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Introductory Remarks

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Introductory remarks

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There is a growing awareness of the importance of trace elements in the environment which will become more apparent as the presentations of the next two days unfold. It is not possible to cover all aspects of our chosen topic, so we have had to be selective. We have attempted to structure the meeting so as to set the scene, then we look at trace elements in soils, plants and water. Next, trace elements in the atmosphere, in animals and in man are discussed and this is followed by sessions on techniques and on medical, ecological and pollution aspects of trace-element geochemistry, and finally there is general discussion and concluding remarks.

At this international gathering we are fortunate in having speakers from Australia, the United Kingdom and the U.S.A. – three countries that are particularly active in undertaking research into environmental geochemistry in relation to health – as well as from the World Health Organization, Switzerland. I am sure, therefore, that a most interesting and rewarding discussion will develop.

I have long considered that geochemistry is a much-neglected discipline as compared, for example, with geophysics, but, with the important improvements in analytical accuracy and lower limits of detection for most trace elements that have been achieved over the past decade, geochemistry is beginning to blossom on a world-wide scale. In environmental studies it is now possible to have high quality as well as quantity analytical output. This applies to all media including rocks, sediments, soils, water and the atmosphere. Now what is required is much closer interaction between geochemists on the one hand and other professionals such as medical practitioners, epidemiologists and ecologists on the other, working on joint projects.

Specific problems also require to be tackled, particularly in the less spectacular spheres of sub-clinical disorders in animals and man, and long-term hazards such as result from the products of coal-burning power stations or from mining and other industrial developments. There is also a clear need to differentiate between hazards due to the natural distribution of elements and to those introduced by man's activities. For example, it would be valuable to know if there is any risk in living on a serpentine mass with a few hundred micrograms of Cr, Ni or Cu per gram, or granite with 30 μg U/g, or in a lead-mining district with a few hundred micrograms of Pb per gram in the soil. What level of lead could be expected to be taken up by plants grown on such soils and how would this compare with lead in plants grown in a market garden close to a major road? Information is necessary both for plants grown for foliage and as root crops.

Professor Webb and I are most grateful to the Royal Society for agreeing to make the time available for this Discussion Meeting, which we consider to be both timely and important. We also wish to thank the International Association of Geochemistry and Cosmochemistry both for moral and financial support, and all contributors, particularly those from abroad.