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Maimonides and the Sciences

Edited by
Robert S. Cohen and Hillel Levine

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MAIMONIDES AND THE SCIENCES

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Frontispiece:
Fourteenth-century illustration from Maimonides' *Guide of the Perplexed* in the Royal Library, Copenhagen, from *Hebrew Illuminated Manuscripts* by Bezalel Narkiss (Jerusalem: Keter Publishing House Ltd., 1969).

MAIMONIDES AND THE SCIENCES

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and
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PREFACE

Volumes devoted to the relations of distinguished philosophers to the sciences of their times have been a part of the *Boston Studies in the Philosophy of Science*. This book, long overdue, provides a link in that series.

Maimonides was deeply involved with all European sciences. In his lifetime and after, though his positions were often at the center of controversies, Moses Maimonides was thought to be the greatest Jewish religious genius following the biblical Moses. He was seen as master of the Talmudic literature and its commentaries, of critical Jewish law, rationalism, spirituality and piety. He was also recognized for his mastery of the equally classical Greek philosophies of man and nature and their creative elaboration by medieval Arabic commentators, of high Arabic culture and the development of Aristotle's appreciation across western civilization. Devoted to his faith and to the vast traditions of Jewish learning, he was a philosopher of rational sensitivity, repeatedly laboring at the central questions of the philosopher: Who is man? What is nature and what is beyond the natural? How might we ever know and to what action would this knowledge obligate us? How shall we be responsible both to the law and to wisdom, however rational it may be, while also mediated through revelation, contained in the sacred scriptures, and represented in authentic traditions? To what extent should we allow ourselves to be influenced by inexorable logic and reliable observations? In arguing for the location of the sciences at the very center of religious life, the influence of Maimonides on Judaism, Christianity, and Islam as well as the movement of thought leading to modern science was significant. It remains with us now.

Maimonides was the master of clarifying what was enigmatic and codifying what was jumbled; he saw the insights of indirect as well as direct argument and demonstration, of parable as well as syllogism. He was the careful student of so many in the splendid Arabic culture of his age, and the creative critic, too. And he was ever attentive to the philosophies and practices of the knowledge of nature, to be found in the study of astronomy or mathematics, arithmetic, geometry, probability, and logic, in medicine or physics, linguistics or psychology, the pseudo-sciences of astrology and irrational divination, or the creative order needed for comprehensive encyclopedic work.

We especially want to understand Maimonides in his relations to the science of his time. What did he himself contribute but also what were the received

R.S. Cohen and H. Levine (eds.), Maimonides and the Sciences, ix–xi.

understandings of the human body, the natural environment, and the ways of thinking. But to see 'Maimonides and the Sciences' requires us to see a central issue of European culture through him, that great dialectic of rationalism vs. mysticism. For Maimonides, the issue could not come down to simply rational Athens vs. mystical Jerusalem. For him there were mysticisms in both, rationalisms in both. Perhaps through rational, empirically disciplined thought, acknowledging perplexity and with the assistance and elucidation of more science, a sound path to religious knowledge could be found. Philosophy and science were no simple 'handmaidens to theology'.

Without science, one cannot understand, much less meditate on Maimonides. How deeply Maimonides was based in the sciences was recognized by his admirers, commentators, and expositors. One of them, Rabbi Levi ben Abraham ben Hayyim, in 1296 wrote an encyclopedia of philosophy, religion and especially science in order, as Warren Zev Harvey recently tells us, to advance true religion which had been superbly set down in Maimonides' *Guide of the Perplexed*.[1] In Rabbi Levi's words, "Maimonides did not compose his enlightening book except for one who has studied all the books of the sciences".[2] Levi's concise, witty work of rhymed prose in ten books was soon followed by a major propaedeutic to Maimonides' great but enigmatic *Guide*, the encyclopedia of Rabbi Levi entitled *Chaplet of Grace* (*Livyat Hen*).

The controversy over creation, and over the mysterious but nevertheless responsible Creator was in ancient times, in medieval Arabic, Jewish and Christian times, in the lands of Southern and East Asia, and now in our own time too, intertwined with other puzzling questions: is there stability and continuity to the heavenly reality, do the changes that appear take place by contingency or lawfulness, indeed is there a history of the world encompassing the heavens, above our lunar/solar system? Does the act of creation occur at a moment in time or is it implicit to have been at the beginning of time? For Maimonides, these traditional and ever-debated issues were theological and metaphysical as well as scientific, involving observation and rationally developed inferences. If the world, the cosmos, were eternal, as described by Plato or Aristotle and as mediated by Arabic philosophers, nevertheless the order of the world and its cosmic structure required a creative moment. This is analogous to the sculptor putting form into pre-existent clay. But this would not do for Maimonides, who wrote that "heaven was generated out of nothing after a state of absolute non-existence" (*Guide* 2: 284). These issues of the nature of that obscure pre-existing matter and creativity, of time and infinity, issues which divided Maimonides and his contemporaries, these issues re-appear in our own metaphor of the Big Bang. They remain among the unresolved questions of contemporary cosmology.

This book complements the volumes of *Boston Studies* devoted to Spinoza, Goethe, Hegel, Nietzsche, Bergson and others while pushing back the agenda for discovering in world literature the influential philosophical contexts for the development and dissemination of science. We celebrate with the contributors to this volume, the eminent scholars from the various disciplines needed to elucidate these issues, the bridging of a significant gap in knowledge.

The late Professor Isadore Twersky, a contributor to this volume, in an essay on Maimonides' exclusive position in Jewish history, quotes the 15th century scholar, Solomon ben Simon Doran:[3]

> "And all the authors who succeed him and the commentators that went in his footsteps, whether among the Muslims or the Christians, even though they superceded him on some issues (*bemikisat devarim*), all concede to his precious and glorious greatness ... ".[4]

Twersky summarizes the praises and appreciation that Maimonides evoked notwithstanding the polemics which surrounded him.

This volume and the symposium upon which it is based attest to that greatness achieved by Maimonides in his own time and his enduring influence in subsequent generations. And yet we must ask: what was Solomon Doran's qualification to his general assessment of Maimonides? Was he conveying the appreciation of his contemporaries to Maimonides' accomplishments and reputation in the sciences, and to what extent are modern deliberations in accord with this evaluation?

An evaluation of Maimonides and the sciences, as this volume attempts, must go beyond an evaluation of the scientific information available to Maimonides at different points in his life, of his methodology in analyzing that information, and the epistemological weight that he assigns to science. Creativity and innovation are generally the standards of scientific achievement even in pre-modern science. Yet in evaluating a thinker as rich and complex as Maimonides, the very terms of creativity must be expanded as the essays in this volume so amply demonstrate.

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NOTES

[1] Warren Zev Harvey "Levi ben Abraham of Villefranche's Controversial Encyclopedia," *The Medieval Hebrew Encyclopedias of Science and Philosophy*, Steven Harvey, ed. (Dordrecht/Boston: Kluwer, 2000), 171–188.
[2] Quoted in op. cit., 172
[3] Isadore Twersky: "Ledmuto shel Harambam: Masa al maamado hayehudi betoldot Yisrael," *Asufot Yearbook for Judaic Studies of Yad Harav Nisim*, Book 10.
[4] Rashbah, *Sefer Milhemet Mitzva*, p. 21, as cited above.

Y. TZVI LANGERMANN

MOSES MAIMONIDES

Moses Maimonides (1135–1204) is without a doubt the single most luminous figure in Jewish intellectual history since Talmudic times. He possessed professional expertise in most of the sciences of his day, most notably astronomy, mathematics, and medicine. Maimonides' early education in Spain, the country of his birth, seems to have stressed the exact sciences in particular. He refers in his writings to his studies with some students of Ibn Bājja. Furthermore, he edited and taught scientific texts written by two Andalusians, Jābir ibn Aflaḥ and al-Mu'tamir ibn Hūd.

In matters astronomical Maimonides' chief contributions concern problems of cosmology and the first visibility of the lunar crescent. As to the former, Maimonides devotes an entire chapter (II, 24) of his philosophical *chef d'oeuvre*, *The Guide of the Perplexed* (Arabic *Dalālat al-Ḥā'irin*: Hebrew *Moreh ha-Nevukhim*), to a discussion of the various ways in which the then-accepted models for planets violate certain basic principles of Aristotelian natural philosophy, namely that all heavenly motions be uniform, circular, and about a stationary center. (This problem, by the way, seems to have vexed Andalusian thinkers in particular.) Maimonides surveys the proposed solutions of Ibn Bājja and Thābit ibn Qurra, but he finds no way out of the quandary. It remains a matter of debate among scholars whether Maimonides considered the problem insoluble, since the true workings of the heavens are a matter of metaphysics and hence beyond full understanding, or whether he felt the problem had a solution, indeed, one which would yield a system not very unlike the Ptolemaic models which he criticizes.

In the closing chapters of the section of his law code (*Mishneh Torah*) devoted to the sanctification of the new moon, Maimonides develops a full, sophisticated method for computing whether or not the crescent will be visible on the eve of the thirtieth day of the lunar month. One calculates the "arc of vision," which is the sum of the difference in right ascension between the true positions of the two luminaries, and two-thirds the latitude of the moon. If this arc is greater than 14°, or the sum or the arc and the elongation (the difference in ecliptic longitude between the two luminaries) is greater than or equal to 22°, the moon will be visible. As Maimonides himself avers, the method draws upon written sources, but some of the procedures have been simplified without doing damage to their accuracy.

R.S. Cohen and H. Levine (eds.), Maimonides and the Sciences, xiii–xv.

Maimonides forcefully repudiated astrology. Like nearly all of his contemporaries, he acknowledged a gross physical effect which the motions and luminescence of the heavenly bodies exercise upon terrestrial processes. However, he rejected the notion, central to the astrology of his day, that the stars emanate any non-corporeal force, and he passionately urged that neither individuals nor nations allow themselves to be guided by astrological forecasts.

Maimonides was both a practicing physician and a medical author. According to his account, he travelled daily to treat the sick at court, and upon his return he found his waiting room full of patients. His medical writings include condensations of the important works of Galen, and a number of original books and monographs. The final section of his own *Aphorisms* (*Fuṣūl Mūsā, Pirqei Moshe*) consists of a scathing critique of Galen's views on medicine and philosophy. Maimonides' medical writings display erudition, clear and concise formulations, and insight; however, his place in the history of medicine, particularly against the background of his contemporaries, remains to be determined.

Maimonides held definite opinions concerning the history and philosophy of science. Scientific teachings must be founded upon solid logical demonstrations. True, observations are vital, but purely empirical claims – those whose authenticity rests solely upon repeated observations, but cannot be placed within any logical framework – are not scientific. This point is made forcefully in his treatise on asthma, and it is one of the underpinnings of his rejection of astrology. Moreover, Maimonides held the view that science progresses in a cumulative fashion, through the refinement of existing data and the absorption of new information; there are no revolutionary leaps. Thus he was able to have it both ways with regard to unsolved issues, e.g. the question of the structure of the heavens. He took tactical advantage of the problem, using the cosmological quandary to attack the doctrine of the eternity of the universe (which rested on astronomical arguments), yet at the same time he felt confident enough in his basic understanding of the workings of the heavens to make use of that knowledge as a steppingstone in the path to knowledge of the Creator.

The most lasting influence of Maimonides, at least as far as his Jewish readership is concerned, was not in the specific scientific knowledge that he disseminated. Rather, his momentous contribution was to elevate the study of the sciences within the context of the religious life. According to Maimonides, the ritual performances and ethical demands of the Jewish tradition have as their goal the preparation of the individual for knowledge of God (to the extent that this is humanly possible), and mastery of the sciences is an indispensable step in this process of religious fulfilment. The observant Jew who follows the lead of Maimonides will regard the study of the sciences as a primary religious obligation.

Y. Tzvi Langermann

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ALEXANDER ALTMANN

DEFINING MAIMONIDES' ARISTOTELIANISM

The Aristotelian legacy presented itself to Maimonides in three distinct layers between which his historical sense knew well to differentiate: the authentic writings of Aristotle; the Byzantine commentaries; and the Muslim Aristotelians. With characteristic sensitivity, he gave no credence to any of the pseudo-Aristotelian writings which had played an important role in Jewish Neoplatonism. In this respect he was far more of a purist than al-Farabi (who, for exoteric purposes, drew on the *Theology of Aristotle* in order to harmonize Plato and Aristotle) and Averroes (who, for similar reasons, invoked a "metaphysical treatise by Aristotle" as yet unidentified and also quoted Ps.-Aristotle, *De mundo*). The passages Maimonides cites verbatim – "This is what he Aristotle actually says" – from the genuine Aristotelian *corpus* are not always models of accuracy but this is due to the liberties occasionally taken by the Arabic version of the text which, on the whole, is remarkably faithful to the original.

Of the Byzantine commentators of Aristotle known to, and utilized by Maimonides, those to be named are Alexander of Aphrodisias and Themistius. He is acquainted also with John Philoponus but has little respect for him as a philosopher, ranking him as he does among the founders of Kalam. He quotes al-Farabi's refutation of Philoponus in the former's (now lost) work *The Changing Beings*. As against the commentators he designates the Muslim *falāsifa* – chiefly al-Farabi and Avicenna – as "latter-day Aristotelians." From them he adopts the peculiar combination of Aristotle's movers of the spheres with the neoplatonic system of emanations. At the same time, he seeks to divest the emanationist theory of its apparent crudity and to approximate it to Aristotelian categories. It should also be noted that his elaborate critique of Aristotle's doctrine of the eternity of the world is directed, in large measure, against the arguments advanced by the "latter-day Aristotelians." There is an obvious tendency on his part to go back to, and take issue with, the authentic Aristotle. Even though there is definite evidence of neoplatonic influence on his thinking, notably as far as his negative theology is concerned, the Aristotelian orientation re-asserts itself in his concept of God as the *actus purus* of thinking. All of which goes to show that the term "neoplatonic Aristotelianism" (which fits the *falāsifa*) is not wholly appropriate in the case of Maimonides. It would be nearer the truth to say that certain neoplatonic notions served him as grist

R.S. Cohen and H. Levine (eds.), Maimonides and the Sciences, 1–7.

to his Aristotelian mill. In a similar way, certain Kalām concepts (such as the notion of "particularization") were made use by him within an ultimately Aristotelian framework.

That Maimonides considered Aristotle to represent the acme of philosophy is attested by many of his utterances. Aristotle is the "head" (*rā'is*) of the philosophers. He "reached the highest degree of intellectual perfection open to man, barring only the still higher degree of prophetic inspiration." Maimonides prefers him to Plato whose writings are "difficult and couched in allegories." There is no need, therefore, to "occupy oneself" with Aristotle's predecessors. "I shall pay no attention," Maimonides declares, "to anyone philosopher besides Aristotle," a statement which has close parallels in Averroes' writings. Maimonides calls attention to "the depth of Aristotle's penetration" and to "his extraordinary apprehension."

At the same time, Maimonides makes a determined effort to portray Aristotle as a thinker in search of the truth rather than claiming to own it. He is well aware of what has been called the "aporetic" or "dialectical" method employed by Aristotle, examining the pros and cons of opinions both past and present in order to arrive at the truth, yet remaining open to alternative solutions. This view of Aristotle as protagonist of an essentially "provisional" and "open" system has been advocated, in modern research, by Werner Jaeger and others following in his path. Maimonides may have had an axe to grind when he stressed the "unassuming *persona*" of Aristotle – the issue that concerned him was creation versus eternity – but the point he made testifies to his acute reading of Aristotle. Besides, it enabled him to assume that the tension between philosophy and prophetic revelation was less pronounced than seemed to be the case on the surface.

There still remains the basic question: To what extent was Maimonides an Aristotelian? How are we to define his Aristotelianism? There are a number of concise statements by Maimonides to guide our initial steps in answering this question. They all tend to suggest that Maimonides was an all out Aristotelian except in one respect: He parted company with him on the issue of the world's eternity as a correlative to the world's necessity. "All of us aim at one and the same principle, i.e. the First Cause. But he Aristotle holds ... that everything other than it necessarily proceeds from it. We affirm that all these things have been made by Him in virtue of a purpose and a will." Considering the prophetic and the philosophic opinions, "you will find no difference other than the one we have explained: namely, that they the Aristotelians regard the world as eternal and we regard it as produced in time." Maimonides' effort is ostensibly directed at refuting the semblance of inevitability claimed for Aristotle's position and at showing, at the same time, that the opposite view is philosophically tenable. In interpreting Maimonides' endeavor, we intend to make it clear that, notwithstanding its religious motivation, its mode of procedure is thoroughly Aristotelian; that it stays within the Aristotelian frame of reference and, in a sense, tries to be more Aristotelian than Aristotle was. The stance presented is not that of a theologically qualified Aristotelianism. In intent, at least, it is rather that of a logically consistent Aristotelianism. Maimonides is obviously not

prepared to compromise his seriousness as a philosopher much as he tries to accomodate religious belief within its confines. Whether this very elaborate harmonizing effort represents his ultimate, esoteric view of things is another matter.

It follows from the afore-going outline of our approach that what needs close investigation is the Aristotelian concept of "necessity" (arab. *luzūm*; hebr. *hiyyuv*; and their equivalents). Its corollary is the notion of eternity, as we shall have occasion to observe. What is of decisive importance, however, is the interplay of necessity – a concept variously defined – with the teleological principle. It is the dialectic of necessity and purpose that characterizes Aristotle's fundamental outlook and enables Maimonides to assert the role of purpose in the universe. Whereas Aristotle confined that dialectic to the sublunar realm, the world of physics, Maimonides extended it to the translunar sphere of astro- and metaphysics. He thereby challenged Aristotle's thesis of absolute necessity as operative in the universe determined by the motions of the heavenly bodies, and he did so on allegedly Aristotelian grounds. In so doing, he defined himself as it were as an Aristotelian up to the hilt.

I. NECESSITY AND PURPOSE IN THE SUBLUNAR WORLD. ART AS MODEL OF NATURE. THE FOUR CAUSES

Necessity, in its primary sense, is defined by Aristotle as "that which cannot be otherwise." It therefore denotes the given as an ultimate, as the way in which things invariably are and must be accepted beyond further reasoning. The *anankē* myth of Plato's *Republic* and a host of religious and mythological concepts resonate in this definition. It may also be said to sum up the essence of Spinoza's philosophy. "It is from this sense of 'necessary'," Aristotle says, "that all others are somehow derived." Those other modes of necessity are (1) coercive (externally imposed) necessity (which, however, is said in another place to fall outside that "which cannot be otherwise"); (2) simple or absolute necessity (ἁπλῶς); and (3) conditional or hypothetical necessity (ἐξ ὑποθέτεως).

Simple or absolute necessity is of two kinds. It means, in the first place, the "mechanistic reactions of materials," the fact that "things are as they are [and operate] owing to their very nature." Necessity of this mechanical, automatic sort is characteristic of "irrational potencies" (ἄλογοι δυνάμεις) as distinct from rational, deliberative potencies which act by choice. The "necessity" by which irrational potencies such as fire operate implies the absence of choice or purpose. Simple or absolute necessity signifies, in the second place and, in a sense, primarily, the very being of eternal and unmoved substances, i.e. the noetic movers of the celestial spheres. On account of their utter simplicity they "cannot be in more than one condition." Their immutability constitutes their necessity. Thus, Aristotle comprises both the irrational potencies in the world of coming-to-be and passing-away and the unchanging movers of the spheres under the same rubric of absolute necessity. This is less surprising than might appear. For Aristotle considers the process of coming-

to-be and passing-away to be just as necessary and eternal – hence cyclical and returning upon itself – as the motions of the heavens. In fact, he affirms the identity of the necessary and the eternal: "for what must *necessarily* be, must at the same time *always* be, since what 'must necessarily be' cannot 'not-be'; hence, if a thing is 'of necessity', it is eternal, and, if it is eternal, it is 'of necessity'."

The third mode, conditional or hypothetical necessity, presupposes the notion of purpose. Necessity in this sense means "that if this or that is to be the final cause and purpose, then such and such things must be so." A saw must necessarily be made of iron if it is to serve its purpose. The justification for calling absolute and hypothetical necessity by the same term (ἀνάγκη) lies in the fact that the latter implies the former: It is the absolute necessity inherent in the nature of the material (iron) that makes its use for certain purposes (e.g. serving as a saw) a conditional necessity. Teleological causality is intertwined with mechanistic causality. As Aristotle put it, "We have, then, these two causes before us, to wit, the 'final' cause, and also necessity."

Hypothetical necessity thus leads us right into the heart of Aristotle's view of nature. The twofold causality (teleological and mechanistic) entails a twofold sense of the physical: as form and as matter of a natural thing. The mechanistic explanation of nature is not false, but insufficient. The teleological view embraces the mechanistic one, and the latter is subordinated to the former. Natural processes happen of necessity, yet for the sake of an end. Unlike Empedocles, Democritus and Anaxagoras who reduced nature to a concurrence of necessity and chance happenings, hence to mechanistic processes, Aristotle regarded coming-to-be and passing-away as determined by both necessity and purpose (τέλος). Thus, the sun's movement in the ecliptic is mechanically responsible for coming-to-be and passing-away, and it is, at the same time, teleologically necessary as a condition for the circular movement of becoming and decay by which the order of the sublunar world is maintained. In the process of becoming, which is a struggle between material and form, the latter normally succeeds but, at times, the non-teleological activity of matter asserts itself and failure (such as monstrous births) ensues. As Aristotle maintains, there is more purposiveness in nature than in art.

The doctrine of the two kinds of causality is fully elaborated in Aristotle's famous presentation of the four causes that operate both in art and in nature. It is a remarkable fact that he had not the slightest hesitation to apply the model of art *mutatis mutandis* to the processes of nature. This procedure has met with occasional criticism. It has been characterized as "anthropomorphic" and "technomorphic." Against this objection it has been pointed out that both for Plato and Aristotle art (τέχνη) is not something alien to nature since they are immediately related to the idea. Nature, no less than art, is activity guided by the idea. Plato's demiurge creates by looking at the idea, and Aristotle speaks of creative nature (φυσις δημιουργοῦσα). Hence the application of the model of art to nature cannot be considered an illicit transference. It plays, at all events, a decisive role in Aristotle's thinking.

The four causes (αἰτίαι) – the final, material, efficient and formal – are

more clearly discernible in art than in nature, which is obviously the reason why Aristotle chose art as the model. In art the efficient or moving cause is invariably separate from the thing effected while in natural processes it may be separate (as progenitor or seed), but in most cases it works as an immanent cause. Moreover, the progenitor reproduces himself, whereas the agent in the realm of art produces the form which he carries as an object of thought in his soul. As agent, he is a rational potency acting from choice. The form corresponds to the purpose he seeks to achieve and he reaches his goal by employing the necessary means (materials) in due proportion to the purpose. In the case of the architect who builds a house – one of Aristotle's favorite examples – the purpose-serving materials must be there if there is to be a house but the materials will not account for the existence of the house. It is the "purposeful intention of the maker" – the purpose of protecting and preserving certain goods – that is responsible for it. Art – the form of the purpose-fulfilling object – is a rational potency in the soul of the agent or efficient cause. The technician must know both the form as determined by the purpose and the necessary means.

What is it in natural processes that functions as an analogue to the mind of the architect? In the case of procreation, we noted above, an external agent, the semen, shapes the material (the menstrual blood, which, in Aristotle's view, is the sole substance of the foetus). The semen contains the form, the purpose and the moving power (δύναμις), and would, therefore, seem to be a perfect analogy to the architect's mind, except for the fact that no conscious activity is involved. In fact, Aristotle compares the semen not to the architect's mind but to his tools which shape the material, and he draws a distinct parallel to the model of art when he says: "In a similar way to this [i.e. the carpenter's moving his tools in accordance with the 'form' in his soul], Nature acting in the male of semen-emitting animals uses the semen as a tool." In a subsequent passage discussing other forms of generation, he describes Nature as "watching over the business" and as resembling a modeller in clay rather than a carpenter. Nature is presented here as the exact counterpart to art. It is pictured as going about its "business" in a circumspect and deliberate way, an image that comes close to the characterization of nature as "wise" and as "doing nothing to no purpose."

These personifications of Nature need not be taken too literally. In yet another passage Aristotle identifies the generative principle which uses heat and cold as its "instruments" in analogy to the instruments of human art with the *dynamis* of the nutritive soul, and he says of this "part of Soul" that it is the "nature" (.....) of plants and animals. Nature with a capital N is but an abstract of the concrete natures of organic (and unorganic) entities. In Aristotle's all-embracing definition, nature is "the principle and cause of motion and rest to those things, and those things only, in which she inheres primarily, as distinct from incidentally." It is also the form of natural things and, as such, the goal, the "for-the-sale-of-which" of the natural process. In this respect, nature is worlds apart from art: none of manufactured things "has within itself the principle of its own making." Yet despite this difference, there

is a structural analogy between art and nature.

The coming-to-be of natural things as described above is still short of an originating principle comparable to the conscious mind that produces artificial things. Does Aristotle posit such a principle beyond and above the unconscious activity of nature? That he is groping for an intelligent principle is shown by the way in which he illustrates the purposefulness in natural processes – an exact parallel, he insists, to artificial processes – by "the works of spiders and ants" which, clearly, are not "the outcome of art" or "deliberation," yet have been attributed to "intelligence" (νῷ) or "some similar faculty." In *Parts of the Animals* where, again, the purposiveness of things "arranged by Nature" is stressed, he says of the "principle" (ἀρχή) or "cause" (αἰτία) of those things that it "came to us from the universe around us." One may connect this passage with the one in *Coming-To-Be and Passing-Away* which makes the annual course of the sun in the ecliptic circle responsible for the continuous process of becoming and decay. This causality is credited, on the one hand, to Nature, on the other to God who "perfected the universe by making coming-to-be a perpetual process." In *Metaphysics*, XII Aristotle lists "the sun and the ecliptic" as one of three causes of the generation of man; the two others are the elements (the material cause) and the progenitor (the formal cause). The discussion moves, however, steadily on toward the notion of God as the "first principle and primary reality." An early passage points already in this direction: "The art of building is the form of a house, and man begets man: but besides these there is that which as first of all things moves all things." The climax is reached in the statement: "Such then i.e. the unmoved necessary Being is the first principle upon which hang the sensible universe and the world of nature." It should cause no surprise, therefore, to read in *On the Heavens*: "But God and nature produce nothing that does not fulfil a purpose."

Not all commentators of Aristotle interpret the trend of the discussion in *Metaphysics*, XII as leading up to the notion of the First Mover as the ultimate cause of purposive processes in nature. The passage 1070b (3–35 ("... besides these there is that which as first of all things moves all things") is understood by Themistius to mean that the First Mover to be spoken of subsequently is in a category different from the proximate movers such as operate in art and procreation. Alexander of Aphrodisias, on the other hand, sees here precisely a reference to "another principle" shared by all the proximate movers, a view ostensibly adopted by Averroes. For Themistius, it seems, the sun's course in the ecliptic represents the highest principle determining the process of coming-to-be in that it engenders the world-soul (lit., "the soul that is in the earth"), a concept he links both to Plato and Aristotle. "It is not to be wondered at," he says, "that nature should bring that which it does to an intended end without comprehending it. For it neither knows nor conceives what it does. This proves that the proportions [inherent in the efficient cause] derive from the most noble and elevated cause: the world-soul, of which Plato says that it is generated by the secondary deities and which Aristotle traces to the sun and the ecliptic. It is for this reason that nature does what it does, directed towards an end it does not comprehend. Just as we meet people that are inspired to utter prophetic

words without understanding what they say." Shahrastānī's short paraphrase of the Themistius passage is certainly in error when it identifies the most noble cause by which nature is "inspired" with God.

JOSEPH AGASSI

MAIMONIDES IN CONTEXT*

PREFACE

Contemporary students of philosophical texts of late Antiquity and the Middle Ages share one overall concern. They usually center on one question, how were faith and reason harmonized there? They rightly assume that, ever since Philo Judeus, the major self-imposed task of diverse philosophers of late antiquity and the Middle Ages concerned the rational attitude to faith (in one or the other of the three leading western religions and regarding any aspect of it, dogma, practice or anything else): it was the effort to bring faith into harmony with reason – to harmonize the particular with the universal. (A famous treatise of Averroes is *Harmony of Religion and Philosophy.* See Davidson, 1992, 348). Historians of philosophy ignore as much as possible those who deem religion prior and superior to reason, calling them mere theologians, not philosophers, since, by definition, philosophy seeks the universal. So the attribution to religious philosophers of the desire to rationalize faith is more of a historical demarcation than a historical statement: we call philosophers those who wished to follow the dictates of reason.

Many of the students of philosophical texts from late Antiquity and the Middle Ages also assume that the harmonization is impossible, and that this impossibility is obvious. So much so, that some of them regrettably also ascribe this view to those whose works they interpret. In this way their initial question turns into the different one: were the harmonizers rational and sincere? (See, for example, Leaman, 1988, 144: 'Let us examine more closely the assumption that Averroes ... pretended to believe ...').

The prevalent view of rationality today is strongly influenced by Descartes' assumption that rationality begins by suspending judgment on all inherited beliefs, and proceeds with the reaffirmation that they are independent of local lore and local standards. This assumption is much more radical than the one it came to replace. The older assumption demanded harmonization, not full justification and no suspension of judgment. Significantly, in line with Aristotle's view that leisure is essential for contemplation, it assumed that rationality is available only in a fairly prosperous society, and that prosperity demands some orderly social life, so that rationality is the characteristic of

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thinking within civil society. As religion is a precondition for the possibility of civil society, it must also be allowed *a priori*. (See Al-Farabi, 1985, 245, §10, and 432, n. 605).

(This is the central difference between the Hellenic and the Hellenistic philosophers: the later philosophers saw in the rationalism of the earlier ones a danger to social stability. A stoic metaphor expressing the change was popular also in the Middle Ages: the earlier philosophy is flowers and the later is bread. See Kraemer's observations cited below).

Can the historians of philosophy who ignore theologians as much as possible also ignore the religion of religious philosophers while studying their philosophies? The Cartesian approach encourages this (even though for the sake of historical precision it should be noted that Descartes himself shared much with some of his predecessors, such as Al-Ghazali; see Sabra, 1994, 31): Cartesian rationality (as modified by Spinoza) opposes the assumption that rationality depends on the existence of civil society, with or without religion.

It is hard to say what is a more rational basis for philosophy, the existence of civil society or Cartesian universal doubt plus Cartesian methods and criteria. The Cartesian system has failed for a basic reason: it is ahistorical. The older view of rationality suffers from traditionalism. This defect can be evaded. Maimonides says (*Code*, Book 1, Of Knowledge, Treatise 2, Laws of Opinions, Chapter 2), deviants should request people reputed as wise to heal their minds. This may be modified and becomes the proposal to familiarize oneself with received opinions, and subject them to critical debate before replacing them (Popper, 1961; also his 1945, Chapter 24).

Is this philosophy (methodology, epistemology)? Leo Strauss said, no; it is the sociology of philosophy. Yet he notices (1952, 8) that it is necessary in order to understand mediaeval philosophy. The sociology of philosophy was missing because Descartes replaced it with his thought experiment of an individual working out a philosophy in total isolation. Whether the sociology of philosophy is allowed as philosophy or not, it is needed as a context for the history of philosophy; yet this is not sufficient: if the history of philosophers prior to Descartes is to be admitted, then they should not be put in a Procrustean bed of Cartesian principles.

1. THE BACKGROUND TO MAIMONIDES

Strauss opened his essay on Maimonides (1941) with the observation that all interpreters endorse the maxim that a presentation of the ideas of a historical figure requires some historical context, yet few attempt to follow this maxim to the full. He reported that he had managed to perform a "most thoroughgoing application" of that maxim, thus attaining "the true and exact understanding of Maimonides' teaching"; he even indicated that in this way he settled the disputes on the matter. This is naive in the extreme, of course. Disagreement about historical contexts cannot be fully eliminated. Nor can knowledge of the context of a text shed full light on it, especially when it is esoteric; and Maimonides' philosophical text, his *Guide of the Perplexed*, is openly presented

as esoteric: its preface opens with a confession that its meaning is obscured so as to be incomprehensible to the ignorant. It is sufficiently obvious why Maimonides wished his text to be incomprehensible to the ignorant: he was following Al-Farabi in his speaking disparagingly of the common people. This is in part a result of Plato's influence. They both showed a concern for the welfare of common people, intending not to confuse them, and also to enlighten them, since popular enlightenment is a precondition for the ideal society that they both aspired for. Yet they took the contempt of common people for philosophy as a sufficient reason to encourage them not to read philosophy before they were prepared for it.

Strauss's effort to reach "the true and exact understanding of Maimonides' teaching" was aided by some theory, of course. His theory is not generally endorsed (Kojéve, 1964). Perhaps there is no need to worry about Maimonides' wish to have his book closed to the ignorant, since the modern interpreters of this text are not ignorant. Yet the worry persists since, as he said explicitly, he intentionally contradicted himself, and interpreters have to decide what were his intended contradictions, so as to distinguish between intended contradictions and ones committed inadvertently (Pines, 1979, n. 82). A reasonable hypothesis may serve as a clue: the intended contradictions are all of one kind. The question is, of what kind?

Strauss had an answer, and it is a poor one. He said, the esoteric part of the book is the traditional part of Jewish mysticism, which Maimonides interpreted as metaphors. It was traditional to explain away impossible texts by viewing them as metaphors, and Maimonides did so regularly and quite openly. Yet Strauss suggested that the intended contradictions are between the literal and the metaphorical. These, however, are not contradictions that conceal ideas: they are contradictions only in the metaphorical sense, and they conceal nothing. To be clear we may ask first, what did Maimonides wish to conceal?

This question raises a prior question: how did Maimonides decide what texts have to be interpreted metaphorically since taken literally they are false? This depends on the question, what was his philosophy and how did he try to harmonize faith and reason? We may take what he deemed the dictates of reason as the standard for what invites reinterpretation. What did Maimonides take to be these dictates? This depends on a basic question that is central to the whole current literature on the interpretation of Maimonides: did he assume that faith and reason are in conflict? And if so, which of the two did he opt for? Most of the commentators assume that faith and reason are in conflict, and then they tend to ascribe this to Maimonides. They then have little choice but to ascribe to him the cynical view that religious tenets are fit for the vulgar; this leads to the ascription to him of the wish to conceal his religious disbelief. This cynicism is hardly consistent with his immense sincerity, courage and piety. The ascription of cynicism to him was refuted by Shlomo Pines, the greatest modern Maimonides scholar (1986): though the *Guide* is esoteric, the *Code* is not, and its First Book reveals his philosophical theology openly and with no compunction; it makes little sense to suggest that he masked in one book what he openly declared true in another.

This is a simple and powerful argument. As the *Guide* is a philosophical text, its teachings are not obligatory and so they may be concealed; not so the *Code*, which is a book of laws, a list of all the obligations that every Jew has, so that it does not avail itself to such maneuvers. Yet, Joel Kraemer notices, the *Code* has all the appearances of an open, exoteric statement of Maimonides' theology, no less philosophically so than in the *Guide*. In some respects the *Guide* is even more open than the *Code* and even on things that could be passed over in silence. The paradigm case here is Maimonides' view on creation. He disagreed with Aristotle on the question, was the Universe created? And he went out of his way to explain that his dissent was not dictated by Scriptures but by reason. He was silent about creation in the first book of his *Code*, where he found no need to express his assent to Scriptures. The opening Book of the *Code* is most philosophical in its presentation of God as a first being, as the necessary being which cannot be conceived but as existing. The idea sounds very Avicennian, and raises for the religious a very difficult question: is this necessary being the God of Abraham, Isaac and Jacob? Judah Halevi had much trouble with that notion; the *Code* does not deal with it. It is systemic and quasi axiomatic (the way later emulated by Spinoza in his systematic *Ethics*), as this was what he thought made it rational.

This was in accord with the general attitude exhibited by Muslim philosophy. (Much of Muslim culture was due to contributions of scholars who were Christian or Jewish, but it was the Muslim world in which they operated; see Seale, 1964). Al-Farabi and Al-Ghazali shared it and Maimonides was greatly under their influence.[1] They divided logic, as Aristotle did, into dialectics and demonstration, that is, to induction (*epagoge*) and deduction, to refutations and proofs. They identified the method of refutation with *kalam* (talk) and of proof with *fiqh* (systematic jurisprudence). They endorsed Plato's precept (*Laws*, 908b-909e) that dialectics should be esoteric.[2] Maimonides' *Guide* is his contribution to the *kalam* and his *Code* is his version of the (Jewish) *fiqh*. Confusion was endless as *kalam* is also the name of a movement, one that practiced *kalam*. Maimonides' opposition to that movement was taken as opposition to *kalam*. The literature still uses the word at times to mean the name of a movement and at time a method, but as a method it is not admitted that Maimonides embraced it.[3] Strauss declared that Maimonides shared much with the *kalam*. Kraemer, now the leading Maimonides scholar, has observed (1979, opening passages):

> In a famous passage of the *Guide of the Perplexed* ... Maimonides traces Islamic *kalam* to books of Greek and Syrian Christians who refuted philosophical opinion that destroyed the foundations of their Law ... Maimonides disassociated himself from this method ... *kalam* had no theoretical-demonstrative validity but is a dialectical instrument used for ulterior motives, an assessment Maimonides apparently derived from Alfarabi ...

Kraemer sees the discord of Maimonides with the thinkers of the *kalam* as his rejection not of their intent to 'refute philosophical opinions that destroyed the

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