

ENGLISH ABSTRACTS

CAN THE RELIGIOUS MAN AND THE ACADEMIC WALK TOGETHER?

Dror Fixler

Both philosophy and modern science aim to provide a full explanation for the world's behavior without basing their assumptions on the existence of a Divine Power.

The relationship between religion and science has been the focus of several debates, but the basic issue is how the religious man and the academic can "sit" together. Statements about the world made by science and religion rely on different methodologies. Religions rely on dogma and tradition while science relies on observable and repeatable experiences.

In this article we suggest that academia and religion can be complementary to and even dependent on each other. Academic research establishes the basic knowledge and is the initiator of the "why" questions that belong to the realm of theology.

AN INFINITE GEOMETRIC SERIES HIDDEN IN RABAD'S TEACHING

Amos Altshuler, Netanel Altshuler

In two famous papers^{1,2} Nobel's prize laureate Robert J. Aumann draws attention to a Mishna quoted in the Babylonian Talmud (*Kethubot* 93a). In that Mishna a bankruptcy problem is discussed, where there are three creditors and the estate is not big enough to satisfy all the creditors. The Mishna explicitly gives three numerical examples, and it is left to us to find the general rule. Since there is no

1. R. J. Aumann and M. Maschler, "Game Theoretic Analysis of a Bankruptcy Problem from the Talmud," *J. Economic Th.* Vol. 36 No. 2 (1985) pp. 195-213.

2. I. Aumann, "Beinyan mi shehaya nasui shalosh nashim" (Hebrew), *Moriya* 22, 3-4, pp. 98-107

apparent common rationale for these three cases, some commentators offer methods of their own – leaving aside the unexplained examples of the Mishna – as to how to solve such a bankruptcy problem. Aumann,² (beside giving his own method, which does settle the Mishna) describes three such methods: Rashi's (and others') method, the Geonim's method (according to Riff) and Rabad's method.

While the first two methods are simple to carry out, and do yield the obvious desired result in the case where the estate is large enough to satisfy all the creditors, Rabad's method is more complicated. In particular, when Rabad concludes that in the case where the estate is large enough to satisfy all the creditors each of them gets his full demand, it is by no means clear that this conclusion is based on Rabad's algorithm, rather than on common sense.

In the case where the estate slightly fails to satisfy the demands, Rabad's algorithm yields a large number of steps, and this number tends to infinity as the sum of the demands tends to the estate. The question whether the limiting case does yield the desired common sense result (namely, that each creditor gets his full demand) is therefore crucial for establishing the consistency of Rabad's method.

We generalize Rabad's method for any number of creditors and, using infinite series, we prove that the desired result in the case where the estate is large enough to satisfy all the creditors and each creditor does indeed get his full demand is indeed a part of Rabad's method.

“TABLETS AND TABLET SHARDS” ON *MOLAD* AND THEIR CHARACTERISTICS

Eran Raviv

This article deals with calculating the occurrence of the molad (calendar molad) in the Hebrew calendar. In the Hebrew calendar, the week is divided into seven days, each comprised of 24 hours and 1,080 portions, totaling 181,440 portions per week. Until now it was assumed that the *molad* of *Tishrei* (or any other month) could occur during any of the various portions, and the occurrence of the *Dehiyyot* (or other statistics) was calculated accordingly. In contrast to the previous assumption, the current work demonstrates how the molad cannot fall on any given portion of the week; rather, its occurrence is guided by mathematical principles, which will be explained and exemplified. The influence of this phenomenon on the faulty calculation of frequencies in the Hebrew calendar is minimal. In this article we

Abstracts

will also explain how to calculate the “61 head table“ (לוח ס״א ראשים) automatically using an Excel spreadsheet, present a revised calendar that includes the 4 *Dehiyyot* (Postponement Rules), and display a new table with 213 lines.

THE MAXIMIZATION PRINCIPLE IN THE LAWS OF *KIL' AIM*

Eljakim Wajsberg

The early commentators to the *mishna Kil' aim* 3,1 and the talmudic *sugya Shabbat* 85b display several configurations showing how to sow different species without violating the laws of *kil' aim*. It turns out that the guiding principle of those configurations is maximization of the sown area, albeit under certain constraints. In order to understand how the Rabad explains the *sugya Shabbat* 85b and why he does not accept the configuration of the Rambam (*hilkhot kila'im* 4,15) we have to explain the meaning of his words, i.e. we have to assume for the Rabad's realm of thought underlying presuppositions in order to reconstruct his message. I propose that one of these presuppositions is the application of the principle of maximization.

THE MEASURE OF *KAKOTEVET HAGASA*

Mordechai Kislev

A person who eats a small amount of food of the volume of a large date – *Kotevet Hagasa* – on the Day of Atonment is spiritually excommunicated. The measure of *Kotevet Hagasa*, which is customary among rabbinical religious authorities is 30 cm³. However, in contrast to the common measures based on agricultural produce, such as an olive or egg, the *Kotevet Hagasa* has long remained detached from reality because in the last few centuries a date with a volume to which the Sages and the rabbinical religious authorities assigned a *Kotevet Hagasa* did not exist.

A new cultivar of dates has been developed in recent years in Morocco – the Madjhoor, which reached Israel via a tortuous road. And here, using agricultural methods such as thinning of the fruit in the plantation and sorting it in the packing house, super-large dates that are compatible with the volume of the *Kakotevet*

Abstracts

Hagasa have been marketed successfully. Perusal of the religious literature indicates that these agricultural methods were actually practiced during the times of the Sages.

DID THE KABBALISTS BELIEVE THAT THE WORLD
WAS CREATED IN SIX DAYS?

A Discussion of the Duration of Creation in the Writings
of the Kabbalists in the Medieval and Modern Period

Raphael Shuchat

This essay presents four different approaches among medieval kabbalists concerning the length of the biblical creation story. We open the discussion by discussing the complexities of the creation story and the kabbalistic narrative. The four approaches include: the dualist, the supra-temporal, the metaphysical time frames and the multi-world approach. We then proceed to demonstrate four kabbalistic approaches from the modern period as well: The dualist, the supra-temporal, the elongated times, and the multi-world approach. We conclude by discussing some of the ramifications of these approaches for understanding creationism in the modern period.

DID THE SAGES BAN MUSIC AFTER THE DESTRUCTION
OF THE SECOND TEMPLE?

Emmanuel Friedheim

It is commonly held by historians of the Jewish People in ancient times that a ban was placed on music after the destruction of the Second Temple. This article sets out to reassess this assumption and suggest a new approach. A study of the subject shows that in *Eretz Israel* there was no comprehensive ban on music after the Great Revolt against Rome, and any attempts to place limitations on music were specific and local. There are sources indicating decrees for a general ban in Sassanian



Abstracts

Babylonia, but there are no parallel examples in the literature of *Eretz Israel*. These sources certainly reflect, therefore, a unique cultural development among Babylonian Jews. Nevertheless, even here this ban had a specific focus, both geographically and historically.

