



**THE ONLINE LIBRARY OF
LIBERTY**

© 2004 Liberty Fund, Inc.

CLASSICS IN THE HISTORY OF LIBERTY

**ADAM SMITH, *THE GLASGOW EDITION OF THE WORKS AND
CORRESPONDENCE OF ADAM SMITH (1981-1987)*
VOL. III: ESSAYS ON PHILOSOPHICAL SUBJECTS**

Updated: April 7, 2004

Return to the Introduction to [Adam Smith](#) and the detailed [Table of Contents](#).

EDITION USED

Essays on Philosophical Subjects, ed. W. P. D. Wightman and J. C. Bryce, vol. III of *The Glasgow Edition of the Works and Correspondence of Adam Smith* (Indianapolis: Liberty Fund, 1982). This volume can be purchased from Liberty Fund's [online catalog](#).

The *Glasgow Edition of the Works and Correspondence of Adam Smith* and the associated volumes are published in hardcover by Oxford University Press. The six titles of the Glasgow Edition, but not the associated volumes, are being published in softcover by Liberty Fund. The online edition is published by Liberty Fund under license from Oxford University Press.

© Oxford University Press 1976. All rights reserved. No part of this material may be stored transmitted retransmitted lent or reproduced in any form or medium without the permission of Oxford University Press.

TABLE OF CONTENTS

- [PREFACE](#)
- [KEY TO ABBREVIATIONS AND REFERENCES](#)
- [GENERAL INTRODUCTION](#)
 - [ENDNOTES](#)
- [THE HISTORY OF ASTRONOMY, THE HISTORY OF THE ANCIENT PHYSICS, THE HISTORY OF THE ANCIENT LOGICS AND METAPHYSICS](#)
- [INTRODUCTION](#)
 - [THE HISTORY OF ASTRONOMY](#)
 - [THE HISTORY OF THE ANCIENT PHYSICS AND THE HISTORY OF THE ANCIENT LOGICS AND METAPHYSICS](#)
 - [ENDNOTES](#)
- [BIBLIOGRAPHICAL NOTE](#)
 - [NOTE ON THE TEXT](#)
- [THE PRINCIPLES WHICH LEAD AND DIRECT PHILOSOPHICAL ENQUIRIES;
ILLUSTRATED BY THE HISTORY OF ASTRONOMY](#)

- ADVERTISEMENT BY THE EDITORS
 - ENDNOTE
- THE HISTORY OF ASTRONOMY
 - ENDNOTES
 - SECTION I OF THE EFFECT OF UNEXPECTEDNESS, OR OF SURPRISE
 - ENDNOTES
 - SECTION II OF WONDER, OR OF THE EFFECTS OF NOVELTY
 - ENDNOTES
 - SECTION III OF THE ORIGIN OF PHILOSOPHY
 - ENDNOTES
 - SECTION IV THE HISTORY OF ASTRONOMY
 - ENDNOTES
- THE PRINCIPLES WHICH LEAD AND DIRECT PHILOSOPHICAL ENQUIRIES; ILLUSTRATED BY THE HISTORY OF THE ANCIENT PHYSICS
 - ENDNOTES
- THE PRINCIPLES WHICH LEAD AND DIRECT PHILOSOPHICAL ENQUIRIES; ILLUSTRATED BY THE HISTORY OF THE ANCIENT LOGICS AND METAPHYSICS
 - ENDNOTES
 - NOTES TO THE NOTES
- OF THE EXTERNAL SENSES
 - INTRODUCTION
 - OF THE EXTERNAL SENSES
 - OF THE SENSE OF TOUCHING
 - OF THE SENSE OF TASTING
 - OF THE SENSE OF SMELLING
 - OF THE SENSE OF HEARING
 - OF THE SENSE OF SEEING
 - ENDNOTES
- OF THE NATURE OF THAT IMITATION WHICH TAKES PLACE IN WHAT ARE CALLED THE IMITATIVE ARTS/OF THE AFFINITY BETWEEN MUSIC, DANCING, AND POETRY
 - INTRODUCTION
 - OF THE NATURE OF THAT IMITATION WHICH TAKES PLACE IN WHAT ARE CALLED THE IMITATIVE ARTS PART I
 - PART II
 - PART III
 - OF THE AFFINITY BETWEEN MUSIC, DANCING, AND POETRY
 - ENDNOTES
- OF THE AFFINITY BETWEEN CERTAIN ENGLISH AND ITALIAN VERSES
 - INTRODUCTION
 - ENDNOTES
- OF THE AFFINITY BETWEEN CERTAIN ENGLISH AND ITALIAN VERSES

- ENDNOTES
- CONTRIBUTIONS TO THE EDINBURGH REVIEW OF 1755-56 REVIEW OF JOHNSON'S DICTIONARY A LETTER TO THE AUTHORS OF THE EDINBURGH REVIEW
 - INTRODUCTION
 - REVIEW OF JOHNSON'S DICTIONARY
 - BUT CONJUNCT. [BUZE, BUZAN, SAXON.]
 - HUMOUR. N. S. [HUMEUR, FRENCH; HUMOR, LATIN.]
 - LETTER TO THE EDINBURGH REVIEW
 - A LETTER TO THE AUTHORS OF THE EDINBURGH REVIEW.
 - APPENDIX: PASSAGES QUOTED FROM ROUSSEAU
 - ENDNOTES
- PREFACE AND DEDICATION TO WILLIAM HAMILTON'S POEMS ON SEVERAL OCCASIONS
 - INTRODUCTION
 - PREFACE TO WILLIAM HAMILTON'S POEMS ON SEVERAL OCCASIONS (1748)
 - DEDICATION TO WILLIAM HAMILTON'S POEMS ON SEVERAL OCCASIONS (1758)
 - ENDNOTES
- DUGALD STEWART: ACCOUNT OF THE LIFE AND WRITINGS OF ADAM SMITH, LL.D.
 - INTRODUCTION
- ACCOUNT OF THE LIFE AND WRITINGS OF ADAM SMITH, LL.D. FROM THE TRANSACTIONS OF THE ROYAL SOCIETY OF EDINBURGH [READ BY MR STEWART, JANUARY 21, AND MARCH 18, 1793]
 - SECTION I FROM MR SMITH'S BIRTH TILL THE PUBLICATION OF THE THEORY OF MORAL SENTIMENTS
 - SECTION II OF THE THEORY OF MORAL SENTIMENTS, AND THE DISSERTATION ON THE ORIGIN OF LANGUAGES
 - SECTION III FROM THE PUBLICATION OF THE THEORY OF MORAL SENTIMENTS, TILL THAT OF THE WEALTH OF NATIONS
 - SECTION IV OF THE INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS
 - SECTION V CONCLUSION OF THE NARRATIVE
 - NOTES TO THE LIFE OF ADAM SMITH, LL.D.
 - NOTE (A.), P. 270
 - NOTE (B.), P. 271
 - NOTE (C.), P. 290
 - NOTE (D.), P. 292
 - NOTE (E.), P. 302
 - NOTE (F.), P. 303
 - NOTE (G.), P. 309
 - NOTE (H.), P. 320
 - NOTE (I.), P. 321

- [NOTE \(J.\), P. 323](#)
- [NOTE \(K.\), P. 326](#)
- [ENDNOTES](#)
- [NOTES TO THE NOTES](#)

PREFACE

THIS is Volume III of the new edition of the *Works and Correspondence* of Adam Smith undertaken by the University of Glasgow. It contains the *Essays on Philosophical Subjects* and Dugald Stewart's 'Account of the Life and Writings of Adam Smith', together with Smith's contributions to the *Edinburgh Review* and his Preface to William Hamilton's *Poems on Several Occasions*.

The range of subjects covered in this collection is too wide to be edited by any one scholar. The main task of dealing with the essays that are strictly on 'philosophical subjects' was entrusted to W. P. D. Wightman. The editors for the remaining pieces were chosen with an eye to their role in the preparation of other, related, volumes. John Bryce, the editor of the *Lectures on Rhetoric*, has therefore dealt with the essay on 'English and Italian Verses', the articles in the *Edinburgh Review*, and the Preface to Hamilton's *Poems*, while Ian Ross, Smith's biographer and (with E. C. Mossner) editor of the *Correspondence*, has looked after Stewart's 'Account'.

It was also thought desirable to appoint general editors in order to ensure uniformity of practice and to relate the different parts of this volume to each other and to the edition as a whole. We have tried to do so by providing a General Introduction and a number of supplementary notes (enclosed within square brackets). For much of the information in these notes we are indebted to several scholars, including P. Michael Brown, John Bryce, Eric Forbes, A. Rupert Hall, and Donald Malcolm. We owe a special debt to the late Donald Allan, formerly Professor of Greek in the University of Glasgow, for his extensive and invaluable help in dealing with classical sources; many of the supplementary notes concerned with the ancient world have been supplied by him in their entirety.

We should also like to thank Mrs. Theresa Campbell, Mrs. Julie Milton, and Miss Eileen O'Donnell for the care with which they have prepared the typescript at different stages.

D. D. R.

A. S. S.

1978

KEY TO ABBREVIATIONS AND REFERENCES

WORKS OF ADAM SMITH

Corr.	Correspondence
EPS	<i>Essays on Philosophical Subjects</i> , included among which are:
Ancient Logics	'The History of the Ancient Logics and Metaphysics'
Ancient Physics	'The History of the Ancient Physics'
Astronomy	'The History of Astronomy'
English and Italian Verses	'Of the Affinity between certain English and Italian Verses'
External Senses	'Of the External Senses'
Imitative Arts	'Of the Nature of that Imitation which takes place in what are called the Imitative Arts'
Stewart	Dugald Stewart, 'Account of the Life and Writings of Adam Smith, LL.D.'
Languages	Considerations Concerning the First Formation of Languages
TMS	The Theory of Moral Sentiments
WN	The Wealth of Nations
LJ(A)	<i>Lectures on Jurisprudence</i> , Report of 1762–3
LJ(B)	<i>Lectures on Jurisprudence</i> , Report dated 1766
LRBL	Lectures on Rhetoric and Belles Lettres

References to Corr. give the number of the letter (as listed in the volume of Smith's *Correspondence* in the present edition), the date, and the name of Smith's correspondent.

References to LJ and LRBL give the volume (where applicable) and the page number of the manuscript (shown in the printed texts of the present edition). References to LJ(B) add the page number in Edwin Cannan's edition of the *Lectures on Justice, Police, Revenue and Arms* (1896), and references to LRBL add the page number in John M. Lothian's edition of the *Lectures on Rhetoric and Belles Lettres* (1963).

References to the other works listed above locate the relevant paragraph, not the page, in order that any edition may be consulted (in the present edition, the paragraph numbers are printed in the margin). Thus:

Astronomy, II.4	=	'History of Astronomy', Sect. II, §4
Stewart, I.12	=	Dugald Stewart, 'Account of the Life and Writings of Adam Smith', Sect. I, §12
TMS I.i.5.5	=	<i>The Theory of Moral Sentiments</i> , Part I, Sect. I, Chap. 5, §5 <i>The Wealth of Nations</i> , Book V, Chap. i, sixth division,

WN V.i.f.26 = §26

OTHER WORKS

Essays on Adam Smith	<i>Essays on Adam Smith</i> , edited by Andrew Stewart Skinner and Thomas Wilson (1975)
Rae, <i>Life</i>	John Rae, <i>Life of Adam Smith</i> (1895)
Scott, <i>ASSP</i>	William Robert Scott, <i>Adam Smith as Student and Professor</i> (1937)

GENERAL INTRODUCTION¹

I

MOST of the essays contained in this book were not prepared for the press by Smith. They are fragments in fact—perhaps, as Black and Hutton suggested in the ‘Advertisement’ to EPS, parts of ‘a plan he had once formed, for giving a connected history of the liberal sciences and elegant arts’. The essays are also diverse both in terms of subject-matter and in the degree of finish they had acquired at the time of Smith’s death. Yet, at the same time, there are some common elements.

To begin with, the more important of the essays plainly have a ‘philosophical’ character, which conforms to Smith’s own recommendations regarding the organization of scientific discourse. Smith believed that writers of ‘didactical’ discourse ought ideally to deliver a system of science by laying down ‘certain principles, known or proved, in the beginning, from whence we account for the several phaenomena, connecting all together by the same chain’ (LRBL ii.133, ed. Lothian, 140). Smith described this as the ‘Newtonian’ method, while well aware that it had been used before Newton—most notably by Descartes. This point in itself is an important reminder that Smith drew an implicit distinction between the method used in *expounding* a system of thought and that employed in *establishing* such a system: in the former case, he was able to point out that Descartes and Newton shared a common approach; in the latter, he insisted that the Cartesian system was ‘fanciful’, ‘ingenious and elegant, tho’ fallacious’ (Letter to the Authors of the *Edinburgh Review*, § 5).² In short, the task of *establishing* a system of thought must be conducted in terms of the combination of reason *and* experience—although even here he was quick to associate this definition of the term ‘method’ with Galileo rather than Newton (Astronomy, IV.44).

Secondly, it is at least broadly true that many of the essays provide evidence of Smith’s concern with the principles of human nature, again, a wide-ranging interest. For example, Smith himself was to point out that under some conditions the study of grammar could provide the ‘best History of the natural progress of the Human mind in forming the most important abstractions upon which all reasoning depends’,³ and John Millar explained his teacher’s choice of emphasis in the LRBL by reference to Smith’s belief that: ‘The best method of explaining and illustrating the various powers of the human mind, the most useful part of metaphysics, arises from an examination of the several ways of communicating our thoughts by speech, and from an attention

to the principles of those literary compositions which contribute to persuasion or entertainment.’ (Stewart, I.16.) In the same vein, Dugald Stewart suggested that Smith’s cultivation of the Fine Arts was developed: ‘less, it is probable, with a view to the peculiar enjoyments they convey, (though he was by no means without sensibility to their beauties,) than on account of their connection with the general principles of the human mind; to an examination of which they afford the most pleasing of all avenues’ (Stewart, III.13).

Finally, we should recall Smith’s overriding interest in historical questions and the fact that he: ‘seldom misses an opportunity of indulging his curiosity, in tracing from the principles of human nature, or from the circumstances of society, the origin of the opinions and the institutions which he describes’ (Stewart, II.52). Earlier, Stewart had commented on Smith’s youthful interest in mathematics⁴ and the natural sciences, together with the principles of human nature, both of which: ‘enabled him to exemplify some of his favourite theories concerning the natural progress of the mind in the investigation of truth, by the history of those sciences in which the connection and succession of discoveries may be traced with the greatest advantage’ (Stewart, I.8).

While the features outlined above are all characteristic of the major essays in this volume, they are combined in one of them to greatest effect—the Astronomy, once described by J. A.

Schumpeter as ‘the pearl of the collection’.⁵ While the essay is one of the best examples of theoretical history, it is perhaps most remarkable as a study of those principles of human nature which ‘lead and direct’ philosophical inquiry.

//

One of the characteristics of theoretical history is that it may be applied to situations where direct evidence is lacking. As Stewart put it: ‘In this want of direct evidence, we are under a necessity of supplying the place of fact by conjecture; and when we are unable to ascertain how men have actually conducted themselves upon particular occasions, of considering in what manner they are likely to have proceeded, from the principles of their nature, and the circumstances of their external situation.’ (II.46.) In the context of the discussion of the *origin* of philosophy, Smith had comparatively little to say about man’s external situation, but he did note that philosophical effort could only take place under conditions where subsistence was no longer precarious and where social order and a regular subordination of ranks were established (Astronomy, III.1,5).⁶ Elsewhere he also noted the importance of language as a means of expressing ideas while pointing out that language⁷ itself developed by virtue of man’s intellectual capabilities—for example, his capacity for abstraction and generalization in addition to speech itself.

Given the above conditions, the assumptions employed are fundamentally simple: Smith assumes that *all* men are endowed with certain faculties and propensities such as reason, reflection, and imagination, and that they are motivated by a desire to acquire the sources of pleasure and avoid those of pain. In this context pleasure relates to a state of the imagination: the ‘state of . . . tranquillity, and composure’ (Imitative Arts, II.20). Such a state, Smith suggested, may be attained even where the objects contemplated are unlike or the processes involved are complex—provided only that the connection is a customary one. He added that the ‘indolent’ imagination finds satisfaction but no stimulus to thought under such circumstances and duly noted that ‘the bulk of mankind’ often express no interest in the common-place. For example, the conversion of food into flesh and bone (Astronomy, II.11), even looking-glasses, become ‘so familiar’ that men

typically do not think that 'their effects require any explication' (Imitative Arts, I.17). In the same way, Smith cited the example of the skilled artisan (such as a brewer, dyer, or distiller) who effects the most remarkable transformations in the materials that he uses and yet 'cannot conceive what occasion there is for any connecting events to unite those appearances, which seem to him to succeed each other very naturally. It is their nature, he tells us, to follow one another in this order, and that accordingly they always do so.' (Astronomy, II.11.)

Three points are worth emphasizing before going further: first, Smith places a good deal of weight on 'conventional' knowledge⁸ (i.e. that kind of 'knowledge' which is based on customary connection), and on the fact that the imagination *is* 'indolent'. As Smith put it, men 'have seldom had the curiosity to inquire by what process of intermediate events' a given change is brought about, where 'the passage of the thought from . . . one object to the other is by custom become quite smooth and easy' (Astronomy, II.11). In fact Smith had very little more to say about the origin and nature of 'knowledge' of *this* kind.

Secondly, Smith stressed the difference between the philosopher and the ordinary man, while being careful to add that these differences arise 'not so much from nature, as from habit, custom, and education' (WN I.ii.4). But habit, custom, and education can make the philosopher more perceptive, so that just as the botanist differs from the casual gardener, or the musician from the generality of his auditors, so he 'who has spent his whole life in the study of the connecting principles of nature, will often feel an interval betwixt two objects, which, to more careless observers, seem very strictly conjoined' (Astronomy, II.11).

Finally, it must be emphasized that in the Astronomy Smith was not so much concerned with the state of 'composure' *per se*, as with the sources of its disturbance, and the nature of those processes by virtue of which that state could be re-established. In fact, Smith was largely concerned with a very specific aspect of the problem of 'knowledge', namely, the stimulus given to the understanding by 'sentiments' such as *surprise*, *wonder*, or *admiration*. The limited objective of the Astronomy was clearly stated at the outset: 'It is the design of this Essay to consider particularly the nature and causes of each of these sentiments, whose influence is of far wider extent than we should be apt upon a careless view to imagine.' (Introduction, 7.)

Smith's initial argument then is to the effect that when certain objects or events follow in a particular order, 'they come to be so connected together in the fancy, that the idea of the one seems, of its own accord, to call up and introduce that of the other'. But, while the imagination finds no stimulus to thought under such conditions, Smith went on to argue that this would not be the case where the 'appearances' studied were in any way *unexpected*: 'We are at first surprised by the unexpectedness of the new appearance, and when that momentary emotion is over, we still wonder how it came to occur in that place.' (II.8.) In other words, we feel *surprise* when some object (or number of objects) is drawn to our attention which does not fall into a recognized pattern; a sentiment which is quickly followed by that of *wonder*, where the latter is defined in these terms: 'The stop which is thereby given to the career of the imagination, the difficulty which it finds in passing along such disjointed objects, and the feeling of something like a gap or interval betwixt them, constitute the whole essence of this emotion.' (II.9.) Wonder, in short, involves a source of pain (a disutility); a feeling of discomfort which gives rise to uncertainty and 'anxious curiosity' and even to 'giddiness and confusion'. On the other hand, the *response* to this situation involves the pursuit of some explanation, with a view to relieving the mind from a state

of disequilibrium (i.e. lack of 'composure'); a natural reaction, given Smith's assumptions, designed to eliminate the sense of wonder by providing some appropriate ordering of the phenomena in question, or some plausible account of the links between different objects. Finally, Smith suggested that once we have succeeded in providing an acceptable and coherent account of a particular problem, the very existence of that explanation may 'heighten' our appreciation of the 'appearances' in question. In this way, for example, we learn to *admire* a complex social structure once its 'hidden springs' have been exposed, while in the same way a theory of astronomy may help us to admire the heavens through presenting the 'theatre of nature' as a coherent 'and therefore a more magnificent spectacle' (II.12).

Surprise, wonder, and admiration are, therefore, the three *sequential* sentiments on which Smith's account of mental stimulus depends.⁹

Once again, there are a number of points which deserve notice: First, it will be observed, that man is impelled to seek an explanation for observed 'appearances' as a result of a *subjective* feeling of discomfort, and that the resulting explanation or theory is therefore designed to meet some psychological need. Nature as a whole, Smith suggests, 'seems to abound with events which appear solitary and incoherent' and which therefore 'disturb the easy movement of the imagination' (II.12). Under these circumstances, the philosopher feels the disutility involved in the sentiment of wonder; a sentiment which thus emerges as 'the first principle which prompts mankind to the study of Philosophy, of that science which pretends to lay open the concealed connections that unite the various appearances of nature' (III.3). It follows from this that the explanation offered can only satisfy the mind if it is coherent, capable of accounting for observed appearances, and stated in terms of principles which are at least plausible.¹⁰

Secondly, it will be noted that wonder is the *first*, but not the only principle featured and Smith duly went on to emphasize that philosophical effort involved not only an escape from the contemplation of 'jarring and discordant appearances' but also a source of pleasure in its own right; a point made by him in suggesting that men: 'pursue this study for its own sake, as an original pleasure or good in itself, without regarding its tendency to procure them the means of many other pleasures' (III.3). In fact Smith provided many examples of the kinds of pleasure which might be involved in philosophical work. In the LRBL, for example, he noted that 'It gives us a pleasure to see the phaenomena which we reckoned the most unaccountable, all deduced from some principle (commonly a well known one) and all united in one chain' (ii.133-4, ed. Lothian, 140). Likewise, in WN he referred to the beauty of a 'systematical arrangement of different observations connected by a few common principles' (V.i.f.25), and in the Imitative Arts (II.30), likened the pleasure to be derived from the contemplation of a great system of thought to the intellectual and even sensual delights of a 'well composed concerto of instrumental music'.¹¹

But, perhaps characteristically, Smith noted that such sources of pleasure were not equally accessible even to those of philosophical pretensions; that scientific thought also involved a *discipline* of which not all were capable and that this discipline could sometimes put too great a strain (i.e. a disutility) on the mind *even where presented with an organized body of thought*. Under some circumstances at least, 'too severe an application to study sometimes brings on lunacy and frenzy, in those especially who are somewhat advanced in life, but whose imaginations, from being too late in applying, have not got those habits which dispose them to follow easily the reasonings in the abstract sciences' (Astronomy, II.10).

///

Most of these points find further illustration in the History of Astronomy itself, where Smith reviewed four main systems of thought, not with a view to judging their 'absurdity or probability, their agreement or inconsistency with truth and reality', but rather with a view to considering how far each of them was fitted to 'sooth(e) the imagination'—'that particular point of view which belongs to our subject' (II.12). Looked at in this way, the analysis has a 'static' aspect at least in so far as it is designed to show the extent to which each of the four main astronomical systems reviewed does in fact 'soothe' the imagination, isolating by this means the characteristics which they have in common. But Smith goes further than his stated object in noting that the systems of astronomy reviewed followed each other in a certain historical sequence, and in exposing the causal links which, he felt, might explain that sequence. The essence of Smith's argument would seem to be that each system at the time of its original appearance did satisfy the needs of the imagination, but that each was subject to a process of modification as new problems came to light; a process of modification which resulted in a degree of complexity which ultimately became unacceptable to the imagination. This in turn paves the way for a new kind of response—the production not just of *an* account, but of an *alternative* account (in this case of the heavens); a new thought–system designed to explain the *same* problems as the first, at least in its most complex form.

From one point of view this is the classic pattern of cultural history—human activity released within a given environment ultimately causing a qualitative change in that environment—as illustrated, say, by the development of language or the transition from feudalism to the commercial stage (WN III). But there is a difference, partly because 'environment' here relates to a state of 'knowledge' and partly because the reactions of individuals are now described as *self-conscious*—i.e. designed deliberately to modify an existing thought–system or to replace it with a more acceptable alternative.

As a means of illustrating the burden of the argument, it may be helpful to review the origin, development, and decline of the first astronomical system before going on to say something of those which followed it. Specialist comment on the astronomical *content* (e.g. as to its accuracy) of Smith's treatment is outwith the competence of the general editors, and must be left to the historian of science.

On Smith's argument, the first astronomers were faced with the need to explain the movements of the Stars, Sun, Moon, and five known planets; a task which was fulfilled in terms of a theory of Solid Spheres each of which was thought to have a circular but regular motion.¹² The Stars for example, being fixed in their positions relative to one another, while changing with reference to the observer, 'were naturally thought to have all the marks of being fixed, like so many gems, in the concave side of the firmament, and of being carried round by the diurnal revolutions of that solid body' (IV.1). Additional Spheres were used to account for the movements of the Sun and Moon (one inside the other to explain the eclipse) with five more for the planets or 'wandering stars'. The astronomical system which emerged thus represented the Earth as: 'self balanced and suspended in the centre of the universe, surrounded by the elements of Air and Ether, and covered by eight polished and cristalline Spheres, each of which was distinguished by one or more beautiful and luminous bodies, and all of which revolved round their common centre, by varied, but by equable and proportionable motions' (IV.5).

Such a system of thought apparently met the needs of the imagination by providing a coherent and plausible explanation for observed phenomena, and, in connecting by simple and familiar processes the 'grandest and most seemingly disjointed appearances in the heavens', added to man's admiration for them (IV.4).

Indeed, even if some contemporaries recognized that such a system did *not* account for *all* appearances, the degree of completeness was such that the generality of men would be tempted to 'slur over' (IV.6) such problems rather than qualify in any degree the satisfaction derived from the theory itself. In fact, Smith went on to suggest that this beautiful and appealing construction *of the intellect* might 'have stood the examination of all ages, and have gone down triumphant to the remotest posterity' had there been 'no other bodies discoverable in the heavens' (IV.4).

But additional bodies *were* discovered, and this together with the fact that Eudoxus was not one of the 'generality of men' led to the need to modify the existing system and to the addition of more spheres, as a means of accounting for changes in the relative positions of the planets. As a result Eudoxus raised the total number of spheres to 27, Callippus to 34, and Aristotle 'upon a yet more attentive observation' to 56 (until Fracastoro, 'smit with the eloquence of Plato and Aristotle and with the regularity and harmony of their system', felt it necessary to raise the number of spheres to 72, IV.7). In this way the relatively simple system of Eudoxus was gradually modified in order to meet the needs of the imagination when faced with new problems to be explained, until a situation was reached where the explanation offered actually violated the basic prerequisite of simplicity (IV.8).

In consequence, Smith suggests, a second major system was developed—by Apollonius (subsequently refined by Hipparchus and Ptolemy)—that of Eccentric Spheres and Epicycles. Once again, therefore, we are presented with a system which was designed to 'introduce harmony and order into the mind's conception of the movements' of the heavenly bodies and which succeeded in so doing at least at one stage of its development. However, the same argument is advanced by Smith; namely, that a gradual process of modification followed as adherents of the new system came to terms with new observations, or newly perceived problems, until a situation was once more reached where this intellectual system or 'imaginary machine': 'though, perhaps, more simple, and certainly better adapted, to the phaenomena than the Fifty-six Planetary Spheres of Aristotle, was still too intricate and complex for the imagination to rest in it with complete tranquillity and satisfaction' (IV.19). Indeed, Smith considered that the situation became even more complex and thus unsatisfactory as a result of the efforts of the Schoolmen, and especially those of Peurbach, who laboured with perverse ingenuity to reconcile the first astronomical system (of Concentric Spheres) with the second which had been designed to replace it (IV.25).

The response to *this* situation was the system of Copernicus: a system prompted, 'he tells us', by the confusion 'in which the old hypothesis represented the motions of the heavenly bodies' (IV.28).

Like the system which it was to replace, the Copernican managed to account for observed appearances in the manner of a simpler 'machine', requiring 'fewer movements' and by representing: 'the Sun, the great enlightener of the universe, whose body was alone larger than all the Planets taken together, as established immoveable in the center, shedding light and heat on all the worlds that circulated around him in one uniform direction, but in longer or shorter

periods, according to their different distances' (IV.32). This was to prove an attractive hypothesis to some, not merely because of the beauty and coherence of the system, but also because of the novelty of the view of nature which it suggested—emphatically the case with an account which 'moved the Earth from its foundations, stopt the revolution of the Firmament, made the Sun stand still' (IV.33).

Yet at the same time, Smith argued that the system was by no means acceptable to all or even to those who confined their attention to astronomical matters, the difficulty being that Copernicus had invested the earth with a velocity which was 'unfamiliar', i.e. which ran counter to normal experience. The imagination tended to think of the earth as ponderous 'and even averse to motion' (IV.38), and it was this difficulty which led to the formulation of the alternative system of Tycho Brahe—a system partly prompted by jealousy of Copernicus, but none the less a system to some extent compounded of those of the latter and of Ptolemy. In this system, 'the Earth continued to be, as in the old account, the immoveable center of the universe' (IV.42). Smith added that Brahe's account was 'more complex and more incoherent than that of Copernicus. Such, however, was the difficulty that mankind felt in conceiving the motion of the Earth, that it long balanced the reputation of that otherwise more beautiful system' (IV.43).

In other words, the coherence and simplicity of the Copernican system was qualified by the unfamiliarity of one of its central principles; a problem which was so important as to render a more complex account more acceptable to some than it could otherwise have been. Interestingly enough, Smith represents subsequent developments as involving an attempt to make the more elegant system (of Copernicus) acceptable to the imagination by removing the basic difficulty—i.e. by providing a plausible explanation for the movement of the Earth. In this connection Smith argued that the astronomical work done by Kepler contributed to the completion of the system, while research on the problem of motion by Galileo helped to remove some of the more telling objections to the idea of a moving Earth. But in terms of the general acceptance of the idea of the Earth spinning at high velocity Smith gave most emphasis to the work of Descartes, who had represented the planets as floating in an immense ocean of ether containing 'at all times, an infinite number of greater and smaller vortices, or circular streams' (IV.62). Once the imagination accepted a hypothesis based on the familiar principle of motion after impulse, it was a short step to the elimination of the central difficulty since 'it was quite agreeable to its usual habits to conceive' that the planets 'should follow the stream of this ocean, how rapid soever' (IV.65). He added, in a significant passage, that under such circumstances: 'the imaginations of mankind could no longer refuse themselves the pleasure of going along with so harmonious an account of things. The system of Tycho Brahe was every day less and less talked of, till at last it was forgotten altogether' (Ibid.).

Yet, as Smith went on to note, the modifications introduced by Descartes were not prompted by *astronomical* knowledge so much as by a desire to produce a plausible explanation for the Copernican thesis. Moreover, he noted that further observations, especially those of Cassini, supported the authority of laws first discovered by Kepler for which the Cartesian 'theory' could provide no explanation. Under such circumstances, the latter system while it 'might continue to amuse the learned in other sciences . . . could no longer satisfy those that were skilled in Astronomy' (IV.67).

The Cartesian system was to give way to the Newtonian; a theory which was capable of

accounting for observed phenomena in terms of a small number of basic and familiar principles, and of successfully predicting their future movements. Smith wrote of the Newtonian system with real enthusiasm and in his Letter to the *Edinburgh Review* rejoiced as a 'Briton' to find the contributors to the *Encyclopédie* acknowledge its authority as compared to that of Descartes. Characteristically, however, he left readers of the *Astronomy* with the reminder that 'all philosophical systems' are 'mere inventions of the imagination', even though he had 'insensibly been drawn in' to write as if Newton's system was objectively true (IV.76; cf. Section V below).

IV

While the papers in this volume help to illustrate Smith's wide range of interests, they also confirm that he had an extensive knowledge of literature of a broadly scientific kind. The *Astronomy*, for example, suggests a very close knowledge of the works of classical authors, together with more modern writers such as Cassini, Kepler, Descartes, Copernicus, and Newton. Other essays extend the list to include Franklin and Linnaeus, while the Letter to the *Edinburgh Review* calls attention to Boyle and Bacon, together with Continental authors such as d'Alembert, Buffon, Daubenton, and Réaumur.¹³ It is worth observing in this connection that Dugald Stewart called attention to Smith's unusual knowledge of Continental scientific work (I.25) and considered the 'mathematical sciences' to be 'very favourable subjects for theoretical history'—a fact which may have prompted Smith to undertake 'perfectly analogous' inquiries into the wider fields of language and jurisprudence (II.49,50).¹⁴

There can be no doubt that Smith regarded such exercises in theoretical history as having a serious scientific purpose or that an essay such as the *Astronomy* conforms in terms of structure to the general requirements of didactical discourse as set out in LRBL. At the same time, the argument of the *Astronomy* appears to rely on the use of both reason and experience—partly by virtue of passing in review a series of models which had a historical existence, and partly by explaining their appearance, development, and replacement by reference to a number of principles of human nature whose manifestations could be empirically verified. In this sense, Smith's methodology would seem to conform to the requirements of the Newtonian method properly so called in that he used the techniques of analysis and synthesis in the appropriate order. For, as Colin Maclaurin pointed out: 'in any other way, we can never be sure that we assume the principles that really obtain in nature; and that our system, after we have composed it with great labour, is not mere dream and illusion'.¹⁵

'Dream and illusion' . . . yet it is one thing to suggest that the ('first order') activities of individuals in the field of philosophy or science can be *studied* in a 'scientific way' (the 'second order' enterprise on which Smith was engaged) and another to argue that activity of either kind can always be said to be *scientific* in the sense of conforming to the ideal of objectivity. Moreover, Smith's discussion of the principles which lead and direct philosophical inquiries concentrates, as we have seen, on the needs of the imagination—on broadly psychological needs—so that, as Richard Olson has recently pointed out:

The great significance of Smith's doctrine is that since it measures the value of philosophical systems solely in relation to their satisfaction of the human craving for order, it sets up a human rather than an absolute or natural standard for science, and it leaves all science essentially hypothetical. Furthermore, Smith implied that unceasing

*change rather than permanence must be the characteristic of philosophy.*¹⁶

While this position does seem accurately to express the burden of Smith's argument as contained in the *Astronomy*, two points might be suggested by way of qualification. First, it should be noted that Smith did not claim an *exclusive* role for the central principles of surprise, wonder, and admiration, but rather asserted that the part played by these sentiments was 'of far wider extent than we should be apt upon a careless view to imagine'. Secondly, it is worth remarking that while Smith regarded all theoretical constructions as products of the imagination designed to meet its needs, he also indicated that there was a difference between the natural and moral sciences. As he put the point in the TMS (VII.ii.4.14):

A system of natural philosophy may appear very plausible, and be for a long time very generally received in the world, and yet have no foundation in nature, nor any sort of resemblance to the truth. The vortices of Des Cartes were regarded by a very ingenious nation, for near a century together, as a most satisfactory account of the revolutions of the heavenly bodies. Yet it has been demonstrated, to the conviction of all mankind, that these pretended causes of those wonderful effects, not only do not actually exist, but are utterly impossible, and if they did exist, could produce no such effects as are ascribed to them. But it is otherwise with systems of moral philosophy, and an author who pretends to account for the origin of our moral sentiments, cannot deceive us so grossly, nor depart so very far from all resemblance to the truth.

And yet by way of qualification almost, Smith had earlier remarked that some philosophers, notably mathematicians, 'are frequently very indifferent about the reception which they may meet with from the public', enjoying as they do 'the most perfect assurance, both of the truth and of the importance of their discoveries'. He added: 'Natural philosophers, in their independency upon the public opinion, approach nearly to mathematicians, and, in their judgments concerning the merit of their own discoveries and observations, enjoy some degree of the same security and tranquillity.' (TMS III.2.20.) Passages such as these suggest that 'truth' is attainable while at the same time reminding us of the importance of opinion.

But there can be no doubt that Smith did as a matter of fact draw attention to the importance of the subjective side of science both in emphasizing the role of the imagination when reviewing his basic principles, and in illustrating the working of these principles by reference to the history of astronomy. For example, when speaking of the introduction of the ingenious 'equalizing circle' in the system of eccentric spheres, he noted that 'Nothing can more evidently show, how much the repose and tranquillity of the imagination is the ultimate end of philosophy' (*Astronomy*, IV.13), than this device, and later commented on the ease with which 'the learned give up the evidence of their senses to preserve the coherence of the ideas of their imagination' (IV.35). In the same way, he emphasized the pleasure to be derived from simplicity, order, coherence, and indicated that because men find beauty to be a source of pleasure they may unwittingly give the products of the intellect a form which satisfies purely aesthetic criteria. Hence the Newtonian 'method' as described in LRBL may be used *because* it is 'more ingenious and for that reason more engaging' than any other.

Smith also recognized the importance of *analogy* in suggesting that philosophers, in attempting to explain unusual 'appearances', often did so in terms of knowledge gained in unrelated fields. It

was suggested that reasoning by analogy might affect the nature of the work done, in the manner of the Pythagoreans who first studied arithmetic and then explained 'all things by the properties of numbers'—or the modern physician who 'lately gave a system of moral philosophy upon the principles of his own art' (Astronomy, II.12): 'In the same manner also, others have written parallels of painting and poetry, of poetry and music, of music and architecture, of beauty and virtue, of all the fine arts; systems which have universally owed their origin to the lucubrations of those who were acquainted with the one art, but ignorant of the other'. Indeed, Smith went further in noting that in some cases the analogy chosen could become not just a source of 'ingenious similitudes' but even 'the great hinge upon which every thing turned' (ibid.).

This leads on to the discussion of another side of the problem, again illustrated by the Astronomy, namely that different types of philosopher may produce conflicting accounts of the same phenomena. We have already noted that while at a certain stage of development the Cartesian system 'might continue to amuse the learned in other sciences' it could no longer satisfy those who were skilled in Astronomy (IV.67). But Smith also observed that the Copernican system had been adopted by astronomers even though inconsistent with the systems of physics as then known (IV.35), and that the system of eccentric spheres had been accepted by astronomers and mathematicians, but not by philosophers in general: 'Each party of them too, had . . . completed their peculiar system or theory of the universe, and no human consideration could then have induced them to give up any part of it.' (IV.18.) As this implies, there may be a certain unwillingness to accept ideas formulated in a particular way, and even resistance to the reception of new ones as a result of certain 'prejudices'. Some of these are obvious: for example, the 'natural prejudices of the imagination' (IV.52), which partly explained the original resistance to the idea of a moving earth. Others are more complex, especially those which Smith described as prejudices of education.¹⁷ For example, Smith pointed out that resistance to the acceptance of Copernican ideas was partly explained by the 'Peripatetic Philosophy, the only philosophy then known in the world' (IV.38) and added, with reference to the system as a whole that: 'When it appeared in the world, it was almost universally disapproved of, by the learned as well as by the ignorant. The natural prejudices of sense, confirmed by education, prevailed too much with both, to allow them to give it a fair examination.' (IV.35.) In the same way, the immediate followers of Copernicus were held to have faced objections which were 'necessarily connected with that way of conceiving things, which then prevailed universally in the learned world' (IV.39).

Smith also noted the constraint on the development of new knowledge represented by reverence for the past (IV.20, 28) and made a good deal of national prejudice in the Letter to the *Edinburgh Review*, observing that the attachment of French philosophers to the system of Descartes had for a time 'retarded and incumbered the real advancement of the science of nature' (§ 5).

Points such as these seem to have been 'confirmed' by those whose business it has been to examine the *behaviour* of philosophers (in Smith's sense of the term). To go no further than the recent past, it is noteworthy that T. S. Kuhn's work on scientific revolutions also emphasized the problems of communication which exist between proponents of different theories (Smith's 'prejudices of education') while explaining the development of ideas in terms of systems (paradigms) each of which was doomed to destruction.¹⁸ Indeed, Kuhn's argument taken as a whole may seem to suggest broad agreement with Smith's assessment of the principles of human nature and to support his belief that these principles were constant through time. It was, of course, this thesis that made it possible for the thinker of Smith's period to conceive of the social

sciences as being on a par with the natural, thus matching the achievements of Newton in this field. For Dugald Stewart, the application of this 'fundamental and leading idea' to the various branches of theoretical history was to become 'the peculiar glory of the latter half of the eighteenth century'.¹⁹ What Smith does is to leave the reader of these essays in some doubt as to wherein exactly 'glory' is to be found: in a contribution to knowledge, or to the composure of the imagination, or both.

V

It remains to note the influence of Hume on Adam Smith's philosophy of science. In his youth Smith evidently shared the usual interest of philosophers in the theory of knowledge. His essay on the External Senses is just the kind of thing one would expect from an able young philosopher. Typically, and for this subject very properly, Smith brings together evidence from scientists and arguments from philosophers in order to reach his views. A prominent feature of the essay is his acknowledgement of indebtedness to Berkeley's *New Theory of Vision*, from which he is ready to accept much and to criticize a little. There is no reference to the more radical use that Berkeley made of the self-same arguments in the wider theory of his *Principles of Human Knowledge*. Whether or not Smith ever read the latter work, he must surely have learned something of Berkeley's idealist philosophy from Hume's *Treatise of Human Nature*. It therefore seems likely, as Dr. Wightman suggests (133 below), that the essay on the External Senses is a very early piece, written before Smith had read Hume.

If so, the History of Astronomy will have come later. Although it does not mention Hume by name, it shows unmistakable signs of influence from the *Treatise of Human Nature*. Apart from Humean language about the association of ideas and about degrees of vivacity in sensations, Smith's account of the imagination seems to be an adaptation of Hume. He does not simply follow Hume, however, as he largely followed Berkeley when writing of vision in the essay on the External Senses. His view of the imagination in the History of Astronomy adds a significant element of originality by applying to the hypotheses of science a notion which Hume had used to explain the beliefs of common sense. That is one point of historical interest in Smith's account of the imagination here.

Another is that it shows Smith's appreciation of the positive side of Hume's epistemology. Scholars have tended to assume that Hume's contemporaries, like the thinkers of the nineteenth century, saw him as simply a sceptic—in the theory of knowledge at any rate. This was certainly true of his most severe critics, Thomas Reid and James Beattie. Hume's constructive philosophy of human nature, brought out by such twentieth-century scholars as N. Kemp Smith and H. H. Price, was unperceived by Reid and Beattie, and so by the later critics who took their cue from Reid and Beattie.

There is evidence, however, that some of Hume's contemporaries in Scotland, Adam Smith among them, did not share this blind spot. After Smith's death, his heir, David Douglas, evidently wrote to John Millar about the manuscripts which Smith had allowed to remain understroyed. We know of this letter from the reply which it evoked. After referring to the essay on the Imitative Arts, Millar continues: 'Of all his writings, I have most curiosity about the metaphysical work you mention. I should like to see his powers of illustration employed upon the true old Humean philosophy.' The last words imply that Douglas, in his letter, had seen a connection between a

work of Smith and the philosophy of Hume. They do not necessarily imply that Douglas would have agreed with Millar in regarding Hume's philosophy (or the relevant part of Hume's philosophy) as 'true', but they do at least suggest that he would not think the judgement novel or bizarre.

The letter was printed by W. R. Scott in *ASSP*, 311–13. Scott was not sure whether 'the metaphysical work' of Adam Smith that is referred to could be identified. In a note on p. 313 he said there was no trace of the manuscript so described, but in an earlier part of the book (p. 115, note 3) he suggested that it might be either an unknown manuscript or the work entitled 'The Principles which lead and direct Philosophical Enquiries' that was printed in Smith's posthumous *Essays on Philosophical Subjects*. There can be little doubt that this work is what David Douglas was talking about. Each of its three parts carries a title beginning 'The Principles which lead and direct Philosophical Enquiries; illustrated by . . .'. The term 'illustrated by' is picked up in John Millar's phrase, 'I should like to see his powers of illustration employed . . .'. In fact the 'metaphysical' discussion, on Humean lines, occurs only at the beginning of the first and longest essay, the History of Astronomy, but the initial sections of that essay are intended to be a general introduction to the work as a whole. It is these introductory sections that David Douglas must have had in mind when he talked of a 'metaphysical work' in the spirit of Hume.

What, then, is particularly Humean about Adam Smith's view of the history of science and philosophy? Smith follows the dictum of Plato and Aristotle that philosophy begins in wonder, but he gives this a Humean twist. Wonder arises when the smooth course of the imagination is disturbed by an unusual sequence of events. It is assuaged when philosophy (meaning science) shows the unusual event to be part of a system, a customary order, and so enables the imagination to resume an easy passage. Smith describes the work of the imagination in words that recall the doctrine of Hume's *Treatise*:

When two objects, however, unlike, have often been observed to follow each other, and have constantly presented themselves to the senses in that order, they come to be so connected together in the fancy, that the idea of the one seems, of its own accord, to call up and introduce that of the other. If the objects are still observed to succeed each other as before, this connection, or, as it has been called, this association of their ideas, becomes stricter and stricter, and the habit of the imagination to pass from the conception of the one to that of the other, grows more and more rivetted and confirmed. . . . When objects succeed each other in the same train in which the ideas of the imagination have thus been accustomed to move, . . . such objects appear all closely connected with one another, and the thought glides easily along them, without effort and without interruption. . . . There is no break, no stop, no gap, no interval. The ideas excited by so coherent a chain of things seem, as it were, to float through the mind of their own accord, without obliging it to exert itself, or to make any effort in order to pass from one of them to another.

But if this customary connection be interrupted, if one or more objects appear in an order quite different from that to which the imagination has been accustomed, and for which it is prepared, the contrary of all this happens. . . . The imagination no longer feels the usual facility of passing from the event which goes before to

Thank You for previewing this eBook

You can read the full version of this eBook in different formats:

- HTML (Free /Available to everyone)
- PDF / TXT (Available to V.I.P. members. Free Standard members can access up to 5 PDF/TXT eBooks per month each month)
- Epub & Mobipocket (Exclusive to V.I.P. members)

To download this full book, simply select the format you desire below

