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NATURAL HISTORY AND LITERATURE 1550-1660

Elizabeth Jean Whittaker

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ABSTRACT OF THESIS

Elizabeth Jean Whittaker: NATURAL HISTORY AND LITERATURE 1550-1660

The natural history of the thesis title is the natural history of books: of herbals, beast books and of philosophic works purporting to describe or explain the material facts of the world. The literature is selected from a broad base and is not confined to writers with an overt or avowed interest in the natural world. It is a fundamental presupposition of the thesis that between natural history and literature which are contemporaneous there must be some describable relationship and, furthermore, that description of the relationship is rewarding. In the thesis as a whole, the relationship is seen as one in which natural history becomes progressively less accessible to and exploitable by literature. In the first chapter, I find that the relationship is one of trust: that between the natural world and the language used to describe it, there is assumed to be a just and necessary correlation. Chapters two and three see the replacement of the just and necessary elements of the correlation by contrivances designed to bring natural history and literature together in exciting but self-conscious ways. This self-consciousness is seen in both literature and natural history as a new awareness that the truth may be created as well as discovered and we view attempts at the control of nature by neoplatonists and mechanists of both literary and philosophic persuasion, considering Shakespeare's Prospero as neoplatonic magus and concluding that, although he is temporarily successful, his success is precarious and bought at the cost of great effort. The wave of his wand is not enough to maintain harmony in the world and chapters four and five trace how an over self-conscious view of the world brings about a crisis resulting in a loss of literary and philosophic nerve.

At this point, an examination of the work of Sir Thomas Browne becomes crucial to the broad question of how we may distinguish the method of natural history from the method of literary creation. The latter part of chapter five is concerned with such an examination and Browne is seen to mark a turning point in a century that has come to view the natural world in terms of activity rather than allegory. From this turning point, chapter six concludes the thesis with a review of some aspects of literature and natural history that demonstrate how inaccessible they have now become, one to another.

An appendix compares the 1596 edition of Gerard's herbal with that published in 1633 by Thomas Johnson in a much revised form. The aims of the appendix are to give some idea of the feel of a 16th/17thC herbal, to consider the editorial practice of Johnson and to take the opportunity to provide comment on previous and subsequent practice in the compilation of herbals

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INTRODUCTION

The chief concern of the thesis that follows has been to trace methods and modes of exploitation. I am not primarily concerned with either the quantity or the quality of the natural history that was imported into literature: whether there are more hunting images in Shakespeare than fishing,[1] or whether Donne knew that the earth went round the sun, but with whether Shakespeare found the terms of the chase exploitable and whether Donne found it convenient to believe that the sun went round the earth. Literature is more shameless than science in believing what it wishes to believe, because its truths, being of a metaphysical nature, do not pretend to depend upon the facts from which they are apparently drawn.

At the beginning of our period, science, too, interested itself in metaphysical brands of truth. To attack the crudity and credulity of the natural history that the Elizabethans inherited from the middle ages, is to ignore the organisational basis on which that data was collected in the first place. As A C Crombie says in the second volume of his book Augustine to Galileo:

> It must always be remembered when reading medieval scientific writings, that these were composed, just as a modern scientific paper is composed, within the context of an accepted manner of discussion and of a given nexus of problems. [2]

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1 See Caroline F E Spurgeon, Shakespeare's Imagery and what it tells us (Cambridge 1935) pages 99-111

2 A C Crombie, Augustine to Galileo Vol II (second ed 1959) page 18

It is the changing nature of the discussion that I wish to consider in this thesis and we might, here, glance briefly at the factual bases which were inherited from the middle ages and upon which discussion took place.

The sources of information on natural history in the middle ages were encyclopaedic in form and arrangement. If we assume that arrangement is a product of intent, what sort of intent may we see manifested in such works as Vincent of Beauvais' Speculum Naturale, Isidore of Seville's Etymologiae, the work of Bartholomaeus Anglicus and the various versions of the Latin Physiologus? Clearly these works were not intended to tell a story (in the way that Darwinian biology does). Rare is it, indeed, that the literature of the middle ages tells a story - or at least not at any great length, nor with the underlying assumption that the reader's attention is directed solely towards the resolution of that story (as with Pride and Prejudice). Typically the literature of the middle ages is episodic, each episode relating more closely to an overall philosophic scheme than to the episodes preceding and succeeding. So too with these great encyclopaedias of medieval times. The episode of the elephant's leaning against a tree to sleep, whereby he is taken by the hunter who surreptitiously cuts down that tree and thus brings down the jointless elephant to a position where he is helpless, is part of the larger philosophy of the Devil's strategy to gain possession of the human soul, and the medieval encyclopaedias came off the shelves not to tell the story of the visible world, but to provide exempla for the dialectics of the invisible.

Amongst the many homiletic tales drawn from the natural world that G R Owst quotes in Literature and Pulpit in Medieval England, is this strange story of an adder and an elephant:

> Bartholomeus, de Proprietatibus Rerum, seys that ever betwix the eddure and the Elephaunte, be keende, is grett strive. The neddur is fowle and maliciouse, and the Elephaunte is stronge, fayre, and no-thinge grevous. The neddyr, as this clerke seyth will com and

make hym for to pleye with the elephaunte, and anon he pleys with the neddure; ffor he thenketh non ewill. But at the last this malicious worme, the neddyr, styngeth the elephaunte in the eye, as thei pley to-gethur, with is tayll. And so sodenly the eddur distrowith the elephaunte.

The inherent absurdity of the picture of an adder playing - what sort of game? - with an elephant is over-ridden by the moralisation in which the adder is the Devil and the elephant the human soul. It is on the reality of this, the greater game, that the parable was to be accepted. The practical difficulties of the story - how, for instance, the adder is to reach the elephant's eye - are beside the point. How things happened was never an urgent consideration to the middle ages: the important question was why. It is convenient to associate this with geocentricism and the notion of a finite world. In such a world, the observation of natural phenomena could not seem very imperative. The scheme of the world was known in general and there was a fixed limit to the things that might be discovered about it and, on the whole, man would be better off trying more direct methods to understand the ways of God.

This general scheme of the world was seen as a pale and distorted reflection of the blueprint that, in all its complexity and perfection, existed in the mind of God. Any apparent lack of coherence in the world that man sees around him is attributable to the imperfection of his vision, rather than to imperfection in the system qua system. Blurred vision is a symptom of the Fall and in Paradise Lost, the archangel Michael treats Adam's eyes with eyebright as well as rue.[2] Here we see through a glass darkly and, with the model of the world safe within the divine mind, the filling in of detail must, always, be seen as secondary to more direct and philosophic methods of attaining truth. The idea that Man should take upon himself the organisation and

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[1] See G R Owst, Literature and Pulpit in Medieval England (Cambridge 1933) page 198

[2] The Poetical Works of John Milton, ed Helen Darbishire (Oxford 1952) Vol I page 252 line 414

reorganisation of observed data could only, in all senses of the word, seem impertinent.

Because of this, the types of questions that the middle ages thought fit to put to the natural world were not the sort that we would think appropriate today and were not, in fact, thought appropriate at the end of the seventeenth century. Bacon and Baconianism successfully divorced natural history from theology and we may, I think, claim that the late seventeenth century scientist was truly a different animal from his medieval counterpart. This, of course, is a dangerous claim - history is a continuum not a series of abrupt transitions. Well, maybe. But if one takes a snapshot at two points, reasonably far apart, the angle of view must be different. One moment there are dinosaurs and the next there are not.

My own two snapshots are taken in the sixteenth century and the late seventeenth: a head-and-shoulders view of John Gerard and Henry Lyte and a group portrait of the Royal Society - natural history as Elizabethan and individual and as modern and co-operative. The two views correspond pretty much to the way that I have found that the material falls out when considerin its exploitational value in literature. As the thesis proceeds, it will be evident that detailed analysis of literature and natural history as they relate to each other becomes increasingly difficult. We may, at the end of the period, analyse literature or we may analyse natural history. It becomes almost impossible to do both together because the types of question to which each seeks an answer are now so different that the critical effort necessary to commute between the two has become so strenuous as to be purely artificial

Why this should have happened - and why it should have happened specifically in the seventeenth century is, in part, the subject of this thesis. The other part is how. A blanket examination of any period of a hundred years is bound to find it complex, baffling and contradictory. To some

extent to ask the question why - why is John Ray a better botanist than John Gerard? - is to cut a swathe through this complexity. But it is a blinkered sort of question and perhaps, in the last resort, impermissible. What, after all, is "better"?

If we ask how, then we cut a different sort of swathe - one which has the advantage of being broader and the disadvantage of being less certain in direction. It is this sort of swathe that I have tried to cut in this thesis. How literature changes and how the study of natural history changes and how they keep pace, oppose, diverge and finally separate from each other will be the concern of the pages that follow. It is natural history reflecte refracted and absorbed into literature, and if there is any one question to which I have sought an answer, it is not whether such-and-such a writer is up-to-date in his use of the facts of natural history, but whether he finds the latest natural history more or less conveniently exploitable than any other.

I hope that this question is implicit in all that follows and that it is narrow enough to give a coherent line of thought to material whose surface appearance is often exceedingly diffuse and dissimilar.

. . .

CHAPTER ONE

The Argument

This chapter will attempt to answer the questions: At whom were the early herbals aimed? To what extent was the man of letters as well served in his natural history by dictionaries as by herbals? To what extent do herbalists post Turner (1568) start to include exploitable literary material heretofore found only in dictionaries? Extended practical examples are given in considering Spenser's Aprill Eclogue and Shakespeare's The Winter's Tale and the question is raised as to how far the new herbals fostered a realism that was to clash with the symbolic world picture, cutting horizontally across a vertically aligned world. The act of translation is considered as part of the Elizabethan attempt to come to terms with its own realism. The effect of dictionary realism now having been considered, we view circumscriptive (vertical) ways of thought, looking as an example at botanical nomenclature in Gerard's herbal (hitherto considered only in its effect on realism) Literary parallels to circumscriptive or vertical thought are looked for from Witney's A Choice of Emblemes and Spenser's The Faerie Queene. The chapter concludes by noting the embarrassment caused when horizontal naturalism is demanded of a primarily vertical literary and philosophic structure.

• • •

At the beginning of the period with which this thesis seeks to concern itself, there were two main sources from which information about plants might be sought: from herbals and from dictionaries. In 1538, Sir Thomas Elyot produced his Dictionary. This, for the great age of Tudor translation was to be the standard dictionary until Cooper's Thesaurus linguae romanae et britannicae (1565). For the aspiring man of letters, flexing his muscles on apprentice translations of Vergil's Eclogues, Elyot provides this definition of "cicuta" (Ec ii 36 and Ec v 85):

> A venemous herbe, which groweth two cubytes in height with a grene stalke full of knottes, bushy in the toppe, having leaves smaller than Coriander, and seedes greater than anyse

> sede, and is horrible in savour. Some dothe nowe use that name for Hemlocke.[1]

As botany, this description, which links hemlock with other umbellifers and provides physical details of height and appearance is far better than the typical herbalist's entry. This is "Banckes's herbal" of thirteen years previous:

> This herbe is called Humlocke or herbe Benet. The vertue of this herbe is thus. The ioyce of this herbe keepeth maydens teetes small. Also this herbe often dro[n]ke kepeth and destroyeth the great appetyte of lechery. Also the ioyce tempered with Swynes grece, destroyeth ye hote Potagre and swageth the great swellynge, for it is colde and dry.[2]

Apart from the fact that the dictionary-maker and the herbalist appear to be describing two different plants (herb bennet[3] might or might not destroy the great appetite of lechery - hemlock certainly would!), there is a clear difference of intent governing the two definitions. And if we are to judge botanically between the two, then we must come down in favour of the dictionary-maker. Elyot is trying to give us some impression of the plant's appearance to assist the translator's decision and to enable identification to take place. Banckes, on the other hand, is hardly interested in identifying the plant and goes on immediately to the herb's medicinal properties. Earlier herbals are similarly remiss in offering what we would regard as necessary botanical information. In one of the many versions of Macer - from which "Banckes's herbal" is itself derived - we learn only that "hemelock is in kynde colde and deadly" whence follows, in some detail, its eight medicinal properties.[4]

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[1] The dictionary of Syr Thomas Elyot (1538)

[2] An Herbal [1525], ed Sanford V Larkey and Thomas Pyles (NY 1941) Biii^{v}

[3] Herb bennet = Wood avens (Geum urbanum)

[4] A Middle English Translation of Macer Floridus de Viribus Herbarum, ed Gösta Frisk (Uppsala 1949) page 133

To this view of priorities, herbals of the late middle ages and early sixteenth century generally conformed. By trading upon the populace's need for home medication, printers such as the unscrupulous Rober Wyer offered works such as the reworking of Macer that he published in 1530, whose intention is made clear upon the title-page:

> MACERS HERBAL PRACTYSYD BY DOCTOR LYNACRO. Translated out of laten, into Englysshe, whiche shewynge theyr Operacyons & Vertues set in the margent of this Boke, to the entent you myght knowe theyr Vertues.

The conclusion to be drawn from this, is that the early herbals were not seriously intended to be aids to identification. In the field, the collection of plants for the drugs trade was carried on by simplers such as patient Griselda in Chaucer's Clerkes Tale who:

> . . . whan she homward cam, she wolde brynge
> Wortes or othere herbes tymes ofte,
> The whiche she shredde and seeth for hir lyvynge[1]

And a measure of the low estimation in which such activities were held may be gathered from the fact that Griselda is the daughter of a man who, in his village, was "holden povrest of hem alle"[2] When William Turner came to compile his herbal, he was at pains to point out in the preface that he has been into Italy and Germany, botanising in the field:

> not trustinge onlye to the olde herbe wives and apothecaryes (as manye Physiciones have done of late yeres).[3]

Small wonder, then, that the early herbals do not aim to be handbooks to identification in the field: such simplers relied upon traditional lore, would have had no use for a field handbook - and might well have been

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[1] The works of Geoffrey Chaucer, ed F N Robinson (second ed 1957) "The Clerkes Tale" lines 225-227

[2] Ibid, line 205

[3] The first and seconde partes of the Herbal of William Turner Doctor in Phisick lately oversene and corrected and enlarged with the Thirde parte (Cologne 1568)

quite unable to read one[1] Rather, the earlier type of herbal aimed for a place on the apothecaries' shelves, there to be consulted as a convenient drugs list, or a place in the home, serving the function of a home doctor where it might be consulted as a preliminary to a visit to the apothecary and the compounding of a prescription. One of the reasons, claims Peter Treveris, for the writing of his Grete Herball, was to cater for the home medication market. Man is subject to so many diseases at short notice:

> whiche dyseases ben of nombre and ompossyble to be rehersed and fortune as well in vilages where as nother surgeons nor phisicians be dwellyng nygh by many a myle as it dooth in good townes where they be redy at hande. Wherefore brotherly love compelleth me to wryte thrugh ye gyftes of the holy gost shewynge and enformynge how man may be holpen with grene herbes of the gardyn and wedys of ye feldys as well as by costly receptes of the potycary's prepagred. [2]

The Dame Pertelotes of this world would have had more time for such works as Hieronymous von Braunschweig's A most excellent and perfecte homish apothecarye or homely physick booke (1561)[3] than for the type of herbal that we are going to consider in relation to literature.

From this utilitarian view of the vegetable world, emerge three different classes of plants - herbs, which were of medical value; flowers, which existed to beautify the earth; and weeds, which were useless except insofar as they represented the evil in the world that had been let loose at the Fall. Like all medieval categories, however, these were taken for granted as generalised theory and no attempt was made to construct from them the fabric of a systemised botany. That there was an order to the natural world was never doubted by the middle ages but, because men looked to the moral plane rather than the physical in seeking it, they had little attention to spare

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[1] The extent to which the public had become dependent upon the traditional lore of herb gatherers is attested by the fact that so many herbals offered to save their readers from being duped: see especially the prefaces to Turner's herbal and Rams little Dodoen (1606). See too, the complaint of Lyte (page 348 of his herbal) against "landlepers and rogues"

[2] Peter Treveris, Grete Herball ✠ii

[3] translated by "Jhon Hollybush"

for the morphological niceties which serve to characterise a descriptive botany.

It is this moral tone of early botany, together with a flexibility in its application that lends force to the many literary metaphors involving the flowers of chivalry, of rhetoric and of a sweet-scented and godly life.[1]

The three categories: flowers, herbs and weeds, are sufficiently commonplace for George Gascoigne to present a whole collection of his verses within this framework. In the preface to his Posies, he says:

> I have here presented you with three sundrie sortes of Posies: Floures, Hearbes, and Weedes. In which division I have not ment that onely the Floures are to be smelled unto, nor that onely the Weedes are to be rejected. I terme some Floures, bycause being indeed invented upon a verie light occasion, they have yet in them (in my judgement) some rare invention and Methode before not commonly used. And therefore (beeing more pleasant than profitable) I have named them Floures.
>
> The seconde (beeing indeede morall discourses, and reformed inventions, and therefore more profitable than pleasant) I have named Hearbes.
>
> The third . . . Mary you must take heede how you use the[m]. For if you delight to put Hemlocke in your fellowes pottage, you may chaunce both to poyson him, and bring your selfe in perill. But if you take example by the hammes of others who have eaten it before you, then may you chaunce to become so warie, that you will looke advisedly on all the Percely that you gather, least amongst the same one braunch of Hemlock might anoy you.[2]

It is this moral tone whereby, even in such modern herbals as Lyte's or Gerard's, plants are described as noble or vicious,[3] that we must bear in mind as we plunge into the much more detailed world of Elizabethan

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[1] For a really worked out example of this, see Thomas Adams, A Divine Herball (1616) which consists of five sermons: "The Garden of Graces", "The prayse of Fertility", "A Contemplation of the Herbes", "The Forrest of Thornes", "The end of Thornes". "A Contemplation of the Herbes", in particular draws moral lessons from "Hysope and Humilitie" (page 68) "Saint Johns-wort, or Charitie" (page 77) "Parsley or Frugalitie" (page 81) "Lilly, or Pureness of heart" (page 85) and so forth

[2] George Gascoigne, The Posies, ed John W Cunliffe (Cambridge 1907)

[3] On page 469 of Lyte's herbal (1578), darnel is described as vicious and today, the attribute of nobility is perpetually bestowed upon the noble fir (abies nobilis) a nineteenth century introduction from America

realism. The pervasive influence of morality and utility, however, may be judged by the fact that, as late as 1668, we find John Wilkins considering classifying his Essay towards a Real Character and a Philosophical Language in some such manner:

> I had formerly distributed [he says] the kinds of Herbs, according to those several ends and purposes for which they are commonly used, into these three heads; 1. Such as are for pleasure, being usually cherished in Gardens, for their flowers, or beauty, or sweet sent. 2. Such as are Alimentary, being used by men for food, either in respect of their Roots, their Leaves or Stalks, their Fruit or their Seed. 3. Such as are Medicinal, being either Hot and biting, or Cold and Stupefyng, Purgative, Alterative, Vulnerary. But upon further consideration I am satisfied, that though these heads may seem more facil and vulgar; yet are they not so truly Philosophical, but depend too much upon the Opinions and customs of several times and Countries. [1]

The answer, though Wilkins was reluctant to see it, was to abandon Philosophy and adopt Physiology.

At the beginning of this section, I pointed out that anyone seeking a realistic description of a plant might as soon turn to a dictionary as a herbal and it is thus fitting to end the section with Wilkins who is the last in a line of classifiers of nature who aimed as much to restore the proper meanings of words as to improve upon a moribund herbal tradition.

. . .

In 1578, Henry Lyte published his translation of Rembert Dodoens Crŭÿdeboeck (1554) and presented to a growing literary consciousness a herbal whose format lent itself to casual literary use and extended borrowings. Its influence far exceeded that of Turner's herbal which had appeared in three parts in 1551, 1562, and 1568, despite the fact that Turner is the more important and original botanist. The design of both works is, however, similar and far removed from the medical handbooks

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[1] John Wilkins, An Essay towards a Real Character and a Philosophical Language (1668) page 69

that we have so far considered, the most fundamental difference being that the herbalist puts himself under an obligation to describe plants - and to describe all plants, not just those known to be useful. Thus Lyte offers us:

> The whole discourse and perfect description of all sortes of Herbes and Plantes: . . . not onely of those whiche are here growyng in this our Countrie of Englande, but of all others also of forrayne Realmes commonly vsed in Physicke.[1]

And this, to the best of his ability, he goes on to do, adding to the original where he finds it necessary to do so, such as in the case of the sunflower, newly noticed from America.[2]

The result of such an approach is a shift of emphasis from medical utility to description of plants for their own sake. And when, further, this is supported by the superb woodcuts, many of which were originally cut for Fuchs' De Historia Stirpium, we need not be too surprised to find a sudden rash of particularised flowers appearing in the poetry of the period. Elizabethan pastorals and lyrics abound with flowers and in William Browne's late offering, Britannia's Pastorals, we see the fashion reduced to absurdity. When the dreamer in The Parlement of Foulys entered the garden "ful of blosmy bowys" he saw only:

> flouris white, blewe, yelwe & rede.[3]

But when William Browne saw his ideal landscape, he abandoned himself

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[1] Henry Lyte, A Niewe herball, or historie of plantes . . . First set foorth in the Doutche or Almaigne tongue by . . . Rembert Dodoens . . . nowe first translated out of French into English by Henry Lyte (1578)

[2] Ibid, page 191 "Of the Indian Sunne, or Golden floure of Perrowe"

[3] Geoffrey Chaucer, The Parlement of Foulys, ed D S Brewer (Manchester and NY 1972) line 186

utterly:

> The Daizy scattered on each Meade and Downe,
> A golden tuft within a silver Crowne,
> (Fayre fall that dainty flowre! and may there be
> No Shepheard grac'd that doth not honour thee!)
> The Primrose, when with sixe leaves gotten grace
> Maids as a True-love in their bosomes place;
> The spotlesse Lilly, by whose pure leaves be
> Noted, the chaste thoughts of virginitie;
> Carnations sweet with colour like the fire,
> The fit Impressa's for inflam'd desire;
> The Hare-bell for her stainlesse azur'd hue
> Claimes to be worne of none but those are true;
> The yealow King-cup, Flora them assign'd
> To be the badges of a iealous minde;
> The Oringe-tawny Marigold: the night
> Hides not her colour from a searching sight.
> To thee then dearest Friend (my songs chiefe mate)
> This colour chiefely I appropriate . . .
> The Columbine in tawny often taken,
> Is then ascrib'd to such as are forsaken;
> Flora's choise buttons of a russet dye
> Is Hope even in the depths of misery.
> The Pansie, Thistle all with prickles set,
> The Cowslip, Honisuckle, Violet,
> And many hundreds more that grac'd the Meades.[1]

This is most gloriously overdone, of course. But it is the ultimate result of a realistic appetite that gave us both herbals and the poetry of nature dressed for the same clientele. In an article in Notes and Queries, Agnes Arber makes a good case for Spenser's having become acquainted with Lyte's translation of the Crüydeboeck at the time of writing the Aprill Eclogue:[2]

> Bring hether the Pincke and purple Cullumbine,
> With Gelliflowres:
> Bring Coronations, and Sops in wine,
> worne of Paramoures.
> Strowe me the ground with Daffadowndillies,
> And Cowslips, and Kingcups, and loued Lillies:

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[1] William Browne, Britannia's Pastorals [1613] - 1616 (Menston 1969) "The second Booke" page 61

[2] Agnes Arber, "Edmund Spenser and Lyte's Nieuve Herball" Notes and Queries vol clx pages 345-347

The pretie Pawnce,
And the Cheuisaunce
Shall match with the fayre flowre Delice.[1]

The first five of these plants, as Agnes Arber points out, appear within sixteen pages of each other in Lyte's Niewe Herball, as well as pansies and the wallflower which Arber identifies with Spenser's "cheuisaunce". If, as Arber suggests, it is possible that Spenser turned over the pages of A Niewe Herball when it had just been published and he was staying with the Sidneys at Wilton in Wiltshire, then he may well have felt the romance of the names "Soppes in wine"[2] and "Columbyne"[3] coming straight off the pages of the first herbal set out for the benefit of the general reader. Lyte's descriptions really do present the plants to the visual imagination. Spenser's "pretie pawnce" delivered to him by Lyte's excellent description and his commendation of it as a plant "bringing forth fayre & pleasant floures"[4] is the progenitor of Milton's "pansie freakt with jeat"[5] - in itself, perhaps, an echo in the ear of Lyte's "blacke and yellow streekes"[6]

For Spenser though, the flowers of the Aprill Eclogue are a rare patch of local colour. Most of his pastoral poetry is shadowed by the trees of another land and his shepherds seek relief from the sun of a hotter clime and compose their lays at the feet of Vergil. Nevertheless, there are moments when the native slip grows strongly upon the original stock. When

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[1] The Works of Edmund Spenser, ed E Greenlaw, C G Osgood, F M Padelford, R Heffner (Baltimore 1943). The Minor Poems Vol 1 page 40 "Aprill Eclogue" lines 136-144

[2] Lyte, Niewe Herball page 156

[3] Ibid, page 165

[4] Ibid, page 149

[5] The Poetical Works of John Milton, ed Helen Darbishire (Oxford 1955) page 168 "Lycidas" line 144

[6] Lyte, Niewe Herball page 149

his sheep "brouze the woodbine twigges, that freshly bud"[1] or when they show a partiality for young willow shoots or tender brambles, then we see operating a desire to naturalise the plants of a foreign land in a way that lets fresh air in upon both art and natural history.

This precision undoubtedly received a good deal of support from the superb woodcuts which, originating from the Antwerpian house of Plantin, were repeatedly copied and became the common property of pratically all the herbalists of the age. The woodcuts of Meyer-Fullmaürer-Speckle which were used to illustrate Turner and Lyte and Gerard[2] are a world away from the woodcuts of Peter Treveris' Grete Herball. The boxing in of Treveris' cuts, his stylised sweeps and the symmetry of his plants are more suggestive of decorative initials than of the growing plants that were to be so faithfully depicted in the woodcuts that were to follow. Treveris, apparently, regarded his cuts as ornamenting the text and has no scruples about repeating over sixty of them with different descriptions underneath.[3] He was not, in other words, out to provide supplementary and substantiating information in the cuts. In all English herbals after Turner, however, the cut is very much a complement to the text, enabling the reader to lim out the textual description - even to colour the woodcut if he so wished.[4]

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1 Works of Spenser, Greenlaw et al (1947). The Minor Poems Vol II page 85 "Virgil's Gnat" line 82

2 See Blunt, Bot Illus (1950) pages 49 and 54-56

3 These are described in Richard Pulteney, Historical and Biographical sketches of the Progress of Botany in England (1790):

> Each block is two inches high, and nearly as wide. Many of these figures are fictitious, and many misplaced. In a variety of instances the same figure is prefixed to different plants, and in a very few are they sufficiently expressive of the habit, to discriminate even a well-known subject, if the name applied did not suggest the idea of it.
>
> page 50

4 See for instance, the title-page of Crispin van de Pass's Hortus Floridus which was trans (by T Wood?) in 1615 and offers, besides a description of the flowers "the prefect true manner of colouringe the same with their naturall coloures." - a promise which it fulfills inside with fairly detailed colouring instructions

Without the aid and reinforcement of good cuts, it is small wonder that plant description in medieval herbals is mediocre or non-existent. Blunt quotes Hieronymous Braunschweig in saying that the figures were:

> nothing more than a feast for the eyes, and for the information of those who cannot read or write. [1]

While the figures were nothing more, it was possible to have complete divorce between text and illustration, even where the illustrations were good in themselves. There are many medieval examples of exquisite and lovingly observed birds, beasts and flowers in manuscripts, tapestries and church carvings.[2] What was new in the late sixteenth century was a text that commented upon the illustration - and vice versa. This betokened a real change of attitude and it was not one that followed immediately upon new technique. When Butterfield complains that:

> men like Leonardo da Vinci and Albrecht Dürer produced pictures of plant and animal life so precise that it is not easy for the modern world to understand why the writers on natural history could be content to go on trafficking still with symbolism and fable [3]

the answer must be sought in some kind of attempt to understand a shifting outlook, rather than along the purely mechanistic lines of improving technique The Elizabethan herbal is the product of an amalgamation of so many things. The enlarged scope of the printing press made possible an eye-catching format and this, together with an emphasis upon the vernacular name and a wealth of literary allusion - Theocritus, Vergil, Ovid, Horace, Pliny, Martial - all combined to give the Elizabethans a pride and pleasure in the violets and hyacinths, anemones and daffodils of their native country.

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[1] Blunt, Bot Illus (1950) page 43

[2] Such as the birds of the Sherborne Missal, the beasts and flowers of the Duke of Devonshire's hunting tapestries and the carved foliage of the roof bosses in Exeter cathedral

[3] H Butterfield, "Renaissance Art and Modern Science" in Hugh Kearney, Origins of the Scientific Revolution (1964) page 13

In an English cottage garden, a very English Perdita offers her guests posies of the classical garland-making tradition:[1]

> Here's flowers for you:
> Hot lavender (1), mints, savory, marjoram,
> The marigold (2), that goes to bed wi' th' sun
> And with him rises, weeping. [2]

Two of these plants (the ones numbered) may also be found in Vergil's second eclogue:

> tum casia atque aliis intexens suauibus herbis
> mollia luteola pingit uaccinia calta. [3]

My authority for equating casia with lavender is Lyte's herbal: "it seemeth to be the herbe that Virgil calleth Casia" [4] And Gerard endorses this identification, translating the lines given above thus:

> The maide[n] faire hir garla[n]d decks with flowers gay
> That yeeld a fragrant smel as fresh as somer may;
> Mingling sweete Lavander and yellow Marigold
> With purple violet, most pleasant to behold. [5]

Perhaps Shakespeare had looked at Gerard before putting together the sheep-shearing scene and, if so, the first two lines of the translation, which have no basis in Vergil, may have suggested to him the picture of Perdita binding together flowers to offer her guests. On the basis of two flowers, this may seem somewhat slender, but the preceding lines of the eclogue leave, I think, no doubt that that, at any rate, was Shakespeare's primary source:

> huc ades, o formose puer: tibi lilia plenis
> ecce ferunt Nymphae calathis; tibi candida Nais,

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1 In the Philemon Holland translation of Pliny's Natural History, the 21st book deals largely with garland plants. The persistence of the tradition may be guaged by the fact that Sir Thomas Browne wrote a paper "Of Garlands" which was intended to be a contribution to Evelyn's Sylva

2 The Winter's Tale, ed J H P Pafford (1963) IV iv 103-106

3 Vergil, Opera, ed R A B Mynors (Oxford 1972) "Ecloga II" lines 49-50

4 Lyte, Niewe Herball page 265

5 John Gerard, The Herball or Generall Historie of Plantes (1597) page 468

pallentis uiolas et summa papauera carpens
narcissum et florem iungit bene olentis anethi;
tum casia . . . etc.[1]

These lines were englished by Abraham Fraunce in The Countesse of Pembroke's Yvychurch (1591) and this, for reasons which I will set out below, I believe to be the immediate source of the sheep-shearing scene. Fraunce translates as follows:

Come neare, ô faire boy; loe, Nymphs here bring thee the Lillies (3)
With full stuft baskets, faire Nais, loe, to thy comfort
White Violets (4) gath'ring, and Poppies daintily topping,
Daffadil (5) adds to the same, and leaves late pluckt from the sweete Dill:
Then mingling Casia . . . etc.[2]

The flowers numbered may be found together in Perdita's famous speech:

daffodils, (5)
That come before the swallow dares, and take
The winds of March with beauty; violets, (4) dim,
But sweeter than the lids of Juno's eyes
Or Cytherea's breath; pale primroses,*
That die unmarried, ere they can behold
Bright Phoebus in his strength (a malady
Most incident to maids); bold oxlips and
The crown imperial; lilies of all kinds,
The flower-de-luce being one. O, these I lack,
To make you garlands of.[3]

Perdita's choice of "dim" violets at line 120, instead of the more common purple form, looks very much like a prompting from the second eclogue, whether from Fraunce's "white" or Vergil's "pallentis".[4]

Lastly, I should like to draw attention to the "pale primroses" which I have asterisked in the passage above. Primroses occur elsewhere in Shakespeare: in IH6, III ii 62, in Cym, IV ii 221 and in MND, I i 215. In the first two cases, they are again described as "pale", in the last as

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[1] Vergil, ed Mynors "Ec II" lines 45-49

[2] Abraham Fraunce, The Countesse of Pembroke's Yvychurch (1591) "The Lamentation of Corydon for the love of Alexis"

[3] Wint IV iv 118-126

[4] Vergil, ed Mynors "Ec II" line 47

"faint", suggesting the existence of some sort of convention in Shakespeare's mind. Now, in the second eclogue, we have the plant "ligustrum" occurring in the opening phrase of line 18: "alba ligustra cadunt". Modern translators agree in rendering this "privet" and it is so rendered in the Loeb edition.[1] But in the sixteenth and seventeenth centuries, there was a certain amount of argument over the correct translation. If we look up "ligustrum" in Cooper's Thesaurus (1584), we find:

> Ligustrum, ligustri . . . By the judgement of most men it is privet or primprint, albeit diverse be of contrarie opinion. [2]

One contrary opinion might have been thought to have been disposed of by Turner:

> ligustrum, arbor est, non herba ut literatoru[m] vulgus credit; nihil que minus est quam a Prymerose [2]

but as late as the 1650s, according to Ellacombe, William Coles was stating "this herbe is called Primrose".[3]

The symbolism of the primrose for those who die young is one whose origin has puzzled commentators and J H P Pafford, in the Arden Wint, devotes a section of appendix to pale primroses and the Victorian invention of an explanato: myth. Perhaps the simple answer is to be found in the mistranslation of "ligustra" as primroses in Vergil's phrase - the context is at least very suggestive:

> o formose puer, nimium ne crede colori:
> alba ligustra cadunt, uaccinia nigra leguntur [4]

. . .

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[1] Translated H Rushton Fairclough (revised ed 1935)

[2] William Turner, Libellus de Re Herbaria 1538, The Names of Herbes 1548, fac. ed James Britten, B Daydon Jackson and W T Stearn (1965) page 50

[3] H N Ellacombe, the Plant Lore and Garden Craft of Shakespeare (second ed 1884) page 228

[4] Vergil, ed Mynors "Ec II" lines 17-18

But if the paleness of the primrose is good evidence for Shakespeare's use of the second eclogue, my contention that he used it in the Fraunce translation is, as yet, unproven. Preceding "The Lamentation . . . ", however, is an Arcadian story. This opens with Cupid disguised as a shepherd:

> Who would thinke that a God lay lurking under a gray cloake,
> Silly Shepheards gray cloake, & arm'd with a paltery sheephooke?[1]

Now, although Florizel who "thus affects a sheep hook"[2] and compares himself to a god is most plainly derived from Dorastus in Pandosto, who does both these things, there are a couple of interesting features of the Fraunce story. The one is that, unlike Dorastus who only meets Fawnia on her return from the farmers' celebrations and assumes shepheard's clothing later still,, Cupid, like Florizel, has put on shepherd's clothing specifically to attend "dame Flora'es wakes"[3] And his reasons for doing so are interesting:

> For that I can not abide to be dayly desir'de by my mother
> For to renounce Hoblobs, and ayme at a King or a Kaisar
>
> . . .
>
> Wheresoever I keepe, ile stil be the lovely Cupido,
> Aswel in Hoblobs heart, as in heart of a King or Kaisar,
> And as I list I doe make an unaequall mynde to be aequall.[4]

A few small things claim further attention in the ensuing story. There is a savage beast incident (in this case, a wolf) as there nearly always is in Arcadian literature, and the coincidence of a few names, amongst them the forms "Cytherea" and "Phoebus" for Venus and Apollo[5] - the former an uncommon use in Shakespeare[6] And if Shakespeare took his Autolycus from the Metamorphoses,[7] perhaps he took him from the third part of The Countesse of Pembroke'

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[1] Fraunce, Yvychurch (1591) A3

[2] Wint IV iv 421

[3] Fraunce, Yvychurch (1591) A3^{v}

[4] Ibid, A3^{v}

[5] Ibid, A3^{v} and G4^{v} for example

[6] Wint IV iv 122 and fn

Yvychurch, which appeared in 1592 and consists of paraphrased excerpts from the Metamorphoses. Mentioned is that:

> Mercury begate on Chione a notable theefe called Autolicus[1]

Since Fraunce's choice of metamorphic episodes is rather selective, this may have some significance, as may the Io episode, which is also dealt with by Fraunce who, paraphrasing freely, says that when Juno notices her husband's absence she:

> Mervailes much, and asks, if her husband were in Olympus,
> Who transformd sometimes to a Bull, sometimes to a golden
> Showre, was woont each where such slippery prancks to be playing[2]

Now, although Florizel's Euphuistic plea:

> Jupiter
> Became a bull and bellow'd[3]

was lifted either directly from Pandosto[4] or from Euphues itself,[5] we remember that, a few lines before, Perdita had protested that she was "most goddess-like prank'd up"[6]

Lastly, although the story of Pygmalion was well known,[7] the Prometheus story provides as good a basis for Shakespeare's most drastic alteration of the plot of Pandosto and it is one of the episodes paraphrased by Fraunce:

> Crafty Prometheus, whoe by degrees contrived a picture,
> And gave life to the same with fyre that he stole fro[m] the heavens[8]

In the context of The Winter's Tale, Fraunce's commentary on this is the most

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1 Fraunce, Yvychurch (1592) fol 38

2 Ibid, fol 11^{v}

3 Wint IV iv 27-28

4 See Wint appendix page 210

5 The Complete Works of John Lyly ed R Warwick Bond (Oxford 1902) Vol I page 236

6 Wint IV iv 10

7 See Wint, introduction page xxxiv

8 Fraunce, Yvychurch (1592) fol 2. Note that the statue of Hermione is likewise first described as a "picture"

interesting thing of all:

> Historically, Prometheus is sayd to be the first who made any image of man, of clay . . . Allegorically, Prometheus is the fore-seeing and fore-knowing of thinges before they come to passe (for soe the very woord importeth,) as Epimetheus is the knowledge which we get by the end and event of things already past & gone, whose daughter is Repentance. [1]

. , .

This has taken us a long way from the plants of Vergil's second eclogu But it is important to realise how many-stranded a thing was the Elizabetha approach to the natural world when the second eclogue surfaces as easily in a great herbal as in a great dramatist: I have talked about pale primroses Perhaps Shakespeare thought that his "violets dim" were sweeter than the li of Juno's eyes because the vaccinia of line 18 were thought by some to be fodder for poor Io whom Juno persecuted as Gerard points out:

> When Jupiter had turned the yoong Damsell Io whom he tenderly loved into a Cow, the earth brought foorth this flower for hir foode which being made for hir sake received the name from hir [2]

Shakespeare certainly had the story in his mind earlier in the scene:

> The gods themselves,
> Humbling their deities to love, have taken
> The shapes of beasts upon them: Jupiter
> Became a bull, and bellow'd; the great Neptune
> A ram, and bleated; and the fire-rob'd god,
> Golden Apollo, a poor humble swain,
> As I seem now. [3]

True, Io is not mentioned, nor did Jupiter - in the original - transfo himself into a bull. But Shakespeare probably lifted the passage from Lyly (my underlining):

> Did not Iupiter transforme himselfe into the shape of Amphitrio to imbrace Alcmoena? Into the forme of a Swan to enioye Laeda? Into a Bull to beguyle Io? Into a showre of golde to winne Danae? Did not Neptune chaunge himself into a Heyfer, a Ramme, a Floude, a Dolphin, onelye for the loue of those he lusted after? Did not Apollo conuerte himselfe into a Shepheard, into a Birde, into a Lyon, for the desire he had to heale hys disease. If the Gods thoughte no scorne to become beastes to obtayne their best

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[1] Fraunce, Yvychurch (1592) fol 9^{v}

[2] Gerard, Herball (1597) page 701

[3] Wint IV iv 25-31

> beloued, shall Euphues be so nyce in chaunging his coppie to gayne his Lady? [1]

In other words:

> Their transformations
> Were never for a piece of beauty rarer,
> Nor in a way so chaste, since my desires
> Run not before mine honour, nor my lusts
> Burn hotter than my faith. [2]

This is sophistical, borrowing not only the subject matter of Lyly, but the Euphuistic tone as well. Subterraneously, it raises the question of man-to-beast metamorphoses that, as we shall see later,[3] was breeding spectres in the minds of all adventurous atomists. More obviously, it prepares us for the nature/nurture debate that follows between Perdita and Polixenes and that, too brings us to a consideration of broader and more fundamental issues of the Elizabethan view of nature. When Polixenes raises the delicate question of grafting, we may find it difficult to appreciate the vehement feeling that the subject provoked in the early seventeenth century. It is, however, only another aspect of the debate between ancient and modern, between static and fluid, that rumbled on through the century and into the opening years of the eighteenth. If botany was to be the rediscovery and restating of ancient truth (principally as contained in Dioscorides, Theophrastus and Pliny) then grafting, which concerned itself with the creation of new forms (with all the repercussions <u>that</u> had for Garden-of-Eden fidelity) could only be a threat to the permanent establishment of such truth.

In the next chapter, I shall consider how the idea of a static truth took a hammering at the hands of John Lyly (in spite of himself) and how, in the full awareness of what he was doing, John Donne completed the process.

. . .

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[2] Wint IV iv 31-35

*[1] Lyly, <u>Works</u>, ed Bond (1902) page 236

[3] pages 59-60

In the rather detailed look at Wint IV iv, above, I have tried to show the working out of an impulse to particularise and localise something - a feeling and a formula - whose basis is in the classics. It is an impulse whose springs are germane to the age's concept of translation and as truly Elizabethan as Shakespeare's capped and hatted Roman citizens.[1] It gives to most Elizabethan renditions of classicism a most enviable capacity for grafting the here and now upon the solid stock of tradition. Canon Charles Raven claims the excitement generated by this approach for science:

> It was precisely this desire, not only to collect the lore of Greece and Rome, but to attach it to particular and locally recognisable species that characterised the beginning of modern science.[2]

Certainly, this would cover the great thrill experienced by William Turner when he managed to identify, in a native context, the plant narcissus, familiar to him from the classical tradition and the woodcuts of continental botanists. His account of his discovery is quoted at length in the prefatory matter to the Ray society edition of Turner's Libellus and Names[3] and it gives something of the sober joy of early plant identification. "For a long time among us Narcissus had concealed itself under foreign names", but now, thanks to a chance encounter with a little girl in Norfolk, Turner could feel confident that he had filled in a blank space on the chart of botanical names.

But this immense zest for the particular is not the unique property of the beginnings of modern science. In this chapter so far, we have seen the desire to particularise and localise the lore of Greece and Rome manifested in Spenser's rendering of the eclogue form and in Shakespeare's adaptation of the

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1 "Caesar, we, hear, plucks ope his doublet; the conspirators' hats are plucked about their ears; Brutus walks unbraced and truns down the leaf of a book which he keeps in the pocket of his gown" Harley Granville-Barker, Prefaces to Shakespeare Vol II (1963) page 248

2 Charles E Raven, English Naturalists from Neckham to Ray (Cambridge 1947) page 44

3 See William Turner, Libellus de Re Herbaria 1538 and the Names of Herbes 1548, ~~(1965)~~, ed W T Stearn (1965) pages 4-5

traditional coronary plants in The Winter's Tale. And we have moved over Chaucer's lawns picked out in red, white, yellow and blue to Browne's embarrassingly particularised carnations, lilies, king-cups and harebells. It is not difficult to understand how this intense particularity arises from the act of translation. To read at ease in another language and another culture, is not necessarily to obtain a photographic image of every object named. "Spina" is a thorn - but what is a thorn? Even in English it does not inevitably seem inadequate when encountered in the book of Isaiah.[1] But the index to Gerard's herbal has seven distinct shrubs subsumed under the Latin "spina". And "rubus", which is also a thorn, he identifies with the bramble-bush, equating it with "vepres" and, of course, adducing Vergil to support him:

> Aut lepori, qui vepre latens hostilia cernit
> Ora canum -----[2]

Such quotations, fortifying scientific identification, are common in Gerard - there are over eighty of them in his herbal. But they are also the common property of the age, springing readily to the lips of players and preachers, courtiers and common lawyers. The network linking all aspects of Elizabethan culture has a very close mesh. A zest for the particular induced William Turner to state that he found the true Origan only "in master Ryches garden in London." But it permeates also the whole of Elizabethan poetry, prose and drama and, if it took impetus from the humanist translations of the classics, it gathered strength in such extravaganza as the Stanyhurst Aeneid, for which no one has much good to say, but which Stanyhurst himself threatened to reproduce in entirely different words: so copious did he find the English tongue.

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[1] The Interpreters Dictionary of the Bible (NY 1962) page 460 points out: "About twenty biblical words seem to imply thorny flower"

[2] Gerard, The Herball (1597) page 1091

In the streets, we hear a marvellous refinement of abuse given to a whole range of bird names: gull, dottrell, loon, chough and cormorant. And from the pulpit, the particularities of time and place help Lancelot Andrewes' congregation - and Eliot after them - to visualise the painful journey made by the magi in coming to worship Christ:

> through desarts: all the way waste and desolate. . . over the rocks and crags of both Arabies (specially Petraea) their journey lay . . . a cold comming they had of it at this time of the yeare; just the worst time of the yeare, to take a journey, and specially a long journey, in. The wayes deep, the weather sharp, the dayes short, the sun farthest off in solstitio brumali, the very dead of Winter. [1]

. . .

Much of this chapter has been devoted to endorsing the view that sixteenth century interest in the natural world was stimulated by humanism and its consequent demand for philological precision. The rider that I would add is that literature was stimulated in the same manner at the same time. Before we go on to examine more disruptive effects of the new scholarship, I would like to consider the act and fashion of translation in translations of Metamorphoses

Local colour is, for instance, very evident in Golding's translation made in 1567. Actaeon's hounds - Melampus, Ichnobates and the rest[2] - become hounds to come to the call of an Elizabethan kennelman: Blackfoote and Stalker and Spy, Patch and Snatch.[3] The impulse that stocked Perdita's garden with

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[1] Lancelot Andrewes, XCVI Sermons (1641) page 143. One might, perhaps see the ultimate effect of this realism in a letter written by Henry Oldenburg, Secretary to the Royal Society, to John Milton at Christmastime of 1656:

"I am not surprised that it is hard to eradicate the strongly rooted custom of keeping holiday at this time; but I do wonder that the birth of our Lord was fixed by the Roman Church (who could easily consult the census lists) on 25 December, since in the winter shepherds hardly anywhere (at least in the temperate zone) tend their flocks out of doors, especially at night; as it is agreed they did when Christ was born."

The Correspondence of Henry Oldenburg, ed and trans A Rupert Hall and Marie Boas Hall Vol I page 109 (Wisconsin 1965)

[2] Ovid, Metamorphoses, trans Frank Justus Miller (Cambridge, Mass. and London second ed 1921) Book III lines 206-225

[3] Shakespeare's Ovid, being Arthur Golding's translation of the Metamorphoses, ed W H D Rouse (1961) Book III lines 245-271

classical coronary plants in their English garb, gave English names to Ovid's hounds. Chapman, an Elizabethan still, but very much a late Elizabethan, uses the English names only adjectivally, placed in opposition to the original:

> Grimme Melampus with the Ethiops feete,
> White Leucon, and all-eating Pamphagos,
> Sharp-sighted Dorceus, wild Oribasus,
> Storme-breathing Lelaps, and the savage Theron,
> Wing-footed Pteretas, and hind-like Ladon,
> Greedy Harpia, and the painted Stycte,
> Fierce Tygrus, and the thicket searcher Agre,
> The blacke Melaneus, and the bristled Lachne,
> Leane-lustfull Cyprius and big chested Aloe [1]

This is less boldly naturalised, more self-conscious than Golding, who gives us, for immediate enjoyment, Jollyboy and Royster, Bowman and Blab:

> And Tawnie full of duskie haires that over all did grow,
> With lustie Ruffler passing all the resdue there in strength,
> And Tempest best of footemanshipe in holding out at length.
> And Cole, and Swift, and little Woolfe, as wight as any other,
> Accompanide with a Ciprian hound that was his native brother,
> And Snatch amid whose forehead stoode a starre as white as snowe,
> The resude being all as blacke and slicke as any Crowe. [2]

To compare Chapman with this is to feel that what he gains in scrupulousness, he loses in immediacy. Golding nearly always naturalises bravely and confidently, calling aconite "flintwoort" [3] and the hoopoe (upapa) a "lapwing" [4]. And if he feels that the original requires elucidation, he is quite prepared to insert a line which has no foundation in the original Ovid:

> non illas pluma levavit,
> sustinuere tamen se perlucentibus alis
> conataeque loqui minimam et pro corpore vocem
> emittunt peraguntque levi stridore querellas.

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[1] Anthologised in England's Parnassus 1600, facs ed D E L Crane (Menston 1970) page 488

[2] Shakespeare's Ovid, ed Rouse (1961) Book III lines 260-266

[3] Ibid, Book VII line 518

[4] Ibid, Book VI line 853

tectaque, non silvas celebrant lucemque perosae
nocte volant seroque tenent a vespere nomen, [1]

says Ovid, in riddling fashion (however obvious the answer) and Golding, to make all plain adds:

And we in English language Backes or Reermice call the same.[2]

Such explications tend, in later translations, to be reserved for footnotes or marginal notes. "ardea in English a heron" notes George Sandys where Golding, telling the story of the destruction of Ardea, says of the bird that circled the ashes:

With Hernesewes fethers dooth bewayle the towne whereof it came[3]

Sandys Ovid is more cautious than that of Golding - he is not so quick to naturalise and he makes extensive use of the scholar's device of marginal notes.

With this caution comes a detachment in surveying the works of classical antiquity. When Turner had tried to investigate the principal birds noticed by Pliny and Aristotle he had, in the ostensible guise of gathering together observations made by the ancients, added much that was new and of his own.[4] So in translation, critical spirits began to question the homogeneity of learning and whether the world of antiquity could be directly

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[1] Metmorphoses, ed Miller (1921) Book IV lines 410-415 Miller's translation is as follows:

No feathered pinions uplift them, yet they sustain themselves on transparent wings. They try to speak, but utter only the tiniest sound as befits their shrivelled forms, and give voice to their grief in thin squeaks. House, not forests, are their favourite haunts; and, hating the light of day, they flit by night and from late eventide derive their name.

(fn: ie vespertiliones, 'creatures that flit about in the twilight,' ie bats)

[2] Shakespeare's Ovid, ed Rouse (1961) Book IV line 513

[3] Ibid, Book XIV line 661

[4] Turner on Birds: a Short and Succinct History of the Principal Birds noticed by Pliny and Aristotle, ed A H Evans (Cambridge 1903) page ix

transposed into the language of modernity. Previously, it had been supposed that classical language was so copious, classical learning so comprehensive, that the fault for any failure lay with the comparative linguistic and intellectual povertyof modern times.[1] Now - in certain areas - it began to seem that we were cognisant of things unknown to the ancient world. Sandys' marginal notes distance himself from his author, he plays the editor more than Golding and is less willing to assume that the Metamorphoses must speak with a modern tongue, less ready to reach for equivalences where there really are none and to call aconite "flint-wort" or the Myrmidons "Emets"[2]

. . .

So far as the herbal is concerned, this chapter has taken us a very long way to seeing its fullest exploitation - an exploitation that can only be linked with the concurrent humanist interest in classical texts, the study of which demanded a sharper focus and a more critical eye. Like Golding, Gerard displays a love of the copious English tongue - he has preserved for us many vernacular and country names of plants, examples of which I have given in the appendix.[3] The aim of the appendix has been to examine the 1633 editing of Gerard's herbal by Thomas Johnson as epitomising one sort of perfected art. The basic formula, however, was that established in the herbal's first edition of 1597 and, in a sense, the rest of this thesis may be seen as examining the decline from that position. What then was this formula? It was a compound of visual immediacy, literary

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1 See Richard Foster Jones, The Triumph of the English Language (Stanford 1953) Chapters III and IV "The Inadequate Language"

2 Shakespeare's Ovid, ed Rouse (1961) Book VII line 518 and Book VII line 843. Sandys marginal comments are: aconite, "signifying ragged rocks" and myrmidons, "which signfies Ants"

3 page 224

stimulation and classical reference. These we have, to some extent, looked at. Now, as we approach the densely crowded world of Elizabethan realism with a view to examining the ways in which a sharply realised world conflicted with a highly symbolic one, we might note that Gerard's herbal is, above all other things, a very comprehensive work. In the naming of things, for instance, the seventeenth century was to work towards a definitive taxonomy wherein the binomial term shall define a plant absolutely and discretely. Gerard's method is one of circumscription - offering us several names so that what is unknown to us by one may, perhaps, be familiar to us by another. For cardamine [pratensis], for example, he offers "Cuckowe flowers" and "Caunterburie bels" as well as "Ladie smockes".[1] He also notes that some call the flower lesser water cress, translating the Latin nasturtium aquaticum minus, but gives as well the botanists' Latin of Brunfels and Dodoens, together with the supposed Dioscoridean name. To make his circumscription complete, he then names the plant in as many continental vernaculars as were available to him - in this case German and French, though elsewhere he names plants in Spanish, High and Low Dutch, Italian and various other languages, including some Eastern tongues (see Appendix page 225)

All this provides us with a rich and varied nomenclature, as well as serving the useful botanical function of providing alternative names where one might be ambiguous or unknown to the reader. The assumption is that half-a-dozen names circumscribe the plant better than one. Inevitably, some of these names are not exclusive. The "cuckoo-flowers" of Lear IV iv 4, that are ranked with hardocks, hemlock, nettles and darnel are as

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[1] Gerard, The Herball (1597) page 203

likely to be buttercups as cardamine pratensis. And, in fact, in the song that closes Love's Labour's Lost, Shakespeare quite specifically separates cuckoo buds and lady smocks:[1]

> When daisies pied and violets blue
> And lady-smocks all silver-white
> And cuckoo-buds of yellow hue
> Do paint the meadows with delight[2]

Despite inevitable imprecisions, however, Gerard - and the botanists who preceded and succeded him from Turner to Ray - performed a useful service in the amassing of information necessary to give the study of natural history a secure foundation. This, magpie, method of accumulating information was, in its way, an inheritance from the middle ages. But the medieval world was always underpinned by a set of tacit assumptions that, at the beginning of the period of this thesis were coming under attack. The nature of this attack will form a large part of the subject of the ensuing chapters. In order to conclude this chapter in preparation for the next, I should like to look at conflict between circumscriptive (or vertical) and accumulative (or horizontal) ways of thought in one or two areas of literature. . . .

The most obvious literary counterpart to the sort of circumscription that Gerard attempts in his herbal is, I take it, the emblem when the emblem is centrally placed in order to be hung about with tags, pendents, literary expansions and moral meanings. Thus Whitney, A Choice of Emblems page 119, under the motto "ex damno alterius,-alterius utilitatis" shows a rather large boar and a rather small lion engaged in improbable contest. Below this again, runs a verse explaining the picture:

> The Lion fierce and sauage bore contende,
> The one, his pawes: his tuskes the other tries:

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1 See H N Ellacombe, The Plant-Lore and Garden-Craft of Shakespeare (1884) page 70

2 Love's Labour's Lost, ed Richard David (fifth ed 1956) V ii 884-887

And ere the broile, with bloodie blowes had ende,
A vulture loe, attendes with watchinge eies:
And of their spoile, doth hope to praeie his fill,
And ioyes, when they eche others blood doe spill.

The follows the moral:

When men of mighte, with deadlie rancor swell,
And mortall hate, twixte mightie Monarches raignes;
Some gripes doe watche, that like the matter well,
And of their losse, doe raise their priuate gaines:
So, SOLIMAN his Empire did increase,
When christian kinges exiled loue, and peace [1]

As pendents hung to the side of this verse, are two quotations from the tenth book of the Aeneid and the eighth of the Metamorphoses, both relating to battles that hung in the balance. The manner is not implausibly unlike Gerard's sometimes gratuitous citing of the classics. And Whitney, as Gerard, also cites the eminent moderns - in this case George Sabine, the sixteenth century poet and man of learning.[2]

As a form of literature, the emblem book is certainly rather precious - over-elaborate if not actually degenerate. Actions that once had a basis in some sort of natural habit of an animal are liable to become distorted beyond recognition. In a book called Pedigree, Stephen Potter and Laurens Sargent, the co-authors, have an interesting point to make:

> What emerges from an examination of the names of all kinds of animal in the Indo-European languages is (as we have already stressed) that the creatures are more often named from what they do, than from their physical features . . . the older the name, the truer will the foregoing statements be seen to be[3]

In the pages that follow, Potter and Sargent give adequate demonstration of this principle that action is more important than appearance, giving as a convincing example, the case of the European names for the ruff, a

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[1] Whitney's "Choice of Emblemes", facs ed Henry Green (London, Chester and Nantwich 1866) page 119

[2] b. Georges Schuler, Brandenburg 1508-1560

[3] Stephen Potter and Laurens Sargent, Pedigree (1973) page 64

a pugnacious bird at breeding time:

> as the Portuguese batalion, the German Kamfläufer, the F., Italian, and Spanish combattant, combattente, and combatiente, the Dutch kemphaan, as well as in the scientific Philomachus pugnax, 'the quarrelsome battle-lover'. [1]

So, in literature, Chaucer's "iangelynge pye" and "skornynge iay" in The Parlement of Foulys [2] may be anthropomorphic in assumption, but the adjectives do, in fact, tell us something about the behaviour of these two members of the crow family, just as the "flecked pie" of Skelton's Philip Sparrow[3] is an excellent remembrancer of the flicker of black and white as a magpie crosses the line of vision. A master of this type of observation is, as always, Shakespeare, who knew well that the mallard drake is so often slower off the water than the duck when he has Antony leave to follow Cleopatra at the crucial moment of the sea battle "like a doting mallard"[4] and has Kent call Oswald "you wagtail", obsequious, bobbing courtier that he is.[5]

Description of this kind frequently captures what naturalists call the "gliff" of a bird. With all the techniques of modern printing and colour reproduction, it is still the stiff-winged glide of the fulmar, the shape and hover of a kestrel, the upward flirt of a blackbird's tail, the fast beat of a pigeon's wings that identify these birds for us without a second glance. But in language itself, the habit of "gliff" seems to have been lost. Our world has become pictorial and we rarely see the ponderousness of the elephant before his grey skin and floppy ears. The seventeenth century

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[1] Potter and Sargent, Pedigree (1973) page 132

[2] Geoffrey Chaucer, P of Foulys, ed Brewer (1972) lines 345 and 346

[3] The Complete Poems of John Skelton, ed Philip Henderson (London and NY fourth ed 1964)

[4] Antony and Cl atra, ed M R Ridley (ninth ed 1954) III x 20

[5] King Lear, ed Kenneth Muir (ninth ed revised 1972) II ii 64 . "Peace! thou art a court wagtail," says Calandrino in The Great Duke of Florence, Philip Massinger, II i, so perhaps it was a well-known expression at the time.

was one which was learning to illustrate and describe - and to do both together. The refined use of the woodblock or engraving and an increased confidence in description for description's sake,[1] led to a weakening of the quick, encapsulated simile that we have seen in the names of the ruff or Kent's contemptuous "you wagtail"

The extension of this type of simile, however, may lead it far away from its origins until the creature that gave rise to it is forever fixed with a sobriquet whose original relevance has been lost. In the same list which features Chaucer's pie and jay, we have the false lapwing,[2] whose misleading behaviour towards those seeking its eggs has earned it the more general stigma of falsity. Or there is the gentle falcon,[3] who has acquired her gentility from those whose gentle station in life gave them the means to fly her. By degrees, the belief may creep upon us that the lapwing is really false, the falcon really gentle. The allusion to nesting behaviour is all but lost when Lucio, in Measure for Measure, confesses:

> 'Tis my familiar sin,
> With maids to seem the lapwing, and to jest
> Tongue far from heart, play with all virgins so.[4]

When we look at emblem books again, we see this process greatly inflated. Take Whitney on the falcon:

> The faulcon mountes alofte vnto the skie,
> And ouer hilles, and dales, dothe make her flighte;

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[1] See, for instance the dedication to Gerard's herbal, part of which is quoted in the appendix, page 218

[2] Geoffrey Chauces, P of Foulys, ed Brewer (1972) line 347

[3] Ibid, line 337

[4] Measure for Measure, ed J W Lever (1965) I iv 31-33

The duckes, and geese, about the house doe flie,
And in eche diche, and muddie lake doe lighte,
They seeke their foode in puddles, and in pittes,
While that alofte, the princelie faulcon sittes.

Suche difference is in men, as maye appeare;
Some, throughe the worlde doe passe by lande, and sea:
And by deserte are famous farre, and neare,
So, all their life at home, some others staie:
And nothinge can to trauaile them prouoke,
Beyonde the smell of natiue countries smoke.[1]

This is a startling extension of the falcon as a bird above other birds. Moreover, though the first verse would seem to imply the traditional attribute of the hawk, the second takes off at a tangent. Where we might reasonably expect some moral comment on the estates of man, we are given a comparison between adventurers and stay-at-homes. True, it is consistent enough with the previous verse: still, it is not entirely predictable. In later emblematists, such as Peacham, this degree of unpredictability becomes much greater and writers, almost without realising it, come to see that both literature and the natural world from which it was drawn, could be a matter of what they made it. As the gap between the verse describing the emblem and the moral explaining it grew, so too did the facility of the logic needed to bridge that gap. I suggest that this called into play a logic that replaced the old, vertical ways of thinking, whose lines all lead back through the emblem, with a thinking that took off from the emblem and bore only a tangential relationship to it.

. . .

The great art of the Elizabethans was, of course, the drama and, as great art it combined - for a while at least - the advantages of both vertical and horizontal ways of thinking: of metaphysical innuendo and energetic plot. The exigencies of drama do, however, demand that vertical analysis, though it may be the most interesting aspect of the play, be always

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[1] Whitney, Emblems, ed Green (1866) page 207

subordinated to the horizontal progress of the plot. The rosemary and rue of Wint IV iv carry their traditional attributes of grace and remembrance with unelaborated lightness. They reinforce the dramatic purpose of the scene without holding up its forward action. Even when Shakespeare's dramatic purpose demands a set piece, as Banquo's well-turned phrases in commendation of Inverness castle:

> This guest of summer,
> The temple-haunting martlet, does approve,
> By his loved mansionry, that the heaven's breath
> Smells wooingly here: no jutty, frieze,
> Buttress, nor coign of vantage, but this bird
> Hath made his pendent bed, and procreant cradle:
> Where they most breed and haunt, I have observ'd
> The air is delicate, [1]

the main emphasis is visual and pictorial and remains concentrated upon the royal party, halted a moment before the castle walls.

Below, and subordinate to this, is another line of thought. Quoted in the Arden edition is Caroline Spurgeon's comment (linked with Mer V II ix 28) that:

> in both contexts a guest arrives who is to be fooled or deceived, the hidden connection in Shakespeare's mind being that "martin" was a slang term for "dupe", the word being so used by Greene and Fletcher. This supports the view that martlet = martin [2]

My own feeling, however, is that it is more likely that Shakespeare was thinking of the proverbial attributes of the swallow in the terms used by Philautus to reprove Euphues:

> But thou, Euphues, dost rather resemble the Swallow which in the Summer creepeth vnder the eues of euery house, and in the Winter leaueth nothing but durte behinde hir [3]

Martins appear to have been confused with swallows fairly often and, indeed, in the passage above, it seems more than likely that Lyly had the

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[1] Macbeth, ed Kenneth Muir (eighth ed corrected 1959) I vi 3-10

[2] Ibid, page 34

[3] Lyly, Works, ed Bond (1902) page 234

martin rather than the swallow in mind as Emma Phipson, the The Animal-Lore of Shakspeare's Time, points out [1] So too, the swallow of Whitney's Emblems page 5 is surely the house martin - the illustration showing most clearly the nest cunningly plastered to the wall that Shakespeare has described as the bird's "pendent bed and procreant cradle" Because of this confusion Shakespeare, though naming the bird correctly, may well have had the ungrateful swallow in his mind when writing of the "temple-haunting martlet". Within this pleasantly seated castle, Duncan, "the Lord's anointed Temple"[2] is to be murdered by an act of black ingratitude.

None of this is, nor could be, explicit in the play. Lady Macbeth comes hurrying out to meet her guests and, moved by the exigencies of drama, the royal party presses on into the castle.

In a more leisured medium, more was possible. The allusive strength of Elizabethan drama was built upon the inheritance of elaborated discussion of just such things as the moral significance of the swallow. Spenser, for instance, constantly takes time off from pursuing the forward movement of The Faerie Queene in order to examine its vertical implications. There was good precedent for this in the Vergilian heroic simile, but Vergil, like Shakespeare, has always as his ultimate concern the reinforcement of the action of the plot. Spenser frequently sacrifices horizontal progress for the sake of vertical analysis. For the climax of Book I of The Faerie Queene to seem at all satisfactory, one must, like Spenser, be more interested in the spiritual drama than in the forward progress of the battle between the dragon and the Red Cross Knight: not so much a battle, more a series of projected pictures. The spiritual equation of the knight and

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2 Macbeth, ed Muir (1959) II iii 69

1 Emma Phipson, The Animal-Lore of Shakspeare's Time (1883) page 191

an eagle renewing its youth at stanza xxxiv is more important than the action:

> he vpstarted braue
> Out of the well, wherein he drenched lay;
> As Eagle fresh out of the Ocean waue,
> Where he hath left his plumes all hoary gray,
> And deckt himselfe with feathers youthly gay,
> Like Eyas hauke vp mounts vnto the skies,
> His newly budded pineons to assay,
> And merueiles at himselfe, still as he flies.[1]

This is an ancient commonplace, originating in the east,[2] and Spenser probably lifted from Bartholomeus' Anglicus' de Proprietatibus Rerum, which has it out of Pliny that the eagle sheds and restores its feathers in this miraculous manner:

> and she falleth sodeinlye into the well, and there the feathers be chaunged, and the dimnesse of her eien is wiped away and purged, and she taketh againe her might and strength [3]

This, with its overtones of spiritual purgation and absolution serves Spenser's purpose admirably. To ask whether he believed the story, is to ask in what language the Lion and the Fox communicate in Aesop's fable (or Whitney Emblem 210) and deserving of Sir Philip Sidney's rebuke:

> So think I none so simple would say that Aesop lied in the tales of his beasts; for who thinks that Aesop wrote it for actually true were well worthy to have his name chronicled among the beasts he writeth of [4]

In the introduction,[5] I quoted Crombie's warning that we should always bear in mind the context of discussion when we look at early scientific writings. When we look at literature, we must do no less, for, in both cases, it is a question of the interpretation of the world and we are not, today,

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1 Works of Spenser, ed Greenlaw et al (Baltimore 1932) The Faerie Queene One II xxxiv 1-8

2 There is a reference to it in Psalms ciii.5

3 Batman uppon Bartholome, his Booke de Proprietatibus Rerum (1582) fol 177

4 Miscellaneous Prose of Sir Philip Sidney, ed Katherine Duncan-Jones and Jan van Dorsten (Oxford 1973) A Defence of Poetry page 103 lines 3-6

5 page 5

immune from interpreting the world as it ought to be, rather than as it is (if, indeed, that in itself does not beg a question) and if Spenser used the de Proprietatibus Rerum instead of William Turner's book on birds, we might remember that Batman uppon Bartholome was a best-seller where the Avivm Praecipvarum, qvarvm apvd Plinivm et Aristotelem mentio est, breuis & succincta historia was practically unknown and, moreover, antiquated though he was, Batman was published only eight years before the first three books of The Faerie Queene. William Turner's careful attempts to identify, for real, the birds of Pliny and Aristotle is a landmark in ornithology. But it is hard to see what Spenser could have done with his painstaking attempts to distinguish the erene, the bald buzzard, the osprey and the sea eagle.[1]

Bartholomeus Anglicus, in the popular Batman version, offers us the whole map of natural history in his day, with all its spiritual and terrestrial links, all its moral implications and all the sympathies and antipathies that reflected the war of good and evil in the world. This alone is enough to explain why the bear and tiger should be fighting in the second book of The Faerie Queene (or indeed, the boar and the lion in the Whitney emblem that we looked at):

> As when a Beare and Tygre being met
> In cruell fight on lybicke Ocean wide,
> Espye a traveiler with feet surbet,
> Whom they in equall pray hope to divide,
> They stint their strife, and him assaile on every side.[2]

Traditional enmities and alliances of this nature form a big part of a world view in which the creatures exist to act out the greater drama of invisible forces. It took a mechanistic philosophy to explain conflict in the natural world as the regulation of a natural economy and to ask whether the enmity of non-competing species was at all probable within such an

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[1] William Turner, Turner on Birds: A Short and Succinct History of the Principal Birds noticed by Pliny and Aristotle. 1544, ed A H Evans (Cambridge 1903) pages 30-37

[2] Works of Spenser, ed Greenlaw et al (~~Baltimore~~ 1933) The Faerie Queene Two II xxii 5-9

economy.[1] Not the dictionaries, nor Gerard, nor Stephen Batman, explaining nature with philology, classical myth, literary quotation and travellers' tales with equal impartiality was likely to produce a mechanical model of the world. It is not difficult to see why the productions of a Batman were attractive to literature:

> He did not bring order out of chaos (it was notchaos as such anyway) but, at the cost of certain modification, and by making use sometimes of . . . rather forced associations . . . he did arrive at a certain consistency without having to leave out interesting material for the purpose. He is not content to collect, neither is he, like Albertus, concerned with discovery as such. His first concern is with presentation - inclusive presentation such as will help his readers at every point to what he assumed to be their wider, real purpose.[2]

At the same time, however, that one is inclined to think of this habit of thought as essentially medieval, one is obliged to admit that there is nothing quite so elaborated in all medieval literature. Both Batman uppon Bartholome and The Faerie Queene are showing the strain of their internal arrangement and, despite skilled attempts on the part of such numerologists as Alastair Fowler to explain that The Faerie Queene all comes clear if we approach it from a numerological/astrological point of view, it really does not come clear for the average modern reader and it is difficult to believe that it really did for the average Elizabethan. Fowler points out that Book One is the book of Leo, the lion.[3] But the various

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[1] Popularly, however, the vulgar error has never been eliminated. Konrad Lorenz in On Aggression (English ed 1966) says, page 17:

> In a widely shown film, a Bengal tiger was seen fighting with a python, and immediately afterwards the python with a crocodile. With a clear conscience I can assert that such things never occur under natural conditions. What advantage would one of these animals gain from exterminating the other? Neither of them interferes with the other's vital interests.

[2] Elizabeth A F Watson, The Animal World in the Poetry and Drama of the Sixteenth and Seventeenth Centuries, with special reference to Spenser, Shakespeare and Milton (B.Litt thesis, Oxford 1963) pages 114-115

[3] Alastair Fowler, Spenser and the Numbers of Time (1964) Part II chap viii pages 63ff deal with the concept of Leo and the Book of the Sun

characteristics of the lion do not unite to form a whole and it requires a fairly blinkered sort of vertical thinking to prevent one carrying over horizontally the meaning given to the lion from one part of the poem to another. For instance, the lion who represents Henry VIII in One III xix is destroyed by Sansloy at stanza xlii where, though the mightiest beast in field, he is seen to be, after all, only a beast. Strength and impetuous rashness, though admirable enough, are not sufficient to win the spiritual battle of The Faerie Queene. Again, we are told twice (One III xi 5-6 and One III xix 2-3) that Abessa and Corceca are terrified of this same lion. And yet, at stanza xxiii, Spenser has them pursue Una with vituperation, now apparently quite unafraid of the lion by whom she is still accompanied. And, bearing in mind that we have seen her accompanied by the good and true lion, it is surely a tactless simile to compare her providiential escape from rape by Sansloy to escape from a lion:

> Eternall prouidence, exceeding thought,
> Where none appeares can make her selfe a way:
> A wondrous way it for this Lady wrought,
> From Lyons clawes to pluck the griped pray [1]

True, there is scriptural warrant for the lion as a symbol of evil - the devil as a roaring lion walketh about seeking whom he may devour[2] - but Spenser seems to me to be trying to have his cake and eat it when he uses the lion as both good and evil - the guardian of Una and the mount for Wrath - "Vpon a Lion, loth for to be led"[3]

To this lack of progressive consistency, I am inclined to attribute the slight feeling of unease with which one is left at the end of The Faerie Queene. The verbal connection "falconry" is not sufficient warrant for

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1 Works of Spenser, ed Greenlaw et al (~~Baltimore~~ 1933) The Faerie Queene One VI vii 1-4

2 I Peter 5:8

3 Works of Spenser, ed Greenlaw et al (~~Baltimore~~ 1933) The Faerie Queene One IV xxxiii 2

regarding Braggadocchio as a bird of prey (he is described as "mewd" in Two III xxxiv) and two verses later, seeing him as the victim of a bird of prey.

. . .

With Spenser, as with Batman, we are arrived at a precariously maintained amalgam of the medieval and the Renascence. Whilst it was not immediately obvious that the elaborated allegory of The Faerie Queene and the elaborated natural history that Batman thought fit to purvey were, in their separate ways, both the culmination and the last flowering of a vertical type of thinking, it is nevertheless true that in neither sphere was anything quite so comprehensive ever again attempted. In the next chapter, I shall examine the undermining of this way of thought that was going on even as Spenser was writing, in the works of John Lyly and others.

. . .

CHAPTER TWO

The Argument

This chapter is largely concerned with the operation of Elizabethan/ Jacobean self-consciousness. Dissatisfaction with the merely "sugared" leads to the use of the conceit as an artifice and to an awareness that correspondences between the natural world and the world of ideas can be created as well as discovered, while the co-incident increase of available information vastly extended the possibilities for correspondence-making. Lyly's Euphues is shown as experimenting exhaustively on the borderline between discovering knowledge and creating it. In the last chapter, we looked at the belief in the intrinsic value of words: Euphues demonstrates that a belief that grammar and syntax alone can create phrases guaranteeing the facts is scarcely tenable. The chain of being is not fashioned in links of metaphors and similes and is, perhaps, not a vertical chain at all but a mere scattering of atoms over a horizontal plane: the chapter concludes by considering why the debate about words and the world should have caused such heart-searching in the opening years of the seventeenth century: why monsters were so frightening, atomism so alarming and Jacobean drama so dark.

As the late sixteenth century became the seventeenth and as the seventeenth century progressed, mens' outlook, from being more than half medieval, became more than half modern:[1] if we cannot draw a date-line, we can at least say that, and Spenser, in his own time, is already an anachronism. Inevitably, however, any attempt to lay a finger on detail that may be taken as signifying the change becomes fraught with the dangers of misrepresentation and distortion. The refinement of printing methods, the expanded use of the vernacular that this encouraged, the demand for information that both these combined to foster in all ranks, the independence of thought that was a product of all three and, in its own turn, nurtured the movement towards a more consultative form of government

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[1] Douglas Bush, English Literature in the Earlier Seventeenth Century

in church and state - all these have a right to be considered as the key differentiating factor between the middle ages and the modern world. And all are vulnerable to the criticism that they are symptoms and not causes. The phenomenon of change is both bigger than any and a part of them all and all analysis leads one quickly to tautology. Thus, in the consideration of literature and natural history within the context of chronological progress, the most that one could hope to establish is some sort of correlative relationship. To this end, therefore, and having looked at the initial impetus in each case in the last chapter, I should like, in this, to look in very general terms at the way that both developed.

. . .

Perhaps the most obvious statement that one might make about literature during the years that led up to the turn of the century is that it became, apparently all of a sudden, self-conscious. And to say something as frankly obvious about science, one might say that it had become interested in the real world and in quantifying its mechanical operations. The correlation between the two, would seem to rest in some sort of realisation that it was possible to manipulate aspects of experience to serve one's own ends. The Renascence distinction between science and art is not ours, for science is the knowledge of things and there is no restriction on the sorts of things that may be considered in an effort to know them. There was no difference between knowing the mechanisms of one's soul and knowing the number of petals on a primrose - except that the former was vastly more important. And the only perfect human scientist - in the sense of the only perfect human knower of things - was Adam. Before the Fall.[1]

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[1] "God, the Creator of Heaven and Earth, at the beginning when he created Adam inspired him with the knowledge of all naturall things" says John Parkinson in the preface "To the Courteous Reader" to Paradisi in Sole Paradisus Terrestris 1629, fasc ed 1904 e

This view of science then, subsumes all manner of knowledge: whether it be knowledge of the visible, measureable world, or whether it be philosophic knowledge. Art, on the other hand, is the lower activity of applying science,[1] and, in this sense, covers the arts, fine arts and technology. In an ideal world - the world of Adam before the Fall - science and art are indissolubly united, the one implying the other. Adam's dominion over the fish of the sea and the fowl of the air and every living thing that moved upon the earth was a total science.[2] All that was to be known about them, Adam knew:

> And whereas we patch up a piece of Philosophy from a few industriously gather'd, and yet scarce well observ'd or digested experiments, his knowledge was compleatly built, upon the certain, extemporary notice of his comprehensive, unerring faculties.[3]

says Joseph Glanvill. But the neoplatonists were fighting a rearguard action when they sought real knowledge in the things of this world. Long before Glanvill, the operations of self-consciousness had driven a wedge between science: the things we know, and art: the things we do with the things that we know. Self-consciousness, monitoring both, forces an awareness that knowledge of the facts of the natural world does not automatically imply a knowledge of what the natural world is <u>for</u>. Much of the philological work of the humanists was motivated by a belief that the ascertaining of the real name of things brought with it an attendant knowledge of the real nature of things - a belief that they had inherited from the much-despised schoolmen and with which they were extraordinarily reluctant to part. After Bacon, however, this belief came to be scrutinised

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1 Entries under "Art" in STC and Wing include: <u>The art of stenographie</u> (1602) <u>The Military art of trayning</u> (1622), <u>Art of practical guaging</u> (1669), <u>The art of water-drawing</u> (1660)

2 <u>Genesis</u> 1.28

3 Joseph Glanvill, <u>The Vanity of Dogmatizing: The Three 'Versions'</u>, ed Stephen Medcalf (Hove 1970) page 6

far more closely, and Bacon himself is the product of a generation of Elizabethan self-consciousness whose sceptical view of the natural world is discernible early in Elizabethan lyrics and reaches its gloomiest manifestations in the dark, disintegrating world of Jacobean tragedy. The progress of this disintegration I shall try to trace in this chapter, starting at the simplest level of Elizabethan lyric.

. . .

The two terms most often used by Elizabethans to indicate their approbation of lyrical poetry are "sugared" and "witty". In themselves, these two terms indicate a shift of emphasis of the sort that I have been trying to suggest. At its purest, lyric embodies a type of logic that is immanent at every moment of the whole poem. There is no progress in a poem such as "The passionate Sheepheard to his love", wherein each succeeding verse only brings forth additional sweets to gild an invitation unreservedly proffered in the first line. It took Donne's reply to change the poem's direction and to make what was sugared, witty. In C S Lewis' terms, the one is golden whereas the other is not, and, for a while, lyrical poets, having emerged from the Age of Drab and discovered golden singing voices were content to exercise themselves in their new-found ease of expression. To say one thing half-a-dozen different ways and to end the poem exactly where it had begun was, initially, delight enough.

The popularity of Elizabethan lyrical poetry, however, ensured that it would soon become restless. From the pure lyric there is nowhere that one can go - the lapidary austerity of "The Passionate mans Pilgrimage" is, perhaps, its ultimate in refinement. The lyrical mode will only bear the weight of a very limited number of things as, doubtless, Marlowe found out:

> I walkt along a streame for purenesse rare,
> . . .
> Upon this brim the Eglantine and Rose,

The Tamoriscke, Olive, and the Almond tree,
As kind companions in one union growes,
Folding their twindring armes, as oft we see,
Turtle-taught lovers either other close,
Lending to dulnesse, feeling Sympathie:
And as a costly vallance ore a bed
So did their garland tops the brooke orespread:
Their leaves that differed both in shape and showe,
(Though all were greene) yet difference such in greene,
Like to the checkered bent of Iris bowe,
Prided the running maine as it had beene . . . [1]

One is not too surprised to find that this is an unfinished fragment.[2]

The convention that nature should be as representative as this, was an inheritance from the middle ages and one that the herbals, with their claims to comprehensiveness and their material arranged catalogue-wise, did little to dispel. What the herbalists from Turner onwards did do, was to turn men towards realistic, pictorial detail with the sort of uneasy result that we see in Marlowe's unfinished fragment. The Elizabethans' gusto for realism had all the mixture of harm and benefit that one might expect from such over-exuberance. More happily than Marlowe, Surrey had celebrated the arrival of Spring in fine, Chaucerian vein:

The soote season, that bud and bloom forth brings,
With green hath clad the hill, and eke the vale.
The nightingale with feathers new she sings;
The turtle to her make hath told her tale.
Summer is come, for every spray now springs,
The hart hath hung his old head on the pale;
The buck in brake his winter coat he flings;
The fishes flete with new repaired scale;
The adder all her slough away she slings;
The swift swallow pursueth the flies smale;
The busy bee her honey now she mings;
Winter is worn that was the flowers' bale.
And thus I see among these pleasant things
Each care decays, and yet my sorrow springs![3]

The poet delights in detail, but the type of detail causes no surprises - only the end aims at a certain surprise: a potential story introduced and cut off all in the last five words of the last line. The device was to be

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1 England's Parnassus 1600, facs ed D E L Crane (Menston 1970) Hh8^{v}- Ii

2 Listed as such in The Marlowe Concordance, Charles Crawford (Louvain 1911 - 1931)

3 Silver Poets of the Sixteenth Century, ed Gerald Bullett (1947) page 114

taken up by other poets, improved upon, experimented with, polished up and given its Shakespearian form in a sonnet that argued a sophisticated point over the fulcrum between octet and sestet. Thus, there came into being a type of poetry that was capable of changes of direction and of development of argument - poetry, in fact, that tells a story. Where lyrical poetry tells a story, it is a story that arrives full-blown upon the opening line. It achieves no subsequent growth nor change of direction and no tricks of wit manipulate its internal logic. Its main attempt is to discover aspects of experience that correspond to this static logic but, in the change from sugared to witty, from lyric to logic in motion, the later Elizabethans became aware of the power of the poet to create correspondences between the natural world and the world of ideas where earlier poets had sought only to discover. At first, they worked with traditional materials:

> I serve Aminta, whiter then the snowe,
> Straighter then Cedar, brighter then the glasse:
> More fine in trip, then foote of running Roe,
> More pleasant then the field of flowring grasse.
> More gladsome to my withering joyes that fade:
> Then Winters Sunne, or Sommers cooling shade
>
> Sweeter then swelling Grape of ripest wine,
> Softer then feathers of the fairest Swan:
> Smoother then Jet, more stately then the Pine,
> Fresher then Poplar, smller then my span.
> Clearer then Phaebus fierie pointed beame:
> Or Icie crust of Christalls frozen streame
>
> Yet is she curster then the Beare by kind,
> And harder harted then the aged oake:
> More glib then Oyle, more fickle then the wind,
> More stiffe then steele, no sonner bent but broake.
> Loe thus my service is a lasting sore:
> Yet will I serve, although I die therefore.[1]

Gradually, however, the traditional materials come to seem hackneyed. "My mistress' eyes are nothing like the sun", says Shakespeare and,

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1 "Shep Tonie" [Antony Munday], "Montana the Sheepheard, his love to Aminta" Englands Helicon, ed Hugh Macdonald (1950) page 109

poets in general come to range further and further afield in search of new comparisons:

> Now for similitudes, in certain printed discourses, I think all herbarists, all stories of beasts, fowls, and fishes are rifled up, that they come in multitudes to wait upon any of our conceits [1]

says Sir Philip Sidney in disgust, and if there is one thing that we may agree defines metaphysical poetry then it is the presence of the conceit. In itself, this brought about the employment of more strictly causal, horizontal forms of argument as poets sought to forge artificial links where before there had only been natural associations. When we add in to this the steady accumulation of material observed in an increasingly modern and "scientific" manner, then it is not difficult to see why a breakdown of traditional patterns resulted. From this, after a period of confusion, rearrangement could begin. In the works of John Lyly and the Euphuists we can see the first part of this process - the breakdown - taking place. The relentless logic of Euphues and the indiscriminate piling up of data are the two instruments of its collapse under its own weight. In natural history, the overloading of the existing structure with new matter from the Indias and new ideas from everywhere brought about a similar result. A surfeit of over-exuberant writing in each case provoked a demand for greater stringency in distinguishing the type of material that might be allowable to both and both started to throw out lumber.

. . .

The failure of Euphuism to gain serious consideration was evident from its very beginning and Lyly's second Euphuistic work shows an

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[1] Sidney, Prose, ed Duncan-Jones and Dorsten (1973) A Defence of Poetry page 118 lines 13-16

awareness of this. Critics and parodists alike concentrated upon its obvious failure to control its material:

> Let their mistress or some other woman give them a feather of her fan for her favour and, if one ask them what it is, they make answer, 'A plume of the phoenix', whereof there is but one in all the whole world.[1]

Such absurdities come straight off the pages of Euphues:

> The Eagles wynge will wast the fether as well of the Phoenix, as of the Pheasant[2]

declares Lyly, with a confidence that cannot possibly be referred to experience. The corrosive properties of the eagle's wing may be accepted as part of the context of natural history in 1578, but the ultimate test of those properties in conjunction with the phoenix wing is a Lylyian touch all his own and hardly one that could arise from observation. In the first place, it would seem to arise from the necessity to match the eagle with a bird equally impressive (and in contrast to the mundane "pheasant") and in the second from the fatal allurement of the alliteration on "pheasant". The Euphuistic mode leads inevitably to this sort of conflict between language and reality and, in the clash, it is too often reality that must give way:

> The greenest Beeche burneth faster then the dryest Oke, the fairest silke is soonest soyled, and the sweetest wine tourneth to the sharpest vineger, the pestilence doth most ryfest infect the cleerest complection, and the Caterpiller cleueth vnto the ripest fruite, the most delicate wyt is allured with small enticement vnto vice, and moste subiecte to yelde vnto vanitie, if therefore thou doe but harken to the Syrens, thou wilte bee enamoured, if thou haunte their houses and places, thou shalt be enchaunted.[3]

Lyly's difficulties are the difficulties of one grappling with

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[1] Thomas Nashe, Pierce Penniless his Supplication to the Devil, in Thomas Nashe, ed Stanley Wells (1964) pages 43-44. Note, though, that Nashe does not dispute that the phoenix exists!

[2] Euphues I, ed Bond (1902) page 205

[3] Ibid, page 189

half-truths that seem to inhere within the structure of language itself. He is, for instance, constantly equivocating with superlatives: sometimes treating them as genuine superlatives, and sometimes using them merely as emphatic adjectives. When, for example, he has:

> Whereby it is euidently seene that the fleetest fishe swalloweth the delicatest bayte, that the highest soaring Hawke trayneth to the lure, and that the wittiest sconce is inuegled wyth the soddeyne viewe of alluringe vanities, [1]

we are being tricked into giving our assent to propositions that are half true. What the passage can only mean is that <u>even</u> fleet fishes, high hawks and witty sconces are led astray by temptation. What it says in actual fact is that fleet fishes, high hawks and witty sconces are led astray <u>sooner</u> than slow fish, hawks of lesser pitch and dullards. It is the sort of difficulty that Lyly is constantly letting himself in for:

> Thou knowest that the tallest Ashe is cut downe for fuell, bycause it beareth no good fruite. [2]

Presumably little ash trees do bear good fruit.

Returning to the first passage, we find that we are not at an end of its difficulties. Lyly's penchant for superlatives and his belief that, once introduced, they will take care of themselves, leads him to assert that "the fleetest fishe swalloweth the delicatest bayte" It is no doubt true that, were one to prepare a superlatively delicate bait and drop it in a fishpond, the fish that would get it would be the fleetest, provided (to such absurdities does analysis bring us) that one did not drop it on the nose of the slowest. But between delicacy of bait and swiftness of motion there really is no exploitable connection of the type which Lyly seeks to make. Lyly's belief that the organisation of language should be but the template for the organisation of the natural

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[1] <u>Euphues</u> I, ed Bond (1902) pages 185-186

[2] <u>Ibid</u>, page 230

world is an attractive one but, sadly, unworkable. In a world where truth was conveyed through the static medium of emblem and symbol, fidelity to the quantifiable and observable was less than important. As Douglas Bush points out:

> If much of the traditional lore of nature that was considered true was not true, the fact of the untruth had small bearing on the validity of the symbol.[1]

Lyly's difficulties arise from the fact that he wants to retain symbols at the same time as he demands that they function in a realistic manner. I shall have something to say on the subject of T S Eliot's criticism that Elizabethan and Jacobean drama was ruined by its inordinate appetite for realism[2] In Lyly, to whom many dramatists owe much, we may see the beginnings of the conflict between reality and symbol. Lyly insists that his emblems act as well as be and their doing is often incompatible with their being. Later Euphuists tended to shelve this problem rather than solve it and to take a cheerfully irresponsible attitude to reality:

> O, it were a trim thing to send (as the Romans did) round about the world for provision for one banquet. I must rig ships to Samos for peacocks, to Paphos for pigeons, to Austria for oysters, to Phasis for pheasants, to Arabia for Phoenixes, to Meander for swans, to the Orcades for geese, to Phrigia for woodcocks; to Malta for cranes; to the Isle of Man for puffins; to Ambracia for goats, to Tartole for lampreyes, to Egypt for dates, to Spain for chestnuts - and all for one feast![3]

says Christmas, fantasising happily in Summer's Last Will and Testament

How could one take such a natural history seriously? Especially when

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[1] Douglas Bush, Science and English Poetry (Oxford and NY 1950) page 12

[2] "The art of the Elizabethans is an impure art", objects Eliot on page 114 of "Four Elizabethan Dramatists, a Preface to an unwritten book" in Selected Essays (1932) pages 109-117. See thesis page 127

[3] Thomas Nashe, ed Stanley Wells (1964) A Pleasant Comedie, called Summers last Will and Testament page 152

the irrepressible Will Summer caps the tale by saying:

O sir, you need not - you may buy them at London better cheap.

Certainly, some of the Euphuists became very careless, relying upon manner and not matter to such an extent that they were in danger of writing real nonsense. But if the later Euphuists strike one as irresponsible, to what extent Lyly himself believed that the construction of his prose might be an adequate vehicle for conveying truth, it is more difficult to assess. His tongue was certainly some way into his cheek, but how far is an immeasurable question at this distance of time. Certainly, he too can be convicted of irresponsibility - there are times when, like Nashe, he simply doesn't care - but the drawing-room nature of his theme has prepared him in advance with an apology. The first volume of Euphues is prefaced by a letter "To the Gentlemen Readers," the second, Euphues and his England, contains, as well, one to "The Ladies and Gentlewoemen of England" wherein Lyly unabashedly declares "Euphues had rather lye shut in a Ladyes casket, then open in a Schollers studie" [1] - already Euphuism was becoming something of a cult. And, as a cult, it had a long run of popularity. In the first decade of the seventeenth century, Ben Jonson was parodying it in Epicoene or the Silent Woman:

> CLERIMONT Did not PASIPHAE, who was a queene, loue a bull? and was not CALISTO, the mother of ARCAS, turn'd into a beare, and made a starre, mistris VRSVLA, i' the heauens?
>
> TOM OTTER O God! that I could ha' said as much! I will haue these stories painted i' the beare-garden ex Ouidij metamorphosi [2]

And yet, Lyly's attempt was brave and the idea attractive. It is

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[1] Lyly, Euphues II, ed Bond (1967) page 9

[2] Ben Jonson, Works Vol V, ed C H Herford and Percy Simpson (Oxford 1954) Epicœne III iii 126-132

only part of one's mind that boggles at the foolishness of he who "having a Sparrowe in his hand letteth hir go to catch the Phesaunt."[1] And if one doubts that the facts of natural history are so accommodating as to conceal in the greenest grass the greatest serpent, or in the clearest water the ugliest toad,[2] nevertheless, one is left with a feeling that perhaps it ought to be so. Lyly is by no means the last to believe that some sort of genuine equivalence could be established between words and the external realities. The precise nature of that equivalence was to be one of the great philosophic talking points of the seventeenth century and it was to form much of the substance of the work of John Locke. In the next section, I should like to consider why the debate about symbols and reality, about words and the world should have caused such heart-searching in the opening years of the seventeenth century post-Lyly and, in all but the chronological sense, pre-Donne.

. . .

We have already noted, when considering the herbal of John Gerard, the importance that the naming of things was beginning to assume during the late sixteenth century and we will see again how the search for some sort of integral reality between things and words, between the ordering of the natural world and the mechanisms of syntax was a recurrent motive of the seventeenth century. From Lyly to the hieroglyphical language of the neoplatonists to Wilkins An Essay towards a real Character and a Philosophical Language (1668) the basic preoccupation is the same - that somehow there could be defined a language that was so "real" that it was intrinsic to the things that it describes. In later chapters,

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[1] Lyly, Euphues I, ed Bond (1902) page 236

[2] Ibid, page 202

we shall see how this problem was approached by natural philosophers of the mid and late seventeenth century. Here, I would note only the origins of the basic preconception and t at it lies in some sort of biblical literalism. Alexander Top, for instance, is giving voice to it when he says:

> Seeing that all thinges which the Lord wrought or commaunded in the first weeke, exceeded not the number of two and twentie . . . Wherefore I may conclude, that every of these severall Hebrew letters, should signifie or import some speciall workmanshyp of the Lordes Creation.[1]

Much of the effect of emblematic writing depends upon the strength of the link between words and reality that exists in the reader's mind and much too of the effect of Elizabethan satire. From Aristotle was derived the concept of real essence, independent of accidental manifestation in rather the same way that the emblematic symbolism of the lily is independent of any real lily. Thus the quality of "hyena-ness" or "chameleon-ness" is extractable and transferable to - say - a man, as when Dekker describes his "Politic Bankrupt" as:

> a Harpy that lookes smoothly, a Hyena that enchants subtily, a Mermaid that sings sweetly, and a Cameleon, that can put himselfe into all colours.[2]

This was to have alarming consequences in a world where the rules governing transference were being seriously weakened by a half-baked atomism which seemed to suggest that the transference of human and animal qualities was no mere metaphor, but a mechanical possibility. Ferdinand's lycanthropy in The Duchess of Malfi is a grim expression of what can happen to Man when he lets his bestiality triumph over his humanity.

For a few years about the turn of the century, the hierarchical and the

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[1] Alexander Top, The Olive Leaf 1603 (Menston 1971) B2-B2^{v}

[2] Thomas Dekker, The Seven Deadly Sinnes of London, ed H F B Brett-Smith (Oxford 1922) pages 15-16

atomistic, the organic and the mechanical come into the melting-pot together to produce a horrifying world view that sounds the sombre undertones of Shakespeare's darker plays and permeates the work of Webster. The fear that man might degenerate into a beast because of his wickedness had never seemed so startling as when it was combined with atomism to suggest that he might do so for no reason at all.[1]

Before going on to view the alarm that a revived interest in classical atomism caused when imposed upon an organic view of the world that was becoming increasingly fragile, it is as well to bear in mind some historical events that tended to reinforce this alarm. A combination of new knowledge and increased power to disseminate that knowledge appeared to confirm the feeling that the world's wickedness was on the increase. The number of known monsters increased daily and were to be seen on the pages of Conrad Gesner and his English translator Edward Topsell in The historie of fourefootid beastes (1607) and The historie of serpents (1608) Topsell was popular enough to be read to pieces as the poor state of most of the surviving copies testify, and Dekker jocularly tells his readers that:

> Conradus Gesner neuer writ of the nature of such strange beasts as you are.[2]

Nor did Thomas Lupton seem to have any difficulty in getting wind of sufficient monstrosities to fill up his A Thousand Notable Things (1579) Surely the world was full of such oddities and prodigies as:

> The Anthropophagi, and men whose heads
> Do grow beneath their shoulders[3]

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[1] A well-known locus for the transformation of man to beast is to be found in Boethius' The Consolation of Philosophy Book IV

[2] Dekker, Seven Deadly Sinnes, ed Brett-Smith (1922) page 5

[3] Othello, ed M R Ridley (seventh ed corrected 1962) I iii 144-145

It is, as the Arden editor says "idle as the deserts " to try to determine whether Shakespeare was primarily indebted to Mandeville, Raleigh or Holland's Pliny [1] Nevertheless, I quote Raleigh because he demonstrates the importance that the new traveller's tales had in re-stimulating an interest in the marvellous:

> Next unto Arvi there are two rivers Atoica and Caora, and on that braunch which is called Caora are a nation of people whose heades appeare not above their shoulders . . . they are called Ewaipanoma: they are reported to have their eyes in their shoulders, and their mouths in the middle of their breasts, & that a long train of haire groweth backward betwen their shoulders . . . Such a nation was written of Maundevile, whose reportes were held for fables many yeares, and yet since the East Indies were discovered, wee finde his relations true of such thinges as heeretofore were held incredible. [2]

That a frenetic, almost delirious interest could be stimulated by such accounts is attested by Joseph Hall when he writes of:

> The brainsicke youth that feeds his tickled eare
> With sweet sauc'd lies of some false Traueiler,
> Which hath the Spanish Decades red a while;
> Or whet-stone leasings of old Maundeuile,
> Now with discourses breakes his mid-night sleepe,
> Of his aduentures through the Indian deepe,
> Of all their massy heapes of golden mines,
> Or of the antique Toombs of Palestine;
> Or of Damascus Magike wall of Glasse,
> Of Salomon his sweating piles of Brasse,
> Of the Bird Ruc that beares an Elephant:
> Of Mer-maids that the Southerne seas do haunt; [3]
> Of head-lesse men; of sauage Cannibals . . .

The intoxicating nature of travellers' tales as invitations to a world of fantasy is recognised by Hall in the adjective "brainsicke" that he bestows upon the youth who is an aficionado of such things. Let us now return to the hierarchical world versus the atomistic and see just how uncomfortable an effect such tales could have.

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1 Othello, ed Ridley (1962) fn page 29

2 Sir Walter Raleigh, The Discoverie of the Large, Rich and Bewtiful Empyre of Guiana 1596 (Menston 1967) pages 69-70

3 The Collected Poems of Joseph Hall, ed A Davenport (Liverpool 1949) Page 71 lines 58-70

In an article entitled "Aristotle and Modern Biology", Marjorie Grene contrasts Empedocles with Aristotle:

> At one stage in cosmic history, Empedocles imagines, there were heads and trunks and limbs rolling about in the world. Those that happened to come together in a viable combination survived; the others perished. This was a very crude theory of natural selection, to be sure, but a theory of natural selection. Aristotle as a practising biologist objected: ox-headed man progeny and vine-bearing olives such as Empedocles envisages in his transitory world, are an absurdity. What we always have in nature is the ordered passage to definite endpoint: man to man, cattle to cattle, grape to grape, olive to olive.

The atomism of the early seventeenth century, though not as crude as this, was an atomism similarly ungoverned by the rules of natural probability or by any rules that would make ox-bodied men or men-headed oxen an impossibility. Even in a hierarchical world, mischances did occur, but they were rare and in themselves had a purpose in affording objects for the contemplation and edification of superior minds. John Hall wrote a poem on a monstrous child born at Maidstone in the County of Kent in 1561 which gives a clear indication of the proper attitude to adopt to such prodigies:

> SITH monsters as some lerned men declare,
> Doo demonstrate to vs oure monstrous lyfe,
> Repentantly let vs our hartes prepare,
> Synne to aduoyde, wherein our fete be ryfe:
> For why we walke deuoyde of love in stryfe,
> And for the most part councell men doo scorne,
> Which mõstrous ways cause monsters to be borne.[2]

Preposterously, Hall goes on with a detailed analysis of the poor creature drawing a moral from every part of its anatomy:

> It hath no necke, whych may also expresse,
> That lacke of loue doth reigne in euery wyght.
> No paps nor teats whiche signifieth no lesse

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[1] Marjorie Grene, "Aristotle and Modern Biology" Journal of the History of Ideas vol xxxiii no 3 ~~pages 395-424~~ page 403

[2] John Hall, The Court of Virtue 1565, ed Russell A Fraser (1961) page 268 lines 9-15

> But that we doo regard no truth nor ryght:
> To nouryshe vertue few haue nowe delyght,
> But pryde, and foolyshe fonde and vayn attyre,
> Of women chiefely nowe is the desyre. [1]

This, as the proper attitude to monsters, has obvious parallels with the habit of moral extrapolation from the animal kingdom. The improbable crew who draw the carriage of Pride in The Faerie Queene need no comment and, in another part of The Court of Virtue, Hall claims to have seen a vision of such human bestiality as would make one think that Circe had been at work:

> Who feygned was, that she by craft
> Of sorcerye coulde change,
> Bothe formes & myndes of mẽ to beastes
> Whyche was a matter strange
>
> For neuer tygre was more fierce,
> Then some dyd there appere,
> No swyne so fylthy nor so drunke,
> Nor glutton nothyng nere.
>
> In lechery they passe the Goate,
> And in theyr pompous pryde:
> The Lyon stoute they muche excede
> And that on euery syde.
>
> The subtyll foxe, the rauenyng wolfe,
> The enuyous serpent,
> The gredy Gryppe, the hasty Hounde,
> His game that fayne would hent,
>
> The cruell beare, the foolyshe asse,
> The harmefull mockyng ape,
> The gryffon, or the Antilope,
> Or Bygorne that dothe gape,
>
> The goryng Bull, the buttyng ramme
> The scratchyng cat wyth clawe,
> In beastly actes may not compare,
> Wyth those that there I sawe. [2]

Such visions were often seen in the middle ages. From a high place, the poet looks down and draws on the creatures to support his moral

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[1] Hall, Court of Virtue, ed Fraser (1961) page 268 lines 23-29

[2] Ibid, page 306 lines 2-25

allegory. The beasts themselves are as unsurprising as the creatures of the Physiologus, as fixed in their characteristic attitudes as the beasts in the woodcuts below the ten ages of man in the Hortus Sanitatis.[1] But Hall is a poet on the borderline of the transition. As time went on, the gradations of the Great Chain of Being and their appropriateness started to dissolve and become blurred at the edges. The exuberance of Elizabethan invention and conceits wrought one sort of destruction, the sheer weight of new discovery another - Pythagoras, Paracelsus, Trismegistus - names invoked to explain and reform. It was in this atmosphere that atomism was grafted onto existing ideas of a hierarchical creation with such alarming results. Not only did atomic notions threaten the Great Chain of Being, but they also threatened the stability of the bond between the organic and the inorganic. Without proved chemical formulae, chemical changes had long had to be glossed in the formulae of analogy, and changes in the physical world by the semi-mystical, semi-organic phrases of human generation and decay. Frampton, in his translation of Nicholas Monardes' herbal of American plants has him quote Trismegistus thus:

> Trismegisto sayd, that the earth was the mother of the metals, and the heaven the Father. And Plinie sayth these wordes: The inner parte of the earth is a thing moste precious, for into it, and through it doo goe, and pearce al the influences of heaven, ingendering therein thinges of great pryce, as stones and mettals.[2]

This highly organic view of the world influenced men profoundly and, since the debate as to whether stones and metals were capable of regeneration was never conclusively proved or disproved, the sense of the mystical continuity of life to the old Aristotelian pattern continued

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[1] See Noel Hudson, An Early English Version of Hortus Sanitatis (1954) pages 6-7

[2] Nicholas Monardes, Joyfull Newes out of the Newe Founde Worlde, translated by John Frampton 1577, ed Stephen Gaselee (1925) Vol II pages 111-112

throughout the century. It is detectable in the phrases used by Wilkins to include minerals under the heading "The ANIMATE PARTS of the World" in his Essay:

> such Bodies as grow in Veins of the Earth, which though they are not commonly owned and reckoned under this Rank, yet several Learned men have heretofore reduced them hither, as being a more imperfect kind of Vegetable; because when Mines have seemed to be totally exhausted of them, yet there hath remained behind some kind of Seminal or Spermatic parts, whereby they have in process of time been renewed again, and continued to propagate their kinds.[1]

And it was too fabulous a theory to be neglected by Garth in The Dispensary:

> Now, those profounder Regions they explore,
> Where Metals ripen in vast Cakes of Oar
> Here, sullen to the Sight, iat large is spread
> The dull unwieldy Mass of lumpish Lead.
> There, glimm'ring in their dawning Beds, are seen
> The more aspiring Seeds of Sprightly Tin.
> The Copper sparkles next in ruddy Streaks;
> And in the Gloom betrays its glowing Cheeks.
> The Silver then, with bright and burnish'd Grace,
> Youth and a blooming Lustre in its Face,
> And in the Folds of their Embraces lyes.
> So close they cling, so stubbornly retire;
> Their Love's more violent than the Chymist's fire.[2]

When we come a little higher up the scale of nature, to more truly vegetable organisations, the mystique permeates all the actions of plant culture and husbandry. Rhymes for sowing and setting, culling and harvesting served both to gloss the inexplicable and to impart practical instruction and they were improved upon by writers with an educative purpose such as Ram and Tusser. Typical of the mystery surrounding chemical reactions, is this poem by John Hall, "A ditie to be sung at dyner tyme and meales":

> As roote of tree dothe of the grounde,
> Take moysture named radicall,
> And causeth branches to abounde,
> Wyth that he geues them ouer all

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[1] John Wilkins, An Essay towards a Real Character, and a Philosophical Language (1668) page 54

[2] Samuel Garth, "The Dispensary" VI 60-75 in Poems on Affairs of State, ed Frank H Ellis (New Haven and London 1970) Vol VI page 120

And suffreth no small twyg to want,
But naturally doth dispose
Suche as he hath plentie or scant,
Vnto the nutriment of those,

As Nature by thys industry,
Dothe cause thynges vegitall to grow,
In other sort she dothe apply
On animals good to bestowe

Among the whych we men mortall,
That formed are to Gods Image:
Wyth meate and drynke nutrimentall,
We maintaynde are from age to age. [1]

For Hall, as for any Aristotelian, chemistry becomes a matter of describing qualities - "radicall", "vegitall", "nutrimentall" - terms that could survive only as long as men believed that the words in themselves were some guarantee of the essences they purported to describe. The new science, powerfully reinforced by new developments in the study of logic and language, was a science insistent that to dub something radical, vegital or nutrimental was to explain nothing. These were the qualities and essences of the old, Aristotelian world picture and that world picture had proved to be, like a landscape drawn on paper, only the illusion of three-dimensional reality.

But though the new science could and did discredit the qualities and essences of the Aristotelian world, it could not, as yet, replace them with satisfactory chains of mechanical or chemical events although the insistence that such chains must exist laid many atomists open to the charge of atheism and forced Descartes, unable to produce a mechanistic soul, to posit the existence of such a thing in pituitary gland.

For the average man, still imbued with a sense of the mystique of organic change, the abandonment of the rules of the old world

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[1] Hall, Court of Virtue, ed Fraser (1961) "A ditie to be sung at dyner tyme" page 343 lines 5-20

picture and their replacement by - apparently - the laws of mere chance was a very frightening thing. And when it was combined with a realism that scrutinises everything down to its last particle, we get Hamlet's obsessive pursuit of the cycle of regeneration from king to worm and worm to king.[1] The resultant explanation, innocent of any knowledge of the complex chemical processes involved, staggers us with its sudden transitions, sliding from metaphor to analogy to real equivalence as easily as Lawson has his trees suckling at the breast of mother earth or suffering atrophy of the limbs if the roots be impeded. As with the human body:

> if that stopping should continue any time, the member will perish for want of blood, (for the life is in the blood) and so indanger the body; so the sap is in the life of the Tree, as the blood is to man's Body.[2]

Small wonder that a theory that the sap might really circulate in plants as the blood does in the body gained brief currency among the members of the Royal Society at the end of the seventeenth century.

The benefits and demerits of such confusion are of comparable effect in literature. Where, in the case of science, we have pie in the sky, in literature we have the risk of melodrama. Hamlet's over-heated and morbid imagination may be permitted to follow the ghastly chain that leads men to worms and regenerates them thence, but critics have been more doubtful about Webster and the darker reaches of his causality, as well as of other writers in the revenge tradition. The author of the 1602 additions to Kyd's The Spanish Tragedy, for instance, piles up the horror of Hieronimo's raw sensitivity:

> This was the tree (he says despairingly) I set it of a kernel,
> And when our hot Spain could not let it grow,

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1 Hamlet, ed John Dover Wilson (Cambridge 1934) IV iii 26-30

2 William Lawson, A New Orchard and Garden (1618) pages 14-15

> But that the infant and the human sap
> Began to wither, duly twice a morning
> Would I be sprinkling it with fountain water.
> At last it grew, and grew, and bore and bore,
> Till at the length
> It grew a gallows, and did bear our son.
> It bore thy fruit and mine. [1]

This probing to the uttermost is not confined to the choice of subject and theme. It is reflected in the style of the drama itself. From the lips of all the tragic heroes of the time, comes a flood of questions, desperate to arrive at the last analysis:

> Does the silkworm expend her yellow labours
> For thee? for thee does she undo herself?
> Are lordships sold to maintain ladyships
> For the poor benefit of a bewitching minute?
> Why does yon fellow falsify highways,
> And put his life between the judges lips,
> To refine such a thing keeps horse and men
> To beat their valors for her?
> Surely we're all mad people, and they
> Whom we think are, are not; we mistake those;
> 'Tis we are mad in sense, they but in clothes. [2]

The merry-go-round of life was inexplicable because the nature of life itself was inexplicable. The pathos of the questions rests in their self-defeating nature. "Does the silkworm expend her yellow labours for thee?" The answer is both no and yes. There is no answer and the questions that one may ask of an uncaring universe are infinite. In the Aristotelian world, to ask a question - to describe something, or even just to name it was, by implication, to say something about its quality. If Aristotelian biology never solved the problem of the discovery of essentia, it never doubted for a moment that the solution was attainable. There was, at the bottom of everything, a real something informing every part and with its mark stamped upon every facet of the natural world if we only had the supernatural eyes to see it. ~~It was~~

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[1] Thomas Kyd, The Spanish Tragedy, ed J R Mulryne (1970) page 132 lines 62-71

[2] Cyril Tourneur, The Revenger's Tragedy, ed Lawrence J Ross (1967) III v 71-81

It was this, for instance, that gave force to the belief that we can never completely lose our natural bodies: that, at the last day, the soul - the essence of being - will reclaim its substance. True, the subject was a difficult one, but since it was assumed that it was only the human soul that was involved in this separation of essence from being, exceptional and miraculous mechanisms might be allowed to it. Now - in the early seventeenth century - writers were apt to pursue the subject with the literal-mindedness of Renascence man and his assumed right to his own opinion.

> And had you cut my body with your swords,
> Or hew'd this flesh and bones as small as sand,
> Yet in a minute had my spirit return'd
> And I had breath'd a man made free from harm, [1]

says Faustus defiantly, but few people were under Faustus' sort of contract and it took a stout-hearted sort of faith to stand up to the thought of total dissolution. Claudio in Measure for Measure is harrowed by the prospect:

> Ay, but to die, and go we know not where;
> . . . To be imprison'd in the viewless winds
> And blown with restless violence round about
> The pendent world. [2]

Terrible problems of relativity are raised by such an atomic world. In the same play, Isabella views the possibility of equal suffering amongst all living creatures with anguish:

> the poor beetle that we tread upon
> In corporal sufferance finds a pang as great
> As when a giant dies. [3]

From both these, it is a short step to the complete despair of Lear and the dark disintegration of Websterian tragedy. There seems to be

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[1] Christopher Marlowe, Doctor Faustus, ed John D Jump (1962) scene xiii lines 73

[2] Measure for Measure, ed J W Lever (1965) III i 117 and 123-125

[3] Ibid III i 78-80

no end to the questions that can be asked by a Renascence dramatist once he has gained possession of his self-consciousness. Shakespeare's own questioning of the ordering of the world follows an interesting progress from the early geniality of A Midsummer Night's Dream where there is a natural morality that keeps Puck's mischief within bounds and brings Oberon back to a sense of his responsibilities once a reconciliation with Titania has been effected, through to The Tempest, where Prospero must work very hard indeed to control the unseen world and direct it to good ends. In between, Shakespeare speculated in a variety of ways upon the workings of the world and, in particular, of its organic evil. In Macbeth, he creates creatures born of the earth as the Ephemera is born of the sea "a fish which ariseth in the Sea water euen as the Bubble doth"[1] So Banquo remarks of the weird sisters:

> The earth hath bubbles, as the water has,[2]
> And these are of them.

Understandably, their powers extend over a variety of organic matter. They can look:

> into the seeds of time,
> And say which grain will grow, and which will not[3]

and Macbeth, appealing to them as he turns savagely against the normal in nature, gives further suggestions as to their powers:

> Though you untie the winds, and let them fight
> Against the Churches; though the yesty waves
> Confound and swallow navigation up;
> Though bladed corn be lodg'd, and trees blown down;
> . . . though the treasure
> Of Nature's germens tumble all together,
> Even till destruction sicken.[4]

But, in the event, it is Macbeth who is destroyed, not the world. The disorder in his soul battens upon the disorder of the universe, but it is not a reflection of it. Macbeth is not the sport of the gods -

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[1] John Maplet, A Greene Forest or a naturall Historie . . . 1567, ed W H Davies (1930) page 145

[2] Macbeth, ed Kenneth Muir (eighth ed corrected 1959) I iii 79-80

[3] Ibid, I iii 58-59

[4] Ibid, IV i 52-55 and 58-60

no tennis ball in the game of the stars - because an act of free-will: the murder of Duncan was necessary to initiate the process of disintegration. With Macbeth's death, the evil disappears. Scotland is purged and ready for a new start, the Weird Sisters are inconceivable apart from him and we can feel no curiosity about them at the end of the play because, with his death they can have no significant existence.

The fact that Macbeth must be killed, however, raises the problem of the permanent annihilation of evil. The world of A Midsummer Night's Dream is comfortably balanced between the good and the evil. If, however, there is no such balance, no internal regulation to the world, but only a series of atomistic and haphazard patterns, then man, of himself and by his own conscious effort, must try to keep the world from coming apart. When Shakespeare created the Weird Sisters in Macbeth, he was pandering not just to James I's interest in witchcraft, but that of the general Jacobean public as well. The general public had become very alarmed at about this time about the supposed increase of witches in the world and one of the consequences of a growing belief in the necessity for man, by his own efforts, to put the world to rights had been a big stepping up of the persecution of witches. Witches were no longer a bit of a joke as they had been up until the end of the Elizabethan era. K M Briggs has drawn attention to the genial treatment of literary witches before the turn of the century.[1] At the beginning of the new century, witches in reality and in literature were being treated with increasing savagery. The balance that had held the dream world of MND together in the interplay of good and mischievous magic had been undermined by the growth of mechanical philosophies. These seemed to explain the good - the normal operations

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[1] K M Briggs, Pale Hecate's Team (1962) pages 60-65

of nature - but they often failed to explain the bad. The abnormalities of nature, the mutations and the freaks, take more sophisticated explanations than do the normal mechanisms and it is easier to get rid of good daemons than it is to get rid of bad. How the body - cosmic, human or vegetable - works is more susceptible to explanation than the sicknesses that trouble it and, as the scientists of the period came to explain the former, the latter grew alarmingly in portentousness. The fear that a randomly organised universe may throw up something unpleasant at any moment dogs the darker Jacobean tragedy. The world, spinning out of moral control, crushes its victims carelessly:

> As flies to wanton boys, are we to th' Gods;
> They kill us for their sport [1]

says Gloucester, in a play in which the chief protagonist is punished surely for no other offence than existing. If Lear is about retribution at all, it is retribution out of all proportion to any imaginable offence. To say that Lear's fault is that he does not know himself is only to say that this is humanity's fault and when Lear does know himself he sees only the essential chaos of the moral world. Innocent, amoral nature, after all, does as it pleases:

> The wren goes to't and the small gilded fly
> Does lecher in my sight [2]

cries Lear, and Julio, the The Devil's Law-Case, warned of the dangers of incontinence, retorts:

> When did you ever heare that a cocksparrow
> Had the French poxe? [3]

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[1] Lear, ed Muir (1972) IV i 36-37

[2] Ibid, IV vi 112-113

[3] The Complete Works of John Webster, ed F L Lucas (1927) page 255 The Devils Law-Case II i 144-145. See too Donne, "Confined Love" for another statement of the same theme.

In an atomistic view of nature, if man be merely one particular organisation of atoms rather than - as John Maplet saw him - one "who standeth on the stayer a step higher",[1] why should he regulate his behaviour more strictly? Egalitarianism was in fashion when Edmund called upon the gods to stand up for bastards[2] and Webster's Romelio asks:

> What tell you me of Gentrie? - 'tis nought else
> But a superstitious relique of time past. [3]

The extension of this type of speculative equality to the animal kingdom was derived logically enough from St Augustine's placing of man in the natural hierarchy between beasts and the angels. Montaigne, playing with his cat came to wonder who existed for whom. And if men could degenerate into beasts, what right had we to draw a definite line of demarcation between ourselves and the other creatures. To the literal-minded late Renascence, the dicta of Machiavelli exercised a powerful fascination:

> You must then know, there are two kinds of combating or fighting; the one by right of the laws, the other meerly by force. That first way is proper to men, the other is also common to beasts: but because the first many times suffices not, there is a necessity to make recourse to the second; wherefore it behooves a Prince to know how to make good use of that part which belongs to a beast, as well as that which is proper to a man. This part hath been covertly shew'd to Princes by ancient writers; who say that Achilles and many others of those ancient Princes were intrusted to Chiron the Senator, to be brought up under his discipline: the moral of this, having for their teacher one that was half a beast and half a man, was nothing else, but that it was needful for a Prince to understand how to make his advantage of the one and the other nature, because neither could subsist without the other. A Prince then being necessitated to know how to make use of that part belonging to a beast, ought to serve himself of the conditions of the Fox and the Lion; for the Lion cannot keep himself from snares, nor the Fox defend himself against the Wolves. He had need then be a Fox, that he may beware of the snares, and a Lion that he may scare the wolves. Those that stand wholly upon the Lion, understand not well themselves. [4]

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[1] Maplet, A Greene Forest, ed Davies (1930) page 117

[2] Lear, ed Muir (1972) I ii 22

[3] Webster, Works, ed Lucas (1927) page 238 The Devils Law-Case I i 40-41

[4] Niccolò Machiavelli, The Prince, trans Edward Dacres 1640 in Machiavelli, ed Henry Cust (1905) Vol I pages 321-322

The idea of the self-made man, who bent fortune to his will was both fascinating and repellent. It has its real-life counterparts in such men as Essex and Raleigh and its gospel in the works of Machiavelli. The writers of the period, the natural historians, the explorers all drew strength from a new and dangerously acknowledged confidence that they could manipulate their world. This belief, Machiavelli stated openly when he spoke of successful commanders:

> And examining their lives and actions, it will not appeare, that they had other help of fortune, than the occasion, which presented them with the matter wherein they might introduce what forme they then pleas'd [1]

The key words that Machiavelli uses: "matter" and "form" are the same in the Italian: "materia" and "forma". Exponents of man's ability to form the raw matter of the world into whatever shape he pleased include such dramatic characters as Tamburlaine, Faustus, Iago, Bosola, Bussy d'Ambois. No wonder that conservatives saw Pride as the deadliest sin and looked askance at the goings on of the School of Night.[2] Fears that the thirst for discovery might get out of hand, tended both to hold back the development of science as we know it and to increase the pressure to find an acceptable substitute for the medieval world picture as a philosophy for explaining experience and explaining it whole. Significantly, Bacon accepted that science should consist in the accumulation of a vast quantity of minute facts and yet argued that from this a whole philosophy could emerge. When the Royal Society exploited his name for its obvious philosophic respectability, they remembered the first and relegated the second to the indefinite shelf of pious hope.

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[1] Machiavelli, ed Cust (1905) page 278

[2] This was the name supposedly given to the Raleigh circle, several of whom were suspected of dabbling in forbidden knowledge (especially mathematics)

The problem of whether any comprehensive philosophy is possible for science is one that has been with us ever since, is still very much alive and starts to kick whenever scientists confront society with the necessity to decide upon the use of nuclear power or the exact moment at which brain death may be said to occur. The answer of the middle ages would have been that the Good Man knows what to do in such cases: the Renascence, all of a sudden, was not so sure and Shakespeare's Prospero, who attempts to show how the control of the natural world should be done, is only equivocally successful in his endeavours. To conclude this chapter, I would like to take a look at The Tempest from the point of view of Prospero as a controller of nature and from the point of view of the types of nature that he controls.

. . .

Prospero, as neoplatonic magician existed in real life counterparts well into the century. Whilst all the work that is now seen as of lasting significance in science was being done along mechanistic lines in restricte areas, the most comprehensive whole philosophy was offered by neoplatonism. Only after the founding of the Royal Society, did the scale tip decisively in favour of a mechanistic science. The doctrine that man is only a steward of the natural world is a commonplace of venerable antiquity and it is more consistent with the neoplatonic idea of the guardianship of mysteries than the more directly exploitational view of the mechanists. In the former view, man is the direct descendant of Adam:[1] a being who, like the gardener in Richard II, sees his function as being to:

> The noisome weeds which without profit suck
> The soil's fertility from wholesome flowers.[2]
> root away

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[1] Note that the title page of the 1597 ed of Gerard's herbal has Adam featured as a gardener. See appendix page 213 and my note 214

[2] Richard II, ed Peter Ure III iv 37-39

Man's duty then, was the preservation of the natural balance - he was the regulator in the machine and the earth was given him for his care. The limits to his initiative, however, were preordained and his stewardship was not seen as a creative thing because the world was so arranged that nature itself contained the ingredients of a harmonious mix. That the unicorn should be at "continuall strife" with the elephant or that the Panther shoul be "euerie liuing Creatures friend, except onely the Dragon"[1] were part of the established ingredients of the mix which was putting amity and enmity between creature and creature, plant and plant, stone and stone. The balance had been disrupted by the Fall, but it was still there. The lion, the king of beasts, was fierce but magnanimous and if nightshade was noxious, betony was beneficent. In Paracelsian terms:

> As the disease is, so also is the medicine: if the disease is entrusted to the herbs, it will be healed by means of herbs. If it is under the stones, it will also be nourished under them [2]

In Prospero, we see a magician who has achieved the mastery of nature and, having achieved it, must yet work hard to retain it. Those he controls, from the fiery Ariel to the earthy Caliban, are in a constant state of unrest and if Ariel represents atomistic things - shape-shifters and elemental entities - then Prospero's control of those things is only maintained by constant use of the robe of the magus. In words reminiscent of Claudio's, he accuses Ariel of being reluctant:

> to tread the ooze
> Of the salt deep,
> To run upon the sharp wind of the north,

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[1] Maplet, Greene Forest (1930) pages 167 and 162

[2] Four Treatises of Theophrastus von Hohenheim called Paracelsus, ed Henry Sigerist (Baltimore 1941) "Seven Defensiones" trans C Lilian Temkin pages 18-19

> To do me business in the veins o' th' earth
> When it is bak'd with frost.[1]

As we have seen in earlier passages, "the veins o' th' earth" are no mere metaphor. John Maplet, quoting Cardan,[2] says:

> Both Stones and Mettals haue these foure partes as those that be necessarie to their beeing and increase: a Roote, Barcke, substance, and vaines.[3]

And Swan's Speculum Mundi, nearly a century later, repeats the commonplace.[4] Ariel is thus seen as being at home in all elements, apt equally:

> To swim, to dive into the fire, to ride
> On the curl'd clouds.[5]

In this manner, this atomistic being becomes the servant of Prospero the neoplatonic magician acting to control the atomistic aspects of nature and govern its arbitrariness. Ariel's shape-shifting, done at Prospero's behest, shows the master in control of the higher laws that govern forms. This is reassuring - atomism is, perhaps, not entirely arbitrary, but subject to some sort of platonic law and this, in The Tempest is what Shakespeare sets out to demonstrate. But the magic island is full of strange metamorphoses and it is not surprising that Caliban's first reaction on seeing Trinculo is to suppose that he is one of Prospero' servants:

> Lo, now, lo!
> Here comes a spirit of his, and to torment me
> For bringing wood in slowly.[6]

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[1] The Tempest, ed Frank Kermode (sixth ed corrected 1962) I ii 252-256

[2] Jerome Cardan, b. Pavia 1501-1576

[3] Maplet, Greene Forest (1930) page 7

[4] Tp fn page 26

[5] Tp I ii 191-192

[6] Tp II ii 14-16

Caliban himself represents, symbolically, the lower end of Prospero's control over the scale of nature. Earlier in the chapter, we saw how monstrousness of his type troubled Jacobean dramatists. In The Tempest, it is put in its place - Caliban's evil is anticipated and averted by the omniscient Prospero. As in the case of Ferdinand's lycanthropy, though, there is here a real possibility that Caliban's wickedness might transform him down the scale of nature and turn him into a beast outright. There is nothing metaphorical about this - it is a real possibility and something that he himself is frightened by. Beseeching his fellow conspirators to hurry, he warns:

> we shall lose our time,
> And all be turn'd to barnacles, or to apes
> With foreheads villainous low [1]

Now apes and barnacles are recognised "ambiguous" productions. The last entry in Gerard's herbal is a description of how barnacle geese are generated from the goose tree or barnacle tree and it is an entry over which critics have made merry.[2] The real purpose of the entry, though, is surely to take us over from the vegetable world into the animal. Gerard begins his herbal with an account of the grasses, thought to be the lowliest of the plants of the field - he ends it with an ambiguous production to take us up onto the next rung in the ladder of nature.

Upon some such rung - between beasts and men - Caliban might be thought to stand. Indeed, Trinculo, on first seeing him, had been very doubtful as to what sort of lusus naturae he might be:

> What have we here? a man or a fish? dead or alive? A fish: he smells like a fish . . . Legg'd like a man! and his fins like arms! [3]

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[1] Tp IV i 247-249

[2] For a review of the literature pertaining to barnacles, barnacle trees and barnacle geese, see Edward Heron Allen, Barnacles in Nature and in Myth (1928)

[3] Tp II ii 24-26 and 34-35

The idea of ambiguous or doubtful productions - coral or the vegetable lamb of Tartary - were necessary to the old Chain of Being which had been disrupted by mechanical ideas but had never been completely destroyed. Indeed, the new ideas only served, as we have seen, to add a new dimension of horror to such things as the possibility of metampsychosis. Shakespeare, whilst admitting this as a possibility, puts over it, in The Tempest, a reassuring and directing intelligence.

Much has been made of Caliban as a sort of early type of the noble savage. But granting that the connection with the Bermuda pamphlets is solidly established,[1] it is as well, at the same time, not to forget that Caliban squares as well with the standard biology of the day as he does with the awakening interest in the anthropology of primitive peoples. The pigmae described in The historie of fourefootid beastes are said to be limited of speech:

> although they speake yet is their language imperfect[2]

- perhaps a little like Caliban, who:

> A thing most brutish wouldst gabble like [3]

before Prospero taught him speech. Then again, some types of baboons in The historie "are much given to fishing" and they know how "to take the kernels out of Almonds, Walnuts and Nuts."[4] And we remember that Caliban promises Trinculo:

> I'll fish for thee . . . I'll bring thee to clustering filberts. [5]

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[1] Tp, pages xxvi-xxx

[2] Edward Topsell, The historie of fourefootid beastes (1607) page 3

[3] Tp, I ii 358-359

[4] Topsell, Historie (1607) pages 10 and 11

[5] Tp, II ii 161 and 170-171

Then too, such creatures were often depicted sitting in front of some sort of den or hovel - as in Whitney's Emblems page 145 - and The historie tells of the Tartarine in Paris who:

> being commaunded to his kennell, he would go and tarry there all night.[1]

- very much like the circumstances of poor Caliban, one feels, who is called forth by Prospero from a sort of den or cave upon our first acquaintance.[2] And - what we might most certainly expect from the standard biology of the day - he is susceptible to wine, women and music. He is easily made drunk[3] and Topsell tells us that Midas (he of the ears) had heard his mother say "that Satyres loved to be drunke with wine":[4] he is roused by Miranda[5] like the baboons who are "as lustfull and venereous as goats, attempting to defile all sorts of women"[6] and, lastly, like the satyr depicted on page 13 of The historie, he responds to music, expressing his feeling for it in a passage that would hardly fit such a lumpish creature did we not know that it is part of his biological make-up to be moved by music:[7]

> the isle is full of noises
> Sounds and sweet airs, that give delight, and hurt not.
> Sometimes a thousand twangling instruments
> Will hum about mine ears; and sometime voices,

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[1] Topsell, The historie (1607) page 12

[2] Tp, I ii 315-317

[3] Tp, II ii

[4] Topsell, The historie (1607) page 14

[5] Tp, I ii 350-351

[6] Topsell, The historie (1607) page 11

[7] Indeed, in III ii, he objects that Stephano is not singing the right tune to a catch that he had previously taught him (line 122)

> That, if I then had wak'd after long sleep,
> Will make me sleep again: and then, in dreaming,
> The clouds methought would open, and show riches
> Ready to drop upon me; that, when I wak'd,
> I cried to dream again.[1]

The understanding of Caliban is, I believe, crucial to the understanding of The Tempest as a play. With Ariel, he represents the extent of Prospero's control over nature. But whereas Ariel is a servant, Caliban is a slave. True, the circumstances under which Ariel contracted to Prospero were hardly conducive to free bargaining but a contract, nevertheless, was made and, at one stage, Ariel ventures to remind his master of this[2] So far as we know, no such contract was entered into by Caliban. Whether Caliban is mostly beast (after Topsell) or mostly primitive man (after the Bermudan pamphlets), his treatment is decidedly paternalistic:

> this thing of darkness I
> Acknowledge mine.[3]

says Prospero. Such an acknowledgement of responsibility inheres to a neoplatonic view of nature as it does to an Aristotelian, but as it does not to a mechanistic. Neoplatonists and Aristotelians alike would say that we have the world in trust and it is part of our duty to God to care for it. Such a view entails first that we must know it, and second that we must know ourselves. Paternalism is indefensible without benevolence and benevolence is inadequate without knowledge. For this reason, early views of nature tend to be analytic - we must try to discover the real essences of things before we can begin to treat with them, and so much of Shakespeare's handling of Caliban as a character is directed toward revealing that real essence because it is important to our knowledge of Prospero and to Prospero's knowledge of himself. No analysis of Prospero is at all possible

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[1] Tp III ii 133-141

[2] Tp I ii 244-245

[3] Tp V i 275-276

without analysis of Caliban. The enchanted isle of The Tempest is, however, a test-tube world. We are such stuff as dreams are made on[1] and, when Prospero leaves, he will drown the book that has given him such apparent power over the fabric of dreams.[2] The world that he is returning to is the tired old world of reality: a world growing doubtful of the Renascence belief that the corollary of learning was metaphysical understanding. Prospero's control over nature is too precariously maintained to be convincing and, in the next chapters, we shall go on to consider views of the ordering of nature that depend less upon personal virtue and more upon mechanisms. Of the works of Bacon, Descartes and Hobbes, Emile Bréhier in The Seventeenth Century says:

> All these works indicate that the humanistic phase of the Renaissance - which had always, to some degree, confused erudition and philosophy - had definitely ended. An emergent rationalism set itself to consider human reason not from the standpoint of its divine origin, but from the standpoint of its positive activity. [3]

Dramatically, then, we would from this expect activity to replace analysis upon the stage. And this, in fact, is what happens. Things occur in a Jonsonian play in a way that they never did in Hamlet and the click-click of opening doors in a Restoration farce is usually far more important than anything that the characters have to say. Consider Volpone, a play almost contemporaneous, but a play of the new age, not the old. The Fox, the Fly, the Vulture and the Crow and the Raven are not characters whose names are significant in an analytic way, but characters who are dubbed such that we may predict their likely activity. The names foretell the nature of their behaviour, they are not clues to lead us to a deeper understanding of their natures.

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[1] Tp IV i 156

[2] Tp V i 57

[3] Émile Bréhier, The Seventeenth Century, trans Wade Baskin (Chicago and London 1966) page 17

CHAPTER THREE

The Argument

The wave of Prospero's wand is not enough to restore harmony to nature and when he leaves his enchanted isle for the real world, he drowns his book. This chapter will look at other ways in which the repair of the world that Donne saw, piecemeal, around him was attempted and how coherence was imposed by the use of the personal tone to forge anew the links that had been broken between all the objects of the visible world. As the century wears on, groups become discernible, each having the voice of individual conviction: the botanical voice is, perhaps, that of Thomas Johnson, the literary voice most nearly approximating to it might be sought among the Tribe of Ben. All these voices detach the observer from his material and enable the free collection of data. We shall see how Bacon's demand for "a vast store of particulars" was being met even as he wrote. But we shall also see how the indiscriminate piling up of such data led to sterility in the case of Bacon's philosophy and to literary over-inflation in the case of such works as Poly-Olbion and The Purple Island. On the way, more positive aspec of Baconianism are considered - in particular, the extent to which he is a spokesman for his own age and the age to follow.

"'Tis all in peeces, all cohaerence gone":[1] the quotation is irresistible and has been often used to stand motto to the disjointed world of post medieval man. It is not, however, merely the awareness of "Copernicus' displacement of the earth, and the consequent disturbance of the accepted medieval cosmology"[2] that lies at the root of John Donne's intellectual disruption. In that respect, the whole poem is a tribute to his ability to keep two world systems in the air together. Not the alternative

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[1] The Poems of John Donne, ed Herbert J C Grierson (Oxford 1912) Vol I page 237. "An Anatomy of the World. The first Anniversary" line 213

[2] Ibid, Vol II pages 188-189

hypothesis of Copernicus but the steady disintegration of the old fabric of the world - a world described in the line above as "crumbled out againe to his Atomies" - has brought us to the Songs and Sonnets and the most aggressively self-conscious poet in English. Lyly's bravery had put as much strain upon the belief in the correspondence between the natura world and the words used to describe it as it would bear. And if he had experimented to the utmost with the idea that there must be an axiomatic correspondence between the natural world and the words we use to describe it, John Donne is exploiting an awareness that no such axiom is tenable. In the process, the poet becomes an outsider to the poem - sceptic, creator, master of some sort of puppet show. Potentially, it is a mischievous process[1] but this passage of Agnes Latham's explains something of its necessity as well as presenting, implicitly, Donne as mischief-maker. Initially, she is talking about Spenser:

> His poetry is overlaid, as it were, with a glaze of pure beauty, his visions lapped in a crystalline atmosphere, steeped in a still bright light. They are not visionary in the sense that they are cloudy and vague. They are, for the moment you see them, clear-cut and coloured. Only they are remote. You can run your fingers over the glaze, and everywhere it is smooth and even. You cannot touch them any more than you can touch the world of images seen in a mirror. It was just this glaze of beauty that Donne put stones through at the end of the century, shattering it past all mending.[2]

At the the beginning of the last chapter, we saw how the salt of wit came to be more in demand than this sugared "glaze of beauty". Donne took the process a stage further in his fierce affirmation of the self as the co-ordinator of all he saw and wrote. In the latter section of last chapter, we saw how the awareness of a world crumbled out again to his atomies shook

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[1] "The metaphysical writers by continually extending the common meanings of words - the vividness they required was only obtainable so - gradually cut the ground away from under themselves." F W Bateson, English Poetry and the English Language (NY 1961) page 46

[2] The Poems of Sir Walter Raleigh, ed Agnes M C Latham (1962) page xxvi

the tragic dramatists. Donne can be as sick, as world-loathing as they. In the last sermon that he delivered, he saw man as beastly from his very beginnings:

> And there in the wombe wee are taught cruelty, by being fed with blood, and may be damned, though we be never borne.[1]

But Donne holds a card that is denied the dramatist because the drama precludes it. The use of the personal tone, the evidence of personal experience, trumps everything on the board. In this, improbable though it seems, Donne is closer to Ben Jonson, chattily Horatian in his poetry, than to the average Elizabethan sonneteer, wandering in the never-never land of crystal fountains and meadows bespangled with unseasonal combinations of flowers.

The affirmation of the self as arbiter in disputes is a persistent, if multicoloured, strand in seventeenth century thought. It makes the link between Donne and Ben Jonson and between Ben Jonson and the baroque Sir Thomas Browne, whose fideism is tempered by its influence. At schizophrenic extremities, it becomes both the ultimate argument of the most enthusiastic sects (the personal testimony) and the basis for the Augustan notion of the reasonable man (referring matters to a personal nerve centre of good sense). What we saw in the last chapter was the disintegration of belief in any sort of nerve centre - personal or communal - to which matter of importance may be referred. The self is self-doubting, the world of reality no longer bears any axiomatic correlation to the words used to describe it. The result, in drama, is a failure of nerve as its centre collapses and it is to poetry and prose that we must turn to look for a way through - a way, nevertheless, won only at the price of the magnification of the self, whether it be the importunate metaphysical self or the Jonsonian self, fashioned out of the embodiment of the ideal social norm.

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[1] John Donne, Death's Duel 1632 (Menston 1972) B3^{v}

Never again can we trust words to take upon themselves the responsibility for the description of the natural world for words, as Bacon is fond of telling us, are ultimately spun only out of our own bowels. The distrust of words, endemic throughout the seventeenth century, reaches its ultimate absurdity as caricatured by Swift in the Laputan school of languages whose learned men have ceased to use words at all and are obliged to carry about with them great quantities of things which they must produce in order to converse.[1] The abandonment of symbolism could go no further.

So far as natural history is concerned, the metaphysical approach is as we have seen, most consistent with the older type of natural history. One feels that all that stops John Lyly from being the first of the metaphysicals is a residual sense that the yoking together of images should be a natural thing, not a violent. The urging of correspondences is very much of a pattern with the past but, done self-consciously, it becomes, also, self-destructive and in the process the credibility of the past is also destroyed. The metaphysicals never claimed that the conceit had any internal validity. It was, as Helen Gardner says:

> like a spark made by striking two stones together. After the flash the stones are just two stones.[2]

The idea of the conceit, then, is central to the concept of what constitutes metaphysical poetry, and though the list of metaphysical poets after Donne is a long one, the basic formula remained unchanged. When the time came, this formula was to seem less appropriate in its response to man's changing view of nature than the Jonsonian. Because of this -

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[1] Jonathan Swift, Gulliver's Travels, ed Peter Dixon and John Chalker (Penguin 1967) pages 230-231. Swift is attacking Lockian theories and scientific nominalism in particular.

[2] The Metaphysical Poets, ed Helen Gardner (Revised ed 1966) page 19

not because it had nothing to say, nor yet because it was uninterested in borrowing from natural history, but because the basic tenor of its thought was taking it upon so divergent a course from the new natural history, ~~that~~ we may here part company from the School of Donne,

. . .

If, as I have suggested, natural history was changing direction during the years leading up to the Civil War, where may we see evidence of this change and in what way was the flavour of it Jonsonian?

An attractive piece of evidence is Thomas Johnson's Iter Plantarum whose chatty, anecdotal Latin is very much in the spirit of his literary namesake. The Iter deals with a botanising field trip to Kent in 1629 and in its pleasant, inconsequential way seems to me to be of the spirit of a Gilbert White or a W H Hudson. I have mentioned the serious function that, in Gerard's herbal, a quotation from the classics had in reinforcing the identification of a plant. Johnson, in recounting how a sudden rainstorm caught his botanisers as they were embarking to go downstream to Gravesend, is moved to quote from the Aeneid:

> Eripiunt subito nubes caelumq; diemq;
> Nostrorum ex oculis: ponto nox incubat atra;
> Intonuere Poli, & crebris micat ignibus aether,
> Praesentem nobis intentant omnia mortem.

In Dryden's translation:

> sable night involves the skies;
> And Heaven itself is ravished from our eyes.
> Loud peals of thunder from the poles ensue;
> Then flashing fires the transient light renew;
> The face of things a fearful image bears;
> And present death in various forms appears.[1]

But the whole thing is a piece of pure fun - a touch of the mock-heroics

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[1] Thomas Johnson, Botanical Journeys in Kent & Hampstead, ed J S L Gilmour (Pittsburgh 1972) pages 31 and 49. The Dryden translation, given by the editor seems to me best to convey the heroic tone of the botanisers setting forth. I would note, however, that Johnson has altered the original Vergil from the third person to the first and that the editor has performed the same for the Dryden

as the botanists set forth on their adventures and a light-hearted acknowledgement of the holiday mood of the company: released from the daily round, they were probably all in high spirits - what more natural than a few lines of the Aeneid, remembered from schooldays, to speed their going forth?

This flavour of the anecdotal is maintained throughout the work. Interspersed with the lists of plants observed, there are accounts of the friends' entertainment at hostelries, an absurd incident when they are suspected of spying by the Mayor of Queenborough and a visit to the fleet at Chatham[1] - all plausible material for a Henry Fielding or even a Laurence Sterne, whose Uncle Toby omitted that visit to the fleet at Chatham:

> Now hang it! quoth I, as I look'd towards the French coast - a man should know something of his own country too, before he goes abroad - and I never gave a peep into Rochester church or took notice of the dock of Chatham, or visited St. Thomas at Canterbury, though they all three laid in my way. [2]

Though not unlike many another account of an excursion from Chaucer onwards, there is something in the speaking voice of Johnson that looks forward rather than back. It is a very relaxed account, not witty in the Elizabethan sense, partly because, being written in scientist's Latin, it makes the important assumption that the reader wanted information as much as he wanted entertainment. In this work, many of the plants named by Johnson are first records[3] and his descriptions of plants and localities are an important contribution to early British botany. Out of the mood of scepticism and stoicism which had succeeded the breakdown of the Elizabethan picture came the detachment that was necessary to chronicle the visible world. Freedom from the necessity to link every aspect of nature immediately to the greater plan, brought with it greater freedom to describe for description's sake. In this, Johnson's Iter and his subsequent Descriptio*

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[1] Johnson, Botanical Journeys, ed Gilmour (1972) pages 57 and 54

[2] Sterne, ed Douglas Grant (1950) page 394. The Life and Opinions of Tristram Shandy, Gentleman Vol VII Chapter 2

[3] Johnson, Botanical Journeys, ed Gilmour (1972) page 14

*belong to the genre of survey

Because of this shift of outlook, the new authority comes to be vested in a very special individual - the individual as scientist. We trust this or that observation because it was made by John Goodyer or Thomas Lawson and they are good botanists and trustworthy observers. There is a growing feeling of coterie amongst early botanists and, by the end of the century, we have something like a community of scientists, bound by the sorts of professional ethics that we would recognise today.[1] And if we see the emergence of this ideal in the, sixteenth and seventeenth centuries, then it is in these centuries that we find literature beginning to take seriously the problems of standards and canons of taste and forming - as we go on into the eighteenth century - coteries to adjudicate these. In both cases, the ideal works from the inside outwards. Whereas Renascence universal man was a creature come to perfection by the absorption of his environment, the eighteenth century man of culture was to be a man above and beside his environment, setting an example for its change. And the scientist has become do-er as well as seeker.

In the process of this shift of outlook, man's social relationships acquire a new emphasis. If the botanists who set out with Thomas Johnson to journey through Kent in 1629 formed a band of brethren, we need not go far to seek, in the same year, a parallel band of brethren - all the adopted sons of one great literary father: the Tribe of Ben. Earl Miner in The Cavalier Mode from Jonson to Cotton, gives a charming account of this literary friendship and kinship, but nothing that he says is so telling as his quoting of Izaak Walton's tribute to Sir George Hastings:

An excellent angler, now with God

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[1] The sort of community that J Bronowski visualises in Chapter 3 of Science and Human Values (NY revised ed 1965)

[2] Earl Miner, The Cavalier Mode from Jonson to Cotton (Princetown 1971) page 49

Solidarity - man's relationship with his fellow man - came, in an uncertain world, to assume an importance hitherto reserved for man's relationship with God. What Walton's tribute does, is to link the two together: to make the excellence of Hasting's angling stand for his excellence as a man and brother angler and therefore a testimonial to life in the hereafter. Earl Miner claims for the Cavalier mode a detachment that enabled them to live out the bleak years of the mid century and the years before the Restoration when many of them were in exile or biding their time in obscurity. For the early members of the Royal Society, political detachment was good training for scientific detachment and, when the clamourous propaganda of king and parliament had died down and the troubles were (as everyone was emphatic in asserting) over, then the Jonsonian virtues were nowhere more in evidence than amongst the war-weary amateurs of the Royal Society - whatever their politics. They would look at things and not at arguments - and this, they claimed, was a new approach to the world.

But although the Royal Society may justly claim its interest in experiment as novel, the changing climate of opinion that fostered an interest in the externals of the world was a thing of much earlier date. Elizabethan realism had been one climatic factor, Jacobean detachment another. Combined, they produced the voice of the observant spectator: of a Stow surveying London or a Carew, surveying Cornwall, or even an Earle or an Overbury surveying men and manners. The writing voices of such men are personal and impersonal at the same time - personal because this is a man's view, not an attempt to examine God's masterplan. And impersonal because it is a view detached - a view that we can, therefore, trust, if we believe that the writer was an honest man and had an observant eye. About many of

the accounts published in Hakluyt and Purchas, there is the quiet conviction of men who had been there and seen the things that they were describing. It is difficult, for instance, to believe that Thomas Hariot has not seen the flora and fauna that he describes in A briefe and true report of the new found land of Virginia (1588)[1] for he is not, like Batman or Topsell an encyclopaedist, but a travelling naturalist recording what he saw - with the advantage that what he saw was in the New World where he could observe with an eye unclouded with the prejudices of the old:

> Squirels, which are of a grey colour, we haue take[n] and eate[n][2]

he says, and one can hardly get more empirical than that. Clear and exact description of the type that Hariot gives was to provide the data with which naturalists were to work.[3] It was this that Bacon understood, whilst he denied that some sort of hypothetical framework was necessary as well. Over-optimistically, he believed that from such data a science that was fully articulated in philosophic direction might arise spontaneously.

To this end, he started to bring together a bulk of random facts in the laboured and inchoate Sylva Sylvarum. It is a curious work - tedious to read and aimless in direction. Tedious to dip into even, and displaying an almost wilful ignorance of such stores of particulars as were, in fact, available to Bacon. He has little to say about his contemporaries - about, say, Raleigh's monumental attempt at The History of the World, Camden's Britannia, Speed's atlas or the running collection of documents entitled:

> The Principall Navigations, Voiages and Discoveries of the English nation, made by Sea or ouer Land, to the most remote and farthest distant Quarters of the earth at any time within the compasse of these 1500 yeeres . . . 1589 [ff]

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[1] Published with other documents relating to the English voyages to North America under the patent granted to Walter Raleigh in 1584 by D B Quinn as The Roanoke Voyages 1584-1590 (1955)

[2] Ibid, page 356

[3] Supplemented, in this case, by the drawings and paintings of John White who was sent out specifically to act as surveyor and painter on the expedition.

Surely, if anyone, the two Richards Hakluyt were qualified for a place in Salomon's House:

> who, we might say, ran clearing houses for overseas information derived from oral and literary sources, and who disposed of their information to merchants, speculators, explorers and would-be colonists. [1]

But Bacon - and this is his greatest weakness - whilst he argued for the unsystemised collection of data, argued that a system would, nevertheless, emerge of its own accord from such data. This, however, begs the question of whether it is possible to collect any data at all without some sort of systematic preconception. D B Quinn continues from the passage quoted above to describe what happened in practice:

> Their concern was almost wholly utilitarian, though on the one hand popular love of marvels and novelties stimulated their collecting and publishing activities, and on the other the growing exactness of the questions asked and answered by the naturalists, particularly the botanists, impelled them towards more scientific ways of acquiring and assembling their information. [2]

Bacon would undoubtedly have disapproved. And the fact that the result was becoming "more scientific" would not have lessened his disapproval since both the more scientific approach and the collection of marvels were responses to particular stimuli and were thus part of the piecemeal collection of knowledge that he deplored. As philosopher and as Lord Chancellor, Bacon would have liked to have seen knowledge advancing on all fronts simultaneously. He attacked Gilbert, for instance, because Gilbert had concentrated upon a very particular problem and thus, in Bacon's view, risked getting the world out of proportion:

> He has himself become a magnet; that is, he has ascribed too many things to that force [3]

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[1] D B Quinn, The Roanoke Voyages 1584-1590 (1955) Introduction page 49

[2] Ibid, pages 49-50

[3] The Works of Francis Bacon, ed J Spedding, R L Ellis, D D Heath (1857-1874) Vol V Introduction to "The History of Heavy and Light" page 202

The Hakluyts, father and son, at the service of capitalist, individualist endeavour, would have stood no chance with Sir Francis Bacon as Lord Chancellor of New Atlantis.

. . .

In fact, of course, the advancement of science came neither from the Baconian philosophy as Bacon conceived of it, nor from the curiosity about facts that characterised the chroniclers and antiquarians and produced some odd results in the virtuosi of Restoration times. It came from the realisation that Man must measure himself against Man - not against God. Early science concerned itself with theories of the world that are metaphysical and therefore not refutable. Only at the Day of Judgment can we know whether the Panther was put on earth to be the type of Christ, whether the sole function of the lily is to symbolise purity and whether the swallow is impelled to fly South in the autumn so that it may perform its true function of telling us to beware of faithless friends. We have fallen from Adam's estate and we cannot here and now be sure that we understand the secret messages of the natural world. But what we can do, even now in this imperfect world, is to make statements that are subject to quantitative analysis. There is no possibility of arguing with the statement that the Panther is the type of Christ except in a divine court. But if we say that the average length of a panther is 11'6" because we have measured twenty specimens, then other men, coming after and measuring two hundred specimens may claim that it is 11'10". But it is men who will do this - by man-made standards subject to the correction of other men who measure two thousand panthers.

The trouble about the Aristotelian world picture was that arguments within it were not subject to this sort of refutation. Bacon, and all others who complained about the merely "verbal" nature of scholasticism

saw this: the world was becoming measurable and it is upon measurable things that we must base our judgments. The curse of the Duchess of Malfi has no power over the things of the natural world but, when Bosola mocks her impotence:

> Looke you, the Starres shine still:

she can say with wry cunning:

> Oh, but you must remember, my curse hath a great way to goe [1]

For this opposition between qualifiable and quantifiable, Francis Bacon was the century's outstanding spokesman. For a variety of reasons (of which not the least is that he was Lord Chancellor of England) he is a godfather to a whole generation of natural philosophers. He may have ignored the most outstanding biological discovery of the day - Harvey's of the circulation of the blood - but when it came to the proper tools for scientific language, he and Harvey were at one:

> I do not believe it to be advantageous to philosophic principle to decide something about the works of Nature from the meaning of words, or to summon anatomical disputes before the grammatical tribunal. For it is not so much a matter of asking what words properly mean as it is of asking how they are ordinarily used. For custom is of the greatest importance not only in many other matters peer of the meaning of words. For this reason I consider that we should definitely avoid using unaccustomed words, or ones which though common have been used over-long in a sense other than that which is apt for our purpose. [2]

This was Harvey, in a letter to Paul Marquard Schlegel of Hamburg, and the date - 1651 - answers the question of Bacon's influence in the seventeenth century. When Harvey still assumes that there is a battle to be fought against the grammarians, then the epigrammatic strictures of Bacon against false learning have a currency that speaks for the century:

> For the wit and mind of man, if it work upon matter, which is the contemplation of the creatures of God, worketh according to the

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[1] The Complete Works of John Webster, ed F L Lucas (1927) Vol II page 92 The Duchess of Malfy IV i 120 and 121

[2] William Harvey, The Circulation of the Blood and other writings ed K J Franklin (1963) Letter from William Harvey to Paul Marquard Schlegel of Hamburg, March 1651

> stuff and is limited thereby; but if it work upon itself, as the spider worketh his web, then it is endless, and brings forth indeed cobwebs of learning, admirable for the fineness of thread and work, but of no substance or profit.[1]

The attack was well-known and much-quoted: the image of the spider and the web that it spins out of its own bowels was too good to be neglected. Thus we find Baligny in Chapman's play mocking the piling up of authorities:

> These virtuosi are the poorest creatures;
> For looke how Spinners weave out of themselves
> Webs, whose strange matter none before can see;
> So these, out of an unseene good in vertue,
> Make arguments of right, and comfort, in her,
> That clothe them like the poore web of a Spinner.[2]

Bacon had a gift for striking images and this was purloined with equal impartiality by mechanists and neoplatonists. The mechanist Sir Kenelm Digby complains of the "uselesse cobwebbes or prodigious chymeras"[3] produced by those who confound their own preconceptions with outer reality, and the neoplatonic John Smith plagiarises the same image when he describes "that Complex and Multifarious man", whose soul belongs to a tribe which:

> are continually pressing down to this world's centre; and though like the Spider, they may appear sometime moving up and down aloft in the aire, yet they doe but sit in the loome, and move in that web of their own gross fansies, which they fasten and pin to some earthly thing or otl[4]

The seventeenth century never lost its preoccupation with words and word-spinning - never ceased to connect them, as Chapman does, with standards of right and wrong and, whilst the argument went on, Bacon could never go out of date. All through the century, in a hundred different guises and experiments, the debate over form and content, language and reality

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1 Francis Bacon, The Advancement of Learning and New Atlantis, ed Arthur Johnston (Oxford 1974) The Advancement of Learning page 28

2 George Chapman, The Revenge of Bussy D'Ambois, facs ed (Menston 1968) D2^{v}

3 Kenelm Digby, Two Treatises in the one of which the Nature of Bodies; in the other, the nature of Mans Soule is looked into in a way of discovery, of the Immortality of Reasonable soules 1644 facs ed (Stuttgart-Bad Cannstatt 1970)

4 John Smith, "The True Way or Method of Attaining to Divine Knowledge" in C A Patrides, The Cambridge Platonists (1969) page 141

Senecan or Ciceronian, rumbled on. The service that Bacon did for natural philosophy was to reformulate the debate and to reformulate it, moreover, in ways which sliced up the old grammatico-philosophic arguments and presented quotable aphorisms to a generation who were finding it increasingly difficult to meet scholastic argument on its own grounds. Bacon's clarity of presentation offers us a hard nub of objections to scholasticism: that it ventured not beyond the Pillars of Hercules, that it set up Idols of the Tribe, the Cave, the Market-place, the Theatre, that all its works were spun out of its own bowels and that, in any case, it concentrated only upon trivialities becuase these were all that had floated to the top of the great River of Time. These are unforgettable phrases and they were uttered with the authority of a Lord Chancellor. Harvey's hit was shrewder than he knew, when he said that Bacon wrote philosophy like a Lord Chancellor[1] for his Lord Chancellorship was undoubtedly something that gave his name prestige in the latter seventeenth century. There is, moreover, a punch behind his best aphorisms that makes them stand away from the body of his work as quotable and epigrammatic. This can militate against his larger intention as Benjamin Farrington comments:

> The aphoristic style of the Novum Organum makes the individual points clear and impressive but tends to obscure the connecting and larger groupings of the ideas. These, however, can be discovered with a little patience.[2]

Can they? Perhaps if, as Bacon believed, the whole of human knowledge could have been compassed by six volumes each the size of Pliny's Natural History, such an effort in patience might have been rewarding. It is difficult not to think tenderly of such a compassable idea of knowledge

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[1] See Benjamin Farrington, Francis Bacon, Philosopher of Industrial Science (1951) page 153

[2] Ibid, page 100

when even the optimistic Royal Society came to have doubts as to whether complete knowledge would ever be possible.

> Truth is inexhausted - says Thomas Burnet - and when you are once in the right way the farther you go, the greater discoveries you make, and with the greater joy. [1]

One cannot help feeling that Bacon, as a good civil servant, would have been depressed to think that the world, after all, might turn out to be illimitable.

. . .

Bacon then, whatever his limitations practically, does speak for a habit of mind, a mood, a way of looking at the world that was gaining currency in his time. Here and there, we have seen this mood emerge in a painstaking love of the concrete and realistic - a sort of literary over-brushing such as we saw indulged in William Browne's Britannia's Pastorals. Better and bulkier is:

> POLY-OLBION. Or A Chorographicall Description of Tracts, Riuers, Mountaines, Forests, and other Parts of this renowned Isle of Great Britaine, With intermixture of the most Remarquable Stories, Antiquities, Wonders, Rarityes, Pleasures, and Commodities of the same: Digested in a Poem by MICHAEL DRAYTON, Esq. [2]

I wish to question the word "digested". What Robert Ralston Cawley wrote of Drayton's use of Hakluyt might equally be said of his use of Camden's Britannia or, indeed, of much of Poly-Olbion:

> Drayton has on the whole done an excellent piece of work in condensing an incalculable number of bare facts into two hundred and fifty lines [Poly-Olbion Song 19,] . . . The consequence of his method is that imagination is reduced almost to zero. [3]

If the condensing of facts is all that we require of a digest, then we cannot complain of Drayton. But if we demand that the poet, besides assimilating his material, shall order it in a way that offers us something more than the facts, then Poly-Olbion is flatly disappointing.

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[1] Thomas Burnet, The Sacred Theory of the Earth, ed Basil Willey (1965) page 370

[2] tp Poly-Olbion from tercentenary ed J William Hebel (Oxford 1933) Vol IV

[3] Robert Ralston Cawley, "Drayton and the Voyagers" PMLA vol xxxviii (1923) page 556

Drayton, it seems to me, has lost sight of the mediating function of literature. If knowledge is a continuum, with science at one end concerning itself with an examination of the things of the physical world and philosophy at the other concerning itself with an interpretation of the things of the metaphysical, then literature, and the arts generally, coming mid-way between the two, may be said to offer an interpretation of the physical in terms of the metaphysical. Othello's handkerchief is not embroidered with strawberries as a result of random sampling, but because the strawberry is the symbol of treachery.[1] Drayton's fisheries and fruit orchards, wildfowl and industrious Welsh beavers,[2] on the other hand, are there in the poem because they are there on the ground. That might seem reasonable enough - the poet lacks a sophisticated ambition, perhaps, but what he has is legitimate and respectable. If he is writing descriptive poetry, then we do wrong to expect of him analytic subtlety and high utterance: we are asking for cake when he is giving us bread and butter.

The trouble about this as a plea, is that Drayton himself offers cake:

> Of Albions glorious Ile the Wonders whilst I write
> . . .
> What help shall I invoke to aid my Muse the while?[3]

And the help that he often invokes is the help of a stately rhetoric which gives to hills hoarie heads and to the smallest of "rivery veines" a Meander-like motion.[4]

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[1] Oth III iii 442 See, too Whitney's Emblem page 246

[2] Michael Drayton, Works, ed J William Hebel (Oxford 1933) pages 112-113 Polyolbion Song VI lines 56-86

[3] Ibid, page 1 Song I lines 1 and 7

[4] Ibid, page 203 Song X line 94

Working upon the ordinary stuff of the natural world, Drayton's imagination seeks to transcend it and to elevate it to a plane above the ordinary. This is a permissible poetic device when used in short bursts - paeans and odes and hymns thrive upon it. But Poly-Olbion is not a short poem: there are, in fact 14, 364 lines.

> With as unwaried wings, and in as high a gate
> As when we first set forth, observing every state,
> The Muse from Cambria comes, with pinions summ'd and sound:[1]

says Drayton in the opening lines of the eleventh song and, alas, it is all too true for another nineteen songs.

It is really too much for us and was, apparently too much for his seventeenth century booksellers who, with numbers of the first part still upon their hands, were persuaded only with difficulty to issue a second part in 1622 (the first having been published in 1613). "Perhaps the best way to enjoy Poly-Olbion is to make the poem a companion on a tour in England or Wales," says the editor of the tercentenary Drayton[2] Well it may be so, but it makes poetry an expensive recreation.

. . .

Surveys - whether undertaken in Draytonian hexameters or the more pedestrian prose of the antiquarians and atlas-makers - are symptomatic of the age's desire to cover the ground - to measure, describe and faithfully depict. If Drayton sub-titled Poly-Olbion "A Chorographicall Description . . . of Great Britaine", Phineas Fletcher might conceivably have sub-titled the first four cantos of The Purple Island a chorographical description of the viscera. Nosce teipsum had been a repeated injunction of the middle

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1 Drayton, Poly-Olbion, ed Hebel (1933) The eleventh Song, lines 1-3

2 Ibid, pages vi-vii

ages and Fletcher takes it all too literally:

> Nor is there any part in all this land,
> But is a little Isle: for thousand brooks
> In azure chanels glide on silver sand;
> Their serpent windings, and deceiving crooks
> Circling about, and wat'ring all the plain,
> Emptie themselves into th'all-drinking main;
> And creeping forward slide, but never turn again.[1]

Not Drayton describing the Thames drainage system, this, but Fletcher describing the human blood system - and that as though William Harvey had never been. One might be forgiven for confusing the two poets:

> Down in a vale, where these two parted walls
> Differ from each with wide distending space,
> Into a lake the Urine-river falls,
> Which at the Nephros hill beginnes his race:
> Crooking his banks he often runs astray,
> Lest his ill streams might backward finde a way:
> Thereto, some say, was built a curious framed bay.[2]

And so it goes for heart and lungs, stomach, liver, spleen, gall, guts and bowels. All good material for a Dunciad, perhaps, for mock-heroic makes its living from inflating the trivial detail of the world to extravagant heights, but Fletcher's funniness is unintentional and though The Purple Island has an endearing dottiness for those with a taste for such things one cannot really claim that it is a successful poem.

It was not, however, the last of such essays in trafficking with reality. Mrs Jane Barker's farewell to poetry many years later is more up-to-date in its anatomy[3] - she is given a tour of the system of the blood under the personal tuition of William Harvey himself - but her poetry has moved forward less than her knowledge of physiology:

> Thus we through many Labyrinths did pass,
> In such, I'm sure Old Daedalus n'er was;

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[1] Phineas Fletcher, Giles and Phineas Fletcher, Poetical Works, ed Frederick S Boas (Cambridge 1909) Vol II pages 27-28 "The Purple Island" II 9

[2] Ibid, Vol II page 31 "The Purple Island" II 24

[3] Though the terms in which she speaks of Harvey make it difficult to believe that he first started lecturing on the circulation of the blood in 1618 - seventy years before the publication of her Poetical Recreations.

> Sometimes i' th' Out-works, sometimes i' th' first Court;
> Sometimes i' th' third these winding streams would sport
> Themselves
> . . .
> And after some small Traverses about,
> We came to th' place where we at first set out.[1]

This sort of solemn fidelity to detail, coupled with a rigorous determination to see significance and importance in the unselected minutiae of the world, brings much of the virtuoso poetry of the end of the century to the brink of being unintentionally funny. Abraham Cowley, who made sustained efforts to come to grips with the science of his day wrote, in Latin, six verse books in celebration of the virtues of plants: two books each of herbs, flowers and trees. Though he permits himself occasional passages of whimsy, these are light spots in an otherwise solemn poem. Here, in Nahum Tate's translation, is his account of the poppy:

> Thus Poppy spake, nor did, as I suppose,
> So soon intend her bold Harangue to close,
> But seiz'd with Sleep, here finish'd her Discourse;
> Nor cou'd resist her own Lethargick Force.
> I tell strange things, (but nothing should deter,
> Since 'tis most certain Truth what I aver,)
> Nor would I sacred History profane,
> As Poets use, with what is false and vain.
> While Poppy spoke ---
> Th' Assembly could no longer open keep
> Their Eyes, ev'n Flora's self fell fast asleep.[2]

On the whole, however, Cowley is too conscious of his duty to the facts to indulge in much in the way of distancing manoeuvres. In the final chapter, we shall see how his world was one in which poets to whom the old significances of thw world were dead but who felt unable to take refuge in satire or urbanity were in a peculiarly difficult position. I have mentioned

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[1] Mrs Jane Barker, Poetical Recreations (1688) "A Farewell to Poetry with a long Digression on Anatomy" pages 121-122

[2] Abraham Cowley, Works Vol III (ninth ed 1711) "Of Plants" page 394

The Dunciad - Pope or Jonathan Swift would have made more of Wormwood's property which:

> strengthens the Stomach, and purges it of Choler, Wind and Crudities [1]

than Cowley, solemnly translated by J.O.:

> No Fault I punish more than that which lies
> Within my Province; wherefore from my Eyes
> Choler with hasty speed before me flies.
> As soon as Me it in the Stomach spies,
> Preparing for a War in Martial guise.
> Not daring in its lurking Holes to stay,
> It makes a swift Escape the backward way.
> I follow him at th' Heels, and by the Scent
> Find out which way the noisom Enemy went. [2]

. . .

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[1] Abraham Cowley, Works Vol III (ninth ed 1711) "Of Plants" footnote page 257

[2] Ibid, pages 258-259

CHAPTER FOUR

The Argument

This chapter starts at the point of failure of metaphysical ability to mint afresh, once the symbols of the old natural history have reached a certain point of devaluation: the natural image thus becomes a thing without depth or substance, a token that is of no more worth than the paper that it is printed on - and that usually the cheap paper of broadside or pamphlet. The successful use of the image as pure token, however is possible in a new way as demonstrated in Dryden's The Hind and the Panther. During this time, there was little corrective to a rather cardboard view of the natural world because of the dearth of works on natural history during this period and because such as there were tended to reinforce the existing token-view by suggesting that the workings of the natural world were conducted by a sort of mechanical algebra. These works on mechanism are considered and the chapter concludes with an examination of Andrew Marvell's unique vision of mechanisms in the natural world.

In the past three chapters, we have seen English literature and natural history both passing through a period of crisis. The fabric of the world that had produced Spenser and Henry Lyte, Shakespeare and John Gerard in a close weave of classicism and Elizabethanism, allegory and real description has almost completely disappeared in the run-up years to the Civil War. We looked at how this happened: Lyly, confident that his natural history can be automatically driven by his syntax, John Donne, realising that it can not and taking the helm himself, the Jacobean dramatists, taught by the personal voice how disparate a thing is personality, and dragging down nature upon themselves in order to break it into a myriad different parts, all pulling in different directions. Thus the way of vertical thought that is most conveniently referred to the emblem was demolished and the way of thought that demands that all lines pass through a fixed centre was gone. In its place, man's view of the natural

world was to develop another way: the horizontal and classless way of Bacon that we have seen exemplified in unpretentious manuals, prose and verse descriptions and travelogues. Lastly, we have seen the catastrophic results of trying to combine both ways of thought in Poly-Olbion and The Purple Island.

In this chapter, coming up to and entering the Civil War, two things become immediately apparent in the way that literature handles all its raw material. In the first place, writing becomes an activity conducted under great pressure - ages of fierce propaganda are not ones in which introspective, vertical thinking can be conducted with any great honesty. Activity on the battlefield and debate brought a tumble of words to many pens. Scribbled despatches from the commander's tent on the night before battle, the exhortation of a Puritan preacher to troops waiting for the dawn, the brief, jubilant letter that announced a victory or the curt, clipped sentences that admitted a defeat: all these called for simple forms and direct expression.[1] The other noticeable thing in this uncertain time - and here we look more strictly towards natural history - is that the natural image, weakened by metaphysicals and Jacobeans, degenerates still further and becomes a mere travesty of reality. A single example, taken from Donne, will show how this has happened. When he came to write the hyperbolic second verse of Epithalamion . . . on the Lady Elizabeth and Count Palatine, he relied upon the reader's knowledge of the salient feature of the phoenix - its uniqueness - and set about elaborating and turning the legend to his own ends:

> Till now, Thou warmd'st with multiplying loves
> Two larkes, two sparrowes, or two Doves,
> All that is nothing unto this,
> For thou this day couplest two Phoenixes;
> Thou mak'st a Taper see
> What the sunne never saw, and what the Arke

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[1] See C V Wedgwood, Seventeenth Century English Literature (Oxford 1970) Chapter 6

(Which was of foules, and beasts, the cage and park,)
Did not containe, one bed containes, through Thee,
Two Phoenixes, whose joyned breasts
Are unto one another mutuall nests,
Where motion kindles such fires, as shall give
Yong Phoenixes, and yet the old shall live.
Whose love and courage never shall decline,
But make the whole year through, thy day, O Valentine.[1]

This at once exploits and destroys. All Donne's poetry is held together by his own intelligence, mediating between the old world and the new, but always eroding the foundations of the old. As a result, his poetic position is not sustainable. The many phoenixes of Elizabethan public life, celebrated in Elizabethan public verse, had so weakened theforce of the image that Donne was forced into the destructive hyperbole of the two phoenixes. By 1640, when Crashaw came to celebrate the birth of the Lady Elizabeth's nephew, the infant James II, the erosion had become a landslide. Addressing the mother, Queen Henrietta Maria, Crashaw says:

Thou art the Mother Phaenix, and thy Breast
Chast as that Virgin honour of the East,
But much more fruitfull is; nor does, as shee,
Deny to mighty Love a Deity.
Then let the Easterne world bragge and be proud
Of one coy Phaenix, while we have a brood
A brood of Phaenixes; while we have Brother
And Sister Phaenixes, and still the Mother;
And may we long; long may'st thou live, t'encrease
The house and family of Phaenixes.[2]

This - a logical extrapolation from Donne - is patently quite absurd. It is difficult to believe that Crashaw had really given any thought to those phoenixes. Successful metaphysical poetry is the result of original thought mediating between objects or ideas. Once the mediation has been effected, it is difficult to repeat because it then ceases to be original. It is this that makes metaphysical poetry delightful but destructive, inventive and irresponsible. The centre of balance shifts from the words themselves, their analysis and extension, to the space between words,

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[1] Donne, Poems, ed Grierson (1912) pages 127-128 "An Epithalamion, Or mariage Song on the Lady Elizabeth, and Count Palatine being married on St. Valentines day" lines 15-28

[2] The Poems, English Latin and Greek of Richard Crashaw, ed L C Martin (Oxford second ed 1957) page 180 "Vpon the Duke of Yorke his Birth A Panegyricke" lines 88-91

now occupied by the figure of the poet - witty, importunate and self-revealing. In the process, the coinage of the language becomes debased. Both Donne and Crashaw take the natural history of the phoenix - its value - and use it to pay for their own inventions. Small wonder that there was a stubborn and persistent anti-metaphysical current throughout the century:

> Some Critics are of Opinion, that Poets ought to apply themselves to the Imitation of Nature, and make a Conscience of digressing from her; but he is none of these. The antient Magicians could charm down the Moon, and force Rivers back to their Springs by the Power of Poetry only; and the Moderns will undertake to turn the Inside of the Earth outward (like a Jugler's Pocket) and shake the Chaos out of it, make Nature shew Tricks like an Ape, and the Stars run on Errands; but still it is by dint of Poetry, [1]

says Butler in his description of "A Small Poet" and, as late as 1676, we get Izaak Walton complaining against the strong lines "that are now in fashion in this critical age" [2]

It is, however, in the ephemeral prose of the period that we may most easily study the debasement of the natural image. The war of pamphlet and sermon that accompanied the war of Royalist and Roundhead was a war of words churned out as fast as the presses - legal and illicit - could produce such titles as:

> A Nosegay for the House of Commons. Made up of the stincking Flowers of their seven Yeares labours, gathered out of the Garden of their New Reformation [3]

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[1] Samuel Butler, Characters, ed Charles W Daves (Cleveland and London 1970) page 90

[2] Izaak Walton, The Complete Angler 1676 (Menston 1971) I have used this edition for all quotations, being the last edition to be revised by Walton before his death. The complaint against metaphysical poetry is, in fact, more emphatic in this ed than in the first, where Walton only complains in a general way of fashionable poetry (page 64, le Gallienne ed) (189[illegible])

[3] By Mercurious Melancholicus, Printed at the signe of, You may goe looke. 1648 Tho. I. 663. I have not seen this, but it apparently opens "A Little Hemp, Hemlock, wormwood, and Rue/ Would make a Poesie fit for such as you . . . "

These Civil War pamphlets seek to hit harder in a shorter space of time than the more elaborated complaints of Elizabethan pamphleteers, especially as worked up by Thomas Deloney and put into the mouth of Jack of Newberie addressing the king:

> Most dread Soveraigne (quoth Jacke) not long agoe, in my conceit, I saw the most provident Nation of the Ants, summoned their chiefe Peeres to a Parliament, which was held in the famous city Dry Dusty, the one and twentith [sic] day of September: whereas, by their wisedomes, I was chosen their King, at what time also many bills of complaint were brought in against divers il members in the commonwealth: among whom, the Moule was attainted of high treason to their State: and therefore was banished for ever from their quiet Kingdome: so was the Grashopper and the Catterpiller, because they were not onely idle, but also lived upon the labours of other men, amongst the rest, the Butterflie was very much misliked, but few durst say any thing to him, because of his golden apparell: who through sufferance grew so ambitious and malapert, that the poore Ant could no sooner get an egge into her nest, but he would have it. away, and especially against Easter, which at length was misliked This painted asse tooke snuffe in the nose, and assembled a great many other of his owne coate, by windie warres to roote this painefull people out of the land, that hee himselfe might bee seated above them all. (These were proud Butterflies, quoth the King.) Whereupon I with my men (quoth Jack) prepared our selves to withstand them, till such time as your Majesties royall presence put them to flight [1]

But this was in the leisured times of Elizabeth, when a devoted Parliamentarian, later the Queen's Attorney-General, could put it down carefully in his notebook that a Parliament man should be as an elephant, possessed of no gall or envy, constant, inflexible and not to be bowed, of enduring memory and the breaker of paths that other men might follow.[2] The Parliament man of the Civil War had certainly gone down a lot of new paths and the language that he spoke was more urgent, more strident, than that of the elephantine Coke's and the tendency for natural images to harden and become mere counters to be pushed arbitrarily acrosss the polemical board had not been modified by the production of any interesting works of natural history. The publication of the Johnson revision of

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1 Shorter Novels: Elizabethan, ed George Saintsbury (1929). Jacke of Newberie pages 33-34

2 See Catherine Drinker Bowen, The Lion and the Throne. (1957) page 38

Gerard's herbal marks a peak of herbal production - John Parkinson's herbal of 1640 was very much the mixture as before and Blanche Henrey refers to him as "the last of the English herbal writers belonging to the period of the botanical renaissance." [1] Thereafter, the herbal sui generis was to decline - the travesties of Culpeper come immediately to mind.

Moreover, though we do find complaints of stinking nettles and encomiums of sweet-scented camomile, it is more often to the imagery of the animal world that writers turned in search of polemical similes. In this, natural history was even poorer. The years after Topsell, produced nothing much in the way of zoological description and the traditional animal images wore very thin indeed, even in more strictly literary productions than the pamphlet. Giles Fletcher, describing the typical Jesuit, produces a string of such images, stereotyped by indignation:

> To every shape his changing shape is drest,
> Oft seemes a Lambe and bleates, a Wolfe and houles:
> Now like a Dove appeares with candide brest,
> Then like a Falcon, preyes on weaker foules:
> A Badger neat, that flies his 'filed nest:
> But most a Fox, with stinke his cabin foules:
> . . . His very forme was form'd of mentall reservations.[2]

Fletcher seems hardly to have his mind on the job: the double repeats of "foules" and "form" are slipshod and the imagery partakes of the same carelessness.

Nor did the flood of controversial writing that was to follow in the years ahead much improve upon this sort of image. In the strident pages of pamphlet warfare, all one's foes become wolves and serpents, all one's friends doves and deer.[3] The poverty of the beast image is inherent to the pamphlet because it admits no shades of grey in its presentation of the good versus the bad. Then too, the whole tradition of political beasts

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1 Blanche Henrey, British Botanical and Horticultural Literature before 1800 (Oxford 1975) page 79

2 Giles and Phineas Fletcher, Poetical Works, ed Frederick S Boas (Cambridge 1908) page 141 "The Locusts or Apollyonists 1627" II 6

3 See, for instance the narrow and stiff imagery of the royalist apology Eikon Basilike (attrib Charles I and/or John Gauden. The Hague 1648)

was one of simplified stereotypes, drawn often from half heraldic, half underground, wholly non-literary sources. In its very simplicity, it caught the popular imagination as when, in England's last Civil War between the houses of York and Lancaster, William Collingbourne's verse, fixed to the door of St Paul's ran all over England:

> The Cat, the Rat and Lovell our Dog,
> Ruleth all England under a hog [1]

- meaning thereby Catesby, Ratcliff, Lovel and Richard III, whose emblem was the white boar - as we may well remember from Shakespeare's play. The limitations upon this use of nature are sufficiently obvious - that the image is frequently fixed by principles other than those of the natural and, once fixed, does not allow for much in the way of analytical development. Heraldry, when it interests itself in animal behaviour at all, tends to seize and fix something idiosyncratic or even untrue. The martin or martlet, for instance, is said to have legs so short that, once grounded, it cannot raise itself to fly again:

> And for this Cause it is also given for a Difference of younger Brethren, to put them in mind to trust to their Wings of Vertue and Merit, to raise themselves, and not to their Legs, having little Land to put their Foot on. [2]

Curiously enough, though, of the swift, the swallow and the martin, it is the martin that has the least difficulty in getting airborne again from a flat surface. Like the Pelican, eternally piercing its own breast, however, the unfortunate martin is heraldically doomed always to be depicted without feet.

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[1] Quoted in A L Rowse, Bosworth Field and the Wars of the Roses (1968) page 292

[2] John Guillim, A Display of Heraldry (sixth ed 1724) page 231

As the occasional servant of literature, the heraldic or cryptic mode of animal imagery had its uses. But it did little to promote the exploitation of a growing and vital natural history in that it remained forever stamped by patterns that had been established in the middle ages. In a book called The Political Prophecy in England, Rupert Taylor demonstrates something of the persistence of the beast prophecy from the middle ages onwards. He describes thus James Howell's second Apolog called The Great Council of the Birds, which deals with the events leading up to the execution of Charles I in a manner unchanged since the days of Merlin:

> The Eagle once called a general assembly of the birds to hear complaints that the Birds of Prey were doing much damage to the flocks. The complainants forced the execution of the Griffin, and then falling upon the Pies drove them away. At length a rebellion was raised against the Eagle, and many of the flocks deserted. But the Bird with the Golden Wings, the Falcons, the Chough, the Ravens, the Martlets, the Swan, the Birds of the Mountains, and the Ostriches remained faithful. Among the deserters were the White and the Green Dragons. Desertion continued until at last Philomela, the spouse of the Eagle, took fright and fled also.

And Taylor explains thus:

> As a rule these different bird-names stand for the noblemen in whose coat-armor the figures appeared. For instance, the Bird with the Golden Wings is the Marquis of Hertford, the Swan the Earl of Worcester, the Griffin the Earl of Strafford. The Pies are the Bishops, and the Mountain Birds the people of Wales. The Eagle is used metaphorically for the King, Philomela for the Queen. [1]

Gnomic writing of this sort is alive with a vegetative life of its own, concerning itself hardly at all with the practice of literary craft and appealing to a broad, even international base. The unhappy Elector Palatine, whose phoenix marriage was, as we saw, celebrated by Donne spent most of the rest of his life in a jangle of discord and war. A verse mocked his impotence:

> When a mouse gives birth to an elephant,
> And a cuckoo to a pheasant,

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[1] Rupert Taylor, The Political Prophecy in England (~~Columbia University~~ NY 1911) page 130

When a gnat draws off the whole sea,
And the Rhine runs from Cologne to Strasburg,
Then the Palatine's politics
Will bring concord to the Empire,
And union to the Church
And will strengthen all religion.[1]

The appreciation of such verse which was frequently oral, depends upon the transliteration of symbols. This may be effected by heraldry - and Shakespeare's other history plays offer other examples of this - or by means of some such artificial device as punning or anagram. Emma Phipson quotes a good humoured verse on the popular Robert, Earl of Essex:

The goose but gaggelith in her gate,
The cock he can but crowe,
A thousand birdes do not but prate,
And gangell wheare they goo:
The lark and lynnett singith well,
The thrisell dothe his best;
The robbyn beares away ye bell,
And passeth all the rest.
He is famyllyer with a lorde,
And dreames wheare ladies are;
He can in howse singe and recorde,
When busshe and bryer is bare.[2]

In a literary way, however, such verse rarely leads far because the rules of the game were too rigid to allow of analytic subtlety and, so far as natural history is concerned, it offered no insights because it never meant to. It is the riddling language of spy and secret messenger and throve in the conditions of the Civil War. The full effect of the King James bible, with all its symbolic bestiary naturalised from the pulpit, was now making itself felt and many an inspired infantryman was learning to quote it to his purpose. In this, there is little to choose between Royalist and Puritan. The king's supporters produced offerings every bit as apocalyptic as those of that pilloried Puritan, John Lilburne, quoting Revelations solemnly from the inside of the Fleet:

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[1] Quoted in Frances A Yates, The Rosicrucian Enlightenment (London and Boston 1972) page 58

[2] Phipson, The Animal-Lore of Shakspeare's Time (1883) page 180

> And the Beast which I sawe (saith S. Iohn) was like unto a Leopard, and his feete were as the feete of a Beare, and his mouth as the mouth of a Lion, and the Dragon (that is to say the Devill) gave him his power, his seat, and great authority. [1]

Regrettably, however, the King James bible tended to reinforce a stylised conception of nature and its effect, in the literalistic climate of the war, could only be an adverse one. The biblical view of man's place in nature is very clear-cut and the orderings of a world outside man are not a matter of much speculation in the sacred writings. One can only endorse Emma Phipson's opinion of the influence of the King James version upon the people of the time:

> Unfortunately, this rather retarded than advanced their knowledge of the subject. The crude notions of the ancient Hebrews about beasts and birds, the very names of which were sometimes changed by the translators, were accepted as undoubted truths, and many errors were thus perpetuated. [2]

Moreover, where biblical language was adopted for effect, its exalted tone often makes it a poor instrument for expressing anything but exaltation. The prophetic tone elevates both language and nature to a place inaccessible to discussion, argument, experiment, analysis and all the things that keep literature and the material that it exploits in some sort of living tension, one with another. Without this tension, the use of natural history in literature comes to be stiff, often heavily allegorical. In the middle years of the seventeenth century, a declining emphasis upon man's place in the natural world and an increasing interest in his place in the social makes for a certain ruthlessness in man's treatment of natural imagery. One might object that the treatment of nature by emblematists - by Whitney - was pretty ruthless. But Whitney, while he appears to have been uninterested in the external appearances of things and their faithful depiction,

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[1] John Lilburne "A Worke of the Beast" in Tracts on Liberty in the Puritan Revolution, ed William Haller (NY 1933) Vol II page 17

[2] Emma Phipson, The Animal-Lore of Shakspeare's Time (1883) pages 3-4

was, notwithstanding, interested in things in and for themselves. He did believe that there was a reality to be discovered in the objects of the natural world even if the methods by which he set about this discovery seem to us, today, impermissible. By the mid seventeenth century, however, the use of the natural world in literature has become just one more literary device - a front for expressing a point of view. Too often this results in pasteboard imagery - flowers drooping in the attitudes of conventionalised piety, beasts as wooden as the animals of a child's Noah's Ark. The didactic intent of the fable takes over and saps the energy of the supposed protagonists so that we are left with an obtrusive voice talking to us through the thin sham of allegory not, as Sidney once said, wooing us with:

> a tale which holdeth children from play, and old men from the chimney corner. And pretending no more, doth intend the winning of the mind from wickedness to virtue. [1]

From the point of view of sheer vitality, however, the beast fable can hardly be ignored. Its strength, though, does lie in its being a game - appealing to the reader's desire to penetrate beyond appearances and guess at persons and factions hidden behind the beast masks and, despite its vitality - from nursery rhymes to Animal Farm - it is very much a substream of literature. Its exponents are not concerned to show man in his universal relationships, but in very particular ones - and those often localised and dated. It is not a genre that wears well.

Occasionally, however, a real master appears. Such a one was Henryson in fifteenth century Scotland and such a one, too, was Dryden at the end of the seventeenth. Both achieve their effects by socialising their animal characters. Henryson's town mouse scurries about the bleak uplands searching for her country cousin in a thoroughly mouse-like manner. But

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[1] Sidney, Miscellaneous Prose, ed Duncan-Jones and van Dorsten (1973) A Defence of Poetry, page 92

when the country mouse sets her simple fare in front of her town-bred sister and the latter asks:

"is this your dayly fude?"

the country mouse, taken aback, cries:

"Quhy not?"[1]

and the voice of an affronted Scottish housewife comes down through five centuries. Similar contemporaneity may be found in other versions of the story. Caxton's protagonists are rats and these are interrupted at the magnificent repast to which the fat rat takes the poor rat by the "bouteler"[2] Roger L'Estrange's by roistering Restoration rakes[3] and Pope's delightful city dandy and rustic peasant by "Chaplain, Butler, Dogs and all."[4] Today, when we take our natural history straight and mice who exchange town and country visits are strictly for children, we are out of sympathy with the genre. It is, however, an interesting one and capable of conveying a variety of meanings even though the narrowness of its conventions limits its uses. Aesop was a familiar book in all seventeenth century childhoods and references are scattered and frequent. The doctrine of the Book of the Creatures, which assigned to the natural world a moral function in the instruction of Man extended the habit far beyond the traditional Aesop. When Dryden wishes to present his case for Catholicism, it is to the beast

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1 The Poems and Fables of Robert Henryson, ed H Harvey Wood (Edinburgh and NY 1968) page 10 "The Taill of the Uponlandis Mous, and the Burges Mous" lines 209 and 210

2 Caxton's Aesop, ed R T Lenaghan (Harvard 1967) page 81

3 Fables of Aesop, by Sir Roger L'Estrange (third ed 1669) page 10. They are described as "a Crew of Roaring Bullies, with their Wenches" And how recognisably Restoration is Aesop's moral: "The Design of This Fable is to set forth the Advantages of a Private Life, above those of a Publick; which are certainly very Great, if the Blessings of Innocence, Security, Meditation, Good Air, Health, and sound Sleeps, without the Rages of Wine, and Lust, or the Contagion of Idle Example, can make them so."

4 Poems of Alexander Pope, ed John Butt IV page 263 "The Sixth Satire of the Second Book of Horace" line 213

allegory that he turns and his poem, The Hind and the Panther, shows both the uses and the limitations of such allegory. In the first place, he accepts, to a very large extent, a static, heraldic conception of the beasts - the hind, immortal and innocent, perpetually hunted, perpetually struck by Scythian shafts like a creature on a shield:

> And doom'd to death, though fated not to dy[1]

fulfills the requirements of Dryden's ideal of the Roman Church - pure, eternal and much-wronged. Thereafter, however, his handling of the beast allegory becomes diversified into argument and debate. The beast masks serve as a front for the voices of the Roman Catholic and the Anglican church whilst at the same time being free from distracting human attributes that might lead the reader to try to identify them as real people. Similarly, Dryden accepts a conventional zoography for the lesser creatures of the poem and steers away from the invidiousness of personalities. His boars from the German forest differ hardly at all from Roger Ascham's of a century earlier when he attacked:

> all the bloody beasts, as that fat boar of the wood, or those brawling bulls of Basan, or any lurking dormouse, blind not by nature, but by malice. [2]

The static nature of the tradition is such that Ascham's attack might well have come from a pamphlet of the 1640s. The Hind and the Panther is, however, a socialisation of the genre. Dryden makes the Panther absurd, feminine frivolous - "The Lady of the spotted-muff" who, upon entering the Hind's humble dwelling behaves like a well-bred cat:

> " . . . civily drew in her sharpn'd paws,
> Not violating hospitable laws,
> And pacify'd her tail, and lick'd her frothy jaws" [3]

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1 The Works of John Dryden, ed H T Swedenberg, Earl Miner and Vinton A Dearing (Berkeley and Los Angeles 1969) Vol III page 123 "The Hind and the Panther" I 8

2 The Whole Works of Roger Ascham, ed J A Giles (1864) The Scholemaster page 205

3 Dryden, Works, ed Swedenberg et al (1969) Vol III page 139 and page 160 "The Hind and the Panther" I 572 and II 718-720

and it is this realisation of the beasts as characters rather than a greater understanding of natural history that gives the poem a distinction above the zoography of Quarles and his contemporaries. The symbol of the Panther is traditional enough and may be found in any version of the Physiologus. The way in which Dryden converts the traditional image into the apt symbol of the Anglican church is both dextrous and highly self-conscious: the poet himself shoulders the burden that, in the past, had been carried by the traditional validity of the symbol itself. For Whitney, the Pelican piercing its breast to feed its young had been a symbol whose internal validity left nothing to be questioned. Since the early seventeenth century and, in particular since Donne, such symbols had been bandied about so in the paper polemics of the mid century that all internal validity had been knocked out of them. Thus Dryden must work hard to give his Hind and his Panther some sort of real life - not the real life of real live animals, perhaps, but at least some sort of social character that will not be too inconsistent with the animal character that forms the façade. In this, he succeeds admirably, but only at the price of making The Hind and the Panther a very partial work of art. It is scarcely possible to turn a page of Elizabethan or Jacobean literature without lighting upon an emblem filched from the emblem books, but The Hind and the Panther leaves only full-length successors: the Yahoos and the Houyhnhnms, Snowball and Napoleon.

. . .

Whilst I have said that there was not a great deal in the way of works of natural history at about this time to encourage literary exploitation, it would not be true to say that there was no examination of nature going on. Unfortunately, however, this was of such a disparate nature that it scarcely encouraged sharpness of thought or depth of analysis. Theories

of nature abounded and though these may be broadly divided into atomic and neoplatonic, the camps so defined are full of the internal discussion of doubts. Moreover, neither camp was much engaged upon the examination of the observable things of nature so necessary to a healthy literature: literature may be informed by theory, but the basis of its raw material can only lie in things. And between the rich Elizabethan crop of herbals, descriptive narrations of foreign parts, handbooks on sport and collections of beasts and the new observational work of the Royal Society there was a certain lack of the type of work that might have offered a stimulus to the poetic imagination in the way that Lyte's herbal had to Spenser's. Indeed, poets themselves seemed hardly to want such a stimulus. The neoplatonists claimed an interest in the natural world, but their practice is disappointing in this, and tends to be confined to rather vague and airy statements about the fundamental vivifying force of nature rather than to the offering of a view of the objects of nature so vivified. Alternatively, they may retreat into a fideism that seeks not to question that natural world at all:

> Shepherds are honest people; let them sing:
> Riddle who list for me, and pull for Prime:
> I envie no mans nightingale or spring;
> Nor let them punish me with losse of rime,
> Who plainly say, My God, My King [1]

and Francis Quarles, like Herbert, insists that the way to God is not through the world:

> The way to God is by thy selfe. The way to thy Selfe is by thy owne Corruptions. He that baulks this way, erres; He that travells by the Creatures, wanders. The motion of the Heavens shall give thy soule no Rest: The Vertue of Herbs shall not encrease thine. The height of all Phylosophy, both Naturall and Morall is to know thy selfe and the end of this Knowledge is to know God [2]

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[1] The Works of George Herbert, ed F E Hutchinson (Oxford 1941) page 57 "Jordan" lines 11-15

[2] The Complete Works in Prose and Verse of Francis Quarles, ed Alexander B Grosart (1880-1) Vol I page 40 "Echyridion" IV cap IV

Thus he affirms a doctrine of nosce teipsum that had persisted from the middle ages and would emerge eventually in the eighteenth century transmut to the peculiarly Augustan notion of nosce teipsum. The upshot of this was, as we have just seen, not so much a hostility towards nature - though Quarles is not far from that - but an indifference. Hostility implies a considered reaction (compare Butler's hostility to the Royal Society) whereas the impression received from a reading of pamphlets or a look at Quarles' Emblems is that the writer simply doesn't care about the natural world. Finding reality stood on end by the metaphysicals, poets of Quarles' complexion tended to retreat from it, and the development of science during the Civil War conspired to hasten this retreat. Neoplatonism, which at first offered the most promising alternative to the old world Aristotelianism failed, in the end, to provide a satisfactory whole philosophy and, for reasons which will be examined in the next chapter, proved unwieldy even for the partial purposes of literature. Atomism, on the other hand, which had been its rival for serious attention since the beginning of the century went, in mid century, to lengths only equalled by modern behaviourists and in much the same way. In such a guise, it could have little appeal to the writers of the time. In what way, after all, can a writer come to terms with a natural philosophy that interprets apparently metaphysical distinctions between the components of the visible world entirely in terms of motion. Chapter VI of Leviathan, for instance, has the somewhat damping title:

> Of the Interiour Beginnings of Voluntary Motions; commonly called the PASSIONS. And the Speeches by which they are expressed. [1]

And Hobbes goes on to demonstrate that the differences between the passions are caused by differences in intensity and direction, rather than by

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[1] Thomas Hobbes, Leviathan, ed C B Macpherson (1968) page 118

differences of quality. This is altogether too clinical an advance on the atomism that we looked at in relation to Jacobean tragedy and which proved itself of service in the construction of a nihilistic character such as Iago or Clermont in The Revenge of Bussy d'Ambois:

> If there were love in mariage so I would;
> But I denie that any man doth love,
> Affecting wives, maides, widowes, any women:
> For neither Flyes love milke, although they drowne
> In greedy search thereof; nor doth the Bee
> Love honey, though the labour of her life
> Is spent in gathering it; nor those that fat
> On beasts, or fowles, doe any thing therein
> For any love: . . .
> But what excites the beds desire in bloud,
> By no meanes justly can be construed love. [1]

This, however, is Jacobean swaggering and, however unpleasantly fascinating the dramatist may have found the character that could put forward such a nihilistic view, the Jacobeans had not yet scared themselves sufficiently to believe that it might actually be true. Sicinius, at the beginning of the second act of Coriolanus, answers Menenius' query as to who the wolf loves wryly enough - the lamb. But there is no smile to be got out of Walter Charleton's treatment of the same subject:

> For, He that can be persuaded, that the Woolf hates the Sheep, only because he worries and preys upon him, and not rather, that the Woolf loves the sheep, because it is a weak and helpless Animal, and its flesh is both pleasant and convenient food for him: we shall not despair to persuade Him, that Mimself also hates a sheep, because he finds his pallate and stomach delighted and relieved with Mutton. [2]

The philosophy of Descartes questioned the validity of the old world order which, whilst retaining Reason as Man's prerogative, had allowed to the brute creation their share of joy and sorrow, anger and kindness. Stephen

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[1] ~~George~~ Chapman, The Revenge of Bussy d'Ambois 1613 (~~Menston~~ 1968) I2v

[2] Walter Charleton, Physiologia Epicuro-Gassendo-Charltoniana: or a Fabrick of Science Natural, upon the hypothesis of atoms, ed Robert Hugh Kargon (NY and London 1966) page 362

Batman paraphrases the Augustinian doctrine succinctly:

> The Soule hath five manner of mightes and vertues. The first whereof, as Austen saith is feeling, and by that vertue the Soule is mooved . . . by this vertue a beast is mooved to desire the thing that is lyking, and to eschewe the thing that is grievous.[1]

The atomists and Cartesians, however commuted this "feeling" to the mechanical flow of forces and Samuel Butler parodied the theory in Hudibras when he retells the story of the fox who escaped the hounds by hanging himself among carcases in a barn:

> And while the Dogs ran underneath,
> Escap'd (by counterfeiting Death)
> Not out of Cunning, but a Train
> Of Atoms justling in his Brain [2]

Despite our enjoyment of Butler, the loss to literature is immediate and obvious. Subtlety and variety of emotion in the natural world are replaced by a general flux - the joyful upsurge of the morning lark beating at heaven's gate and the noble lion tamed at the sight of a pure virgin are replaced by a flow of particles which may be considered in terms of intensity and direction, but not in terms of quality. Henry More, writing to Descartes, finds this a little hard to take:

> Do not dogs nod 'yes' with their tails, as we do with our heads? Do they not often by little barks beg for something to eat at table? Nay, more, sometimes touching their master's elbow with their paw, as respectfully as they can, they remind him by their fawning sign that he has forgotten them. [3]

But for Descartes, all such actions are explicable in terms of movements to or away from the object of attraction or repulsion. As Sir Kenelm Digby said, one might as well impute a soul to the sea:

> When at the beginning of a tide of flood, it meeteth with a banke that checketh the coming in of the waves, and for a while, beateth them backe as fast as they presse upon it; they offer at getting

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[1] Batman upon Bartholome (1582) 13[v]

[2] Samuel Butler, Hudibras, ed John Wilders (Oxford 1967) Second Part Canto III lines 1119-1122

[3] More to Descartes, Cambridge March 15 1649. Quoted in Leonora D Cohen, "Descartes and Henry More on the Beast-Machine - A Translation of their Correspondence pertaining to Animal Automata" Annals of Science vol i (1936) page 54

> over it, and by and by retire backe againe from the steepnesse of it, as though they were apprehe[n]sive of some danger on the other side; and then againe attempt it a fresh: and thus continue labouring, one while one way, an other while an other; untill at the length the flood encreasing, the water seemeth to grow bolder, and breaketh a maine over the banke, and then floweth on, till it meeteth with an other that resisteth it, as the first did: and thus you see, how the sea can doubt and resolve, without any discoursing. [1]

The mid century atomism, then, was even more destructive than that of the turn of the century - that at least gave us some fine, disintegrating passages amid the tumbled agony of Jacobean drama. This last gives us little except the occasional mockery of Butler or the odd borrowed quaintness as in Crashaw's letter to the Countess of Denbigh, urging her to marry:

> Both Winds and Waters urge their way,
> And murmere if they meet a stay.
> Mark how the curl'd Waves work and wind,
> All hating to be left behind.
> Each bigge with businesse thrust the other, [2]
> And seems to say, Make haste, my Brother.

Most of the time, though, like too many of the poets of his time, Crashaw apparently prefers not to consider the natural world. Indeed, his range of natural reference is so very narrow - a few monsters and heraldic beasts, the lily, the rose, the violet and the primrose as a complete floral catalogue, that one can only take what Joseph Beaumont says in his Preface to Steps to the Temple (1646) as endorsing Crashaw's own policy:

> Oh! when the generall arraignment of Poets shall be, to give an accompt of their higher soules, with what a triumphant brow, shall our divine Poet sit above, and looke downe upon poore Homer, Virgil, Horace, Claudian? etc. who had amongst

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[1] Sir Kenelm Digby, Two Treatises in the one of which the Nature of Bodies in the other, the nature of Mans Soule; is looked into . . . 1644 (facs ed Stuttgart-Bad Cannstatt 1970) page 307

[2] Crashaw, Poems, ed Martin (1957) page 349 "A letter from Mr Crashaw to the Countess of Denbigh Against Irresolution and Delay in matters of Religion" lines 39-44

> them the ill lucke to talke out a great part of their gallant Genius, upon Bees, Dung, froggs and Gnats, etc, and not as himselfe here, upon Scriptures, divine Graces, Martyrs and Angels. [1]

Certainly, Crashaw cannot be accused of meditating upon anything so interesting as a frog.

. . .

This chapter has, so far, been a chapter of failures - the failure of poetry and prose to continue working within the old view of the natural world because of a loss of faith in the validity of that view. And the failure of mechanistic philosophies to offer anything to replace it that was exploitable or, indeed, even acceptable. Before, however, passing on to new arrangements of the natural world and non-mechanistic philosophies in the next chapter, it is worth asking whether there is any way, however partial, that the mechanical outlook may be seen as appealing to the poetic imagination during this period. Surprisingly, the name that comes up is that of Andrew Marvell, and it is not mechanism in its purist, atomic form of the mid century that he exploits, but the older, Baconian concept of a world filled with the artefacts of the Divine Artisan. I should like to end this chapter of mechanisms with a look at Marvell as mechanist in contradistinction to the more frequently pursued view of Marvell as neoplatonist.

In the first place, is it anything more than a linguistic formula?

> He hangs in shades the Orange bright,
> Like golden Lamps in a green Night. [2]

God is thus seen as smith and metalworker. He works like a jeweller, laying upon the island the enamel of His Spring (line 14), folding within the

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[1] Crashaw, Poems, ed Martin (1957) page 76 "The Preface to the Reader" lines 33-39

[2] The Poems and Letters of Andrew Marvell, ed H M Margoliouth (Oxford 1927) Vol I page 17 "Bermudas" lines 17-18

pomegranate row upon row of orient pearls (line 19) and hanging up those glowing oranges (line 17) to illuminate the whole set - the "grassy stage" (line 11) of his contrivance. Nothing in Captain John Smith prepares us for this sense of an active force at work:

> There seemes to be a continuall Spring . . . and though the trees shed their leaves, yet they are alwaies full of greene, . . . the like fertility it hath in Oranges and Limons, Pomgranates, and other things . . . many tall and goodly Cedars . . . & the most delicate Pine-apples . . . [1]

And George Wither, using the same source, sees the products of the island as growing, but without Marvell's strong sense of the Creator as gardener. Beside Marvell's description of the energy of God the gardener and decorator, the original seems rather flat. What, surely, makes Bermudas Marvell's best-loved (most anthologised) poem is just his sense of God creating for us and in front of our very eyes. And this, surely again, is the point of the poem. It is indeed more than a linguistic formula, for the poem is about the creation of a new Paradise, a new Eden, framed by God's hands for the delectation of a new and better breed of men.

And, having said that, one must, of course, admit that that is neoplatonic enough:

> Your Enjoyment of the World is never right, till evry Morning you awake in Heaven: see your self in your fathers Palace: and look upon the Skies and the Earth and the Air, as Celestial Joys . . . You never Enjoy the World aright, till the Sea it self floweth in your Veins, till you are Clothed with the the Heavens, and Crowned with the Stars . . . Till your Spirit filleth the whole World, and the Stars are your Jewels [2]

That, fairly typically, was Traherne. And it is not difficult to see a

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1 Captain John Smith, The generall historie of Virginia, New England and the Summer Isles (1624) Book 5 pages 170-171

2 Thomas Traherne, Centuries, Poems, and Thanksgivings, ed H M Margoliouth Vol I (Oxford 1958) pages 14-15 Century One paras 28,29, 30

sympathy between Traherne's soul absorbed into the universe and that strange bird-soul of Marvell's:

> Casting the Bodies Vest aside,
> My Soul into the boughs does glide:
> There like a Bird it sits, and sings,
> Then whets, and combs its silver Wings;
> And, till prepar'd for longer flight,
> Waves in its Plumes the various Light.[1]

And yet - this is not quite the tone of Traherne. Traherne has faults and they are the faults common to the neoplatonists that, while they may say that you never enjoy the world aright till the sea it self floweth in your veins, it is - really - a little difficult to see how this may be done. More and more the neoplatonists tend, delicately, to withdraw from the visible and shroud themselves in the invisible at the same time as they insist that the invisible and the visible are one. Marvell, at least does not practise that version of trying to have one's cake and eat it.

But that bird-soul. Its silver, its singing, the radiance with which it is surrounded: all these are accepted elements of conventions that have respectable origins in the middle ages. And yet, when Marvell combines them, he produces something uniquely Marvellian and something that, in me, raises uneasy feelings. The solidity of that bird, its activity in whetting and combing its wings, its capacity for grasping boughs and perching in trees all give it some sort of realistic quality - not the full realism of a real, live bird, perhaps, but the realism, maybe, of a jeweller's mechanical model set in the window to preen itself and attract the eye of the customer.

Perhaps this is unfair - a lapse of historical perspective to see the bird-soul through the eyes of a plastic culture. Unfortunately, it is a

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[1] Marvell, Poems, ed Margoliouth (1927) Vol I page 49 "The Garden" lines 51-56

lapse that I find it difficult to overcome , especially when it comes to poems that are, agreedly, problematical. Take the difficulties of "The Nymph complaining for the death of her Faun" One is apt to feel that could one but arrive at the meaning of the poem, the embarrassment over the fawn would disappear. But would it? The circumstances are, after all, presented extremely realistically:

> The wanton Troopers riding by
> Have shot my Faun and it will dye.

This is as plausible a piece of "wanton" putting the boot in as one could wish to find. Surely one need hardly excuse oneself for living in the twentieth century to find this - the sort of unfortunate incident that happens in war - entirely realistic. So, when the fawn is described, we make some effort really to see it:

> With sweetest milk, and sugar, first
> I it at mine own fingers nurst.
> And as it grew, so every day
> It wax'd more white and sweet than they.
> It had so sweet a Breath! And oft
> I blusht to see its foot more soft,
> And white, (shall I say then my hand?)
> NAY any Ladies, of the Land.
> It is a wondrous thing, how fleet
> 'Twas on those little silver feet
>
> . . .
>
> For, in the flaxen Lillies shade,
> It like a bank of Lillies laid,
> Upon the Roses it would feed,
> Until its Lips ev'n seem'd to bleed:
> And then to me 'twould boldly trip,
> And print those Roses on my Lip.
> But all its chief delight was still
> On Roses thus its self to fill:
> In whitest sheets of Lillies cold.
> And its pure virgin limbs to fold
> Had it liv'd long, it would have been
> Lillies without, Roses within.
> O help! O help! I see it faint:
> And dye as calmely as a Saint.
> See how it weeps. The Tears do come

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[1] Marvell, Poems, ed Margoliouth (1927) Vol I page 22 "The Nymph . . . lines 1-2

[2] Ibid, page 23 lines 55-64 and pages 23-24 lines

Sad, slowly dropping like a Gumme.
So weeps the wounded Balsome: so
The holy Frankincense doth flow.
The brotherless Heliades
Melt in such Amber Tears as these. [1]

Despite the promise of the opening lines, this fawn is not real - with its white body, silver feet, sweet breath and sticky tears it is something fit for cake decoration. Having sketched a realistic situation at the beginning of the poem, Marvell must surely be made to abide by the rules and no amount of discussion about the poem's philosophical meaning can obscure the fact that this fawn, as a fawn, is a distressing bit of kitsch. The poem even concludes with a suggestion comparable to Byron's building of a mausoleum for Boatswain:

First my unhappy Statue shall
Be cut in Marble; and withal,
Let it be weeping too: but there
Th' Engraver sure his Art may spare;
For I so truly thee bemoane,
That I shall weep though I be Stone:
Until my Tears, still dropping, wear
My breast, themselves engraving there.
There at my feet shalt thou be laid,
Of purest Alabaster made: 120
For I would have thine Image be
White as I can, though not as Thee. [2]

True there is precedent for this. If Skelton's Jane Scrope may be allowed to conduct an entire funeral mass over the corpse of her pet sparrow, why not Marvell's nymph? Comparison with Philip Sparrow is, I think, illuminating. That poem is dominated by the girl. Her magnified grief is real enough - in childish terms - but the poet, standing behind the poem is a silent, if sympathetic commentator on the nature of the grief and of the girl's character. Marvell is altogether too close to his poem -

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[1] Marvell, Poems, ed Margoliouth (1927) Vol I page 22 "The Nymph . . . " lines 55-64 and 81-100

[2] Ibid, lines 111-122

the fawn is too highly artificial to be a little girl's pet, too pretentiously ambiguous to be a poet's comment on little girls, pets, nature, compassion, neoplatonism, the crucifixion, the nature of women or, indeed, anything at all. We are back to Eliot's complaint that seventeenth century realism was in conflict with its inherited symbolism.

. . .

CHAPTER FIVE

The Argument

The last chapter looked at mechanistic interpretations of the Book of the Creatures. This one will look at neoplatonic interpretations and it will be seen that, though the total view of neoplatonism is more sympathetically acceptable to literature, its handling of the detail of the natural world is no more convincing. The chapter concludes with a look at Sir Thomas Browne whose philosophic position is seen as a crucial key in the attempt to form some estimate of the relationship between literature and natural history during the whole period of this thesis and to the larger issue of the total relationship of science to literature.

The last chapter has left us in a mood typical of the aftermath of war - sceptical, detached, inclined to doubt both the self and the world around. In natural history, this mood leads most naturally to mechanistic explanations such as we have had from the English admirers of Descartes. And literature, taking its cue from the tone of the time, gave us the pasteboard creatures of Quarles or the stiff images of political allegory. These, however, seem to me to be the result of attempts to work to the old rules when all faith in those rules has disappeared. It took a master such as Dryden to operate the rules to his own advantage and, even then, one could hardly call <u>The Hind and the Panther</u> the best-known of his works. When we had considered it, we bade

farewell to the emblematic way of thought that has been a persistent contender for examination in this thesis. The Hind and the Panther takes us a long way along the track of a sub-genre that no longer verges towards the main highway of literature very closely or very often.

Detachment of another sort, however, we saw in the last section of last chapter in the work of Andrew Marvell who, although untypical of anything is one practitioner of detachment in a line that stretches from Jonson to Pope. At its worst, this detachment becomes mere mechanism and mere mechanism is not enough - neither for science which makes itself ridiculous thereby (as Butler's scientists who mistook a mouse for an elephant[1]) nor for literature (as the nihilistic Rochester, making good on the death bed). At its best, detachment forms the basis of the delicate analysis of Man's place in the natural world that is contained in Pope's Essay on Man. From the middle of the seventeenth century onwards, I think it would be fair to see Man's struggle to come to terms with his own detachment as one of the central concerns of culture - a concern that, in scientific terms, is neatly epitomised by Agnes Arber's phrase of conflicting claims: "The Mind and the Eye"[2] and that, in literary terms is assumed by that word of balance in the Augustan credo: "Judgment".
As, in the next chapter, I shall go on to consider the breakdown in communication between a literature detached (and, let us confess, inclined to destructive mockery) and a science entirely based on observation (and, let us confess, impossibly non-directional) it might be said that the

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[1] in "The Elephant in the Moon" See further page 158

[2] title of book: The Mind and the Eye, a Study of the Biologist's Standpoint (Cambridge 1954)

next chapter follows most logically upon the last. Chronologically, however, we still have some important names to consider and a whole movement - neoplatonism - that, however unsatisfactory as a way of thought as a whole and however confusingly varied its aspects, has made successive and persistent claim to be the only way to view the natural world. This chapter, then, will again be a chapter of interesting failures - an aside to the way in which literature and natural history were moving. That such an aside is necessary, is an indication of how troubled was the stream of culture in mid seventeenth century England. Since, in the last chapter, we were much concerned with the role of the creatures in the simplified world of the pamphlet as in the simplified world of the mechanistic philosophy, let us start with a look at the changing view of the Book of the Creatures.

. . .

The idea of the Book of the Creatures was, of course, a commonplace at the beginning of our period. There was scriptural warrant[1] for regarding the world as a demonstration model of God's providence and perhaps one of the best places to look for the expression of the idea in our period is in the great scriptural poem of du Bartas which was englished in 1605 by Joshua Sylvester as Bartas his devine weekes and workes and which, despite its antiquated cosmology, was sufficiently in demand to be re-issued in 1641. In this poem, many of the medieval commonplaces of nature are re-explicated with full Renascence attention to detail:

> The World's a Book in Folio, printed all
> With God's great Works in letters Capitall:
> Each Creature is a Page; and each Effect
> A fair Character, void of all defect.[1]

This reaffirms, quite plainly, the tradition of the Book of the Creatures.

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1 Solomon, the Book of Job and the Psalms

2 The Complete Works of Joshuah Sylvester, ed Alexander B Grosart (NY 1967) Vol I page 20 "The First Day of the First Weeke" lines 184-187. Grosart edited from the 1641 text

But - as the poem goes on to point out - it is of great importance that we read this book aright. This is not always done:

> But, as young Trewants, toying in the Schools,
> In stead of learning, learn to play the fools:
> We gaze but on the Babies, and the cover,
> The gawdy Flowrs, and Edges gilded-over;
> And never farther for our Lesson look
> Within the Volume of this various Book;
> Where learnèd Nature rudest ones instructs,
> That, by His wisdome, God the World conducts.[1]

This was the substance of the old charge of curiositas and it was to form the substance of new charges against the Royal Society - that they collected information about the natural world without any regard to its spiritual application. Paradoxically, by the end of the century, scientists were defending their concentration upon what Sylvester calls "the cover" of the book of nature, by claiming that this, ipso facto was a spiritual activity. This claim, established in the seventeenth century, remained the one on which science rested its case for godliness for over four hundred years.

Such a view had its attractions as du Bartas/Sylvester would have been the first to admit:

> To read This Book, we need not understand
> Each stranger's gibbrish, neither take in hand
> Turk's Characters, nor Hebrew points to seek,
> Nyle's Hieroglyphikes, nor the Notes of Greek
> The wandring Tartars, the Antarticks wilde,
> Th'Alarbies fierce, the Scythians fell; the Childe
> Scarce sev'n years old, the blearèd agèd eye,
> Though voyd of Art, read here indifferently.[2]

But the poet, though he acknowledges the value of experience as opposed to book learning, assigns it to its traditional place as the picture-book

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[1] Sylvester, Works, ed Grosart (1967) Vol I pages 20-21 lines 188-195

[2] Ibid, page 21 lines 196-203

for those incapable of treading the harder road of philosophy and the scholarship of ancient languages. The attitude to sense experience is a key differentiating factor between experimentalists and neoplatonists, for the experimental philosophers interested themselves in experienc and paid only nominal service to the obligation to relate this to spiritual truth, while the neoplatonists accepted the responsibility towards the truths of the spirit and shirked their duty to experience. When the neoplatonists adopted the Book of the Creatures, they made of it just such a thing of hieroglyphics and secret languages as du Bartas/ Sylvester claims that it is not. It becomes not a thing of immediate apprehension to the innocent, but of progressive revelation to the initiat Du Bartas/Sylvester requires a less educated sort of faith:

> But he that wears the spectacles of Faith,
> Sees through the Sphears, above the highest height:
> He comprehends th' Arch-mover of all Motions,
> And reads (though running) all these needfull notions,
> Therefore by Faith's pure rayes illumined
> These sacred Pandects I desire to read,
> And (God the better to behold) behold
> Th''Orb from his Birth, in' s Ages manifold [1]

Some such paraphrasing of the natural world had come, once again, to seem very attractive in a world shocked by war and dissension:

> I haue for books, aboue my head the Skyes,
> Vnder me, Earth; about me Ayre and Sea:
> The Truth for light, and Reason for mine eyes,
> Honour for guide, and Nature for my way [2]

Fulke Greville had sung, and the idea of man at one with God through being at one with the world has perennial attraction. The problem - then, now and always - was how?

By the time of the Civil War, it was no longer possible to see the

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[1] Sylvester, Works, ed Grosart (1967) Vol I page 21 lines 204-211

[2] Poems and Dramas of Fulke Greville, ed Geoffrey Bullough (1939) Vol I page 114 "Sonnet LXVI" lines 13-16

world in such simple terms as admitted the direct passage from the things of nature to their Creator. Apparently direct equivalences had been shown, by the metaphysicals, to be the outcome of man's wit and the prostituting of that wit to party politics had made many assumptions that had previously been taken as axiomatic look dubious and questionable. The best selling poet of the age - Francis Quarles - cared less about fidelity to the natural world than he did about scoring off it quickly and, too often, without due thought:

> O what a Crocodilian world is this,
> Compos'd of treacheries, and ensnaring wiles!
> She cloaths destruction in a formal kisse,
> And lodges death in her deceitfull smiles;
> She hugs the soul she hates; and there does prove
> The veriest tyrant, where whe vowes to love;
> And is a Serpent most, when most she seems a Dove[1]

It is not too difficult to understand Quarles' immediate and immense popularity when he offers such easy philosophy as this. No energy is required on the part of the reader to flit from image to image: the crocodile - the betraying kiss - the treacherous hug - the serpent - the dove. The reader of more energetic turn of mind will only retreat, baffled and embarrassed by a crocodile that smiles, kisses and hugs - all this while looking like a dove whilst being a serpent:

> But be the serpent under't look like th' innocent flower,[2]

says Lady Macbeth, but her logic, too, was flawed.

The atomists' answer was simple: it was quite improper to talk about the crocodile in terms of "deceit" and "treachery" when all things were governed by the flux and reflux of atoms alone. Neoplatonists

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[1] The Complete Works in Prose and Verse of Francis Quarles, ed Alexander B Grosart (1880-1881) Vol III page 49 "Emblemes" I iv 6

[2] Macbeth, ed Muir (1959) I v 64-65

however, were - from Plato's daemons to Cudworth's plastic principle - committed to a belief in some sorts of intangibles. The means by which these were to be translated into the phenomena of everyday existence was their constant quest. But, because these same phenomena had been so over-exploited in the past fifty years, the neoplatonists displayed a certain shyness about the detail of the natural world that they were offering to interpret. At times, they even showed themselves hostile to the investigation of particularities as when Reynolds complains that investigators of nature spend too much time on mechanical trivia instead of trying to "learne the way to get a little higher up the right scale of Nature" [1]

In principle and on the whole, however, the neoplatonists were not opposed to the study of the minutiae of nature. Their practice, however, often took them into generalisations far away from the particulars from which these were supposedly derived and the focus of their interest was always upon the explanation of nature in toto rather than the examination of it in parts. Jacob Boehme, for instance, tells us that he can see heaven and earth in a clod and though Elizabeth Holmes, in quoting him, asserts:

> Vaughan would have endorsed it; Traherne too writes of the wonders to be found in a 'grain of sand' [2]

she is not very precise about how any neoplatonist thought that this might be done. And, cast in such a general form, it was an argument that was used by the hardiest mechanist as readily as by the mistiest Platonist. John Ray, the most eminent botanist of the century was wont,

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[1] Henry Reynolds, Mythomystes 1632, ed Arthur F Kinney (Menston 1972) page 69

[2] Elizabeth Holmes, Henry Vaughan and the Hermetic Philosophy (NY 1932) page 41

so we are told, to say that "a spoyle or smile of grass showed a Deity as much as anything."[1]

In the last chapter, we noted the poverty of the mid century period in works of natural history and I mentioned in passing the herbal travesties of Culpeper as demonstrating how little botany had to offer in this dry period. We have now seen that carelessness towards minutiae was not just a feature of polemicists - when those who purported to believe that the natural world was worthy of our study were apt, in practice, to avert their eyes from its detail. This carelessness is matched by Culpeper. Of roses:

> I hold it altogether needless to trouble the Reader with a Description of any of these [since] both the Garden Roses and the Wilde Roses of the Brayars are well enough known. [2]

The reader is to be spared the labour of reading a description whether he would have liked one or not - and Culpeper, presumably, the labour of detailed observation. Again, and more impudently, he says of woodbind:

> The plant is so common that every one that hath eys knows them, and he that hath none cannot reade a description if I should write it [3]

Not so much later, a morphological interest in plants, fostered by the use of the microscope, encouraged naturalists to look at clods of earth in a manner rather different from that intended by Boehme. The paradoxical fact that it was justified in the same terms is something that we shall look at in the next chapter. In the meantime, the neoplatonists took the intricacy of nature very much for granted and concentrated upon the links that bound nature in detail to nature in grand. Until now, these links had been covered by the qualities and quiddities that bound the Aristotelian world

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[1] Reported by Benjamin Allan of John Ray and repeated by Charles Raven, John Ray (Cambridge 1942) page 9

[2] Nicholas Culpeper, The English Physician or an Astrologo-physical Discourse of the vulgar Herbs of this Nation (1652) K5

[3] Ibid, Y3^{v}

together. This, Sir Kenelm Digby, as Sir Francis Bacon, argued was mere verbal chicanery:

> And this is the generall course of their Philosophy; whose great subtility, ahd queint speculations in enquiring how thinges do come to passe afford no better satisfaction then to say upon every occasion, that there is an Entity which maketh it be so. As if you aske them, how a wall is white, or blacke? They will tell you, there is an Entity or Quality, whose essence is to be whiteness or blacknesse, diffused through the wall. If you continue to aske, how doth whiteness sticke to the wall? They reply, that it is by meanes of an Entity called Union, whose nature it is actually to ioyne whitenesse and the wall together. And then if you enquire how it cometh to passe, that one white is like an other? They will as readily answere, that this is wrought by an other Entity, whose nature is to be likenesse, and it maketh one thing like an other. The consideration of which doctrine, maketh me remember a ridiculous tale of a trewant schooleboyes latine: who upon a time when he came home to see his frendes, being asked by his father, what was latine for bread? answered breadibus; and for beere? beeribus; and the like of all other thinges he asked him, adding only a termination in Bus, to the plaine English word of every one of them: which his father perceiving and (though ignorant of Latine) yet presently apprehending, that the mysteries his sonne had learned, deserved not the expence of keeping him at schoole, bad him immediately putt of his hosibus and shoosibus, and fall to his old trade of treading Morteribus [1]

But was neoplatonism any more successful than Digby's atomism in discovering the true nature of things? Ultimately, of course, it was not. In the meantime, they tried to solve the problems of breadibus and beeribus by pansophic philosophies and hypostatical unions or by Ralph Cudworth's "plastic principle" permeating all. This however, was to replace one set of words by another and it is one of the cavils of Glanvill's The Vanity of Dogmatizing that, when all is said and done, the plastic principle is no more than a word.

In this sceptical climate of opinion, philosophers often sought shelter amongst the enigmas and the ambiguities of esoteric mythologies.

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[1] Digby, Two Treatises 1644 (1970) page 345

The world of myth and hieroglyphic was important to the neoplatonists because it was seen by them as the result of earlier attempts to do precisely what they are trying to do in a world where facts throng much more uncompromisingly about them. There is, for instance, an awesome literalness about Reynolds' analysis of the myth of Echo and Narcissus:

> This Narcissus is fained to eschew and flye the companie of all women, no lesse then of the Nymphe Ecco that is enamour'd and doates upon him; denoting by this avversion of his, the nature of the floure that beares his name; for the daffadill or water-lilly, the seedes thereof especially (as the applyers of them in medcine have observed) do powerfully extinguish the ability and desire of carnall copulation, by overcooling of the Animall seed; no lesse then does Porcelane, Lettuce, Agnus castus, Calamint, White violetts, and the like of that kinde. From this his before mencioned quality, and the ill effect it workes in mans body, his name Narcissus (which is torpedo, languor, segnities - slothe, stupiditie, lazinesse) was by the Auncients not unfitly given to this vegitable. And they out of this consideration likewise faigned that Prosperpine, when Pluto ravished her away as she was gathering floures, had her lap full of Narcissusses; because lazy & unbusied women are most subject unto such inconveniences.[1]

Reynolds' detailed look at the myth of Narcissus reflects everywhere the neoplatonic belief that the secret of the future was to be found in the past, if we could but clear away the dross of the present and see with clear eyes. To achieve this, we must go back and still further back - as near to Adam as possible, for it is the supervening years that have confused our view of the natural world. The figure of Adam confronts us constantly in the middle of the century: in philosophy in the pages of Glanvill's Vanity of Dogmatizing, in literature in Paradise Lost, in natural history from the title-page of Parkinson's Theatrum Botanicum. More often than not, the quest for the new Adam proceeded, as so many seventeenth century quests proceeded, from language and, in particular, the language that Adam spoke, because it was believed that in that

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[1] Reynolds, Mythomystes, ed Kinney (1972) pages 107-108

pristine language, the meanings of all things were obvious just from their very sound. Alexander Top, as we have seen, believed that each letter of the alphabet "should signifie or import some speciall workmanshyp of the Lordes Creation"[1] Good neoplatonists never ceased to hope that some such relationship might be established, even at this late and fallen date, between words and reality and many of their preconceptions were inherited by the philologists of the Royal Society until, at length, scepticism and reaction set in against some of the more extravagant attempts at new or improved languages. Thomas Urquhart's Logopandecteison offers a farrago of delightful and dotty suggestions for language, declaring firmly:

> Truly I am so far from being of the opinion of those Archaeomanetick Coxcombs, that I really think, there will alwayes be new inventions, where there are excellent spirits.
>
> For as I ascribe unto my self the invention of the Trisostetrail Trigonometry, for facility of calculation by representatives of letters and syllables; the proving of the equipollencie and opposition both of plain and modal enunciations by rules of Geometry, the unfolding of the chiefest parts of Philosophy by a continuated Geographical allegory; and above a hundred other several books on different subjects, the conceit of so much as one whereof never entered into the brains of any before my self (although many of them have been lost at Worcester-fight:) so am I confident, that others after me, may fall upon some strain of another kind, never, before that, ~~dressed~~ dreamed upon by those of foregoing ages.[2]

The possibility of knowledge and man's ability to go on in it, would seem to be limitless. More importantly, this knowledge can be created - it is an arbitrary thing and the truth is only dependent upon it insofar as it proves a good tool for the examination of truth.

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[1] See page 59

[2] Thomas Urquhart, Logopandecteison 1653 (Menston 1970) page 15

There was, however, one writer who made heroic and sustained effort to fuse his language and his perception of the world into a communicable strategy of truth, though his pronouncements on how this was to be accomplished are - formally - none. If we seek to know the views of Sir Thomas Browne on language and philosophy, then we must glean them from his writings. These display great richness and variety and a sense that, in the baffling and manifold diversity of our thought and experience, there is one truth and it is worth pursuing. The openness of his mind was such that he could never hear the Ave Marie bell without an elevation.[1] He followed Bacon's prescription in compiling a "kalendar of popular errors" [2] but his ultimate position is neoplatonic because he refused to divorce his natural history from his theology in the way that Baconianism demands.[3] And he is solidly of the seventeenth century in his use of the personal voice - it is one of the most personal of the age - and it is upon his personal conviction (albeit open to correction[4]) that he tests all that he sees. Part of the purpose of the Vulgar Errors is lost to us if we do not see it as a personal and public odyssey to free the soul from error so that it may perceive the world aright

> Would Truth dispense, we could be content, with Plato, that knowledge were but remembrance; that intellectual acquisition were but reminiscential evocation, and new Impressions but

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1 Sir Thomas Browne, Religio Medici and other Works, ed L C Martin (Oxford 1964) pages 4-5 Religio Medici Section 3

2 Bacon, Adv Learning, ed Johnston (1974) page 100 Book II viii 5

3 Benjamin Farrington, The Philosophy of Francis Bacon (Liverpool 1964) pages 77-78

4 Sir Thomas Browne, Selected Writings, ed Geoffrey Keynes (Chicago 1968) Preface to Pseudodoxia Epidemica page 230

> the colourishing of old stamps which stood pale in the soul before. For what is worse, knowledge is made by oblivion, and to purchase a clear and warrantable body of Truth, we must forget and part with much we know [1]

says Browne who, like Glanvill, would recreate the new Adam by stripping away the errors of the old. And this, in the Vulgar Errors, is what he set out to do - just a few years before the microscope raised serious doubts as to whether innate knowledge was - or ever had been - possible. In so doing, he lays upon himself a burden of eclecticism at a time when eclecticism was incompatible with scientific progress:

> His scientific method was eclectic and his vision of nature comprehensive at a time when the advancement of knowledge depended upon the rigorous pursuit of more narrowly defined methods and the breaking down of complex wholes into simple constituent parts. [2]

Thus, Browne wanted to sweep and refurbish the old rooms of science at a time when the whole edifice needed rebuilding and at a point when the microscope was on the point of revealing how intricate was the Architect's plan of the world. Because, however, of his conscious, determined eclecticism, Browne is an excellent stalking horse for a look in summary at the ground between science and philosophy that literature finds it possible to occupy.

What, then, is the nature of this eclecticism? Browne's eclecticism is that of both writer and good scientist, allowing unity of thought to arise from multiformity of experience. A writer who does less produces crude polemic and a scientist who does less puts the blinkers on science. There are times, however, when these are necessary and, after half a century of wide-eyed search after the mechanisms of the vehicle of reality, it was, perhaps, more than time to put the blinkers on and try to draw the vehicle forward without worrying too much what sort of a thing it was.

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[1] Browne, Selected Writings, ed Keynes (1968) Pseudodoxia Epidemica page 227

[2] Leonard Nathanson, The Strategy of Truth (Chicago 1967) page 162

Browne, apparently, was unable to do this. He contributed data to the Royal Society and he produced valuable information on the birds of Norfolk[1] as well as sending drawings of birds to John Ray for his edition of Willoughby's Ornithology. But when it came to formulating his own thoughts upon science, he could not resist taking the vehicle to pieces. The debate about the elephant's joints is a case in point. It is illogical, Browne opens, to conceive that "there may be a progression or advancement made in Motion without inflexion of parts."[2] It is unjust, he pursues, to think that they "enjoy not the position of rest, ordained unto all pedestrious Animals."[3] What is more, he says - marshalling his authorities: Xiphilinus, Suetonius, Curtius, Osorius and Germanicus all tell us that elephants have performed athletic feats incompatible with jointlessness.[4] Moreover, he adds, reverting to the ancientest of authority: etymology itself supports elephantine flexibility.[5] Besides - Browne has seen an elephant.[6]

This, as Bacon might have said, is the sort of thing whereupon: Aesop framed the fable of the fox and the cat:

> For the fox boasted how many tricks and shifts he had to escape the hounds; but the cat said she had only one help to rely on; which was the poor faculty of climbing a tree; yet this was a far better protection than all the fox's tricks: whence the proverb, "The fox knows many tricks, but the cat one good one."[7]

But for all the cat's superiority this is, after all, a bit like telling

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1 See The Miscellaneous Writings of Sir Thomas Browne, ed Geoffrey Keynes (1931) "Notes on the Natural History of Norfolk" pages 377-412

2 Browne, Selected Writings, ed Keynes (1968) Pseudodoxia Epidemica page 270

3 Ibid, page 271

4 Ibid, page 272

5 Ibid

6 Ibid

7 The Works of Francis Bacon, ed J Spedding, R L Ellis and D D Heath (1858) Vol IV pages 471-472

Hamlet to knock Claudius on the head and be done with it. It is hardly the point - as referring the elephant's jointlessness to mere ocular testimony is hardly the point. We would lose thereby the instance of God's providence and justice and the operation of His logic in the ordering of the world as well as the fact that this demonstration of his forethought was available to Xiphius, Suetonius, Curtius, Osorius and Germanicus.

> on a huge hill,
> Cragged, and steep, Truth stands, and hee that will,
> Reach her, about must, and about must goe [1]

says John Donne, expressing a commonplace vision of Truth as a goal attainable by diverse and multiform activity. Likewise, Browne's mind does not move from (a) to (b) to (c), but in a series of zigzags, quartering the ground of the hill of Truth most carefully lest he leave any promising game unstarted. The truth that leads us from (a) to (b) to (c) is a very partial sort of truth and certainly not one in which literature can be expected to take much interest. To do so, would be to say that Hamlet is (a) the story of a man suffering from a liverish disorder who (b) acting under it, accidentally kills two men, drives a woman mad and deliberately kills another man before (c) being killed himself. The play is, of course, all of these. But straight line reasoning does not take us very satisfactorily from (a) to (b) to (c). Science, however, by restricting its definition of truth can work, for considerable periods, in straight lines and, indeed, must usually do so in order to progress.[2] The latter half of the seventeenth century was such a time and its botanical achievments must be measured by the Historia Plantarum or the Synopsis Methodica Stirpium Britannicarum and not by the analytic tortuosities of The Garden of Cyrus.

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[1] Donne, Poems, ed Grierson (1912) page 157 "Satyre III" lines 79-81

[2] Even a Stop/Go view of the history of science such as that held by Arthur Koestler or T S Kuhn would acknowledge that

In fact, of course, though I have cited Hamlet, we have come long way from the Renascence theatre to a time when literature, too was beginning to operate in blinkers. Midway between Bacon and Browne, we have the philosophy of Descartes who believed, like Browne, that truth must be constructed (unlike Bacon who was apt to believe that it would leap out at us from a vast store of particulars) but whose limitations upon permissible constructions are fairly stringent:

> Those long chains of reasons, all quite simple and quite easy, which geometers are wont to employ in reaching their most difficult demonstrations, had given me occasion to imagine that all the possible objects of human knowledge were linked together in the same way, and that, if we accepted none as true that was not so in fact, and kept to the right order in deducing one from the other, there was nothing so remote that it could not be reached, nothing so hidden that it could not be discovered. [1]

Descartes' theory of knowledge is eliminatory in a way that Browne's is not: Descartes would reject everything that was not proved right, where Browne would reject nothing that was not proved wrong - he calls for "co-operating advancers"[2] to swell his catalogue of vulgar errors because he wants to retain the existing tree of knowledge by cutting out its dead wood, whereas Descartes wished to turn his back on the old tree and establish a new garden on a much smaller plot.

Such an outlook entailed a greater stringency of discipline and its effect was felt in both science and literature. A partial literature is the price we pay for a partial outlook - though we gained The Rape of the Lock and Pride and Prejudice, we lost Sir Thomas Browne. When Browne looks at things in the small, they are indissolubly linked

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[1] René Descartes, Discourse on Method and other Writings, trans Arthur Wollaston (1960), Discourse on Method page 50

[2] Browne, Selected Writings, ed Keynes (1968) Pseudodoxia Epidemica Preface page 227

to things in the large:

> Natura nihil agit frustra, is the onely indi[illegible]table [illegible] in Philosophy; there are no Grotesques in nature; nor any [illegible]g framed to fill up empty cantons, and unnecessary spaces; [illegible] the most imperfect ceatures, and such as were not preserved in the Arke, but having their seeds and principles in the wombe of nature, are every-where where the power of the Sun is; in these is God wise [illegible]me of his hand discovered: Out of this ranke Solomon chose the object of his admiration, instead wh[illegible]t rea[illegible] may not goe to Schoole to the wisedome of Bees, Ants, and Spiders? what wise hand teacheth them to doe what reason cannot t[illegible] us? ruder heads stand amazed at those prodigious pieces of nature, Whales, Elephants, Dromidaries, and Camels; these I confesse, are the Colossus and Majestick pieces of her hand; but in these narrow Engines there is more curious Mathematicks, and t[illegible] civilitie of these little Citizens, more neatly set forth the [illegible]sedome of their Maker; Who admires not Regio-Montanus his Fly beyond his Eagle, or wonders not more at the operation of two soules in those little bodies, than but one in the trunck of a Cedar? [1]

In such passages, Browne captures and holds us in a way to make the scientist distrustful, for his profession inclines him to accept that the most elegant proof is the shortest, the best escape is the cat's and where something is true then no qualification or addition can make it more or less true. To have seen an elephant was to have settled all questions relating to the matter of its joints. All that Browne then adds is a work of supererogation as little factually necessary to the question as Hamlet's accumulation of "evidence" throughout the play: none of which is more convincing than the ghost's plain testimony in Act I.

. . .

But if Browne's method is inappropriate to his time - he was never made a member of the Royal Society, though his son Edward was - his choice of matter is worse. To demolish vulgar errors one by one is to cut off the heads of a hydra. To kill the beast, the establishment of

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[1] Browne, Religio Medici and other Works, ed Martin (1964) Religio Medici pages 14-15

a system is necessary since, qua system, it works to eliminate anomalistic beliefs. Jointless elephants and gall-less pigeons have no place in well-conducted systematics. By choosing in the Vulgar Errors to concentrate chiefly upon zoology, Browne was choosing to deal with very intractable material. The study of zoology still lagged a very long way behind that of botany and it was the accumulated material data of botany that was to be used in the pioneer work of classification done by Ray, Rivinus and Tournefort.

The random matter of the Vulgar Errors is gathered together under the umbrella of Browne's ultimate preconception: natura nihil aget frustra is not to him a statement of mechanistic import, but of religious and though the claim has been made by other and later scientists, Browne is the last for a very long time to see the material facts directly, immediately and in every particle of time imbued with holy significance. John Ray was a religious man and an ordained priest, but his view of the natural world is at one remove from the Creator - evidence of God's beneficence, but not the living, breathing witness of His existence here on mundane earth. In the cross-laced globe of the purple thistle-head, Browne found the seraglio of Solomon,[1] in the consideration of the quincunx a pattern of order in the world that is more than morphological similarity of leaf and flower and fruit.

But in the years immediately after Browne, science was moving in other directions. However interesting it may be to know that Boyle was interested in alchemy or that Newton dabbled in mystic numerology, the fact remains that what both men are remembered for is their achievements in reducing the world to mechanistic laws. Science was becoming the study of things measureable.

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[1] Browne, Religio Medici and other Works, ed Martin (1964) The Garden of Cyrus page 144

At no time in history has this definition of science been so clearly stated as in the late seventeenth century - neither before nor, indeed in later centuries (certainly not in our own). Let us accept it, then as a working definition: let us say that, when a scientist ceases to observe and measure then he becomes something else - thinker or philosopher. And let us remember that all real scientists in the real world are something else, for the notion of simple observation or measurement is a purely theoretical thing. Nevertheless, it is possible to have some notion of a scientist so scientific as to be that scientific. Alright. What happens when we take this scientist out of the realm of the ideal, wind him up and put him to work? He starts to be unscientific. He starts to examine a part of the world because he cannot examine the whole (another purely theoretical concept). He starts to undertake research to demonstrate conclusions already arrived at. He falls in love with analogies and rides hunches and plays around with views of the world as it ought to be, not as it is (yet another purely theoretical notion). And yet, he may do all these things and still remain a good scientist: provided that, at the end of the day, he remembers that notional scientist whose loyalty is to the appearances.[1] All his hypotheses must - sometime - return to this ultimate allegiance: he must explain the phenomena. And when he finds explanations that seem to accord better with the known phenomena than did previous explanations, he calls this progress.

Now the writer's ultimate allegiance is not to the phenomena - John Keats agonising for a life beyond the phenomena, Coleridge in an opium

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[1] For Arthur Koestler, Kepler is the first modern scientist because he could not ignore an "irreducible, obstinate fact" : he found that his best endeavours to computate the orbit of Mars upon the presupposition of circular motion, resulted in errors of up to eight minutes arc. Unable to ignore this, he abandoned the whole principle of circular celestial motion and began to consider ellipses, thus replacing the medieval pattern of complex geometry by a universe of quantitative laws.
The Sleepwalkers (1964) page 326 ff

dream, Wordsworth sick at heart for the things that he has seen and now can see no more - all, of course, highly Romantic views of the poet. But the Romantic poet is the poet that we must set against the notional, robot scientist. His pedigree runs too straightly through literature to be ignored: from the licensed fool in the king's hall to Keats lapped in his embroidered coat. All, like poor Tom on the heath, are truth-tellers beyond the world of quantity and measure. The scientist, in his wisdom, is a diviner of another sort: he pokes a dipstick into the depths of mysteries and sometimes he is foolish enough to tell us what we might expect to emerge. But Sidney Keyes wrote a poem against divination:

> None may turn
> Winter's hard sentence but the silly man,
> The workless plowman or the unhoused poet
> Who walks without a thought and finds his peace
> In tall clouds mounting the unbroken wind,
> In dry leaves beating at the heavens' face [1]

The tall clouds and the dry leaves, Keats' nightingale and Wordsworth's rose are phenomena sure enough. But they are not phenomena to be explained by the poet. On the contrary, it is they who do the explaining. And there, just there, do we have the difference between scientist and poet. All the scientist's hypotheses, be they as fantastical as any in Wonderland, ultimately return to explain the phenomena. And all the poet's phenomena, be they as prosaic as the top button of Cordelia's dress, are destined to take us beyond phenomena: the poet's phenomena elucidate the speculative world, the scientist's speculations elucidate the phenomena.

That said, we are truly in a position to consider the areas of ground between philosophy and science that literature finds it possible

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1 The Collected Poems of Sidney Keyes, ed Michael Meyer (1945) "Against Divination" page 49

to occupy and to return to Sir Thomas Browne, who would not have accepted the propriety of the consideration.

. . .

Literature deals with things - it deals with the top button of Cordelia's dress and the lark that brought in the morn to Romeo and Juliet. And science, of course, deals with things - with the chemical constituents of buttons and with the characteristics which distinguish Alauda arvensis, the lark from Luscinia megarhynchos, the nightingale. Browne would argue - bravely - that the two ways of dealing are not mutually exclusive. In practice, however, the one permits analysis, the other denies it: the one is devoted to plucking at the strands of consciousness, the other to laying the consciousness along a line as narrow as it can possibly be in this world of blunt pencils and imperfect rulers. Once you have a science that no longer believes that its proper modus is allusive and analytic, then a distinction between art and science becomes inevitable.

Now the scholastic world would have been happy to argue about blunt pencils: we are led to believe that it argued quite happily about the number of angels that could stand on the point of a needle. All that it would require is that we attempt to know something of what we are doing when we argue thus - just as, in the practice of literature, we may use tricks provided that we have some criteria to enable a distinction to be made between permissible and impermissible trickery. It is not the unreality of the happenings of Jacobean drama that so offended Eliot, but the dramatists' greedy attempt to bake real and unreal in the same cake.

By the mid seventeenth century, however, the disciplines of speech and thought had broken down to the extent that one could no longer take

for granted that there was an intuitive and necessary connection between the two: life was adventurous, no doubt, but it was no longer very certain and the search for certitude could not encompass the structure of Browne's philosophy because it was ultimately built on just this intuitive bond. It is a matter of trust. Browne does not explain: he assumes, and his very language - a thing to be scrutinised most closely by his contemporaries - is a matter of accepted trust. When he claims that:

> 'Tis all one to lye in St Innocents Church-yard, as in the Sands of Aegypt: Ready to be any thing, in the extasie of being ever, and as content with six foot as the Moles of Adrianus [1]

then he assumes that all these things: St Innocents Church-yard, the sands of Aegypt, the Moles of Adrianus (and therefore "the extasie of being ever") mean the same to us as they do to him. But even if they mean only approximately the same thing, it does not matter. If we merely have a vague notion that St Innocents Church-yard is a poor city burial-ground and the sands of Aegypt represent the mighty tombs of the Pharoahs, we shall not have lost much. Or if we think that the contrast is between being sealed in "six foot" or blown about the desert wastes, we will not be wrong. The real point - the sharp end of Browne's image - is the fact that bodies decay very quickly in St Innocents Church-yard and hardly at all in the tombs of the Pharoah's. It is a point that it is nice to know, undoubtedly, but it is not a point that it is necessary to know: just as, as C S Lewis points out, it is not necessary to know all about the Nysician isle and Mount Amara in Milton's Paradise Lost:[2] The logical connections work rhetorically and an honest attempt to

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[1] Browne, Religio Medici and other Works, ed Martin (1964) Hydriotaphia page 125

[2] C S Lewis, A Preface to Paradise Lost (Oxford 1942) page 43

separate what is malign in rhetoric from what is benign is all that can be expected of us. It is an arrogancy of science to think that it can get along without rhetoric at all. Bacon himself recognised the usefulness of a few magisterial phrases and it is most interesting to compare his use of proper names with that of Browne. Bacon's terms are peculiarily his own: he appropriates the Pillars of Hercules and he invents a whole series of Idols for us to beware of worshipping. Such terms are one-offs, produced when Bacon needs a catchword but is reluctant to risk capture in the connotative forces of the language. They have a strange austerity, quite unlike the warm generousness of Browne's proper names. All the people that Browne mentions are his companions: he has walked in the garden of Cyrus and conversed with Xiphilinus, Suetonius, Curtius, Osorius and Germanicus about the jointed nature of elephants' legs.

. . .

Risk of capture is, of course, avoidable if one writes in Latin - though to Browne, for whom Latin was still a living language, the point might not have made itself so forcibly. His decision to write in English was a decision made in favour of a broad local audience rather than a narrower international one. But to write in English could not but be to hazard truth upon a battle and to risk entanglement in a web of allusion and nuance: the more so since Browne's own linguistic practice was expansionist at a time when linguistic theory in general was becoming conservative, stressing the need for pruning and polish after the phenomenal growth of the first forty years of the century. Much of the best work in natural history in the latter half of the century was to be conducted in the neutral and international dialectic of Latin. When

English did come into general use for natural history, it was an English purified and unambiguous and already the language of the closed shop - a language that had been made necessary by the distinction that had been created by intuitive knowledge and deductive knowledge. Browne's ideas were more ambitious:

> Our first intentions considering the common interest of Truth, resolved to propose it unto the Latine republique and equal Judges of Europe, but owing in the first place this service unto our Country, and therein especially unto its ingenuous Gentry, we have declared our self in a language best conceived. Although I confess the quality of the Subject will sometimes carry us into expressions beyond meer English apprehensions. And indeed, if elegancy still proceedeth, and English Pens maintain that stream we have of late observed to flow from many, we shall within a few years be fain to learn Latine to understand English, and a work will prove of equal facility in either. [1]

Browne's view of the use of Latin is thus thoroughly humanist and stresses the common tradition. The Latin of the later naturalists was used as a differentiating medium, removing the objects of their attention from the prejudicial influence of a familiar and loaded language. A plain example of this can be seen in letters exchanged between scientists of the day who use both English and Latin - sometimes in the same letter - but always Latin for delicate medical matters. The pox is better not discussed in the vernacular.

In English, this trend towards a more univocal language can be seen in the purifying efforts of the Royal Society and in the efforts of the creators of universal languages that we have already looked at. By contrast, Sir Thomas Browne's writings represent the last thrust of an expansionist policy. Now, within the language, the two forces of conservation and expansion need to find some sort of balance. For over fifty years, the forces of growth had pushed the language in all directions at once, until it took all Browne's charisma to hold it

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[1] Browne, Selected Writings, ed Keynes (1968) Pseudodoxia Epidemica page 228

together. Now, out of its innate conservatism, language had to start winning something back.

Browne's prose is naturally anarchic, highly individualistic, achieving its end by contrapuntal effect. The prose - and poetry - of the last half of the century, by polishing and refining, seeks to make its effect once and once only. In order to do this, it must become periphrastic, subsuming all particulars in the general in a way that shows the influence of the philosophers of the day: in particular that of John Locke. In the literary shift that we have observed from lyrical to metaphysical, a belief in discovered correspondences gives way to a belief in created correspondences. The unlicensed vigour of the correspondences created in metaphysical poetry, however, produced a reaction of its own which led to a demand for a more careful discipline in the use of words. The pursuit of reality takes a new turn:

> Locke's position in the traditional dispute concerning the nature of universals was that of conceptualism - a theory opposed alike to Platonic realism, the Aristotelian doctrine of essences or fixed natures, and Hobbes's nominalism. On his view, what a general word such as 'gold' refers to is an abstract general idea in the mind, derived in the last analysis not from a Platonic Form, a real essence, or a single common property in particular objects, but from their mere 'similitude'. His advance upon Plato and Aristotle was to have discredited their belief that there are certain general entities in <u>outer</u> reality which constitute the meaning of general words and which can as such be <u>discovered</u>. Instead, his opinion was that the meanings of general words are concepts inside the mind and that these are 'framed' by ourselves

Whilst Locke himself retained a belief in real essence, it is not difficult to see that such a philosophic position will lead one more readily to try to classify the ways in which we "frame" statements about real essence than it will to more intuitive, <u>a priori</u> attempts to understand the nature of real essence. Moreover, an increased rigour in the consideration and articulation of statements about the visible world will

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[1] W von Leyden, <u>Seventeenth-Century Metaphysics</u> (1968) page 49

lead naturally to the sort of classifications based on visible attributes that John Ray attempted and Linnaeus succeeded in. In an article entitled "John Locke, John Ray and the Problem of Natural System"[1] Philip Sloan draws instructive parallels between the underlying assumptions of the greatest philosopher and the greatest botanist of the day.

Linnaeus' system, however, is far removed from anything of which Locke (who was himself an interested botanist) could have approved, and Ray's insistence that a system of nature must be a natural system based on the sum of particulars rather than the distinction of parts is nearer to the Lockian position of universals and particulars.

In a rigid and artificially structured world, the outlook of a Sir Thomas Browne could have no place, but it is pleasant to reflect that the new philosophy, like all philosophies, was only a partial success. The real essence has remained a chimera and Locke's approach is valuable methodically in a way that it is not philosophically: Linnaeus' artificial system proved a useful tool, but could never claim to be a description of reality in the way that Ray would have wished: and literature, though it used for a brief, neo-classical while, the language of the mute people of the flood and the periphrases of the finny tribe, ultimately resorted to the glory of particulars and to "classifications" or groupings that cut clean across morphological similarity and physical probability and remind us that the poet's love is like a red,red rose and he will love her till a' the seas gang dry and the rocks melt wi' the sun.

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[1] Philip R Sloan, "John Locke, John Ray, and the Problem of Natural System" Journal of the History of Biology vol i no 5 (Spring 1972)

CHAPTER SIX

The Argument

This chapter will consider the proposition that science has become barbaric. The experimental virtuoso is seen to have taken over from the medieval scholastic as the prime promulgator of barbarity and is shown under attack from Shadwell and Butler who are working towards a Popian statement of the proper study of mankind. A final look at the study of botany in the person of John Ray enables us to see how truly inaccessible to literature it has now become and an attempt to discover how man saw himself in terms of the natural world now reveals only the Horatian figure of Man the Estate Manager. The thesis concludes with an examination, taking us through the whole time-span of the period, of how such a man was catered for in the literature of country sports and the changing treatment of these is shown to be, in miniature, a reflection of the changing treatment of natural history during the period of this thesis.

The Royal Society, established in the uneasy years following the king's execution, was avowedly agnostic in intent. As Sprat says:

> Their first purpose was no more, then onely the satisfaction of breathing a freer air, and of conversing in quiet one with another, without being ingag'd in the passions, and madness of that dismal Age. [1]

In this chapter, we shall see how this scientific agnosticism left literature with no ground to stand upon and how, as a result, it came to adopt a stance grounded upon a passionate and modified reaffirmation of nosce teipsum. That the Popian nosce teipsum was a very different thing from the medieval nosce teipsum is one of the paradoxes of a century that transmogrified the scientist as medieval meddler, swollen with pride and

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[1] Thomas Sprat, The History of the Royal-Society 1667, facs ed Jackson I Cope and Harold Whitmore Jones (St Louis and London 1959) page 53

curiositas into the scientist as virtuoso, swollen with pedantry and wind.

The last two chapters have dealt with failures - Chapter Four with the failure of language to cope with the natural world and its consequent carelessness in using the imagery of natural description: and Chapter Five with the failure of philosophies. Let us look back a moment.

In the first place, we had the near perfect union between natural history and literature founded on the successful marriage of medieval symbolism and Renascence realism. The sheep-shearing scene of The Winter's Tale has all the limpid clarity of a water-colour to sustain its highly-wrought undersurface complexities: the scene before Macbeth's castle is both a realistic tableau and a subterranean joke.

Inevitably - literature being a thing half of bond-forming, but half of bond-destruction - this happy union of literature and natural history lasted but briefly. Even before its most felicitous moments were reached by Shakespeare, John Donne was writing his Songs and Sonnets and inaugurating a mode whose subtleties introduce a new excitement to the union - but only at the cost of endangering it by internal tensions. Words and phrases become mere baubles for professional word-jugglers and, if the manipulation was exciting, part of that excitement came from the increasing difficulty of sustaining a virtuoso performance. A dropped ball - like Crashaw's much-mocked lines on Magdalen weeping - tended to rebound with a vengeance:

> Two walking baths; two weeping motions,
> Portable, & compendious oceans [1]

This is metaphysical poetry trembling on the brink of mock-heroic - except of course, that poor Crashaw was perfectly serious. In this last chapter,

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[1] The Poems English Latin and Greek of Richard Crashaw, ed L C Martin (second ed Oxford 1957) page 312. What makes it worse, somehow, is that these lines appear to be the result of Crashaw's considered judgment, as they do not appear in the earlier version of the poem (page 79)

we will see the end result of the metaphysical wordplay. The turn of mind that, at the beginning of the century, saw a pair of lovers in a pair of compasses will, fifty or so years later, give us Hudibras. Where Donne had gloried in the aspects of the natural world that were the subjects of intense speculation in his day, Butler and Shadwell, mutatis mutandis, parodied them. But before satire's derisive demonstration of the incompatible nature of the new natural history and the new literature, there is plenty of evidence of the deepening divisions that were to lead to their ultimate estrangement. This I have tried to follow through, from the morbid word-anatomising of Jacobean drama to its opposite pole of complete verbal carelessness in political propaganda. In philosophic terms, we viewed the Baconian attack on words, the counter-attack of the neoplatonists and the rearguard stand of Sir Thomas Browne. It is to be regretted that philosophy was no more successful than literature in coming to terms with a science of the natural world: "natural philosophy" at the end of the century, no longer has the same assumed breadth of reference that it did at the beginning. By then, the old world order had sunk very deep indeed, leaving only a certain amount of randomly scattered flotsam for poets to collect. Despite the life-raft of neoplatonism, despite Sir Thomas Browne's eccentric dirigible, the struggle to keep natural philosophy afloat on literature was lost before Charles II came to the throne. All that now remains is to view the manner in which each went its own way, and to glance briefly at the terms of reference that were used to chart those separate ways.

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The progress of natural history in the years following the king's restoration is chronicled for us in the Philosophical Transactions of the

Royal Society of London. This publication existed, as a modern scientific journal exists, to provide a forum for a specialised group of people having common interests. It kept up an extensive overseas connection and acted as a focal point for overseas information as well as, itself, initiating queries that had the express intention of directing research overseas.[1] Besides this, books were reviewed, announcements made and correspondence solicited. The publication was very much the organ of a club: a club whose aims are described by Thomas Sprat in The History of the Royal Society (1667) which was written largely as an exercise in public relations to bring the society, its constitution and its aims to the notice and approval of the general public. The constant burden of the work is a plea that, if we seek a whole philosophy, we should wait and see - give the experimental method a fair chance and not demand that it be productive of instant wisdom. A generation later, the same argument will be the ultimate resort of John Ray's The Wisdom of God Manifested in the Works of the Creation (1691) as it had been the ultimate resort of Bacon. The revolt against medieval divisions of benign and malign knowledge is complete and, although no late seventeenth century scientist goes so far as to say that all knowledge, being knowledge, is good, the so-called "experimental" philosophy comes very close to admitting it tacitly, by assuming that experiment, like virtue, is its own reward. At the back of the volume of Philosophical Transactions for 1676, is an index offered as a guide to the experiments that the Society thought worthwhile conducting during the first three years of its existence. From Air and Cabbage-Trees to Marbles and Rubarb, including a Dog made to draw his breath like a wind-broken horse, the Royal

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[1] See Sprat, History, ed Cope and Jones (1959) pages 158-172

Society ingenuously reveals itself going about its business with a seriousness most risible to the outsider.[1]

In practice, of course, it is impossible to make any progress in a science without holding some preconceptions and Samuel Butler, in "The Elephant in the Moon" makes nonsense of the refusal to admit any evidence other than that provided by the senses. When the "elephant" (actually a mouse in the tube of the telescope) runs, apparently from one side of the moon to the other, the virtuosi are thrown into consternation and cannot explain it. Nevertheless, one of them tries to do so:

> Resolv'd, howe'er, to make it good,
> At least, as possible as he cou'd;
> And rather his own Eyes condemn,
> Than question what h' had seen with them.[2]

Looked at as a whole, then, the Philosophical Transactions might be summed up as an odd assortment of experiments, adequately described by the perpetrators in an argot all their own and directed at a specialised clique who call themselves "the virtuosi". The tendency towards introversion and the use of a special language to mark off the community of scientists that we have noted earlier in the century, has now become institutionalised despite the Royal Society's early ideal of an open style of science conducted in the real language of men. Towards the cliqueyness that developed in practice, poets and dramatists could rarely be anything but unsympathetic. Since the latter seventeenth century, the virtuoso, peering through his microscope at maggots in cheese or devising useless machines to do unwanted jobs has been a stock figure of fun in literature.

Samuel Butler sets up the original useless boffin in a virtuoso who:

> had lately undertook
> To prove, and publish in a Book,
> That Men, whose nat'ral Eyes are out,
> May, by more pow'rful Art, be brought
> To see with th' empty Holes as plain,

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1 See A General Index or Alphabetical Table to all the Philosophical Transactions, From the Beginning to July 1676 (1678)

2 Samuel Butler, Satires and Miscellaneous Poetry and Prose, ed René Lamar (Cambridge 1928) page 9 "The Elephant in the Moon" lines 257-260

> As if their Eyes were in again:
> And, if they chanc'd to fail of those,
> To make an Optick of a Nose;
> As clearly it may, by those that wear
> But Spectacles, be made appear;
> By which both Senses being united
> Does render them much better sighted.[1]

Thus virtuosi became the butt of the wits and, when they abounded in the 1660s, 70s and 80s, the literati abused them freely. For the first time, we are made to feel that science is barbaric. It is worth, perhaps, examining the basis of this hostility.

On 25th May, 1676, the king first saw Shadwell's play, The Virtuoso performed at Dorset Garden and it is Shadwell that I would choose as spokesman for the virtuosi-baiters. This particular drama displays most of the bias that was to harden into prejudice in the years to come and whose fullest satirical expression was to be the Voyage to Laputa.

First then, it is objected that science is useless - and not just plain useless, but wilfully, obstructively, pigheadedly so. Sir Nicholas Gimcrack, revealed going through the motions of swimming upon a table, says:

> I content myself with the speculative part of swimming; I care not for the practice. I seldom bring anything to use; 'tis not my way. Knowledge is my ultimate aim.[2]

Science, having promised to be of use to mankind in the purely material sense, becomes very vulnerable to this sort of attack. Having promised too much too soon, it was left wide open to the mockers and it was in vain for Nehemiah Grew to ask, in the preface to The Anatomy of Plants, for more time to bring science to philosophic maturity, to plead that "Thoughts cannot work upon nothing, no more than Hands. He that will build a

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[1] Butler, Satires . . ., ed Lamar (1928) page 4 "The Elephant in the Moon" lines 67-78

[2] Thomas Shadwell, The Virtuoso, ed M H Nicolson and D S Rodes (1966) II ii 84-86

House, must provide Materials" and to point out that "we are come ashore into a new world, whereof we see no end."[1] It is no use - the mockers are still inclined to see the sum total of the activities of science as swimming upon a table and that as a useless sort of activity.

It is, however, a relatively harmless sort of activity. The same could not be said for the experiments in blood transfusion that were popular with the Royal Society in the 1660s. Sir Nicholas claims to have performed transfusions and Snarl snarls:

> You kill'd for or five that I know with your transfusion. . . . Pox! let me see you invent anything so useful as a mouse-trap, and I'll believe some of your lies.[2]

And so a second charge - that of irresponsibility - is added to uselessness. When Bruce wonders what it can concern a man to know the nature of an ant, Longvil is ready with the take-off:

> O it concerns a virtuoso mightily; so it be knowledge, 'tis no matter of what.[3]

This is a deeper protest against the inutility of science than that based upon a purely materialistic complaint. Bruce's emphasis on Man is the Christian's:

> For what is a man profited, if he shall gain the whole world and lose his own soul?[4]

This last, moral objection to the work of science is the most respectable put up by the virtuosi-baiters. With it, we have described an extraordinary full-circle that has left the virtuosi in exactly the same position as the schoolmen of a hundred years earlier. Where Bacon had decried the

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1 Nehemiah Grew, The Anatomy of Plants with an Idea of a Philosophical History of Plants (1682) An Idea of a Philosophical History of Plants page 3

2 Shadwell, The Virtuoso, ed Nicolson and Rodes (1966) II ii 214-215

3 Ibid, III iii 26-27

4 Matthew 16:26

vanity of Aristotelian learning, Shadwell and Butler decried the vanity of experimentation. And, in smaller things, Sir Formal Trifle can turn the meaningless word or phrase with a facility hardly attainable by the most pedagogic schoolman. In his acute, partial way, Butler saw this. He sees that the typical virtuoso:

> hangs his Soul upon as nice
> And subtle Curiosities
> As one of that vast Multitude,
> That on a Needle's Point have stood[1]

The use of the word "soul" of "curiosities" and the introduction of the old joke that the medieval schoolmen seriously concerned themselves with such things as the number of angels that might stand upon the point of a needle are, I think, confirmation that, for Butler at any rate, new scientist was only old schoolman writ large.

At this stage, one might well wish to turn a coldly critical eye on Shadwell. If he believes that all scientific endeavour is useless and irresponsible, in what does he believe that utility and responsibility consist? The answer, implied already in Bruce's query on knowing the ant, takes us out of the seventeenth century and into the eighteenth. We are told that Sir Nicholas has travelled all over Italy, expressly to study the tarantula. But when Bruce asks whether he had observed "the wisdom, policies and customs of that ingenuous people,"[2] Sir Nicholas reveals his full barbarity:

> Oh by no means! 'Tis below a virtuoso to trouble himself with men and manners. I study insects.

It is an attitude that Shadwell makes him regret by the end of the play and which carries us forward to Pope's affirmation of the proper study of mankind. The qualities and habits of mind attacked in The Virtuoso

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[1] Butler, Satires . . . , ed Lamar (1928) "Satyr upon the Weakness and Misery of Man" lines 205-208

[2] Shadwell, The Virtuoso, ed Nicolson and Rodes (1966) III iii 86-87

[3] Ibid, III iii 88-89

are to be positively resolved in the Augustan ideal of social responsibility forged from a thorough knowledge of men. For if science has become barbaric, literature, by divorcing itself from an interest in nature is as much a guilty party to the breakdown of a coherent world view. The cavalier attitude taken towards nature by mid century polemicists has hardened into a belief that there is no way to look at tarantulas that is at all helpful to Man's attempt to place himself in the cosmos. As it is one of the riders to this thesis that the shifting view of the natural world involved the metamorphosis of cosmic man into social man, it is, perhaps, worth turning to Butler again to study his view of Man with Popian commentary. His "Satyr upon the Weakness and Misery of Man" concludes with a special look at scientific man:

(i) But all these Plagues are nothing near
Those far more cruel and severe,
Unhappy Man takes Pains to find,
T' inflect himself upon his Mind;
And out of his own Bowels spins
A Rack and Torture for his Sins:
Torments himself, in vain, to know
That most, which he can never do; [1]

(ii) (As Eastern priests in giddy circles run,
And turn their heads to imitate the Sun.
Go, teach Eternal Wisdom how to rule -
Then drop into thyself, and be a fool!) [2]

(iii) And the more strictly 'tis denied,
The more he is unsatisfied;
Is busy in finding Scruples out,
To languish in eternal Doubt. [3]

(iv) (Say first, of God above, or Man below,
What can we reason, but from what we know?) [4]

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[1] Butler, Satires . . . , ed Lamar (1928) "Satyr upon the weakness and Misery of Man" lines 169-176

[2] Alexander Pope, An Essay on Man, ed Maynard Mack (1950) "Epistle II" lines 27-30

[3] Butler, lines 177-180

[4] Pope, "Epistle I" lines 17-18

(v) Sees Spectres in the Dark, and Ghosts,
And starts, as Horses do at Posts;
And, when his Eyes assist him least,
Discerns such subtle Objects best. [1]

(vi) (Why has not Man a microscopic eye?
For this plain reason, Man is not a Fly.
Say what the use, were finer optics giv'n,
T' inspect a mite, not comprehend the heav'n) [2]

(vii) On hypothetic Dreams and Visions
Grounds everlasting Disquisitions,
And raises endless Controversies
On vulgar Theorems and Hearsays:
Grows positive and confident
In Things so far beyond th' Extent
Of human Sense, he does not know,
Whether they be at all, or no;
And doubts as much in Things, that are
As plainly evident, and clear:
Disdains all useful Sense, and plain,
T' apply to th' Intricate and Vain. [3]

(viii) (In Pride, in reas'ning Pride, our error lies;
All quit their sphere, and rush into the skies) [4]

(ix) And cracks his Brains in plodding on
That, which is never to be known;
To pose himself with Subtleties,
And hold no other Knowledge wise;
Although, the subtler all Things are,
They're but to nothing the more near. [5]

(x) (The science of Human Nature is, like all other sciences, reduced to a few clear points: There are not many certain truths in this world. It is therefore in the Anatomy of the Mind as in that of the Body; more good will accrue to mankind by attending to the large, open, and perceptible parts, than by studying too much such finer nerves and vessels, the conformations and uses of which will for ever escape our observation. The disputes are all upon

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[1] Butler, Satires, ed Lamar (1928) "Satyr upon the Weakness and Misery of Man" lines 181-184

[2] Pope, Essay, ed Mack (1950) "Epistle I" lines 193-196

[3] Butler, lines 189-196

[4] Pope, "Epistle I" lines 123-124

[5] Butler, lines 197-202

these last, and, I will venture to say, they have less sharpened the wits than the hearts of men against each other, and have diminished the practice, more than advanced the theory, of Morality.) [1]

(xi) And the less Weight they can sustain,
The more he still lays on in vain;
And hangs his Soul upon as nice
And subtle Curiosities,
As one of that vast Multitude,
That on a Needle's Point have stood. [2]

(xii) (Go wond'rous creature! mount where Science guides,
Go, measure earth, weigh air, and state the tides) [3]

(xiii) Weighs right and wrong, and true and false
Upon as nice and subtle Scales,
As those that turn upon a Plane
With th' hundreth Part of half a Grain;
And still the subt[i]ler they move,
The sooner false and useless prove.
So Man, that thinks to force and strain
Beyond its natural Sphere his Brain,
In vain torments it on the Rack,
And, for improving, sets it back;
Is ign'rant of his own Extent,
And that to which his Aims are bent [4]

(xiv) (Go, wiser thou! and in thy scale of sense
Weigh thy Opinion against Providence) [5]

(xv) Is lost in both, and breaks his Blade
Upon the Anvil, where 'twas made:
For as Abortions cost more Pain
Than vig'rous Births; so all the vain
And weak Productions of Man's Wit,
That aim at Purposes unfit,
Require more Drudgery, and worse
Than those of strong and lively Force. [6]

The above quotations may, I think be reduced to three clear objections against the pursuit of science. In order to exemplify, I have

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[1] Pope, Essay, ed Mack (1950) page 7

[2] Butler, Satires . . . ed Lamar (1928) "Satyr upon the Weakness and Misery of Man" lines 203-208

[3] Pope, "Epistle II" lines 19-20

[4] Butler, lines 212-220

[5] Pope, "Epistle I" lines 114-115

[6] Butler, lines 221-228

numbered the quotes:

First: That the pursuit of the knowledge of things is mere curiosity and presumption (eg nos vii and viii)

Second: That it therefore stands between Man and the proper end of his enquiry - that is, self knowledge (eg nos ix and x)

Third: That those things which are only feasible through the forced ingenuity of Man were never meant to be attempted by him (If God had meant us to fly, he would have given us wings. eg nos vi and xv)

These three objections, whether applied to old schoolmen or new virtuosi remain fairly constant throughout the period of this thesis. Perhaps Pope may be allowed to have the last word on the insoluble paradox of Man:

> Alike in ignorance, his reason such,
> Whether he thinks too little, or too much:
> Chaos of Thought and Passion, all confused;
> Still by himself abus'd, or disabus'd;
> Created half to rise, and half to fall;
> Great Lord of all things, yet a prey to all;
> Sole judge of Truth, in endless Error hurl'd:
> The glory, jest, and riddle of the world! [1]

. . .

I have chosen Butler and Shadwell and Pope to speak for a line of thought that takes us clear through to the eighteenth century and the philosophies of the Augustans. In so doing, it might be objected that a great quantity of writing that was inspired by enthusiasm for the new science has been neglected. Much of this writing has become familiar to us through the researches of Marjorie Hope Nicolson and others and, in sheer bulk, it must be admitted greatly to exceed that of the satirists and sceptics.

In general terms, however, its practitioners have little of abiding interest to offer. They give us no illumination though they burned most

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[1] Pope, Essay, ed Mack (1950) "Epistle II" lines 11-18

devout candles before the altar of science and celebrated its achievements in verse as explicit as the prose of the Philosophical Transactions. But the celebrants are mostly forgotten names now: The Duchess of Newcastle and Mrs Jane Barker, Richard Blackmore and William Wootton, Mrs Susannah Centlivre and Mrs Aphra Benn, and their literary remains tell us little more than that the writers were well-informed on current scientific affairs. The experimental philosophy was proving an awkward thing to hang verse upon and, being discursive, it led its admirers into tediously discursive poetry. The economy with which the Elizabethans had been able to sketch a philosophy at the drop of a phrase had become an impossibility when scientific thought became consecutive rather than analytic. Mrs Jane Barker, for instance, whose tour of the internal organs I have mentioned in connection with Phineas Fletcher, falls back, naturally, to images of a hundred years earlier when grief for her dead brother overcomes her:

> Ask me not why the Rose doth fade,
> Lillies look pale, and Flowers dye;
> Question not why the myrtle shade
> Her wonted shadows doth deny
>
> Seek not to know from wehnce begun
> The sadness of the Nightingale;
> Nor why the Heliotrope and Sun,
> Their constant Amity do fail
>
> The Turtles grief look not upon,
> Nor reason why the Palm-trees mourn;
> When, Widow-like they're left alone,
> Nor Phaenix why her self doth burn.
>
> For since He's dead, which Life did give
> To all these things, which here I name;
> They fade, change, wither, cease to live,
> Pine and consume into a Flame [1]

Between the explicit and the out-moded there was, apparently, little choice for the poet unless he turned satirist and mocked both. The old

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[1] Mrs Jane Barker, Poetical Recreations Part I (1688) "On the DEATH of my Brother, A SONNET" page 107

catalogue of nature still gave poets roses and lilies, palm-trees and phoenixes, but all conviction in their intrinsic validity has gone and we have seen it going. We cannot deny Mrs Barker her grief over the death of her brother, but we can only regret that the lilies which strew his grave are the waxy lilies of a conventional funeral - they come not as active mourners attired in sad embroidery, nor do they have the power to hang their pensive heads and weep as Milton's cowslips once did for Lycidas. It is not just the difference between a great poet and a very small one that gives this ten times the strength of that above:

> Bring the rathe Primrose that forsaken dies,
> The tufted Crow-toe, and pale Gessamine,
> The white Pink, and the Pansie freakt with jeat,
> The glowing Violet,
> The Musk-rose, and the well-attir'd Woodbine,
> With Cowslips wan that hang the pensive hed,
> And every flower that sad embroidery wears:
> Bid Amaranthus all his beauty shed,
> And Daffadillies fill their cups with tears,
> To strew the Laureat Herse where Lycid lies. [1]

Milton lives in a world where English folk-lore and classical myth can still combine to give a proud dignity to every plant that drops upon that laureate hearse. Mrs Jane Barker lives in a poorer world and her symbols have long been sucked dry of associative emotion.

Nor is there anything that can restore outmoded symbols to their proper value. Once the break has been effected, it becomes final and irreversible. There is no way of turning the clock back in art - no way of rewriting Shakespeare's sonnets today. The modes and symbols of a generation past must either be used in a different way or ignored altogether. The late seventeenth century did both - it borrowed an antiquated zoology and botany and satirised them, but in most other ways it ignored the natural history of the past in order to consider social

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[1] The Poetical Works of John Milton, ed Helen Darbishire (1955) Vol II "Lycidas" lines 142-151

man rather than natural man. This, it seems to me, is not simply a question of the increasing difficulty of the current natural history but the result of a real breakdown in communication - a genuine failure of goodwill that, ever since the seventeenth century has made it possible for the artist and the scientist to insist that each is living in a different world.

One cannot, of course, deny that the increase in technicality did have a divisive effect. Though Pepys tells us that he found Robert Boyle's Hydrostatical Paradoxes (1666) "a most excellent book as ever I read",[1] one is left with the impression that he did, perhaps, find it a little heavy-going. And an age was coming when the disciplines of Physics and Medicine, Mathematics and Geology, Chemistry, Zoology and Botany were to become increasingly encapsulated and increasingly inaccessible to the layman. The laboratory was beginning to close its doors to the reading public. If we have dismissed the fragile remnants of the old world picture in the stereotypes of Mrs Jane Barker and the mockery of John Dryden, we must now dismiss most of what went on behind those doors as being outside the interests of mainstream literature. The poetic virtuoso is something of a sport on the stock of literature and it was the Augustan countryside and the cult of the Happy Man that replaced the gadget-cluttered study of the amateur Restoration scientist. Outside of this, natural history takes on a new meaning: a meaning much nearer to the one we would assign to it today and one which leaves us with only one major figure to consider among the scientists of the latter part of the seventeenth century - John Ray

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[1] The Diary of Samuel Pepys, ed Robert Latham and William Matthews (1974) Vol VIII for 1667 page 258. See also entries pages 250 and 251

Like Sir Thomas Browne, Ray lived quietly and unassumingly in East Anglia, conducting his researches in his own parlour and naming butterflies: Katherine's Oak-Geometer and Jane's Chickweed Caterpillar after his small daughters who were sent out to collect specimens for father.[1] And like Sir Thomas Browne, Ray maintained his contact with the learned world by letter. There, however, the resemblance ends and, if they were both amateur scientists, it is easier to apply the term to Sir Thomas Browne, the practising physician, than to John Ray, the proscribed clergyman. In the differences between the work of the two men, we may see why natural history was becoming less and less accessible to literature.

In the first place, the direction of the study of the natural world was changing. The need for a book of nature was still as strongly felt as ever but, as the data for such a book grew in bulk, so its terms of reference narrowed to the strictly descriptive and taxonomic. Because of this, details of time and place and the names of those who supplied information became of paramount importance in the standardising of botanical nomenclature. Ray's Synopsis Methodica Stirpium Britannicarum, for instance, consists almost entirely of cross-references and locations, scribbled over, annotated and emended by subsequent botanists. It has, as W T Stearn says "the same merit and utility as have had the Floras of Bentham and Hooker and of Clapham, Tutin and Warburg for later generations".[1] This is a typical entry from the third and last edition of the work:

> 2. Bistorta minor Ger, 322. minor nostras Park. 392. Alpina minor C.B. Pin. 192. minima J.B. III. 539. Small Bistort or Snakeweed. In several Places of Westmorland, as at Crosby Ravensworth; Mr. Lawson. It

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[1] John Ray, Synopsis Methodica Stirpium Britannicarum editio tertia 1724 Facs ed William T Stearn (1973) page 3

was shewn me by Tho. Willisel in a mountainous Pasture about a Mile and half from a Village called Wherf, not far from the Foot-way leading thence to Settle in Yorkshire.

Haec species revera diversa est a Bistorta media Alpina, non eadam ut aliquando suspicabar; nam & ipse (ut in notis meis invenio) Bistortam mediam in Alpibus observavi; quamvis id oblitus fueram

The precise locations and the careful cross-referencing (to Gerard and Parkinson and to the continental botanists Gaspard and Jean Bauhin) are characteristic of the work. The second paragraph is the fruit of Dillenius' editorial work on the third edition - proof, if any were needed, of a Baconian attitude to the accumulation of data. This is strictly a workman's book - nothing in it appeals to the general reader: even the charm of illustration which had made beautiful the pages of the early herbals is absent - subsumed by bare references: Ger. 322 Park 392. This is only to be expected in an excursion flora, but the same lack of illustration characterises Ray's Historia Plantarum and, though it was something that he regretted (the cost having made it prohibitive) the fact that there was now a large body of illustrated botanical work to which the reader could be referred, made the omission of plates less serious than it might otherwise have been:

> Naturall History is much injured through the little incouragement which is given to the Artist, whose noble performances can never be enough rewarded, being not only necessary, but the very beauty and life of this kind of learning [2]

grumbles Martin Lister in 1682, but William T Stearn, who quotes him, points out that:

> The development of the art of describing plants and animals made unnecessary an illustration of every one, since a few illustrations could serve to represent the main members of a group and the others could be distinguished in words. [3]

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[1] Ray, Synopsis . . . 1724, ed Stearn (1973) page 147

[2] William T Stearn, "The Use of Bibliography in Natural History" Bibliography and Natural History University of Kansas Publications Library Series 27 (Lawrence 1966) pages 5-6

[3] Ibid, page 5

To this end - the development of an adequate descriptive language, the Royal Society set up language committees and encouraged its members to formulate theories of language. The development of competent prose as an instrument for the advancement of knowledge had, from its very early days, been one of the confessed objectives of the Society:

> They have therefore been most rigorous in putting in execution, the only Remedy, that can be found for this extravagance [of style].and that has been, a constant Resolution, to reject all the amplifications, digressions, and swellings of style: to return back to the primitive purity,-and shortness, when men deliver'd so many things, almost in an equal number of words. They have exacted from all their members, a close, naked, natural way of speaking; positive expressions; clear senses; a native easiness: bringing all things as near the Mathematical plainness, as they can: and preferring the language of Artizans, Countrymen, and Merchants, before that, of Wits, or Scholars. [1]

Apart from this clearly felt need for a new clarity and precision, it was evident that declining standards of Latin would make it imperative that some sort of language be invented or excogitated in order that the world might be described by scientists, one to another and (and this was a genuine wish of the Royal Society) to the lay public. There was nothing new in this, nor anything particularly English and in Universal Language Schemes in England and France 1600-1800[2] James Knowlson looks at some of these attempts to create philosophic languages. What is noteworthy, is the widening gap between the lip-service paid by scientists to philosophic language schemes and their reluctance to speak thes "languages" in their own scientific practice. John Ray, with the best will in the world, found that his attempts to conform to the schemes of Wilkins Essay led him into an absurdly contrived unnatural classification. In May 1669, he wrote to Martin Lister about the tables that he was supposed to be producing:

> What possible hope was there that a method of that sort would be satisfactory, and not manifestly imperfect and ridiculous? I frankly and openly admit that it was; for I care for truth more than for my own reputation. [3]

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[1] Sprat, History, ed Cope and Jones (1959) page 113

[2] University of Toronto Press, 1975

[3] Quoted in Raven, John Ray (1942) page 182

And yet, in a curious way, Wilkins was not entirely wide of the mark in his attempt: just a little over ambitious. Ray, it is true, wrote in Latin, opting - as Sir Thomas Browne had not done - for a specialised international readership rather than a broad local one. One need go no further to see why Gerard's herbal was familiar to the Elizabethans in a way that the Historia Plantarum in the late seventeenth century certainly was not: and that despite Plunkenet's encomium that it was the best medium to reach heaven, better than the divinity of the schools[1] In the last analysis, what has emerged from the debate between Latin and English is a language that is neither. The language that we are left with when this particular battle between the Ancients and the Moderns has been fought out, is scientific jargon. Ironically, this jargon is governed by much the same sorts of principles as induced Wilkins to try to give to the world a universal language. Jargon is untroubled by passions, uncorrupted by the seductive enticements of analysis, rigidly and immutably limited by its denotations. There is no way in which one can describe dichlorophenoxyacetic acid as being a Latin word. Nor could one imagine the Ofcookogna alia, a type of millipede named from O F Cooke marching through a Vergilian hexameter or the Roystonea regia (a palm after Roy Stone) shading a grove in the Metamorphoses. These sort of sesquipedalia are built, not as a natural language is built, from the arbitrary expansions and contractions of organic speech, but from hard bricks, put together as a code is put together with little regard for general philosophic comprehensibility[3] The very rigidity and durability of these terms is a bulwark against their transference away from the job that they are so specifically designed to do. Indeed, the Latin

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[1] Quoted in Raven, John Ray (Cambridge 1942) page [illegible]

[2] See Roland Wilbur Brown, Composition of Scientific Words (Published the author, revised ed 1956) pages 38 and 39

[3] Occasionally, though, a joke may be perpetrated such as the miocene rodent named from O C Marsh and J S Lewis Allotriomys lewisi (Ibid page 38)

of biological nomenclature is so artificially constructed that it is probably better if the taxonomist is not also a linguist. Stability and conformity to the existing system are more important than elegance:

> In taxonomy it is not nearly so important that a name be pertinent or even well chosen as that it be stable. In changing his own established names, the father of classification set a bad example to his successors, one which they did not fail to follow. [1]

What then is Linnaeus' practice with regard to the ancients? Does he measure himself against them like Bacon, or converse with them like Browne? John L Heller has worked upon this and an article in the Transactions of the American Philological Association explains something of his practice:

> This paper is concerned with the remarkable device by which he assigned distinctive and appropriate names to the nearly 200 species of the genus PAPILIO known to him at the time. What he did, in the firstplace, was to honor the butterflies with names nearly all of which recall persons of classical mythology, and, in the second place, to distribute these names in certain categories, in such a way that the trivial name should immediately suggest one of the several natural groups into which he chose to divide this unwieldy genus. Thus, P. Hector was a member of a group to which he gave the name "Equites Trojani," P Diomedes of the group "Equites Achivi," P Apollo of the group "Heliconii" and so forth. [2]

This is code-making with a vengeance: faced with the difficulty of classifying nearly two hundred species, it was difficult to see what else it could have been. In Linnaeus, we are a long way from the ingenuous Elizabethans who, like Alexander Top, believed that there was only one proper name for everything in the natural world - a name that Adam knew but that we have forgotten, though it is part of our duty to God to glorify Him by attempting to re-discover it. Invention of names, then

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[1] David Starr Jordan, quoted in Brown, Composition of Scientific Words (1956) page 57

[2] John L Heller, "Classical Mythology in the Systema Naturae of Linnaeus", Transactions American Philological Association, vol lxxvi 1945 page 334

could only seem an inconceivable presumption and Linnaeus himself did not escape censure:

> The unbounded dominion which Linnaeus has assumed in the animal kingdom must upon the whole be abhorrent to many. He has considered himself as a second Adam, and given names to all the animals according to their distinctive features, without ever bothering about his predecessors. He can hardly forbear to make man a monkey, or the monkey a man. [1]

The concern over correct naming, it seems, does not end with the ending of our period. Bacon's distrust of the Idols of the Theatre was not resolved by Sir Thomas Browne and Ray, all his life, postponed a doctrinaire settlement of the question of classifying nature because of his strong sense that there was a necessary way to do it, not just a convenient. The signification of a word, says Pierre Bernier "may be called the soul of a word, as the sound is the body"[2] and Henry Rose thought it worthwhile to translate him to an English public in 1675, just a year after his work came out in French. No wonder that we have to go outside the seventeenth century to find anyone prepared to grasp the nettle and produce a working nomenclature.

Today, we have accepted a dual standard - fixity of language may be a taxonomic desideratum but there are few (outside those who write letters to The Times) who would consider a fixed language in general desirable or even possible. In the late seventeenth century and into the eighteenth, however, the crystallisation of the language into a permenent form was a serious and respectable ambition. Happily, perhaps inevitably, it proved impossible. Literature was spared dichlorophenoxyacetic acid.

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In the naming of plants, Ray's Latin is already of the scientific type. In order that science might move forward in the way of accumulating

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[1] Albrecht von Haller, reviewing Linnaeus' Flora Suecica (1746). Quoted in Wilfred Blunt, The Compleat Naturalist (1971) page 188

[2] Pierre Bernier, A Philosophical Essay for the Reunion of Languages 1675 trans Henry Rose (Menston 1971) page 50
(facs ed

information, scientists such as Ray were obliged to detach themselves from their vocabulary. As Ray's botanising correspondents showered him with plants and reports of plants, a whole new language had to be built and had to be built fast. In the process, and despite John Wilkins, something of Renascence man's belief in the close links between words and things died.

In a very similar way, the intimate relationship between the objects of the natural world and the moral lessons that they were capable of imparting to us, was broken:

> For it seems to me highly absurd and unreasonable, to think that Bodies of such vast magnitude as the fix'd Stars, were only made to twinkle to us; nay, a multitude of them there are that do not so much as twinkle, being either by reason of their distance or of their smalness, altogether invisible to the naked Eye, and only discoverable by a Telescope, and it is likely perfecter Telescopes than we yet have, may bring to light many more; and who knows, how many lie out of the ken of the best Telescope that can possibly be made? And I believe there are many Species in Nature, even in this sublunary World, which were never yet taken notice of by Man, and consequently of no use to him, which yet we are not to think were created in vain; but may be found out by, and of use to those who shall live after us in future Ages. But though in this Sence it be not true, that all things were made for Man; yet thus far it is, that all the Creatures in the World may be some way or other useful to us, at least to exercise our Wits and Understandings, in considering and contemplating of them, and so afford us a Subject of Admiring and Glorifying their and our Maker. [1]

This was the basis of the plea entered by most scientists of the age for a sort of pious agnosticism in science. One day, perhaps, we may find out why there are stars beyond our ken and sublunary species which were never yet taken notice of by Man, but in the meantime the pursuit of knowledge must continue in the trust that one day everything, of its own accord, will fall into place:

> The greatest occasion of our dissenting from the Greek Philosophers, and especially from Aristotle, was, that they made too much hast to seise on the prize, before they were at the end of the Race [2]

says Sprat. The new scientist would be more cautious, expect less of the

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[1] John Ray, The Wisdom of God manifested in the Works of the Creation, (sixth ed 1714) page 177

[2] Sprat, History, ed Cope and Jones (1959) page 30

the world and wait in trust upon time. In this atmosphere of pious expectation poets - deistically inclined or otherwise were in a peculiarly difficult position. Abraham Cowley made brave efforts to encompass the corpus of scientific lore within his work, but most poets, when they dealt with natural history at all, tended to do so in a detached, semi-humourous way, refusing to commit themselves to a belief in the chamaeleon's ability to live on air or the salamander's to live in fire, whilst at the same time exploiting such supposed natural facts when it suited them to do so. But there was was no way to recapture the conviction that went with such facts: no way of injecting life into images that are so obviously symbolic of a lost world whilst the new world was one in which symbolic explanations were rather inhibited by injunctions to wait and see before jumping to over-hasty conclusions.

Indeed, the only safe attitude to adopt seemed to be that of a neo-Horatian stoicism: minor poets of the seventeenth century, when they are not scattering invitations to friends to come and stay in the country with a lavish hand are to be found engaged upon paraphrasing Horace or venturing upon pindarics or anacreontics or other loose and comfortable forms of verse suited to rustic gentlemen. Earl Miner's The Cavalier Mode from Jonson to Cotton[1] gives an appropriately chatty resumé of such verse, together with quotation so substantial as to make the work a useful sort of anthology of the genre. Taken with Maren-Sofie Røstvig's The Happy Man[2] it provides an excellent guide to a view of the world summed up in Horace's third book of odes:

> Happy the Man, and happy he alone,
> He, who can call to day his own:
> He, who secure within, can say
> To morrow do thy worst, for I have liv'd to day.
> Be fair, or foul, or rain, or shine,
> The joys I have possest in spight of fate are mine.[3]

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[1] Princeton 1971

[2] Oslo and Oxford 1954

[3] Dryden, Works, ed Swedenberg, Miner and Dearing Vol III page 83 "Horace Ode 29 Book 3" lines 65-70

This is Dryden's translation and is quoted by Maren-Sofie Røstvig, page 242 The Happy Man.

Concomittant with such an outlook, is the tendancy to want to control nature in small pieces rather than to understand it at large. When we retire to the moderate pleasures of a moderate estate - a good fire, an adequate cellar, congenial company and the prospect of a pheasant shoot on the morrow - then we must be content with moderate victories in our control and understanding of the world. Indeed, it is probably presumptuous to think that we can understand it at all though, in small ways, we may direct and control it. The height of our ambition should be to build for ourselves out of nature gone astray a nature as it might have been had Adam and Eve continued in employment as gardeners. The fundamental mysteries of nature may be beyond all possibility of our knowing, but there is still much for us to do in the way of taking care of our heritage.[1] In this way, the duty of man is seen as a sort of benevolent estate management, and the ideal of Ben Jonson, the patriarch of moderation, may stand for all:

> Thy copp's, too, nam'd of GAMAGE thou hast there,
> That neuer failes to serue thee season'd deere,
> When thou woulds't feast, or exercise thy friends.
> . . .
> Each banke doth yeeld thee coneyes; and the topps
> Fertile of wood, ASHORE, and SYDNEY'S copp's,
> To crowne thy open table, doth prouide
> The purpled pheasant, with the speckled side:
> The painted partrich lyes in euery field,
> And for thy messe, is willing to be kill'd.
> And if the high-swolne Medway faile thy dish,
> Thou hast thy ponde, that pay thee tribute fish,
> Fat, aged carps, that runne into thy net.
> And pikes, now weary their owne kinds to eat,
> As loth, the second draught, or cast to stay,
> Officiously, at first, themselues betray.
> Bright eeles, that emulate them, and leape on land,
> Before the fisher, or into his hand.[2]

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[1] Grew, An Idea of a Philosophical History of Plants (1682) page 3, expressed the concept in somewhat mercantile terms:

> And how far soever this kind of Knowledge [of plants] may be attainable, its being so far also worthy our attainment will be granted. . . This surely were for a Man to take a True Inventory of his Goods, and his best way to put a price upon them

[2] Ben Jonson, Works, ed C H Heford, Percy and Evelyn Simpson (Oxford 1954) 5th lines 19-21 and 25-38

Now that we have arrived at a point in time when the literary ideal is vested in some sort of Horatian view of Man, the estate manager, it will be valuable to see how such a man is catered for in print generally. More than that, it will take us through the whole time-span of this thesis and - by way of summary - provide, I hope, a sort of template of the matter in it.

For the middle ages, hunting was one of the serious businesses of life because it was, like team games in the Victorian era, considered to be a parable of life.[1] One has only to read Sir Gawain and the Green Knight to appreciate that. Because of this, the science of the hunting field was not one that tended to further the advance of science as we would acknowledge it. In fact, says Charles Raven, it positively hinders it:

> That the change of outlook from the old to the new in regard to zoology came so slowly is largely due to the influence of the sports of hunting and falconry. As we have seen, medieval interest in nature, where it was not purely artificial and mythological, was confined to the art and technique of hawk and hound and horse. Here was created a cultus with its proper ritual of action and language, into which every gentleman was duly initiated and in which the whole countryside took a more than religious interest. Around the hart and the heron arose a wealth of lore and legend, handed on from generation to generation and constituting a tradition as rigid and as exacting as the liturgy. The successful pursuit of sport demanded a nice knowledge not only of the habits and uses of the various dogs and birds employed in it, of their care and doctoring, their food and tempers, but of the weather and soil, the lie of the land and the signs of game, the behaviour of the hunted and the place and manner of the kill. It would seem that this must involve an interest in wild life and an outlook favourable to the growth of science. But in fact the whole business was so overlaid with tradition and so conservative in its insistence upon rules that often bore little resemblance to the principles from which they had been developed, that instead of promoting natural history and the scientific outlook it was as much a hindrance as a help [2]

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[1] In a novel by John Buchan, for instance, the turning point in a rugby international comes by a chance, described thus by Buchan: "And then came one of those sudden shifts of fortune which make Rugby an image of life" Castle Gay (1930) page 16

[2] Charles E Raven, English Naturalists from Neckham to Ray (Cambridge 1947) pages 228-229

This, of course, is all too true. All field sports have a formalised, static character, and Raven is justified in the weight of emphasis that he lays upon hunting as "a cultus with its proper ritual" "a tradition as rigid and exacting as the liturgy" "overlaid with tradition" and so forth. But it is just this that makes the sports of hunting and hawking so uniquely usable by literature. Across the static background of the hunting field, move characters whose virtue is to be tested in the actions of the day. Deer are "noble" foxes "base"[1] and other sorts of game came somewhere in between. At the end of the day, comes the curious, almost sacramental ceremony of the breaking up of the quarry and the distribution to the hounds of bread soaked in blood. It is surely of the hunting field that Brutus is thinking when he admonishes the other conspirators:

> Let's carve him as a dish fit for the gods,
> Not hew him as a carcass fit for hounds.[2]

But, besides the inherent drama of the hunting field itself, with all its opportunities for valour and tragedy, there was quality to be assessed in those who took part. The very dogs have their own degrees of "generosity" or nobility as Macbeth, addressing the murderers, knows well:

> Ay, in the catalogue ye go for men;
> As hounds, and greyhounds, mongrels, spaniels, curs,
> Shoughs, water-rugs, and demi-wolves, are clept
> All by the name of dogs: the valu'd file
> Distinguishes the swift, the slow, the subtle,
> The housekeeper, the hunter, every one
> According to the gift which bounteous Nature
> Hath in him clos'd; whereby he does receive
> Particular addition, from the bill
> That writes them all alike; and so of men.[3]

This is sheer cynicism as pointed out by Elizabeth Watson in The Animal World in the Poetry and Drama of the Sixteenth and Seventeenth Centuries:

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[1] The same moral distinction is, of course, made between plants in the old world view. See earlier page 14

[2] Julius Caesar, ed T S Dorsch (sixth ed 1955) II i 173-174

[3] Macbeth, ed Muir (1951) III i 91-100

It appears elsewhere that Shakespeare was as aware of the differences in 'nobility' between various breeds of dog, particularly the distinction between the various hounds and other meaner breeds, as Spenser himself or any other of his contemporaries. To Shakespeare's audience the order in which the breeds are here named would strike a false note immediately. Mongrels, (that is dogs of mixed, bastard breed) curs (unowned and worthless strays) and 'demi-wolves', (half-wild, savage dogs, with no reminiscence even of human contact) should have come last in the list, and in that order. Shoughs, rough, unkempt dogs should have come just before: water-rugs, dogs used for flushing and retrieving waterfowl, just before that, after spaniels which are also retrievers rather than hunting dogs. Greyhounds are the noblest breed mentioned: the big hounds that pull down the deer and other formidable game. Hounds may here include every other hunting breed, hunting by sight or smell, 'the swift, the slow, the subtle [1]

Macbeth thus finds, in the traditional hierarchy, a parable fit for his purpose. Its force, however, derives from the irony with which it is applied: and in this respect the process is Donnean and destructive. Earlier, the list would have been used more seriously and straightforwardly, though John Skelton's list of the birds that shall sing the mass for the departed soul of Philip Sparrow is, to put it at its mildest, whimsical:

> But for the eagle doth fly
> Highest in the sky,
> He shall be the sub-dean
> The choir to demean,
> As provost principal,
> To teach them their Ordinal;
> Also the noble falcon,
> With the ger-falcon,
> The tarsel gentil,
> They shall mourn soft and still
> In their amice of gray;
> The saker with them shall say
> Dirige for Philip's soul;
> The goshawk shall have a roll
> The choristers to control;
> The lanners and the merlions
> Shall stand in their mourning-gowns;
> The hobby and the musket
> The censers and the cross shall fet;
> The kestrel in all this warke
> Shall be holy water clerk. [2]

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[1] Watson, The Animal World in the Poetry and Drama of the sixteenth and seventeenth centuries (thesis 1963) page 416

[2] The Complete Poems of John Skelton, ed Philip Henderson (Fourth ed 1964) "Philip Sparrow" pages 75-76

All the birds mentioned here are to be found in the Boke of St Albans by Dame Juliana Berners[1] who assigns each to the appropriate station in life from the eagle, which is to be flown by an emperor, to the musket which, in Berners' opinion, is the bird which is properly assigned to the "holiwater clerke". Possibly even the innocent Jane Scrope might have been expected to see the wry humour of the funeral had she followed Berners and ended her list of the birds to bury Philip Sparrow with the musket - considering that it is the male sparrowhawk.

Regardless of its function in the poem, this list of birds could hardly be bettered as a way of looking at natural history that measures itself by criteria other than the observable and quantifiable:

> Time was when every man, according to his social rank, had a particular sort of hawk assigned to him. The more noble species, which were often imported at great cost from abroad, were reserved for kings and princes and noblemen: humble men had to be content with more lowly species. Thus the peregrine gentle, the gyr-falcon, and the goshawk were reserved for the gentry, the sparrow-hawk and the kestrel for those of humbler position, the sparrow-hawk coming by degrees to be identified with the Church (but not with bishops who were nobles), being the bird of the "holy water clerk".[2]

The falconer was not interested in classification into genus and species: like Skelton, he would split the "noble falcon" (the female goshawk) from its male partner, the goshawk. Likewise, the hobby in Skelton's list and in Berners' has a different name and a lowlier status than its female counterpart. To the falconer, they were different birds.

So too, when we come to hunting, we find that it is length of years that is proof of difference to the huntsman's eye, and the beast that is one year a brocket, becomes a different beast the following year and is named accordingly:

> And for to speke of the hert, iff ye will it lere
> Ye shall hym a Calfe call at the fyrst yere

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[1] See [Juliana Berners], English Hawking and Hunting in The Boke of St. Albans facs ed Rachel Hands (Oxford 1975) pages 54-55

[2] Brian Vesey-Fitzgerald, British Game (1946) pages 1-2

> The secunde yere a Broket, so shall ye hym call
> The therde yere a Spayad, learneth thus all
> The fowrith yere a Stagge call hym by any way
> The fithe yere a grete Stagge, youre dame bide yow say
> The vi yere call ye hym an hert.
> Doth so my childe wylis ye been in quart.[1]

In practice, however, the matter was not quite as rigid as the theory would suggest. Hounds and hawks have always been bred and selected for the job that they would have to do in the field. The falcon becomes useless amongst the hedgerows, and though the greyhound may be placed above the shough in a scale of absolute values, it is unlikely to do as well on a water retrieve! Medieval writers, however, were not so literal-minded as to let the discrepancy between code and practice disturb the theory too much. It took the realistic Elizabethans to explore, exploit and finally destroy the delicate implications of their medieval hunting heritage. With their passion for formulation and a market hungry for such things, Elizabethan writers set out to instruct a town-bred, rising gentry in the arts of country sports. Turbevile's Boke of Faulconrie (1575, 1611), Edmund Bert's Approved Treatise of Hawkes and Hawking (1619) and Latham's two works, Latham's Falconry, or the Faulcon's Lure, and Cure (1615, 1633) and Latham's New and Second Booke of Faulconry (1618, 1633 and 1663) are evidence for a reading public to whom the terms of the art were alien and who sought to learn them by rote in order to enhance their social prestige. There is a progression from the prime sport of the middle ages - deer hunting, which demands the organisation and direction of large numbers of people and the full panoply of ritual and ceremony, to hawking which was the prime sport of the Elizabethans and which could be pursued with a handful of friends and no more ceremony than a knowledge of the terms of the art and an

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[1] Berners, Boke of St Albans, ed Hands (1975) page 58

appreciation of the quality of the sport. The individualist's sport par excellence - angling - was to emerge only during the seventeenth century as the ultimate stage of this progression. The social ethos that saw angling as the parable of the vita beata and could say of life:

> Alas, our time is here so short,
> That in what state so'er 'tis spent,
> Of joy or woe does not import,
> Provided it be innocent [1]

is the ethos of a society far removed from the medieval which saw hunting as the parable of the whole life in which Man's duty was to be an active participant (even by strenuous contemplation), not be merely "innocent". For these reasons, the mysteries of hunting readily become the useful servants of literature and continue in that rôle on into the Elizabethan period. All the operations of the hunting field offer themselves for layer upon layer of analysis and an age that took death seriously [redacted] was capable of both the keen enjoyment of the chase and of taking the noble ending of a noble beast as an earnest of the noble ending of man, and treating it with all the solemnity pertaining thereto. The beasts, after all, were put on earth for Man's edification. Hunting may, as Raven says,have had little to offer natural history - it had much to offer to literature for it has much to do with life and death and it would be difficult to find an emotion that is not associated with it - from the sexual (Sir Gawain and the Green Knight again) to the sacramental (Julius Caesar again). A beast may make the final stand with admirable courage or the desperation of the coward, a man might perform its last rites with high ceremony or fling its carcase to the dogs: the excitement and pride of the chase culminates sometimes in frustration, sometimes in triumph, often in compassion, occasionally in magnanimity.

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[1] Poems of Charles Cotton, ed John Beresford (1923) page 93. The poem is called "Contentation. Directed to my Dear Father, and most Worthy Friend, Mr Izaak Walton"

In the fragmenting society of Elizabethan England, however, hunting was becoming increasingly less useful as an allegory of life. And in real terms it was becoming increasingly expensive. The assumption in John Heywood's The Play of the Weather that Jove should grant suitable hunting weather for the gentry:

> For what thing more needful than our preservation
> Being the weal and heads of all common wealth? [1]

did not survive the sixteenth century inflation. Sir Charles Mountford in Thomas Heywood's A Woman Killed with Kindness, three quarters of a century later, is ruined by a quarrel arising from a hawking match in which, for good measure, he is told that his dogs are "trindle tails and curs" and, in his poverty laments:

> I cannot name ye any of my hounds,
> Once from whose echoing mouths I heard all the music
> That e'er my heart desired. [2]

It did not, however, need the machinations of a Sir Francis Acton to make hunting prohibitively expensive, as the many Elizabethan references to Ovid's tale of Actaeon eaten alive by his own hounds testify.

Thus, from hunting, with its usefulness as allegory for the public virtues, we come, by a combination of circumstances, to falconry and the language of private passion that so interested the later Elizabethans. It was a sport peculiarly appropriate to the Elizabethan interest in the individual, Moreover, though the terms of hunting and pursuit translate obviously into sexual terms, those used to describe the manning of a hawk offer more intimate and subtle analogies. Shakespeare's The Taming of the Shrew is a complete dramatic simile of the manning of a hawk and Petruccio follows Bert's prescription in refusing to see Kate's anger and, later, her misery:

> If thy Haggart be so angry as that she stare the in the face upon any such accidentall occasion, or sodaine thought of her present

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[1] The dramatic Works of John Heywood, ed John S Farmer (1905) The Play of the Weather Vol I page 103

[2] Thomas Heywood, A Woman Killed with Kindness, ed R W Van Fossen (1961)

> bondage, owne it not, see it not, and by all measnes possible carry thine eye from looking upon her, for that will worke her more dislike towards thee; which if you observe, you shall the sooner finde her pacified [1]

The language of falconry is full of apt and useful metaphor, from John Donne reclaiming his buzzard love to the hungry Venus eating alive an unwilling Adonis:

> Even as an empty eagle, sharp by fast,
> Tires with her beak on feathers, flesh and bone,
> Shaking her wings, devouring all in haste,
> Till either gorge be stuff'd or prey be gone:
> Even so she kiss'd his brow, his cheek, his chin,
> And where she ends she doth anew begin. [2]

The poems of Shakespeare are more full of such language than his drama. Lucrece is "kill'd"[3] by a "tow'ring"[4] Tarquin who:

> Coucheth the fowl below with his wings' shade,
> Whose crooked beak threats, if he mount he dies:
> So under his insulting falchion lies
> Harmless Lucretia, marking what he tells
> With trembling fear, as fowls hear falcons' bells. [5]

And Tarquin, surfeited "as the full-fed hound or gorged hawk"[6] is made to feel the shame of his deed. Was it, after all, worth it? Were women in general worth it, asked the Elizabethans who were more tediously apt to repeat this question than many ages:

> Yet for our sport, we fawn and flatter both,
> To pass the time when nothing else can please;
> And train them on to yield, by subtle oath,
> The sweet content that gives such humour ease;
> And then we say when we their follies try,
> To play with fools, Oh what a fool was I. [7]

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1 Edmund Bert, An Approved Treatise of Hawkes and Hawking 1619 facs ed (Amsterdam 1968) page 4

2 William Shakespeare, The Poems ed F T Prince (1960) "Venus and Adonis" lines 55-60

3 Ibid, "Lucrece" line 457

4 Ibid, line 505

5 Ibid, lines 507-511

6 Ibid, line 694

7 Edward de Vere Earl of Oxford in An Anthology of the Poetry of the Age of Shakespeare, ed W T Young (Cambridge 1933) page 22

The essential rapacity of hawks: the slow mount, the quick kill, the bird in the hand all gave the Elizabethans a very useful vocabulary of passion to exploit and suited well with a view of sex which one could hardly describe as urbane. It also suited well with the nihilism of later dramatists - a nihilism for which, in any case, sexual revulsion also provided a useful metaphor. George Chapman personifies Envy in a way that fuses upon the old morality tradition realistic observation of bird behaviour:

> She feeds on outcast entrails like a kite:
> In which foul heap, if any ill lies hid,
> She sticks her beak into it, shakes it up,
> And hurls it all abroad, that all may view it.
> Corruption is her nutriment; but touch her
> With any precious ointment, and you kill her. [1]

The fierceness and the anger of birds of prey and the difficulty of taming them give the Elizabethan use of the metaphors of awning a sharper cutting edge than those of the hunting field where the deer is more sympathetically portrayed. One can only describe the manning of a hawk as described by Bert or Latham as a species of mental cruelty, though it is almost as tough for the man as for the hawk. The Taming of the Shrew parallels this intense relationship most meticulously - all the deliberate cruelty, the sudden alarms, the apparent relenting, the talking and the petting are employed as tactics by Petruccio. And at the end, Kate is as submissive as Bert's hawk:

> I shew her the hoode, put it to and over her head many times,
> I finde her so truely manned, as that shee will no more dislike
> the stroaking therwith, then the bare hand, I put it on gently
> and very leisurely, and I could never meet with any dislike
> hereof in my Hawke. [2]

Sadly, neither hunting nor falconry continued as living modes of literary expression. Just as the old natural history did, so did they become fossilised and hardened within the body of literature generally.

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[1] George Chapman, Bussy D'Amboi .ed Nicholas Brooke (1964) II i 5-10

[2] Bert, Hawkes and Hawking 1619 (1968) page 17

The extended meanings of the hunting field, like the extended meanings of the old natural history, were still called upon by writers in search of analogy long after they had ceased to be part of anyone's regular experience. Much of the old conviction in the fitness of these terms, however, had gone and was irreplaceable. I have quoted Penshurst. By the time that we get to the country house poem, we are expected to take the hunting field for real - it may be symbolic of the social philosophy of the hunters, but it is so only because it is a real piece of English landscape, where the birds are walked up by real English gentlemen. Once again, we may let Pope have the last word:

> Awake, my St John! leave all meaner things
> To low ambition, and the pride of Kings.
> Let us (since Life can little more supply
> Than just to look about us and to die)
> Expatiate free o'er all this scene of Man.
> . . .
>
> Together let us beat this ample field,
> Try what the open, what the covert yield;
> The latent tracts, the giddy heights explore
> Of all who blindly creep, or sightless soar;
> Eye Nature's walks, shoot Folly as it flies,
> And catch the Manners living as they rise;
> Laugh where we must, be candid where we can;
> But vindicate the ways of God to Man.

. . .

Such moderate pleasures as might be enjoyed in the parkland of a country house are, in the neo-Horatian view, conducive to spiritual health and are the prerequisites of contemplation. They are not, in themselves, a model of life, merely the background from which one may draw strength to cope with life. The changed attitude to the pleasures of the chase reflects, in miniature, all the changes of attitude that I have tried to trace in this thesis. Hunting, in the middle ages, was

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[1] Pope, Essay, ed Mack (1950) "Epistle I" lines 1-5 and 9-16

the veritable metaphor of social existence and even in Elizabethan times it provided rich similes for the passions of individual and community life. By the time of the Augustans, there is neither metaphor nor simile. Hunting, for the neo-Horatian, is a part of the legitimate and moderate pleasures of life, but his attitude to it is detached in the way that we have seen Man's attitude to nature in general become detached. Man, the estate-manager, looks to see what the hunting field will do for him, not what it tells him about himself. And what it will usually do, is to soothe his soul.

. . .

Hunting, hawking and angling - all these are moderate pleasures, but the most moderate is angling. Let us look at its history.

The tradition of regarding angling as the model of moderate pleasures was established as far back as 1496 by the semi-apocryphal Dame Juliana Berners, who points out that even if the angler catches no fish:

> atte the leest he hath his holsom walke and mery at his ease, a swete ayre of the swete savoure of the meede floures: that makyth hym hungry. He hereth the melodyous armony of fowles. He seeth the yonge swannes: heerons: duckes: cotes and many other foules wyth theyr brodes. Whyche me seemeth better than all the noyse of honndys. [1]

This statement, modified or directly quoted, appears in nearly every subsequent work on angling and there is a reminiscence of it as late as 1662 in Robert Venables' The Experienc'd Angler:

> And suppose he take nothing, yet he enjoyeth a delightfull walk by pleasant Rivers in sweet Pastures, amongst odoriferous Flowers, which gratifie his Senses and delight his Mind. [2]

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[1] Dame Julian Berners, A Treatyse of Fysshynge wyth and Angle 1496 facs ed M G Watkins (1880) [page 2]

[2] Robert Venables, The Experienc'd Angler or, Angling Improv'd 1662 A4^{v} facs ed in The Universal Angler 1676 (Menston 1971)

This combination of mild action and pleasant contemplation was epitomised by Walton in the subtitle to his Angler: "the contemplative man's recreation" and expanded upon in a most interesting passage within its covers:

> And for that I shall tell you, that in ancient times a debate hath risen, (and it remains yet unresolved) whether the happiness of man in this world doth consist more in Contemplation or action?
>
> Concerning which some have endeavoured to maintain their opinion of the first, by saying, That the nearer we mortals come to God by way of imitation, the more happy we are. And they say, That God enjoys himself only by a contemplation of his own infinitenesse, Eternity, Power and Goodness, and the like. And many of the fathers seem to approve this opinion, as may appear in their Commentaries upon the words of our Saviour to Martha, Luke 10. 41,42.
>
> And on the contrary, there want not men of equal authority and credit, that prefer action to be the more excellent, as namely experiments in Physick, and the application of it, both for the ease and prolongation of mans life; by which each man is enabled to act and do good to others; either to serve his Countrey, or do good to particular persons; and they say also, That action is Doctrinal, and teaches both art and vertue, and is a maintainer of humane society, and for these, and other reasons to be preferred before contemplation.
>
> Concerning which two opinions I shall forbear to add a third by declaring my own, and rest my self contented in telling you (my very worthy friend) that both these meet together, and do most properly belong to the most honest, ingenuous, quiet, and harmless art of Angling. [1]

At first sight, this passage may seem to hark back to the old Elizabethan debate between the life of action and the life of contemplation. And indeed there is something Elizabethan in it as there is in all of Walton. But the philosophy with which it closes is more truly Augustan.

If we follow the literature of angling through from its beginnings, we will find in it all the changes that I have tried to trace in the previous chapters. We start, for instance, with a refreshing draught of Elizabethan realism. That remarkable first book (after Berners) whose running title is The Arte of Angling comes upon us in 1577 as fresh as

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[1] Walton, Angler 1676 (1971) pages 27-28

a play. The angler's pupil (called Viator) arrives prompt on the opening line to pester the angler with his questions, plague him with his fatuous remarks and stay to become as keen a fisherman as the master, calling over his shoulder as he leaves the book:

> Well, if you hie you not apace, I will be at the river before you. [1]

This is not a book that concerns itself with ritual and the mastery of the correct terminology. In the space of a few pages, it presents us with three fully-realised characters: the angler, a little slow, entirely humourless, a little pompous: the pupil, ingenuous, eager, at times obtuse: the angler's wife, Cisley, who disapproves of her husband's hobby and warns against unpleasant complaints that come of sitting on the cold ground. In the interplay between the three, lies the book's charm and its right to be considered as a work of literature. The handling of incident and dialogue is masterly. One is left with the impression that if Cisley was shrewish, it was not without provocation: "hunger findeth no fault",[2] proverbial or not, is scarcely the most gracious of comments on her wifely enquiry as to how her husband finds his broth. That he has a mind above such things is evident from his late arrival home, calling impenitently as he comes:

> How now, wife, is the broth ready? [3]

> Indeed - says Cisley, her exasperation coming clear off the printed page - I have had good leisure! Good Lord, husband, where have you been all this day? Have you dined? [3]

He, of course, expects her to be completely mollified by the sight of the fish he has caught.

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[1] The Arte of Angling 1577, facs ed Gerald Eades Bentley (Princetown 1958) page 66

[2] Ibid, page 35

[3] Ibid, page 27

From this attractive beginning, the literature of angling was to continue a fine tradition of personal anecdote in place of the magisterial handing on of ritual, and works on other field sports were, eventually, to follow suit in purveying less mystique and more entertainment. Nevertheless, The Arte of Angling had no immediate followers and the Baconian upheaval found writers on angling doing much the same thing as writers on natural history in general. On the one hand, we have utilitarian writers appealing to the sturdy self-interest of a new squirearchy in such titles as John Taverner's Certaine Experiments Concerning Fish and Fruite (1600) and George Churchey's translation of Jan Dubravius':

> A New Boke of good Husbandry, . . . Conteining the Order and maner of making Fish-pondes, with the breeding, preserving, and multiplying of the Carpe, Tench, Pike, and Troute, and diverse kindes of other Fresh-fish.

In the latter, Dubravius/Churchey promises enticingly:

> if you seeke after profite, a measure of Carpes is more worth then is a cocke of Hey, a shoke of Corne, or a burden of Wood [1]

On the other hand, we may parallel the attempts of Poly-Olbion and The Purple Island to inflate realism to a plane above realism, by the splendour of John Denny's magnificent Secrets of Angling (1613). Ingenuously, he brings in the Metamorphoses to help him heighten his effects, retelling the story of Deucalion and Pyrrha at some length and viewing the sunrise in terms of the well-worn mythology:

> I count it better pleasure to behold
> The goodly compass of the lofty sky;
> . . .
> And fair AURORA lifting up her head,
> All blushing rise from old TITHONUS' bed [2]

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[1] John Dubravius, A New Booke of good Husbandry. Written in Latin by Ianus Dubravius, and translated into English at the speciall request of George Churchey (1599) Civ. facs ed in J Milton French, Three Books on Fishing (Gainesville 1962)

[2] I[ohn] D[ennys], The Secrets of Angling, ed Edward Arber in An English Garner (1877) Vol I page 158

This sorts oddly with the more practical matter in the poem, though that, in itself, is described in the same heroic strain:

> Then buy your hooks the finest and the best
> That may be had of such as use to sell,
> And from the greatest to the very least
> Of every sort pick out and choose them well;
> Such as in shape and making pass the rest,
> And do for strength and soundness most excel:
> Then in a little box of driest wood
> From rust and canker keep them fair and good. [1]

This, perhaps, is just passable if precious. But in the next few verses we really do take off into the stratosphere:

> That hook I love that is in compass round,
> Like to the print that Pegasus did make
> With horned hoof upon Thessalian ground;
> From whence forthwith Parnassus' spring outbrake,
> That doth in pleasant waters so abound,
> And of the Muses oft the thirst doth slake;
> Who on his fruitful banks do sit and sing,
> That all the world of their sweet tunes doth ring.
>
> Or as THAUMANTIS, when she list to shroud
> Herself against the parching sunny ray,
> Under the mantle of some stormy cloud
> Where she her sundry colours doth display;
> Like JUNO'S bird: of her fair garments proud,
> That PHOEBUS gave her on her marriage day,
> Shows forth her goodly circle far and wide
> To mortal wights that wonder at her pride.
>
> His shank should neither be too short nor long;
> His point not over sharp nor yet too dull;
> The substance good that may endure from wrong:
> His needle slender, yet both round and full,
> Made of the right Iberian metal strong
> That will not stretch nor break at every pull;
> Wrought smooth and clean without one crack or knot,
> And bearded like the wild Arabian goat. [2]

This, as a description of a serviceable fish-hook, surely beats anything in Poly-Olbion or The Purple Island.

In the period of the Civil War - a dry period for natural history - there were no works on angling produced, though it is pleasant to think

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[1] Dennys, The Secrets of Angling, ed Arber (1877) English Garner Vol I page 151

[2] Ibid, page 152

of Izaak Walton practising the art and dreaming up richer and richer recipes for cooking fish whilst round about him the pillars of the world were cracking. When he comes to publish The Complete Angler, the war is over and we are happily arrived at a most delightful transitional work. He calls it The Complete Angler, but its completeness lies not in the assimilation of angling to the total world picture but in the complete story of the downfall of fish - from the worm in the field to the moment when, seasoned with herbs and swimming in claret, a fine carp is brought to the table.

This completeness does, however, start in the old way with a debate between three gentlemen, each advocating the merits of his own sport. One follows the hunt, another hawks and gentle, earnest PISCATOR is allowed the last word on angling. The debate is most solemn Aristotelianism. AUCEPS, the falconer pleads for the superiority of air as the noblest element:

> In the Air my troops of Hawks soar upoon high, and when they are lost in the sight of men, then they attend upon and converse with the gods, therefore I think my Eagles is so justly styled Joves servant in Ordinary: and that very Falcon, that I am now going to see deserves no meaner a title, for she usually in her flight endangers her self, (like the son of Daedalus) to have her wings scorch'd by the Suns heat, she flyes so near it, but her mettle makes her careless of danger, for she then heeds nothing, but makes her nimble Pinions cut the fluid air, and so makes her highway over the steepest mountains and deepest rivers, and in her glorious carere looks with contempt upon those high Steeples and magnificent Palaces which we adore and wonder at. [1]

There is something pleasantly quaint, at Walton's day, about the convention that the falcon may approach so near the sun as to be scorched by it, something Elizabethanly bombastic about those high steeples and magnificent palaces as there is about VENATOR'S attempt to demonstrate the superiority of his sport by adducing the feast of Cleopatra for Mark

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[1] Walton, Angler 1676 (1971) pages 8-9

Antony whereat eight wild boars were set whole upon the table.[1] Sir Thomas Browne himself could scarcely have capped it, but PISCATOR is, of course, allowed to do so, claiming water as the eldest daughter of the creation[2] displaying erudition of his own in the matter of feasts[3] and claiming Antony and Cleopatra as participants in his own sport.[4] Indeed, by the time all three sportsmen have had their say, the reader is liable to be as thankful as they that Theobald's house is reached.

The cornerstone of PISCATOR'S argument is, however, the quietness and harmlessness of angling:

> And let me tell you, that in the Scriptures, Angling is always taken in the best sense, and that though hunting may be sometimes so taken, yet it is but seldom to be so understood. And let me add this more, he that views the ancient Ecclesiastical Canons, shall find Hunting to be forbidden to Church-men, as being a turbulent, toilsom, perplexing Recreation; and shall find Angling allowed to Clerc men, as being a harmless Recreation, a recreation that invites them to contemplation and quietness. [5]

In a poem of Cotton's from which I have already quoted, this recommendation of angling as a quiet sport is contrasted with the lives of those who engage in more controversial pursuits:

> Who, with his angle, and his books,
> Can think the longest day well spent,
> And praises God when back he looks,
> And finds that all was innocent.
>
> This man is happier far than he
> Whom public business oft betrays,
> Through labyrinths of policy,
> To crooked and forbidden ways. [6]

The morality of that is open to question.

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1 Walton, Angler 1676 (1971) page 15

2 Ibid, page 18

3 Ibid, pages 20-21

4 Ibid, page 42

5 Ibid, page 42

6 Cotton, Poems, ed Beresford (1923) page 94

And so we are arrived back at a neo-Horatian view of Man. The debate between the three sportsmen is Walton's bow to an outmoded tradition as little necessary to the rest of the book as Gerard's inclusion of the barnacle tree was to an appreciation of his herbal. The gap between the debate chapter of the Angler and the rest of the book is the gap that I have tried to describe in this thesis. The old world picture is limned for those with a nostalgic desire to set angling within the framework of history, but Walton himself relegates it to the opening chapter and thereafter we hear no more of its claims to great ancestry, noble patronage or pious inducement. Walton would have been hard put to it to make the frame that had supported the earlier natural world bear any stress in the body of his work.

. . .

The life of Izaak Walton spans most of the years of this thesis. He was born before the publication of Gerard's herbal and he died after the publication of Ray's Historia Plantarum.[1] When we contrast The Complete Angler, the book by which he is best known, with earlier manuals on field sports, we see how far we have moved from the Elizabethan outlook. PISCATOR'S claim to have demolished his debating partners is not altogether unfounded, for there are few hunting or hawking books in the late seventeenth century to succeed the rash of them before the Civil War. Apparently, the public no longer demanded initiation into the art of being a gentleman in quite that way. In place of the high drama of the kill, we have the quiet satisfaction of a fish competently grassed, in place of the ritual of the meet, the courtesies of the river bank, in place of the esoteric terminology of mew and kennel, the plain speech of a middle-class shopkeeper.

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[1] His dates are, in fact, 1593-1683

It is, perhaps, not inappropriate then, to conclude this thesis with Izaak Walton: a shopkeeper as Gerard was an apothecary, a Royalist who managed to live in London until 1644, a friend and the biographer of some of the most important churchmen in the land and a man for whom the readiest epithet has always seemed, to his own biographers, "honest". Of such stuff, seemingly, are many English amateur naturalists made. Despite the fact that his own natural history is extremely dubious and old-fashioned, Walton seems to me to be the very epitome of the amateur natural historian, wandering by the river bank and noticing "here a Boy gathering Lillies and Lady-smocks, and there a Girl cropping Culverkeyes and Cow-slips." [1]

With Walton, we are arrived at literary natural history and are no longer considering natural history in literature. Literature continued to use natural history of course but its main preoccupations at this time were elsewhere. And science, which until this time has been a very loose term, has now acquired a hard and defined outline under the lights of the laboratory. We are thus left with a workable distinction between science and natural history and Walton is the forerunner of all those - keen observers and writers of sensitive, thoughtful prose who have given us "natural history" as a genre. It includes many men who were better observers than Walton, and many whose writings show as much charm and distinction. It includes such naturalists as Gilbert White and W H Hudson and Konrad Lorenz, author of King Solomon's Ring.

But that, as Kipling said, is another story.

. . .

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[1] Walton, Angler 1676 (1971) pages 221-222

CONCLUSION

In this thesis, I have tried to compare and contrast two different disciplines. At the beginning of the period, it is not so noticeable that they are different and the comparison is more evident and more feasible. By 1660, it has become clear that the disciplines are different and it is the contrast that is forced upon us by Butler and Shadwell and by the evidence of our own eyes and ears. In attempting to see how this has come about, I have concentrated upon the ways in which both are organised in large ways and in the small, detailed ways which reflect the larger preconceptions. Inevitably, any attempt to answer the question of whether valid parallels may be drawn between the considerations that govern man's ordering of the natural world and his ordering of literature is like trying to put a straitjacket on a blancmange and there are those who would disapprove of it on principle. To touch in any way upon things that may, ultimately, only be reducible to Zeitgeist is to run the risk of writing a Meditation upon a Broomstick. We have seen natural history pass from the emblematic interpretations of Batman uppon Bartholome, through a period of disintegration and puzzlement, to the achievement of relative stability in the connected and logical works of John Ray and the more thoughtful members of the Royal Society. I have used this progression as sidelighting for literature and, in oblique and devious ways have found John Lyly predisposed to emblem, John Webster disintegrated, the mid century puzzled and the latter century working towards connected and logical canons of taste that are most conveniently labelled "Augustan". But

is there any justification for this? Is it really permissible to call Jacobean drama "atomic" or is it an indulgence of the type beloved of the medieval schoolmen? Stephen Toulmin argues plausibly for the acceptance of Zeitgeist as a formula - a sort of primum mobile to save the appearances:

> The idea that the arts and science change in step according to a Spirit of the Times may be no better than the theory that the microcosm and macrocosm change in sympathy with one another. But it is no worse than that theory, either. Perhaps it is just a way of rationalizing parallels that we are not yet in a position to explain. But many of the parallels are genuine, and we shall see which of them are only through a proper analysis of "intellectual dynamics": that is, through an understanding of the processes by which cultural and intellectual charges in one field of activity come to produce changes in ideas, styles, or techniques in other.[1]

The acceptance of a Spirit of the Times is, according to Toulmin, a dodge - and he quotes the saying "Politics is neither an Art nor a Science, but a Dodge"[2] There seems to me to be no harm in such an acceptance - provided that we are honest about the particular dodge that we have accepted. If there is no such thing as the Spirit of the Times, then hypothesising its existence should be a permissible strategy for reducing it to absurdity. In the meantime, however, as Toulmin says, it remains a useful preconception, leaving us free for the more detailed consideration of "intellectual dynamics"

My own view of these has followed a course that has taken us from a natural history and a literature both referring themselves to their divine origin to a natural history that is consequential, seeing the answers to its queries in terms of the activity of the natural world, and a literature that sees the way to its resolution in the last door to be opened in a

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[1] "Seventeenth Century Science and the Arts" in the book of that title being essays by Toulmin, Bush, Ackerman and Palisca ed H H Rhys (Princetown 1961) pages 17-18

[2] Ibid, page 14

Restoration farce.

These, however, are the large organisational changes. Here and there, by selected examples, I have tried to demonstrate the small changes that were taking place in order to affect the larger organisational bias. Time and again, this has been seen to revolve round arguments as to the proper use of words and the linguistic constructions of the very language itself. This is understandable, for the pursuit of all knowledge is heavily dependent upon the language in which it can be expressed. Whether or not it is possible to think without language, it is certainly very nearly impossible to communicate without language. And the science of the seventeenth century, by virtue of the printing press and through the habit of letter-writing was, above all things, a communicated science. Much of the value of any study of English in relation to another discipline must, I believe, come from the highlighting of the ways in which that discipline copes with its own internal dialectic. The criteria of of logic or linguistics can do this for us only in a partial way - in the more complex and diffuse forms of persuasion, it is to the criteria of literature that we must turn for these alone give us the breadth and scope that will enable us to criticise the organisation of another discipline, not in terms of the validity of its arguments, nor yet in terms of the correctness of its grammar, but in terms of the permissibility or impermissibility of its rhetoric. George Orwell described the scrupulous writer as asking himself at least four questions:

> What am I trying to say? What words will express it? What image or idiom will make it clearer? Is this image fresh enough to have an effect? [1]

And like Bacon, he saw the dangers of becoming trapped by words:

> But you are not obliged to go to all this trouble. You can shirk it by simply throwing your mind open and letting the

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[1] George Orwell, Collected Essays (second ed 1961) "Politics and the English Language" page 362

> ready-made phrases come crowding in. They will construct your sentences for you - even think your thoughts for you, to a certain extent. [1]

Orwell's concern, as so often, was with bad language - sloppy, evasive and meaningless language. But even with language that is strong and good, what one thinks about architecture or angling, love or lute-playing is embedded in the inherited language with which one can discuss it.

So too, with natural history. An obvious example of how language and natural history affect each other is the proverb. In the same essay, Orwell goes on to point out how easily the ready-made metaphor comes to our lips, instancing, among others, "swan song". The many Elizabethan swans who sang before their death in literature made it almost impossible to believe that swans in nature don't. Sir Thomas Browne, indeed, gave the matter the attention of his incomparable prose:

> When therefore we consider the dissention of Authors, the falsity of relations, the indisposition of the Organs, and the immusical note of all we ever beheld or heard of; if generally taken and comprehending all Swans, or of all places, we cannot assent thereto. Surely he that is bit with a Tarantula, shall never be cured by this Musick; and with the same hopes we expect to hear the harmony of the Spheres. [2]

Omnivorously, Sir Thomas Browne gathers in two other hoary falsities and drops them down a hole as profound as his own rhetoric. If, with all its citation of authority and appeal to empirical fact, the Pseudodoxia Epidemica is less successful than one might expect in its interment of the falsities of natural history, then it is for reasons that do not lie with those facts themselves, but with their organisation and with their verbal presentation. Only when literature no longer demanded the sort of accretion that Sir Thomas Browne was so adept at gathering around his own prose, could the swan die unsinging and we stop listening for the harmony of the spheres.

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[1] Orwell, Essays (1961) "Politics . . . " page 362

[2] Sir Thomas Browne, Slected Writings, ed Keynes (1968) page 290

In the meantime, of course, ways out of the dilemma had been found - one of which was to use a different language (Latin) for what had become a different discipline. But the belief in a correlation between language and natural philosophy died hard and the early endeavours of the Royal Society were as much linguistic as scientific. In reviewing the material of the thesis, I should like to concentrate on this rather special relationship between language and philosophy, using, as a loose convenience, the scholastic terminology of notion, judgment and ratiocination. In a sense, the whole movement of the century can be seen as travelling from notion, through judgment to ratiocination. Where the Elizabethans sought truth in the proper discovery of the nature of things, the Augustans were to seek it in their proper arrangement. It is a question of emphasis and we will start with the Elizabethan emphasis.

Notions

For the Augustans, vocabulary was something that was either properly or improperly slotted into the larger design of a writer's whole style. But the Elizabethans worried about words in themselves. When they considered the English language, it was of its meagre vocabulary that they complained: it was deficient in "coppie" or copiousness and it was this deficiency that they set out to remedy with fluid imaginations and great zest. This zest we first observed in Chapter Two in relation to lyric poetry, noting the lyricist's fondness for using two words where one would do, for multiplying the mistress' praises with lavish repetition in order that the total effect might be greater than the sum of the parts. This repetition, F W Bateson saw as a sign of fear.[1] Daily, new coinages and new shifts of meaning carried the flood of language onwards, and the result was that the lyricist felt the need to reinforce everything

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[1] F W Bateson, English Poetry and the English Language (NY 1961) pages 31-32

he said - underpin it with alternatives. In more elevated mood, it is typical of the tragic hero, picking over the sombre notes of his soliloquy:

> The blustering winds, conspiring with my words,
> At my lament have moved the leafless trees,

cries Hieronimo in his anguish. But, lest the hearer should not be moved by one wintry image, he adds another:

> Disrobed the meadows of their flowered green,

and, piling on destruction:

> Made mountains marsh with spring-tides of my tears,
> And broken through the brazen gates of hell.

Then he drops his tone and plays the same tune in a minor key for the next five lines:

> Yet still tormented is my tortured soul
> With broken sighs and restless passions,
> That winged mount, and hovering in the air,
> Beat at the windows of the brightest heavens,
> Soliciting for justice and revenge.

All this splendour of things and images just to say that there is no justice in the world and no possibility of revenge:

> But they are placed in those empyreal heights,
> Where, counter-mured with walls of diamond,
> I find the place impregnable; and they
> Resist my woes, and give my words no way, [1]

And, even then, it is not enough to say that revenge and justice do not exist - their very non-existence means that they must be "placed in those empyreal heights" and "counter-mured with walls of diamond".

Counter-mured, too, is Elizabethan writing - hedged about by a thicket of words which, in the worst lyrics sate us with sweets, in the best tragedy lead us through successive depths of understanding. For understanding, we have seen, need not proceed from (a) to (b) to (c) by ratiocinative processes. There is another sort of understanding that comes of setting up a notion in stasis and look at it - and re-looking and

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[1] Thomas Kyd, The Spanish Tragedy, ed J R Mulryne (1970) III vii 5-18

re-looking. It is this sort of understanding that we see purveyed in the bestiary and emblem book. And as long as a belief persists that the mere naming of things is some guarantee of their notional entity, then we may see the same habits of circumscription in contemporary works of science. The long word lists that Gerard attaches to each plant are as much the product of a habit of mind as an indication of the state of botanical knowledge at the time. In a vocabulary of shifting meanings, circumscription had to serve for definition. Today, we would identify the yellow stonecrop as sedum acre, thus distinguishing it from other sedums - sedum anglicum, for instance, English stonecrop or Hairy stonecrop: sedum villosum. For Gerard, however, this plant was not only stone-crop, but stone-hore and pricket, mouse-taile, wall-pepper, country-pepper and Jacke of the Butterie. A reader to whom stone-crop was unknown, might be hazily cognisant of pricket and have his impression confirmed by wall-pepper. Or he might know none of these, but stone-crop and stone-hore might conspire together and Jacke of the Butterie might clinch the identification. Moreover, German and French and Dutch, Dioscorides and Pliny are called in in the universality of Gerard's ambition. From time to time, too, he offers us a dialect name, informing us that the now rare pheasant's eye of the south is called Rose-a-rubie by the London women.[1]

All these names attempt to fix and define - the Elizabethan method of attacking reality was to name it and I think F W Bateson is right in seeing the constant reiterations of Elizabethan poetry and prose as a sign of panic - the natural reaction of the Augustan age would have been to pare, refine and polish: the natural reaction of the Elizabethan age

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[1] See appendix page 224

was to pile up notions in the belief that whatever is named must exist.

Such a belief, uncritically applied, can have disastrous results - we are swamped by the flowers of Britannia's Pastorals, and though Oberon's knowledge of a bank where the wild thyme blows delights us and we are moved by Romeo's dispute with Juliet as to whether it was the lark or the nightingale, such selectivity often seems ouside the powers of self-control of the average Elizabethan poet or playwright. Drayton, in Poly-Olbion and Fletcher in The Purple Island bombard us with the names of things in the touching belief that if things, being named, must exist then if they exist they are worth writing about. Then too, John Webster, with a different sort of extravagance appalls us equally.

This concentration upon notions - either in heedless proliferation or in the self-imposed agony that led Hamlet from king to worm and worm to king breeds a scepticism as to whether it is possible to know - really to know - notional entities. Subjected to sophistical probings, the firm ground of the world came to seem less and less stable, the morphology of visible things blurred and uncertain - and the individualist steps in to rescue the world from itself. John Donne is less concerned with the notions extractable from the world in themselves, than in the types of judgment that may be made about them.

Judgments

The most forceful opponent of the older idea of words and the relationship that they bear to reality is Bacon. Fiercely attacking Aristotle as the "cheap dupe of words",[1] he laid down what he thought ought to be

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[1] Farrington, The Philosophy of Francis Bacon (1964) "The Masculine Birth of Time" page 63

done to restrain the vapourings of an over-speculative age. In practice, however, he is still very much concerned with notions rather than with the larger units of a ratiocinative style. Where he uses metaphorical expressions, they often advertise themselves as deliberately created - "Idols of the Tribe", "Pillars of Hercules" - in order that we should know them for what they are: the univocal statements of the Lord Chancellor. No living language, however, will submit to rigid fixation: it is a ploy of philosophers and academics to declare that they will use such-and-such a word in such-and-such a specialised sense, leaving it for the philosophers and academics who come after to reinterpret the meaning to the philosophers and academics who come after <u>them</u>. As much today as in Bacon's time, do we need some sort of control over judgment that will enable us to use a highly connotative and metaphorical language as the useful tool that it can be. Bacon's own practice is not a success. His Natural History is a collection of beads of knowledge that no-one could have strung and, though his Senecan prose pleases in small quantities, it becomes wearisome to the eye and ear when prolonged to any length.

What Bacon and the Baconian outlook did do, however, was to reinforce the age's scepticism of words as vehicles of truth in themselves and to give it authority. Where every Elizabethan/Jacobean hero picks morbidly at words, dissects them to atoms and conflates them to paragraphs, Bacon offered a remedy for just such circularity of speculation. Rather fortunately, both the language and the natural world that he tried to pin down in the Natural History, proved intractable to codification. His vision of a univocal language and a world confined in six volumes, each the size of Pliny's <u>Natural History</u>, proved to be a bureaucrat's dream and the living English language continued to grow and to attempt to deal with the multifacetted and elusive mysteries of the natural world in the same unsatisfactory way as before.

The types of judgment that were being made were, however, changing. After Bacon, there is less concentration upon the notion as revealing the inner truth of the world and more concentration upon the types of judgment that it is permissible to make about the world. Lack of confidence in the revelationary power of notions may be see in the mid century when serpent=enemy, dove=friend in a way so univocal as to be almost meaningless and when the neoplatonists were forced to take refuge in plastic principles and hypostatical unions to avoid the snares of a connotative language. Fear of plain words because they are never pure notions but almost always entail some sort of judgment was a seventeenth century phenomenon, one of the things that marks it as a modern age and something that today, when so much that we are subjected to is, in George Orwell's words, couched in "phrases tacked together like the sections of a prefabricated hen-house" [1], it is all too easy to understand. The debate over whether beasts were machines was as much linguistic as philosophic because it questioned that there was any justification for applying what Topsell would have called "proper epithets" [2] to the creatures. In the past, certain types of judgment had been so taken for granted as to have acquired something like a notional validity: the cheerful lark, the busy bee, the stupid ass and the magnanimous lion have all become unbreakable units, fossilised within the language in a way that constitutes an unquestionable judgment. In the first chapter, we saw how the lapwing earned its general sobriquet of "false" because it attempts to deceive the searcher as to the whereabouts of its nest. This, of course, is an outstanding example of what we would regard as anthropomorphic and

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[1] Orwell, Essays (1961) "Politics and the English Language" pages 355-356

[2] Topsell, The historie,9(1607) page 504: "The Epithets of myce are thes[e]; short, small fearful, peaceable, ridiculous, rustick, or country mouse, urbane, or citty mouse, greedy, wary, unhappy, harmefull, blacke, obscene, little, whiner, biter, and earthly mouse" - and so on for most of the animals he describes. The best-known illustration of this assumption that there were epithets that were not arbitrarily bestowed but somehow inhered within the substance of things themselves is, perhaps the tree-list, inherited from classical times and used by Spenser (FQ One I viii and ix) and Chaucers (P of Foulys 176-182)

misleading, and the modern biologist exercises a good deal of care in monitoring out the use of such phrases. This attitude, however, makes n sense when we try to assess the natural history of the late sixteenth century wherein the most important function of the lapwing was, indeed, just to represent this type of falsity. Edward Topsell, in the unpublished ms of The Fowles of Heaven[1] apologises for his interest in the external appearance of different species of bird:

> ffor when a man is not knowen by any better marke, it is not vnreasonable to describe him by his garments and outside. And when wee can say nothinge of a straince fowle it shalbe sufficient to name him and expresse him by his colours [2]

Some of these strange fowls were American and the influx of this new mat erial, unencumbered with allegorical trappings, encouraged naturalists to describe for description's sake. In the old world, though, the creatures did not exist primarily for their own sakes but to form the foci for moral extrapolation - to be the Book of the Creatures. Only Man was made for another purpose and the difference between Man's abilit to act and do and the other creatures' function simply to be is pointed out by Dekker:

> Man (doubtlesse) was not created to bee an idle fellow, for then he should bee Gods Vagabond: he was made for other purpose then to be euer eating as a swine: euer sleeping as Dormise: euer dumb as fishes in the Sea, or euer prating to no purpose, as birdes of the ayre: he was not set in this Vniuersall Orchard to stand still as a Tree, and so bee cut downe, but to be cut downe if he should stand still. [3]

If, today, we have come to see the world as an ecology of delicate mechanisms, we might say that the sixteenth century saw it - ideally - as a sort of moral ecology: the good beasts balanced by the bad, the

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1 Now published in a text ed by Thomas P Harrison and F David Hoeniger by the University of Texas Press, Austin 1972. The full title as projected by Topsell, was as follows:
The Fowles of Heauen or History of Birdes conteyning their true and liuely figures with the whole description of theire natures in readings Gramatical Logicall Philosophicall, Theologicall Hyeroglyphicall Medicinall and ciuill. Together with the Coate armes of noble Persons who beare in theire Eschutcheons Fowles or any part of a bird.

2 Ibid, page 30

3 [illegible] Seven Deadly Sinnes, ed Brett-Smith (Oxford 1922) page 36

macrocosm by the microcosm. Over this ideal, the Fall had spread its blight and, with it, affected man's vision so that his attempts to see into the workings of nature were bound to meet with checks and misunderstandings. Moreover, the moral ecology, like our physical ecology, though a balanced thing, is not a perfected thing. In a mutable world, it was subject to disruption and corruption. Despite all this, however, it was thought that it was possible to discover the correspondences that would lead one to an understanding of the moral mechanisms of the world. An effort, certainly, was necessary to arrive at the real essence of the stupidity of the ass and the magnanimity of the lion, but it was not at all the same sort of effort that was required to see that Shakespeare's mistress' eyes are nothing like the sun or that Donne's beloved resembles nothing so much as the other leg of a pair of compasses. From Donne onwards, when a poet makes a judgment, he makes it in a human court and not a divine. There is no natural necessity that equates a pair of lovers with a pair of compasses - and Donne knows it. He offers it to us and we approve or dislike it - we are not expected to decide whether it is <u>true</u>.

Because of this, the most that one can now say of the phrases of the metaphysicals is that they are permissible or impermissible. And in certain critical instances, this beoomes a matter of personal taste. I think the compass simile is permissible - but then I like <u>Valediction, forbidding Mourning</u> (I'm not at all sure that I like "My mistress' eyes are nothing like the sun", which seems to me rather a cheap poem) And most people would agree that Crashaw's battery-farm of phoenixes[1] was not permissible. The criterion, in other words, is no longer truth, but acceptability. Where the poet links two notions, the judgment by which this is effected is very much the judgment of Jack Donne or Will Shakespeare.

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[1] page 105

Not surprisingly, this leads to extravagances in the hands of lesser wordmongers. The metaphysical is a destructive way of dealing with the natural world because it destroys what it exploits. When this became obvious, the emphasis of the century shifted once again, and the clever juxtaposition of terms is seen to be no substitute for ratiocinative thought. Henry More's complaint that words "can no more adminster comfort than an Ivy-bush can quench our thirst"[1] turned out to be as true of phrases as it had been of notions and all attempts to arrive at notions by allowing oneself to slide into judgments demonstrated only - once again - that things are pretty much what you make them.

. . .

Ratiocination

Ratiocination moves by completed propositions. It denies that we can say anything about the nature of things merely by naming them - not even by naming them in such a way as to constitute a judgment upon them. Such things as are treated of in the process of ratiocinating should have an intrinsic validity - we would quarrel with a syllogism constructed about pink elephants, however logically flawless it might be - but the emphasis has changed and more is demanded of the reasoner than that he sees things for what they are. There is a motion as well as a being to be discovered in the external world and the appropriate linguistic tool for dealing with that motion is the sentence.

The mastery of the sentence as a tool of reasoning was something struggled for and attained in English in the course of the seventeenth century. In times of propaganda, it was liable to degenerate into a series of picture-phrases, colourful in themselves but in practice unlikely to carry the argument much beyond a position preconceived before the writer put pen to paper. Only by juxtaposition - one mood, then

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[1] Patrides, Cambridge Platonists (1969) Henry More "The Purification of a Christian Man's Soul" page 210

another, then another, then back to the first - can some development of argument take place. This was the method of Shakespeare and Webster and all the earlier dramatists. It is the method, too, of Sir Thomas Browne, quartering the ground of the hill of Truth. Once science comes to be equated with experimentation, however, a different type of linguistic formula becomes necessary. Where the argument is to follow the progress of an action - moving quite perceptibly from (a) to (b) to (c), a certain self-effacement becomes necessary on the part of word and phrase in order not to impede that progress. It was something that Bacon, for all his vision in other respects, did not see. His own prose demands a close attention from the reader because it lacks just that quality of self-effacement that is necessary to allow the mind to perceive the general pattern that carries the sense forward:

> When the mind develops ratiocinations the processes, though apparently more complicated, present less of a problem. Their measures are contained in logical forms and may even be figured according to the schemes of mathematical logic.[1]

The sentence may seem more complicated than word or phrase - it certainly demands the preacceptance of both. In fact, its demands, being of a less metaphysical nature, are more easily reduced to quasi-mechanical rules. Not what things are, but where to place them comes to be the chief preoccupation of the century that succeeded the seventeenth:

> True Wit is Nature to Advantage drest,
> What oft was Thought, but ne'er so well Exprest[2]

Organisation is all that matters, and we are arrived at Pope and Linnaeus.

. . .

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[1] Thomas Gilby, Barbara Celarent (1949) page 179

[2] Alexander Pope, The Poems Vol I (1961) An Essay on Criticism, ed E Audra and Aubrey Williams 297-298 lines

APPENDIX: GERARD'S HERBAL

TITLE PAGE: Rubric

1597: THE/HERBALL/OR GENERALL/Historie of/Plantes./Gathered by John Gerarde/of London Master in/CHIRVRGERIE./ Imprinted at London by/Iohn Norton/1597

(HENREY no 154)

1633: --- as above . . . CHIRVRGERIE/Very much/Enlarged and Amended by/Thomas Johnson/Citizen and Apothecarye/of/LONDON/ /London Printed by/Adam Islip Joice Norton/and Richard Whitakers/Anno 1633

(HENREY no 155)

1636 --- as above . . . Anno 1636

(HENREY no 156: Second edition, revised)

The layout of the appendix is intended to follow that of the herbal itself - from the prefatory matter (title-page, dedication, complimentary verses) through the bulk of the book (following Gerard's own sub-sections: The description, The place, The time, The names, The vertues) to the indices. A separate section has been added on the use of classical allusion.

My aims in this have been as follows:

To give the reader some idea of the physical reality of what is, perhaps, the most famous herbal of all time.

To compare the practice of John Gerard with the practice of both previous and subsequent herbalists.

To examine the editorial practice of Thomas Johnson in particular with a view to appreciating his conception of his editorial duty.

To answer the question: "At whom was the book aimed?"

My reason for choosing to consider Gerard is that I believe that the 1633 edition of The Herball occupies a position that is, in much more than the merely chronological sense, central to any consideration of the progress of natural history between the mid 16thC and the end of the 17thC.

I would like to thank Miss Joyce Hodgson and Dr Judith Turner, of Durham for botanical help and advice.

LIST OF ABBREVIATIONS

HENREY = Blanche Henrey, British Botanical and Horticultural Literature before 1800 (Oxford 1975)

LBM = British Museum, Bloomsbury

LBMNH = British Museum, Natural History

GER = John Gerard, The Herball (1597) [Used when the work, not the man, is referred to]

TJ = --- the same --- , revised by Thomas Johnson (1633)

TH = Thesis

1. Dorothy Redmayne
THE
HERBALL
OR GENERALL
Historie of
Plantes
Gathered by John Gerarde
of London Master in
CHIRVRGERY.
Imprinted at London by
Iohn Norton.
1597

TITLE PAGE: THE FIGURES

Previous Practice: The earliest printed English herbal with illus tp is Peter Treveris' The grete herball (HENREY no 168, illus p 16) This shows a grape-harvesting scene and is very much of a part with later gardening books whose tps usually show the practise of the art which they profess to describe (See HENREY pp 56, 61 and 159)

The tp most obviously exerting an influence upon both eds of Gerard, is that of Lyte's Dodoens. This, which Lyte inherited from the Dutch original, shows the pagan figures of APOLLO, AESCULAPIUS, GENTIUS, ARTHEMISIA, METHRIDATES and LYSIMACHUS - all appropriately labelled.

1597: Top centre: Seated female figure, dispensing natural produce. A F Johnson's Catalogue of ... Title-pages does not identify her any more precisely and I cannot find that her flowers give us any more clue (as Proserpina was associated with narcissi. See TH p 137)

Top left: Male figure leaning on a spade and bearing a pasque flower. From these two facts, I conclude that he is ADAM. As Adam is the type of Christ, it would be most appropriate to assign to him the pasque flower.

Top right: Male figure with book and double crown imperial (cp GER p 153) The book suggests one of the fathers of botany: DIOSCORIDES or THEOPHRASTUS to whom the crown imperial, a recent import from Constantinople (attrib de L'Escluse/de L'Obel) might be appropriate

Bottom left: As a tentative identification, I suggest LYSIMACHUS. The spots on the petals of the flowers that he holds in his right hand are characteristic of the yellow loosestrife (lysimachia vulgaris L.) The lily has not been identified.

Bottom right: Undoubtedly this figure represents DISCOVERY and the plants of the new world in particular (note the maize cob that he holds) The fritillary held in the right hand is Gerard's "Turkie or Ginnie-hen flower" (GER p 122) It owes its presence, one suspects, to its name, although it belies it in being a European plant.

Comparative commentary: The most striking thing about the GER tp is that the simple view of the craft being practised, which was the subject of The grete herball's tp (and which continued to be the tp subj of many medical works) is replaced by a design that is much bolder in its claim, more philosophic in implication. On page 216 I discuss neoplatonic symbolism in the insets. Here I would note only that the GER figs are already less unabashedly pagan than Dodoen's mixed crew.

The 1633 tp (illus HENREY p 52) is still more overtly Christian. Though the pagan gods are present, above them is the tetragrammaton and God's promise to man of the fruits of the earth (comment again p 216 Below God and the gods (or natural forces according to neoplatonic view) are the Ancients: THEOPHRASTUS and DIOSCORIDES, representing the inheritance of tradition. Below that again, is the author of this particular work: JOHN GERARD. The moving of his portrait (opp p 1 GER) to the tp

is more than a graceful touch: it is the affirmation of belief in modern learning: GOD ... the gods ... the Ancients ... a Modern. It is thus that we scan the page from top to bottom, absorbing a visual statement of the belief in the individual(cp, in literature, Chapters 2 and 3 of TM)

When Johnson was asked to revise GER, he was asked to do so officially by the Apothecaries Soc. Both the Barber Surgeons and the Apothecaries were working to raise the status of the profession and the tps of both eds of the herbal reflect this. TJ, in particular, makes its claim not only for the individual as such but for his performing, qua botanist, a holy task.

In sum, both tps, following Lyte's Dodoens, declare the works to be for the educated gentleman: the sort of man who knew not only the proper plants with which to enhance an Aprill Eclogue or strew upon the hearse of a Lycidas, but also their proper significance in the scheme of things.

1633:

Top left:	CERES (there is no problem of identification here as all the figures are labelled) With a sheaf of corn in her arms, a ploughed field behind her and a cob of maize - apparently growing like a tulip - over her shoulder
Top right:	POMONA with fruits and pruning knife
Mid left:	THEOPHRASTUS with a scroll and plants
Mid right:	DIOSCORIDES with a book
Bottom centre:	JOHN GERARD with a potato plant

Subsequent practice: The last herbal to follow the tp style that had been set by Lyte's Dodoens, is Parkinson's Theatrum Botanicum in 1640 (illus HENREY p 81). The sacred name still blesses the holiness of the work and top and bottom panels bear comparison with GER and TJ. The pagan ancients, however, have gone completely, and are replaced by the biblical figures of ADAM and SOLOMON (the latter a thin disguise for a portrayal of Charles I) Below, is a portrait of PARKINSON

The fashion for author's portraits may be observed in HENREY pp 86, 91, 125, 130, 141. It became, of course, almost standard practice in the 18thC.

TITLE PAGE: THE INSETS

1597: Depicts an Elizabethan garden, formally laid out, three gardeners at work within it and two Elizabethan gentlefolk taking a walk. In the middle, is a fruit-bearing tree and the eye, carried beyond it, lights upon a church spire in the far distance. In the middle distance, left, there is a cornfield: in the middle distance, right, an orchard with another labourer climbing a ladder to pick fruit. The whole is watered by cherubim from above

1633: The inset now appears at the top of the page and, instead of the domestic scene depicted by GER, shows a vision of the new Eden. The divine name is revealed in the clouds and, below that, is the legend:

Ecce dedi vobis omnes herbas sementantes semen quae sunt
Gen I 29

Fringing the bottom of the inset, is a border of highly stylised plants. The engraver, who in the two urns below has presented us with realistic and identifiable plants, is clearly facing the same problem a Milton in Paradise Lost IV lines 216ff. Both poet and engraver are forced to resort to the stylised and unrecognisable in depicting the plants that once decked Paradise. Another scroll bears the legend:

Excideret ne tibi diuini munĉeris Author
Praesentem monstrat quaelibet herba Deum

As in GER, a labourer is climbing a ladder to gather fruit: symbolising likewise man's ability to regain something of pristine truth by his own efforts in the study and husbandry of nature.

Commentary: Both Johnson and Gerard claim for the garden that it can recover for us the lost Eden: Gerard's labourer climbs the tree no less assiduously than Johnson's, the layout of his inset takes the eye over the flower garden and the agricultural land to the church of God in the far distance. But Gerard's garden is altogether more domestic, and it is the church of God, not God revealed in the clouds to which the eye is directed. Johnson, on the other hand, asserts the claim of botany to lead the student to higher truths in a much more neoplatonic fashion.

To the side of the Johnson garden, the gods (neoplatonically, the forces of nature) are given their due place in the persons of Ceres and Pomona, their duties indicated by wheatsheaf and pruning knife. The motif of the cultivated field reappears to provide a background for a Ceres who, apparently, encourages and fosters the growing of American maize.

Ceres
Pomona
Excideret ne tibi diuini muneris Author,
Præsentem monstrat quælibet herba Deum.
THE
HERBALL
OR GENERALL
Historie of
Plantes.
Gathered by John Gerarde
of London Master in
CHIRVRGERIE
Very much
Enlarged and Amended by
Thomas Johnson
Citizen and Apothecarye
of
LONDON
THEOPHRASTVS
DIOSCORIDES
London Printed by
Adam Islip Joice Norton
and Richard Whitakers
Anno 1633.

PREFATORY MATTER: THE DEDICATION

- A summary of Johnson's editorial work on the prefatory matter p 221

Previous practice: Dedications in all types of books are a thing of the Renascence, and herbals are no exception. Peter Treveris asks only for God's blessing upon the work: "onelye desiryinge the gret goodness of almyghty god creatour of heuẽ and erthe and al thinge therein cõmprehended to whom be et rnall laude and prays. &c." William Turner and Henry Lyte, seeking more temporal support, both dedicate their herbals to Queen Elizabeth. Turner's is interesting in that it indicates the rising status of the herbal: he is at pains to show that "a book intreatinge onelye of trees, herbes and wedes, and shrubbes" is indeed "a mete present for a prince."

1597: Gerard's dedication to William Cecil, Lord Burghley is a masterpiece in itself. He opens with ease and assurance:

"Among the manifold creatures of God (right Honorable and my singular good Lord) that haue all in all ages diuersly entertained many excellent wits, and drawen them to the contemplation of the diuine wisedome, none haue prouoked mens studies more, or satisfied their desires so much, as plants haue done, and that vpon iust and woorthie causes: For if delight may prouoke mens labour, what greater delight is there than to behold the earth apparelled with plants, as with a robe of imbroidered worke, set with orient pearles and garnished with great diuersitie of rare and costly iewels? (GER A2)

This long opening sentence, so confidently handled by Gerard, states the substance of his work's claim to our attention. The dedication argues a threefold case for the study of plants: (i) it is pleasurable to the outward sense. (ii) it is enriching to the inward (iii) it is useful.

The claim that the use of the outward sense enriches the inward is very Elizabethan and produced wonderfully allusive poetry and drama. In Jacobean times, the breakdown in communication between outward and inward is something that justifies Eliot's criticism that Jacobean drama was ruined by its appetitie for realism.

Finally, I would notice that Gerard dedicates the herbal to Burghley qua gentleman, rather than qua statesman: comparison with Turner's dedication to the queen points the contrast. It is to Burghley as the owner of the gardens at Theobalds that Gerard looks for patronage to ensure that his herbal sells as well amongst the gentry as physicians: like Lyte, he saw the herbalist as a man of broad culture.

Subsequent practice: John Parkinson followed the practice of seeking royal patronage in dedicating the Theatrum Botanicum to the king and in having a flattering portrait of Charles I as Solomon engraved upon the tp. Later botanical works, however, tend to seek the approbation of colleagues and fellow professionals. Johnson, in revising Gerard, dedicated the work to the Society of Apothecaries, Coles dedicated The art of Simpling to Elias Ashmole (second ed), [illegible] Ray's Historia Plantarum is dedicated to Charles Hatton, a fellow botanist while Hans Sloane's natural history of Jamaica seeks universal approval in being dedicated to the Royal Society and the College of Physicans.

PREFATORY MATTER: ADDRESS TO THE READERS

Previous practice: Early herbals tend to address themselves to the reader in rather utilitarian terms: they are designed as works for home medication (TH p. 12) Peter Treveris, indeed, points out that "dyseases ben of nombre and ompossyble to be rehersed, and fortune as well in vilages where as nother surgeons nor phisicians be dwellyng nygh by many a myle, as it dooth in good townes where they be redy at hand."4 The utilitarian claim was subdued in herbals of more pretentious and comprehensive ambition and was to re-emerge in utilitarian herbals of a later date such as Culpeper's and Salmon's. In "Subsequent practice" below, we see Ram's little Dodoen offering a cheap digest of the greater work.

1597: The dedication or address "To the courteous and well-willing Readers" is skillfully handled by Gerard. He manages, artfully, to suggest in the opening lines that, although he has not been engaged in the gold and silver hunting of the America trade, that has so excited the public interest and imagination lately, he has, nevertheless, been engaged in hunting treasure of another and equally rewarding sort.

Having gained our attention, Gerard goes on to expand all the points that he made in the dedication to Burghley: the study of plants is useful and holy and has engaged the great minds of the past: Dioscorides, Mithridates, Lysimachus, Gentius and - playing his trump - Solomon

The tone of this second address is more challenging and provocative than the address to Burghley, which was couched in the urbane tones suitable for addressing a patron. When he speaks to his readership, Gerard uses something of the cut-and-thrust technique of Senecan prose and presupposes an intelligent and demanding audience, whose questions must be answered.

Finally, I would notice Gerard's modest conclusion. Modesty - the supposed shrinking from publication, disclaimers of merit, excuses that the author has had too little time - all these are preface conventions. But Gerard does enter one or two pleas that seem to me to indicate genuine concern that his work should be but a beginning for further research. He acknowledges predecessors and hopes that the work may "serue as a whetstone to set an edge vpon some sharper wits." And he begs our indulgence for any faults (of which Johnson pointed out many) hoping that others, coming after, will fine and refine on what he has done.

That, thirty-six years later, it was Thomas Johnson who was asked to do so, is something of a tribute to the popularity and usefulness of Gerard's work - and something of a misfortune for his later reputation.

Subsequent practice: As the herbal split into its component parts - botanical, gardening and guide to medication - so the works that continued to be called "herbals" addressed themselves more and more exclusively to those who wanted a home doctor. The chief aim of the herbal came to be, as William Ram saw it:

> "To make the benefit of so good, necessary, and profitable a worke [Dodoen's Crüydeboeck] to be brought within the reach and compasse as well of you my poore Countrymen & women, whose liues, healths, ease and welfare is to be regarded with the rest at a smaller price then the greater Volume is"
>
> "The Author to the Reader", Rams little Dodoen (1606) A2

PREFATORY MATTER: COMPLIMENTARY TRIBUTES

Previous practice: The use of complimentary verses and tributes to provide sponsorship for a work reached its height in the Renaissance. As embellishments to such early herb lists as the many versions of Macer, they could only have seemed incongruous and even William Turner's herbal, after its sober preface to Queen Elizabeth, gets down to business with Acanthium, Aconitum and the rest. If we would seek a close parallel to Gerard we must, as so often, look to Lyte's herbal. Lyte may have translated de L'Écluse's French version of Dodones as part of the scholarly pursuits of a gentleman, but his complimentary tributes come from those qualified to make them, such as Thomas Newton, himself a translator of Levinus Lemnius (An Herbal for the Bible) and William Clowes who had seen service in France and the Low Countries as a military surgeon and practised in London on the staff of St Bartholomew's hospital.

1597: Master Gerard comming last, but not the least, hath many waies accommodated the whole vvorke vnto our English nation: for this historie of plants, as it is richly replenished by those fiue mens labours [marg. note = "Turnerus, Dodonaeus Pena. L'Obelius, Tabernamontanus."] laid togither, so yet could it full ill haue wanted that new accession he hath made vnto it. Many things hath he nourished in his garden, and obserued in our English fieldes, that neuer came into their pens to write of. Againe, the greatest number of these plants, hauing neuer beene written of in the English toong, would haue wanted names for the vulgar sort to call them by: in which defect, he hath beene curiously careful, touching both old and new names to make supplie. And least the Reader should too often languish with frustrate desire, to finde some plant he readeth, of rare vertue, he spareth not to tell (if himselfe haue seene it in England) in vvhat vvood, pasture or ditch the same may be seene and gathered. (GER B3^{v})

Commentary: This address to the reader by Stephen Bredwell, seems to me to be a very fair comment on Gerard's achievement. In sum, he declares: (i) That Gerard has digested the work of his predecessors. (ii) That he has contributed new matter both as a field botanist and as an experimental gardener. (iii) That he has made a substantial contribution to the enriching of the vernacular nomenclature. (iv) That he has made, similarly, as substantial contribution to our knowledge of plant locations.

At the head of his commendatory address, Bredwell describes himself as a physician. As such, he was typical of the type of person whom Gerard asks to subscribe complimentary verses to the herbal, no fewer than five of whom describe themselves as physicians or surgeons He is, however, incorrectly identified by WILLIAMS with another Stephen Bredwell, who was writing in the 1630s and would have been very newly qualified at the time of GER.

SUMMARY OF EDITORIAL WORK PERFORMED BY JOHNSON ON THE PREFATORY MATTER

DEDICATION - ADDRESS TO THE READER - COMPLIMENTARY TRIBUTES

Very largely, Johnson lets the prefatory matter stand. The original dedication to Burghley is left, although Burghley had been dead thirty-five years and Johnson's own dedication, preceding this, is an austere, full-page Latine dedication to the Society of Apothecaries, naming the Master and the Wardens (HENREY p 53). The rest of the prefatory matter (apart from two complimentary verses) is left to stand. As the 1633 new edition of the herbal was done under the aegis of the Society of Apothecaries as a semi-offical publication, the retention of Gerard's prefatory matter is an indication that his name still carried a good deal of prestige. The plain capitals, each line centred, of the Johnsonian dedication, put a stamp of classical dignity upon the original.

The two verses that Johnson does see fit to leave out are vernacular verses, contributed by Thomas Thorney and William Westerman. Neither comes over as much of a poet, but as both were prestigious sponsors (Thorney is identified in WILLIAMS as a Master of the Barber Surgeons and Westerman in FOSTER'S Alumni Oxoniensis as Bishop of Hereford at the time of the publication of the herbal), it seems most likely that Johnson's editorial pencil was exercised as much upon the ground of the inadequacy of the English language as upon purely aesthetic criteria, though he may indeed (considering that he does exercise his editorial judgment upon poetry in the bulk of the herbal (TII pp 234-237) have felt that Dame Nature described as "no snudge" of "hir faire flowring brats" (GER B3) was infelicitous enough to warrant censorship. Nevertheless, these verses are no worse than complimentary verses usually are.

Following all Gerard's prefatory matter, is Johnson's own address to the reader - a lengthy epistle of twelve and a half pages in which he takes the opportunity of giving a sober and careful account of the progress of botany from Solomon until the present day, paying tribute to ancient and contemporary botanists as he finds them. Solomon, we are told by Johnson, asserting the holiness of botany, studied plants first for the honour of his Creator and second for the good of his subjects. Thence follows a chronological progression to bring us down to modern times - all as comprehensively as Johnson knows how, even when the botanists concerned have, according to him, slender claim upon our consideration: "I must not passe ouer in silence, neither need I long to insist upon Galen, Paulus Aeginata and Aetius" says Johnson, carrying on after these brief credits to the barbarous middle ages and a scholarly account of the manuscripts of pseudo Apulius that he has been able to have a look at. From these again, we move on to a full account of modern botany - this section includes the well-known attack on Gerard - and the address concludes with an acknowledgement of Johnson's immediate debts: to Mr John Goodyer and to Mr George Bowles, both of whom have helped him with plants and plant descriptions.

The whole is, one feels, a very Johnsonian exercise: the manifesto of a respected member of a professional body, interested in giving the history of the profession authenticity and in providing a review of the progress made so far.

THE DESCRIPTION

Previous practice: There is no evidence to suggest that early herbals considered it any part of their duty to describe plants. Sketchy descriptions are sometimes given in early herbals, but field identification of plants was commonly assumed to be the business of the professional herb gatherers (TH p 12), Nor did early herbals consider it a part of their duty to be comprehensive. We will find Amaranthus (the plants described below) in a dictionary such as the classical and mythological dictionaries of Charles and Robert Stephanus when, because it is exotic and unknown to medicine, we will not find it in Banks or Treveris. Up until the time of Turner, anyone wishing to identify a plant encountered in the field or in reading would be better served by a dictionary than a herbal.

1597: It farre exceedeth my skil to describe the beautie and excellencie of this rare plant called Floramore; and I thinke the pensill of the most curious painter will be at a staie when he shall come to set him downe in his liuely colours: but to colour it after my best maner this I saie. Floramor hath a thicke knobbie roote, whereupon do growe many threddie strings: from which riseth vp a thicke stalke, but tender and soft, which beginneth to deuide himselfe into sundry branches at the ground and so vpwarde, whereupon do growe many leaues wherein doth consist his beautie: for in fewe words, euery leafe doth resemble in colours the most faire and beautifull feather of a Parrat, especially those feathers that are mixed with most sundrie colours, as a stripe of red, and a line of yellow, a dashe of white, and a ribbe of greene colour, which I cannot with words set foorth, such is the sundrie mixtures of colours that nature hath bestowed in hir greatest iollitie vpon this flower: the flowers do growe betweene the footestalkes of those leaues, and the bodie of the stalke or trunke base, and of no moment in respect of the leaues, being as it were little chaffie husks of an ouerworn tawnie colour: the seede is blacke, and shining like burnished horne. [GER p 255]

Comparative commentary: Amaranth, described so strikingly by Gerard, is very much a humanist's plant. Associated with Proserpina in Ovid's Fasti (IV 439), its earliest English literary use [OED] is 1596, predictably in Spenser, FQ III vi 45. Botanically, it was described by Turner 1551. The Gerard description has some interesting features:

1. Gerard, in all his descriptions, keeps an eye on the illustrations. There were often hand coloured - at the printing works (eg that presented to Sir Thomas Bodley by Norton - HENREY frontispiece) or by the owner. The integration of text and woodcut seems to me to have been one of the happiest achievements of Renascence herbalists (TH p 20)

2. I said that Amaranth was a humanist's plant. In GER, we see the enthusiasm which exotic plants generated in contemporary botanists: sometimes at the expense of detached criteria. It is not always clear in GER what is exotic and what native, what wild and what cultivated. It is this that gives Elizabethan meadows such eclectic variety and enables Milton to bring Amaranth to strew the bier of Lycidas as well as the native primrose and violet. Nor are the criteria for description any more rigidly applied - we are dependent on Gerard's personal sense of priorites as to details of height, colour, shape etc. To do him justice, he is never so cavalier as Culpeper (below) and we see him

conscientiously sticking to the predetermined order of his herbal in his description of camomile: "To distinguish the kindes of Cammomils with long description it woulde but inlarge the volume, and small profite wouldo thereby redounde to the Reader, considering they are so well knowne to all; notwithstanding it shall not be amisse to saie something of them to keepe the order and method of the booke, hitherto obserued." (GER 614)

Johnson does not interfere methodically with this. His practice (below) is to let the GER text stand and add to it his own comment or correction, using double daggers where he inserts material, single where he alters. Without radical disturbance of the GER text, he could do no more and was, in any case, systematically in no position to do so. What we are left with is an accurate, corrected and up-dated GER, edited with unprecedented scrupulosity.

1633: I haue not seene this thus variegated as our Author mentions, but the leaues are commonly of three colours; the lower part, or that next to the stalke is greene; the middle red, and the end yellow, or else the end red, the middle yellow, and the bottome greene

says Johnson, in his dry and scrupulous way. But he imparts his own enthusiasm to a fifth sort of amaranthus:

5. This in stalkes and leaues is much like the purple flowre Gentle, but the heads are larger, bended round, and laced, or as it were wouen one with another looking very beautifully like to Crimson veluet: this is seldome to be found with us; but for the beauties sake is kept in the Gardens of Italy, whereas the women esteemed it not only for the comelinesse and beautious aspect, but also for the efficacy thereof against the bloudy issues, and sanious vlcers of the wombe and kidneys, as the Authors of the Aduersaria affirme

Subsequent practice: The Reverend William Keble Martin, like Gerard, believes in the holiness of botany and sets upon the opening page of the Concise British Flora, the verse:

Oh all ye green things upon the earth, bless ye the Lord.
Praise him and magnify him for ever

has technical language made for his hand when he comes to describe the amaranth that is sometimes found in this country:

Amaranthus retroflexus L. Stout erect, pubescent, leafless above; leaves ovate; flo in dense spikes; sepals 5. Casual, alien, in cultivated land. Flo. July-Sept.

The forging of this language as a tool became, as we saw, imperative in the seventeenth century (TH pp 172 - 174) The herbal, sui generis, ceased to bother too much with description and that aspect of their work was taken over by more strictly botanical books. Culpeper, for instance, says of camomile: "It is so well known every where, that it is but lost time and labour to describe it" This cheerfully irresponsible statement appears on page 73 of a copy of Culpeper that I possess which was printed in 1952 on very cheap paper with a dust jacket describing it as "Culpeper's world famous guide to Radiant Health". Apart from the badly printed text, there are a dozen crudely coloured plates and the whole is prefaced with an alphabetical table as absurd as Treveris'. The herbal has declined a long way.

THE NAMES

Previous practice: The Latin nomenclature to be found in early herbals bears little relation to the nomenclature of either Renascence or modern times. To Gerard, it was the barbarous naming of the apothecaries (see GER pp 769, 867, 1315) and arguably the most imperative task facing the 16thC botanist was the establishment of a working Latin nomenclature. The first productions of TURNER (1538 and 1548) were devoted to this task. Latin names are of three sorts: (i) Apothecaries Latin - highly corrupt and arabised. (ii) Humanist's Latin - arising from translation of new texts and prompted by the desire to identify precisely the plants of the Ancients. (TH p 28ff) (iii) Descriptive Latin. If (ii) failed (and the difficulties of equating a N European flora with a Greek soon became apparent), a descriptive phrase (eg Lychnis sylvestris rubello flore GER p 382) might be used. Sometimes the name will be a back translation from the vernacular, resulting in some rather strange-looking Latin.

The final form of Latin names: the Linnaen binomen, is considered under "Subsequent practice" below.

1597: [Of Swallow woort] It is called of the later Herbarists Vincetoxicum: of Ruellius Hederalis: in high Dutch Swaluwe wortele, that is to say in Latine Hirundinaria: in English Swallow woort, of our gentlewomen it is called Silken Cislie; AEsculapius (who is saide to be the first inuenter of Phisicke, whom therefore the Greekes and Gentiles honored as a God) called it after his owne name Asclepias, or AEsculapius herbe, for that he was the first that wrote thereof, and nowe it is called in shoppes Hirundinaria.

Commentary: This is a fair enough sample of Gerard on names:

(i) Barbarous or "shoppe" Latin is to be replaced by the Latin of the "later Herbarists"

(ii) Because there was no commonly accepted nomenclature, authorities were specifically cited where there were discrepancies - and continued to be so cited throughout the century RAY (Historia Plantarum p 1505) has, for Ivy: Hedera communis major & minor J.B. [Joannes Bauhinus] arborea C.B. [Caspar Bauhinus] item major sterilis ejusdem. Arborea sive scandens & corymbosa communis Park.[inson] item Hedera helix ejusdem & Ger.[ard] Climbing, or berried Ivy; also barren, or creeping Ivy.

(iii) "High Dutch" - and any other language to which Gerard has access

(iv) "Of our gentlewomen" - and some not so gentle. The "vulgar sort of somen", for instance, called Marigold "Iacke an apes a horse backe [GER 602]. In this way, Gerard has given us many dialect names - unfortunately, he rarely specifies where these come from, though there are references to "Cheshire, my natiue countrie" [eg p 1143] and we hear that Adonis flower is called Rosearubie in London [GER 310] and that darnell grass is called "Sheeregrasse or Henne" in Lincolnshire [GER 7]

(v) "AEsculapius" Gerard inherited the dignity of classical plant patrons from Lyte and, as we have seen, made much of these in the prefatory matter. The tying down of plants to ancients was a method of reinforcing

botany's claim to merit serious attention. For Gerard, however, there was an intrinsic fitness in assigning swallow wort to Aesculapius in a way that there is not in Linnaeus' half-quizzical christening of the plant Andromeda (below)

Commonly, Gerard offers us plant names in English, Latin, Greek, Hebrew and Low Dutch, French, Spanish and Italian. His practice in this, as in much else, is informative, but not uniform and as and when he has other languages to offer, he does so. Arabic (or what Gerard claims in Arabic) is of frequent appearance (eg pp 41, 124, 1337, 1337) though China may be a loose term to cover several Eastern tongues (p 1337 eg, he equates it with Chinese and at 335 with Persian and Turkish) It seems, in any case, likely that the formation of some of Gerard's arabic names is only to be accounted for on the assumption that they have come via Persian or Turkish. Other provenances include Malacca(1337), Malabar (vulgar and gentle - 1337 and 1333), Cochin and Malaya. Nor is the new world neglected in the plant Yucca (1359), in mention of the Peruvian peoples (273) and in a splendidly expansive reference to the "inhabitants of America and the Islands adjoining, as also the east and west Indies" for whom Gerard's "Turkie corne" is Maizium, Maizum or Mais.

1633: TJ makes no alteration to the passage opposite (p 898) On the whole he follows Gerard very closely - rather unexpectedly so in view of the importance of the science of correct naming at the time. There are, however, some silent omissions and some emendations of the Johnsonian type - GER, when censorious of the practice of his predecessors tends to get toned down or silently edited.

Subsequent practice: The use of apothecaries' Latin dies out - Johnson does not reproduce the barbarous Latin index given by Gerard (See further page 231) and, as the naming of plants became regularised, so the naming of plants in the various vernaculars also died out. The attempt to assign classical plant names to a native flora came to be replaced by systematics as the pressing need to distinguish between species and sub-species forced botanists into the assumption of an arbitrary nomenclature. The emphasis of the work of Gerard is upon identification, the emphasis of the work of later botanists comes to be upon organisation. How far we have come from the attempt to recapture the botany of a classical world may be guaged by the whimsicality of Linnaeus' dubbing of the plant Andromeda:

> Her beauty is preserved only so long as she remains a virgin (as often happens with women also) - ie until she is fertilized, which will not now be long as she is a bride. She is anchored far out in the water, set always on a little tuft in the marsh and fast tied as if on a rock in the midst of the sea. The water comes up to her knees, above her roots; and she is always surrounded by poisonous dragons and beasts - ie evil toads and frogs - which drench her with water when they mate in the spring. She stands and bows her head in grief. Then her little clusters of flowers with their rosy cheeks droop and grow ever paler and paler . . .

Quoted Blunt, The Compleat Naturalist (1971) page 56
Further work on Linnaeus' classical mythology has been done by John L Heller (see Bibliography)

THE PLACE

Previous practice: After the description of a plant, its habitat an an account of its flowering ("The time") are the most basic requirements of a field guide. Like the description, these are of small concern to people who bought their herbs over the shop counter and who used herbals only as a guide to medication (TH p 12). With Dodoens and with Turner, however, we have an interest show in the circumstantial. Dodoens tells us that dittany is to be found in the garden of Jan Vreckon in the Netherlands.

1597: [of Sweete Cullions] The Place These kinds of Stones or Cullions do grow in drie pastures and heathes, and likewise vpon chalky hils, the which I haue found growing plentifully in sundry places, as in the fielde by Islington neere London, where there is a bouling place vnder a fewe old shrubby okes. They grow likewise vpon the heath at Barne elmes, neere vnto the head of a conduit that sendeth water to the house belonging to the late sir Frances Walsingham. They grow in the field next vnto a village called Thistlewoorth as yee go from Branford to hir Maiesties house of Richamond; as also vpon a common heath, by a village neere London called Stepney, by the realtion of a learned merchant of London, named master Iames Cole, exceedingly well experienced in the knowledge of Simples

The yellow kinds growe in barren pastures and borders of fields about Ouenden and Clare in Essex. Likewise neere vnto Muche Dunmowe in Essex, where they were shewed me by a learned gentleman master Iames Twaights, excellently well seene in the knowledge of plants.

Commentary: The above is Gerard at his most typical and most endearing. If he is occasionally mistaken, it is the meticulousness of Johnson that emphasises his lapses and it is pleasant to see such an authority as Miss Henrey re-examining the charge of plagiarism that has been made against Gerard (HENREY pp 43-48), concluding by saying that, even when we admit his faults (and she demonstrates that these have been greatly exaggerated), we are left with a well-written work about whose charm there can be no dispute. Certainly, to read a passage such as the above is to understand why so much nostalgic ink has flowed on the subject os such things as orchids in the green fields of Islington and on Stepney village common.

Also typical, is Gerard's generous attribution of plant finds to his friends and collaborators. Robert Jeffers has produced a list of over 50 of these in the index supplement to The Friends of John Gerard, proof sheets of which may be seen in the library of the Linnean society in London.

The additional information given by Johnson and quoted below is a fair sample of his procedure and follows closely that adopted in editing the section headed "The Description" Johnson edits anywhere that he finds it necessary: correcting if he finds GER wrong, adding his own observations very frequently and, here and there, noting the contribution of another botanist - the most important of these being John Goodyer. It is valuable work of the sort that typifies his whole treatment of GER: careful and scholarly and continuing a method that was to characterise the botanists who were to follow. Johnson adds his own notes and observations to GER and the resultant edition was, in its turn, used by John Ray (referred to as Ger. Em. in, eg, the Synopsis methodica Stirpium Britannicarum) which, in its turn again, became the subject of annotation and emendation by botanists and enthusiasts well into the eighteenth century: as witness extant copies with the notes of Dale, Doody and Petiver that may be seen in the LBM and LBMNH (infor: STEARN, 1973 pp 19-22)

1633: To the information opposite, Johnson adds:

> I receiued some roots of the second from my kind friend M Thomas Wallis of Westminster, the which he gathered at Dartford in Kent vpon a piece of ground commonly called the Brimth: but I could not get them to grow in a garden, neither do any of the other Satyrions loue to be pent vp in such straight bounds. (TJ p 219)

Subsequent practice: In the latter part of the seventeenth century, locations assumed an importance that they have never done before nor since. When botany became a corporate activity, it became necessary that precise locations be given in order that some sort of consensus communis could be arrived at in the practice of naming. Just as it was necessary to name a multitude of authorities in an attempt to arrive at agreement, so it was valuable to give as many locations as possible. "Found in a Bog, about a Mile from Sudbury in Essex, by Mr. Allen Apothecary there" is a location for Caryophyllata montana purpurea and there is a note: "Caryophyllatam flore amplo purpureo, quadruplici aut quintuplici serie petalorum observavit D. Lawson prope Strickland magnum in Com. Westmorland. (Caryophyllata montana flore pleno Merr. P. At Brearcliff in a Wood of Mr. Brearcliff, below his House.)"

Ray, Synopsis, ed Stearn (1973) p 253.

THE TIME

Previous practice: The time of a plant's flowering, like the description and place, is primarily of interest to those who wish to identify and/or collect. It is one of the most notable omissions of early herbals that they hardly ever give a plant's flowering period. Once again, we see that the users of early herbals were not, themselves, expected to be gatherers of simples.

With the Renascence, we enter a period of enthusiastic plant hunting that was to last into the Victorian era. It was an age of collection generally: Renascence man loved curiosities and the manifestation of this love, in botany, was the hortus siccus, a herbarium of dried plants for reference purposes. For anyone wishing to collect such a herbarium, some knowledge of the times when a plant might be expected to be in flower is vital

1597 and 1633: Under The Time, Gerard enters details of the plants' yearly cycle - the most important event being, of course, the flowering period. But he may give information as to when to sow (eg 1030, 63) or, in the case of fruit trees, the time at which to gather the fruit (eg 1264). In the case of plants whose flowering and fruiting is less easily defined, Gerard may content himself with a general statement as to when it "flourishes"

There is little that Johnson could have added to this section and little that he has to alter. He might, perhaps, have rationalised the presentation of the information on flowering and fruiting (where, for instance, instead of repeating the months Gerard economically says that a plant flowers at the same times as a kindred plant). On the whole, though, this section is useful and competent and allowed to stand.

THE NATURE AND VERTUES

Previous practice: This is the last of the subsections into which Geard divides his consideration of plants. Let us recapitulate with Macer:

Groundeswely.

Groundeswely we clepin in latin senecion, and þe greek clepiþ her yringenon [= The Names] She is clepid sensecion for-by þat her flour is like hore heres [= The Description] Þis herbe groweþ comenly in valles in gardynes [= the Place] Þis herbe is colde [= The Nature] Her rote shal not be put in vse of medecynes [= The Vertues, of which many follow] This herbe nyzt þou take or gadre at morowe or at mydday pp 161-162

None of these items of information is standardised in Macer - except the Vertue: we get no alternative name for peony, no description of morel (pp 158 and 172), no locations for most of the herbs in the book and no invariable categorisation of the nature of heat or cold, wetness or dryness

Macer, ed Frisk (1949)

1597 and 1633: We have seen how Gerard standardised his account of plants, working on the model of Lyte's herbal. In Description, Place and Time, he has given most of the information that we would demand of a modern plant book - even if the vocabulary of his description is sometimes a matter of personal appreciation and the method of his place and time are somewhat irregular (the section on Names is rather different - we demand only two names today from a plant book: the vernacular name and the Linnean, but that is because our botanical nomenclature is now stabilised)

The section on the nature and vertues of plants was, in the early herbals by far the largest - it is so in Macer and Gerard gives very generous space to the nature and vertues, tabulating the remedies under separate letters of the alphabet for easy reference and producing a traditional Table of Vertues which occupies more space at the end of the book than does the table of English names.

Johnson's practice is much what we have come to expect - a little silent omission, a little correction, some new material. Many of Gerard's outspoken comments on predecessors and contemporary apothecaries are excised (cp GER p 860, TJ 1012 or GER p 974, TJ 1136) When Johnson adds in new matter, he is usually careful to say where he got it: a contribution from GOODYER at p 1017, a wound cure from CLUSIUS at p 1070

THE INDICES: LATIN

Previous practice: A look at the index to a herbal is often a quick way to answer the question "at whom was the work aimed?" since an index must cater very directly for its public. Early herbals are either fairly short so that their authors clearly thought that the needed no index, or are alphabetically arranged. Either way, they usually content themselves with an index morborum which may be alphabetic or, as in the case of Peter Treveris' The grete herball be arranged to cover the ailing human body from head to foot, starting with the most noble members and organs and concluding with the base. The tp of Maplet's A greene Forest advocates the usefulness of the alphabetic arrangement:

> A greene Forest, or a naturall Historie,. . . of Stones & Mettals: next of Plants, as of Herbes, Trees, & Shrubs, Lastly of Brute Beastes, Foules, Fishes, creeping wormes & Serpents, and that Alphabetically: so that a Table shall not need . . . 1567

1597:

[1] INDEX LATINVS COPIOSISSIMVS STIRPIUM IN HOC OPERE I. GERARDI DESCRIPTARVM

[2] Index nominum Herbarum, hoc opere contentarum, quibus Pharmacopolarum officinae, Barbari & Arabes vtuntur

[3] NOMINVM ET OPINIONVM HARMONIA ET consensus

Comparative commentary: [1] This is the longest index: almost exactly double the length of the table of English names (no [4] page 232) The reason for this is that, whereas the English entry may read "Crow foote and his kinds", the Latin is used to discriminate much more specifically and offers 26 separate entries under ranunculus. It is upon this index that Johnson concentrates the bulk of his revision, incorporating his own additions to The Herball, rationalising Gerard's entries and correcting errors. Ranunculus arvorum may describe "crowfoote of the fallowed field" (GER 805) but the gap between the Latin and English names tends to increase as botanists seek to define species and sub-species in a manner unattempted by the casual observer. And as Latin becomes more and more of a dead language, it seems less whimsical to call daffodils narcissus medio purpureus praecox, n. medio purpureus praecocior and n. medio purpureus praecocissimus then to call them the timely purple ringed daffodil, the more timely purple ringed daffodil and the very hasty flowering daffodil (GER 108-109). Latin has thus already come to be used as a more precise definer and, once having defined, comes to be seen as immutable (ideally, anyway). To literature, thriving on the fluid and plastic, this is an antipathetic process. There are no codes with rigid rules in literature: not even grammar or syntax arrogates so much.

[2] The most adequate way of describing this index, is to say that the names are those used to describe plants as they pass over the shop counter. Some may be respectable classical Latin (eg helleborus), others must be sought in a medieval Latin word list.

[3] With nomenclature in the fluid state that it was until Linnaeus, it was not possible to construct any sort of index that would receive unanimous approval. None of Gerard's indices are mutually exclusive - where the apothecaries' Latin is also respectable classical Latin, we may expect to find it in the classical Latin index as well, and the names in this third, somewhat arbitrary index may be found in either (turbith, for instance is found in all three) In this third index, Gerard attempts to clarify where there may be discrepancies. He collates names used by modern botanists such as Mathiolus, Ruellius, Clusius, Dodoens, De L'Obel, Dalechamps and Gesner and by ancient writers such as Theophrastus, Dioscorides and Pliny and by classical poets such as Horace and Vergil. It is an index of loose ends, useful because unsystematic and, as such, Johnson leaves it almost untouched - but not quite. He does add and he does omit: he has been here and done what he can.

1633:

[2] Johnson omits the index of barbarous Latin completely. It seems unlikely that a pharmaceutical language so long established had gone out of use (indeed we see Culpeper using it) and more likely that Johnson was following a humanist inclination in purging barbarism

Subsequent practice: Parkinson has an index of Latin names clearly set up and easy to use. Like Johnson, he no longer bothers with the apothecaries' names and eventually only two indices of names (Latin and English) come to seem necessary, though an index morborum is often added (as in Salmon's herbal). No doubt this was a big selling point of the book as the herbal declined to its old, medieval status of a home doctor.

Ironically, of course, the Latin index that we are finally left with is an index composed in a Latin of new barbarity (if by barbarity we mean deviation from classical Latin) Modern Latin names for plants are like the old apothecaries' terms - jargon talk, both.

THE INDICES: VERNACULAR

An interest in the vernacular names of plants was, as we have seen (TH p 28ff) a product of humanist studies. The earliest botanist to take a real interest in vernacular naming was William Turner, whose Libellus de Re Herbaria (1538) and The Names of Herbes (1548) are, primarily, attempts to produce vernacular herb lists from the knowledge available. Further evidence of a awakened interest in providing vernacular equivalents may be pursued through the dictionaries of the time and in grammar books and foreign language readers (many of which are available in the Scolar Press' English linguistics series).

1597:

[4] A Table of all such English names, as are attributed vnto the Herbes, Shrubs, and Trees, mentioned in this Historie

[5] A Supplement or Appendix vnto the generall Table, and to the Table of English names: gathered out of ancient written and printed Copies, and from the mouthes of plaine and simple Countrie people

[6] See opposite

[7] A TABLE, WHEREIN IS CONTAINED THE Nature, Vertue, and Dangers of all the Herbes, Trees and Plants, of the which are spoken in this present Herball

In general terms, Johnson performs his usual editorial duty of tidying and rationalising. He does, for instance, halve Gerard's table of nature, vertue and dangers largely because he rationalises, subsuming several of Gerard's entries under a general heading. Where, for instance, GER has 46 lines on "Eyes", TJ has 16

An example of the linguistic interest in foreign vernaculars may be seen in Roger Williams' A Key into the Langugage of America (1643), published in the English Linguistics series, which provides word lists taken from the North American Indian tongues.

1633:

[6] A Catalogue of the Brittish Names of Plants, sent me by Master Robert Dauyes of Guissaney in Flint-Shire

Word lists of continental and other vernaculars, folk names and oddities and anomalies continued to appear in herbals. The supplementary Vol III to Ray's Historia Plantarum (1704), for instance, contains several supplementary plant lists - a list of rare Eastern plants (including some from the Cape of Good Hope), a catalogue of Petiver's hortus siccus, a "farrago plantarum" of West Indian plants and a list provided by William Dampier from Brazil, New Holland, Timor and New Guinea

QUOTATION AND ALLUSION

Quoting from the classics was, as one might expect, part of the humanist fashion of herbals. The authorities that Peter Treveris gives, for instance, are the authorities of the scholastic tradition: "noble doctours and expert maysters in medycynes, as Auicenna, Pandecta, Constantinus, Whilhelmus, Platearius, Rabbi moyses, Johannes mesue, Haly, Albertus, Bartholome, & more other &c (Preface to the Grete Herball). Both Turner and Lyte, however, include references to classical stories such as the metamorphic fables such as those of Io (vaccinia), Myrtle (bay tree) and Crocus (saffron). Most commonly, these are metamorphic stories in which the nymph is turned into the plant, but there is a small group of historical figures who have given their names to plants - Gentius or Lysimachus or Peony. The function played by these citations in the works of Turner or Lyte is not entirely decorative: the need to match local species with their clarsical equivalents was one of the driving forces of early botany and a classical fable was always helpful in adding weight and dignity to the identification.

1633: Huc tu iussos asperge liquores,
Trita Meliphylla & Cerinthe nobile gramen

Vse here such helpe as husbandry doth vsually prescribe,
Bayme bruised in a mortar, and base Mony-wort beside
(p 691)

1636: --- Huc tu iussos asperge liquores
Trita Meliphylla & Cerinthe ignobile gramen

--- Here liquors cast in fitting sort,
Of bruised Bayme and more base Monywort (p 691)

Commentary: The two quotations above are from the 1633 and the 1636 herbal, which for all practical purposes may be treated as the same edition. This is, though, the only occasion in which a quotation was altered from the 1633 ed to the 1636 and, as such, provides a quick means of distinguishing the two if other information is lacking. The text in the 1636 ed has, in fact, been reset (so far as I have been able to check - eg pp 112, 694, 994, 1198, 1472, 1621, 1630)

Whether the alteration seen in the examples above was the alteration of Johnson or of the proof reader who, perhaps, checking the latinity spotted the mistake 'nobile' for 'ignobile' and improved upon the translation at the same time is, of course, impossible to tell.

Tables: Regarding the tables, I would note:

1. Out of 84 quotations, Johnson revises no fewer than 57

2. Of these, he provides 21 revised translations, adds an English trans. to 4 which had none and inserts two entirely fresh quotations.

3. The rate of omitted quotes rises from none in the first 600 pp to 18 in the last 200, suggesting that Johnson was having to be ruthless towards the end to save space in an already bulky book

LATIN AND GREEK QUOTATIONS IN GERARD AND JOHNSON COMPARED

All below are directly quoted. Other references come in the form of citations and these I have not been able to count.

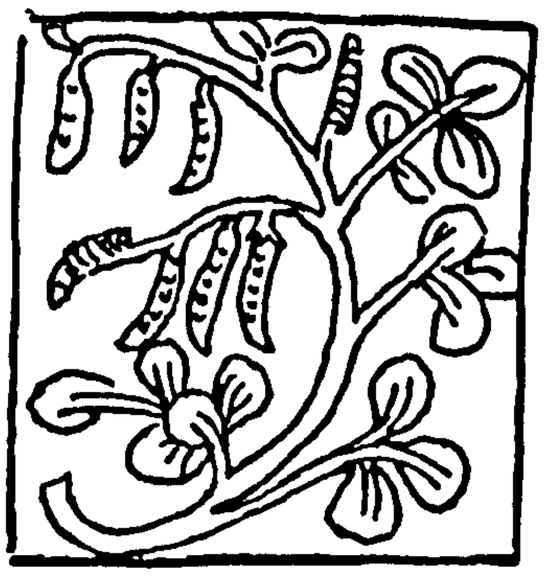
PAGES 1597	PAGES 1633	AUTHORITY	WORK DONE BY JOHNSON
46	50	Nicander in Treacles	Not revised
42	46	~~Vergil~~ Ovid, Fastorum VI	Not revised
101	194	Ovid, Metamorphoses X	Revised
101	194	Theocritus, Eidyl 19	Revised with the editorial comment that some attribute the Eidyl to Moschus, making it his third
101	195	Vergil, Eclog III	Revised
101	195	Nemesianus Eclog II	Revised
102	195	Vergil, Aeneid 6	Revised
[102]	195	Vergil, Aeneid 6	Johnson inserts a new quotation with translation.
102	195	Claudius, 2nd book of the carrying away of Proserpina	Not revised
113	130	Theocritus, Eidyl 20	Johnson does not revise the translation, but he adds editorial comment
114	132	Ovid, Metamorphoses III	Revised in part
123	151	Martial, Epigrams V	Revised
221	283	Horace, Book I, Ode 31	This is not translated by either Gerard or Johnson
[276]	349	Theocritus Eidyl 2	Johnson inserts a new quotation (in Greek)
314		Horace, 2nd Book of Satires, 4th Satire	
393 /4	490	Vergil, Georgics IV	Revised
410	508	Columella, Book X	Not revised
438	548	Ioannes Postius	Not revised
440	551	"This old verse"	Johnson adds a translation
444	556	Vergil, Georgics	Not revised
457	572	Vergil, Eclogue II	Revised
468	584	Vergil, Eclogue II	Revised
468	584	Vergil, Georgics IV	Revised

PAGES 1597	1633	AUTHORITY	WORK DONE BY JOHNSON
241	308	Martial	Translation added by Johnson
242	308	do, 11th bk Epigrams	Not revised (not trans by either)
266	336	Not identified	Not revised (" " " " ")
540	665	Vergil, Aeneid I	Johnson omits the translation
560	691	Vergil, Georgics	This was revised by Johnson, but only in the edition of 1636
540	665	Catullus, Iulia & Mallius	Not revised
571	707	Macer	Revised
603	741	Vergil, Eclogue II	Revised
603	741	Columella, 10th Gdns	Not revised
622	[762]	Not identified	Omitted by Johnson
648	792	Vergil, Eclogue VII	Revised
652	796	Vergil, Aeneid 12 (sic)	Revised
654	797	"old verse"	Not revised
667	813	Plautus, Paenulus	Not revised
689	837	Macer	Not revised
715	865	Columella, Bk X	Not revised
727	876	Vergil's Eclogues	Revised
734	882	Ovid	Revised
786	932	Horace, Ode II	Johnson omits the translation given by Gerard
791	937	Columella	do
792	[937]	Ovid, Metam. X	Omitted by Johnson
854	[1007]	Catullus	Omitted by Johnson
877	1032	"was written this distichon"	Not revised
919	1078	"some woman poet or other"	I have included this, though it is an English quote as the only time the herbal quotes in the verncular
920	1078	Vergil	Not revised (no trans by either)
957	1096	Ovid	Not revised
969	1130	Horace	Not revised
987	1140	3rd Eclog of Bucolics	Not trans by either
1072		Macer	Omitted by Johnson
1073		The Poet	Omitted by Johnson
1073		Macer	Omitted by Johnson

PAGES 1597	PAGES 1653	AUTHORITY	WORK DONE BY JOHNSON
1074		Foresaid poet	
1074		"whereof it is written"	
1074		Macer	
1074		Macer	
1074		"The poet"	.. .. .. Johnson omits all of these
1074		Macer	
1075		"the foresaid poet"	
1075		Salerna	
1075		do	
1077	1252	Henricus Stephanus	Not revised
1078		Strabo Gallus	
1078		Nemesianus 1st Eclog	.. .. .. Johnson omits
1078		do 2nd Eclog	
1091		Ovid bk I Metam	Johnson adds a translation
1132		Titus Calph 2nd Ec	Not revised
1170		Nicander acc Gorraeus	Johnson omits
1177	1360	Ovid, Heroides	
		Fastorum 4	
1177	1360	Vergil Aeneid 7	.. .. .. Johnson omits translation given by Gerard
1178	1360	Catullus, Julia & Mall	
1178		Prudentius, Hymno Cerei Paschalis	
1188		Nicander acc Gorraeus	Johnson translates where Gerard does not
1280	1463	Vergil, Georgics 2	Not revised
1291	1474	Vergil, Georgics 2	Revised
1300		Serenus Samonicus	Revised
1302		Plautus Penulus	Revised - Johnson omits the quotation, though he gives a reference to it
1303		Serenus Samonicus	Not revised
1306	1490	Vergil, Ec I	Revised
1347		Ovid	Johnson omits Gerard's trans.
1386	1583	Hor Satire 4	Not revised
1387		Verg Georgics I	Johnson omits

ICONOGRAPHY

I do not wish, here to comment on the iconography of the two eds of Gerard's herbal nor on the history of botanical illustration generally, to which Wilfred Blunt's The Art of Botanical Illustration (1950) provides a good general introduction and an excellent bibliography. As a tailpiece to an approx. which has been trying to answer the question: at what group of users were scientific works during our period aimed, I would like to compare early woodcuts of plants, not with the woodcuts of our period which are, indeed, the triumphant expression of botanical renascence, but with initial letters. Below are three cuts of plants from Treveris' Grete Herball (Ciii^{v}, D^{v}, Aa^{v}) and three initials from Turner's herbal of 1568 (page 64)



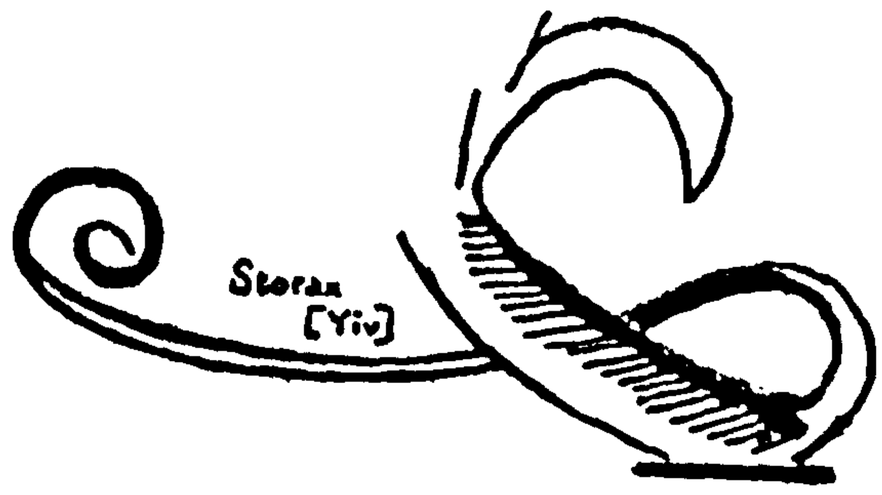
Aa^{v} "Victorium"

Ciii^{v} "asarabacca"

Dvi^{v} "berberis"

CALLIGRAPHIC FLOURISHES CONCLUDING THE STEMS OF VARIOUS PLANTS IN

The Grete Herball



They are, I think, reminders that we must always consider works of any age upon their own terms. To those who, like Pulteney (fn page 19) complain that the cuts do not look at all like real plants, perhaps the engraver might have replied that they are not necessarily meant to: that their function is decorative first, and informative only second.

Opium [Rvi^v]

SOURCES

I have divided the source material for this thesis into two categories:

1. Primary Sources in Natural History, Philosophy and Science
2. Secondary Sources

I have given no bibliography of primary literary sources as the literary material has been taken as and when I have found it amongst the general literary background of the age. Writers from whom I have quoted directly will be found referenced in the footnotes. I have tried to make these adequate.

. . .

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