

CHAPTER IV — *The Microphone*

The Talmud states that in Alexandria, Egypt, there was a large synagogue, which due to its size, enacted that the shamash (sexton) wave a handkerchief when a brocho was being recited and when it was completed, so that those in the rear who did not hear the brocho could answer "amen." The problem of low sound has generally been solved with the invention of the microphone. However, many questions have been raised with regard to the permissibility of using such devices on the Shabbos. Musical instruments and sound generators are generally not used on Shabbos. Does the microphone create electricity? Can it be used in the performance of a mitzvah such as reading of the megillah or the sounding of the Shofar? Are we hearing the original sound or only a reproduction?

An answer to these questions requires an understanding of the operation of the microphone. This device consists in the main of three components; (1) the microphone which converts sound waves into electrical fluctuations; (2) the amplifier which increases the amplitude of these fluctuations; (3) the loud-speaker which converts the amplified fluctuations back into sound waves. Using this description we can answer the second question in the negative, since one must hear the actual sound and not a reproduction.

The final question regarding use of the microphone on Shabbos needs further clarification. Many negative views have been presented on this matter. Among others; opening or closing a circuit constitutes adjusting a device which is prohibited on Shabbos. The rabbinic prohibition against playing an instrument was established against forgetful adjustment of the instrument, and would also apply to a microphone which is designed to generate sound. In addition transformation of electrical signals from sound is in the category of producing fire.

On the other hand, some rabbis are of the opinion that if the microphone was turned on before Shabbos its use would be permitted since it does not produce musical notes and since the essence of the fire prohibited by the Torah on Shabbos does not include sparks. As an added measure, they suggest that the speaker stand a short distance from the microphone and not talk directly into it.

In 5730 (1970), a new transistorized public address system was developed by the Institute for Science and Halacha in Jerusalem for use in the synagogue on Shabbos and Yom Tov. There are no electron tubes (valves) or any pilot lights in the system. The current is produced by rechargeable batteries which are disconnected from the city electricity supply before Shabbos and Yom Tov. The batteries are charged before Shabbos and have twice the capacity of the current to be used on Shabbos. The system is left on all day or is switched on and off automatically by a time clock. These points were incorporated in the total design to solve the questions regarding electricity. The storage batteries and amplifiers are enclosed in locked boxes so as to prevent the adjustment of the machinery on Shabbos. In addition we rely on the opinion of some rabbis who say that the prohibition of creating sound does not apply to orally produced sounds.