them. In taking these readings the sensitiveness of the galvanometer was greatly reduced. At the same time as the readings were taken the spectrum of the flame was photographed and it was found that when the vapour was present in the flame the only lines in the spectrum of thallium which came out were those of wave-length $\lambda = 5350{\cdot}65$ A.U. and $\lambda = 3775{\cdot}87$ A.U. These lines are the first members of the second subordinate $\nu = (2, p_1)-(m, s)$,

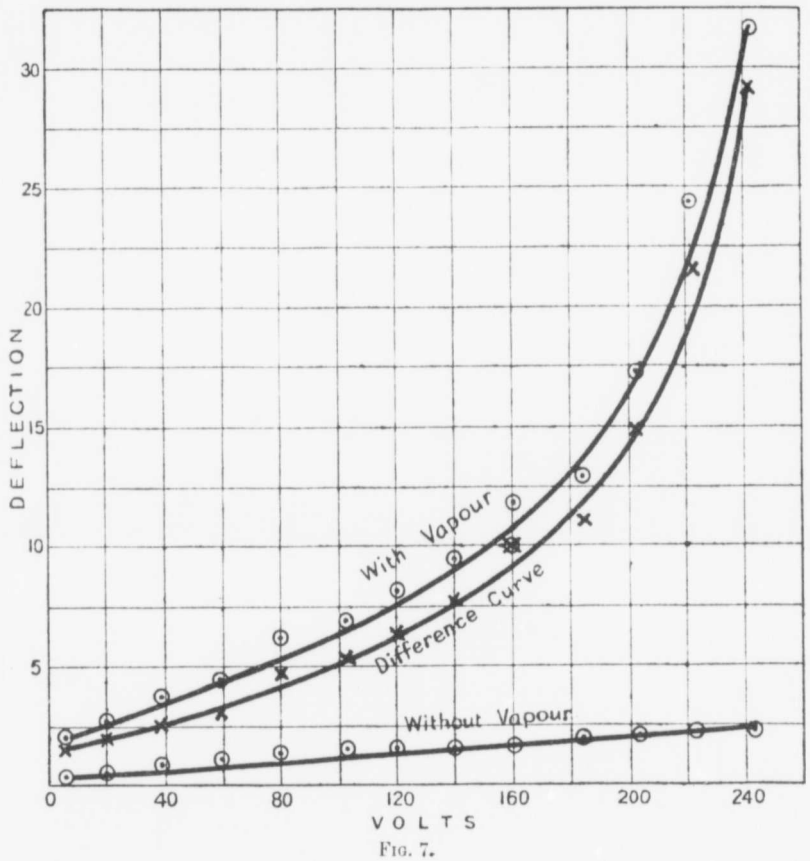

FIG. 7.

and $\nu = (2, p_2)-(m, s)$. The lines whose frequencies are given by $\nu = (1{\cdot}5, S)-(2, p_2)$, and $\nu = (1{\cdot}5, S)-(2, P)$, are not yet known for the spectrum of thallium, and consequently one cannot be certain where to look for them. They are probably, however, in the extreme ultra-violet region. Had they been known or been found one might have deduced the ionising potential for thallium vapour provided it were shown to act in a vacuum in a manner