heat data. (See Tables I and IV) But as for the other rare earth metals which have unpaired 4f electrons, there are both nuclear and magnetic contributions to the low temperature specific heat which make it difficult to evaluate the electronic contribution. It is felt that the value obtained from the room temperature specific heat data is the more reliable γ value.

5. HALL COEFFICIENTS

Hall coefficients, which have been measured for most of the rare earth metals by Kevane, *et al.* [25] and Anderson, *et al.* [26] could not be interpreted on the basis of a simple one band model. [25, 26] Kevane, *et al.* [25], however, were able to reasonably explain their results in terms of the two band model proposed by Sondheimer. [27] Sondheimer showed that the relationship between the Hall coeficient, R_H, and the balance between the number of electrons in the d band, n_d, and the holes in the s band, n_s, taking part in conduction is given by

$$R_H = \frac{1}{Ne} \; \frac{n_s - n_d \left(\frac{\mu_d}{\mu_s}\right)^2}{\left[n_s - n_d \left(\frac{\mu_d}{\mu_s}\right) \right]^2} \tag{11}$$

where N is the number of atoms per unit volume, e the electronic charge, μ_s and μ_d are the respective mobilities in the s and d bands. The relationship between n_d and n_s is

$$n_d = v - 2 + n_s \tag{12}$$

where v is the valence. By substituting Eqn. (12), the values of N and e and the experimental value of R_H into Eqn. (11) we get a relationship between (μ_d / μ_s) and n_s, which is graphically illustrated in Fig. 2 for most of the metals. Kevane *et al.* [25] noted that if ratio of the mobilities of the

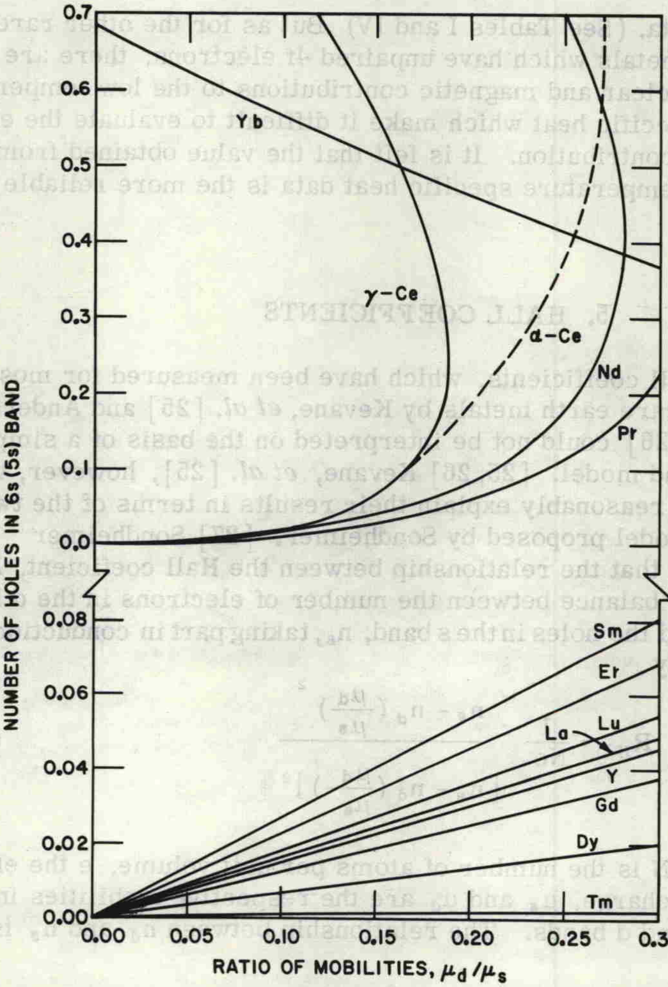

Fig. 2. Relationship between the ratio of the mobilities and the number of holes in the s band of some of the rare earth metals as determined from the measured Hall coefficients.

d electrons to the s electrons was 0.1 or less, then the observed Hall coefficients, which differed both in magnitude