V. CONCLUSIONS

Thallium chloride, although it contains Schottky defects in thermal equilibrium like the alkali halides, differs from the alkali halides in that F centers cannot be produced in pure crystals, either additively or by irradiation. The insolubility of excess Tl metal is probably connected with the large ionization energy of Tl metal and its low vapor pressure, and the low melting point of TlCl. The insensitivity to x-irradiation may be related to the high mobility of the Cl vacancy in TlCl.

Absorption bands are introduced by the addition of chalcogen impurities. The absorption band in equilibrium at room temperature shows the properties of a colloid absorption, in that it is independent of temperature and of the added impurity. Its position is consistent with that calculated for colloids of Tl metal, with three conduction electrons per atom. The band in equilibrium at elevated temperatures we have ascribed to F centers, since it transforms reversibly into a proportional amount of colloid absorption, as in the alkali halides. The comparatively small oscillator strength of the F band may indicate that it consists of three peaks as in the cesium halides, the other two peaks here being hidden by the fundamental absorption.

The reversible transformation between F centers and colloids in TlCl links it to the alkali halides, but there are also similarities to chalcogen-doped silver halides, although their behavior is generally more complex. These similarities might revive a suggestion of Mitchell's that the center responsible for impurity absorption in the silver halides is an F center associated with a singly charged chalconide ion.

ACKNOWLEDGMENTS

Errata

Theory of the Range of Hot Electrons in Real Metals, STEPHEN L. ADLER [Phys. Rev. **130**, 1654 (1963)]. Because of a decimal-point error in the matrix elements calculated in Appendix I, the conclusions stated in Sec. III of this paper are incorrect. In Appendix I, $A_{1s}(k_0)$ should be 0.0149 rather than 0.149, giving

$$\langle |M(\mathbf{q},\mathbf{K})|^2 \rangle_{\text{av}} \approx 4 \times 10^{-3},$$
$$\langle |M_s(\mathbf{q},\mathbf{K})|^2 \rangle_{\text{av}} \approx 0.8 \times 10^{-6}.$$

Thus, the conclusions of Sec. III should be: (i) In the one-OPW model, umklapp and umklapp-local-field effects give a correction of only a few percent to the Quinn formula; (ii) umklapp and umklapp-local-field effects have very little effect on the plasmon creation rate.

These corrected results agree with Eq. (12), which states that

$$\sum_{\mathbf{K}\neq 0} |\langle \mathbf{p}-\mathbf{q}| \exp[-i(\mathbf{q}+\mathbf{K})\cdot\mathbf{x}]|\mathbf{p}\rangle|^2$$
$$\approx V_a^{-1} \int_0 d\mathbf{x} |u_p(\mathbf{x})|^4 - 1.$$

When the integral

$$I = V_a^{-1} \int_0 d\mathbf{x} |u_p(\mathbf{x})|^4$$

is evaluated using the one-OPW wave functions given in Appendix I, one finds that $I-1$ is of the order of a few hundredths. The qualitative statements which follow Eq. (13), suggesting that $I-1$ is of order unity, are incorrect.

I wish to thank Dr. B. B. Varga for pointing out the numerical error.