCONER, "On Professor Huxley's attempted refutation of Cuvier's laws of correlation in the reconstruction of extinct vertebrate forms", *Annals and magazine of natural history*, second series, xvii (1856), 476-93. Review of Huxley's lecture to the Royal Institution of 15 February 1856, "On natural history as knowledge, discipline and power". Part of the debate on whether the principle of organic correlation was a truly 'scientific' and predictive law. More information on Falconer is to be found in his *Paleontological memoirs*, ed. Ch. Murchison (2 vols, London, 1868). See also Section 4, no. 91.

62. M. FOUCAULT, *Les mots et les choses* (Paris, 1966); trans. as *The order of things* (London, 1970), 263-79.
See Section 3, no. 48. Possibly most important general reinterpretation of Cuvier; sees him as restoring the autonomy of the animal world.
63. CH. GRAVIER, "Les vers et les arthropodes dans le *Règne animal*", *Archives du Muséum National d'histoire naturelle*, ix (1932), 63-67.
Part of a protest against the desertion of systematic zoology. Cuvier's views on technical language.
64. E-T. HAMY (ed.), "Dicquemare jugé par Cuvier (1805). Note pour servir à l'histoire des recherches zoologiques dans la Manche", *Bulletin du Muséum d'histoire naturelle*, iv (1906), 181.
The report by Cuvier and Lamarck of 25 September 1806 (3 vendémiaire an xiv).
65. F. HOEFER, *Histoire de la zoologie depuis les temps les plus reculés jusqu'à nos jours* (Paris, 1873), 315-67.
An extended study of Cuvier's classification.
66. N. VON HOFSTEN, "From Cuvier to Darwin, a page from the history of comparative anatomy", *Isis*, xxiv (1935-36), 361-6.
First printed in Swedish in *Nordisk Tidskrift* (1922). Cuvier the man of facts. Ideas of the unity of nature prepared the way for evolutionary theory.
67. M. L. JOUBIN, "Études de Cuvier sur les mollusques", *Archives du Muséum National d'histoire naturelle*, ix (1932), 55-61.
Importance of molluscs for Cuvier's classification; he anticipated their use by Lamarck.
68. J. KIDD, *On the adaptation of external nature to the physical condition of man: principally with reference to the supply of his wants and the exercise of his intellectual faculties* (London, 1834), 299-347.
A Bridgewater treatise, containing extensive discussion of Cuvier's debt to Aristotle.
69. A. LACROIX, "Georges Cuvier et la minéralogie", *Archives du Muséum National d'histoire naturelle*, ix (1932), 69-75.
Cuvier's correspondence with Haüy of 1793; indications of Cuvier's early reading.
70. J-P. LEHMAN, "La méthode scientifique de Cuvier", *Bulletin et mémoires de la Société d'Emulation de Montbéliard*, lxxvii (1969), 7-14.
More concerned with exculpating Cuvier from charges of political ambition.
71. W. A. LOCY, *Biology and its makers* (New York, 1908 and 1910), 141-65.
Reliance on Lee and Flourens. Cuvier retarded the progress of science by his opposition to Lamarck. Unlike Linnaeus, concerned with internal organization of organisms as the basis of comparative anatomy.
72. W. A. LOCY, *The growth of biology: zoology from Aristotle to Cuvier* (London and New York, 1925), 334-59.

73. J. LYON, "The search for fossil man: cinq personnages à la recherche du temps perdu", *Isis*, lxi (1970), 68-84.
Cuvier's reaction to the search for human fossils in England and France.
74. R. T. MERZ, *A history of European thought in the nineteenth century* (4 vols, Edinburgh, 1896-1914), i, 130 sqq.; ii, 256 sqq.
One of the few secondary accounts to attempt a study of the development of Cuvier's thought and to realize its confusion and ambiguity, for example over the question of the fixity of species.
75. L. C. MIALL, *History of biology* (London, 1911), 89-124.
Issued for the Rationalist Press Association. Awareness of the distortions imposed by evolutionary pre-occupations.
76. L. E. PAGE, "Diluvianism and its critics in Britain in the early nineteenth century", in C. J. Schneer (ed.), *Towards a history of geology* (Cambridge, Mass. and London, 1969), 257-71.
Distortions imposed on Cuvier by English natural theological concerns.
77. E. PILLON, "La méthode en biologie: Cuvier, Blainville, Comte", *La critique philosophique*, vii (1878), 129-38.
Common ground in methodology between all three men.
78. L. ROULE, "Cuvier ichthyologiste", *Archives du Muséum National d'histoire naturelle*, iv (1932), 47-54.
Praises Cuvier as a descriptive zoologist.
79. L. ROULE, "Cuvier historien scientifique", *ibid.*, 77-82.
Based on Section 1, no. 30.
80. M. J. S. RUDWICK, *The meaning of fossils: episodes in the history of paleontology* (London and New York, 1972), 101-63.
Relies on Coleman for biographical details. See Introduction, ref. 26.
81. E. S. RUSSELL, *Form and function* (London, 1916), 31-44.
An account by a leading biologist pre-occupied with the problems of Lamarckianism. Emphasis on Cuvier's views on species. Utilized by Rudwick, Coleman, and Chaine (Section 3, nos 80, 53, 51).
82. W. E. SWINTON, "Early history of comparative anatomy", *Endeavour*, xix (1960), 209-14.
Very inaccurate.
83. J. THEODORIDES and G. PETIT, "Les cahiers de notes zoologiques de Georges Cuvier (*diaria zoologica*)", *Biologie médicale*, lix (1961), 1-20.
Cuvier's recently re-discovered Stuttgart notebooks. See no. 134.
84. J. THEODORIDES, "Humboldt et Cuvier", *ibid.*, 50-71.
Reports Humboldt's conversation with Lyell on Cuvier, 8 July 1825.
85. W. WHEWELL, *History of the inductive sciences from the earliest to the present times* (3 vols, London, 1837), iii, 448-51; 472-80; 510-15.
Counters Swainson's criticism that the principle of organic correlation is tautologous and has no predictive value. (William Swainson,

On the natural history and classification of quadrupeds (London, 1835), 35.) For Swainson, see also nos 32, 153; and Introduction, ref. 10.

(4) *Cuvier's relations with Lamarck and Geoffroy St. Hilaire.*

86. F. BOURDIER, "Geoffroy St. Hilaire versus Cuvier: the campaign for paleontological evolution, 1825-1838", in C. J. Schneer, *Toward a history of geology* (Cambridge, Mass. and London, 1969), 36-61.
An extremely hostile account. For Bourdier's position on Cuvier, see Introduction, and Section 1, no. 6.
87. R. W. BURKHARDT, Jr, "Lamarck, evolution, and the politics of science", *Journal of the history of biology*, iii (1970), 275-98.
See Introduction, ref. 16. Reproduces cancelled passages attacking Lamarck from the manuscript of the *Recherches sur les ossements des quadrupèdes fossiles*.
88. R. COURRIER, "Georges Cuvier (1769-1832), certains aspects de sa carrière", *Institut de France: notes et discours*, v (1963-72), 641-61.
Mainly concerned with Cuvier's eulogium of Lamarck.
89. P. FLOURENS, *De l'unité de composition, et du débat entre Cuvier et Geoffroy St. Hilaire* (Paris, 1865).
Originally appeared as a series of articles in the *Journal des savants* for 1864. See Introduction, ref. 26.
90. E-T. HAMY (ed.), *Etienne Geoffroy St. Hilaire, Lettres écrites d'Egypte à Cuvier, Jussieu, Lacépède, Monge, Desgenettes, Redouté, Norry, etc., aux professeurs du Muséum et à sa famille* (Paris, 1901).
Early strains in the relations between Cuvier and Geoffroy St. Hilaire.
91. T. H. HUXLEY, "Owen's position in anatomical science", in Rev. R. Owen, *The life of Richard Owen* (2 vols, London, 1894), 273-332.
Cuvier and Geoffroy are contrasted on pp. 281-300.
92. G. LEGEE, "Cuvier, Geoffroy St. Hilaire, et Flourens", *Histoire et biologie*, ii (1969), 10-34.
Concerned with question of who was 'right' in 1830. Cuvier's attitudes to Flourens and to physiology. See also no. 101.
93. P. PELSENEER, "Les premiers temps de l'idée évolutionniste: Lamarck, Geoffroy St. Hilaire, et Cuvier", *Annales de la Société Royale et Malacologique de Belgique*, 1-1ii (1919-21), 53-89.
See Introduction, and ref. 27.
94. E. PERRIER, *La philosophie zoologique avant Darwin* (Paris, 1884), 112-42.
Cuvier dominated the 'school of facts', and repressed the free play of intelligence in science; a synthesis of the approaches represented by him and by Geoffroy is needed in modern biology.
95. J. PIVETEAU, "Le débat entre Cuvier et Geoffroy St. Hilaire sur l'unité de plan et de composition", *Revue d'histoire des sciences*, iii-iv (1950-51), 343-63.
See Introduction, ref. 26.

96. H. SCHNEIDER, "Goethe autographs at Harvard", *Harvard library bulletin*, iii (1949), 371-85.
A letter from Goethe to Cuvier, 28 August 1831; in fact contributes little to understanding of Goethe's position on the debate with Geoffroy.
- (5) *Cuvier's political career.*
97. CH. DE BEAUREPAIRE, "Georges Cuvier, secrétaire greffier de la commune de Bec-aux-Cauchois", *Précis de l'Académie de Rouen*, lxxviii (1866), 305-22.
Cuvier held this post from November 1793 to February 1795.
98. P. GENEVRAY, "Professeurs protestants dans l'enseignement supérieur pendant la Restauration", *Bulletin de la Société de l'Histoire du Protestantisme français*, lxxxix (1940), 22-39.
Cuvier's interventions in the Universities of Montpellier and Strasbourg; his help to Candolle (see Section 1, no. 8).
99. M. GONTARD, *L'enseignement primaire en France de la Révolution à la loi Guizot, 1789-1833: des petits écoles de la monarchie d'ancien régime, aux écoles primaires de la monarchie bourgeoise* (Lyon, 1959).
Cuvier appears throughout.
100. L. HORNER, *On the state of education in Holland, as regards schools for the working classes and for the poor, by M. Victor Cousin . . . translated with preliminary observations on the necessity of legislative measures, to extend and improve education amongst the working classes and the poor in Great Britain* (London, 1838).
First published in French in 1837. Horner was Lyell's father-in-law and first Warden of King's College, London. Cuvier's tour in Holland of 1810.
101. G. LEGEE, "Cuvier et la réorganisation de l'enseignement sous le Consulat et l'Empire", *Congrès des sociétés savantes* (1970), 197-214.
Reliance on Flourens and Duvernoy, and little more than a recital of their material without new archival work. Useful maps of Cuvier's tours of Holland. See also no. 92.
102. G. LEGEE, "Le Muséum sous la Révolution, l'Empire et la Restauration", *ibid.*, 747-60.
Reliance on Cuvier's 'autobiography' (see Introduction, ref. 6).
103. F. MACLER, "Cuvier et la Société Biblique Protestante de Paris", *Bulletin de la Société de l'Histoire du Protestantisme français*, lxxxix (1932), 253-7.
Cuvier was not an assiduous participant.
104. D. OUTRAM, "Education and the state in the Italian departments annexed to France, 1802-1814" (University of Cambridge Ph.D. thesis, 1974).
Detailed account of Cuvier's part in the operation of the Imperial University in the Italian states annexed to France; his social and political attitudes, his contacts in Italy.
105. J. POIRIER, "L'Université provisoire, 1814-1821", *Revue d'histoire moderne*, i (1926), 241-79; ii (1926), 3-35, 261-306.
Cuvier and Guizot; his memoir of 1820 on the Université de France.

106. J. POIRIER, "Georges Cuvier, second fondateur de l'Université", *Revue de Paris* (1932), 85-115.
See Introduction, ref. 2.
107. H. PUGET, "Cuvier au Conseil d'Etat", *Revue politique et parlementaire*, lii-liii (1932), 300-19.
Also considers Cuvier's education in Stuttgart.
- *108. D. ROBERT, *Les églises réformées en France 1800-1830* (Paris, 1961), 333-43.
Cuvier as the director of the non-Catholic religions in France, from 1828. Reprints his letter to the Consistory of Nîmes of March 1828. No attempt to integrate science, religion and politics, though well-researched within the limits of its approach.
109. D. ROBERT, "Documents concernant les origines de la Faculté réformée de Montauban: lettres de Benjamin Sigismund Frossard", *Bulletin de la Société de l'Histoire du Protestantisme français*, cviii (1962), 139-65.
Cuvier's intervention in Protestant affairs under the Empire.
110. S. SCHAMA, "Schools and politics in the Netherlands, 1796-1814", *Historical journal*, xiii (1970), 589-610.
Information on Cuvier's tour of Holland in 1810.

(6) *Cuvier and scholarly institutions.*

111. J. BASTIN, "A further note on the origins of the Zoological Society of London", *Journal of the Society for the Bibliography of Natural History*, vi (1973), 236-41.
Cuvier's influence on its foundation.
112. H. DEHERAIN, "Lettres à Georges Cuvier sur l'organisation de l'Institut en l'an xi", *Journal des savants* (1916), 368-76.
Letters from Duméril, Fourcroy, Geoffroy St. Hilaire, Candolle, December 1802 to January 1803. The impression of Cuvier's lofty disinterest in the appointment to the Perpetual Secretaryship of the Institut should be contrasted with the acute concern of the letters printed by Viénot (Section 10, nos 156 and 165).
- *113. H. DEHERAIN, "Georges Cuvier, membre de l'Académie des Inscriptions et Belles Lettres", *ibid.* (1932), 222-8.
Cuvier's literary interests. Reprints his letter to the President of the Academy of 11 December 1830.

See also Section 5, no. 102.

(7) *Cuvier's salon and its literary impact.*

114. H. D'ALSO, "Balzac, Cuvier, et Geoffroy St. Hilaire (1831-1843)", *Revue d'histoire de la philosophie et d'histoire générale de la civilisation*, ii (1934), 339-54.
Balzac's changing view of Cuvier and his orientation towards Geoffroy.
115. G. CHARBOIS, *Le Jardin des Plantes et le salon de Cuvier* (Paris, 1951).
An almost worthless effusion; science is free from politics and rancour.

132 · HISTORY OF SCIENCE

116. D. GUNNELL, *Sutton Sharpe et ses amis français, avec des lettres inédites* (Paris, 1925).
An intelligent study of Sophie Duvaucel's fiancé and his circle.
117. E. PILON, "Le salon de Cuvier au Jardin des Plantes", *Revue des deux mondes*, cii (1932), 382-94.
Concentrates on Stendhal, Ampère, Mérimée and Delacroix. Interesting on the cultivation of art within Cuvier's family and its application in the Muséum, in zoological drawing.
118. E. PILON, *Muses et bourgeoises de jadis . . . Sophie Duvaucel et le salon de Cuvier* (Paris, 1933), 220-42.
No new information.
119. L. ROYER, *Stendhal au Jardin du Roi: lettres inédites à Sophie Duvaucel* (Grenoble, 1930).
Interesting on Sophie Duvaucel's contacts with English painters and authors. Otherwise little new information.
120. J. THEODORIDES, "Les relations de Cuvier et de Stendhal", *Biologie médicale*, I (1961), 21-50.
121. J. THEODORIDES, "Quelques documents inédits ou peu connus relatifs à Georges Cuvier, à sa famille et à son salon", *Stendhal club*, ix (1966-67), 55-64, 179-88.
Cuvier's relations with the Abbé Ranzani, Professor of natural history at Bologna.
122. Z. L. ZALESKI, "Mickiewicz et la grande querelle scientifique entre Cuvier et Geoffroy St. Hilaire", in *Literature and science: Proceedings of the sixth Triennial Congress of the International Federation for Modern Languages and Literatures, Oxford, 1954* (Oxford, 1955), 261-4.
Mickiewicz took Geoffroy's side.
- (8) *Cuvier's interest in language and the social sciences.*
123. M. BECKER, "Le style de Cuvier", *Bulletins et mémoires de la Société d'Emulation de Montbéliard*, lxxviii (1970), 7-26.
Cuvier's literary style as an indicator of his imaginative reaction to the natural world.
124. F. BRUNOT, "Discours sur Cuvier", in S. Peuteuil (ed.), *Les fêtes du centenaire de Cuvier* (Section 2, no. 42), 139-43.
Cuvier's interest in philology and the problem of a universal alphabet.
125. E. CARTAILHAC, "Georges Cuvier et l'ancienneté de l'homme", *Matériaux pour l'histoire primitive et naturelle de l'homme*, xviii (1884), 3rd series, i, 27-35.
Defends Cuvier's position on fossil man as justified by the available evidence, and showing a praiseworthy refusal to go beyond the facts.
- *126. M-J. DURRY (ed.), *Autographes de Mariemont* (4 vols in 2, Paris, 1955-59), i, 241-50.
Indications of Cuvier's interests and contacts in India. Reprints three letters from him to Nathaniel Wallich of Calcutta, April 1817 to April 1819.

127. E-T. HAMY, *Les origines du Musée d'ethnographie: histoire et documents* (Paris, 1890).
Cuvier's intervention on behalf of Jomard's plan for such a museum.
128. G. HERVE, "A la recherche d'un manuscrit; les instructions anthropologiques de Georges Cuvier pour le voyage du 'Géographe' et du 'Naturaliste' aux terres Australes", *Revue de l'Ecole d'Anthropologie de Paris*, xx (1910), 296-7.
This manuscript is now Autograph 68159 of the Wellcome Library of the History of Medicine, London.
- *129. N. LARRONDE, "Cuvier et la géographie", *La géographie*, lvii (1932), 301-8.
Reliance on Roule (Section 1, no. 30). Reprints letter from Cuvier of 1828 to Girard, President of the Société de Géographie, and his speech to the Society of 5 December 1828.
130. G. SARTON, "Cuvier et les belles lettres", *Isis*, iv (1922), 493.
Cuvier's eulogium of Darcet of 1802.
131. R. SCHWAB, "Cuvier, Balzac, et le sanscrit", *Mercure de France*, cccix (1950), 676-86.
An interesting anticipation of Foucault's argument of the similarities between Cuvier and Bopp (Section 3, no. 62); the close parallels between the development of linguistic science and of comparative anatomy.
132. R. SCHWAB, *La renaissance orientale* (Paris, 1950), 321-3.
As above.
- (9) *Funeral orations on Cuvier and commemorative speeches of 1835.*
133. F. ARAGO, *Funerailles de M. le baron Cuvier: discours de M. Arago, secrétaire perpétuel de l'Académie Royale des Sciences* (Paris, 1832).
Cuvier the symbol of French scientific supremacy.
- *134. V. ARDOUIN, "Eloge de Cuvier", *Annales de la Société Entomologique de France*, i (1832), 317-32.
Read to the Society on 13 June 1832. Discusses papers of Cuvier in Ardouin's possession, including the *Diaria zoologica* (see Section 3, no. 83). Reproduces a letter from Cuvier to the Society of 1832.
- *135. A. P. DE CANDOLLE, "Mort de Cuvier", *Bibliothèque universelle des sciences, belles-lettres et arts* (Geneva), cx (1832), 442-8.
See Section 1, no. 8. Prints a letter from Cuvier of April 1831. States Cuvier entered the army after leaving Stuttgart.
136. A. M. C. DUMERIL, *Funerailles de M. Cuvier, Discours* (Paris, 1832).
An extremely brief and conventional speech by one of Cuvier's collaborators.
137. A. M. C. DUMERIL, *Allocution prononcée au nom de l'Académie des Sciences le 23 août 1835, jour de l'inauguration de la statue de Cuvier à Montbéliard* (Paris, 1835).
Concentrates on achievements in paleontology.

134 · HISTORY OF SCIENCE

138. CH. DUPIN, l'aîné, *Eloge de Cuvier* (Paris, 1832).
Cuvier's friend, the economist Dupin, succeeded to his chair at the Académie Française. His speech was critically reported by Ste. Beuve, who was present at its reading (*Premiers Lundis* II (Paris, 1874), 101-7; first printed on 31 August 1832).
139. E. GEOFFROY ST. HILAIRE, "Discours sur la tombe de Cuvier", *Annales des sciences naturelles*, xxvi (1832), 403.
First read at Cuvier's funeral, 16 May 1832. See Introduction, ref. 8.
140. E. DE JOUY, *Funerailles de M. le baron Cuvier: discours de M. de Jouy, Directeur de l'Académie* (Paris, 1832).
First read on 16 May 1832. Very brief.
141. M. MICHAUD, *Rapport fait à l'Académie Française par M. Michaud, au nom de la députation envoyée à Montbéliard* (Paris, 1835).
Speeches by the Mayor of Montbéliard and the Prefect of the Doubs on Cuvier's childhood. These informants were probably also used by Duvernoy (no. 14).
142. R. I. MURCHISON, "Elogium of Cuvier", *Philosophical magazine*, ii (1833), 466-75.
First read to the Geological Society. Murchison met Cuvier in 1828.
143. J. E. C. NODIER, *Discours prononcé au nom de l'Académie Française le 23 août 1835, jour de l'inauguration de la statue de Cuvier à Montbéliard* (Paris, 1835).
Also in no. 141. Nodier was a compatriot and acquaintance of Cuvier; he praises his mixture of the qualities of the scientist and the man of letters.
144. E. PARISET, *Histoire des membres de l'Académie Royale de Médecine, ou recueil des éloges lus dans les séances publiques* (2 vols, Paris, 1845), i, 351-430.
Contains a bibliography based on that of Flourens. Interested in the visual quality of Cuvier's imagination and the development of his ideas on classification. This *éloge* was first read on 5 July 1833, and was reviewed by Ste. Beuve, *Causeries de lundi*, i (3rd ed., Paris, 1850), 392-411.
145. E. PASQUIER, *Eloge de M. le baron Cuvier* (Paris, 1832).
Read in the Chambre des Pairs, 17 September 1832. Pasquier was Cuvier's colleague in the Conseil d'Etat; emphasis on Cuvier's political life and his success as a popularizer of science.
146. A-F. VILLEMMAIN, *Funerailles de M. le baron Cuvier, discours de M. Villemmain du Conseil Royal de l'Instruction publique* (Paris, 1832).
A friend of Guizot and Cuvier, Villemmain emphasizes popularization of science.
147. C-A. WALCKENAER, *Funerailles de M. le baron Cuvier: discours . . .* (Paris, 1832).
Cuvier's interest in Aristotle. Walckenaer was President of the Académie des Inscriptions et Belles-Lettres.

- (10) *Other works containing printed letters by Cuvier.*
148. A. CHAMPOILLION-FIGEAC, *Les deux Champollion: leur vie et leurs oeuvres, leur correspondance archéologique relative au Dauphiné et à l'Égypt. Etude complète de biographie et de bibliographie, 1778-1867, d'après des documents inédits* (Grenoble, 1887).
A letter from Cuvier to Champollion jeune, 5 December 1824.
149. G. FABBRONI, *Scritti di pubblica economia* (2 vols in 1, Florence, 1847).
Letter from Cuvier to Fabbroni of 11 March 1807, p. xxx, note 8.
See Introduction, ref. 30.
150. L. MARCHANT (trans.), *Georges Cuvier, lettres à C. H. Pfaff sur l'histoire naturelle, la politique et la littérature, 1788-1792* (Paris, 1858).
First published in German with an interesting introduction by W. F. G. Behn, which mentions the state of scientific biography (Kiel, 1845). Also contains a biographical note by Pfaff, and discusses at length the problem of Cuvier's debt to Kielmayer. The only major printed collection of letters by Cuvier.
151. M. MARTIN, *Le docteur Koreff (1783-1831) un aventurier intellectuel sous la Restauration et la monarchie de juillet* (Paris, 1925).
A letter from Cuvier to Boisbertrand on behalf of Koreff, 29 January 1830. Also informative on the peripheral figures in Cuvier's salon.
152. GEORG SILBERMANN (ed.), *Revue entomologique*, i (1833), 143-60.
Letter of Cuvier to Hartmann, 18 November 1790. Other letters between them are reproduced by Duvernoy (Section 1, no. 14).
153. W. SWAINSON, *Testimonials presented to the trustees of the British Museum on behalf of William Swainson . . . and accompanying his application for the appointment of assistant Keeper in the natural history department, vacated by the resignation of Dr. Leach in February 1822* (London, 1822).
Letter of Cuvier to Swainson, praising his *Zoological illustration*, of 6 May, 1821. See also Introduction, ref. 10, and nos 85, 32.
154. J. THEODORIDES, "Une note inédite de Cuvier à Humboldt, 26 vendémiaire an VI (17 October 1798)", *Biologie médicale*, 1 (1961), 51-71.
From a manuscript in the Library of the Karl-Marx University of Leipzig. About enquiries in natural history to be undertaken by Humboldt during a projected journey in North Africa. See also Section 8, no. 128 for another example of Cuvier's interest in exploration.
155. J. THEODORIDES, "Une lettre inédite de Georges Cuvier à la Gesellschaft Naturforschenden Freunde zu Berlin (1800)", *Histoire et biologie*, ii (1969), 58-60.
The letter is dated 15 thermidor an VIII (3 August 1800), and provides more evidence of the nature of Cuvier's contacts with German science.
156. J. VIENOT, *Lettres inédites de Georges Cuvier à Georges Duvernoy* (Dole, 1905).
A very valuable collection of letters to a friend, compatriot and

collaborator, with many indications of Cuvier's style of working and attitudes towards natural history. See also nos 14, 112, 165.

(11) *Bibliographical issues, archive catalogues and contemporary reviews.*

157. R. M. BAILEY, "The authorship of names proposed in Cuvier and Valenciennes, *Histoire naturelle des poissons*", *Copeia*, iii (1951), 249-51.
158. [DAVID BREWSTER], review of Lee, Pasquier, Laurillard and Candolle, *Edinburgh review*, lxii (1836), 265-97.
Brewster met Cuvier in London in 1818; in this review he is concerned with Cuvier as a popularizer of science and as a supporter of natural theological arguments on geology. See Section 1, nos 25, 24; Section 9, nos 135, 145.
159. [DAVID BREWSTER], Review of *Eloge historique de Georges Cuvier par M. Flourens*, *North British review*, i (1844), 1-41.
Cuvier and Newton as historians of the world in time and space; but Cuvier also confirms Mosaic geology. Generally 'Declinist' tone.
160. TH. CHALMERS, "Remarks on Cuvier's *Theory of the earth*; in extracts from a review of that theory which was contributed to the *Christian instructor* in 1814", *Works* (Glasgow, 1836-42), xii, 347-72.
Chalmers's quarrel with Cuvier is his introduction of 'philosophy' into the domain of revealed religion; Cuvier in fact leaves normal explanation of Mosaic geology as far behind him as does Laplace. This review, which is also interesting as demonstrating the many logical refuges of natural theological arguments on the timing of the Creation, has been considered by F. Haber, *The age of the world: Moses to Darwin* (Baltimore, 1959), 201-4.
161. C. F. COWAN, "Notes on Griffith's *Animal kingdom* of Cuvier, 1834-35", *Journal of the Society for the Bibliography of Natural History*, v (1968-71), 137-40.
For Griffith himself on Cuvier, see Section 1, no. 16.
162. C. F. COWAN, "Cuvier's *Règne animal*, first edition", *ibid.*, v (1968-71), 219.
A response to Whitehead (no. 170).
163. C. F. COWAN, "On Guérin's *Iconographie*: particularly the insects", *ibid.*, vi (1971), 18-29.
The plates for the *Règne animal*.
164. H. DEHERAIN, *Catalogue des manuscrits du fonds Cuvier conservés à la Bibliothèque de l'Institut de France* (2 parts in 1, Paris-Hendaye, 1908-22).
Although the numbering of the *fonds Cuvier* has been changed since 1922, Dehérain's work still provides a valuable guide to its contents.
165. H. DEHERAIN, "Les manuscrits scientifique de Georges Cuvier", *Journal des savants* (1904), 190-5.
An interim report on no. 164, also printing letters to Cuvier from Geoffroy and Biot on his election to Permanent Secretary of the Institut (see Section 6, nos 112, 156).

107. E. W. GUDGER, "Pliny's *Historia naturalis*: the most popular natural history ever published", *Isis*, vi (1924-25), 269-81.
Cuvier's extensive contributions to various French editions of Pliny.
168. T. MONOD, "Achille Valenciennes et l'*Histoire naturelle des poissons*", *Mélanges ichthyologiques dédiés à la mémoire d'Achille Valenciennes 1794-1865, coauteur de l'Histoire naturelle des poissons. Mémoires de l'Institut Français de l'Afrique Noire*, lxxviii (1965), 9-45.
A valuable bibliography of Valenciennes; also assigns responsibility between Cuvier and Valenciennes for the authorship of each volume of the *Histoire naturelle des poissons*.
169. C. D. SHERBORN, "The dates of publication of Cuvier and Valenciennes, *Histoire naturelle des poissons*", *Annals and magazine of natural history*, xv (1925), 600.
See nos 157, 168.
170. P. J. P. WHITEHEAD, "The dating of the first edition of Cuvier's *Règne animal*", *Journal of the Society for the Bibliography of Natural History*, iv (1962-68), 300-1.
See no. 162.