THE CORRESPONDENCE OF SPINOZA

Edited and Translated by A. Wolf

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Volume 10

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A. WOLF

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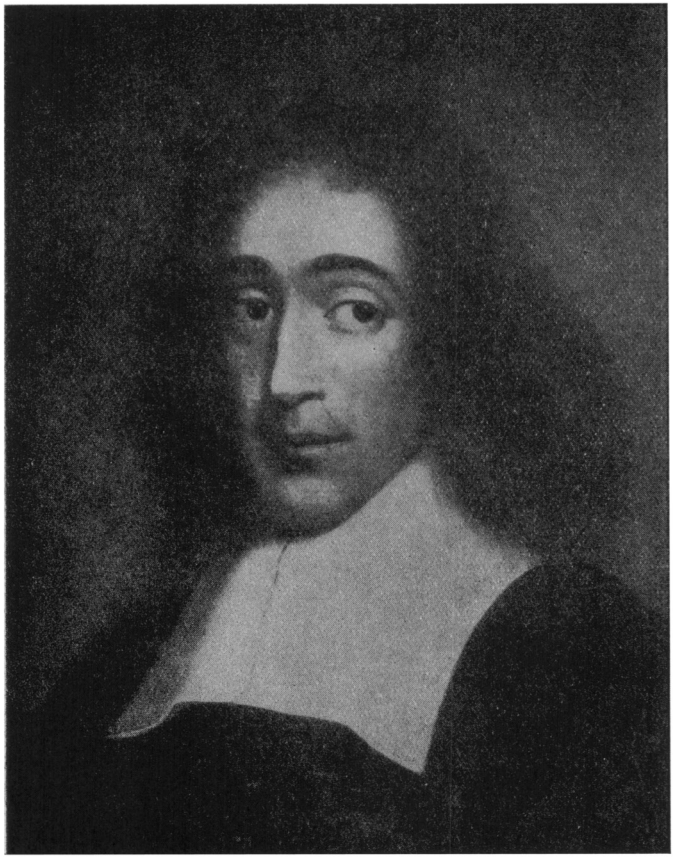

SPINOZA

(*From the original portrait at Wolfenbüttel*)

THE CORRESPONDENCE OF SPINOZA

TRANSLATED AND EDITED WITH INTRODUCTION AND ANNOTATIONS

BY

A. WOLF

Professor in the University of London, Fellow of University College, London, Formerly Fellow of St. John's College, Cambridge

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DEDICATED

TO

THE MEMORY OF

MY MOTHER

THERESA WOLF

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PREFACE

MANY years ago I proposed as the subject of my thesis for a higher degree "Some Aspects of the Philosophy of Spinoza." Two eminent scholars who were consulted about it were of opinion that everything worth saying about Spinoza had already been said. So I turned my attention to other fields of research. But when at last I was done with university examinations and degrees, I returned to Spinoza, only to find that, so far from the last word having been said, the very spade-work had not yet been done properly. Since then it has been my endeavour to do the necessary spade-work whenever I could snatch the time from other, more immediate duties. So far I have published in this connection the *Short Treatise on God, Man and His Well-being* and *The Oldest Biography of Spinoza*, both edited with introductions and annotations. I have also indicated in special papers on the subject some radical errors in the current interpretations of Spinoza's philosophy. The present volume carries the spade-work a stage farther. And I hope that circumstances may prove sufficiently favourable to enable me to complete the translation and annotation of Spinoza's complete works during the next three or four years, in time for the celebration of the tercentenary of his birth in 1932.

It has been my endeavour to make the translation at once as easily intelligible and as thoroughly reliable as possible. The translation is based on the recent Heidelberg edition of the original Latin and Dutch texts of the complete works of Spinoza; but I have used my own discretion in the choice of alternative texts and in amending a few of the readings.*

* A list of these will be found at the end of the volume, after the Annotations.

Apart from the occasional difficulties of the subjects discussed in the letters—difficulties that could only be dealt with, and are dealt with, either in the Introduction or in the Annotations—there are naturally also difficulties of translation. There are minor difficulties relating to the use of stops and of capitals, which, in all languages, was very different in the seventeenth century from what it is now; and there are more serious difficulties presented by words which have either gone out of use or have entirely changed their meaning. Wherever it could be done without risk of bewildering the reader, something of the flavour of the seventeenth century has been retained in the translation.

The irregular use of capitals can do no harm. Sometimes even unusual punctuation is harmless; but to have followed it throughout, and to have retained extremely long and complicated sentences without some simplification, could only have ended in bewildering the average reader. A few of Bacon's and Boyle's terms have been retained here and there. It would, for instance, have been a pity to drop Boyle's *icicles* in favour of the modern chemist's "dirt." But this kind of thing could only be done sparingly. Except in a few safe contexts it would have been risky to translate *affectio* by "affection," instead of by "state" or "condition." The term *accidens* having no exact English equivalent is translated by *accident* (always in italics), and explained in the Annotations. The verb *determinare* is usually translated by "limit," instead of by the ambiguous "determine," and is likewise explained in the Annotations. The expression *intellectus* is in most cases rendered by the traditional "understanding," but occasionally by "intellect," partly because it seemed somehow preferable, and partly because it seems a pity to let "intellect" go out of use.

The Introduction and the Annotations will, it is

hoped, be found to elucidate all that needs elucidation in the *Correspondence*. Everything of historical and scientific interest is discussed fairly fully. The comments on the more philosophical problems are limited to the immediate needs of the *Correspondence*—the fuller discussion of the most important problems being reserved for subsequent volumes devoted to the *Ethics*, etc.

The preparation of this volume has entailed much labour and research. But for the kind help of a number of friends the publication of the *Correspondence* would have been delayed considerably. I gladly avail myself of this opportunity to express my best thanks to Mr. A. Armitage, Mr. F. W. Chapman, Professor P. Geyl, Mr. D. McKie, Miss I. V. Scowby, and Mr. W. G. van der Tak.

A. WOLF

UNIVERSITY OF LONDON,
November, 1927.

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* The square brackets, throughout these *Contents*, give approximate dates of undated letters.

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Present No.	Former No.	Present No.	Former No.	Present No.	Former No.
I	I	XXX	—	LVIII	LXII
II	II	XXXI	XIV	LIX	LXIII
III	III	XXXII	XV	LX	LXIV
IV	IV	XXXIII	XVI	LXI	XVII
V	V	XXXIV	XXXIX	LXII	XVIII
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XVII	XXX	XLVI	LII	LXXIII	XXI
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Former No.	Present No.	Former No.	Present No.	Former No.	Present No.
I	I	XXVI	VIII	LI	XLV
II	II	XXVII	IX	LII	XLVI
III	III	XXVIII	X	LIII	LXVII
IV	IV	XXIX	XII	LIV	LXVIII
V	V	XXX	XVII	LV	LI
VI	VI	XXXI	XVIII	LVI	LII
VII	VII	XXXII	XIX	LVII	LIII
VIII	XI	XXXIII	XX	LVIII	LIV
IX	XIII	XXXIV	XXI	LIX	LV
X	XIV	XXXV	XXII	LX	LVI
XI	XVI	XXXVI	XXIII	LXI	LVII
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XIII	XXVI	XXXVIII	XXVII	LXIII	LIX
XIV	XXXI	XXXIX	XXXIV	LXIV	LX
XV	XXXII	XL	XXXV	LXV	LXIII
XVI	XXXIII	XLI	XXXVI	LXVI	LXIV
XVII	LXI	XLII	XXXVII	LXVII	LXV
XVIII	LXII	XLIII	XXXVIII	LXVIII	LXVI
XIX	LXVIII	XLIV	XXXIX	LXIX	LXXX
XX	LXXI	XLV	XL	LXX	LXXXI
XXI	LXXIII	XLVI	XLI	LXXI	LXXXII
XXII	LXXIV	XLVII	XLIV	LXXII	LXXXIII
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INTRODUCTION

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INTRODUCTION

THE correspondence of Spinoza is deeply interesting in many ways. It presents a pageant of the leading types of seventeenth-century mentality. It affords contemporary glimpses of important scientific researches and discoveries. It brings us into touch with some of the social and political events and tendencies of the period. It throws a flood of light on the pains and vicissitudes which accompanied the birth of the modern spirit and the emancipation of Western thought from the chains of authority and tradition, to which it had grown so accustomed as almost to dread to venture on the uncharted sea of Freedom. The letters contain things of first-rate importance for the correct interpretation of the philosophy of Spinoza; and, above all, they help one to realize something of the greatness and strength of his character—one of the greatest in the whole history of mankind.

It is well known that the study of Spinoza's writings left a profound and lasting impression on great men like Lessing, Goethe, Huxley, and many others. But the correctness or justification of that impression has sometimes been challenged. It has been suggested that the impression may have been due in large measure to the impressionable phantasy of the recipients. Spinoza's correspondence, however, taken in conjunction with his *Oldest Biography* by Lucas, conclusively refutes the challenge. They show that it was precisely such a profound impression that personal contact with Spinoza left on the minds of lesser and less imaginative people like Oldenburg, De Vries, Jelles, Schuller, and Lucas. The letters, moreover, not only show *that* such an impression was produced by personal intercourse with

Spinoza, they also help to explain *how and why* it was produced. For they reveal, not only his wisdom and tact and unselfish devotion to the pursuit of knowledge, but also his amazing patience with the most trying bores, his calm indifference to the tactlessness or vulgarity of others, his painstaking endeavours to enlighten some of his superstitious correspondents, his constant readiness to help all who avowed an interest in the search for Truth, and withal his outspoken candour and his dislike of all prevarication, even at the risk of estranging some of his oldest friends. These things help one to appreciate the remark which Goethe made to Lavater about a hundred years after the death of Spinoza. "His correspondence," said Goethe, "is the most interesting book one can read in the world of uprightness and of humanity." *

* *Goethe's Gespräche*, Woldemar Frhr. von Biedermann. Ed. 1909, vol. i, pp. 35 f.

§ 1. THE SEVENTEENTH CENTURY

THE seventeenth century marked the climax of that revolt against mere authority and tradition which the Reformation and the Renaissance had initiated. Descartes (1596–1650) was in many ways typical of that century, both in its strength and in its weakness. He voiced its battle-cry of universal doubt—*de omnibus dubitandum*—and his scientific and mathematical achievements hold a place of honour in that golden age of the revival of science. For many centuries the spirit of man had been at once guided and restrained by the reins of authority and tradition, and would not believe its own eyes unless confirmed by some authority, religious or secular. Gradually, however, there arose a succession of adventurous spirits who escaped from the leading-strings and restraints of tradition and authority, and endeavoured to see things for themselves, and to make their orientation in the light of their own capacities. In this way Galilei accepted the reality of sunspots because he saw them with his own eyes aided by the telescope, and was not shaken in his belief merely because it was not confirmed by the authority of Scripture or of Aristotle. In this way likewise he embraced the heliocentric hypothesis, in spite of Scripture and tradition, though the Church was sufficiently powerful to extort a lip-recantation, and to enforce exile and silence. In this way also many people, prompted by their inner conscience, forsook powerful and authoritative Churches, Roman and Protestant, in order to follow the guidance of their own inner light.

But the revolt had its limitations—serious limitations. Descartes' summons to universal doubt was a flourish rather than a serious call to arms. It is almost pathetic

to witness how easily his doubts were satisfied. It is almost comical to see how he strains at a gnat and swallows a camel; how he declines to believe in the reality of observed objects, yet readily accepts the reality of a supernatural Deity whom he promptly burdens with the responsibility for all Cartesian beliefs and fancies. No Church dignitary ever exploited God as a very ready help in time of trouble more than Descartes did. If his scientific endeavours require the existence of bodies or of souls, he makes God create them out of nothing. If the bodies need motion and rest to account for their appearances, he makes God endow them with motion and rest. If he finds it convenient to assume the constancy or conservation of motion and rest, he makes God constant or consistent in His relation to motion and rest; and so on. For Descartes the phenomena of Nature are essentially miraculous—that is, the result of the incessant interference of a supernatural Deity. When we have given him all the credit that is due to him for his great achievements in mathematics, in optics, etc., it remains true that fundamentally he remained the loyal disciple of his Jesuit College—his ultimate philosophic orientation is essentially the same as that of the miracle-mongering Church. And Descartes' real achievements were in the domain of Science rather than in that of Philosophy.

Some people may feel tempted to vindicate Descartes the philosopher at the expense of Descartes the Roman Catholic. They may argue (as indeed some people have argued) that Descartes' profession of faith in the three miracles—namely, creation out of nothing, free-will, and the God-man—and his other Christian professions were but lip-professions intended to save his skin from an all-powerful and none too scrupulous Church—in short, they were of the same order as his escape to Holland. They may point out that it was in Descartes'

lifetime that Giordano Bruno was burned at the stake and Galileo Galilei was humiliated, imprisoned, and exiled for intellectual boldness, and that the moral of these tragedies was probably not lost on Descartes. But there is little or no evidence in support of this contention. We can only deal with his writings as he left them. And there are other cases in which initial or tentative sceptics and other bold thinkers soon flagged in spirit at sight of uncharted seas, and gladly returned to the sheltered and familiar havens of authority and tradition. Some of Spinoza's correspondents, as we shall see presently, were men of this type, even if they were not all as distinguished as Descartes.

It is a serious disadvantage resulting from the great outward triumph of Christianity that the thinkers of Christendom rarely come into vital contact with other religions and other modes of world orientation. The consequence of this inexperience is that Christian ways of looking at the world are assumed to be true as a matter of course, at all events after a little doctoring by means of the various specifics furnished by Christian apologetists and other dilettante philosophers. Custom is mistaken for conviction, and conviction for demonstration. Add to this the fact that really independent and plausible world-views are very rare, because they are so difficult, and that scepticism (or the refusal to take one's orientation, or to embrace some existing world-view or other) is not a bed of roses, but a bed of thorns for most people, and it becomes sufficiently intelligible why born Christians mostly remain Christians willy-nilly. The philosophy of Christendom is thus prejudiced, more or less, from the start, and its acrobatics are in some ways truly amazing. Earlier, less sophisticated Christians, who still had confidence in human capacity for knowledge, regarded Faith (that is, of course, Christian Faith) as a means to Knowledge; they pro-

fessed to believe in order that they might know. But modern, more sophisticated Christians find it necessary to shatter Knowledge in order to save Christian Faith. The modesty of this scepticism only veils the conceit of an exclusive revelation. From the " critical " Kant to our " sceptical " Lord Balfour, to say nothing of the army of professional, professorial philosophers at the universities of Christendom, the customary slogan is not " have Faith that you may attain to Knowledge," but " shatter Knowledge that you may lie at ease in Faith."

The slogan, of course, is much older than Kant. We shall find it set out at great, tedious length in the letters of Burgh and of Steno. Both Burgh and Steno appear to have been stirred in their early years by the new spirit of the age. They, too, had set out in search of undiscovered truth. But the buffetings of the open sea were too much for them, and both sought refuge in the Roman Catholic Church. There they found peace (though we do not know for how long), and no doubt it was a kindly thought which prompted each of them to write to Spinoza, their former captain, in a vain attempt to persuade him to seek salvation after their fashion. They had no idea of the mettle of a rare, independent spirit like Spinoza. There were others, of course, somewhat hardier characters than Burgh and Steno. There were people like Boyle and Oldenburg, Velthuysen and Blyenbergh, who wished to make the best of both worlds, and wanted to be at once philosophers and Christians, but Christians first of all. This was stated explicitly by Blyenbergh, who was less intelligent but more candid than the others.

Such, in brief, was the Christian atmosphere in which the philosophy and the science of the seventeenth century breathed. The mentality of that century is much misunderstood when its science and its philosophy are divorced from its theology. It is easy enough to

praise and to extol the scientific work of talented investigators like Boyle, or of geniuses like Kepler and Newton, and, of course, they do, indeed, deserve all praise for their achievements; but to understand them adequately and justly it is necessary also to study their theological writings, and then one realizes the exaggerations in the usual accounts of the boldness and daring and originality of seventeenth-century thought.

It would be no exaggeration to say that Huxley's ideal of a man of science, as one who sceptically scrutinizes the credentials of all beliefs before embracing them, was but rarely realized even approximately in the seventeenth century. The Cartesian proclamation of universal doubt (*de omnibus dubitandum*), as will be explained presently, was not really meant, or taken, very seriously. Much more characteristic of the period was the attitude of a man like Hugo Boxel, a statesman and man of the world who believed in ghosts and spooks, and considered himself fully justified in believing in them until their existence could be *disproved*. The question asked, by those who asked questions at all, was not why they *should* believe this or that, but why they *should not* believe it. In all matters within the Christian universe of discourse, in all matters which (like ghosts, evil spirits, witches, etc.) seemed to be sanctioned by the Scriptures, even comparatively enlightened people felt justified in believing in them so long as others could not absolutely disprove them.

The boldest and most original thinker in the seventeenth century was Spinoza, who stood above the theological prejudices from which the others could not entirely extricate themselves.

Needless to say, in speaking of the Christian atmosphere of the seventeenth century, the reference is to Christian dogmas, not to Christian charity, of which, alas! there was as little in the seventeenth century as there is in the twentieth.

§ 2. DESCARTES AND SPINOZA

By proclaiming universal doubt to be the first step to a genuine philosophy, and by insisting on clear and distinct ideas as the condition of real knowledge, Descartes certainly rendered a great service to the revival of philosophy. But his importance in the history of philosophy has been grossly exaggerated. The exaggeration is due to a variety of reasons, only some of which need detain us here.

In the first place, he was held in high esteem by many of his contemporaries. This was natural and right. For the seventeenth century did not yet distinguish between science and philosophy as we do nowadays. In the seventeenth century all that is now called science was just part and parcel of philosophy, and so long as Descartes the philosopher included Descartes the man of science, Descartes deserved all the praise he received as the hero of "the new philosophy." The moment, however, his contributions to science are divorced from his contributions to philosophy, as, of course, they are when we speak of philosophy in the present-day sense of the term, the position is greatly altered. However much we may praise his contributions to science, it is really impossible to rank very highly his contributions to philosophy properly so called.

In the second place, the exaggeration of Descartes' merits as a philosopher is due to a natural Christian bias. The very fact that he set out, or at least professed to set out, with a thoroughgoing methodological scepticism, and nevertheless ended as a loyal Christian, made him especially dear to the philosophers of Christendom, obsessed as nearly all of them have been and still

are with Christian ideas, as was explained in the preceding section. Hence this attempt to make him the very source and inspiration of all modern philosophy. Spinoza, a Jew, and an excommunicated Jew to boot, Spinoza the reputed atheist and what not, was under the circumstances not likely to be treated as anything but a Cartesian oddity or aberration.

In the third place, under the influence of Hegel and of the magic of Hegelian dialectic, it became the fashion to present the later phases of modern philosophy as a mere unfolding of its earlier phases. And so it came about that the philosophy of Spinoza, like that of Malebranche and of others, was regarded merely as a form of Cartesianism. Look at the earlier editions of Kuno Fischer's great *History of Modern Philosophy*, and you will find that Spinoza was included in the school of Descartes. In the *Encyclopædia Britannica* as late as the thirteenth edition the philosophy of Spinoza was described under Cartesianism. And these works are typical of most works dealing with the history of modern philosophy. It was not very difficult to represent Spinozism as a transformation of Cartesianism. Historians of philosophy, trained in the subtleties of Christian theology, had no misgivings about representing Spinozism as the transubstantiation of Cartesianism. Philosophers skilled in the tricks of Hegelian dialectic readily perceived in the Spinozistic antithesis to Cartesianism the crowning phase thereof.

Another factor which helped to perpetuate the exaggerated estimate of Cartesianism at the expense of Spinozism is the easy intelligibility of Descartes' *Discourse on Method* and his *Meditations*, in contrast with the difficulty of Spinoza's writings. Students of philosophy and even others had no difficulty in reading, and more or less understanding, the *Method* and the *Medita-*

tions; but the vast majority found, and still find, it very difficult to know Spinoza at first hand, so they rely on second or even fifth-hand information, and in this way help to maintain old superstitions.

But let anyone take a simple inventory of the fundamental notions in the philosophy of Descartes and in that of Spinoza; let him compare them frankly and candidly, without theological subtleties or dialectical sophistications, and he will be amazed at the impertinence of the old legend. What was Descartes' idea of God but that entertained by any ordinary Christian and by many others? What were his notions of Extension and of Thought but the ordinary ideas of two classes of realities, namely, bodies and souls, arbitrarily created out of nothing by a supernatural God, and arbitrarily controlled by Him? How entirely different is the Spinozistic conception of God as identical with the infinite Universe, in which nothing ever happens arbitrarily, and of which Extension and Thought are Attributes whose finite modes or modifications are the bodies and souls of ordinary thought and experience! These differences are palpable, and there are others just as palpable, as may be seen from some of the letters which follow.

Moreover, as is clear from his correspondence, Spinoza himself and many of his contemporaries were fully aware of these antagonisms between his philosophy and that of Descartes. Spinoza's letters to Meyer and to Oldenburg show this, and so, in a very remarkable manner, does the letter from Steno, who addressed Spinoza, not as the follower or teacher of the "new philosophy" (that is, Cartesianism), but as the "Reformer" thereof—a term not suggestive of an amicable relationship when used by a fervent Catholic in the seventeenth century. And the earliest biographer of Spinoza, too, refers to the hostility of the Cartesians

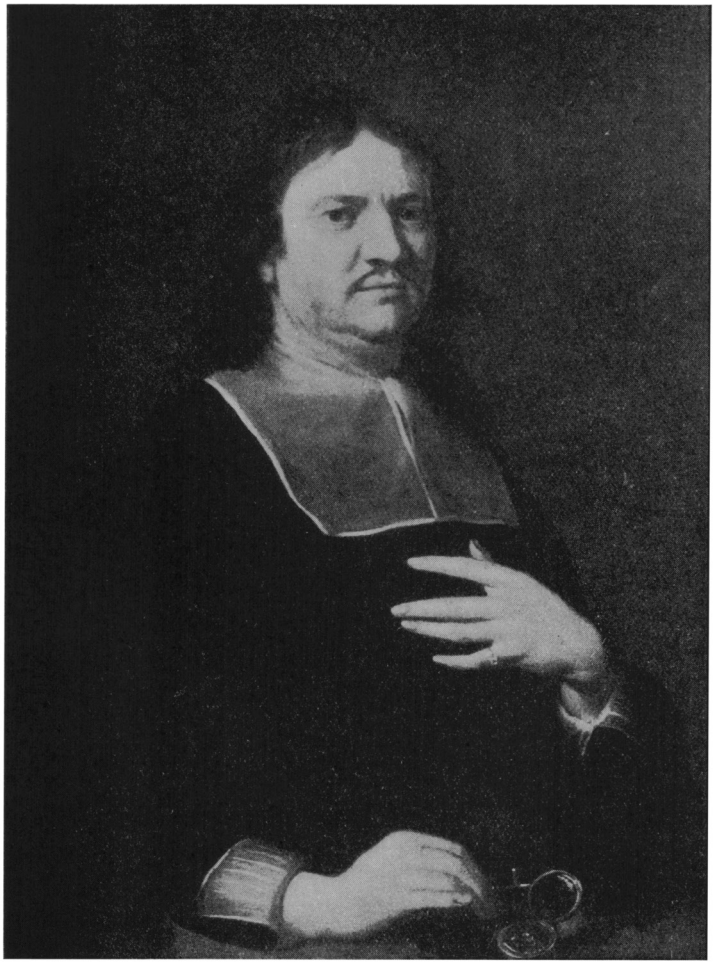
against Spinoza.* The subtle juggling by which Spinozism has been read out of Cartesianism, by suitable adjustments of both, has only resulted in a misinterpretation of both these systems.

* See *The Earliest Biography of Spinoza*, edited and translated by A. Wolf, pp. 74 f., and Letter LXVIII.

§ 3. OLDENBURG, BOYLE, AND SPINOZA

About a third of all the existing correspondence of Spinoza consists of letters which passed between him and Oldenburg. It is obvious, moreover, that many more letters, now unfortunately lost, must have passed between them. Oldenburg must therefore be regarded as Spinoza's principal correspondent, as well as the first whose letters have come down to us. For this and for other reasons, he is clearly entitled to special consideration in connection with the study of the correspondence of Spinoza.

Henry Oldenburg (? 1615–77) was born in Bremen, where he also studied, graduating as Master in Theology in 1639. His degree thesis dealt with the problem of the relation between Church and State. He came to England about 1640, and appears to have stayed here until 1648. He then travelled about on the Continent, and returned to Bremen about 1652. During the war between England and Holland, following England's enforcement of the Navigation Act in 1651, the shipowners of Bremen suffered in various ways. So in the summer of 1653 the Council of Bremen sent Oldenburg to negotiate with Cromwell and make arrangements whereby the neutrality of Bremen should be respected. Oldenburg stayed in England, engaged partly in diplomatic work and partly in teaching. One of his pupils was Robert Jones, nephew of Robert Boyle, with whom he thus became acquainted. From 1657 till 1660 he travelled with his pupil on the Continent, and made the acquaintance of many scholars. In 1661 he visited his native town, and from there he went to Leyden, where he looked up his fellow-townsman, Johannes Coccejus,



OLDENBURG

(*From the portrait at the Royal Society*)

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Professor of Theology at the University there. Spinoza at that time was living at Rhynsburg, near Leyden, and Oldenburg's eagerness to get to know men of promise may be gathered from the fact that he specially sought out Spinoza in his humble out-of-the-way lodging, and had a long talk with him. Oldenburg's early letters to Spinoza show what a deep impression the much younger man had made on him. In this way Spinoza was brought into touch with the work of the Royal Society, and more especially with the work of Robert Boyle, of which more will be said presently.

When the Royal Society received its Charter of Incorporation in July 1662 Oldenburg was appointed secretary (jointly with Dr. J. Wilkins), and he promptly set about mobilizing "a commerce in all parts of the world with the most philosophical and curious persons to be found everywhere," in order to carry out the design of the members of the Royal Society, who (to quote his own words again) "have taken to task the whole universe." This involved an enormous amount of correspondence for those days. Our present abundance or superabundance of learned and scientific periodicals was unknown in the seventeenth century. The function which they perform now was carried out in those days by letters, which were frequently not letters in the modern sense, but dissertations, "epistolary dissertations" (to use Malpighi's phrase). Some of the letters which passed between Oldenburg and Spinoza were obviously such "epistolary dissertations." They concerned, however, Boyle rather than Oldenburg, who acted as intermediary between Boyle and Spinoza.

In view of subsequent events it must be said that Oldenburg's early letters to Spinoza are remarkable for their impetuous devotion to new discoveries as well as for their homage to Spinoza. They display a curious reversal of rôles, inasmuch as they show us the much

older man urging the younger man boldly to spread the sails of the new learning, to cease humouring ignorance and pedantry, and to defy the pigmy theologians. But the spirit of Oldenburg soon flagged after his sad experiences during the plague of London in 1665, the great fire in 1666, and his imprisonment in the Tower of London in 1667. The atmosphere of suspicion, distrust, and hatred which war produces is too well known to need description. Even in the twentieth century the Churches could not or would not seriously attempt to drive out the evil spirits let loose by war, so why expect the seventeenth century to have coped more successfully with the loathsome progeny of Mars? The war between England and Holland (1665–67), coupled with the plague and the great fire of London, certainly tended to upset people's mental equilibrium. Oldenburg's vast foreign correspondence was naturally suspected at Court. The king was himself too great an adept at intrigue not to distrust everybody else. So in June 1667 Oldenburg was clapped into the Tower, where he stayed two terrible months, and might have stayed much longer but for the termination of the war. Oldenburg left his prison a sadder and much more cautious, indeed a very nervous, man, and when, after a break of about ten years, he wrote again to Spinoza, he had changed almost entirely from his former self, partly perhaps under the reactionary influence of Boyle.

ROBERT BOYLE (1627–91) was the seventh son of the Earl of Cork. He was born in Ireland, studied at Eton, and then travelled on the Continent. He was in Italy in the year in which Galilei died and Newton was born (1642), and he returned to England in 1644, just about the time when the Philosophical or "Invisible" College was started. About his important contributions to science something will be said in the next section

and in the Annotations. Here we are more concerned with the less meritorious side of his personality.

Like Oldenburg, Boyle was at least as much interested in theology as in science, perhaps even more so. Some of his early experiences are rather significant in this connection. At the age of fourteen he passed through the experience of religious " conversion," or re-birth, in consequence of an awful thunderstorm which he witnessed. His escape from this thunderstorm he attributed to the direct interposition of Providence. Nay, more, already at the age of ten he had actually imposed on himself some disciplinary tasks in arithmetic and in algebra as a penalty for the restless feelings stirred in him when, during his convalescence, he had read the romance *Amadis de Gaula*! Later on he never missed an opportunity of spreading a knowledge of the Gospels, and he spent much money in getting them translated and printed in various languages. Eventually he founded and endowed the " Boyle Lectures "—courses of lectures to be delivered annually for proving the truth of Christianity against " notorious infidels, namely, atheists, theists, pagans, Jews, and Mohammedans." He also stipulated that no reference should be made in these lectures to controversies between Christians. Such was the spirit of Christian charity and candour as Boyle understood it. What understanding could he possibly have for Spinoza? No wonder that, notwithstanding all the external shows of courtesy, Boyle never wrote directly to Spinoza. It is even possible that the foundation of the Boyle Lectures was partly due to Boyle's conception, or rather misconception, of Spinoza's philosophy, especially of his *Tractatus Theologico-Politicus*, coupled, however, with " the shades of doubt," which, as Boyle admitted, " did sometimes cross his mind." It is certainly a fact that at least two series of Boyle Lectures were directed against Spinoza,

namely, Samuel Clark's *Demonstration of the Being and Attributes of God: More Particularly in Answer to Mr. Hobbs, Spinoza, and their Followers* (1704), and B. Guerdon's *Boyle Lectures* (1721, 1722).

Boyle and Oldenburg were so steeped in Christian prejudices that they seemed utterly incapable of understanding Spinoza's thought, let alone sympathizing with it. And with the increasing conservatism characteristic of increasing age their estrangement from him increased likewise. When after a great deal of beating about the bush Oldenburg was at length brought to express explicitly his real objections to Spinoza's philosophy, it turned out that he had actually expected Spinoza to write a philosophic defence of orthodox Christianity—in other words, to deliver advance "Boyle Lectures"! Enlightened Christians, as well as cynics, may find food for thought in this utter incapacity of two good and able men like Boyle and Oldenburg to understand a still better and abler man like Spinoza.

§ 4. THE SCIENTIFIC BACKGROUND OF SPINOZA'S CORRESPONDENCE

ALREADY before Descartes the revolt against mere authority and tradition in the realm of Knowledge had been voiced eloquently and persuasively by Francis Bacon (1561–1626), who elaborated a comprehensive scheme of experimental research worthy of a Lord Chancellor. His plea bore fruit eventually in the shape of a " Philosophical College," which was started, about 1645, for the promotion of experimental science. Its members met frequently in the City of London, or in Oxford, to carry out experiments and to discuss their significance. This somewhat nebulous society, sometimes called the " Invisible College," assumed more definite shape in 1660, became known as the " Royal Society " in the following year and received its Charter of Incorporation on July 15, 1662. Robert Boyle was one of its original and most influential members, and Henry Oldenburg its first Secretary.

The primary aim of the Royal Society was the improvement of natural knowledge by experiments, as distinguished from airy scholastic discussions based on authorities. But the significance of the stress on experiment must not be exaggerated. The divisions between what are now regarded as distinct sciences were few and vague then. Even the present distinction between science and philosophy was very nebulous at that time, a fortiori the difference between experimental and non-experimental science, or between the experimental and the non-experimental sides of the same science. The very ambition of the society tended to leave all such differences on one side. Like its patron-saint Bacon, who had taken all knowledge for his province,

the Royal Society took the whole universe to task, and did not at first trouble much about mapping out different fields of inquiry, according to the different nature of the phenomena concerned and of the methods applicable.

As already stated, it fell to Oldenburg to " purchase and entertain a commerce in all parts of the world with the most philosophical and curious persons to be found everywhere." In fact, he had done so already before the Royal Society was fully constituted—and that was probably the reason why he was appointed its secretary in 1663. Thus it came about that, like many others, Spinoza was drawn into the activities of the society, sending lengthy criticisms on Boyle's experiments, communicating information about the scientific activities of Christian Huygens in connection with dynamics, optics, horology, etc., or about continental views on the comets, and so on. It is one of the minor ironies of history that while Oldenburg was searching the whole Continent for new light on Boyle's experiments on nitre, etc., highly relevant facts nearer home were entirely overlooked. If properly appreciated, Mayow's experiments on oxygen, which were carried out in Oxford, would have put a new complexion on Boyle's experiments with nitre; but they passed unnoticed. In fact, Boyle did not appreciate in this connection the bearing even of his own experiments on the function of air in combustion.

The discussions between Boyle and Spinoza are of some interest for the student of the history of science. They throw no little light on the scientific tendencies of the seventeenth century and on the intellectual attitude of some of its leaders in the domain of science. Boyle may well be described as the scientific executor of Bacon's last will and testament. To some considerable extent he certainly did help to give practical effect to Bacon's designs. And Boyle's own work at once shows

the strength and betrays the weakness of the Baconian method—its strength, as an aid to methodical observation and experiment, its weakness in not appreciating sufficiently the supreme importance of illuminating ideas. Like that incomparably greater genius, his younger contemporary, Newton, Boyle fought shy of ideas which were not immediately forced upon him by direct observations. Both were orthodox Christians, quite content to draw upon Scripture for all their more comprehensive cosmic thoughts. Fortunately for them, and for science generally, a great deal of physical, chemical, and astronomical research has no direct bearing on religious problems or philosophical world-views. Boyle's services are strictly confined to this region. His excursions into wider questions were few and clumsy. Spinoza, on the other hand, was a philosopher first and foremost. He was certainly interested also in science, in the narrower sense of the term. He did valuable work in applied optics, and, as his letters show, he carried out various chemical and physical experiments, as far as his very limited time and means allowed. He also dealt with the problem of the rainbow, and with that of probability, or the calculation of chances. But his interests were mainly directed to the wider issues involved—issues for which Boyle had little understanding and less appreciation. So the two were not likely to pull well together. Spinoza, indeed, recognized and appreciated the importance of such detailed observations and experiments as Boyle was carrying out and recording. But he also realized their shortcomings, and was candid enough to express his thoughts. Boyle, like so many people who invite criticism and only expect praise, appears to have been somewhat irritated by Spinoza's comments.

The most important aspect of the discussion between Boyle and Spinoza was that concerning the problem of

the mechanical interpretation of natural phenomena—a problem of perennial interest. Boyle professed to be a firm believer in what he called " the tenets of mechanical philosophy." By the mechanical philosophy Boyle meant the attempt to explain the phenomena of Nature " by little bodies variously figured and moved "—hence also the name " Corpuscular (or Corpuscularian) Philosophy." This point of view, according to Boyle, was common both to the Atomists and the Cartesians. The Cartesian conception of the ultimate constitution of matter (extension) was indeed very different from that of the Atomists. But these remoter questions were of no interest to Boyle. So far as the immediate needs of scientific explanation were concerned both schools of thought were in essential agreement. And Boyle believed that Chemists and Mechanical (or Corpuscularian) Philosophers ought to come to a mutual understanding, for they could help each other: the corpuscular philosophy could help to explain plausibly many chemical phenomena, while chemists could furnish many experiments in illustration and in confirmation of the corpuscular philosophy. It was in this spirit that Boyle carried out the experiments described in *Certain Physiological Essays* (1661). Spinoza with his thoroughgoing naturalism was, of course, in favour of this method of explaining material phenomena, but he saw its implications better than Boyle did. Boyle was quite content to employ mechanical and teleological explanations side by side. To Spinoza it quite rightly appeared to be incongruous to explain physical phenomena by reference to their alleged purposes, or ends, while professing the tenets of a thoroughgoing mechanical philosophy, which should explain them only by means of corpuscles, figures, and motions. Here already we see at a glance the difference between the broader outlook of Spinoza and the more limited or restricted outlook of Boyle.

INTRODUCTION

The mechanical tendency in modern science owed its vogue, in large measure, to Galilei, the father of modern dynamics. He insisted on explaining physical phenomena by means of primary or mechanical qualities (that is, the geometrical qualities and motion); and he regarded the secondary or sensible qualities of things (colour, sound, etc.) as subjective effects of primary qualities. One important result of this whole movement was a certain enlightenment of science, its emancipation from more or less mysterious forms, occult qualities, chemical principles, etc., which facilitated pseudo-explanations of natural phenomena, and so discouraged methodical, intelligent research. Boyle's adhesion to the mechanical philosophy meant no more than that he was opposed to the aforementioned pseudo-scientific explanations and mystifying hocus-pocus; and his work as a chemist was perhaps all the better just because he did not fully realize the implications of a thorough-going mechanical philosophy, and so did not endeavour to carry it through consistently. It has taken more than two centuries for men of science to realize that it is impossible to explain even simple chemical phenomena, let alone extremely complex biological ones, on strictly and purely mechanical lines. The conception of the "creative evolution" or "emergence" of results incapable of a purely mechanical explanation has become a commonplace now, thanks to the influence of Professor Bergson and of Professor Lloyd Morgan, and Boyle may claim some credit for originating this conception, which is implicit in his distinction between a (mechanical) mixture and a (chemical) compound. Methodologically, however, the regulative notion of a mechanical explanation may still perform the same useful function which it had in the seventeenth century, namely, to exorcise sheer hocus-pocus and to prevent mere mystification from masquerading as scientific explanation.

§ 5. HUDDE, BOXEL, BURGH, LEIBNIZ, TSCHIRNHAUS

OTHER correspondents, besides Boyle and Oldenburg, with whom scientific interests brought Spinoza into touch, were Hudde, Leibniz, and Tschirnhaus. Evidently Spinoza had early acquired a reputation for his knowledge of optics and his skill in grinding and polishing lenses, by which he gained his daily bread. Since Galilei's use of the telescope for astronomical observation, interest in optics had become widespread and fashionable. Not only scientists like Galilei, Descartes, and Christian Huygens wrote treatises on optics, but even statesmen like Sir Constantyn Huygens and Burgomaster Hudde were sufficiently interested in the subject to write about it. Possibly Spinoza's acquaintance with Hudde was mediated by Christian Huygens (1629–85), famous in the history of science as the discoverer of the rings of Saturn, as the originator of the undulatory theory of light, and the inventor of the pendulum clock. During the years 1664–66 Spinoza lived within easy walking distance of Huygens, and the two must have got to know each other fairly well, for Huygens in his subsequent letters to his brother referred to Spinoza several times, and wanted to be informed of Spinoza's doings.

JOHAN HUDDE was born in Amsterdam in 1628, and died there in 1704. He entered the University of Leyden in 1654 as a medical student. In 1667 he joined the governing body of his native city; in the following year he became Sheriff; and in 1672 he was elected Burgomaster, or Mayor, an office to which he was subsequently re-elected no less than eighteen times.

He is known to have been interested in physics and mathematics, more particularly in optics and in the calculus of probability. These interests probably brought him into touch with Huygens, and through him with Spinoza. As a member of the States of Holland, Hudde would frequently visit The Hague, which was the seat of government, and so would have frequent opportunity of meeting Spinoza, who lived in Voorburg, near The Hague, from 1663 till 1670, and in The Hague itself from 1670 until his death in 1677. Hudde, unlike Huygens, was interested in philosophy as well as in science, and the extant three letters which Spinoza addressed to him deal mainly with the conception of God.

Spinoza's letter to Oldenburg, written in July 1663, shows how necessary Spinoza found it to secure the protection of influential statesmen before venturing to publish his own views on philosophy and religion, which were sure to arouse the hostility of the Calvinist clergy. Maybe Hudde supplied the need, and obtained for Spinoza the friendly interest of ex-Burgomaster Coenraad van Beuningen and of Jan de Witt, the ill-fated Grand Pensionary of Holland.

HUGO BOXEL was another of Spinoza's correspondents who belonged to the governing classes of Holland. In 1655 he was appointed Secretary to his native city Gorkum. Four years later he was elected Pensionary thereof, and held this responsible office until 1672. In that year, in consequence of the murder of the De Witts and the connected political changes, Boxel was deprived of his post. It is not known how he became acquainted with Spinoza, but he probably had something to do with Spinoza's visit to the French camp at Utrecht in 1673. For Boxel is known to have favoured the policy of a Dutch understanding with France. His firm belief in ghosts, evidenced by his letters to Spinoza, is

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JOANNES HUDDE

GOTTFRIED WILHELM LEIBNIZ