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## 10.2 Jan-Åke Staffansson – Biological innovation as the new explanation of agricultural growth<sup>3</sup>: a *longue-durée* perspective of European agriculture from Roman times to the Agricultural Revolution Room 107

*Chair: TBA*

Theoretical attempts to analyse economic changes are derived from the experiences of the agrarian and industrial revolutions, but they are also used retrospectively to explain the economic development of the earlier period. The basic explanations commonly used for economic growth are changes in technology and capital growth.

Alan L. Olmstead and Paul W. Rhode have researched the growth in productivity of the main agricultural products in the United States. Their conclusion regarding the cultivation of wheat was that ‘there was a relentless campaign to discover and develop new wheat varieties and cultural methods that would allow the wheat frontier to expand into the northern prairies, the Great Plains, and the Pacific Coast states. Without these technologies, western yields would have been significantly lower and vast areas of the United States and Canada would have been unsuitable for commercial wheat production.’<sup>4</sup>

During Roman times the preconditions for agriculture in Europe were good. What was lacking were new edible plants and improvements which would enable them to adapt to the special soil and climate conditions in Europe. Research shows that over the millennia plants gradually found their way to the continent. Simple plant improvements enabled food to be produced economically. Because the only possible improvements were natural mutations, the transition took hundreds of years. The importing of the various edible plants produced two main results. Firstly, larger areas and more marginal soils could be cultivated. The adaptation of plant varieties to the local conditions led to the second main result: the development of various crop rotation systems which served as the foundation of the agrarian revolution.

**Jan-Åke Staffansson** is an independent scholar who began his studies in Economic History at Lund University in 1969. From the very beginning agriculture has been the principal focus of almost all his publications. Later he went on to study Economic History at Ludwig Maximilian University in Munich, where he commenced his doctoral studies under Professor Knut Borchardt. He completed his doctoral thesis in Lund under the supervision of Professor Lennart Jörberg and Professor Gunnar Fridlitzius. His chosen subject was ‘Svenskt smör’ (Swedish Butter. Production, consumption and foreign trade 1861-1913/ Lund Studies in Economic History 3). This study is often cited in scientific agricultural works in Sweden, as well as in articles such as ‘Is it simply getting worse? Agriculture and Swedish greenhouse gas emissions over 200 years’ (Kander, Astrid: *Economic History Review*, 61, 4 (2008) pp. 773-797).

Jan-Åke’s most recent agricultural history research project has been in progress for more than a decade now, but the results have not yet been published. Some sections have been presented in seminars, including the seminar for professors and assistant professors at the Ludwig Maximilian University (Prof. John Komlos), as well as in seminars at the University of Stuttgart Hohenheim, Istituto Svedese di Studi Classici a Roma, the University of Lund and University of Göteborg. At the Social Science History Association conference in 2008 in Miami Jan-Åke presented a model of economic growth in the paper ‘New Crops, the Knowledge of Plant Improvements, Population and Economic Growth.’

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<sup>3</sup> The term ‘biological innovation’ refers to non-mechanical innovations such as new plant varieties, fertilizers, pesticides, irrigation and drainage system, improved cultural practices, and the like.

<sup>4</sup> Olmstead, Alan L. and Rhode, Paul W. *Creating Abundance. Biological Innovation and American Agricultural Development* (2008) p. 17f.