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### The Ninth Bridgewater Treatise

Charles Babbage (1791-1871) was an English mathematician, philosopher and mechanical engineer who invented the concept of a programmable computer. From 1828 to 1839 he was Lucasian Professor of Mathematics at Cambridge, a position whose holders have included Isaac Newton and Stephen Hawking. A proponent of natural religion, he published *The Ninth Bridgewater Treatise* in 1837 as his personal response to *The Bridgewater Treatises*, a series of books on theology and science that had recently appeared. Disputing the claim that science disfavors religion, Babbage wrote “that there exists no such fatal collision between the words of Scripture and the facts of nature.” He argues on the basis of reason and experience alone, drawing a parallel between his work on the calculating engine and God as the divine programmer of the universe. Eloquent written, and underpinned by mathematical arguments, *The Ninth Bridgewater Treatise* is a landmark work of natural theology.

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# The Ninth Bridgewater Treatise

CHARLES BABBAGE



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THE NINTH  
  
BRIDGEWATER TREATISE.

A FRAGMENT.

BY

CHARLES BABBAGE, ESQ.

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“We may thus, with the greatest propriety, deny to the mechanical philosophers and mathematicians of recent times any authority with regard to their views of the administration of the universe; we have no reason whatever to expect from their speculations any help, when we ascend to the first cause and supreme ruler of the universe. But we might perhaps go farther, and assert that they are in some respects less likely than men employed in other pursuits, to make any clear advance towards such a subject of speculation.”—*Bridgewater Treatise*, by the REV. WM. WHEWELL, p. 334.

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## PREFACE.

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THE volume here presented to the public does not form a part of that series of works composed at the desire of the trustees who directed the application of the bequest of £8000, by the late Earl of Bridgewater, for the purpose of advancing arguments in favour of Natural Religion.

I have, however, thought, that in furthering the intentions of the testator, by publishing some reflections on that subject, I might be permitted to connect with them a title which has now become familiarly associated, in the public mind, with the evidences in favour of Natural Religion.

The Bridgewater Treatises were restricted by the founder to the subject of Natural Religion ; and I had intended not to have deviated from their example. In the single instance in which the question of miracles has been discussed, I was led so irresistibly, by the very nature of the illustrations employed in the former argument, to the view there proposed, that I trust to being excused for having ventured one step beyond the strict limits of that argument, by entering on the first connecting link between natural religion and revelation.

The same argument will produce very various

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degrees of conviction on different minds ; and much of this difference will depend on the extent of previous information, and on the strength of the reasoning faculty in those to whom the argument is addressed. To the great variety, therefore, of the illustrations which have been adduced in proof of design and of benevolence in the works of the Creator, there can be no objection. In truth, to the cultivated eye of science, the origin and consequences of the mightiest hurricane, as well as those of the smallest leaf it scatters in its course, equally lead to the inference of a designing power, the more irresistibly the more extensive the knowledge which is brought to bear on those phenomena.

One of the chief defects of the Treatises above referred to appears to me to arise from their not pursuing the argument to a sufficient extent. When a multitude of apparently unconnected facts is traced up to some

common principle, we feel spontaneously an admiration for him who has explained to us the connexion; and if, advancing another stage in the investigation, he prove that other facts, apparently at variance with that principle, are not merely no exceptions, but are themselves inevitable consequences of its application, our admiration of the principle, and our respect for its discoverer, are still further enhanced.

But if this respect and admiration are yielded to the mere interpreter of Nature's laws, how much more exalted must those sentiments become when applied to the Being who called such principles into living existence by creating matter subservient to their dominion—whose mind, intimately cognizant of the remotest consequences of the present as well as of all other laws, decreed existence to that one alone, which should comprehend within its grasp the completion of its destiny—

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which should require no future intervention to meet events unanticipated by its author, in whose omniscient mind we can conceive no infirmity of purpose—no change of intention !

The object of these pages, as of the Bridgewater Treatises, is to show that the power and knowledge of the great Creator of matter and of mind are unlimited. Deeply engaged in those other pursuits from which my chief arguments are drawn, I regret the impossibility of bestowing on their full development that time and attention which the difficulty and importance of the subject equally deserve ; and in committing these fragments to the press, perhaps in too condensed a form, I wish them to be considered merely as suggestions intended to direct the reader's attention to lines of argument which appear to me new, and to views of nature which appear more magnificent, than those with which I was previously acquainted.

Probably I should not have been induced to place my reflections on the subject before the public, had I not, in common with other cultivators of the more abstract branches of mathematical science, felt that a prejudice, which I had believed to have been long eradicated from every cultivated mind, had lately received support, at least to a certain extent, from a chapter in the first\* of the Bridgewater Treatises; and in a still greater degree, from a work of a far different order—one, however, which derived its only claim to notice from the circumstance of its appearing under the sanction of the University of Oxford.

The prejudice to which I allude is, *that the pursuits of science are unfavourable to religion.*

There are two classes of men most deeply impressed with the conviction of the very

\* It was the first in the order of publication.

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limited extent of human knowledge—those whose contracted information renders them eminent examples of the fact, and those whose wide grasp of many of its profoundest branches has taught them, by lengthened experience, that each accession to their stock but enables them to view a larger portion of its illimitable field. Those who belong to the first of these classes must acquire the alphabet of science, in order to understand knowledge, and the elements of modesty, to use it with dignity. When they have thus graduated in the “infant school” of philosophy, they may perhaps understand the argument, and perchance be worthy of a reply,—but not till then.

In that chapter of the first Bridgewater Treatise to which I have referred, the charge seems not even to be limited to those who pursue that branch of science which is conversant with the properties of pure number, and with abstractions of a like nature, but



applies to all who cultivate deductive processes of reasoning.

It is maintained by the author, that long application to such inquiries disqualifies the mind from duly appreciating the force of that kind of evidence which alone can be adduced in favour of Natural Theology.

“ We may thus, with the greatest propriety, deny to the mechanical philosophers and mathematicians of recent times any authority with regard to their views of the administration of the universe ; we have no reason whatever to expect from their speculations any help, when we ascend to the first cause and supreme ruler of the universe. But we might perhaps go farther, and assert that they are in some respects less likely than men employed in other pursuits, to make any clear advance towards such a subject of speculation.”—*Bridgewater Treatise, by the REV. WM. WHEWELL*, p. 334.

Admitting, for the sake of argument, that there have been individuals, possessed of high intellectual powers, successfully devoted to those subjects, who have arrived by reasoning at conclusions respecting the First Cause,

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totally opposite to those entertained by Mr. Whewell and myself, I should still be very reluctant to endeavour to invalidate the influence of their conclusions, by any inquiry either into their intellectual or their moral character. Reasoning is to be combated and refuted by reasoning alone. Any endeavour to raise a prejudice, or throw the shadow of an imputation, either implies the existence of some latent misgiving in the minds of those who employ such weapons, or is a tacit admission that the question is beyond the grasp of one at least of the debaters.

Who that has studied their works ever dreamed of inquiring into the moral or intellectual character of Euclid or Archimedes, for the purpose of confirming or invalidating his belief in their conclusions? Who that possesses confidence in his own reason, justified by a laborious cultivation and successful exercise of that faculty, fails to anatomize and

refute the arguments, rather than analyze the mental or moral habits of those from whom he differs ?

The only case in which such extraneous matters can be fairly called in, is when facts are stated resting on testimony. Then it is not only just, but it is necessary for the sake of truth, to inquire into the habits of mind of him by whom they are adduced ;— whether he possesses sufficient talent and precision to enable him to state precisely what his senses convey to him, and nothing more ; or, if he receive information from others, whether he is credulous or cautious. In both cases, it is necessary to inquire into moral feelings, in order to be assured that there is no wilful mis-statement in the groundwork of his reasoning. And even when this is well established, it is still necessary to inquire whether he had any personal, professional, or pecuniary interest

which may insensibly have influenced his mind in one direction.

Such I conceive to be the sound distinction between those branches of knowledge resting on facts open to the observation of all, supported by reasoning addressed to the understandings of all, — and those other branches in which reasoning is mixed up with testimony. In the former, the argument is every thing—the character nothing: in the latter, the character must be sifted as well as the arguments.

Feeling convinced that the truths of Natural Religion rest on foundations far stronger than those of any human testimony; that they are impressed in indelible characters, by almighty power, on every fragment of the material world, I cannot but regret that reflections should have been made, in connexion with this subject, calculated to throw the least

shadow of doubt on evidence otherwise irresistible.

As, however, these views of the nature of the question may not bring that conviction to other minds, which they do to my own, and as *one* of the *disturbing forces* which act on our minds has been strongly put forward, it is but justice to state the whole of them. It requires but little insight into man's heart to perceive that profession and professional advancement — that power and wealth — have a far more frequent and more effective influence on his judgment than any mental habits he may be supposed to have cultivated.

It may be right then to state, that the author of these pages has always been an ardent but not an exclusive cultivator of some of the more abstract branches of mathematical science. In pursuing one of those inquiries,

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amongst the most recondite and apparently the most removed from any practical application, he was struck with the bearing of some of the results which presented themselves, on the question of Natural Religion; and these he has endeavoured to place before the reader, in the following pages.

The author belongs to no profession in which he can hope for advancement, if he successfully advocate one side of the question, or in which his prospects can be injured by candidly stating any arguments on the other. He has not been invited by men high in the State, and deservedly respected, to support that great basis which precedes all revelation, and on which it must all rest. Nor has any sum of money been assigned to him, that, whatever the mercantile success or failure of the present volume may be, he shall, on its publication, reap a large pecuniary reward.

Having chosen a career to which the institutions of the country hold out none of those great prizes that stimulate professional exertions, and which constrain men to yield a certain degree of deference to the opinions, sound or unsound, of their countrymen, he has, on the one hand, nothing to hope from their approbation, and, on the other, is equally exempt from any fear of their censure ; and, had his conviction been as strongly opposed to the doctrines this Fragment advocates, as it is in their favour, he would, had a fit occasion presented itself, fearlessly have laid before the world the arguments which had forced his mind to that conviction.

In conclusion, I have to express to my fellow-labourers in the cause, my hope that they will put no unkind interpretation on these remarks, which, founded on principles of human nature, are necessarily of general application ; that they will see that motives alien, in my

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own opinion, to the subject, having been once introduced, candour to those who differ from us, as well as a deference to truth itself, compelled me to state them fully.

CHARLES BABBAGE.

DORSET-STREET,  
MANCHESTER-SQUARE,  
*April 1837.*



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The following account of the origin of the Bridgewater Treatises, is extracted from one of these works:—

“ The Right Honourable and Reverend Francis Henry, Earl of Bridgewater, died in the month of February, 1829; and, by his last will and testament, bearing date the 25th of February, 1825, he directed certain Trustees therein named, to invest in the public funds the sum of eight thousand pounds sterling; this sum, with the accruing dividends thereon, to be held at the disposal of the President, for the time being, of the Royal Society of London, to be paid to the person or persons nominated by him. The testator further directed, that the person or persons selected by the said President should be appointed to write, print, and publish, one thousand copies of a work “ On the Power, Wisdom, and Goodness of God, as manifested in the Creation ;” illustrating such work by all reasonable arguments, as, for instance, the variety and formation of God’s creatures in the animal, vegetable, and mineral kingdoms; the effect of digestion, and thereby of conversion; the construction of the hand of man, and an infinite variety of other arguments: as also by discoveries, ancient and modern, in arts, sciences, and the whole extent of literature. He desired, moreover, that the profits arising from the sale of the works so published should be paid to the authors of the works.

The late President of the Royal Society, Davies Gilbert, Esq., requested the assistance of his Grace the Archbishop of Canterbury, and of the Bishop of London, in determining upon the best mode of carrying into effect the intentions of the testator. Acting with their advice, and with the concurrence of a nobleman immediately connected with the deceased, Mr. Davies Gilbert appointed eight gentlemen to write separate Treatises on the different branches of the subject.”

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Of the eight gentlemen so appointed, four were of the clerical, and four of the medical, profession. Their names, and the subjects assigned to them, are as follows:—

1. The Rev. THOMAS CHALMERS, D.D., Professor of Divinity in the University of Edinburgh—"On the Adaptation of External Nature to the Moral and Intellectual Constitution of Man."
  2. The Rev. WM. BUCKLAND, D.D., F.R.S., Canon of Christ Church, and Professor of Geology in the University of Oxford—"On Geology and Mineralogy."
  3. The Rev. WM. WHEWELL, M.A., F.R.S., Fellow of Trinity College, Cambridge—"On Astronomy and General Physics."
  4. The Rev. WM. KIRBY, M.A., F.R.S.—"On the History, Habits, and Instincts of Animals."
- 
5. JOHN KIDD, M.D., F.R.S., Regius Professor of Medicine in the University of Oxford—"On the Adaptation of External Nature to the Physical Condition of Man."
  6. Sir CHARLES BELL, K.H., F.R.S.—"The Hand: its Mechanism and Vital Endowments, as evincing Design."
  7. PETER MARK ROGET, M.D., Fellow of, and Secretary to, the Royal Society—"On Animal and Vegetable Physiology."
  8. WM. PROUT, M.D., F.R.S.—"On Chemistry, Meteorology, and the Function of Digestion."