Errata: The Lorentz Correction for the Buerger Precession Method

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right direction to explain the asymmetry of the delay curves of Fig. 5.

It can be seen from Fig. 5 that the output pulse amplitude does not come down to zero when the two input pulses no longer overlap. This single-pulse feed-through is caused mostly by pulses on \( G_1 \) and is due, presumably, to the drift-tube effect. The electrons at the trailing edge of the pulse, being more energetic than normal, can penetrate \( G_2 \) even though it is biased to dc cutoff. The effect is important only for very short pulses whose trailing edge is a large fraction of the pulse. Also it is important only for pulses of very fast decay time since the drift-tube region around the grid is quite small.

Figure 6 shows a counting-rate versus delay-time plot for pulses from a pair of 1P28 photomultipliers. The multipliers were illuminated by Čerenkov radiation from fast mesons traversing acrylic plastic. Since the light pulses were quite small, it was necessary to amplify the pulses from the multipliers somewhat. This was done with three sections of commercial distributed amplifier giving a voltage gain of about 30 in each channel. The delay curve shows no asymmetry, and the reason, we believe, is that the decay time of the pulses is too long to produce an appreciable drift-tube effect. The light pulses are extremely short, but the amplifiers certainly have a decay time longer than \( 2 \times 10^{-9} \) second. The delay curve of Fig. 6 does not come quite to zero for large delay times. This is due to random coincidences in the particular experimental set-up and not to feed-through of single pulses.

Delay curves with progressively shorter pulses were taken with the mercury-switch pulser. The resolving times were found to be about equal to the widths of the applied pulses down to about \( 3.5 \times 10^{-10} \) second, i.e., the time resolution was limited by the width of the input pulses rather than by the resolving ability of the tube itself. With the shortest pulses obtainable from the pulser it was found that 3 inches of cable added to either input line stopped the counting. This indicates a resolving time better than about \( 3 \times 10^{-10} \) second. With so short a pulse, of course, the coincidences-to-singles ratio is not very good, and trouble would be encountered if there were a large random variation of pulse sizes.

CONCLUSIONS

The 6BN6 gated-beam tube can be used to make a simple, reliable coincidence circuit capable of faster time resolution than conventional tubes used in a similar way. With respect to time resolution it is comparable with crystal-diode circuits, but in our opinion it is more reliable than any crystal-diode circuits with which we have had experience.

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THE following typographical error occurs in the author's two papers on the above subject. Equations (24), page 566, and (3'), page 567, contain the term \( (\xi/\sin\beta)^2 \) instead of \( (\xi/\sin\beta)^3 \). The correct formulas are

\[
L(\xi, \beta, \tau) = \frac{2}{\sin\beta} \frac{1 + \tan^2 \beta \left[ \cos^2 \tau - \left(\frac{\xi}{\sin\beta}\right)^2 \cos^2 \tau \right]}{1 + 2 \tan^2 \beta \left[ \cos^2 \tau - \left(\frac{\xi}{\sin\beta}\right)^2 \cos^2 \tau \right] + \tan^2 \beta \left[ \cos^2 \tau - \left(\frac{\xi}{\sin\beta}\right)^2 \right]} \tag{24}
\]

\[
\cos\gamma = \frac{\xi}{\sin\beta} \tag{3'}
\]

The diagram on page 568 (Fig. 1) is not affected. However, in the course of reproduction this graph became elongated in its vertical axis by about 1 percent. There are two possibilities for correcting this:

1. If a photographic template of the figure is made, the easel may be slightly tilted so as to change the outline of the present figure into a true circle.
2. If the reciprocal lattice is drawn on tracing paper for superposition upon the present figure, it should be drawn with a distortion corresponding to that of the figure.