## XLV.—*Note on Acetanhydrocitric acid.*

By Felix Klingemann.

In a paper published in December last in this Journal, T. H. Easterfield and W. T. Sell (Trans., 1892, 1003) describe the acetylanhydrocitric acid obtained from citric acid and acetyl chloride, and also several reactions of this compound, but appear to have overlooked the fact that nearly three years ago I prepared the same anhydride, and that I studied at least one of the reactions they now describe, namely, the formation of citrodianilic acid by the interaction of the anhydride and aniline (*Ber.*, 1889, 983).

As far as the discovery of acetanhydrocitric acid and of citrodianilic acid is concerned, I must therefore claim the priority, especially as there can be no doubt that I obtained the anhydride in a purer state than Easterfield and Sell, my specimen melting 6° higher than theirs. I also succeeded in obtaining the anhydride in beautiful, measurable crystals, the properties of which are described by Mr. Tutton in the same paper. The citrodianilic acid prepared by me melted at 184°, whilst Easterfield and Sell found the melting point to be 180—182°. They also state that the citrodianilic acid prepared by them according to Pebal's method has the same melting point, 183°, and believe that the melting point given by Pebal, namely, 153°, is most probably a misprint. I should like to point out, however, that as the melting points of the citrodiparatoluidic acids prepared by both methods show a similar difference (161° instead of 189°), I think it more likely that the lower melting point is due to the presence of some impurity.

The following analyses of the silver salts of both citrodianilic and citrodiparatoluidic acids prove that both are monobasic acids, thus showing that both molecules of the amine are attached to carboxyl groups.

Silver salt of citrodianilic acid.

I. 0·2689 gave 0·4698 $CO_2$, 0·0941 $H_2O$, and 0·0647 Ag.
II. 0·3136 „ 0·5495 „ 0·1114 „ „ 0·0756 „

| | Calculated for $C_{18}H_{17}N_2O_5Ag$. | Found. I. | Found. II. | |
|---|---|---|---|---|
| C ..... | 48·10 | 47·65 | 47·78 | per cent. |
| H ..... | 3·79 | 3·88 | 3·94 | ,, |
| Ag ..... | 24·05 | 24·06 | 24·11 | ,, |

Silver salt of citrodiparatoluidic acid.

I. 0·3252 gave 0·5963 $CO_2$, 0·1313 $H_2O$, and 0·0739 Ag.
II. 0·3386 ,, 0·6213 ,, 0·1284 ,, ,, 0·0777 ,,

| | Calculated for $C_{20}H_{21}O_5N_2Ag$. | Found. I. | Found. II. | |
|---|---|---|---|---|
| C ..... | 50·32 | 50·01 | 50·04 | per cent. |
| H ..... | 4·40 | 4·49 | 4·21 | ,, |
| Ag ..... | 22·64 | 22·72 | 22·95 | ,, |

*University Laboratory,*
*Bonn.*