Introductory Remarks

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It gives me great pleasure to introduce what I believe is the first Discussion Meeting on inorganic chemistry organized by the Royal Society in the immediate past. In choosing the topic for this discussion it was generally felt that one of the most rapidly developing areas of inorganic chemistry is that of cluster compounds. This area of chemistry covers virtually the whole of the periodic table and today's discussion is concerned primarily with the cluster compounds formed by metal carbonyls, with illustrations of other areas of cluster chemistry of the sulphur and halide complexes of transition metals.

Cluster chemistry very much dominates the chemistry of the early transition series and is particularly significant with the second and third row elements. A study of the chemistry of cluster systems has emphasized that our initial ideas on the chemistry of mononuclear species must be considerably modified when considering the behaviour of polynuclear systems. Thus the bonding of a ligand in most cases occurs to more than one metal centre, and ligand bonding modes not found in mononuclear complexes are often experienced in the cluster complexes. Those results have obvious implications both in structural and reactivity patterns. In the papers that follow it is hoped to develop both these patterns in the polynuclear compounds and emphasize the contrasting nature of these to those of the well documented mononuclear series.

I have particularly avoided any attempt to define the term 'cluster'. I imagine that this will vary from speaker to speaker but the common theme of a multi-metal atom system should provide an interesting correlation between the various chemistries to be discussed.