

FORMATION OF OZONE.

REMARKS ON THE PAPER OF D. H. KABAKJIAN.

BY ARTHUR W. EWELL.

D. H. KABAKJIAN has an interesting article upon the formation of ozone in the August, 1910, number of this journal. He found that the yield of ozone per coulomb was practically independent of the current density. As he implies, this result appears contradictory to the observations of the writer, who found an optimum value of the current density, beyond which the yield decreased.¹

This apparent discrepancy disappears, however, if one compares the current densities and polar distances employed by the two observers. Kabakjian used comparatively low current densities and small polar distances. The writer showed that the optimum current depended upon the polar distance and occurred at increasing current densities as the polar distance was decreased. The minimum air space employed by the writer was 4.5 mm., while the maximum of Kabakjian was 3.2 mm. If one compares the observations for these two distances (allowance being made for the greater area of the writer's electrodes), it is seen that even for the greater distance, the writer also found approximately constant yields of ozone per coulomb up to the maximum current density employed by Kabakjian. If allowance is made for the difference in air space, the two yields are practically identical. The rapid increase of yield, followed by a decrease, is only found for such small polar distances by increasing the current density beyond the maximum employed by Kabakjian.

As the writer has shown,² the electromotive force which is plotted in Fig. 5 of Kabakjian's paper and discussed on page 133 is very different from the actual electromotive force impressed upon the gas. It is difficult to apply his explanation of the influence of ultra-violet light to the great yield of ozone *outside* a quartz discharge tube.

WORCESTER, November 10, 1910.

¹PHYS. REV., 1906, XXII., p. 232.

²Am. Jour. of Science, 1906, p. 368; Phys. Zeit., 1906, p. 927.