

Sanctification of the New Moon – A Treatise of Maimonides’ Mishneh Torah

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Abstract

Recently I read *Sanctification of the New Moon*,^[1] which is a small part (one of 83 Treatises) of Maimonides’ Mishneh Torah. I didn’t read this work as part of my adult Jewish responsibility to study Torah. Rather, I read it as a natural next step in a recreational study I was making of the Jewish calendar. After reading it, however, I was so impressed by Maimonides that I decided to write this report as part of my responsibility to study Torah. My purpose is to present Maimonides as a scholar, teacher, and moral person.

This report is divided into two parts. Part 1 is devoted to discussing Maimonides, the Oral Law, and his Mishneh Torah in a general way. Part 2 covers the beginning of Sanctification in detail, to give direct contact with a sample of Maimonides’ work.

Part 1 – Generalities

Four Main Points.

1. Maimonides was a genius. He is generally recognized as one of the greatest Jewish scholars of all time, a world class expert in all fields of Jewish studies. Additionally, he was a world class expert in the secular fields of philosophy, astronomy, and medicine.
2. Unlike many geniuses, however, a large part of his prolific scholarly output (at least his Mishneh Torah, which took about 10 years to complete) is directed to the average educated Jew rather than to other scholars.
3. From my reading of Sanctification I would add another major category to the list of secular fields in which Maimonides was also a world class expert, namely teaching. I discovered Maimonides’ teaching expertise because of an unusual combination of circumstances – to understand the calendar *halakhah* in Sanctification a reader must have a minimal understanding of remainder arithmetic; Maimonides judged that his intended readers would not have this understanding; and I knew something about remainder arithmetic before reading Sanctification. I was, therefore, able to read Maimonides’ discussions of remainder arithmetic as an instructor rather

than as a student and I was able to appreciate his effective use of different teaching techniques. I then looked for, and found, other examples of Maimonides' skills as a teacher and judged him to be a world class teacher.

4. The final, and to me, the most impressive point about Maimonides is his morality. His morality seems to me to be based on reasoned and logical faith rather than on blind unquestioning faith, and he chose to respect the spirit of the law even though he certainly had the capability to find legally valid exceptions. As Twersky[2] puts it
 "Another outstanding feature of Maimonides was his intellectual honesty and courage, unintimidated by pressure, dissatisfaction, or potential censure."

I'll mention two examples of Maimonides' morality – one external to Sanctification, which I'll only deal with briefly, and one internal to Sanctification, which I'll deal with at length.

The aspect of Maimonides' morality external to Sanctification is his refusal, according to his interpretation of the Law, to use Torah to earn a living. After his brother and most of the family's assets were lost at sea, he taught himself a trade (medicine) rather than accept community support. He didn't use his knowledge of the Law to find an exception for himself. When we consider that today, all highly respected, moral, observant scholars that I have heard about seem to have found legal ways to accept community support (as a prominent example, Heschel accepted a salary from the Jewish Theological Seminary), Maimonides' no-compromise morality stands out.

The aspect of Maimonides' morality internal to Sanctification has to do with his insisting, in the absence of any documentation in the Sources, that in addition to having used observation when deciding whether the new moon had been seen in its 'proper' time, the Court had also used calculation. He reasoned that since the God-specified, Sage-implemented procedure documented in the Sources is severely flawed,[3] the Court must have used both calculation and observation (this would have almost completely fixed the flaw) and that the record of the Court's use of calculation had been lost. I strongly admire the aspect of his morality displayed by this faith-based logic. (Maimonides also presents, in the last part of Sanctification, the complex[4] methods of calculation that the Court must have used to determine the potential visibility of the new moon in its proper time. I also strongly admire the competence necessary for him to have been able to extract these methods from the sources available to him and to have been able to explain them to motivated members of his intended audience.)

Why Maimonides Wrote the Mishneh Torah. It is impossible for an ordinary individual to 'understand' why a genius chooses a particular course of action. What follows is just my attempt to answer this question.

It was clear to Maimonides that the Oral Law, as documented mainly in the Babylonian and Jerusalem Talmuds, was too complex to be accessible to the average educated Jew. Maimonides set out to remedy this deficiency by writing his *Mishneh Torah*. We can begin to appreciate Maimonides' task in "... extract[ing] a clear, terse, tenet out of intricate Talmudic discussion ...," (quoted from Heschel in [5]) by briefly discussing the development and transmission of the Oral Law.

Oral Law Our tradition states[6] that God taught the Written Law and the Oral Law to Moses on Sinai. Moses subsequently wrote the Written Law as the first Torah scroll. However, the Oral Law, the explanations of the 613 Mitzvot of the Written Law, was initially passed down orally: from Moses to Joshua to the Elders to the Prophets to the Men of the Great Assembly (the Scribes) and from them to the Tannaim (the teachers). 'Tannaim' is the Hebrew name for the Sages who (spiritually) led Israel during the period of Roman rule, at and after the time of the Second Temple.

Rabbi Yehudah Ha Nassi (Rebi) and the Sages of his generation collected, assessed, organized, and wrote down a framework for the Oral Torah – the Mishnah (teaching). The following generations of Sages, who led Israel in Eretz Yisrael and in Babylon, were known as Amoraim (interpreters). After the sealing of the Mishnah, the Amoraim discussed, interpreted, applied, updated, and even amended the Oral Law. The records of these transactions continued to be passed down orally. After some centuries, these records began to be written down, first in Eretz Yisrael and later in Babylon, forming the Jerusalem and Babylonian Talmuds.

Bulk We see then, one reason for the complexity of the Oral Law – the sheer bulk of the written records of the discussions, interpretations, applications, updates, and amendments of the Amoraim.

Dispersion During a discussion of Law Element A, one Sage might point out that Law Element A parallels Law Element B and, therefore, should be interpreted in a similar way. Another Sage might point out that while Law Element C superficially seems similar to Law Elements A and B, it is really fundamentally different, and should be interpreted as previous Sages have interpreted Law Element D. And still another Sage might say that Law Element A should instead be interpreted in a way similar to Law Element E, which differs fundamentally from Law Element B. And still another Sage might point out that Law Element F should be interpreted in a way similar to Law Element D. Because of the constraints of oral transmission, the record of this discussion would only be appended to the section of the Oral Law that contained Law Element A (it would add too much bulk and complication to have the memorizers of the sections containing Law Elements B, C, D, E, and F either duplicate the record of discussion, or index their works to point to the record in the section containing Law Element A). We see then another reason for the complexity

of the Oral Law – many references to a particular law are dispersed among discussions of other laws.

Encoding A large body of information was being orally transmitted between successive generations of Sages. Because the Sages were knowledgeable in the Law, and because the Law has certain regularities, a system of encoding naturally developed that allowed concise, oblique references to be transmitted instead of more wordy, complete explanations. The Sages didn't need the complete explanations to understand what was being said, and the concise encoding significantly lowered the memorizing burden. (As a striking example of this encoding, consider the first of Rabbi Ishmael's 13 rules of textual interpretation (*Sifra*, 1). This list is included in the traditional Preliminary Morning service[7] so that everyone can do at least a minimum amount of daily study. On the Hebrew side of the Sidur we read the encoded rule: *mikal vahomer*. A first grade knowledge of Hebrew prefixes leads us to expect a four word translation of the encoded rule: from English-of-*kal* and English-of-*homer*. But, a translation of the decoded text requires many more words: An inference may be drawn from one premise to another that is more inclusive, or to another that is less inclusive.) We see how similar encoding significantly reduced the burden of oral transmission. And clearly, the encoding is another reason for the complexity of the Oral Law.

Maimonides' Policies. Given the complexities of the Oral Law, and Maimonides' goal of making the Law accessible to the average educated Jew, what did Maimonides do?

Clear, Precise Writing First, he wrote (in Mishnaic Hebrew[2]) using a clear, concise, precise style (for examples of English translations of Maimonides' writing see the quotations on pages 5,6,6,7,8,8,9,10,11, and 11 that follow). This skillful writing style is attested to by authorities such as Heschel and Twersky. It also shows up, to someone with a limited reading knowledge of Hebrew, as an almost one-to-one correspondence between the phrases of the Hebrew original and the corresponding phrases of the English translation, which I find to be clear, concise, and precise. Without intending to belittle the translator's skill, I would say that Maimonides has written in a way that has greatly simplified the translator's job. Another measure of Maimonides' presentation skills is the low density of translator-supplied parenthetical explanatory notes in the text (I estimate an average density of about one per page in Sanctification).

Global Completeness Maimonides presents the 'complete' Oral Law – no (part of any) *mitzvah* is left out because it is too complicated for the average Jew to understand, because it is no longer pertinent, or even because it has been subsequently 'repealed'. In this connection we read from the Introduction to this translation of Sanctification,[1] page li:

In his frequently quoted introduction to the Code [Mishneh Torah] Maimonides states that the latter work [Mishneh Torah] was de-

signed to incorporate the sum total of Oral Law that had been transmitted on the authority of all generations of Prophets, Scribes, and Sages from the time of Moses down to the close of the Talmud, including even traditions preserved or interpretations disclosed by the Geonim in post-talmudic times. Henceforth, he says, those who have studied the Written Law of Scripture may turn directly to his Code; they need no longer depend, for matters of the Oral Law, on any of the older works, seeing that they have now been absorbed by his all-inclusive codification.

All God-given law elements (including the Sage-specified modifications, which also partake of God's Authority), whenever they had been in effect, are required to be studied. An example of this global completeness in Sanctification is that Maimonides includes a complete discussion of how the length of each month and each year had been determined by the Court, before that system was replaced (in about 311/2 C.E.[8] by the court of Hillel II) with the fixed calendar that we use today.

Organization By Mitzvot Maimonides didn't try to use the Talmud's ordering of the Oral Law in his Mishneh Torah. Instead he introduced a self-indexed, Mitzvah-based ordering for his Mishneh Torah. This involved stating the 613 Mitzvot (248 positive Mitzvot and 365 negative Mitzvot) and associating 613 distinct Torah verses in a one-to-one correspondence with these Mitzvot. He then[9] partitioned the set of 613 Mitzvot into 83 sets, each containing related Mitzvot. Next, he wrote 83 Treatises, each one expounding the Mitzvot in its set in detail. He grouped the 83 Treatises into 14 Books, each containing related Treatises. As an example, Sanctification expounds a set of one Mitzvah, which Maimonides lists as number 153 of the Positive Mitzvot:

The commandment requiring that the Court alone should sanctify the new moons and ascertain by calculation the beginning of the years and months, as it is written: *This month shall be unto you the beginning of months; it shall be the first month of the year to you* (Exod. 12:2),

and is Treatise 8 of Book 3, the Book of Seasons (as hinted at earlier, the 'by calculation' in this Mitzvah seems to be almost unique to Maimonides). Thus if a (before-the-internet) reader wanted to study the *halakhah* of the calendar, the reader would naturally go, just by scanning titles, from the Book of Seasons to the Treatise on Sanctification of the New Moon, and would know exactly where to begin.

Local Completeness Maimonides has included extra (globally redundant) material in each Treatise so that each Treatise stands by itself. Each Treatise can be read and understood without interrupting to look up references in other Treatises (the reader is, however, expected to interrupt, if necessary, to refer to the Written Law). As examples of this local completeness consider the

compact discussions of pertinent Laws of Witnesses and Shabbat contained in Sanctification.

Witnesses Example As Maimonides explains, when the Court used to determine the day on which the new month would begin, it would examine witnesses who thought they had observed the new moon at its proper time. If an individual had seen the new moon at its proper time, lived within a 24 hour's journey from the seat of the Court (Jerusalem), and met the basic qualifications to be a witness, then that individual was required to appear before the Court to testify. Therefore, in Sanctification, Maimonides compactly summarizes what a potential witness had to know about the basic qualifications of witnesses in order to be able to answer the question: Am I a qualified witness and therefore required to appear before the Court?

Two worthy men only, qualified to function as witnesses in any other legal matter, were fit to testify concerning the new moon. Women and slaves were considered disqualified as witnesses, and their testimony could not be accepted. If father and son had seen the new moon, they were to go to court and testify. This does not, however, mean that witnesses who were blood relatives were qualified to testify concerning the new moon, but the reason for it is as follows: In case one of them should be disqualified—whether because he was a robber, or because of some other circumstance which disqualified him as a witness—the other could join with a third witness and testify. Any person who, by the law of the Scribes, was disqualified as a witness, even though he was fit according to biblical law, was also disqualified to testify concerning the new moon (Sanctification, Chapter 2, Paragraph 1).

Maimonides surely expounds the laws of witnesses in complete detail elsewhere in his Mishneh Torah, and so could have saved space here by just giving a reference to this coverage. Instead he chose to give a compact summary of the pertinent laws of witnesses at this point. He added globally redundant material to make Sanctification more accessible to his intended audience.

Shabbat Example For one seventh of the months, on average, the proper time for the new moon to appear would be on the Sabbath in the evening. For these months, a potential witness needed to know whether or not the Law required him to appear before the Court. Maimonides provides clear guidelines, redundantly presenting material which he surely covers in complete detail elsewhere in his Mishneh Torah.

Witnesses who observed the new moon were obliged to go to court and testify even on a Sabbath; . . . (Sanctification, Chapter 3, Paragraph 2).

If a witness who had observed the new moon^[10] on the night of the Sabbath was sick, he was allowed to ride an ass or to be carried on a litter. If the witnesses were afraid of enemies who might be lurking

for them on the road, they were allowed to take along weapons; and if it was a long journey, they were allowed to carry along food.

Even if the new moon had been so large that it must have been observed quite generally, the witnesses might not say: “Just as we have observed it, so must many other people have observed it, and there is thus no need for us to violate the Sabbath.” For the law prescribed that whoever had observed the new moon and was qualified to testify, was in duty bound to violate the Sabbath . . . (Sanctification, Chapter 3, Paragraph 4).

Note how Maimonides, compactly and indirectly, teaches what the violations are and gives answers to practical, immediate questions the witnesses might ask.

Enrichment Maimonides has also included redundant material whose purpose I can only characterize as ‘enrichment.’ For example, consider his exposition of who is responsible for determining New Moon Day.

The authority over the observation of the new crescent was given not to everyone—as is the case with the Sabbath day, with respect to which everyone counts six days and rests on the seventh day—but only to the court. The day sanctified and proclaimed by the court as the beginning of the month was New Moon Day. For it is said: *This month shall be unto you* (Exod. 12:2), that is to say, accepting or rejecting evidence concerning this matter is put into your hands (Sanctification, Chapter 1, Paragraph 5).

With just a few redundant phrases, Maimonides has set a reader up to think about questions like, ‘What could have been God’s purpose in specifying individual responsibility for determining Sabbath Days, and collective responsibility for determining New Moon Days?’

Summary In his Mishneh Torah Maimonides has made the Oral Law accessible to the average educated Jew by using clear, precise writing, by presenting the complete Oral Law, by organizing the Law according to the 613 Mitzvot, and by providing redundant material for local completeness and enrichment.

Part 2 – Details

One can get an ‘understanding’ of Maimonides’ scholarship, style, and perhaps even personality by a careful reading of parts of Sanctification. I’ve chosen the beginning of Sanctification so we can see how Maimonides develops his material.

Title Page of Sanctification. As indicated, Treatise titles and Mitzvah (Commandment) summaries play an important role in guiding a reader to the appropriate Treatise of the Mishneh Torah. So consider the Title Page of Sanctification:

LAWS CONCERNING THE SANCTIFICATION
OF THE NEW MOON

Comprising One Commandment

to wit:

To ascertain by calculation and to establish by proclamation
the day on which each month of the year is to begin.

An exposition of this commandment is contained
in the following chapters.

Here Maimonides concisely summarizes the contents of the Treatise and informally restates the Commandment (see page 5 for his complete statement of the Commandment) that the Treatise expounds. Again he puts the idea of calculation up front, probably to emphasize the importance he attaches to it.

First Paragraph of Sanctification. In the following rendition of the translation of the first paragraph of Sanctification, indentation and font changes have been used to indicate different categories of statements.

The months of the year are lunar months,

as it is said:

(This is) the burnt offering of every new moon (throughout the months of the year) (Num. 28:14),

and it is also said:

This month shall be unto you the beginning of months
(Exod. 12:2).

With reference to this latter verse the Sages have said:

The Lord showed the form of the new moon
unto Moses in a prophetic vision and said unto him,
When thou dost see the moon in such a shape
thou shalt sanctify it.

With respect to the years, however, we reckon according to solar years;

for it is said:

Heed the month of the ripening ears (Deut. 16:1).

The two statements in normal type that begin at the left margin are what Maimonides himself is saying; the three statements in sans-serif type, indented one unit (about 0.4 in.), are conventional (formulaic) introductions to a quoted Biblical verse; the three statements in *italic* type, indented two units, are quoted Biblical verses; the one statement in sans-serif type, indented three units, is an introduction to the quotation of a Talmudic verse; and the one statement in regular type, indented four units, is a quoted Talmudic verse. It is useful to temporarily ignore the statements that are indented three and four units until the rest of the paragraph is analyzed.

What Maimonides himself compactly states in this first, introductory paragraph of the first chapter of his exposition of the Laws of Sanctification of the New Moon, is the basic feature of the Jewish Calendar – that the Jewish Calendar is Lunar-Solar, having lunar months and solar years. Also basic to this

introductory paragraph, Maimonides includes the main Sources of the *halakhah* of Sanctification: the three Torah verses whose pertinent phrases he quotes (the translator has included more than Maimonides has of Num. 28:14). Note that the Torah verse ‘associated’ with this Mitzvah (in Maimonides’ List of the 613 Mitzvot) is not the first verse quoted, but the second, and that other Torah verses in addition to the associated verse are allowed to contribute to the *halakhah* of this Mitzvah, even if some of these verses also happen to be associated with another Mitzvah. So, at the very beginning, Maimonides tells us God’s basic requirements for this Mitzvah and presents the Torah verses that generate these requirements. This is a natural way to start.

What is interesting is Maimonides’ inclusion of a quoted Talmudic verse[11] at this point, using a suitably modified version of the formula conventionally used to introduce a quoted verse of Torah. My explanation is that Maimonides has reasoned that calculation by the Court is a basic, although undocumented, part of this Mitzvah, and that the quoted Talmudic verse is Maimonides’ best shot at finding something in the Sources that documents this view. He has positioned this verse up with the basic Torah verses to indicate the importance he attaches to the Court having used calculation. That he couldn’t find a verse of Torah, a verse in the Prophets, a verse in the Writings, or even a Mishnaic verse, but had to use this verse as his proof text, perhaps shows why little support has developed for Maimonides’ position (see Rabbi Simchah Roth’s quote of Rashi.[8] Rashi’s comment seems to say that Moses couldn’t understand what God was trying to teach him about calculation, so God just showed Moses what the new crescent looked like. This interpretation would indicate that Rashi thought that the methods of calculation were never passed down by Moses, as Maimonides reasons they must have been).

Second Paragraph of Sanctification In this paragraph Maimonides expands on the major consequence of God’s lunar month-solar year specification. This paragraph differs from the first one in that, except for one scriptural quote, everything else is what Maimonides is saying. (Looking back, it was when I read this paragraph for the first time that I really began to appreciate Maimonides’ genius.)

By how much does the solar year exceed the lunar year? By approximately 11 days. Therefore, whenever this excess accumulates to about 30 days, or a little more or less, one month is added and the particular year is made to consist of 13 months, and this is the so-called embolismic (intercalated) year. For the year could not consist of twelve months plus so-and-so many days, since it is said: *throughout the months of the year* (Num. 28:14), which implies that we should count the year by months and not by days.

Maimonides’ masterful use of the words: *approximately, about, or a little more or less*, and *so-and-so many* (which have exact counterparts in the Hebrew) allow him to express the basic idea of regularly adding an extra month to

the year to account for differences in lunar-solar year lengths, and to introduce the numerical values: 11 excess days per year, 12 or 13 months per year, and 30 days per month, in a low pressure way, so that non-arithmetically inclined readers can understand the basic idea without being distracted by a perceived need to do arithmetic or to memorize numbers.

Third Paragraph of Sanctification Having introduced God’s fundamental requirement and its major consequence, Maimonides now goes on to tell a reader just enough about the regular monthly motion of the moon for the reader to understand the basic *halakhah* (here procedure) that determined the first day of the new month:

Each month the moon disappears and becomes invisible for about two days, or somewhat more or less—for about one day at the end of the old month, before it reaches its conjunction with the sun, and for about one day after its conjunction with the sun. Then it reappears in the evening in the west, and this night, on which it becomes visible in the west after its disappearance, is the beginning of the month. From this day on 29 days were counted, and if the new crescent appeared on the night of the 30th day, this 30th day was the first day of the new month. If, however, it did not appear on that night, the 30th day would belong to the old month and the 31th day would be the first day of the new month. And no matter whether the moon did or did not appear in the night of the 31st day, no attention was paid to it, for the lunar month never lasts longer than thirty days.

This is another example of the precision with which Maimonides crafts his writing and, rather than redundantly outlining this paragraph, I’ll just make some notes.

1. There is a parallelism between the statements: ‘for about one day {at the end of the old month} before it reaches its conjunction with the sun’ and ‘for about one day {?} after its conjunction with the sun.’

Why has Maimonides broken the parallelism by not telling us, at the {?}, which month the second interval falls into? My guess is that Maimonides uses the first {···} to alert a reader to the coming end of the old month. However, filling in the {?} would only interrupt the rapid narrative flow toward the basic event, the reappearing of the moon.

2. The Jewish audience of his era, probably unlike today’s, would have known (without conscious thought) that the (24 hour, calendar) day begins the night before. They would then immediately recognize that ‘it reappears in the evening’ happens at or near the transition from the old to the new day.

3. The following note was less obvious to me. I didn’t realize it until I had read ahead and then reread this paragraph. Note that in this paragraph Maimonides has concisely and accurately presented the basic features of an excellent-visibility-at-the-end-of-each-month algorithm for determining New

Moon Day (I believe that this algorithm corresponds to the *halakhah* documented in the Sources). First a reference month is established that begins on the day of the evening at (during) which the new crescent first becomes visible. Then 29 days are counted, and, at (near) the transition between day 29 and 30, we look for the new crescent. If seen, the new month starts that evening and the old month had 29 days. If not seen, the new month starts the next evening (without needing to look again) and the old month had 30 days.

4. Maimonides has not explicitly said anything (yet) about effects of limitations of visibility on this (implied) algorithm. But, he has set a reader up to think about it by his early and repeated mentioning of calculation.

Fourth Paragraph of Sanctification The fourth paragraph of Sanctification appears to be a teaching paragraph. Maimonides slows down, and, while defining some new technical terms, repeats, and thereby reinforces, previously presented information.

If the moon appeared on the night of the 30th day, so that the old month consisted of 29 days, this month was called a defective month; if, however, the moon did not appear on the night of the 30th day, so that the old month consisted of 30 days, it was called an embolismic (or intercalated) month, or a full month. If the moon appeared on the night of the 30th day, it was said that the moon had appeared in its “proper time”; if, however, it appeared on the night of the 31st day, and not on the night of the 30th, it was said that the moon had appeared on the night of the embolismic day.

Fifth Paragraph of Sanctification The fifth paragraph of Sanctification has already been quoted and discussed (on page 7). In it Maimonides states that the Court has primary authority over the observation of the new crescent, contrasts this to the case of the Sabbath day, and quotes the Torah verse that implies this authority.

Sixth Paragraph of Sanctification I will end by presenting and discussing the sixth paragraph of Sanctification. In this paragraph Maimonides builds on the foundation he has prepared about the primacy of the Court using calculation, while conforming to the requirement to use observation.

Just as the astronomers who discern the positions and motions of the stars engage in calculation, so the Jewish court, too, used to study and investigate and perform mathematical operations, in order to find out whether or not it would be possible for the new crescent to be visible in its “proper time,” which is the night of the 30th day. If the members of the court found that the new moon might be visible, they were obliged to be in attendance at the court house for the whole 30th day and be on the watch for the arrival of witnesses. If witnesses did arrive, they were duly examined and tested, and

if their testimony appeared trustworthy, this day was sanctified as New Moon Day. If the new crescent did not appear and no witnesses arrived, this day was counted as the 30th day of the old month, which thus became an embolismic month. If, however, the members of the court found by calculation that the new moon could not possibly be seen, they were not obliged to be in attendance on the 30th day or to wait for the arrival of witnesses. If witnesses nonetheless did appear and testified that they had seen the new crescent, it was certain that they were false witnesses, or that a phenomenon resembling the new moon had been seen by them through the clouds, while in reality it was not the new crescent at all.

We see that this paragraph includes many redundancies, which serve to reinforce and emphasize definitions, numerical values, and concepts that Maimonides introduced in the immediately preceding paragraphs. These redundancies illustrate Maimonides' skill as a teacher. The first 'new' concept, which Maimonides has prepared us for by having previously stated a few times that the Court used to do calculations, is his stating the purpose of the Court doing calculations – 'to find out whether or not it would be possible for the new crescent to be visible in its proper time.' This statement also sets us up to think about what could prevent such visibility, if the calculations showed that visibility would be possible. Then, the following clause: '... the new moon *might* be visible' continues to guide our thoughts in this direction. Next we see that the appropriate calculations are not enough – witnesses must have *observed* the new crescent in its proper time and the Court must have examined and tested the witnesses.

At this point Maimonides has presented the essence of the documented *halakhah* concerning the determination of New Moon Day:

if the Court receives reliable testimony that the new crescent had been observed in its proper time,

then the Court makes the 30th day New Moon Day;

if not,

then, by default, the Court makes the 31st day New Moon Day.

He has also primed attentive readers to discover the basic flaw in the documented algorithm that implements this requirement, namely that a sequence of poor visibility days at the critical times over a few months could cause an eventual declared New Moon Day to occur noticeably after the day on which the new crescent first appears (later in Sanctification Maimonides presents an example that explicitly illustrates this problem; at this point he has just guided his readers to discover it for themselves).

We can also see how the Court's not needing to be in session on the 30th day if its members had determined by calculation that the new crescent could not be visible in its proper time, would help fix this flaw. People see what they expect to see, and potential witnesses would expect to see the new crescent if the Court were in session. Furthermore, since "the Court would ... entertain them [potential witnesses] liberally with bountiful meals so that people would

make it a habit to come” [12], witnesses would be highly motivated to see what the Court expected them to see.

Conclusions I’ve tried, in presenting and discussing these samples from Sanctification, to show how I came to feel as I do about Maimonides — his genius, his scholarship, his teaching techniques, and above all, his faith-based but reasoned morality. Restating how I arrived at my opinion of Maimonides’ morality: Maimonides found that the documented, God-specified, Sage-implemented procedure for determining the first day of the new month was flawed. His faith told him that this could not have been the case. He then reasoned that if the Court could have calculated the potential visibility of the new crescent, the documented *halakhah* would have functioned effectively most of the time (the possibility of occasional corrections seems to have been documented in the Sources). He determined that non-Jewish savants had presented mathematically correct methods of calculating the potential visibility of the new crescent, and reasoned that since these methods exist, they must have been used by the Court and the record of their use lost. Furthermore, besides checking these methods out, he presented them (in the last parts of Sanctification) in a way that a motivated reader could understand. So, we have my picture of Maimonides: a genius, a scholar, a teacher, and a moral person.

References

- [1] Moses Maimonides 4938 (\Rightarrow 1178 C.E.) *Sanctification of the New Moon*. Translated from the Hebrew by Solomon Gandz; supplemented, introduced, and edited by Julian Obermann; with an astronomical commentary by Otto Neugebauer. Yale Judaica Series, Volume 11, New Haven: Yale University Press, 1956.
- [2] Isadore Twersky 1972 *A Maimonides Reader*. West Orange, NJ: Behrman House, Inc., p27, p16.
- [3] The flaw is that, on average, the documented procedure required a few weather related miracles per year [about 4 per year is my order-of-magnitude estimate] if it were to meet God’s specifications.
- [4] Maimonides characterizes the complexity of these calculations as follows (Sanctification, Chapter 11, Paragraph 4):
 “... for these methods are indeed remote and deep ... known only to the great Sages, and which they were not permitted to reveal to anyone except to ordained and sagacious (disciples). On the other hand, the calculations that we use today [for the fixed calendar] ... are such that even school children can learn and fully grasp them in three or four days.”
- [5] Abraham J. Heschel 1991 *Maimonides: A Biography*. Doubleday, NY. First translated into English by J. Neugroschel and published in 1982; originally published in German in 1935.

- [6] This material is my adaptation of what I read in <http://www.ny-bridge.com/judaism/lesson45.html>, which quotes from Akiva Aaronson 1997 *The Foundation of Judaism*. Targum/Feldheim Publishing, p88-101.
- [7] See, for example, *Daily Prayer Book*. Translated and annotated with an introduction by Philip Birnbaum, Hebrew Publishing Co., NY, 1949, p41.
- [8] See Rabbi Simchah Roth's discussion of the Talmudic tractate Rosh Ha-Shanah, Chapter 1, Mishna 3 in <http://www.shamash.org/listarchives/rmsg/log0006>, for this dating of the transition to the fixed calendar. Also see this reference for Rabbi Roth's discussion of the amplification of the 'this' in Exodus 12:2
- The Halakhic Midrash, Mekhilta, amplifies:
 He showed him the new moon and told him,
 "When the moon renews itself like 'this,'
 declare it to be Rosh Chodesh."
 i.e. the first day of the new month.
 ... Rashi [about 100 years before Maimonides] ... amplifies on this amplification:
 Moses could not understand the technical details
 of the fixing of the Molad so God pointed to the moon
 in the sky and told him,
 "When it looks like 'this', declare a new moon".
- [9] This is my reconstruction from reading Sanctification. I believe it is likely to be an oversimplification of a process I am not qualified to describe.
- [10] Maimonides must have included the qualification, '(witnesses) who observed the new moon' because he had just written (in the preceding, not quoted, sentence) about certifying witnesses, those witnesses who were obliged to accompany the observing witnesses if the observing witnesses were not known to the Court. I conclude that a certifying witness, if sick, was not allowed to be carried on a litter or to ride an ass (that another certifying witness should be found). In the next (weapons) clause, where Maimonides specifies, 'the witnesses,' he must mean both the observing and the certifying witnesses.
- [11] Babylonian Talmud, Rosh Hashanah, 20a.
- [12] Sanctification, Chapter 2, Paragraph 7.