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 Charles Scott Sherrington
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I

NATURE AND TRADITION

Quemcunque aegrum ingenio praestantem curandum invisebat, siquidem morbi vehementia pateretur, . . . familiarem cum eo sermonem aliquandiu conferebat, cum philosophis Philosophica, cum Mathematicis Mathematica, cum ducibus ac militibus, de urbium situ, et fluviis eas alluentibus, deque instrumentis bellicis et eorum inventoribus; cum nautis de navigandi ratione et regionibus nuper repertis; cum Theologis de Deo.

Life of Jean Fernel, by GUILLAUME PLANCY,
 published (1607) in the Univ. Medicina.

When consulted by some patient who was a man of parts he (Fernel), if the state of the case allowed, liked to get some talk with him; if it were a philosopher on philosophy, if a mathematician on mathematics, if a commander or a soldier on the site of towns, the rivers on which they were, and on engines of war and their inventors, if a seaman on navigation and newly discovered lands, if a theologian on God.

I

As to Natural Theology and what we are to understand by it, more than one well-known statement offers us counsel. Bolingbroke, type in his way of eighteenth-century culture, wrote to Alexander Pope, the poet, "What I understand by the first philosophy is 'natural theology', and I consider the constant contemplation of Nature, by which I mean the whole system of God's works as far as it lies open to us, as the common spring of all the sciences, and of that", i.e. Natural Theology. The words in which the founder of these Lectures expressed his intention allow us to think Bolingbroke's statement might have satisfied him well. There is, too, Lord Bacon's famous definition: * that "spark of knowledge of God which may be had by the light of nature and the consideration of created things; and thus can be fairly held to be divine in respect of its object and natural in respect of its source of information". Professor C. C. J. Webb quotes the founder of the Wilde Lectureship to the effect that "Natural Science is regarded as the basis of Natural Religion and therefore of Natural Theology". †

As to this last, Natural Science in its progress can provide a frame of reference for Natural Theology, but within that frame the latter's argument has to be her own. Natural Science changes. It changes sufficiently for its change to carry change into what is based upon it. Changes of detail, however, need not involve change in principle. But what Natural Theology looks to in Science are Science's generalizations about Nature.

Natural Science is a branch of knowledge by general consent not primarily based on the *a priori*. It derives essentially from details. It amasses them and lives on and by them. Its generalizations so built up are even when arrived at constantly being controlled by fresh details. In that way its generalizations do from time to time suffer change. Natural Theology is interested in this as a background and context for its own text.

The standpoint of Natural Theology looking at Nature is not

* *De Augmentis*, iii, 2.

† *Studies in the History of Natural Theology*, p. 2, 1915.

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like that taken by Natural Science. If we enquire where the general difference between them lies an answer might be that the latter observes and endeavours by observation to follow and trace the 'how' of what happens in Nature. It proceeds further to generalize about this 'how'. It tries to decipher something of it in the past and to forecast something of it in the future. Above all it expends its utmost pains on attempting to describe the 'how' fully and accurately by first-hand observation at this present. Natural Science would probably admit that what impels it thus to labour and strive is not purely a disinterested desire for knowledge for its own sake. Mankind has found that to understand the 'how' of natural events brings with it increased power to exploit Nature; and that power brings with it in its turn advantages and amenities for human life. In short, this urge driving man toward natural knowledge is just part of the human aspect of the 'zest to live' which biological study finds actuating the behaviour of all living things. Not that Natural Science would admit, nor is it implied in the above, that Science's sole curiosity about Nature regards the material benefits it can extract thence. It would hasten to add, and with all sincerity, that at least in part its object is to learn the 'how' of Nature for the sake of that 'how' itself as being one aspect of 'truth'.

What however it does not include within its scope and does not set itself to ask is whether that 'how' is 'good' or 'bad', or whence that 'how' may ultimately derive. On the other hand, Natural Theology when it enquires into Nature does enter into both these questions. This scope implies a different attitude toward Nature on the part of the two enquiries. The position can no longer be compared with that of a child watching a performance and trying to see how it is done. Rather it is something like that of a juror summoned to a trial there to enter into deeds and motives and apportion praise or blame. It is a position which times out of number has been assumed with all reverence, and its responsibilities, thus judged incumbent, faithfully discharged in that spirit. But inherent in it is a certain implication which lends itself in this case to misconception. It could be urged that for an infinitesimal fraction of a vast and unthinkably complex whole, which the said

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fraction cannot fully even perceive let alone comprehend, to set itself to pronounce on the excellence of that whole or to judge whether the motives of the whole are good or bad, or its events ill or praiseworthy, is for that minute fraction of the whole to commit a trespass against its own intelligence and to show a misconception of its own ethical proportions. Coming from such a quarter praise or blame, it might be urged, is equally an impertinence. To enter upon such a position is for human reason to allow itself an inconsequence. But though the worth of a judgment reached under such circumstances may in the abstract amount to nothing, and in its application to the whole be completely negligible in value, the possibility may yet well be that it is worth while to man for the reaction upon man himself. It may well be that to assume such a position, though that position, regarded purely logically and as a standpoint for review of the whole, seem almost fantastically 'anthropist', and miscalculated, is a step called for from man in duty to himself. If he have a duty towards himself or to his kind and his surrounding, then this purview he would adventure, as to the meaning of this whole of which he finds himself a part, may well be of true profit to himself and his own kind. That he should attempt it appears one other aspect of his striving after Truth, even as his adventure into Natural Science is one aspect of that same endeavour. There would seem therefore to be between Natural Theology and Natural Science in some degree an aspiration in common, and in some measure a potential common ground on which both stand.

For them both, as regards the scope of what is understood by the word Nature, acceptance of man as belonging within the province of Nature is of importance here. The Natural Theologist, if we may so address him, in his effort from consideration of Nature without appeal to revelation to come to a conclusion about the existence and ways of God has thus to include himself as part of the natural evidence. He then sees himself as a piece of Nature looking round at Nature's rest. Man taken as a phenomenon of Nature, Nature then carries with it besides all its rest an object of transcendent import for man's interpretation of Nature. I would think that a man for whom the human is not a part of Nature can scarcely enter fully

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into Natural Religion. Nature in his case becomes a background for a human actor who is not of it, a being who treats it as a background merely. Under that relation Natural Religion has not its full meaning. The province of Natural Theology is surely to weigh from all the evidence derivable from Nature whether Nature taken all in all signifies and implies the existence of what with reverence is called God; and, if so, again with all reverence, what sort of God. The human abstracted from it, Nature as to its rest would be from this point of view a category presenting no concrete mind which seems to experience 'values'. Nature becomes however a different object of contemplation for man if it faces him with a situation in which, so far as he can grasp it, Nature, in virtue of himself, has now entered on a stage when one at least of its growing points has started thinking in 'values'. This comes before him as part of the evidence to be considered.

The onward stream of scientific thought, although unhalting, yet so twists and eddies that the direction of its general trend may not at a given moment be plain to read. The trend can be better judged by comparison of general positions taken with significant interval apart. Thus, a period altogether earlier than our own set over against our own. The farther apart the greater the contrast, for Science on the whole is steadily cumulative of change. There are however limits to the advantage of the greater distance. The science of a more remote age is usually more difficult to recapture. It may so interlock with collaterals of its time little like those of our own that the comparison becomes a problem of several variables instead of one. For us to read what was inferred from the Natural as to the Divine under the faith of a former age, that former faith must not have viewpoints too unlike ours of today. To read the inferences may then be impossible. Scientific outlook is always part of its age. If we seek it back far prior to ourselves it may be so entangled with society and sentiments other than ours it cannot well be assessed in its own right.

We have to look for a time and scene sufficiently akin to our own for us to share the viewpoints, and then to lay the science along with its religious implications conformably beside our

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own. The mid-Renaissance seems a time which offers such opportunity. The Renaissance often dates as the beginning of the modern age. Searched for a concrete text which shall sample it not unrepresentatively, it has indeed several. Among them is one which I am taking as suitable to our purpose—a quasi-philosophical treatise, much read in its day and indeed for long after, the work of a physician, perhaps the foremost of his age. Its author, living in Paris in contact with the Court and consulted by patients and their physicians from far beyond the borders of France itself, was of liberal view and a reformer in Medicine and its teaching. The work, though never issued in the vernacular, was addressed to the general reader of that time. It is a disquisition on man's place in Nature. The writer before turning actively to medicine had been a lecturer on Philosophy in his College within the University of Paris. He was distinguished also in mathematics, and had turned with enthusiasm to Astronomy and Geodesy. It is his book, "On Hidden Causes" (*De Abditis Rerum Causis*), which can serve us for a text. When it was written he was already entering on a great career in medicine.

At that time, the mid-sixteenth century, medicine was still largely within the charitable charge of the Church. Jean Fernel however, unlike our own Linacre, his senior contemporary, was not in holy orders. As a physician he was remarkable in more than one respect. Of transcendent reputation for success at the bedside both with the Court and wealthy and with the poor who flocked to him, he was, too, the earliest to draw together into one discipline physiology, calling it for the first time by that name, and holding it to be the necessary introduction to scientific medicine. From his Paris folio of 1542, finely printed by Simon de Colines, the modern text-book of physiology starts. In the schools his preoccupation had been rather with cosmology and Cicero, and Aristotle and Pliny, than with patristic learning. What the physician thought about Nature has in every age reflected much of the instructed opinion of the time. His calling, too, has always led him to view Nature with man as its central interest. It is so here. The background of the book and of its author is on the one hand the humanistic revival still in flood, and on the other hand religious strife, not least in

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France, beginning in its bitterness to use fire and sword. Of this latter our book in its self-contained earnestness bears little or no mark.

Jean Fernel was physician to Henri II of France, and to that King this book is dedicated. Circulated in MS. for some years, it was printed in 1548 and then reprinted many times. It



found readers still for another 100 years.* It must have said something which part at least of the mind of Christendom was thinking at that time. Reprintings in Italy, Switzerland, Germany and the Low Countries as well as France during a 100 years testify to a considerable and faithful public; and never in the vernacular, is some evidence of an audience which had more than attended school. Its dedication says something of how the book

* More than thirty issues within the 100 years.

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came to be written. An aphorism in Hippocrates had long teased Fernel's thought—that sentence which asks “whether in disease there is not something supernatural”—τὸ θεῖον, *quid divinum?*

That Fernel's mind should be turning this question over is significant both of the man and of the time. The sentence had been dealt with as far back as Galen. Galen had not read into it a suggestion of the supernatural. One of the most famous of the Hippocratic writings, that “On the Sacred Disease”, explicitly rejects the attribution of disease to the supernatural. But to Fernel's ear, in an age more sophisticated than that of the old healers of Cos, the very brevity of the question “Is there the supernatural in disease?” savoured of something suppressed and something more to tell. For Fernel we must remember the question spoke across centuries beset with magic and miracle. Might not Hippocrates, the ancient oracle of medicine, choose to convey a profound truth in cryptic form, with intent that, for a time, only the wise might decipher it?

So Fernel enters on his “Dialogue”.* Two of its characters are seeking the third, a physician, to put to him this same question from Hippocrates. They put it from themselves as a living question of the time, the mid-sixteenth century. In considering it, Fernel begins at the beginning. That was his way. His early excursion into Geodesy took him forthwith to remeasuring the earth and his measurement long remained memorable. So here this question about sickness leads him at once to asking what is man, and what the structure of the world. He does not separate this study of man from that of Nature.

His acceptance of man as within Nature is of significance to us here. It means that his Natural Theology agrees to include man himself as part of natural evidence. Man and his mind loom up as part of the evidence to be considered. To Hume they did so too but in a different form.

Fernel, in his desire to begin at the beginning, is not afraid of asking questions, even when in his sincerity he cannot furnish an answer. What is Nature? he asks. Neither the Hippocratic writers nor Aristotle he thinks, much as they speak of Nature, have sufficiently defined it. Perhaps Aristotle's resolution of it

* Page-references to Fernel are to the page-numbers of the Utrecht edition, 1656.

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into movement was too radical for him. Aristotle's "Universal * Nature" he thinks can be taken as the equivalent of Plato's *Anima Mundi*, and he † approves Tully's remark that such a 'Nature' must mean a supreme Deity. Fernel submits Nature is a Principle evident but not itself isolably demonstrable. "Have you ever seen it and taken it up in your hands?" asks Brutus. Philiatros answers, "I do not try to look by actual vision at what I follow in a train of thought."

Fernel has cast his treatise as a Dialogue, a form favoured by philosophers. Plato declared thinking itself to be dialogue within the soul. Professor Spearman perhaps might not endorse that. Fernel's Dialogue has three characters. Brutus is, as we might say, the man in the street, a cultured man in the street in sixteenth-century Paris, in the University quarter. Brutus I fancy as a man who, today, from his club would indite letters to the daily paper, to the best daily paper. He airs his views and likes to encounter others. He cites Plato and has on his tongue ‡ couplets from Augurello's poem § on alchemy and the transmutation of metals to gold. Philiatros is the other and a younger character. The name at that time in Paris denoted a senior candidate for the Doctor's degree. Philiatros is primed with learning of the Faculty. At one point in an argument in the Dialogue he suggests that while Eudoxus takes the Aristotelian side and Brutus the Platonic, he himself will adduce Holy Writ. Eudoxus, in the Dialogue, is a physician senior to his two friends; he stands for Fernel himself.

Nature is not what we heard Bolingbroke call "the whole system of God's works as far as . . . open to us"; nor is it Bacon's "created things". It is a principle, seized by the mind *a priori*, but confirmed inductively. A 'cause'. The cause of the manifold of the perceptible world around us. Not in antithesis to man, but rather in corollary to man. The works of Nature stand in relation to Nature as do products of the arts and crafts to man. As when seeing a statue we know there must have been a sculptor, so when we see a mountain, a tree, or a bird, we know there must be an immediate cause for it, and that immediate

* *Dialog.* ii, 18.

† *Dialog.* ii, 7.

‡ *Dialog.* ii, 18.

§ *Chrysopeia*, Venice, 1515, printed by Simon de Luere.

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cause is Nature. Fernel declares that Aristotle himself felt that the existence of such a Nature must mean a Supreme Deity.*

But, and that is capital with Fernel, man himself, apart from his immortal soul, is of the works of Nature. Of Nature as an immediate cause. For man to be insisted on as a work of Nature points we may think to the physician in Fernel. A century later than Fernel the charge became common that the physician was essentially irreligious. The saying went that he knelt not to God but to Nature. The reply of Fernel would perhaps have been that the physician resorts to God through Nature.

Nature in any case was of intense interest to Fernel throughout. For most men at that time other interests surrounding life had more powerful appeal than Nature. But for Fernel, amid all his great practice both at Court and outside it, in contact with careers and men of all conditions, alert and knowledgeable, † Nature remained his transcendent interest, and man, individual man, was for him the crown of Nature. To hold man as Nature's work he found in no respect out of harmony with his Christian faith. He went unquestioned and unscathed through all that time of bitter religious conflict. Ignatius Loyola, a few years the older, was his junior fellow-student at the same College. He drew from Nature evidence of a sovereign power and intellect, which he identified with God. His natural religion made for Fernel only a part, though a large part, of his religious situation. He was unlike the type of physician frequent later on in the seventeenth and eighteenth centuries, for whom Nature was, if he had any religion, his whole religion. Nature was not for Fernel and his time, nor for a hundred years to come would be, a self-sufficing Reign of Law; Galileo and Newton had not yet touched the 'unmoved Prime mover' of the spheres. Nature did not utterly dominate Fernel's religion. Still less was Natural Religion his whole religion. He had too his religion based on the Christian verities. And these two were for him not two religions, but one religion. With Fernel to have a system was a necessity. For him his Natural Religion and his religion of faith must harmonize. They must not be inconsistent. Otherwise life had no peace, no plan, nor direction to follow.

* *Dialog*, ii, 7.

† Plancy's *Vita*, p. **2.