

Introduction: Hagenmuller Festschrift

My parents were both educated as physicists and in fact first met in the Cavendish Laboratory. Although neither continued in that profession, I was brought up to revere the great names in physics, Rutherford, Maxwell, Einstein, and J. J. Thomson, under whom my father had worked. As my mathematics teacher at school was excellent, I tended toward theoretical physics, but all I remember from my distinguished teacher of chemistry was his interest in the Arabic origins of the subject. So, when I started research in Cambridge just at the moment that quantum mechanics was formulated, I was profoundly ignorant of chemistry. At that time, with the emphasis on atomic and nuclear physics and scattering problems, this ignorance did not matter. However, leaving Cambridge for Bristol in 1933, I turned to solid-state physics, mainly because of the work in progress there. At first my interest was in metals, the existence of a Fermi surface, and the Hume-Rothery rule, and here my ignorance of chemistry was not too much of a handicap. I think the concepts of Bloch wave functions were more successful here at that time than a typical chemical picture such as resonating valence bonds, put forward, for instance, by Pauling. But later on, turning to semiconductors and oxides, I felt the need for chemical understanding.

Here I must express my debt to Paul Hagenmuller, his school of solid-state chemists, and his friends and colleagues in the same discipline. Chemists have different in-

stincts; a theoretical physicist of my generation knows instinctively how and when to switch from a wave to a particle description; a solid-state chemist knows what structures are likely to be stable and how to make a compound of a transition metal with any available valency and magnetic moment. I could not hope to acquire that ability—but through my friendship with the Bordeaux school, I know where to ask. As in East-West politics and the Christianity-Islam confrontation, the two sides must learn to talk to each other. In solid science I think we already have, and are doing so as we struggle with the complicated problem of the new oxide superconductors; much of the credit lies with Bordeaux.

I have visited Bordeaux many times, and know of Paul's talent for friendship; we have discussed politics, science, and life in general. Twice he has taken me to Lascaux and we have tasted the culinary joys of the country. We are joint authors of one paper, "Etude comparative du comportement magnetique des phases LaNiO_3 et LaCuO_3 " (*Mater. Res. Bull.* **8**, 647 (1973)) by J. B. Goodenough, N. F. Mott, M. Pouchard, G. Demazeau, and P. Hagenmuller. I am proud to find myself at the heart of solid-state chemistry; and I am proud too to be a doctor honoris causa of the University of Bordeaux.

Thank you, Paul, for your friendship and inspiration.

NEVILL MOTT