Under the weaker hypothesis that px merely approaches a constant the same proof shows that pw also approaches a constant.

A later note considers the existence and character of solutions of quasi-linear networks for periodic impressed force.

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THE ELECTROSTATIC FIELD OF TWO COPLANAR PLATES

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1. **Introduction.** In a recent paper in the Philosophical Magazine [1, p. 168],[1] N. Davy published what he called an "attempt" to obtain the electrostatic field about two thin, infinitely long, parallel, coplanar metallic plates of unequal width and at potentials $\pm V_0$. It was this remark, no doubt, that led M. C. Gray [2] to call this solution "tentative."

Actually, the solution given by Davy was but one of infinitely many that might fit his given conditions. The reason is that this is a two-dimensional potential problem, and in two-dimensional potential theory infinity is not a suitable zero point for the potential function as it is in three-dimensional potential theory. Consequently, to make the potential function definite, it is necessary either to specify its zero point or to specify some other condition which effectively does this. Davy made no such specification but chose the particular potential function which corresponds to the case in which the charges on the conductors are equal and opposite in sign.

It is the purpose of this paper to solve the problem fulfilling Davy's conditions, but in which the charge per unit length on one plate bears to the charge per unit length on the other plate a given ratio r.

For any $r \neq 1$, the charges on the plates may be increased until the potential difference between the two plates is $2V_0$. If the zero point for the potential function is then taken as the point between the two plates at which the potential is the arithmetic mean of the potentials on the plates, one plate will be at potential $+V_0$ and the other will

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[1] Numbers in brackets refer to the references cited at the end of the paper.