

TABLE I

Discharge tube	Frequencies of R/F oscillations (Mc/s)	Ratio of frequencies
1. Hydrogen ozonizer	.. 2.8, 4.8, 6.7, 8.6	3:5:7:9
2. Iodine ozonizer	.. 1.25, 3.5, 5.0, 7.7	1:3:4:6
3. Nitrogen ozonizer	.. 9.8	..
4. Hydrogen 'sleeve'-tube	.. 4.2, 4.9, 6.8, 8.9, 10.0, 11.9, 15.0	4:5:7:9:10:12:15
5. Chlorine 'sleeve'-tube	.. 4.2, 4.9, 6.8, 8.9, 9.8, 12.0, 14.2	4:5:7:9:10:12:14
6. Iodine 'sleeve'-tube	.. 4.2, 4.9, 6.6, 8.9, 9.8, 11.9, 14.2	4:5:7:9:10:12:14

quencies were observed in some of the 'sleeve'-discharge tubes. They appear to bear to one another a more or less simple ratio, suggesting overtones of an oscillating system.

For a given distance between the electrodes, it was found that the frequency of any one of the RF oscillations remained practically constant over a wide range of applied voltages. It was also found that for a fixed applied voltage, the frequency of the RF oscillations was independent of the distance between the electrodes.

It should be mentioned that the RF oscillations produced in the AC 'silent' discharges were modulated by the AF pulses which are now known to be associated with the Joshi Effect. It was thus possible to hear a distinct sound on the loudspeaker, when the receiver was tuned to one or another of the radio frequencies. The sound was found to increase or decrease on irradiation, according to conditions favourable for the production of positive or negative Joshi Effect. The galvanometer in the T.R.F. receiver was also able to show this photo-effect. As the RF oscillations were modulated by the Joshi Effect pulses much above 100%, the galvanometer in the superhet receiver also

could reveal the photo-effect. These experimental results will be given elsewhere.

With regard to the origin of the RF oscillations produced in the AC 'silent' discharges, it should be recalled that such oscillations in DC gas discharges were long known from the theoretical and experimental work of various investigators.<sup>3</sup> Judging by the fact that the frequency of the RF oscillations in AC 'silent' discharges is not dependent on the magnitude of the applied voltage or on the distance between the electrodes, it appears extremely unlikely that they are of plasma-electronic origin. The origin of the observed RF oscillations in AC 'silent' discharges will be discussed elsewhere.

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1. Warburg, *Verhand. Deutsch. Phys. Ges.*, 1903, 382; — and Leithanser, *Ann. der Physik*, 1903 28, 1. 2. Prasad, *Proc. Ind. Acad. Sci.*, 1949, 29, 322. 3. Penning, *Nature*, 1926, 118, 301; *Physics*, 1926, 6, 241; Webb and Pardue, *Phys. Rev.*, 1928, 31, 1122; *Ibid.*, 1928, 32, 946; Tonks and Langmuir, *Ibid.*, 1929, 33, 195, 990; —, *Ibid.*, 1931, 37; Thomson, J. J., *Phil. Mag.*, 1931, 11, 697, *Proc. Phys. Soc. (Lond.)*, 1928, 40, 82.

#### OBITUARY—DR. M. B. SOPARKAR

WE regret to announce the death of Dr. Manmohandas B. Soparkar at Bombay on May 31, 1952.

The late Dr. Soparkar was born in Poona on April 10, 1884, and was educated in Poona and the Grant Medical College, Bombay, where he took the M.D. Degree in 1913.

In 1918 Dr. Soparkar devised a special medium (Soparkar Medium) for the cultivation of the influenza bacillus. After the First World War when many Indian soldiers infected with human Schistosomes returned to India Dr. Soparkar investigated the problem of the likelihood of the disease spreading in India. He found larval forms of several trematode parasites including animal Schistosomes which he studied and described in detail.

Dr. Soparkar continued to work at the Haffkine Institute since 1914 on tuberculosis. He described the method of cultivation of the tubercle bacillus and studied the vitality of the organism under natural and artificial conditions and the channels of spread of the disease in human beings. He also studied the various aspects of animal tuberculosis. In 1935 Dr. Soparkar was appointed Assistant Director, Haffkine Institute, and worked on plague. His work includes investigations on cholera at the King Institute, Guindy, Madras. He was elected Fellow of the National Institute of Sciences of India in 1937 and President of the Medical Section of the Indian Science Congress in 1949.

K. M. SOPARKAR.