RAMBAM, SCIENCE, AND *TAAMEI HAMITZVOT*

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I

An important contribution to understanding Rambam's views on society and political philosophy is that of the modern students of the *Guide*[1] who pointed out the Platonic sources which Rambam drew upon, as distinguished from the corpus of Aristotle's doctrines.[2] In consequence, we no longer take for granted the complete identification of Rambam with Aristotelian concepts. Nonetheless, on matters of natural science and metaphysics, the traditional view, which sees Rambam as purely Aristotelian, is still widely current. Some radical commentators have even gone so far as to suggest that on the issue of the eternity of the world, Rambam's reservations are no more than apologetic exoteric teachings.[3] He is seen as a follower of Aristotle even by those who note his discussion of the crisis in astronomy due to the irreconcilability of the principles of Aristotelian physics with the eccentrics and epicycles upon which Ptolemaic astronomy rests.[4]

This is an abbreviated English version of a more extensive and more comprehensive essay now in preparation for publication in Hebrew.

[1] All citations from *The Guide of the Perplexed* are from Shlomo Pines's translation: University of Chicago Press, 1963. References are to part and chapter, as well as to the page number in Pines's version.

[2] The work of Leo Strauss is particularly important in this connection. See Pines's Introduction, p. lxxvi, for references.

[3] For a short survey of radical interpreters, see A. Ravitzky, "The Secrets of the *Guide to the Perplexed*: Between the 13th and 20th Centuries," *Studies in Maimonides*, ed. I. Twersky, Harvard University Press, 1990, pp. 159–207.

[4] For example, see Pines's Introduction, p. lxiii.

Recently, however, there are signs of an increased awareness of empiricist trends in Rambam's thought that run counter to Aristotelian philosophy of science.[5] Paradoxically, in biology, in which Aristotle did most of his scientific work, he himself appears to have preferred the path of the observer and collector of empirical data to that of the practitioner of pure science,[6] which he defined as the knowledge of universals which observation cannot yield: "It is clear that knowledge of things demonstrable cannot be acquired by perception."[7] Moreover, medieval physicians were always more conscious of the need for practical observations and even experimentation. Perhaps his medical vocation influenced Rambam's theory of science. Be that as it may, one cannot ignore Rambam's emphasis on the importance of observations in which to ground theories, theories that can be formulated so as to make predictions which can then be verified or falsified by further observations. This is a point which he makes repeatedly both in the *Guide* and in the *Mishneh Torah*; I have drawn attention to this elsewhere.[8]

In the present context, I wish to point out what appears to be an application of the empirical outlook and its practical implications in a fundamental area of Rambam's religious thought

A brief overview of Rambam's discussion of natural science will enable us to compare it to his treatment of the explanations for the commandments.

The first requirement of true science is unprejudiced observation of the phenomena of nature in order to collect as many data as possible. Says Rambam: "To sum up, I shall say to you that the matter is as

[5] See my "Rambam as a Scientist," in *Encounter*, ed. H. C. Schimmel and A. Carmell, Feldheim, Jerusalem 1989, pp. 244–266. Also see my commentary יד פשוטה, הלכות יסודי התורה, פתיחה לפק שלשי. Menachem Kellner, "On the Status of the Astronomy and Physics in Maimonides' *Mishneh Torah* and *Guide of the Perplexed*," *British Journal for the History of Science* 24 (1991), pp. 453–63, and idem, "Maimonides on the Science of the *Mishneh Torah*—Provisional or Permanent," *AJS Review* 18 (1993), pp. 163–94. Also my "Maimonides and the Makings of Modern Science," in *Moses Maimonides: Physician, Scientist, and Philosopher* ed. F. Rosner and S. S. Kotek, Jason Aronson, Northvale N.J., 1993, pp. 67–76.

[6] See, for example, S. F. Mason, *A History of the Sciences*, Macmillan, 1962, p. 46.

[7] *Posterior Analytics* I 31, 88a

[8] See references in note 4 above.

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Themistius puts it: that which exists does not conform to the various opinions, but rather the correct opinions conform to that which exists.[9]

Although teleology is evident throughout nature, and many phenomena can be understood and explained in terms of their utility and the purpose they serve, these purposes are not always apparent to us. In particular is this so with regard to the heavenly bodies. Therefore, there are no teleological principles which can be laid down a priori. Over the centuries, the orbits of the planets have been tracked and mechanisms have been posited to explain them. These are almost completely divorced from teleological considerations, for the ultimate purpose of creation as a whole cannot possibly be comprehensible to the human mind.[10]

It is not necessary to explain the structure of the heavens in physical terms; such a representation may well be beyond us. That is, to establish the validity of Ptolemaic astronomical theory it is sufficient to deal with its implications as expressed in mathematical formulas; it is necessary to test its predictions by further observation, for only observable phenomena are what matter, and not the theory devised to explain them.

> It will be found that what is calculated . . . is not at fault by even a minute. The truth of this is attested by the correctness of the calculations . . . concerning the eclipses and the exact determination of their times as well as of the moment when it begins to be dark and of the length of time of the darkness.[11]

Secondly, Aristotle had already stated that a proper understanding of the laws of nature requires a recognition of the fact that they are true only "for the most part."[12] Rambam refers to this qualification again and again in different contexts: "This is what happens for the most part . . . and, as we have made clear, no attention should be paid to anomalies."[13]

[9] *Guide* I 71, p. 179.
[10] Ibid. III 13, p. 454.
[11] Ibid. II 24, p. 326.
[12] *Physics* II 5, 197a.
[13] *Guide* III 12, p. 447.

Both of these principles together are crucial aspects of the empirical approach to nature.

II

After having presented and explicated at length these guidelines for scientific investigation, Rambam turns to the problem of the reasons for the commandments (טעמי המצוות). In this area, he declares unequivocally that it is to be expected that the purposes of the מצוות will be accessible to our understanding, since these consist of discernible phenomena. Nonetheless, that can happen only after all the facts are in. Deduction from teleological postulates has only restricted application. Quite deliberately, he enunciates the application of the empirical principles to this new field of inquiry.

The second principle adduced from the philosophy of natural science has its counterpart in the laws designed to regulate human actions.

> The Law . . . is directed only toward the things that occur in the majority of cases and pays no attention to what happens rarely. . . . For the Law is a Divine thing; and it is your business to reflect on the natural things in which the general utility, which is included in them, nonetheless necessarily produces damages to individuals . . . for not everything that derives necessarily from the natural specific forms is actualized in every individual.[14]

The first principle of science assumes that there are natural effects which can be observed. So too there are observable consequences of obedience to the Torah. Naturally, there are some laws with effects that can be foreseen, and even human legislators could design such rules in order to achieve desired ends.[15]

These include, at least in part, most of the מצוות in the category of "between man and his fellow," i.e. the laws dealing with society and civil affairs. It is indeed in this area that the Platonic influences on Rambam's concepts are important. Some ritual rules can be understood

[14] Ibid. III 34, p. 534.
[15] Ibid. II 40, p. 383.

as markers of group identification,[16] which would be described today as contributing to ethnocentricity. Yet it is hardly to be supposed that they could serve such a purpose if they were chosen in an arbitrary manner without other considerations, such as historical or symbolic relevance or some other additional factors.

Many of the commandments can be broadly described as concerned with ethical character-traits. On this issue, most of the commentators have made the most of the fact that Rambam adopted the Aristotelian ideal of the mean in its entirety. Both in his early discussion, in the Commentary to the Mishnah,[17] and in the later development, in the *Mishneh Torah*,[18] in many passages the very language used is reminiscent of the *Nicomachean Ethics*. However, Rambam has put his concept of טעמי המצוות to good use by proposing a resolution to the unsolved problem of determining what is the golden mean in practice. The commandments specify points on the desired mean. Moreover, the definition of the golden mean can be made complete even for those kinds of actions which are not explicitly covered by commandments, in a manner analogous to the geometrical procedure whereby a continuous curve can be drawn through given points. Deeds which can be construed as leading to the performance of commandments, or to the attainment of the purposes of the commandments, are themselves included in the definition of the sought-for mean. In this way the ideal of the golden mean becomes in fact a useful guide for living, and this in itself is one of the advantageous effects of the commandments.

However there are other commandments which do not lend themselves readily to rational explanation, and their effects and purposes can only be discovered by patient investigation.

> Any particular commandment or prohibition has a useful end. In the case of some of them, it is clear to us in what way they are useful. . . . In the case of others, their utility is not clear. . . .
>
> . . . this legislation is not a vain matter without a useful end. . . . If it seems to you that this is the case with regard to some of the commandments, the deficiency resides in your apprehension. . . .

[16] For example, circumcision, as explained ibid. III 49, p. 610.

[17] Introduction to Avot, שמונה פרקים.

[18] הלכות דעות. See my commentary יד פשוטה, especially the introduction to chapter 3, for a fuller treatment of Rambam's solution.

> . . . one should seek in all the Laws an end that is useful in regard to being: "For it is no vain thing."[19]

After a discussion of what constitutes utility or useful ends with reference to human behavior, Rambam cites extensively from a treatise by Galen, *On the Utilities of the Parts of the Body*. Then he proceeds to point out an analogy with respect to human psychology. There is a parallel between the psychological and physical functions of the human being both in structure and development.

> If you consider the Divine actions—I mean to say the natural actions—the Deity's wily graciousness and wisdom as shown in the creation of living beings, in the gradation of the motions of the limits . . . in the gradual succession of the various states. . . .
>
> . . . for a sudden transition from one opposite to another is impossible. And therefore man, according to his nature, is not capable of abandoning suddenly all to which he was accustomed. . . .
>
> . . . it is not in the nature of man that after having been brought up in slavish service occupied with clay, bricks, and similar things, he should all of a sudden wash off from his hand the dirt deriving from them and proceed immediately to fight against "the children of Anak" (giants).[20]

It follows, therefore, that any attempt to modify human behavior must also take into account the facts of the nature of man on the psychological plane.

The physician is concerned not only with observing the state of the human body as it is; his primary object is to devise means of changing a state of disease into one of good health. To this end, he also tries to measure the validity of various treatments. This is not just passive observation. Rather it opens the way to active experimentation. One tries to anticipate how certain changes in the patient might be brought about, and one then attempts to measure whether the methods used are effective.

[19] *Guide* III 26, pp. 507–508.
[20] Ibid. III 32, pp. 525–527.

We are enjoined to explore methods of healing and indeed to search for ways to improve man's lot economically and socially as well, by a better understanding of nature's laws.[21]

The idea that the wise are the healers of the soul, just as the physicians heal the body, is a concept which Rambam traces to the Bible.[22] Of the Torah, it is written, "It will be healing to your navel and medicine to your bones" (Proverbs 3:8). Seen in this light, the Torah and its commandments are an attempt to experiment with an entire people to build, over a span of many generations, a "holy nation" (Exodus 19:6). Rambam sought, therefore, to apply to the study of the purposes of the commandments, the norms and procedures which he felt ought to be applied to the exploration of reality in all its aspects.

III

The notion that the rationale of the commandments is to be sought in their practical effects was not novel. Indeed, it was already proclaimed by the Psalmist: "O taste and see that the Lord is good" (Psalms 34:9). However, Rambam developed this idea to unprecedented lengths. Moreover, he developed it in a direction which appears to be unfamiliar in the medieval context. The effects of the observance of the commandments must be studied by observation. Some of these effects are related to the constitutional needs of human beings for satisfaction through certain types of behavior.

This idea is given philosophical credence by a citation from Aristotle. In explaining the commandments concerning the Sabbath and festivals, Rambam writes:

> The festivals are all for rejoicings and pleasurable gatherings, which in most cases are *indispensable for man*; they are also useful in the

[21] See Commentary to the Mishnah, Pesachim 4:10. Of particular interest in this regard is the Epistle to the Sages of Montpellier, אגרות הרמב"ם, מהדורת רי"ד שילת ירושלים תשמ"ז, where Rambam attributes the downfall of the Jewish state and the exile to the neglect of the martial arts due to straying after astrology and other superstitions (p. 480).

[22] See Commentary to the Mishnah, Introduction to Avot, chap. 3 and הלכות דעות פ"ד ה"ב.

> establishment of friendship, which *must exist* among people living in political societies.[23]

Two kinds of necessity are mentioned here. The second is obviously teleological—in order for civilized society to be maintained, there must be friendship and cooperation. But the first is of a completely different nature. "Rejoicings and pleasurable gatherings" are somehow "indispensable for man"; not only *sought after* or *desired*, but *indispensable*. This is some kind of deep-seated psychological need which characterizes man qua man. Interestingly enough, not only joy needs to find external expression. The same is true of sorrow. "For those who grieve find solace in weeping and in arousing their sorrow until their bodily forces are too tired to bear this affection of the soul; just as those who rejoice find solace in all kinds of play."[24]

How can one recognize such needs, which are not merely characteristic of people in specific societies in particular periods of history, but which stem from basic human drives?

Here "the philosopher" is again brought in to lend authority to the answer.

> In the ninth book of the *Ethics*, Aristotle states that this was the general practice of the religious communities in ancient times. He says literally: The ancient sacrifices and gatherings used to take place after the harvesting of the fruit. They were, as it were, offerings given because of leisure. This is literally what he says.[25]

Consulting our text of the *Nicomachean Ethics*,[26] the quoted passage seems almost peripheral to the theme of community. Rambam makes it carry much more weight by stating that it refers to the "general practice." It seems that the purpose of this remark is to ascribe special significance to the general practice.

Moreover, the "general practice of the religious communities in ancient times" is cited not only in this one connection, which is, after all, only a single aspect of the Torah. Rambam went to great

[23] *Guide* III 43, p. 570.
[24] Ibid. III 41, p. 567.
[25] Ibid. III 43, pp. 571–572.
[26] In our text, the cited passage occurs in Book VIII, Chap. 9, 1160a.

trouble to read all the available books of the Sabians, "for this was a religious community that extended over the whole earth."[27] He sought out information about Magians[28] (Zoroastrians), Turks, Hindus, and Negroes[29] in addition to Greeks, Moslems, and Christians,[30] etc.

This search for the religious practices of as many cultures, both past and current, as were accessible to him is set into bold relief by a rather surprising assertion about חוקים, the class of ritual statutes for which an explanation in terms of reason is lacking, their purpose being concealed from us:[31] "It states explicitly that even all the חוקים will show to all the nations that they have been given with wisdom and understanding."[32]

A modern psychoanalyst describes *ritual* as "an avenue of expression for deep-lying psychological impulses."[33] Was this what Rambam was looking for? By comparing the rituals of different cultures, to uncover the fact that they fulfill basic needs of the human psyche, needs which the Torah too must necessarily address, and in so doing, ennoble and uplift.

Rambam draws an analogy between aspects of the sacrificial cult[34] and the Torah's promises of reward and punishment as well as the prophets' recurrent references to events which are to be understood as Divine retribution. He explains at length that the modification of human behavior can be effected by reward and punishment. The soul of man reacts to external reinforcements signifying either approval or disapproval of various tendencies. Indeed, even animals can be trained by this technique. Thus, for example, the desire for approval is a psychological need which requires satisfaction. Every educator knows that by fulfilling this need one can influence behavior and reinforce or discourage certain tendencies and proclivities. Similarly, there are other psychological wants which express themselves in various ways.

[27] *Guide* III 29, pp. 514–515.
[28] Ibid. III 47, p. 595.
[29] Ibid. III 51, p. 618.
[30] Ibid. I 50, p. 111.
[31] Ibid. III 26, p. 507.
[32] Ibid. III 31 p. 524.
[33] Theodore Reik, *Ritual*, New York, 1962, p. 17.
[34] *Guide* III 46, pp. 587 ff.

There is in every culture and every society some sort of social structure. This is, after all, only an expression of a fact noted by Aristotle: "Man is by nature a political animal. . . . A social instinct is implanted in all men by nature."[35] Rambam finds also a universal ritual of worship, and that can be manipulated to perform a political function, to secure the rulers in their power.[36] Thus the worship of false gods develops into an elaborate and ramified set of practices.

> Those that set up these false opinions, which have no root or any utility, in order to fortify belief in them, use the device of spreading among the people the opinion that a certain calamity will befall those who do not perform an action perpetuating this belief.[37]

On the other hand, rites were devised to bring benefits of various kinds to their practitioners, rites which have no rational basis whatsoever but which are intended to produce magical results. These are in themselves not only ineffectual, but they are positively damaging in that they distract attention from the search for truly effective natural means for attaining the desired results.

Now it is significant that on the matter of magic and sorcery, Rambam maintains that the Torah seeks to bar us completely.

> In order to keep people away from all magical practices, it has been prohibited to observe any of their usages, even those attaching to agricultural and pastoral activities. . . . all that is said to be useful but is not required by speculation concerning nature, and takes its course, in their opinion, in accordance with occult properties.[38]

However, with regard to the rituals of worship, for example, there is no blanket prohibition on all forms of worship. The Law does not prescribe "the rejection, abandonment, and abolition of all these kinds of worship."[39] Rather it seeks to adapt them to other ends, and to eliminate cruel, repulsive, and undesirable features.

[35] *Politics* I 2, 1253a.
[36] *Guide* III 29, p. 515.
[37] Ibid. III 37, p. 545.
[38] Ibid., p. 543.
[39] Ibid. III 32, p. 526.

Similarly there is a "generally known" sense of holiness and cleanness associated with objects or states of veneration, and contrariwise, there is an opposed notion of uncleanness. Just as the awareness of holiness expresses itself in worship and awe, so too the reaction to uncleanness gives rise to rites and usages to assuage fears and afford protection, as it were, from ill effects. Revulsion, guilt, and fright seem to well up out of the recesses of the soul to produce "these fancied notions" of uncleanness.[40]

Although these "notions" of the Sabians are certainly "fancied," they are a response to genuine stirrings in the human soul. It is not possible merely to abolish all the varied rites which different cultures have developed and linked to their false gods and their depraved worship. Indeed, the Torah seeks "to ease unpleasant restrictions," to lighten "burdensome usages,"[41] and above all to counter false beliefs and sever all possible connections with idolatry. Yet it too must address the underlying impulses which manifest themselves in what we now designate as taboos and which are well-nigh universal in one form or another.

IV

The "ultimate perfection" of man "is to become rational inactu. . . . this would consist in his knowing everything concerning all the beings that it is within the capacity of man to know."[42] The unique characteristic of the Torah consists in the fact that in addition to providing for the ends for which every legal system is designed, namely, the proper functioning of society, it also seeks to give some of the intellectual insights "through which ultimate perfection is achieved."[43] Yet these teachings are but few in number, comprising only the most basic truths about existence in general and about man in particular. In selecting which truths to reveal and which to leave to man's own initiative to discover, and in formulating the method of imparting the principles

[40] Ibid. III 47, pp. 593 ff.
[41] Ibid.
[42] Ibid. III 27, p. 511.
[43] Ibid.

taught, the criterion is that of utility—the same standard as applies to the commandments.

Thus, for example, man is distinguished in that he is a free agent. Without the conviction that his will is indeed free, no man can be held accountable before the Law, nor will it be effective in modifying his behavior. This principle gains significance especially against the background of the fatalist school of Islamic thought. Moreover, the awareness of his freedom and his consequent responsibility may become an intolerable burden to the man who has succumbed to sin and transgressed. Unexpiated guilt can destroy the personality. Thus the principle that repentance is possible is a truth which is needed urgently by all men, even by those whose intellectual endowments are limited. Without the belief in repentance,

> the existence of individuals professing a Law cannot be well ordered. For an individual cannot but sin and err, either through ignorance . . . or else because he is overcome by desire or anger. If then the individual believed that this fracture can never be remedied, he would persist in his error and sometimes perhaps disobey even more because of the fact that no stratagem remains at his disposal.
>
> If, however, he believes in repentance, he can correct himself and return to a better and more perfect state than the one he was in before he sinned.
>
> For this reason there are many actions that are meant to establish this correct and very useful opinion.[44]

False opinions too may in certain circumstances lead to desirable results. But because they are false, they must be exposed as such. However, the fact that they are also useful does not detract from the worth of true beliefs. It does mean, though, that such true beliefs as are useful should be included in the teachings of the Torah, whereas true beliefs whose utility in this world is not great, have not been taught.

Thus the criterion of utility enables us to understand why the Torah teaches some true beliefs to the exclusion of others. Furthermore, the very same criterion is applied to the text of the Torah, which contains much more than the six hundred and thirteen commandments. What

[44]Ibid. III 37, p. 540.

is the reason for all the extralegal material in the Torah? Why all the exhortatory texts which apparently add nothing to the body of the Law?

> We do not count speeches [separately from the commandments] . . . Since the speeches that the law enjoins or forbids belong in part to the class of civic actions, and in part are meant to cause opinions, and in part are meant to cause moral qualities.[45]

The text of the Torah, like the commandments, is intended to produce useful results. Its efficacy as an educational tool has been amply proven.

Some have attributed to Rambam's explanation of the utility of beliefs an almost cynical intent, accusing him of concealing his true views by manifest and open teachings which accord with traditional religion, but hinting darkly at the intellectual paucity of these opinions.

It seems to me that such an interpretation is all too facile. After all, even an uninitiated reader cannot help but notice that there is no attempt whatever to make the belief in repentance, for example, "intellectually" respectable. It is clearly and explicitly justified only on the basis of its utility. Is the way to conceal one's true intent to offer transparently lame excuses?

[45] Ibid. III 31, p. 524. The phrase "the speeches that the law enjoins or forbids" has been variously understood by the commentators. Thus Crescas explains that the reference is to ודוי מעשר והודאה על הביכורים וקריאת שמע והברכה אחר האכילה; או הזעקה מהם שלא לאמרם כמה ושם אלהים אחרים לא תזכירו, והלחשים שאומרים מי שחובר חבר.

On the other hand, Even Shmuel (Kaufmann) in a footnote refers the reader to the ninth principle in the ספר המצוות, implying that "the speeches" can be understood in the manner of Crescas, or possibly in the sense of repetitions of the commandments. However, neither of these interpretations can be sustained in the light of Rambam's context: "Every commandment from among these six hundred and thirteen commandments exists either with a view to communicating a correct opinion. . . . Thus all are bound up with three things: opinions, moral qualities, and political civic actions. We do not count speeches as one of these things, since the speeches that the law enjoins or forbids belong in part, etc."

It seems clear, therefore, that "the speeches" are not themselves subjects of any of the 613 commandments. It seems to me that the reference is to exhortatory texts which are not themselves commandments. Examples are "Remember the days of old . . . ask your father and he will show you" (Deuteronomy 32); "Do not say in your heart . . . It is because of my righteousness that the Lord has brought me in to possess this land" (Deuteronomy 9:4).

On the other hand, Rambam himself provides an instructive model from the natural sciences in which his approach is precisely parallel to that on the "useful opinions." In antiquity, much of the art of medicine was connected with magic, astrology, and other occult practices. These are clearly idolatrous in nature and are forbidden. On the whole, there are only some remedies and treatments which seem well understood. Indeed Rambam goes somewhat farther when he says, "all that is required by speculation concerning nature is permitted, whereas other practices are forbidden."[46] In other words, any course of treatment which can be rationally accounted for is legitimate. Yet, that part of medicine which can be described as rational was in Rambam's day, and perhaps even in our own, capable of dealing with only a fraction of our ailments.

There is, however, another class of treatments which, though lacking a foundation in reason, have been shown to work again and again. Therefore, "it is allowed to use all remedies similar to these that experience has shown to be valid, even if reasoning does not require them. For they pertain to medicine and their efficacy may be ranged together with the purgative action of aperient medicines."[47]

Rambam does not fail to observe that the experience upon which a claim is made for particular remedies may be unreliable and misleading, and criteria are required to determine what is trustworthy experience. However, it has been established beyond a doubt that there are certain substances that are effective cures in specific cases, such as, for example, the well-known purgatives. Although he had no understanding of the chemical or physiological processes involved, Rambam had no qualms about using such treatments as had been proven by careful observation. Moreover, he concludes his exposition of the principle that proven efficacy validates medicine, with a rather lengthy comment in its praise:

> O you who are engaged in speculation, grasp fully and remember the marvelous observations contained in my speech. "For they shall be an ornament of grace unto thy head, and chains about thy neck" (Proverbs 1:9).

[46] *Guide* III 37, p. 543.
[47] Ibid., p. 544.

Even allowing for the fact that fewer words are required in the original Arabic and Hebrew than in English, and considering Rambam's parsimony with words, this is surely a most significantly lengthy comment. Furthermore, the choice of the verse from Proverbs is especially meaningful. The Midrash tells us that the Torah is a crown on the head, as it is written, "For they shall be an ornament of grace unto thy head, etc.,"[48] and Rambam himself explains elsewhere that this signifies knowing and understanding intellectual truths in virtue of which the soul acquires immortality.[49]

In other words, the fact that a particular substance has medicinal potency is not just a chance coincidence but is evidence of some fundamental law of nature, i.e., an intellectual truth which we do not yet grasp. Yet the specific fact is a truth in its own right.

In exactly the same way, the proven efficacy of the belief in repentance in enabling sinners to rise above their moral failings is itself evidence of the validity of this belief, although we do not possess demonstrative proof. To ignore the empirical facts in the absence of logical confirmation of the universal principle is to discard genuinely scientific evidence of the only kind available to us.

Since false beliefs, too, may sometimes produce useful effects, careful standards are required to certify what are acceptable observations and which are undependable. But then this is only another instance of the same requirement which applies to all empirical data. On a deeper level, as I have pointed out above, sometimes the efficacy of rites connected with false beliefs is, in fact, due to some aspect which indeed satisfies basic needs—an aspect which can and should be isolated from its undesirable and base associations. Even out of the repugnant and corrupt catalogues of idol worship and magic, some kernels of truth can sometimes be distilled

Doctrines such as free will and repentance are examples of beliefs such that faith in the principle helps to realize it in fact. To a large extent, the fact of free will is a direct result of the active belief that man's will is indeed free. It is a fact of observation that he who believes he is free to exercise real choices does choose, and thus creates an arena in which genuine alternatives exist. On the other hand, he who resigns

[48] מדרש תהילים (בובר) יב, סו.
[49] See הלכות תשובה ת ב.

himself to blind fatalism inevitably sinks into utter passivity, and his life becomes completely determined for him by whatever forces operate in his environment. He who refuses to believe that there is free will effectively abrogates it, while he who believes and acts upon this belief transforms his personality and his life. So too, he who accepts the possibility of repentance can profoundly change his personality. These are the kinds of truths that cannot come into being unless they are believed in, and the very belief in them is a self-justifying faith.

V

The success or failure of the Torah regimen in molding the character of the people can be measured only over the long term. Thus, for example, although many of the commandments are directed toward eliminating superstitious and idolatrous practices, even the accumulated effects of many centuries of Torah observances have not yet been entirely successful.

> Know that the traces of this action subsist up to now.... You will see that midwives take small children in their swaddling clothes, throw a fumigant having a disagreeable odor upon the fire, and move the children over this fume above the fire. This is indubitably a sort of passage through the fire ... its trace was not effaced though the Law has opposed it for thousands of years.[50]

On the other hand, the acquisition of virtue is a task which every generation must undertake anew, "so that man should know that it is a part of the divine worship that man should remember states of distress at a time when he prospers.... For there was a fear of the moral qualities that are generally acquired by all those who are brought up in prosperity—conceit, vanity, and neglect of the correct opinions."[51]

Although there is no indication that virtue can be acquired through biological heredity, there is no doubt that cultural transmission is a very potent force. Both for good and for ill, habit and upbringing are a major, if not the decisive, factor influencing the soul of man. "Man has

[50] *Guide* III 37, p. 546.
[51] Ibid. III 39, p. 552.

love for, and the wish to defend, opinions to which he is habituated and in which he has been brought up, and has a feeling of revulsion for opinions other than those."[52]

The result of many generations' continuing efforts is clearly seen in the disappearance among Jews of idolatrous tendencies and beliefs. Moreover, the efficacy of cultural transmission is comparable to biological heredity in the enhancement of moral qualities as well as beliefs. Thus the ability to forgive "is the way of the seed of Israel and their proper mind."[53] Moreover, whatever the mechanism of determination,

> All those who stood at Mount Sinai will believe in Moshe Rabbenu and what he taught—they and their children and children's children to the last generation . . . and every one who forsakes the faith given at that momentous stand is not of the seed of those people.[54]

The survival of the Jewish people is a consequence of their steadfast faith, nourished by the text of the Torah, which is a constantly renewable source of vitality. "Rely upon these true verses . . . and do not let yourselves be frightened by the persistent persecutions, and the rising strength of our enemies, and our people's weakness."

The revelation at Sinai took place in order to create a "faith that is unalterable, in order to convey a truth that will sustain us in these difficult times. . . . For [God] revealed Himself to you in order that you be strong in every trial from that day onwards, and you will not fall."

Here again is an example of a self-fulfilling faith. For those who do not believe that they are strong enough to withstand the tribulations and misfortunes of exile will certainly give up the struggle, whereas experience clearly shows there is a likelihood that a saving remnant will survive from among those whose faith is strong.

In every generation the teachings and the commandments of Torah exert their gradual influence, with the end result observable only after many centuries. It behooves us, therefore, to apply Rambam's methodology to ascertain whether we can add further empirical data

[52] Ibid. I 31, p. 67.

[53] הלכות תשובה ב, ו

[54] Epistle to Yemen in אגרות הרמב"ם מהדורת ר"י שילת ירושלים תשמ"ז. This and the next two citations are from the same source pp. 124–126. The translation into English is my own.

to those which he considered—data that can reveal the effects of the observance of the commandments as well as data that show the effects of cessation of observance.

Rambam would no doubt have been interested in studies of the habits of alcohol consumption among observant Jews, and more recent reports of an increase in alcoholism among their third- and fourth-generation nonobservant descendants.[55] Similarly, other forms of substance abuse ought to be investigated.[56] Although over the centuries some Jews have adopted some rituals veering dangerously close to worship of the dead, on the whole the Jewish attitude to death and the dead is sanguine and sane. How much is this due to the laws of ritual impurity, which declare the dead as the supreme source of defilement, and forbid statutory prayer in the graveyard? The need for rites of mourning has already been briefly alluded to above; can psychology today cast more light on this basic issue? What can modern theories of the subconscious add to our understanding of the function of ritual in maintaining and restoring mental health? Can the observance of המצוות help to generate spiritual and mental energy to sustain the individual and society?[57]

These and similar questions arise naturally out of the Rambam's discussion of טעמי המצוות. In astronomy, for example, the search for new data must continue unabated as new vistas constantly open up for investigation. So too "The judgments of the Lord are true, they are righteous altogether" (Psalms 19:10). Yet much of that truth and righteousness are hidden from us, "and we do not know the manner in which they conform to wisdom."[58] Patient empirical research will be

[55] See, for example, C. R. Snyder, "Culture and Jewish Sobriety: The Ingroup-Outgroup Factor," in *Society, Culture, and Drinking Patterns*, ed. D. J. Pittman and C.R. Snyder, John Wiley, New York, 1962, pp. 188–225. For more recent work, see P. Eldar and S. Weiss, "Three National Surveys on Non-ritual Drinking Practices of the Israeli Jewish Adult Population in the 80's," *Israel Journal of Psychiatry and Related Sciences* 27 (1) 1990.

[56] On the effects of Torah observance on drug addiction, see וחל אהרנופלד, "מסטיה חוקית לסטיה לא־חוקית", עבריינות וסטיה חברתית (יא), 1983, 28–25.

[57] An interesting attempt in this direction, though from a somewhat different vantage point, is Mordechai Rotenberg, *Dialogue with Deviance: the Hasidic Ethic and the Theory of Social-Contraction*, Philadelphia, 1983. An expanded version appeared in Hebrew, published by the Bialik Institute, Jerusalem, 1990.

[58] *Guide* III 26, p. 507.

rewarded with the discovery of information which in the long run will reveal the truth.

> Apply to the whole matter the principle to which the Sages, may their memory be blessed, have drawn our attention: "For it is no vain thing from you" (Deuteronomy 32:47). And if it is vain, it is so because of you.[59]

[59] Ibid. III 50, p. 617.