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Preface

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PREFACE

It was between 1886 and 1888 that Hellriegel & Wilfarth published the two reports which finally convinced the scientific community of the reality of biological nitrogen fixation, so Centenary Meetings celebrating their work can legitimately have a wide coefficient of variance. The present meeting, possibly one of the first, arose because, 4 to 5 years ago, the Royal Society received two different proposals for meetings on nitrogen fixation. One, from me, was intended to bring the genetics of nitrogen fixation before a wider scientific audience; the other, from Dr Bergersen, was intended to celebrate this Centenary, with an emphasis on the plant symbioses.

The Society asked us to get together and this is the published version of the hybrid product. We did indeed celebrate the work of Hellriegel & Wilfarth with the Centenary Lecture which started our proceedings. After that, as our title indicated, we attempted to illustrate, by selected contributions, the present state of the subject as well as to look ahead at future prospects. That is why there is a strong emphasis on molecular genetics, because no-one can dispute that this area has been a major growth point in recent years. But I ask those who feel that more physiological matters have been neglected to pay close attention to the actual content of what might seem abstruse molecular biology; much of the research reported in these contributions is in fact classical physiology approached with new and powerful tools. They are all about how the genome and the cell biochemistry interact and that, in anyone's book, has to be physiology.

Much of the valuable discussion which followed the presentations is recorded in these proceedings. What we were unable to record, though the Centenary Lecture includes some examples, is an excellent exhibition of relevant material, modern and archival, which was mounted for the occasion by Dr Phillip Nutman, Dr Janet Sprent and Dr Barry Smith. We were also privileged to have, after the Centenary Lecture, a brief contribution (recorded herein) from Professor G. Kratzsch, who is currently Director of the Cereals Research Institute at Bernburg-Hadmersleben, the site of the Soil Science Research laboratories where Hellriegel & Wilfarth did their seminal research.

Note on presentation. The newly discovered vanadium nitrogenase is referred to occasionally herein. We have chosen to abbreviate it to Va-nitrogenase (cf. Mo-nitrogenase), rather than V-nitrogenase, to avoid possible confusion with *nifV*-nitrogenase, a well-established, but wholly different, vanadium-free entity. Va is a permissible if rare symbol for vanadium.

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