Bezugsmöglichkeiten

Das *Jahrbuch für Wirtschaftsgeschichte* ist im Abonnement oder als Einzelheft über die Buchhandlungen des In- und Auslandes oder direkt erhältlich bei:

R. Oldenbourg Verlag
Rosenheimer Straße 145
81671 München
Telefon: 0 89/4 50 51-248
Fax: 0 89/4 50 51-333

Jahrbuch für WIRTSCHAFTS GESCHICHTE

2000/1

Jahrbuch für WIRTSCHAFTS GESCHICHTE

Seminar für Wirtschafts- und Sozialgeschichte, Universität zu Köln,
Albertus-Magnus-Platz, 50923 Köln
Tel.: 02 21/4 70-22 20, Fax: 02 21/4 70-52 09
Internet: www.wiso.uni-koeln.de/wigesch/jahr.html

Jahrbuch für 2000/1

WIRTSCHAFTS GESCHICHTE

Historische Anthropometrie

Akademie Verlag

00-100

ISBN 3-05-003500-5
ISSN 0075-2800

Druck: Druckhaus „Thomas Müntzer", Bad Langensalza

Printed in the Federal Republic of Germany

Inhalt

I. Abhandlungen und Studien

II. Diskussion

Abhandlungen und Studien

Introduction

By John Komlos (Munich)

I would like to express my appreciation to the editors of this journal for dedicating this issue to the topic of anthropometric history, and thereby giving us the opportunity to present some recent research in this field to its readers. Anthropometric history is now a maturing interdisciplinary approach to studying the human experience, which combines elements of history, economics, economic history, human biology, medicine, as well as physical anthropology. After an initial, short-lived foray into anthropometric history by French historians in the Annales tradition, the exploration of the history of the biological standard of living was taken up in earnest by cliometricians a little over two decades ago. Since then, as the stimulating contributions below clearly attest, the interest in the field has risen considerably, and has, in fact, reached all five continents.[1]

The research agenda is dedicated to exploring long-debated issues, fundamental to the historiography of the Industrial Revolution, but, of course, with far wider implications, namely, how should we measure with some accuracy the well-being of historical populations. This seemingly simple question turns out to be extremely difficult to answer, not only because of the scarcity and disputable quality of the data, but also because data pertinent to some important segments of the population, such as children and women are generally completely absent. The problem of data scarcity also applies to societies in which data do exist, but are inaccurate and unreliable. This pertains to some degree to most economies prior to the mid-nineteenth century, but also to such twentieth-century regimes as the Soviet Union and Maoist China.[2]

There are other reasons for using anthropometric measures of well being. After all, per capita real income, the most frequently used conventional indicator of welfare, is itself an imperfect proxy measure of welfare, because, most importantly, it overlooks changes in income distribution within the society. This measure has other deficiencies as well: it disregards the fact that consumption of one person might affect the well-being of another, and that in the process of production the environment is affected. In sum, conventional measures of welfare are both theoretically and empirically imperfect, and might be usefully supplemented by other indicators, such as the biological standard of living. The latter concept is meant to indicates how well the human organism thrives in its socio-economic and epidemiological environment. It captures the biologically relevant quality of life component of welfare. Its use explicitly acknowledges that the human experience is inherently multidimensional, and that welfare encompasses more than the mere command over goods and services. Health in general, including the frequency and duration of sickness, the extent of exposure to pollutants, and longevity have a contribution to welfare independent of income.

The United Nations acknowledged these shortcomings of the conventional measures of living standards by formulating a human development index, that merges such factors as life expectancy, education, and of course, income as well. As a recent report stated, „Human development is the end–economic growth a means. So, the purpose of growth should be to enrich people's lives. But far too often it does not. ... there is no automatic link between growth and

1 *R. Steckel*, Strategic Ideas in the Rise of the New Anthropmertric History and their implications for Interdisciplinary Research, in: Journal of Economic History 58, 1998, pp. 803-821.

2 *J. Komlos*, On the Biological Standard of Living in Russia and the Soviet Union, in: Slavic Review 58, 1999, pp. 71-79.

human development."[3] In developing societies, anthropometric measures are often an important indicator of children's welfare. To be sure, anthropometric indicators by no means claim to measure the contribution of all goods and services to welfare. Hence, it can not aspire to, or claim to be, a universal indicator of well-being. Nonetheless, it puts the human biological organism squarely into the focus of our discussion, and thereby has a humanistic message: what matters is not only the material aspects of life, but how well people and society use their resources for the benefit of their own and their family's health.

The insights gained thus far from the anthropometric research program have been substantial. We now know that physical stature generally depended in the past on such socio-economic factors as the level, variability, and distribution of income, as well as on the relative price of nutrients, particularly of animal protein. Urbanization and the degree of commercialization of the economy also had a substantial impact on the human growth process. Closer to our own time, such factors as government expenditures on public sanitation, advances in medicine, the availability of health care, and the level of educational attainment, also affected biological outcomes.[4]

The papers published in this issue of the journal expand our knowledge in new directions, and provide new perspectives within this research program. We start out the volume with a novel, and pioneering anthropological contribution on the diet and well-being of some early-mediaeval populations.[5] The chemical analysis of skeletal remains enables Schutkowski to estimate the relative distribution of trace elements (strontium, barium, zinc and copper) in the bone, from which he can infer the relative prevalence of different food products in the diet of the inhabitants of several settlements in southwestern Germany. He finds that a significantly greater proportion of the diet of people living in mountainous areas consisted of high-calcium dairy products, whereas people living in lowland areas depended to a greater extent on cereal consumption. His finding corroborates archival anthropometric evidence that inhabitants of mountainous regions tended to be taller, because of the ubiquity of milk products.[6] Furthermore, Schutkowski shows that economic success, based partly on long distance commodity trade, allowed agricultural populations to enjoy a higher living standard than that would have been supported by the local ecology alone. At the same time, archeological evidence on social differentiation, coupled with trace-element analysis, suggests that food consumption was a function of social status already in the period under consideration. Hence, this study extends our knowledge of dietary history back in time by at least a millennium.

One of the early lasting contributions of anthropometric history has been its ability to distinguish between male and female living standards, even if the scarcity of data has not yet allowed us to obtain a clear idea of the differences that existed. Marquardt's essay in this volume provides a useful overview of the results achieved until now, and points to future research directions. Obviously, before the twentieth century, evidence on the height of females is much scarcer than that on males, because they were less likely to be part of institutions that kept records on physical stature, such as the military. However, two major sources of female heights of the early nineteenth century do exist, i.e., slaves and criminal records. These indicate that females often, even if not always, experienced a decline in their physical stature prior to that of males. This was the case

3 *United Nations Development Programme*, Human Development Report, New York 1996, p. 1

4 *J. Komlos*, Shrinking in a Growing Economy? the Mystery of Physical Stature during the Industrial Revolution, in: Journal of Economic History 58, 1998, pp. 779-802.

5 See also *R. Steckel*, The Backbone of History. A History of Health and Nutrition in the Western Hemisphere, forthcoming.

6 *J. Baten*, Ernährung und wirtschaftliche Entwicklung in Bayern (1730-1880), Stuttgart 1999, p. 150.

among the free blacks of Maryland, and among Scottish convicts, though not among English women of the early nineteenth century. Both in Maryland and in Glasgow the diminution in the height of women preceded that of their male counterparts by a generation: among women the decline began in the 1810s, whereas the decrease was first evident among men of the 1830s birth cohort. Hence, female heights diminished from 94% to 91% of that of men. This could be interpreted as suggesting that at a time of economic stress during the early-industrial period boys received privileged treatment within the household economy. However, one can infer on the basis of English and Irish evidence, that this was not invariably the case, and several studies suggest that girls were no longer discriminated against in twentieth-century Europe. While much more work needs to be done in this regard, Marquardt shows that the foundations have been laid for a comprehensive analysis of the anthropometric history of women of the previous two centuries, and points out ways in which this can be accomplished.

The relationship between anthropometric indicators and other socio-economic and demographic variables has been an important topic of research from the very inception of the field. The two papers by Haines/Steckel and by Baten, make contributions in this direction. The former study explores the relationship between height and mortality rates on the basis of the early-twentieth century US population. Insofar as attained height is a cumulative measure of nutritional status, which, in turn, affects both health and mortality, one would expect such a relationship to exist. The taller the people, in other words, the longer would one expect them to live on average. Admittedly, cause and effect is difficult to disentangle in this case, because causation also works in reverse: the incidence of diseases effect height by slowing down the rate of absorption of digested nutrients, thereby causing both physical stunting, and an increase in mortality. Haines and Steckel confirm the theoretical mutual interaction on the basis of the empirical evidence at their disposal, and argue that height, height for weight, as well as childhood mortality rates are all good indicators of the quality of life. They also find that income was unimportant for health outcomes for the period they considered.

Baten, in contrast, explores the relationship between physical stature and real wages in the 18th and 19th centuries in seven countries. These variables also mutually interact: real wages effect height insofar as a considerable part of family income was spent on food at the onset of modern economic growth, but the reverse causation is also plausible, because taller youth can enter the labor force earlier and will have higher lifetime earnings, insofar as taller people generally were more productive workers. Baten concentrates on the former effect, because his evidence is insufficient to explore the latter relationship. The effect of real wages on height is complex for several reasons: real wages are not easily converted into annual incomes; the share of income devoted to food was not constant over time; and the distribution of resources within the family is unknown; and we lack disaggregated evidence on real wages. For all these reasons some unexpected results have been documented: in several cases heights declined at a time when real wages were increasing. This puzzling phenomenon is documented again by Baten on the basis of US and UK evidence. In several other cases, however, he is able to show the expected positive relationship between physical stature and real wages.

The next three papers are devoted to the analysis of the trends in physical stature at the onset of modern economic growth. Several studies have shown that physical stature declined simultaneously with the beginning of modernization in the eighteenth and nineteenth centuries. The Drukker/Tassenaar and Martínez-Carrión/Pérez-Castejón articles contribute to our knowledge of this phenomenon, known as the early-industrial-growth puzzle, by documenting its existence in the Netherlands and Spain respectively. Drukker and Tassenaar's regional analysis confirms that

the decline in the biological standard of living was greater, the more economically advanced was the region. While Spain's modernization started later than that of the rest of Europe, it was also underway after the middle of the nineteenth century, and the biological living standard of its population also came under pressure simultaneously. These are important confirming evidence on the widespread nature of this effect throughout Europe, revealing the hidden costs of economic development, that were by no means obvious prior to the analysis of the anthropometric evidence. I would just add parenthetically, that it is quite noteworthy that the Dutch, who are among the tallest people in the world today, were only slightly taller than the Spaniards in the middle of the nineteenth century, namely by just a little over one centimeter.

Mosk contrasts the diverging experience of Britain and Japan with regard to anthropometric indicators of welfare at the onset of modern economic growth. In contrast to British heights, which declined in the late-eighteenth century, the Japanese, beginning to industrialize a full century later, had a very different pattern. Mosk suggests that the difference was caused by the fact, that by the time Japan entered its phase of industrialization after the Meiji restoration, agricultural prices were generally falling rather than rising, and the public's knowledge of medical practice was growing. In addition, he argues that the political process played a substantial role in the sense that the demand for sanitary reform, and for the delivery of health services brought about a response from the political authorities bringing public health and sanitation under control, and the enactment of compulsory schooling legislation kept young children out of factories. These fortuitous set of circumstances ensured that Japanese heights increased at the end of the nineteenth century in unison with the dominant pattern in the then developing economies of Europe and North America. Note that Japanese recruits were substantially smaller - by as much as six centimeters - than their European counterparts at the end of the nineteenth century.

In the second contribution on Asia, Shlomowitz/Brennan/McDonald explore the physical stature of men in a northern province of India in the 19th and 20th centuries. They have an extremely rare sample of heights by caste (from archives in Canberra, Mauritius, the Caribbean, and Natal), that enables them to show the positive correlation between physical well being and social caste. They also document (as does Mosk) that the biological standard of living was affected by political developments. It is extremely interesting in this regard, that after independence the physical stature of the Indian population increased in all castes, even though food shortages were not eliminated immediately. Nonetheless, the availability of grains improved sufficiently that people were better off in general than under British rule. As in Japan, and as in Western Europe, welfare enhancing political developments were an important factor in the improvement in the biological standard of living. In conclusion, I hope it will be evident to the reader as well, that the eight essays in this volume make a substantial contribution to the discipline, and I thank the editors again for making the publication of their work possible in this volume.

Subsistence, social status and stature – Approaches from Historical Anthrology to the reconstruction and significance of dietary patterns*

By Holger Schutkowski (Bradford)

I. Introduction

From an ecological point of view humans of all times are an integral part of ecosystems, and as such they participate in the flow of energy and matter which are provided from substances of the living and inanimate world. Thus, humans are members of food chains or food webs. In order to successfully settle in a given habitat, human populations are therefore dependent on the long-term utilization and transformation of natural resources for their survival. This typically results in modes of production and dietary patterns, which reflect the natural or ecological properties of the habitat, but which are actually the result of deliberate manipulation of the intensity and direction of flows within the system. Humans, therefore, determine their trophic position, i.e. their place within a food web. To achieve this, humans utilize, besides matter and energy, two other central ecological categories, information and time. They rely on a cross-generational system of cultural agreements and conventions that constitute their life-support-systems and that are necessary for the transformation of matter and energy into food.[1] Thus, data on subsistence strategies and nutritional habits may provide valuable insights to patterns of resource utilization and land use, its socio-cultural conditions and its possible consequences for well-being.

For those historical periods in which written sources are scarce or almost non-existent, studies dealing with an assessment of nutritional status and health of populations are often carried out by an investigation of floral and faunal remains on the one hand and paleopathological studies on the other. While the first two provide qualitative evidence of plant and animal species consumed by humans, the focus of the latter is generally on the negative impact of living and working conditions leading to visible features on the skeleton.[2] During the last 15 years, a different approach to the reconstruction of past nutritional patterns has been established, based on the chemical analysis of archaeological bone, either by means of trace element or stable

* I would like to extend my grateful acknowledgement to the kind cooperation of the following individuals and institutions who provided the skeletal samples: J. Wahl and M. Kokabi, Landesdenkmalamt Baden-Württemberg, Osteologie, Konstanz; A. Czarnetzki, Osteologische Sammlung, Tübingen; Stuttgart; Alamannenmuseum Weingarten; F.-W. Rösing, Institut für Anthropologie, Ulm; G. Grupe, Anthropologische Staatssammlung, München, D. Mörike, Staatliches Naturkundliches Museum. J. Wahl and A. Czarnetzki also kindly provided yet unpublished sex diagnoses of the Weingarten sample. Special thanks are due to F.-O. Däcke and H. Roth, Institut für Vor- und Frühgeschichte, Bonn, for their fruitful cooperation and the permission to use unpublished archaeological data from the Kirchheim sample. The technical assistance of Sabine Becker is highly appreciated.

1 *H. Schutkowski*, Biokulturelle Anpassungen in menschlichen Bevölkerungen. Beiträge zu einer Humanökologie. Habilitationsschrift, Göttingen 1998. Supported by the Deutsche Forschungsgemeinschaft.

2 Recent textbooks on archaeobotany e.g. *S. Jacomet/A. Kreuz*, Archäobotanik, Stuttgart 1999; *W. van Zeist/K. Wasylikowa/K.-E. Behre (eds.)*, Progress in Old World paleoethnobotany. Rotterdam 1991; on archaeozoology: *S. Davis*, The archaeology of the animals, London 1987; *N. Benecke*, Der Mensch und seine Haustiere, Stuttgart 1994; or paleopathology: *D.J. Ortner/W.G. Putschar*, Identification of pathological conditions in human skeletal remains, Washington 1985; *A.C. Aufderheide/C. Rodríguez-Martín*, The Cambridge encyclopedia of human paleopathology, Cambridge 1998.

isotope studies.[3] Unlike the evidence from floral and faunal remains, bone chemical studies directly allow the inference of paleodiet and past subsistence patterns from elemental profiles of human bone using skeletons as the primary source material.

This (archaeo)metrical approach at the molecular level is used to analyse skeletal remains from early mediaeval populations (5th - 8th century AD) of the former Alamannic settlement area in southwestern Germany. Three lines of argument follow. First, data will be presented to illustrate that substantial geographical variation of food consumption is suggested by the elemental composition of bones, i.e. living conditions and their dependency on ecological parameters are reconstructed. Second, examples will be given showing that within populations differential utilization of resources led to the formation of dietary groups that were closely connected with social status. Third, this social variation in dietary patterns will then be related to variation in body height as a proxy indicator of well-being. These sections are preceeded by a brief outline of the relationship between dietary intake, bone metabolism and elemental contents,[4] i.e. the physiological basis for the measurement of bone element concentrations. The aim of this paper is to demonstrate a new methodology as well as the empirical evidence for the study of basic issues of economic and social history in human prehistory.

II. From bone to diet

Among the major physiological functions of the skeleton is the storage and eventual release of chemical elements required for various metabolic tasks of an organism, the intake of which is primarily provided by food and to a much lesser extent by drinking water and airborne substances. The chemical composition of bones depend on both the elemental distribution in geochemical cycles of a given habitat, i.e. the chemical composition of bedrock, soils and sediments which become part of the natural processes of growth and decay in the realm of living matter, and also an alteration of concentrations of this natural supply of elements via biochemical pathways within an organism, particularly in terms of changes due to transport via food chains or food webs. In addition, the elemental composition of bone is influenced by metabolic rates dependent on age and sex. Compared with other organs, the skeleton generally shows a slow turnover rate, meaning that once a chemical element has reached the bone it will be kept there for a longer time which results in half-lives of incorporated elements of several years. This is why element patterns in bone reflect long-term states of supply of elements. This holds for both elements occuring in high abundance in the skeleton, such as calcium (Ca), and those which are only present in minor amounts, the trace elements.

Differential patterns of distribution in main dietary components are known for a number of trace elements. These patterns are basically maintained in the skeleton even after metabolization. Only those elements are suited for dietary reconstruction that are stored in the skeleton in high quantities after ingestion. More than 90% of the total body content of some, such as strontium (Sr) and barium (Ba), is found in bone, while others, such as zinc (Zn) and copper (Cu),

---

3 *S.H. Ambrose/M.A. Katzenberg (eds.)*, Close to the bone: Biogeochemical approaches to paleodiet analysis in archaeology, New York 1998; *J.B. Lambert/G. Grupe (eds.)*, Prehistoric human bone. Archaeology at the molecular level, Berlin 1993; *T.D. Price (ed.)*, The chemistry of prehistoric human bone, Cambridge 1989.

4 *G. Grupe*, Analytisch-chemische Methoden in der Anthropologie: Spurenelemente und Stabile Isotope, in: *R. Knußmann (Hg.)*, Anthropologie. Handbuch der vergleichenden Biologie des Menschen, Bd. I/2, Stuttgart 1992, pp. 66-73; *M.K. Sandford (ed.)*, Investigations of ancient human tissue. Chemical analyses in anthropology, Langhorne 1993; *H. Schutkowski*, Spurenelementanalysen, in: *B. Herrmann (Hg.)*, Archäometrie. Naturwissenschaftliche Analyse von Sachüberresten, Berlin 1994, pp. 67-86.

represent less, but still considerable amounts of the nutritional supply in the bone concentrations. These four substances can therefore be referred to as diet-indicating trace elements, even though the predictive value of the latter two is somewhat debated.[5] Generally, higher levels of the first two are found in vegetable foods, whereas animal-derived food is enriched in the latter.

Differences in element concentrations between main groups of food items are the result of processes occuring along food chains. They are dependent on the position of an organism in these chains, i.e. the trophic level, and the ecological properties of the respective habitat. While plants, which in ecological terms are primary producers, utilize the element supply of the soil almost completely, consumers on higher levels in the food chain that feed on vegetable matter and/or animals select substances from the supply of their diet in the course of metabolic action. The general rule is that all those chemical elements are absorbed preferentially by an organism which are vital for certain bodily functions. Therefore, an element such as calcium, which among other essential functions is the main constituent of the bone mineral, is always incorporated into the bone mineral lattice in favour of any other element. Since trace elements, for example Sr and Ba, compete with Ca for positions in the mineral lattice, they will only get into the bone, if the diet contains a sufficiently large amount of them. This being so, the element concentration in the skeleton reflects primarily the abundance of total ingested mineral, i.e. Ca as the major part plus varying proportions of trace elements. Since main food items differ with respect to their mineral content, those being generally low in total mineral will not show up, and consequently not be represented in the bone element signal, if any other high-mineral component is present in the diet. Meat, for example, is such a food item that practically defies from detection due to its low mineral content as long as it is part of a diet containing higher amonts of dietary mineral.[6] Thus, higher levels of strontium or barium in the bone are still indicative of higher relative amounts of plant food in the diet. Low levels of these elements, however, do not automatically point to a diet high in meat but, instead, indicate other protein rich food containing high amounts of mineral/calcium and low levels of Sr and Ba, such as milk products.[7] This can be checked then, for example, by analysing the Zn and/or Cu contents in bone. So, a combined analysis of several trace elements is generally performed to provide mutual supportive evidence. Trace element profiles from archaeological bone thus allow to distinguish between different main food components as long as these differ in terms of mineral content, which is the case for a number of both vegetable and animal-derived items. On these grounds it is possible to reconstruct differences in subsistence and nutritional habits even though humans feed on multi-component diets.[8]

---

5 *J. Ezzo*, Putting the »Chemistry« into archaeological bone chemistry analysis: Modeling potential paleodietary indicators, in: Journal of Anthropological Archaeology 13, 1994, pp. 1-34.

6 *J.H. Burton/L.E. Wright*, Nonlinearity in the relationship between bone Sr/Ca and diet: Paleodietary implications, in: American Journal of Physical Anthropology 96, 1995, pp. 273-282. Elevated Sr levels in bone can also point to higher amounts of sea-food in the diet. Therefore, also the location of the population under study has to be considered.

7 A quantification of these mechanisms of discrimination is described by an „observed ratio" ($OR = X/Ca_{sample} / X/Ca_{precursor}$; *H.L. Rosenthal*, Content of stable strontium in man and animal biota, in *S. Skoryna (ed.)*, Handbook of stable strontium, London 1981, pp. 503-514) with X being a trace element such as strontium or barium relative to the matrix of calcium (Ca). This ratio allows a calculation of the respective ratio in the diet from the measured ratio in the bone.

8 Sampling of human bone specimens was carried out in a standardized manner from the compact substance in the anterior thigh bone, ensuring that no individual sampled showed signs of systemic pathological alterations in the skeleton or spots of metal staining at the place of sampling. From each individual, approximately 1 g of bony sub-

III. Reconstruction of small-scale subsistence patterns

1. Adjustment of subsistence to the environment

The living conditions of pre-industrial populations are closely connected to the development and maintenance of subsistence strategies adjusted to the ecological potential of a given habitat. In early mediaeval rural communities modes of production were on a small scale intended to maintain a subsistence economy, i.e. to provide a self-sufficient existence for the local population. The success of adaptive strategies of land use was crucial to long-term settlement and survival in the habitat.

A broad variety of vegetal food items, such as cereal grains, roots and leafy vegetables were cultivated and livestock, such as cattle, horses, pigs, goats/sheep and poultry was raised. This reflects a diversified subsistence economy as the general pattern.[9] Considering these principal food groups of the early mediaeval Alamans, it is reasonable to assume a multi-component diet. The question is whether the relative importance of different food products can be estimated. The initial assumption is that populations in middle-range mountainous areas with pronounced rolling scenery should depend on livestock and dairy farming, whereas populations in lowland locations should rely more on grains. Indicators to test this hypothesis are provided by two complementary sets of data: trace elements measured from skeletal remains, and proxy data on the ecological potential of the investigated locations. The latter comprise for example geomorphology (structure of the landscape), climate and soil quality, whereby it is generally assumed that ecological conditions during the mediaeval period were comparable with the classifications provided by modern surveys. Data on the ecology of the regions investigated are available for even limited areas, such as single valleys or basins.

The results of this study are based on bone samples of adult humans from twelve skeletal samples from areas located today in southwestern Germany (Baden-Württemberg and Bavaria).[10] In Figure 1 the general pattern of dietary intakes is estimated by the distribution of

---

stance was subjected to elaborate cleaning procedures and pretreatments in order to free the specimens quantitatively from non-biogenic material. 50-80 mg of bone powder each were then wet-ashed and diluted to a stock solution. Concentrations of the chemical elements were measured by means of absorption spectrometry and checked against standard reference material of known element content for quality control. Soil samples available from sediment adjacent to the skeletons as well as animal bones were subjected to the same procedures as the human samples (for details see *Schutkowski*, Spurenelementanalysen, cp. ann. 4). Such specimens are routinely measured together with the human samples and are necessary for a proper paleodietary reconstruction.

9 *W. Abel*, Geschichte der deutschen Landwirtschaft vom frühen Mittelalter bis zum 19. Jahrhundert, Stuttgart 1967; *Benecke*, Haustiere; *H. Jäger*, Bodennutzungssysteme (Feldsysteme) der Frühzeit, in: Abhandlungen der Akademie der Wissenschaften zu Göttingen, Philologisch-Historische Klasse, 3. Folge 116, 1980, pp. 197-228; *U. Willerding*, Anbaufrüchte der Eisenzeit und des frühen Mittelalters, ihre Anbauformen, Standortverhältnisse und Erntemethoden, in: Abhandlungen der Akademie der Wissenschaften zu Göttingen, Philologisch-Historische Klasse, 3. Folge 116, 1980, pp. 126-196.

10 Bopfingen, Ostalbkreis: *M. Knaut*, 1863-1992. Zum Abschluß der Ausgrabungen im alamannischen Gräberfeld „An der Steig" in Bopfingen, Ostalbkreis, in: Archäologische Ausgrabungen in Baden-Württemberg Jhg.1992, 1993, pp. 249-250; – Hartheim, Kr. Breisgau-Hochschwarzwald: *H. Kilchling*, Fundschau, in: Funbberichte aus Baden-Württemberg 2, 1975, p. 242; – Kirchheim unter Teck, Kr. Esslingen: *F.-O.Däcke*, Das alamannische Gräberfeld von Kirchheim unter Teck. Die Ausgrabungen von 1970. Marburger Studien zur Vor- und Frühgeschichte, Marburg in press; *A. Knott*, Das frühmittelalterliche Gräberfeld von Kirchheim unter Teck (Flur Rauner), Unpublished MA thesis, Marburg 1987; – Neresheim and Kösingen, Ostalbkreis: *M. Knaut*, Die Alamannischen Gräberfelder von Neresheim und Kösingen, in: Forschungen und Berichte zur Vor- und Frühgeschichte von Baden-Württemberg 48, Stuttgart 1993; – Nusplingen, Kr. Balingen: *A. Schahl*, Das alamannische Gräberfeld von

bone Sr/Ca ratios from human skeletal remains. Lower ratios are generally found in mountainous areas with landscape and soil features favourable to pasture, such as Nusplingen, Sontheim, Bopfingen or Kösingen.[11] Samples with higher Sr/Ca ratios are located either in basin-like areas (Neresheim, Renningen), riverine terraces (Hartheim, Urloffen) or high plains (Weingarten) that provide soils and landscape features favourable to agricultural farming and pasture.[12] Kirchheim also followed the mountain pattern, although it is situated in an area that shows striking similarity of ecological properties with the location of Renningen.[13] However, this resemblance is sharply contrasted by the dissimilar food intake implied by the Sr/Ca ratios of the two sites. The socio-cultural explanation for these different strategies in similar habitats refers to a differential distribution of local conditions of wealth and property and will be discussed in some detail below.[14]

Translated into main dietary components, the results imply that populations in mountainous localities had a substantial portion of high-calcium food as their nutritional basis, such as milk, milk products and certain vegetables, provided by dairy farming and horticulture. In contrast, populations in lowland or basin locations relied either on a mixed diet derived from both agriculture and pasture or on substantial cereal consumption, as indicated by a predominant supply of food items with lower calcium content.[15] This general pattern lends strong support to the basic assumption that subsistence activities in a given locality are primarily defined by

---

Nusplingen, Kr. Balingen, in: Fundberichte aus Schwaben NF 12, 1952, pp. 120-126; – Renningen, Kr. Böblingen: *I. Stork*, Siedlungsgeschichte im Renninger Becken. Das Dorf in den Neuwiesenäckern, in: Archäologische Informationen aus Baden-Württemberg 19, 1991, pp. 14-32; – Sontheim a.d. Brenz: *C. Neuffer-Müller*, Ein Reihengräberfriedhof in Sontheim an der Brenz, in: Veröffentlichungen des Staatlichen Amtes für Denkmalpflege Stuttgart, Reihe A 11, Stuttgart 1966; – Urloffen, Ortenaukreis: *W. Struck*, Ausgrabungen in einem merowingerzeitlichen Gräberfeld in Urloffen, Gem. Appenweier, Ortenaukreis, in: Die Ortenau 61, 1981, pp. 3-12; – Weingarten, Kr. Ravensburg: *H. Roth*, Die Alamannen, in: Weingarten. Von den Anfängen bis zur Gegenwart, Biberach 1992; *H. Roth/C. Theune*, Das frühmittelalterliche Gräberfeld bei Weingarten, Bd. 1 Katalog der Grabfunde, Stuttgart 1995; – Wenigumstadt, Ldkr. Achaffenburg: *K. Kerth/A. Rettner/E. Stauch*, Die tierischen Speisebeigaben von zwei merowingerzeitlichen Gräberfeldern in Unterfranken, in: Archäologisches Korrespondenzblatt 24, 1994, pp. 441-455; – Wittendorf, Kr. Freudenstadt: *E. Schallmeyer* Das merowingische Gräberfeld von Wittendorf, Gemeinde Loßburg, Kreis Freudenstadt, in: Archäologische Ausgrabungen in Baden-Württemberg Jhg. 1991, 1992, pp. 212-214.

11 Bopfingen: *H. Graul*, Naturräumliche Gliederung Deutschlands Blatt 179, Bad Godesberg 1952; Kösingen: *R. Jätzold*, Naturräumliche Gliederung Deutschlands Blatt 172, Bad Godesberg 1962; Sontheim: *H. Dongus*, Naturräumliche Gliederung Deutschlands Blatt 171, Bad Godesberg 1961.

12 Hartheim, Urloffen: *G. Reichelt*, Naturräumliche Gliederung Deutschlands Blatt 185, Bad Godesberg 1964; Neresheim: *H. Dongus*, Blatt 171; Renningen: *F. Huttenlocher/H. Dongus*, Naturräumliche Gliederung Deutschlands Blatt 170, Bad Godesberg 1967; Weingarten: *H. Dongus*, Naturräumliche Gliederung Deutschlands Blatt 187, Bad Godesberg 1991.

13 *Dongus*, Blatt 171.

14 *H. Schutkowski*, Naturräumliche und kulturelle Einflußfaktoren auf die Wirtschaftsform frühmittelalterlicher Bevölkerungen der schwäbischen Alb, in: Archäologisches Korrespondenzblatt 26, 1996, pp. 91-96.

15 Lower dieary calcium does, of course, not mean to indicate a nutritional deficiency. Still, the dimension of trace element concentrations in the bone mineral is a thousand times lower than that of the matrix element calcium, i.e. micrograms *vs.* milligrams. The biochemical background of translating nutrient intake into bone trace element signals implies that the consumption of animal protein in terms of meat can be only detected indirectly in multi-component diets typical of humans (cp. chapter 2). Combining trace element studies with another molecular technique, the analysis of stable carbon and nitrogen isotopes, will be a suitable approach to discern groups of animal-derived food items (cp. ann. 37, see also *S.H. Ambrose,* Isotopic analysis of paleodiets: Methodological and interpretive considerations, in: *M.K. Sandford (ed.)*, Investigations of ancient human tissue. Chemical analyses in anthropology, Langhorne 1993, pp. 59-130).

ecological characteristics of the habitat and that trace element profiles appear to reflect features of even small-scale natural units surprisingly well.[16]

A good example is provided by the site of Sontheim. It is located in the eastern part of the Swabian Alb at the mouth of the valley of the Brenz River, a tributary of the Danube. The location itself would have allowed access to both the fertile fluvial sediments of the Danube valley and the less favourable arid slopes and damp, marshy bottom of the Brenz valley. The low Sr/Ca ratio, however, clearly points to a mineral rich diet (Fig. 1) with large amounts of animal-derived food in the diet. This suggests that the people of Sontheim largely had to confine themselves to the Brenz valley and did not have the fertile plains of the Danube valley at their disposal, i.e. they adjusted land use to the habitat accessible to them by focusing on dairy farming and horticulture. This is in line with the opportunities provided by the environment of the lower Brenz valley.[17]

These examples illustrates that, on the whole, human populations in early mediaeval southwestern Germany clearly pursued adaptive strategies of optimization which enabled them to cope with varying ecological circumstances on a small scale. Close adjustment to a variety of natural environments thus led to long-term settlement and habitation. Identifying the resources utilized in a certain environment from bone element data therefore allows us to reconstruct patterns of land use, thereby illuminating the economic history of periods prior to the availability of archival sources.

2 Different patterns in similar habitats

As noted above, there is one conspicuous exception to the general pattern of adjusting land use to te ecological conditions of a given habitat. The sites of Renningen, Kreis Böblingen and Kirchheim unter Teck, Kreis Esslingen are situated in basically the same kind of environment in a moderate mountain range, but show a striking dissimilarity in their nutritional patterns as revealed by the bone trace element data (see Fig. 1). The Renningen basin belongs to the northwestern foothills of the Swabian Alb and has an extension of 6 by 4 kms. Prevailing altitudes are around 400 m above sea level. Its protected location and the presence of fertile topsoils (loess and loess loam) in the western and southwestern parts make this locality favourable to agriculture. Richer soils based on red marls in the eastern parts are suited for use as pasture land.[18] The Kirchheim basin, 5-8 km wide, is situated at the northern edge of the Swabian Alb and has altitudes between 300 and 370 m above sea level. Most parts are covered with layers of

16 *H. Schutkowski/B. Herrmann*, Geographical variation of subsistence strategies in early mediaeval populations of southwestern Germany, in: Journal of Archaeological Science 23, 1996, pp. 823-831. Settlement structure during the early Middle Ages was clearly rural with numerous small villages and hamlets spread across the countryside. Archaeological surveys, however, indicate different concentrations of settlements due to habitat quality, e.g. *Knaut*, Neresheim und Kösingen, ann. 10. Ecological properties of the inhabited areas, therefore, seem to be best suited as proxies for the evaluation of past subsistence strategies. Population densities can only be roughly estimated or extrapolated at present based on a limited number of published data of early mediaeval graveyards. A general comprehensive overview of mediaeval population growth in Europe is given by *G. Grupe*, Umwelt und Bevölkerungsentwicklung im Mittelalter, in: *B. Herrmann (ed.)*, Mensch und Umwelt im Mittelalter, Stuttgart 1986, pp. 24-34, revealing a more or less stable or stagnating population density during this time period, when viewed at on a broad scale.

17 *Dongus*, Blatt 171.

18 *Huttenlocher/Dongus*, Blatt 170.

loess clay and residual limestone loam.[19] Thus, both locations provide extended areas of fertile soils suited for agricultural activities.

The average bone Sr/Ca ratio of the Renningen sample indicates a prevalence of low-calcium dietary components. Subsistence, therefore, was probably based on cereals, other vegetable items, and possibly meat derived from both agricultural farming and grassland use. The elevated Zn values detected in the human bones do not contradict this interpretation, if the consumption of legumes, cereal products and meat is assumed. This conclusion is supported by comparative measurements on bones of a pig from the site, generally believed to be an omnivorous animal. It shows Sr/Ca ratios very similar to the human data, but a considerably lower Zn content. This, in turn, corresponds to the suggested subsistence pattern of the human population containing a relatively higher propertion of Zn-enriched foods, such as meat, legumes or cereal products.[20]

Given the ecological properties of the Kirchheim area, a subsistence strategy similar to that of Renningen would be expected. However, the trace element data indicate something quite different. The Kirchheim sample is characterized by high Zn values, low Sr and Ba concentrations and consequently low Sr/Ca and Ba/Ca ratios. Such a distribution resembles more the pattern of the Sontheim or Bopfingen sample (Fig. 1). Thus, a high consumption of dairy products, meat, and Ca-rich vegetables is indicated, while cereal products, though part of the diet, were of minor importance. This general pattern is corroborated by comparative measurements on dog and horse bones from the graveyard. The dog, being an opportunistic omnivore, shows element contents in the lower range of the human values, whereas the horse sample, representing a strictly herbivorous animal, shows the highest Sr and lowest Zn contents.[21]

The reconstruction of nutritional patterns in Kirchheim suggest that modes of production and nutritional behaviour focused on the consumption of food rich in animal protein and that its abundant fertile soils were not used mainly for crop production, but for the raising of livestock. From an ecological point of view, the production of animal-derived food is more costly in terms of energy input, due to the extension of the food chain. It requires approximately ten times the energy needed for the production of an equivalent amount of vegetable matter.[22] Thus, such a strategy would be pursued only, if the energy input/output ratio is at least balanced in the long run. This holds particularly if livestock becomes a potential nutritional competitor of humans, e.g. horses fed on cereals. The human nutritional pattern, as revealed by the trace element data, suggests a deliberately chosen subsistence strategy deviating from what could be expected from the ecological potential of the natural unit. There is some evidence from the available archaeological record supporting this interpretation.[23] Based on detailed analyses, early mediaeval

19 *Dongus*, Blatt 171.

20 *Schutkowski/Herrmann*, Geographical variation; cp. also ann. 21.

21 The absorption rate of Zn from the intestines is governed by complex biochemical mechanisms and is also dependent on the composition of the diet in terms of fibre, protein and certain minerals. In the presence of sufficient dietary protein it may also be absorbed well from vegetable food items (cp. *C.G. Mills (ed.)*, Zinc in human biology, London 1989; *Bertelsmann Stiftung (Hg)*, Mineralstoffe und Spurenelemente, Gütersloh 1992; *W. Pfannhauser*, Essentielle Spurenelemente in der Nahrung, Berlin 1988). Even though there is clear evidence for a supply-dependent incorporation of Zn into the bone (cp. *H. Rheingold/S. Hues/N.M. Cohen*, Strontium and zinc content in bones as an indication of diet, in: Journal of Chemical Education 60, 1983, pp. 233-234) the exact mechanism is not yet completely understood. This is why a calculation of Zn/Ca ratios, analogous to Sr/Ca or Ba/Ca ratios, is not possible at present (cp. also ann. 5).

22 *E. Odum*, Grundlagen der Ökologie, Stuttgart ^{2}1983.

23 *Däcke*, Kirchheim; *Knott*, Kirchheim. Cf. ann. 10.

Kirchheim appears to have been a community of high social status with numerous examples of exceptional individual wealth. Besides evidence suggesting it was an economic centre profiting from nearby ancient trade routes, by AD 600, the village was already able to erect a stone church, which may be taken as additional sign of affluence. Prosperity, therefore, seems to have allowed the Kirchheim community to favour an energy- and cost-intensive mode of production, which could be perpetuated for at least several generations.[24]

The people at Kirchheim seem to have generally been better off and benefited from effective agricultural strategies. The advantageous living conditions probably also had an impact on biological conditions, which may be taken as a relative measure of well being: mean age at death for its adult population was 45 years, compared to 37 years in Renningen.[25] It may, thus, be concluded that, at Kirchheim, economical, social and biological success very likely mutually influenced each other, allowing a relative independence of modes of production from the given ecological cirumstances.

IV. Linking dietary groups to social rank.

This chapter examines further three of the populations mentioned above, namely Kirchheim, Neresheim and Weingarten, particularly the relationship between dietary variation and social differentiation. We compare trace element data to archaeological finds obtained independently of each other. It will be shown, that well being expressed as affiliation to social rank is highly congruent with differential access to esteemed high quality food items.

The issue focuses on the fact that early mediaeval graveyards are known to contain items suitable to distinguish socio-cultural sub-units within a population. These represent groups of individuals that reflect similar conditions of wealth, respectively. Historical and archaeological interpretations suggest that the early mediaeval society, unlike the strictly hierarchical social structure of the high and late Middle Ages, was open and permeable to a high degree.[26] Differences in wealth and status were the result of personal privileges awarded by a ruler, which led to familiy groups (*familiae* in late antique tradition) of varying social ranks. Overt display of these privileges in terms of weapons or jewellery during lifetime accompanied social differentiation. Since the privileges were basically not heritable, however, there was no necessity to keep status-indicating items. Instead, it was reasonable to use them as decoration after death and at the funeral in order to demonstrate the status of the respective person to everyone in the community. Thus, the burial situation as uncovered during the excavation reflects actual social status as displayed by material attributes.

At the same time, social differentiation and food production are interdependent in a way that status can be defined and stabilized through the control of natural resources and the means of

---

24 *Schutkowski*, Einflußfaktoren.

25 *I. Becker*, Zur Konstitution der frühgeschichtlichen Bevölkerung von Kirchheim unter Teck. Unpublished Diploma thesis, Ulm 1985; *S. Schneider*, Spurenelementkonzentrationen in weiblichen Skeletten der Skelettserie von Kirchheim/Teck. Unpublished Diploma thesis, Göttingen1993; *J. Wahl*, Naturwissenschaftliche Beiträge zu den Grabfunden. Menschliche Skelettreste, in: Archäologische Informationen aus Baden-Württemberg 19, 1991, p. 52. From a contemporary point of view these data appear to be rather low. The figures, however, only represent arithmetic population means and do not exclude at all the presence of a number of old people in the community.

26 E.g. *H. Boockmann*, Einführung in die Geschichte des Mittelalters, München ^{4}1988; *H. Steuer*, Frühgeschichtliche Sozialstrukturen in Mitteleuropa. Abhandlungen der Akademie der Wissenschaften zu Göttingen, Philosophisch-Hist. Klasse, 3. Folge, 128, 1982; *H. Roth/C. Theune*, Zur Chronologie merowingerzeitlicher Frauengräber in Südwestdeutschland, in: Archäologische Informationen aus Baden-Württemberg 6, 1988, pp. 1-37; Gregory of Tours, cp. *M. Weidemann*, Kulturgeschichte der Merowingerzeit nach den Werken Gregors von Tours, Mainz 1982.

production.[27] Control, however, is the prerequisite for differential access and utilization of (food) resources within a population, especially those highly esteemed, such as animal protein. If groups with common dietary behaviours can be identified within skeletal samples, it should be possible to demonstrate whether, and to what extent these dietary groups match social groups.

Therefore, trace element data was used to differentiate individual's social standing in strict independence from archaeological information. Standardized concentrations of the trace elements Sr, Zn, Ba and Cu were subjected to Cluster analysis to check for groups of individuals with similar element patterns. Application of several algorithms and procedures to each sample resulted in an optimized set of clusters with maximum similarity of cases within and least similarity between the clusters.[28]

Kirchheim

The adults of the population of Kirchheim (n=121) were subdivided by cluster analysis into three statistically stable groups ($p<0.001$) resulting in a differentiation of the subunits mainly in accordance with zinc values (Fig. 2). While the elements Sr, Ba and Cu are distributed in a rather homogeneous fashion, the group differences in zinc content are highly significant ($p <0.001$ for all cluster combinations). We assume, based on bone Zn values, that intra-population differences in nutritional patterns are are mainly the result of differential access to animal-derived high-quality food items. Our hypothesis is to assume that this variation is a function of social rank within the society.

The amount of overlap of dietary groups and social groups was compared, the latter being achieved by the differential distribution of certain grave goods indicative of social rank. The comparison was performed separately by gender.[29] Among the male burials, those equipped with a one-edged sword (seax) and/or axe as well as bow and arrow (n=26) are believed to represent an average set of status attributes. Fifteen of these individuals belong to the cluster with lowest Zn values (Cluster 2); another 6 fall within the cluster with intermediate Zn concentrations (Cluster 1), in which all but one display values below the cluster mean. The distribution of almost 80 percent of males of average social rank as revealed by their burial equipment, is congruent with nutritional patterns pointing to a lower supply of animal-derived protein. High-status males with ensembles of grave goods such as seax, sword, spear and shield (n=19) do not separate as well as their low status counterparts, but clear trends can still be detected. Some 63 percent of the high-ranking males were found to belong to either Cluster 3, with the highest Zn content, or above-average Zn concentrations in the intermediate cluster. Contrary to males, females of both higher or lower social rank scatter more evenly among the dietary groups. There are no statistically significant patterns of congruence that would allow the allocation of the affiliation with a status group to a pronounced nutritional behaviour in the female individuals.[30]

---

27 Cp. e.g. *A.W. Johnson/T. Earle*, The evolution of human societies. From foraging group to agrarian state, Stanford 1987.

28 Detailed information about the Computer Program used: *D. Wishart*, Clustan user manual, St. Andrews 1987.

29 Details in: *H. Schutkowski*, What you are makes you eat different things - interrelations of diet, status and sex in the early Mediaeval population of Kirchheim unter Teck, FRG, in: Human Evolution 10, 1995, pp. 119-130; sex diagnoses from *Becker*, Konstitution.

30 *Schutkowski*, Interrelations.

The immature individuals (n=30) form two groups after cluster analysis that also differ by Zn-values (data not shown). A grouping of ranks by means of grave goods is equally possible for these individuals and a comparison of dietary pattern and social standing reveals a 75 percent congruence for individuals of lower ranks with membership in the cluster that comprises individuals with presumably lower consumption of animal protein. 82 percent of the high ranking juveniles fall into the high mineral/high protein cluster.[31]

Neresheim

The graveyard at Neresheim consists of 197 individuals,[32] of which a random sample of 54 adults was taken. Cluster analysis arrived at a set of two clusters ($p < 0.003$). The general subsistence pattern of the Neresheim population was reconstructed as the result of a mixed diet consisting of both produce from agricultural and dairy farming.[33] While the element data of Cluster 1 are directly in accordance with these features, the members of Cluster 2 show a higher mean strontium and barium values (Fig. 3), which clearly points to a supply of food somewhat lower in dietary calcium. A comparison with archaeological findings[34] reveals that 82 percent of all individuals buried with items of precious metals fall within Cluster 1 (nine out of eleven). When so-called quality groups of material goods attributed to social rank are considered, also more than 80 percent of all individuals in the sample belonging to groups representing higher status, are found in the same cluster. Cluster 2, on the other hand, contains only two individuals of these quality groups, but also two out of three men's burials equipped with weaponry. However, 87 percent of the individuals in Cluster 2 (13 out of 15) belong to lower status groups. Thus, the group most likely representing limited access to high quality food items consists almost completely of low ranking individuals. With regard to gender, approximately 76 percent of all women of the sample belong to Cluster 2, while males of this status group scatter evenly among the dietary clusters.

Weingarten

As can be inferred from Fig. 1 the population of Weingarten generally largely relied on a diet dominated by low calcium plant foods, such as cereal grains and vegetables. The location of Weingarten on a fertile terrace at the foothills of Lake Constance with favourable conditions for farming gives additional support from the ecological proxies.[35] This, of course, does not completely exclude the keeping of livestock and the consumption of animal products.

Cluster-analysis of the adult sample (n=193) revealed three distinct subunits, which allow an interpretation as dietary groups. They clearly differ with respect to their average Sr and Zn values ($p<0.001$) and thus point to long-term differences in the supply of low and high Ca foods, respectively, the latter derived probably from milk products (Fig. 4). In addition, varying amounts of supplementation from meat cannot be excluded and appear to be likely for members in Cluster 3. The interrelationship between social standing and dietary differences was again

31 *H. Schutkowski*, Biokulturelle Differenzierung der Subsistenz in einer frühmittelalterlichen Gemeinschaft – das Beispiel Kirchheim/Teck, in: *F.-O. Däcke*, Kirchheim, in press.

32 *R. Hahn*, Die menschlichen Skelettreste aus den Gräberfeldern von Neresheim und Kösingen, Ostalbkreis, in: *M. Knaut*, Die alamannischen Grüberfelder von Neresheim und Kösingen, Ostalbkreis, Forschungen und Berichte zur Vor- und Frühgeschichte von Baden-Württemberg 48, 1993, pp. 357-428.

33 *Schutkowski/Herrmann*, Geographical variation.

34 *Knaut*, Neresheim, cf. ann.10.

35 *Dongus*, Blatt 187, cf. ann. 14.

proved by the distribution of status indicating grave goods[36] and will be presented for both genders. Two thirds of low to average ranking males are members of Cluster 1, reflecting high cereal and other vegetable consumption, and two thirds of those males representing higher ranks fall into Clusters 2 and 3 characterized by a diet generally enriched by animal-derived food products. The correspondance of dietary behaviour and social position among adult females is significant only for high ranking individuals with 70 percent belonging to Clusters 2 and 3.

Among non-adults a separation into two clusters (data not shown) clearly corresponds with the expected congruence. Affiliation to lower ranks is accompanied by a low calcium, vegetable dominated diet, whereas juveniles of higher ranks enjoyed a diet much more supplemented by high calcium animal protein.[37]

*

These examples demonstrate that cluster-analysis of trace element data from archaeological bone samples allows us to identify dietary groups that show considerable congruence with status-defined sub-groups within a community (Table 1). This provides support for the hypothesis that the dietary behaviour of past populations was strongly influenced by affiliation with status groups. This, in turn is equivalent to a significant connection between resource availability and utilization and social standing, which is detectable by bone chemical analyses even in prehistoric times.

Table 1: Congruence [%] between membership in a dietary group as revealed by bone chemical analysis, and social affiliation inferred from grave equipment for three early mediaeval populations. Pooled data for both genders (see text).

Groups / Sites	adults		juveniles	
	higher ranks	lower ranks	higher ranks	lower ranks
Kirchheim/Teck	61	68	82	75
Neresheim	82	87	not studied	
Weingarten	69	48 *	75	83

* Low value due to considerable discrepancy between the genders (males 67%, females 28%).

One would, however, not expect complete congruence between dietary behaviour and social rank for several reasons: Given the high social mobility within early mediaeval societies and the prevailing system of awarding non-inheritable privileges, the *in situ* finding in the graveyard does not pertain the original social group of an individual. Dietary habits are culturally acquired and may thus be maintained throughout one's lifetime, even if a change in social rank had taken place. Moreover, since trace element concentrations reflect middle- or long-term dietary intakes, a change in nutritional behaviour need not have resulted in physiological consequences by the time of death. Therefore, some exceptions from the general pattern is understandable.

36 *Roth*, pers. comm. Criteria for discriminating social ranks using burial items are the same as those used with the Kirchheim sample (see above).

37 *H. Schutkowski/F. Wiedemann/H. Bocherens/G. Grupe/B. Herrmann*, Diet, status and decomposition at Weingarten. Trace element and isotope analyses on early mediaeval skeletal material, in: Journal of Archaeological Science 26, 1999, pp. 675-685.

V. Dietary differences and body height

The results above have been presented from an analytical approach to anthropometry carried out at the molecular level. The question arises, if these combined nutritional and social differences are apparent also in ‚classical' anthropometric features, i.e. body height differences.[38]

The stature an adult individual reaches at the end of his/her growth period depends to a large extent on genetics. This holds independent of the enormous geographical variation in body height between human populations throughout the world, which is closely connected, for example, with climatic conditions. Twin studies suggest that between 70 and 80 percent of the variance in body height within a population is due to genetic factors.[39] This growth potential, thus, sets the range of what can be realized during ontogeny. There are, however, a number of human environmental factors, which have an impact on adult body height. Apart from the influence of disease vectors or hygienic conditions, nutrition is among the major factors known to affect growth, especially in terms of adequate supply of energy density, protein and fat.[40] Experiences from recent history dramatically show the consequences of nutritional deprivation in early childhood on the realization of the growth potential, especially during times of famine or nutritional deprivation in post-war periods. Studies in economic history have provided ample evidence that relatively small differences in body height may both reflect and predict economic, social and living conditions in a remarkable way, comparable to studies in living populations. Can this also be demonstrated for prehistoric times?

Data on stature in historic skeletal individuals are not the result of direct measurements but of estimation. Besides the rare cases that *in situ*-lenghts (vertex-heel distance in the excavated skeleton) are reported, these data are based on calculations from regression equations using long bone lengths. Even though a number of formulae exist pertaining to populations of different geographical origin[41], their accuracy cannot reach that of body height measurements of living persons. Consequently, standard errors of the estimates are between ±3 and ±4.5 centimetres for most of the frequently used equations. One has to be cautious, therefore, when interpreting body height differences derived from skeletons. A second problem arises from the state of preservation of skeletal material, which often reduces the number of measurable long bones. This usually results in small sample sizes, which height can be estimated for. As a consequence, a centimetre difference may not be significant in archaeological samples due to high standard errors and small number of observations.

Bearing this in mind, the question is, whether there is any correspondence between the above empirical findings and the variation in height of the populations being considered. The hypothesis is that body height should vary as a function of nutritional supply, which in turn is

38 *J. Komlos/T. Cuff (eds.)*, Classics in anthropometric history, St. Katharinen 1998.

39 *C.O. Carter/W.A. Marshall*, The genetics of adult stature, in: *F. Falkner/J.M. Tanner (eds.)*, Human growth Vol. 1, London 1978, pp. 299-305; *R.M. Malina/C. Bouchard*, Growth, maturation and physical activity, Champaign, pp. 305 ff. 1991; *R. Knußmann*, Vergleichende Biologie des Menschen, Stuttgart 1996, pp. 72 ff.; *R. Hauspie/C. Susanne*, Genetics of child growth, in: *S. Ulijaszek/F.E. Johnston/M.A. Preece (eds.)*, The Cambridge encyclopedia of human growth and development, Cambridge 1998, pp. 124-128.

40 *S. Ulijaszek*, Human energetics in biological anthropology, Cambridge 1995, pp. 128 ff.; *C.W. Binns*, Nutrition, in: *Ulijaszek/Johnston/Preece*, Cambridge encyclopedia, pp. 326-329.

41 E.g. *F.-W. Rösing*, Körperhöhenrekonstruktion aus Skelettmaßen, in: *R. Knußmann*, Anthropologie. Handbuch der vergleichenden Biologie des Menschen I/1, Stuttgart 1988, pp. 586-600.

dependent on social affiliation.[42] Table 2 shows the distribution of body height calculations from long bone measurements by rank and gender. We find that, with one exception (females of Neresheim), there are no statistically significant differences in stature between the social/nutritional groups that were identified.

Table 2: Average body height (± SD) in [cm] according to social/nutritional differentiation by gender. Numbers in brackets after the sites indicate total sample sizes.

Groups / Sites	Males		Females	
	higher ranks	lower ranks	higher ranks	lower ranks
Kirchheim/Teck (31)	171,2 ± 6,0	167,8 ± 7,6	154,9 ± 6,9	155,2 ± 6,8
Neresheim (89)	170,3 ± 5,3	172,7 ± 5,0	166,4 ± 5,3	160,6 ± 7,0
Weingarten (89)	167,2 ± 5,1	167,0 ± 6,0	156,7 ± 4,3	156,4 ± 5,1

Body height calculations for Kirchheim are based on long bone lengths taken from *I. Becker*, Kirchheim; for Weingarten taken from *N. M. Huber*, Anthropologische Untersuchungen an den Skeletten aus dem alamannischen Reihengräberfeld von Weingarten, Kr. Ravensburg. In: Naturwissenschaftliche Untersuchungen zur Vor- und Frühgeschichte in Württemberg und Hohenzollern 3, Stuttgart 1967; height data for Neresheim from *R. Hahn*, Neresheim.

Although this result may well be due to small smaple sizes, it is consistent with the social dynamics in the early mediaeval society.[43] Unlike the subsequent periods, during the early Middle Ages the society did not provide a distinct hierarchical pattern of permanent social affiliation. The system of privileges opened up possibilities for an improvement of one´s living standard, because upward mobility was accompanied by more and better utilization of human and natural resources. However, the reverse was equally possible and reported (Gregory of Tours), leading to loss of advantages and comforts, even though one would assume that it had been avoided whenever possible. Living conditions, thus, could well change considerably during an individual´s lifetime. This means that, for the growing child, improved conditions would have led to a melioration of the nutritional situation, whereas downward mobility, by limiting access of the family to resources, impaired energetic and caloric supply and very likely resulted in deprivation of a growth trajectory and stunting. These conditions, however, may have been reversed in the course of later life and would then have resulted for example in catch-up growth or stagnation of growth.[44]

The changeability of living conditions typical for the early mediaeval society would, thus, neither allow a prediction of the adult height that was finally reached from the conditions during childhood and youth nor an inference from height to social standing later on in adult life.

---

42 E.g. *T. Bielicki*, Growth as an indicator of social inequalities, in: *Ulijaszek/Johnston/Preece*, Cambridge encyclopedia, pp. 54-56; *B. Bogin*, Patterns of human growth, Cambridge 1988; *P.B. Eveleth/J.M. Tanner*, Worldwide variation in human growth, Cambridge ²1990; *S. Ulijaszek/S.S. Strickland*, Nutritional studies in biological anthropology, in: *C.G.N. Mascie-Taylor/G. Lasker (eds.)*, Research methods in biological anthropology, Cambridge 1993, pp. 108-139.

43 Cp. ann. 26.

44 Cp. *M.N.H.Golden*, Catch-up growth in height, in: *Ulijaszek/Johnston/Preece*, Cambridge encyclopedia, pp. 346-347.

45 It has to be emphasized, however, that clear interrelations between body height and social inequality are known for time periods other than the early Middle Ages, whenever there is evidence for basially stable social conditions that allow a prediction of height, all other things being equal (cp. ann. 42). This cannot be assumed for early mediaeval times.

Therefore, an overall lack of differences in physical stature between social groups cannot be ruled out for this tiome period, as the examples presented suggest. Further investigations will be necessary, however, to provide additional proof to this ‚anthropometric paradox'.[45]

VI. Conclusion

Anthropometric and economic history have benefited from each other in the interpretation of living conditions of the last three hundred years. This time window can be extended backwards considerably by means of bone chemical analyses, which allow the reconstruction of past subsistence strategies, patterns of land use, and dietary differentiation directly from the skeletons. With that, a general access to important issues in economic history is provided for prehistoric populations. Data are presented that show the potential of such analyses for both the detection of adaptive small-scale modes of production and differential resource utilization within populations. There is clear evidence that dietary intakes depended on social standing. Thus, analytical approaches to past subsistence patterns provide predictive evidence for a close connection between nutritional and socio-cultural differentials and features of biological well being.

Figure 1: Bone Sr/Ca ratios for twelve early mediaeval locations in different ecological units. High ratios generally correspond to a diet dominated by produce of agricultural farming while low ratios reflect a nutritional basis from subsistence strategies oriented towards livestock and dairy farming. These differences vary systematically with geographical and ecological conditions (see text).

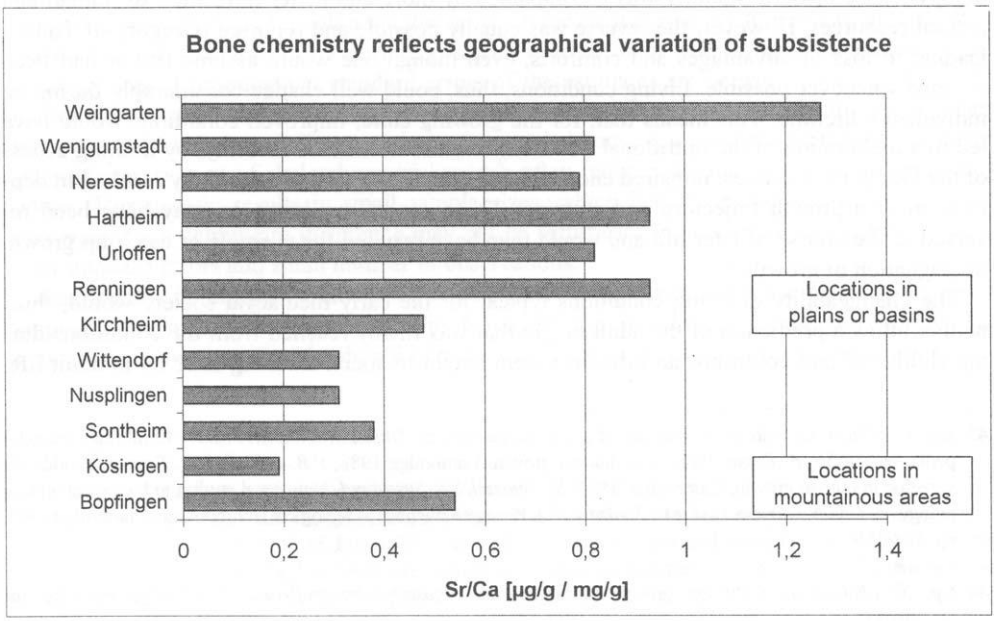


Figure 2: Mean element concentrations of dietary groups (Clusters) in Kirchheim/Teck that reflect intrapopulation differences in the relative amount of available animal protein (see text).

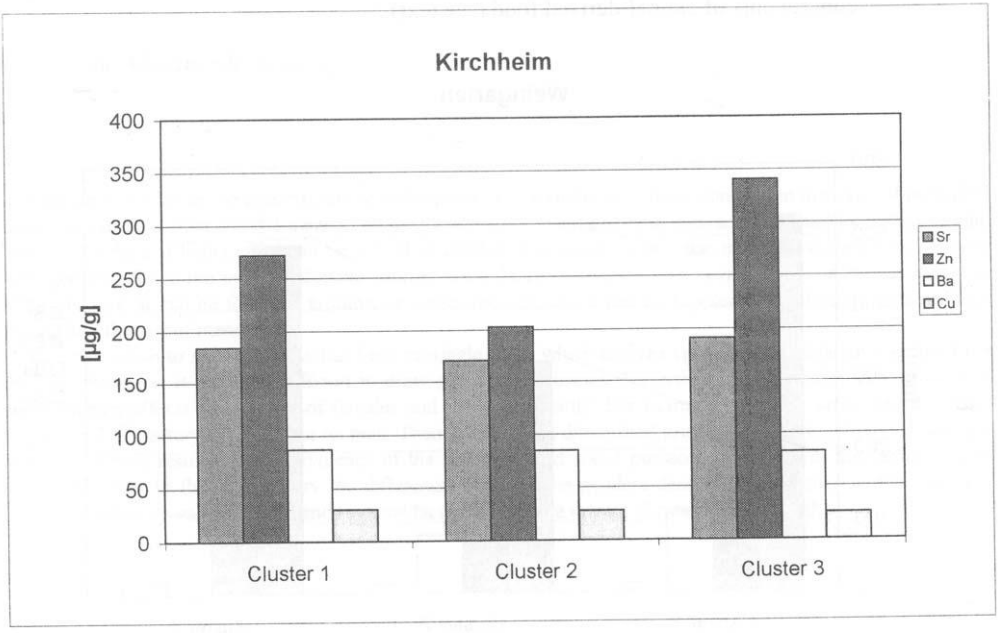


Figure 3: Mean element concentrations of dietary groups (Clusters) among the people of Neresheim show small, but significant differences in the access to produce from dairy farming (see text).

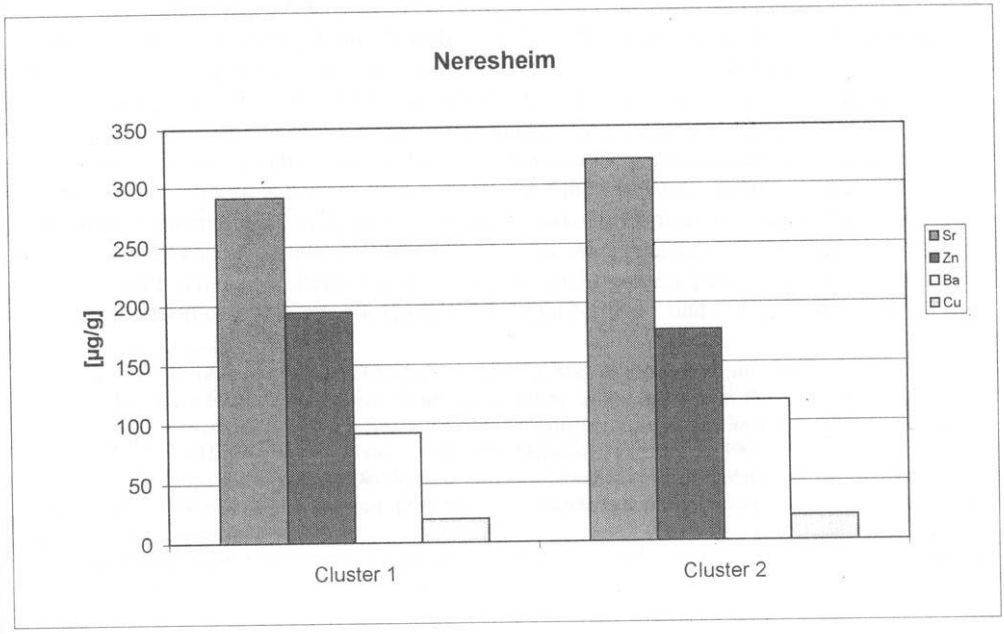
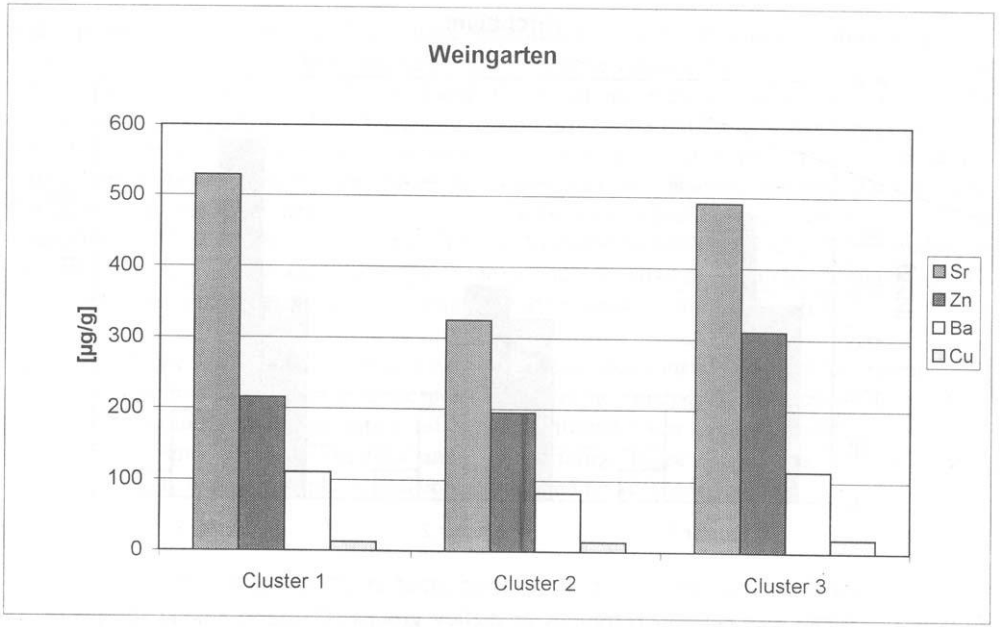


Figure 4: Mean element concentrations of dietary groups (Clusters) in Weingarten. Based on a diet generally dominated by cereal grains and other vegetable items, differences between groups can be detected with respect to the relative amount of all major components of animal-derived food (see text).



Das kleine Geschlecht? — Zur Geschichte der Frauen aus anthropometrischer Sicht. Ein Überblick

Von Editha Marquardt (Leipzig)

Summary

The article summarizes the present state of anthropometric research concerning women. On the basis of published materials can be shown that the mean adult height and other anthropometric data are important indicators to gain into the standard of living of human beings. Most cited studies about women also include a comparison between both genders. Since the most productive sources are military recruitment lists, evidence about female height is relatively rare. It can be found in criminal or slaves records, and it can be supplemented through data on birth weight and the age of menarche.

In the research to date the focus has been on single cases which analyze very different data-sources and time periods; therefore, it has been difficult to draw general conclusions. Nevertheless, the studies may prove that social change affects the welfare of females and males differently. For example economic crisis had a greater impact on 19th century women than on men: Their mean height diminished prior to and more extremely than that of males. These results provide evidence of the economic and social position of females in the family and in society at large. In the 20th century the differences between the genders decreased. Both men and women are equally affected by varying social and regional factors and by the impact of rural or urban birth.

Dass Frauen kleiner sind als Männer, scheint ein allgemein bekanntes und akzeptiertes Phänomen der Genetik zu sein. Doch in den letzten Jahren nimmt nicht nur die Körpergröße allgemein zu, auffällig ist auch die höhere Anzahl größerer Frauen. Sind Frauen tatsächlich das kleinere Geschlecht? Für solche Fragen lassen sich Antworten in der Anthropometrie finden.

Seit Mitte der 70er-Jahre etablierte sich, von den USA ausgehend, die Anthropometrie als eine neue wirtschaftsgeschichtliche Methode. Wegweisend waren hierfür die Studien von Richard Steckel, der die Lebensbedingungen von US-amerikanischen Sklaven untersuchte und als Erster dazu Angaben über die Körpergröße nutzte.[1] Sein Ansatz wurde aufgegriffen und auf weitere Bevölkerungsschichten und andere Epochen und Regionen ausgedehnt. Für die Zeit der Industriellen Revolution in Europa ist besonders die Arbeit von John Komlos zu nennen.[2]

Die anthropometrischen Untersuchungen gehen davon aus, dass die durchschnittliche Körpergröße der Bevölkerung als ein Indikator für das Wohlergehen während der Wachstumsphase, für den biologischen Lebensstandard[3] der Menschen angesehen werden kann, da sie von der in der Wachstumsphase zur Verfügung stehenden Nahrung und der gesundheitlichen Lage

---

* Ich danke John Komlos, Jörg Baten und Michael Hölscher für Kommentare zu diesem Aufsatz.

1 *R.S. Steckel*, Slave Height Profiles from Coastwise Manifests, in: Explorations in Economic History 16, 1990, S. 86-114. Als weiterer grundlegender Beitrag sei hier stellvertretend genannt: *R. Floud/K. Wachter/A.S. Gregory*, Height, Health and History. Nutritional status in the United Kingdom, Cambridge 1990.

2 *J. Komlos*, Nutrition and Economic Development in the Eighteenth-Century Habsburg Monarchy. An anthropometric history, Princeton 1989. (deutsch: Ernährung und wirtschaftliche Entwicklung unter Maria Theresia und Joseph II., St. Katharinen 1994).

3 Der Begriff biologischer Lebensstandard wurde von John Komlos entwickelt und steht dem konventionellen Begriff des Lebensstandards gegenüber, weil hier nicht die Messgrößen Einkommen und Schulbesuch herangezogen werden, sondern das körperliche Befinden, wie es sich in der Körpergröße zeigt, als Maßstab dient. Vgl. dazu *Komlos* 1989.

abhängt. Andere Messdaten können beispielsweise Gewicht oder Geburtsgewicht sein, aber auch das Alter beim Eintreten der Menarche. Es bereitet bekanntermaßen große Schwierigkeiten, den tatsächlichen Lebensstandard anhand von Lohn- und Preisentwicklung zu berechnen und auf dieser Basis einen Vergleich zwischen verschiedenen Ländern und unterschiedlichen Zeiträumen vorzunehmen. Deshalb ist es wünschenswert, weitere Indikatoren zu finden und heranzuziehen. Die Körpergröße, vergleichbar nach Geburtskohorten, scheint ein solcher zu sein. Die Quellenlage ermöglicht umfangreiche Analysen auf diesem Gebiet. Die Ergebnisse der bisherigen Untersuchungen brachten neue Aufschlüsse über historische Prozesse und konnten die Relevanz des Indikators Körpergröße belegen.

Deutlich wurden Fluktuationen der Körpergröße im zeitlichen Verlauf, Unterschiede zwischen Männern und Frauen, Differenzen nach sozialen Schichten, nach Regionen, nach Stadt und Land. Ein nennenswertes Ergebnis anthropometrischer Analysen ist der Nachweis des Sinkens des biologischen Lebensstandards zu Beginn der Industrialisierung: obwohl die Löhne stiegen, ging die durchschnittliche Körpergröße zurück. Auffällig sind weiterhin die signifikanten Unterschiede in der durchschnittlichen Körpergröße von Europäern und US-Amerikanern.

Die Anthropometrie kann nicht nur in der Wirtschaftsgeschichte einen Beitrag leisten. Auch für die geschlechterdifferenzierte historische Forschung werden auf diesem Weg wichtige Ergebnisse erlangt. So können verschiedene Trends für die Körpergrößen der Geschlechter durch statistische Daten festgestellt werden, was wieder einmal zeigt, dass die Geschichte für Männer und Frauen unterschiedlich verläuft. Antworten lassen sich vor allem zu Fragen der Ressourcenverteilung in der Familie finden oder dazu, ob die Einflüsse der Industrialisierung Männer und Frauen in gleicher Weise betrafen. Noch im 19. Jahrhundert starben Frauen im Durchschnitt früher als Männer, erst dann kehrte sich das Verhältnis um.[4] Inwieweit gibt es Zusammenhänge solcher Fakten mit der Veränderung in der Nahrungsaufnahme, feststellbar an der Körpergröße?

Das Ziel dieses Aufsatzes ist es, einige anthropometrische Beiträge zur Frauenforschung vorzustellen und ihre Ergebnisse zu diskutieren. Bisher gibt es einige wegweisende Einzeluntersuchungen; es ist nicht einfach, beim jetzigen Forschungsstand schon umfassende Schlussfolgerungen zu ziehen. Trotzdem soll hier versucht werden, einige allgemeine Aussagen zu treffen.

I. Datenlage

Um sich den obigen Themenkomplexen zu nähern, gibt es verschiedene Ansatzpunkte anthropometrischer Analysen. Zuerst lässt sich feststellen, dass es wenige Untersuchungen speziell zu Frauen gibt. Oft wird nicht einmal darauf verwiesen, dass die aufgezeigten Ergebnisse nur für Männer zutreffen. Das liegt wohl zu einem nicht unbeachtlichen Teil an der Datenlage. In vielen Aufsätzen werden Rekrutenmessungen ausgewertet, die lange Zeiträume umfassende Quellen darstellen, jedoch nur Informationen über die Größe von Männern enthalten und somit nicht repräsentativ für die Gesamtbevölkerung sind. So zeigt sich, dass Daten zur Körpergröße von Frauen schwieriger zu finden sind, da eine der wichtigsten Quellen der Anthropometrie, Rekrutenlisten, hier nicht in Frage kommen.

Als Material für Frauengeschichte können besonders Verzeichnisse weiblicher Sträflinge oder Krimineller dienen. Damit beschränken sich die Ergebnisse aber überwiegend auf die

4 *S. Klasen*, Marriage, Bargaining, and Intrahousehold Resource Allocation. Excess female mortality among adults in rural Germany, 1740-1860, in: Journal of Economic History 58, 1998, S. 432-467.

unteren Schichten, da die Mehrzahl der verurteilten Frauen aus diesen stammen. Eine andere Möglichkeit ist die Auswertung von Passanträgen, in denen die Körpergröße verzeichnet ist, wodurch ein Zugang zu Frauen der Mittelschichten ermöglicht wird.

Für die Ermittlung des biologischen Lebensstandards von Frauen lassen sich neben der Körpergröße noch weitere Daten heranziehen, für die ebenfalls die zur Verfügung stehende Nahrung sowie der Gesundheitszustand ausschlaggebend sind. So kann aus dem Geburtsgewicht von Säuglingen auf den körperlichen Zustand der Mütter geschlossen werden. Ein dritter Faktor ist das Einsetzen der Menarche, da der Zeitpunkt der Geschlechtsreife ebenfalls mit dem Ernährungstand korreliert. Im Folgenden sollen nun verschiedene Arbeiten vorgestellt werden, die diese Methoden nutzen. Ein Übergewicht haben dabei die Analysen der Körpergröße, doch auch die beiden anderen Methoden sollen gezeigt werden.

II. Wichtige Untersuchungen zum Thema Frauen

Der überwiegende Teil der vorliegenden Beiträge zu Frauen kommt aus dem englischsprachigen Raum und geht von der Körpergröße aus. Dabei handelt es sich vor allem um Vergleiche des Lebensstandards von Frauen und Männern während der industriellen Revolution.[5] Ebenso werden in Studien über die nordamerikanischen Sklaven Daten zu Sklavinnen zum Vergleich herangezogen.[6] Eine weitere Untersuchung analysiert Körpergrößen aus der Wahlkartei der Region Pittsburgh/Pennsylvania und nimmt ebenfalls eine Gegenüberstellung von Männern und Frauen vor.[7] Für den deutschsprachigen Raum existieren nur wenige Arbeiten, in denen Körpergrößen von Frauen ausgewertet werden.[8]

Um Aussagen über den Lebensstandard von Frauen in der Zeit der Industrialisierung in England treffen zu können, ziehen *Nicholas* und *Oxley* Daten über englische und irische straffällige Frauen der Geburtsjahrgänge 1795-1820 heran, die nach New South Wales (Australien) verbannt wurden.[9] Aus Vergleichsgründen werden auch Daten über Männer mit aufgenommen, das eigentliche Ziel ist jedoch, etwas über Frauen zu erfahren. Als Datenquellen dienen Verzeichnisse, die „name, age, education, religion, marital status, number of children, place of birth, up to four occupations, crime, place of trial, date, sentence, and prior convictions, as well as height, for each individual" enthalten,[10] ein reichhaltiges Material also. Unter den Verurteilten ist eine Dominanz arbeitender Frauen zu verzeichnen, sodass die Studie vor allem Resultate für diese Schichten erbringt.

Ein erstes Ergebnis ist eine lange Wachstumsperiode der Frauen - im Durchschnitt bis 21 Jahre, während heute durchschnittlich mit 17 Jahren die endgültige Körpergröße erreicht wird. Dieser lange Zeitraum weist auf Ernährungsmängel während des Wachstums hin. Ein ähnlicher Effekt lässt sich auch für die Männer ablesen, daher schließen die Autoren, dass „poor nutrition

---

5 *S. Nicholas/D. Oxley*, The Living Standards of Women During the Industrial Revolution, 1795-1820, in: Economic History Review XLVI/4, 1993, S. 723-749.

6 *R.H. Steckel*, The Health of American Slaves. New evidence and analysis. Prepared for the Social Science History Association Meetings in Chicago, Nov. 16-19, 1995, Manuskript.

7 *J. Wu*, How Severe was the Great Depression? Evidence from the Pittsburgh Region, in: *J. Komlos (Hg.)*, Stature, Living Standards, and Economic Development, Chicago 1994, S. 129-152.

8 Verwiesen werden kann auf Untersuchungen, in denen Daten zu weiblichen Kriminellen in Bayern analysiert werden. Z.B.: *J. Baten/J.E. Murray*, Bastardy on South Germany Revisited. An anthropometric syntheses, in: Journal of Interdisciplinary History XXVIII/1, 1997, S. 47-56.

9 *Nicholas/Oxley*, Living Standards, S. 723-749.

10 Ebenda, S. 725.

and adverse environmental conditions during the growth period were general, affecting males and females, Irish and English, and rural and urban born alike. But the effect was not equal."[11] Ein weiteres Resultat ist das Auftreten regionaler Unterschiede. So waren englische Stadtbewohnerinnen mit durchschnittlich 154,3 cm signifikant kleiner als Frauen vom Land mit 156,6 cm. Bei den Männern lässt sich eine solche Differenz ebenfalls verzeichnen, wobei die Kluft zwischen Landeinwohnern mit 167,5cm gegenüber Männern aus Städten mit 166,2 cm geringer als bei den Frauen war. Für die irischen Frauen kann ein solcher Unterschied nicht nachgewiesen werden.[12]

Bei einer Untersuchung der Körpergröße der verurteilten Frauen nach Geburtsjahrgängen von 1795-1820 lassen sich dieselben regional verschiedenen Effekte erkennen. Die Größe englischer Frauen, besonders auf dem Land, nahm signifikant ab, im Gegensatz zur Größe irischer Frauen, die sich kaum änderte, und englischer Männer, bei denen der Rückgang geringer war als bei den Frauen.[13]

	Körpergröße Geburtsjahr	
	1800	1815
englische Frauen (Land)	156,8 cm	unter 155,0 cm
englische Männer (Land)	167,6 cm	167,0 cm

Daten aus: *Nicholas/Oxley*, Living Standards, S. 736.

Die Verringerung der Körpergröße der englischen Verurteilten insgesamt wird von den Autoren erklärt mit Einflüssen wie Krieg und schlechter Ernte, die sich in den höheren Preisen von Nahrung im Vergleich zu Industriegütern widerspiegelt.[14] Hinzu kamen die Einflüsse der fortschreitenden Industrialisierung. Immer mehr Menschen verließen das Land und zogen in die Stadt, ein Prozess, der als Folge einen erschwerten Zugang zu Nahrungsmitteln sowie die Verschlechterung der Qualität des zu erwerbenden Essens mit sich brachte – ebenfalls ein negativer Einfluss auf das Wachstum, der als besonders wichtig im Zusammenhang mit der fortschreitenden Industrialisierung in England zu bewerten ist.

Doch das eigentliche Problem besteht darin, Erklärungen für die Unterschiede zwischen den Geschlechtern zu finden sowie für regionale Differenzen bei den Frauen. Die Differenz zu Irland lässt sich dadurch begründen, dass im Untersuchungszeitraum die Industrialisierung in Irland nicht so weit fortgeschritten war wie in England, sondern hier noch eine Agrargesellschaft vorlag. Der Zugang zur Nahrung war einfacher, die Lebensbedingungen auf dem Land waren gesünder als in den englischen Städten, wo die Industrialisierung starke negative Auswirkungen auf den körperlichen Zustand der Menschen hatte.[15]

Die ungleiche Entwicklung der Körpergröße von Frauen und Männern ist ein Indikator für die unterschiedliche Ressourcenverteilung innerhalb der Familie, in der der Mann als „Ernährer

11 Ebenda, S. 733.

12 Vgl. Ebenda, S. 733, Tabelle 3, Angaben in Zoll. 1 Zoll entspricht 2,54 cm.

13 Vgl. Ebenda, S. 734, Abb. 2.

14 In den Jahren 1790-1815 gab es eine hohe Zahl sehr schlechter Ernten. Hinzu kamen die negativen Auswirkungen der napoleonischen Kriege auf den englischen Lebensmittelmarkt. *Nicholas/Oxley*, Living Standards, S. 736.

15 Diese Ergebnisse werden auch in anderen Studien bestätigt. Vgl. *P. Johnson/S. Nicholas*, Male and Female Living Standards in England and Wales, 1812-1857. Evidence from criminal height records, in: Economic History Review XLVIII/3, 1995, S. 470-481, hier S. 6 f.

der Familie" im Vordergrund stand. Diese Lage verschärfte sich, wenn die Arbeitsmöglichkeiten für Frauen zurückgingen. „Evidence from developing countries suggests that proto-industrialization and industrialization worsened the economic and social position of women and children, limiting their employment opportunities, restricting the range of jobs open to them, and segmenting them into 'unskilled' work with low pay."[16] Im Zusammenhang mit dieser Entwicklung verschlechterte sich auch innerhalb der Familie die Position der Frauen. Die zunehmende Kluft in der Körpergröße von Männern und Frauen zeugt von dieser wachsenden Ungleichheit. Oxley und Nicholas kommen zu dem Ergebnis, dass der Ausschluss von Frauen aus vielen Bereichen des Arbeitsmarktes, verbunden mit einer Verminderung des Zugangs zu den Nahrungsmittelressourcen innerhalb des Haushaltes, korreliert mit dem relativen Rückgang der Körpergröße von Frauen im Vergleich zu den Körpergrößen von Männern. Da sich die Arbeitsmöglichkeiten auf dem Land stärker verminderten als in der Stadt, fielen die Körpergrößen von Landfrauen relativ zu denen aus den Städten.

Die Ergebnisse dieser Studie zeigen deutlich die Einflüsse der Industrialisierung auf die Körpergröße, die besonders gut in den Unterschieden zwischen der englischen und irischen Entwicklung sichtbar werden. Die in England auftretenden Trends der zunehmenden Differenzierung zwischen Männern und Frauen und des Einflusses der Herkunft aus Stadt oder Land sind Folgen der Industrialisierung. Während in England die Körpergröße insgesamt zurückging, auf dem Land stärker als in der Stadt, bei den Frauen deutlicher als bei den Männern, nahm die Durchschnittsgröße in Irland im Vergleichszeitraum leicht zu, die Herkunft aus urbanem oder ländlichem Umfeld hatte kaum eine Wirkung.

Auch *Johnson* und *Nicholas* werten Daten männlicher und weiblicher Krimineller aus, um Aussagen über den Lebensstandard in England und Wales im 19. Jahrhundert treffen zu können.[17] Dabei beziehen sie sich auf Geburtsjahrgänge von 1812-1857. In den Quellen sind Angaben über Alter, Beruf und Größe enthalten. Das Hauptaugenmerk liegt darauf, allgemeine Aussagen über die Entwicklung des Lebensniveaus in der ersten Hälfte des 19. Jahrhunderts und nicht ausschließlich über Frauen zu treffen.

Es ist davon auszugehen, dass bei der Analyse der Daten Krimineller die Angehörigen der unteren Schichten überproportional vertreten sind, wobei es sich jedoch nicht um gesellschaftliche Außenseiter handelt, da die Mehrzahl wegen geringfügiger Vergehen und erstmalig verurteilt wurden. Die Mehrheit der Kriminellen waren junge Erwachsene, vor allem aus ungelernten Erwerbstätigkeiten.[18]

	Körpergröße		
Männer	167,2 cm (1821/22)	166,5 cm (1828)	164,5 cm (1856)
Frauen	157,0 cm (1816)	155,8 cm (1828)	153,9 cm (1853)

Daten aus: *Johnson/Nicholas*, Male and Female, S. 477.

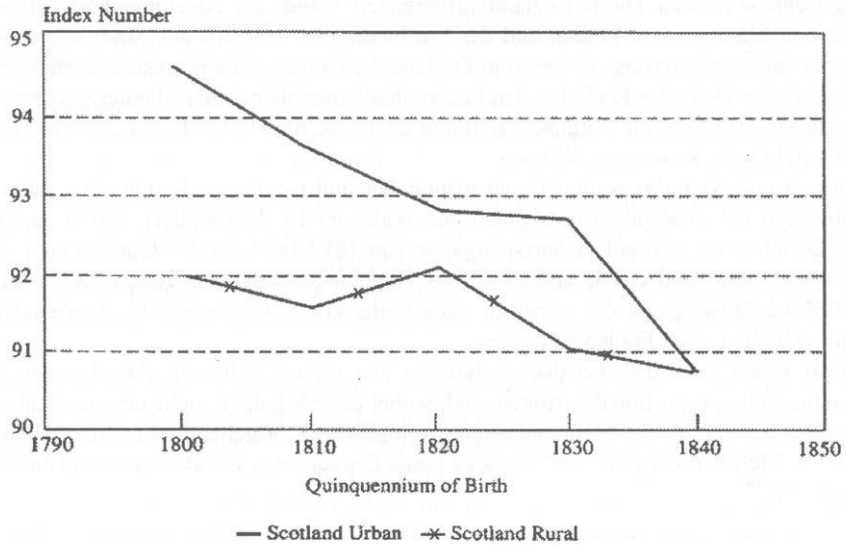
16 *Nicholas/Oxley*, Living Standards, S. 738.
17 *Johnson/Nicholas*, Male and Female, S. 470-481.
18 Ebenda, S. 473.

Bei den in den Jahren nach 1815 geborenen Individuen ist ein Rückgang der durchschnittlichen Körpergröße festzustellen, wobei die Abnahme bei den Frauen leicht stärker ausfiel und etwas eher stattfand. Als Ursache kann ein unterschiedlicher Einfluss von Krankheiten und Arbeit angenommen werden, wobei Frauen von diesen Einwirkungen stärker betroffen scheinen.[19] Auch kann auf einen ungleichen Zugang zu Ressourcen in den Familien geschlossen werden.

Ein wichtiges Ergebnis liegt in der Feststellung, dass der Rückgang der Größe der Kriminellen fast zwei Dekaden eher begann als bei den englischen Rekruten.[20] Weiterhin stellen Nicholas und Johnson einen negativen Einfluss von Fabrikarbeit auf die Körpergröße fest. Die Analyse des Verurteilungsortes - ländlich oder Stadt - zeigt, dass auch ein städtisches Umfeld zu einer Verringerung des Wachstums zu führen scheint.

Eine Untersuchung von Paul Riggs zu schottischen weiblichen und männlichen Kriminellen zeigt die Auswirkung des Wohnortes (Stadt oder Land) auf die Größenverhältnisse (Abb. 1).

Abbildung 1: Stadt-Land-Unterschiede in den Größenverhältnissen in Schottland (Männer und Frauen)



Quelle: *J. Komlos*, Anthropometric History. The Achievements of two Decades of Research, in: *C.-E. Nunez (Hg.)*, Debates and Controversies in Economic History. Proceedings 12th IEHA Congress, Madrid 1998, S. 219-235, hier S. 233.

Einen Vergleich der Entwicklung männlicher und weiblicher Körpergröße in der Region von Pittsburgh zwischen 1890 und 1950 nimmt *Jialu Wu* anhand von Wahlregistrierungskarten vor. Dabei wird eine Auswahl für jede Zeitperiode, für Schwarze und Weiße sowie für beide Geschlechter getroffen.[21] Die Daten sind nach Geburtskohorten, sozialer Schicht und Berufs-

19 Ebenda, S. 478.
20 Ebenda, S. 477.
21 *Wu*, Great Depression, hier S. 133.

gruppen codiert. Diese Arbeit bezieht die Mittelschichten mit ein. Ein Schwerpunkt der Analyse besteht im detaillierten Vergleich von Männern und Frauen.

Insgesamt zeigt die Studie deutlich, dass die durchschnittliche Körpergröße in der Region Pittsburgh in den Jahren 1890-1945 ansteigt, wobei die Durchschnittsgröße der Frauen signifikant langsamer zunimmt als die der Männer. Außerdem werden Unterschiede zwischen Weißen und Farbigen bei beiden Geschlechtern sichtbar. „*From 1890 to 1945, the mean height of white* females increased only half an inch, and for black females, it increased 1 inch, while the mean heights of white males and black males increased 2 inches and 2.13 inches, respectively."[22] Schwarze waren bis zu den Geburtskohorten von 1940 kleiner als Weiße.[23] Bei der Analyse nach dem sozioökonomischen Status zeigt sich, dass die Angehörigen der oberen Schichten im Durchschnitt größer waren als die Mittelschichten, diese wiederum als die unteren Schichten. Das bestätigt sich sowohl für Weiße als auch für Schwarze, für Frauen wie für Männer.

Erhebliche Größenunterschiede ergeben sich auch bei der Untersuchung nach Zugehörigkeit zu Berufsgruppen, und zwar ebenfalls innerhalb beider Geschlechter. In der Reihenfolge der Berufsgruppen gibt es leichte Unterschiede zwischen weißen und schwarzen Frauen. Die Größten unter den weißen Frauen gehörten zu den höheren Büroangestellten, gefolgt von niedrigeren Büroarbeiterinnen, Hausfrauen und Fabrikarbeiterinnen. Bei den schwarzen Frauen waren die Fabrikarbeiterinnen leicht größer als die niedrigeren Büroarbeiterinnen und Hausfrauen.[24]

Für die nach 1946 Geborenen stellt Wu ein Verschwinden der Kluft zwischen Weiß und Schwarz fest, und zwar bei beiden Geschlechtern. Ein auffallendes Ergebnis ist, dass die Gruppe der weniger qualifizierten "white-collar"-Arbeiter im Ranking auf den letzten Platz abrutscht. Der Autor stellt dieses Resultat in einen Zusammenhang mit der Zunahme dieser Gruppe mit relativ geringem Einkommen, der vor allem Frauen angehörten.

Auf die Frage, warum die Körpergröße von Frauen im untersuchten Zeitraum langsamer zunimmt als die von Männern, geht Wu nur kurz ein. Sein Argument ist, dass die Wachstumsphase weiblicher Individuen kürzer ist als die männlicher. Damit haben letztere bessere Voraussetzungen, Krisenjahre auszugleichen. Für eine ausführlichere Interpretation wäre ein Heranziehen weiterer Informationen notwendig.

Ebenfalls Angaben über Kriminelle benutzen *Jörg Baten* und *John E. Murray* in einer Studie zu deutschen Frauen.[25] Im Mittelpunkt stehen Unterschiede der Lebensbedingungen legitim oder illegitim geborener Frauen im Bayern des 19. Jahrhunderts. In den Daten aus dem Gefängnis Wasserburg in der Nähe Münchens sind vor allem Angaben über Frauen der unteren Schichten, Tagelöhnerinnen, Gesinde, Handwerkerfrauen, seltener Bäuerinnen, enthalten. Überrepräsentiert im Vergleich zur Gesamtbevölkerung sind jüngere und allein stehende Frauen. Außerdem ist die Anzahl unehelich Geborener höher als im Durchschnitt der bayrischen Gesellschaft.

Die festgestellten Körpergrößenunterschiede zwischen ehelich und unehelich Geborenen waren vor allem in der ersten Hälfte des 19. Jahrhunderts signifikant; seit Mitte des Jahrhunderts nahm die Kluft zwischen beiden Gruppen dann ab. Bei den in den 1840ern geborenen Frauen ist ein Unterschied von 1,5 cm zu finden, bei der Geburtskohorte der 1850er beträgt die Differenz nur noch 0,7 cm.[26] Daraus lässt sich auf einen veränderten Umgang mit unehelich

22 Ebenda, S. 137.
23 Ebenda.
24 Ebenda, S.143.
25 *Baten/Murray*, Bastardy.
26 Ebenda, S. 53.

geborenen Kindern schließen: „Before mid-century, bastards in the Wasserburg sample underwent more deficiencies in gross nutrition, were exposed to more diseases, or carried more severe workloads than the legitimately born. The lack of significant differences in adult heights after mid-century suggests convergence in the quality of care and feeding received by the two groups of children."[27] Außerdem zeigen sich Differenzen zwischen Stadt und Land, wobei sich in den Städten der Status als uneheliches Kind nicht so stark negativ auswirkte wie in ländlichen Gegenden. Gründe für die Größenunterschiede sehen die Autoren beispielsweise darin, dass unverheiratete Frauen (besonders auf dem Land) bis zur Geburt des Kindes hart arbeiten mussten. Nach der Entbindung kehrten sie bald zur Arbeit zurück, das Kind in der Obhut von Großeltern oder so genannten Pflegeeltern lassend, wobei letztere sich in der Regel nur wenig um die Kinder kümmerten. Die Stadt-Land-Unterschiede werden nicht weiter interpretiert, weisen jedoch wahrscheinlich auf höhere Einkommenserwartungen von weiblichen Nachkommen in der Stadt hin. Als Erklärungsmuster können m.E. auch kulturelle Unterschiede zwischen Stadt und Land in Frage kommen. So ist der Druck auf unverheiratete Mütter in der Stadt auf Grund größerer Anonymität und mehr Unabhängigkeit von der Familie erwartungsgemäß geringer als auf dem Land.

Anthropometrische Untersuchungen zu den Lebensbedingungen von afroamerikanischen Sklaven zeigen ebenfalls interessante Ergebnisse zur Frage des unterschiedlichen Wohlergehens von Männern und Frauen. *Richard H. Steckel* benutzt in seiner Analyse Angaben über die Körpergröße von Sklaven, aus denen sich ebenfalls Unterschiede im Wachstum nach dem Geschlecht ergeben,[28] da offensichtlich Sklavinnen nicht von gleichem ökonomischen Wert wie Männer waren. Auffällig ist zunächst, dass Kinder von Sklaven signifikant kleiner waren als Kinder von Freien, wobei es deutliche regionale Unterschiede gibt.[29] Die geringere Größe lässt nicht zuletzt Vermutungen über den relativ schlechten körperlichen Zustand der Mütter zu. Weiterhin eminent ist, dass die Körpergröße von älteren Jungen und Männern in der Zeit von 1800 bis zur Mitte der 1840er zunahm, während in derselben Zeit die Größe der älteren Mädchen leicht zurückging und die der erwachsenen Frauen relativ stabil blieb.[30] Das Ergebnis gewinnt an Bedeutung vor dem Hintergrund, dass die Zunahme der Körpergröße bei männlichen Sklaven in dieser Periode eine Besonderheit darstellt, ist doch ansonsten in der freien Bevölkerung ein Rückgang der Größe zu verzeichnen. Dieser gegenläufige Trend hängt damit zusammen, dass Sklaven nicht selbst für ihre Ernährung aufkamen, sondern ihre Eigentümer. Die Investition lohnte sich scheinbar deshalb, weil zeitgleich mit den Preisen von Fleisch auch der Wert der männlichen Sklaven stieg, und zwar letzterer wesentlich stärker. Für Sklavenkinder jedoch stellt Steckel einen negativen Bezug zwischen steigenden Preisen von Schweinefleisch und dem Wachstum fest.

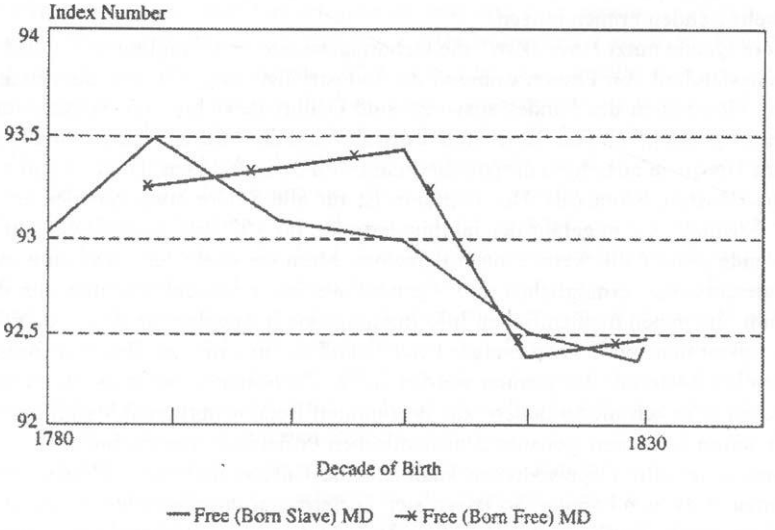
Die Preissteigerung von Fleisch hatte von 1820 bis 1860 einen negativen Einfluss auf die Körpergröße von Sklavinnen, obwohl auch ihr Wert zunahm. „Among adults ... the only price coefficient statistically significant involved the price of pork for females at adolescence. Here, an $8 rise in the price lowered adult stature by 0.56 inches."[31] Inwieweit sich hier ein innerfamiliärer Unterschied beim Zugang zu Nahrungsressourcen niederschlägt, ist noch nicht genauer untersucht worden, das Ergebnis scheint aber einen solchen Unterschied zu bestätigen.

---

27 Ebenda, S. 54.
28 *Steckel*, Health.
29 Ebenda, S. 4. Die Studie beschäftigt sich mit Angaben aus der 1. Hälfte des 19. Jahrhunderts.
30 Ebenda, S. 5.
31 Ebenda, S. 8.

Auch bei der Untersuchung von Sklaven erwies sich also die Nutzung von Angaben über Körpergröße als sehr fruchtbar. Es sind deutliche Unterschiede des Einflusses gesellschaftlicher und ökonomischer Prozesse auf die Lebensumstände und das körperliche Wohlergehen bei Männern und Frauen festzustellen, weshalb sich ebenfalls eine nach Geschlechtern getrennte Analyse lohnt, zumal wir hier einen Bereich haben, in dem es überhaupt langfristige Datenreihen zu Frauen gibt. Diese Ergebnisse konnten von John Komlos bestätigt werden (Abb. 2).

Abbildung 2: Größenverhältnisse freier und unfreier Afroamerikaner (Männer und Frauen) (Bundesstaat Maryland)



Quelle: *J. Komlos*, Anthropometric History. The Achievements of two Decades of Research, in: *Nunez*, Debates and Controversies, S. 233.

Wie bereits erwähnt, gibt es neben dem Analysieren von Körpergrößen auch andere Methoden, um Informationen über das körperliche Wohlergehen von Frauen zu erlangen. So zieht *John Komlos* Daten über den Zeitpunkt der Menarche heran.[32] Ausgehend von der Diskussion um den Einfluss der Ernährung auf die Fruchtbarkeitsraten einer unterernährten Gesellschaft kommt er zu Aussagen über den körperlichen Zustand von Frauen. Er benutzt Daten einer öffentlichen Wiener Frauenklinik vom Beginn des 20. Jahrhunderts. Die Frauen, die hier gebaren, gehörten vor allem den unteren Schichten an, der Großteil der Frauen war als Dienstmädchen beschäftigt. Die Mehrzahl der Kinder kam unehelich zur Welt.[33]

Inwieweit kann uns das Alter der Geschlechtsreife etwas über den Lebensstandard von Frauen sagen? Biologische Untersuchungen haben ergeben, dass der Ernährungszustand ein wichtiger Einflussfaktor für das Alter ist, in welchem die Geschlechtsreife erlangt wird. Während das Durchschnittsalter zur Zeit der Menarche in der Mitte des 19. Jahrhunderts etwa 16

32 *J. Komlos*, The Age at Menarche in Vienna. The relationship between nutrition and fertility, in: Historical Methods 22/4, 1989, S. 158-163.

33 *Komlos*, Age, S. 159.

Jahre betrug, liegt es heute bei unter 13 Jahren in den entwickelten Ländern.[34] Auch nach dem sozioökonomischen Status gibt es Differenzen im Alter der Menarche, beim hier vorliegenden Sample jedoch nur sehr geringe.[35] Außerdem stellt Komlos für den genannten Zeitraum einen positiven Zusammenhang zwischen dem Alter der Geschlechtsreife und dem Alter bei der ersten Geburt fest, d.h. je später die Menarche eintritt, desto später erfolgt im Durchschnitt die Geburt des ersten Kindes. Diese Beziehung hat demografische Konsequenzen. „Because the age at menarche depends on nutritional status, the above relationship indicates that nutritional status could have correlated positively with fertility rates, and therefore with population growth, in a noncontraceptive society."[36] Wenn das Alter der Menarche also auch vom Ernährungsstandard einer Bevölkerungsgruppe abhängig ist, so lassen sich diese Angaben als indirekte Quellen für die Lage der betreffenden Frauen nutzen.

Noch eine andere Quelle nutzt *Peter Ward*: die Geburtsgewichte von Säuglingen.[37] Ward untersucht den Lebensstandard von Frauen während der Industrialisierung. Da sich die Situation der Mutter auf die Gesundheit des Kindes auswirkt, sind Geburtsgewichte von Neugeborenen auch umgekehrt aussagefähig, um vom Gewicht auf den Zustand der Mutter rückzuschließen.

Ward wählt fünf Beispiele aus, drei europäische Städte (Edinburgh, Wien, Dublin) und zwei nordamerikanische (Boston, Montreal). Der Zeitraum ist für alle Städte etwa der gleiche: für die europäischen Beispiele von ungefähr der Jahrhundertmitte bis 1920/30, in den USA nur bis zur Jahrhundertwende. Alle Fälle werden nach derselben Methode analysiert, was eine möglichst große Vergleichbarkeit ermöglichen soll. Genutzt werden Krankenhausdaten aus dem genannten Zeitraum, die neben medizinischen Informationen auch Angaben über die sozioökonomische Zugehörigkeit machen.[38] Trotz einiger Unvollständigkeiten, die die Daten aufweisen, bieten sie doch reiches Material, das genutzt werden sollte. Zu beachten ist, dass die meisten Frauen, die in diesen Kliniken niederkamen, aus bestimmten Personengruppen stammten: die Mehrheit ist den unteren Schichten, genauer dem städtischen Proletariat, zuzurechnen.[39]

Ward zeigt, dass genetische Gegebenheiten kaum für die Unterschiede im Geburtsgewicht verantwortlich gemacht werden können. So lassen sich Differenzen des Gewichts durch sozioökonomische und regionale Einflüsse sowie Schwankungen über den untersuchten Zeitraum ausmachen. Hervorstechend sind auch die großen Ungleichheiten, die sich zwischen Europa und Nordamerika ergeben.

Ein erstes wichtiges Ergebnis ist, dass Notlagen, die die Frauen während ihrer Wachstumsphase erlitten und die sich damit auf ihren eigenen körperlichen Zustand ausgewirkt hatten, nicht ausschlaggebend für Größe und Gewicht des Neugeborenen waren, also nicht weitergegeben wurden. „Women born during the famine [in Ireland, E.M.] delivered infants no different in size from those born before and after the crisis. And their children - the famine's second generation - began life with no sign that they suffered from its imprint."[40]

Einen großen Einfluss auf den körperlichen Zustand der Frauen und damit auf das Geburtsgewicht der Säuglinge haben soziale und ökonomische Faktoren. So wiesen Kinder von

34 Ebenda, S. 158.
35 Ebenda, S. 160.
36 Ebenda, S. 162.
37 *P.W. Ward*, Birth Weight and Economic Growth. Women's living standards in the industrializing west, Chicago 1993.
38 In allen Fällen, außer Montreal, ist beispielsweise der Beruf der Frau angegeben.
39 *Ward*, Birth Weight, S. 110.
40 Ebenda, S. 114.

Hausangestellten sowie von Frauen, die ihrem Beruf nach einen einfacheren Zugang zu Lebensmitteln hatten, ein höheres Geburtsgewicht auf. Neugeborene aus ärmeren Gegenden waren leichter als die aus wohlhabenderen Gebieten.[41] Auch der Ehestand hatte zum Teil einen positiven Einfluss auf das Gewicht. Der wahrscheinliche Grund liegt darin, dass verheiratete Frauen eine größere ökonomische Sicherheit erfuhren als unverheiratete Mütter, durchaus ein Vorteil für die Neugeborenen.[42]

Ward versucht außerdem, einen Zusammenhang zwischen der generellen ökonomischen Entwicklung und dem Gewicht der Neugeborenen herzustellen. Dieser lässt sich nur für die europäischen Beispiele aufzeigen, wobei das Geburtsgewicht der ökonomischen Entwicklung folgt. Das Gewicht sowie die Größe der Neugeborenen variierten signifikant mit dem wirtschaftlichen Zyklus. Das Geburtsgewicht reagierte sehr sensibel auf ökonomische Veränderungen - es ging in Zeiten der Rezession oder langsamen wirtschaftlichen Wachstums zurück und stieg in Perioden der Expansion.[43] Das Geburtsgewicht sollte nun aber nach Ward nicht als fester Indikator der wirtschaftlichen Lage angesehen werden, da noch vielfältige andere Faktoren - z.B. das Auftreten von Krankheiten - das Wachstum beeinflussen können.

Als den wohl wichtigsten Einfluss auf das Gewicht und die Größe von Neugeborenen macht Ward die Ernährung der Frauen aus. Damit können mit diesem Indikator vor allem kurzfristige Entwicklungen verfolgt werden. Bereits bei der Analyse nach dem Beruf der Mütter wurde deutlich, dass die Frauen, die durch ihre Tätigkeit einen leichteren Zugang zu Nahrungsmitteln hatten, einen besseren körperlichen Standard aufweisen konnten. Bestätigung erhält diese These außerdem dadurch, dass das Geburtsgewicht anstieg, wenn die Frauen vor der Entbindung einige Zeit in der Klinik verbrachten - ein Aufenthalt, der verbunden war mit mehr Ruhe, Erholung von schwerer Arbeit und nicht zuletzt mit besserer Ernährung. Dies gilt für Edinburgh und Montreal ebenso wie für Wien, wobei ein Verbleib in der Klinik von zwei bis drei Wochen eine durchschnittliche Zunahme des Gewichts von 52 bis 142 Gramm bewirkte, ein mehr als dreiwöchiger Aufenthalt sogar einen Anstieg bis 172 Gramm.[44]

Auch die Differenzen im Geburtsgewicht zwischen den europäischen und den US-amerikanischen Städten können mit dem Faktor der Ernährung erklärt werden. Die Ernährungslage der Europäer im Untersuchungszeitraum war wesentlich schlechter als die ihrer amerikanischen Zeitgenossen, was sich in den Geburtsgewichten merklich niederschlug. Daraus schließt Ward, dass die amerikanischen Frauen zu dieser Zeit einen höheren Lebensstandard besaßen. Dies rührt zum einen aus der besseren Lage der Arbeiterschicht insgesamt her, zum anderen hängt es aber auch mit einer besseren Stellung der Frau in der Familie zusammen, was sichtbar wird, wenn Geburtsgewicht und -größe mit Angaben über die Körpergröße der Männer in dieser Zeit verglichen werden. In Boston verlief die Entwicklung beider Größen parallel, in Wien scheint die Zunahme der männlichen Körpergröße nicht mit dem Geburtsgewicht zu korrelieren.[45]

In der kurzen Darstellung der Untersuchung Wards wurden konzentriert einige allgemeine Schlussfolgerungen wieder gegeben, was in keiner Weise dem Umfang der sehr detaillierten Studie entspricht. Es sollte gezeigt werden, inwieweit eine Analyse des Geburtsgewichts über

41 Ebenda, S. 115.
42 Ebenda, S. 116. Der Einfluss der Ehe wird für Edinburgh und Boston festgestellt, bei den anderen Fällen kann er nicht nachgewiesen werden.
43 Ebenda, S. 118.
44 Ebenda, S. 120.
45 Ebenda, S. 130.

einen längeren Zeitraum zu wichtigen Resultaten in der Forschung über die Lage von Frauen führen kann und insbesondere regionale Unterschiede deutlich werden lässt.

Die hier dargestellten anthropometrischen Methoden können auch für andere Fragestellungen nutzbar gemacht werden. Ein Beispiel dafür ist ein Aufsatz von *Baten* und *Murray* zu der Frage, ob sich ein Zusammenhang zwischen Körpergröße und Chancen auf dem Heiratsmarkt des vorigen Jahrhunderts nachweisen lässt.[46] Eine solche Annahme kann man aus dem positiven Einfluss der Körpergröße auf die Aussichten auf Arbeit ableiten, da größeren Menschen eine höhere Arbeitsleistung zugetraut wurde. Daraus ließe sich schlussfolgern, dass größere Partner bevorzugt geehelicht wurden, da sie einerseits einen höheren Beitrag zum häuslichen Etat zu liefern, andererseits auch zu Hause mehr zu leisten versprachen.

Für ihre Studie nutzen die Autoren die schon erwähnte bayerische Stichprobe aus dem Wasserburg-Gefängnis.[47] Konstatiert werden kann eine schwache positive Beziehung.[48] Kleinere Frauen hatten danach eine geringere Chance, einen Ehepartner zu finden. Inwieweit der Zusammenhang für die Gesamtbevölkerung repräsentativ ist, bleibt weiteren Untersuchungen vorbehalten.

John E. Murray versucht ebenfalls, mit Hilfe anthropometrischer Methodik neue Erkenntnisse zu einer weiteren Fragestellung zu gewinnen. Er untersucht das Wohlergehen von Frauen und Kindern in der Oneida-Community in den USA,[49] einer religiösen Gemeinschaft, die von 1848 bis 1882 existierte und in der nach radikal neuen gemeinschaftlichen Formen des Zusammenlebens gesucht wurde.

Murray zeigt, dass die Frauen und Kinder der Oneida-Community einen höheren Lebensstandard hatten als die amerikanische Durchschnittsbevölkerung. Frauen aus Oneida waren größer und erreichten im Durchschnitt das Alter der Menarche früher als andere Frauen. Die Neugeborenen hatten ein signifikant höheres Geburtsgewicht. Einfluss auf diese Tatsachen hatte vor allen anderen eine Komponente - nämlich ob die betreffende Frau in der Oneida-Gemeinschaft aufgewachsen war oder nicht, ob sie ihre Schwangerschaft dort verlebte oder nicht.[50] Dabei ist natürlich zu berücksichtigen, dass bereits eine Vorauswahl dadurch stattfand, dass nicht jede Frau in die Gemeinschaft aufgenommen wurde.

III. Zusammenfassung

Insgesamt zeigen die hier versammelten Beiträge anthropometrischer Forschung zur Frauenthematik, dass diese Methode neue und bemerkenswerte Aufschlüsse über die Lage der Frauen in der Gesellschaft und in der Familie erbringen kann. Bisher gibt es Ergebnisse vor allem im Vergleich zwischen verschiedenen Regionen innerhalb Europas oder zwischen Europa und den USA. Oft wird versucht, etwas über Frauen im Vergleich zu Männern zu erfahren. Neben der Körpergröße können auch Daten über den Zeitpunkt der Menarche und das Geburtsgewicht von Säuglingen herangezogen werden, um dem Mangel an geeignetem Datenmaterial abzuhelfen.

---

46 *J. Baten/J.E. Murray*, Women's Stature and Marriage in Preindustrial Bavaria, in: Journal of Family History 23/2, 1998, S. 124-135.

47 Vgl. *Baten/Murray*, Bastardy.

48 Allerdings handelt es sich nur um eine kleine Stichprobe.

49 *J.E. Murray*, A New Anthropometric Look at the Status of Women and Children in Oneida Community, 1848-1881, in *J. Komlos (Hg.)*, The Biological Standard of Living on Three Continents: Further Explorations in Anthropometric History, Boulder/Oxford 1995, S. 105-22.

50 Ebenda, S. 6.

Noch gibt es auf diesem Feld zahlreiche offene Fragen. Bisher sind vor allem Einzelstudien erschienen, die auf verschiedenen Quellen basieren und unterschiedliche Zeiträume und Orte betreffen. Die Ergebnisse der Studien sind manchmal widersprüchlich, nicht immer genau zu interpretieren. Außerdem kann es sich auch als schwierig erweisen, die Resultate zu vergleichen: zu ungleich sind die Datensätze. Die unteren Schichten sind, auf Grund der Datenlage, besser untersucht als die mittleren und oberen.

Trotzdem können bereits einige zusammenfassende Schlussfolgerungen gezogen werden, auch wenn die eine oder andere Studie ihnen scheinbar widersprechen sollte. Zuerst ist festzuhalten, dass gesellschaftliche Prozesse Männer und Frauen in unterschiedlicher Weise betreffen. Von den Ernährungskrisen im 19. Jahrhundert scheinen Frauen stärker betroffen als Männer. Die Körpergröße weiblicher Individuen geht oft stärker und eher zurück als die von Männern. Das lässt einerseits auf die untergeordnete Rolle der Frau in der Familie (der Mann als der Ernährer der Familie erhielt wahrscheinlich einen größeren Anteil an der Nahrung und männlichen Nachkommen stand mehr zu als weiblichen, da von ihnen ein höherer Beitrag zum Familienbudget erwartet wurde), aber andererseits auch in der Gesellschaft schließen, die den Mann in ganz anderer Weise am Arbeitsmarkt beteiligt (höhere Löhne und bessere Chancen, Arbeit zu finden).

Weiterhin bestätigt sich eine Verringerung der Körpergröße zu Beginn der industriellen Revolution auch für Frauen. Im 20. Jahrhundert nimmt dann die durchschnittliche Körpergröße zu, das Alter der Menarche nimmt ab - beide Trends bestätigen die Verbesserung des Ernährungsstandes. Zugleich zeigt sich hier auch eine stärkere Stellung der Frau in der Gesellschaft und in der Familie, die nicht zuletzt durch einen leichteren Zugang zu Nahrungsmitteln gekennzeichntet ist.

Auffällig sind regionale Unterschiede. Was für europäische Frauen zutreffend ist, kann in den USA ganz anders aussehen. Dort scheint die Frau auch im 19. Jahrhundert eine bessere Stellung in der Familie und der Gesellschaft eingenommen zu haben. Innerhalb Europas gibt es ebenfalls Differenzen, die besonders im Vergleich England - Irland deutlich wurden. Hier scheint sich der zeitlich verschobene Einfluss der Industrialisierung niederzuschlagen. Beachtenswert ist ebenso der Kontrast, der durch die Herkunft aus ländlichem oder urbanem Umfeld bedingt wird.

In den Studien wurde auch nach dem Einfluss sozioökonomischer Bedingungen gefragt. Die Zugehörigkeit zu einer bestimmten Schicht oder Berufsgruppe hat eine große Wirkung auf das körperliche Wohlergehen von Frauen, was in den Untersuchungen deutlich gemacht werden konnte.

Um das Bild über die anthropometrische Geschichte der Frauen zu vervollständigen, sind noch viele weitere Analysen notwendig. Die bisherigen Studien lassen einen Rückschluss auf eine ungleiche Ressourcenverteilung in den Familien und eine damit einhergehende Benachteiligung der weiblichen Familienmitglieder in bestimmten Gesellschaften und zu bestimmten Zeiten zu. Jetzt wäre es notwendig zu untersuchen, ob die zunehmende Gleichbehandlung der Geschlechter im 20. Jahrhundert auch zu einem anderen Verhalten in der Nahrungsverteilung geführt hat und sich dieses in der Körpergröße niederschlägt.

Ein weiterer Ansatz wäre es, konkrete historische Situationen des 20. Jahrhunderts auf die Unterschiede zwischen Männern und Frauen hin zu untersuchen. Schlagen sich beispielsweise die Hungersnot im 1. Weltkrieg oder die militärischen Absichten der Nationalsozialisten in einer Bevorzugung der Jungen so weit nieder, dass sich auch in der Entwicklung der Körper-

größe Spuren davon finden lassen? Wünschenswert wäre es auch, die Erforschung des Zusammenhangs von relativer Körpergröße und Mortalität weiter auf Frauen auszudehnen.

So bleibt zu hoffen, dass noch mehr Daten zu diesem Thema gefunden und ausgewertet werden können, um das Bild der anthropometrischen Geschichte der Frauen abzurunden und zu zeigen, ob Frauen immer das kleinere, von Krisen stärker betroffene Geschlecht bleiben werden.

Childhood Mortality & Nutritional Status as Indicators of Standard of Living: Evidence from World War I Recruits in the United States*

By Michael R. Haines (Hamilton, NY) and Richard H. Steckel (Columbus, OH)

I. Introduction

There is now a substantial literature indicating that outcomes are often preferable to inputs as indicators of human welfare and economic progress. For example, the United Nations has proposed the Human Development Index and the World Bank uses Basic Needs Indicators.[1] In this view, outcomes such as expectation of life at birth, the infant mortality rate, literacy, years of schooling completed, and average calorie or protein consumption are complements, or alternatives, to traditional measures of inputs in the utility function such as GDP per capita. More recently, the concept of a biological standard of living has been introduced.[2] This literature looks at such phenomena as terminal adult heights, height for weight, child and adolescent growth paths, and evidence of growth and disease from human remains.[3]

Interesting and important results have arisen from this research program. For instance, it seems that economic growth and development in the antebellum United States was a mixed blessing. Although product per capita was rising robustly over the two to three decades prior to 1860, native-born Americans were becoming shorter.[4] Since data on mortality for this period

---

* Paper originally prepared for the session „Is There a Biological Standard of Living? The Relationship & Interchangeability of Different Indicators for Measuring the Standard of Living" at the annual meetings of the Social Science History Association, Washington, DC, October 16-19, 1997. Michael R. Haines is Banfi Vintners Professor of Economics, Colgate University and Research Associate, National Bureau of Economic Research, Cambridge, MA. Richard H. Steckel is Professor of Economics and Anthropology, The Ohio State University, and Research Associate, National Bureau of Economic Research. This project was funded, in part, by National Institute of Child Health and Human Development (1 RO1 HD-24106).

1 *United Nations*, United Nations Human Development Program, Human Development Report, 1990, New York 1990. D. Morawetz, Twenty-five Years of Economic Development, Baltimore, MD 1977.

2 *R.W. Fogel*, Nutrition and the Decline in Mortality since 1700: Some Preliminary Findings, in: *S.L. Engerman R.E. Gallman (eds.)*, Long-Term Factors in American Economic Growth, Chicago 1986, pp. 439-555. *R.H. Steckel*, Height and Per Capita Income, in: Historical Methods 16 1983, pp. 1-7. *R.H. Steckel*, Stature and Living Standards in the United States, in: *R.E. Gallman/J.J. Wallis (eds.)*, Economic Growth and Standards of Living before the Civil War, Chicago 1992, pp. 265-308. *R.H. Steckel*, Stature and the Standard of Living, in: Journal of Economic Literature 33, 1995, pp. 1903-1940. *J. Komlos (ed.)*, Stature, Living Standards, and Economic Development: Essays in Anthropometric History, Chicago 1994. *J. Komlos*, The Biological Standard of Living in Europe and America, 1700-1900, Aldershot, Eng. 1995. *J. Komlos (ed.)*, The Biological Standard of Living on Three Continents: Further Explorations in Anthropometric History, Boulder, CO 1995. *J. Komlos/J. Baten (eds.)*, The Biological Standard of Living in Comparative Perspective, Stuttgart 1998.

3 For the United States, see *Fogel*, Nutrition and the Decline in Mortality since 1700. *D.L. Costa/R.H. Steckel*, Long-Term Trends in Health, Welfare, and Economic Growth in the United States, in: *R.H Steckel/R. Floud (eds.)*, Health and Welfare during Industrialization, Chicago 1997, pp. 47-89.

4 *J. Komlos*, The Height and Weight of West Point Cadets: Dietary Change in Antebellum America, in: Journal of Economic History 47, 1987, pp. 897-927. *J. Komlos*, Anomalies in Economic History: Toward a Resolution of the 'Antebellum Puzzle', in: Journal of Economic History 56, 1986, pp. 202-214. *M.R. Haines*, Health, Height, Nutrition, and Mortality: Evidence on the 'Antebellum Puzzle' from Union Army Recruits for New York States and the United States, in: *Komlos/Baten*, The Biological Standard of Living, pp. 155-180. *L. Craig/M.R. Haines/T. Weiss*, The Short and the Dead: Agricultural Surpluses, Mortality, and Stature in the Antebellum United States, paper pre-

are sparse, this provides an indication that mortality might actually have been worsening while the economy was growing. The negative externalities from urbanization, substantial immigration from Europe, and the increased circulation of people and commerce within the nation contributed to this pattern. This negative trend in the biological standard of living was apparently not reversed until the late 19th century, around the time that many recruits for World War I were born.[5]

On yet another dimension, part of the increase in labor productivity accompanying modern economic growth is attributable to improvements in human capital, a portion of which, in turn, was due to improved health and reduced morbidity and mortality. While the measurement of health is not easy, some progress has been made. One approach is to use morbidity data from insurance and medical records to assess actual or potential working time lost to sickness.[6] Another possibility is to utilize measures of human growth, such as terminal adult heights, child heights at various ages, and height by weight data, to assess outcomes in terms of physical development. Such information, both aggregated and in micro form, have now been extensively used to study health, nutrition, mortality, and labor productivity in a number of nations and regions from the seventeenth to the twentieth centuries.[7] For the United States the most important findings are the achievement of relatively large adult stature among white males in the British North American colonies by the late eighteenth century (with terminal heights of 172-173 cm, or about 69 inches); a deterioration in terminal heights for native-born white males from about the 1830's to about 1910, when mean heights reached approximately 169 cm (about 66.5 inches); and a rise in stature after about 1910. (See Table 1.) These movements tended to follow swings in the expectation of life with about a 10 to 30 year lag.[8]

---

sented at the Summer Institute of the Development of the American Economy Program, National Bureau of Economic Research, Cambridge, MA., 1997. *B. A'Hearn*, The Antebellum Puzzle Revisited: A New Look at the Physical Stature of Union Army Recruits during the Civil War, in: *Komlos/Baten*, The Biological Standard of Living, pp. 250-267.

5 *Steckel*, Stature and Living Standards in the United States, Figure 6.2.

6 See, for example, *J. Riley*, Sickness, Recovery and Death: A History and Forecast of Ill Health, Iowa City, IA 1989.

7 See, for example, *R.W. Rogel/S.L. Engerman/J. Trussell*, Exploring the Use of Data on Height: The Analysis of Long-Term Trends in Nutrition, Labor Welfare, and Labor Productivity, in: Social Science History 6, 1982, pp. 401-421. *R.W. Fogel/S.L. Engerman/R. Floud/R.A. Margo/K. Sokoloff/R.H. Steckel/J. Trussell/G.C. Villaflor/K.W. Wachter*, Secular Changes in American and British Stature and Nutrition, in: Journal of Interdisciplinary History 14, 1983, pp. 445-481. *Fogel*, Nutrition and the Decline in Mortality since 1700. *R.W. Fogel*, Nutrition and the Decline in Mortality since 1700: Some Additional Preliminary Findings, in: National Bureau of Economic Research. Working Paper No. 1802, 1986. *R.W. Fogel*, New Sources and New Techniques for the Study of Secular Trends in Nutritional Status, Health, Mortality, and the Process of Aging, in: Historical Methods 26, 1993, pp. 5-43. *Komlos*, The Height and Weight of West Point Cadets. *Komlos*, Stature, Living Standards, and Economic Development. *Komlos*, The Biological Standard of Living in Europe and America, 1700-1900. *Komlos*, The Biological Standard of Living on Three Continents. *Komlos*, Anomalies in Economic History. *Komlos/Baten*, The Biological Standard of Living. *R.H. Steckel*, Slave Height Profiles from Coastwise Manifests, in: Explorations in Economic History 16, 1979, pp. 363-380. *R.A. Margo/R.H. Steckel*, The Heights of American Slaves: New Evidence on Slave Nutrition and Health, in: Social Science History 6, 1982, pp. 516-538. *R.A. Margo/R.H. Steckel*, Heights of Native-Born Whites During the Antebellum Period, in: Journal of Economic History 43, 1983, pp. 167-174. *K.L. Sokoloff/G.C. Villaflor*, The Early Achievement of Modern Stature in America, in: Social Science History 6, 1982, pp. 453-481. *R. Floud/K.W. Wachter*, Poverty and Physical Stature: Evidence on the Standard of Living of London Boys 1770-1870, in: Social Science History 6, 1982, pp. 422-452. *R. Floud/K.W. Wachter/A. Gregory*, Height, Health, and History: Nutritional Status in the United Kingdom, 1750-1980, Cambridge, Eng. 1990.

8 See *Fogel*, Nutrition and the Decline in Mortality since 1700, Figure 9.1 and Table 9A.1. *Steckel/Costa*, Long-Term Trends in Health, Welfare, and Economic Growth in the United States.

Data on human growth and development thus constitute an excellent source for the study of health and the state of human capital, as well as the standard of living. In particular, there is evidence that terminal heights are positively correlated with per capita income and negatively correlated with mortality levels.[9] While the mechanisms and links are not fully clarified, there is ample theory to make these links and the statistical evidence is quite suggestive.

The principal sources for such studies have been military recruitment records. Such data have been collected and analyzed for the colonial American muster rolls;[10] American Civil War records for the Union Army;[11] Sweden in the eighteenth and nineteenth centuries;[12] the Habsburg Monarchy in the eighteenth century;[13] a variety of historical populations in the United States,[14] France,[15] Germany,[16] the Netherlands;[17] nineteenth and early twentieth century British military induction records;[18] as well as Australia, Argentina, Japan, Spain, and Greece.[19] The present paper provides additional information on the relationship between physical stature and health using data on inductees into the United States Army during World War I.

II. World War I Recruitment Data for the United States

In preparing a draftee army for entry into the Great War in 1917 and 1918, the U.S. Army Surgeon General's Office provided guidelines for physical measurement and examination of recruits. This was in the long-standing tradition of examining recruits for such information as general health; specific physical defects and diseases; literacy; and height, weight, and other bodily measurements to provide data for uniform and shoe sizes, ration requirements, and marching and weight-carrying capacities. Selected results of the American induction process were published by Davenport and Love for the Surgeon General.[20] Heights and weights (and

9 *Steckel*, Height and Per Capita Income. *Fogel*, Nutrition and the Decline in Mortality since 1700. *Fogel*, New Sources and New Techniques for the Study of Secular Trends in Nutritional Status, Health, Mortality, and the Process of Aging. *Haines*, Health, Height, Nutrition, and Mortality: Evidence on the 'Antebellum Puzzle' from Union Army Recruits for New York States and the United States.

10 *Sokoloff/Villaflor*, The Early Achievement of Modern Stature in America.

11 *Margo/Steckel*, Heights of Native-Born Whites during the Antebellum Period. *Haines*, Health, Height, Nutrition, and Mortality: Evidence on the 'Antebellum Puzzle' from Union Army Recruits for New York States and the United States.

12 *L.G. Sandberg/R.H. Steckel*, Soldier, Soldier, What Made You Grow So Tall? in: Economy and History 23, 1980, pp. 91-105. *L.G. Sandberg/R.H. Steckel*, Heights and Economic History: the Swedish Case, in: Annals of Human Biology 14, 1987, pp. 101-110. *L.G. Sandberg/R.H. Steckel*, Was Industrialization Hazardous to your Health? Not in Sweden! in: *R.H Steckel/R. Floud (eds.)*, Health and Welfare during Industrialization, Chicago 1997, pp. 127-160.

13 *J. Komlos*, Stature and Nutrition in the Habsburg Monarchy: the Standard of Living and Economic Development in the Eighteenth Century, in: American Historical Review 90, 1985, pp. 1149-1161.

14 *Komlos*, Anomalies in Economic History.

15 *D. Weir*, Economic Welfare and Physical Well-Being in France, 1750-1990, in: *R.H Steckel/R. Floud (eds.)*, Health and Welfare during Industrialization, Chicago 1997, pp. 161-200.

16 *S. Twarog*, Heights and Living Standards in Germany, 1850-1939: The Case of Wuerttemberg, in: *R.H Steckel/R. Floud (eds.)*, Health and Welfare during Industrialization, Chicago 1997, pp. 285-331.

17 *J.W. Drukker/V. Tassenaar*, Paradoxes of Modernization and Material Well-Being in the Netherlands in the Nineteenth Century, in: *Steckel/Floud*, Health and Welfare during Industrialization, pp. 331-378.

18 *Floud/Wachter/Gregory*, Height, Health, and History: Nutritional Status in the United Kingdom, 1750-1980.

19 See papers in *Steckel/Floud*, Health and Welfare during Industrilization; and *Komlos/Baten*, The Biological Standard of Living.

20 *C.B. Davenport/A.G. Love*, Statistics: Army Anthropology, Vol. 15, Part 1, Medical Department, U.S. Army, The Medical Department of the United States Army in the World War, Washington, DC 1921. The original micro data of the muster records have not been made available for research.

other measurements) were published for 892,467 of the first million recruits. They had a mean height of 171.4 cm or 67.49 inches. There appears to have been little bias due to minimum height truncation, although there was a minimum height requirement of 61 inches from June, 1917 to February, 1918, which was lowered to 60 inches thereafter. The average weight of the recruits was 141.54 pounds. These figures compare to heights of about 68.1 inches for colonial troops during the American Revolution, about 68 inches for Army volunteers during 1818, and 67.7 inches for native white troops during the American Civil War.[21] From those data, it seems that American soldiers in World War I were recruited at older ages than their Civil War counterparts. The proportion of those under age 20 was 21.8 percent among Civil War volunteers but only 5.4 percent in 1917/18.[22] This obviates somewhat the problem that the terminal age for growth had not yet been reached among many of the World War I recruits.

There were some serious shortcomings in the original data collection, however. For example, race, nativity, age, and occupation were not recorded on the original forms. Subsequently 103,212 recruits were remeasured at demobilization in 1919, when such data were recorded. Most of the information used in this study was from measurement of the first one million recruits, but some has been taken from the sample at demobilization.

Efforts were made to recruit blacks in proportion to their approximate representation in the national population in 1910 (11.4 percent of the total population). Instructions were given to recruitment and draft authorities to enlist one black for each seven whites. Ultimately, about 404,000 blacks served in the army in World War I. Blacks thus constituted about 10 percent of the army.[23] In the demobilization survey of 1919, only 6.2 percent were African-American.[24] Although blacks were underrepresented in the demobilization sample, that sample did show that the heights of black soldiers were virtually identical to those of white soldiers (67.70 inches average for blacks verus 67.71 inches for whites). It is interesting that no difference appeared despite the disadvantaged status of the black population.[25]

We lack the micro data directly to disentangle the effects of variables such as race, nativity, and residence. There exists, however, aggregate evidence on heights and weights, published by state of origin and also for 156 clusters of counties of origin. The latter were intended to be somewhat more homogeneous along economic, climatic, topographic, and ethnic dimensions.[26] To enhance analysis, these anthropometric data have been augmented by census and other information. These include measures of state income for 1900;[27] a variety of demographic data

21 *Sokoloff/Villaflor*, The Early Achievement of Modern Stature in America. *Davenport/Love*, Statistics: Army Anthropology, Table 5.

22 Calculated from *Davenport/Love*, Statistics: Army Anthropology, Table 2. Age was not recorded originally, though it was subsequently sought at mustering out.

23 *G. Astor*, The Right to Fight: A History of African Americans in the Military, Novato, CA 1998, ch. 8.

24 *Davenport/Love*, Statistics: Army Anthropology, p. 117, Table 26. Very few Amerindians, Chinese, or Japanese served.

25 For example, the expectation of life at birth was 54.6 years for the white population versus 43.2 years for the black population, based on indirect estimates from the census of 1910. See *M. Haines*, Estimated Life Tables for the United States, 1850-1910, in: Historical Methods 31, 1998, pp. 149-169. The equality of heights of blacks and whites was likely partly due to the more predominantly rural residence of the black population (83 percent in 1910 verus 51 percent for whites). But there also may have been an element of selectivity – possibly only the most robust of young black men were taken for service.

26 *Davenport/Love*, Statistics: Army Anthropology, Tables 13, 17, 21, 32, 33.

27 *R.A. Easterlin*, State Income Estimates, in: *E.S. Lee/A.R. Miller/C.P. Brainerd/R.A. Easterlin*, Population Redistribution and Economic Growth in the United States, 1870-1950, I, Methodological Considerations and Reference Tables, Philadelphia 1957, pp. 703-759.

from the 1900 and 1910 censuses; number of medical doctors in 1900; and an index of child mortality estimated by indirect techniques and based on nationally representative census samples for 1900 and 1910.[28]

The index of childhood mortality in this paper uses the information on children ever born, children surviving, and the duration of current marriage for adult women recorded in the censuses of 1900 and 1910. However, these questions were not tabulated at the time, and only some results on children ever born from the 1910 manuscripts were used in connection with the 1940 census. The underlying data are from the Integrated Public Use Microsamples (IPUMS) of the original manuscript of the 1900 and 1910 United States Censuses of Population.[29] The 1900 sample comprises 100,438 individuals in 27,069 households of whom 13,429 adult women met the criteria for estimation (i.e., currently married, once married, married less than 25 years, responses on children ever born and children surviving known, and no obvious inconsistencies such as implied age at marriage less than 12 years of age and children surviving greater than children ever born). The 1910 sample contains 366,239 individuals in 88,814 households, of whom 42,075 adult women were the basis for the estimation of the child mortality index for states and for county groups.

The index is the ratio of actual to expected child deaths for individual women or groups of women. Actual child deaths are calculated as the difference between stated children ever born and stated children surviving. Expected child deaths are calculated by multiplying children ever born for each eligible women by the expected child mortality based on a national average of each marriage duration group (0-4, 5-9, 10-14,...30-34). It is a way of comparing actual child mortality to that expected from the national average. The use of marriage duration categories to calculate the index is a means of standardizing for the length of exposure to risk of mortality for the children. The overall totals are close to the national average. That is, the ratio is close to unity for the country as a whole (.9874 for 1900 and .9800 for 1910). It is calculated only for once married, currently married women for whom children ever born, children surviving, and marriage duration were all known. The intuitive interpretation is that ratios above one showed greater than average mortality with ratios below one showing more favorable experience. The mortality index calculated from the 1900 census sample applies to a date on average of about 1894, while that calculated from the 1910 census sample has an average reference date of 1903/04. This would cover the childhood experience of most World War I veterans, 97 percent of whom were below 35 years of age.

III. The Biological Standard of Living in the Early 20TH Century

The information in Table 1 confirms that heights close to modern levels had been achieved already by the time of the American Revolution. But by World War I, mean heights had still not recovered to the levels attained at the time of the Civil War, which were, in turn, still lower than those of a few decades earlier. The recovery in this index of the biological standard of living from the late 19th century was impeded by rapid urbanization and the large influx of foreign born, both of which worsened mortality for a period. It was, on the other hand, assisted by the

28 *S.H. Preston/M.R. Haines*, Fatal Years: Child Mortality in Late Nineteenth Century America, Princeton, NJ 1991, ch. 2. *M.R. Haines/S.H. Preston*, The Use of the Census to Estimate Childhood Mortality: Comparisons from the 1900 and 1910 United States Census Public Use Samples, in: Historical Methods 30, 1997, pp. 77-96.

29 *S. Ruggles/M. Sobek with C.A. Fitch/P.K. Hall/C. Ronnander*, Integrated Public Use Microdata Series, Version 2.0, User's Guide, 1, Minneapolis, MN 1997.

onset of the mortality transition, which commenced overall in the 1870s and was in full swing by the early 20th century.[30]

At the time of the First World War, as heights were increasing again, there was substantial variation in both heights and BMIs across states and smaller geographic units. (See Maps 1 and 2). The tallest recruits were found in Texas at 68.4 inches, while the shortest were from Rhode Island at 66.4 inches. By standards of anthropometry, these are quite substantial differences within a society. The more rural, agrarian character of Texas (24 percent urban in 1910) and its low proportion of foreign-born (6.2 percent) may be contrasted to the heavily urban (91 percent), industrial, and foreign-born (33 percent) population of Rhode Island. There was also a good deal of geographic clustering. The shortest recruits were concentrated in the Northeast, while the tallest were found in parts of the South and West North Central Region (Map 1). In contrast, the most robust young men were, in terms of BMI, found in the Dakotas (with BMIs of about 22.4), while the leanest ones were from the upper South in Kentucky and Tennessee (with BMIs of about 21.3). These BMI values were relatively low by modern standards. For example, Americans in 1959-62 in their 20s had a mean BMI of 24.5.[31] Again, there was considerable geographic concentration, with the most robust recruits coming from the West and upper Midwest and the leanest originating in the South.

Several questions can be investigated with these data. Did differences across space in the terminal heights or in height for weight (as measured by the BMI) for 1917-18 predict differences for the same geographic units in infant and child mortality 15 to 25 years before? Holding several other variables constant, how much of the variation in terminal heights (or height for weight) across states and county groups can be explained by income differences, by urban conditions, and by ethnic composition? Or, reversing the original question, did childhood health conditions for this cohort of military recruits (proxied by the child mortality index of 10-25 years prior) predict the terminal heights or the height for weight achieved as young adults?

Table 2 provides an analysis of the 48 states of the contiguous United States plus the District of Columbia.[32] Table 3 does the same for the county groups for which mean heights and weights were reported by Davenport and Love.[33] Both tables present means, standard deviations, zero-order correlations, and ordinary least squares regressions with the child mortality index, mean heights, and mean BMI being in turn the dependent variables. The independent variables include the proportions of each geographic unit urban (in incorporated areas of 2,500 or more), black, foreign born, and illiterate (among the population aged 10 and over); medical doctors per 10,000 population (for 1900 for states); persons per dwelling and family; earnings per worker and income per capita (both for 1900); dummy variables for region of residence; the mortality index; and average heights, weights, and BMIs.[34]

An underlying assumption is that the place of recruitment is a good proxy for conditions experienced in childhood. That is clearly not true for everyone, especially the foreign-born

30 *M.R. Haines*, The American Population, 1790-1920, in: *S.L. Engerman/R.E. Gallman*, The Cambridge Economic History of the United States, II, New York forthcoming.

31 *Costa/Steckel*, Long-Term Trends in Health, Welfare, and Economic Growth in the United States, Table 2.1. The BMI is the body mass index. It is calculated as kilograms (of weight) per squared meter of height.

32 Oklahoma (1908), New Mexico (1912), and Arizona (1912) became states during the period considered here and are included in the analysis.

33 *Davenport/Love*, Statistics: Army Anthropology, pp. 80-103.

34 The BMI was chosen as the single anthropometric index in the mortality index regressions because it combines both height and weight.

recruits who were likely to have migrated at older ages. American society was also notable for its geographic mobility.[35] Nonetheless, most of the recruits were native born and were young men who had probably not gone far from their area of origin.[36]

What of the results? First, it appears that much of the variation (between 28 percent and 82 percent) in child mortality, stature, and BMI across states and county groups can be explained by the right hand side variables in the models. The independent variables were generally much more successful in accounting for variation in stature and BMI than for variation in the child mortality index. Adjusted R^2 values ranged from .66 to .81 in Tables 2 and 3 for the anthropometric models, but were much less for the mortality models. The relationship of childhood mortality to the anthropometric measures for both the correlations and the regressions was in the expected direction and often statistically significant. That is, the higher was the mortality in prior decades in the recruitment area, the shorter were the recruits, who also had lower BMIs. Similarly, areas where those recruits with lower indices of the biological standard of living resided had higher childhood mortality at an earlier point in time. This suggests that anthropometric measures might constitute reasonable predictors of prior mortality conditions, useful when mortality data are lacking.

It is somewhat puzzling that the regressions performed poorly for the child mortality index.[37] The results suggest that heights and the mortality index measure somewhat different aspects of health. Many people who are malnourished and subjected to a harsher childhood disease environment may survive, but at a shorter stature. Mortality is thus an extreme manifestation of poor health, whereas average height (and BMI) capture some deprivation that does not end up in death. Alternatively, in this era some numbers of deaths occurred from diseases that were not very nutrition sensitive. Although the interaction between nutrition and specific diseases is complex and not always well understood, some diseases have been identified as nutritionally sensitive.[38] If we take such diseases and relate them to the causes of death reported for persons aged 0-14 in the American Death Registration Area of 1900, we find that 48 percent of the causes could be classified as nutritionally sensitive, 15 percent as ambiguously or variably sen-

---

35 *H. Kaelble*, Historical Research on Social Mobility, New York 1981.

36 Precise data on nativity were not furnished by Davenport and Love, but it appears that a very large proportion of the recruits were native-born. Of the 103,212 recruits remeasured at demobilization in 1919, 28,595 (27.7 percent) were of foreign stock from eight major ethnic groups (English, Scottish, Irish, German, French, Polish, Italian, Jewish). This included both foreign-born recruits and native-born recruits of foreign or mixed parentage. Those from English Canada, Australia, and New Zealand were classed as English, and those from French Canada and francophone Switzerland were classed as French. German-speaking Swiss were classed as Germans. In 1910, these groups constituted about 71 percent of all foreign-born whites. Foreign-born whites were 41 percent of the foreign white stock (the foreign born plus those of foreign or mixed parentage). This translates to about 16,500 estimated foreign-born, or about 16 percent of all recruits. This is a likely overestimate, since the original 28,595 included some who had only foreign-born grandparents and were not first or second generation immigrants. See *Davenport/Love*, Statistics: Army Anthropology, pp. 60-62, Table 24. *U.S. Bureau of the Census*, Thirteenth Census of the United States: 1910. Abstract of the Census, ch. 6.

37 It is unlikely that this is due to the construction of the child mortality index itself. The index relies on information from the census records for individual adult women. There is no linking of data. The index has been tested against other mortality estimates based on published census and vital statistics information and found to perform quite well. See *Haines/Preston*, The Use of the Census to Estimate Childhood Mortality.

38 *R.I. Rotberg/T.K. Rabb (eds.)*, Hunger and History: The Impact of Changing Food Production and Consumption Patterns of Society, New York 1985, p. 308. See also *M. Livi-Bacci*, Population and Nutrition: An Essay on European Demographic History, New York 1991, pp. 36-39.

sitive, and 37 percent as not sensitive.[39] Thus, a third to a half of deaths at young ages were related to causes not sensitive to early childhood nutrition – a major determinant of adult height.

Urbanization had a negative effect on the biological standard of living, even during this period of rapid mortality transition when the urban mortality penalty was being eliminated. The regression coefficients had the expected signs: positive in the mortality models for 1900 and negative in the stature and BMI equations. Interestingly, the simple correlations had the opposite signs, indicating the value of multivariate analysis here. In the mortality equations, the effect diminished over time, as seen by comparing the coefficients using the 1900 versus the 1910 census data. In the case of both the state and county group data, the urbanization coefficient remained positive (the expected sign) but diminished in size. It became statistically insignificant in the 1910 state mortality model. The proportion of the population black and foreign born (expected to be associated with poorer outcomes) did not show a consistent relationship to mortality, or to stature in the state models, once other variables had been controlled. The simple zero-order correlations were more consistent.

The proportion black was omitted from the anthropometric models for reasons already noted - there was no perceptible difference in heights between black and white recruits.[40] In the mortality equations, a higher proportion black led to the unexpected result of *lower* child mortality in three of the four equations (state and county group, mortality index of 1900 and 1910). That may have been due to the healthier conditions in rural areas, which were not captured in the urban variable. (In 1900, approximately 80 percent of the black population was rural.) The proportions foreign born in the mortality equations were uniformly statistically insignificant, although negative in sign in three of four cases. This is also unexpected. The results for the proportions foreign born in the anthropometric models were a bit more consistent. The variable was strongly positively associated with BMI (rather surprising) and negatively correlated with stature in two of three instances. In the county group models, the proportion foreign born was statistically significant for both height and BMI, while the coefficients were significant in the state models only for BMI. The positive relationship of the proportion foreign born to BMI is especially puzzling, since this variable showed a strong negative association with height. A possible explanation is that poor disease and nutritional conditions in the overseas areas of birth and childhood permanently stunted these migrants, but that the recruits were able to gain a good deal of weight once they had the opportunity to consume the American diet, relatively abundant in calories and protein from dairy products and meat. Since BMI is more an indicator of later life health, this would seem plausible.

When the proportion of the population aged 10 and over who were illiterate was included as an explanatory variable in both the state and county group mortality models, it seemed to be a good proxy for disadvantaged status. This variable, however, suffered from problems of multicollinearity. Consequently, it was omitted from the 1900 state anthropometric models. The variables persons per dwelling and persons per family, taken as indices of crowding, did not perform well. Persons per dwelling was really a proxy for urbanization, and hence was dropped from all the models. Persons per family did not perform well in the anthropometric models and also suffered from collinearity problems. For childhood mortality, it actually predicted lower levels, the opposite of the one expected. Medical doctors per 10,000 population, a possible index of medical care, only showed a statistically significant (positive) regression relationship

39 Calculated from *U.S. Bureau of the Census*, Twelfth Census of the United States: 1900, Vital Statistics, Part II, Statistics of Death, Washington, DC 1902, Table 8.

40 Blacks were, however, somewhat heavier on average by about five pounds.

to heights for states. The income variable (earnings per worker) had the correct sign (negative for mortality and positive for heights and BMI for the state data in Table 2) but was never statistically significant.

Importantly, regional variation was influential independent of the other variables for the case of stature and the BMI, but not for mortality. Thus, many of the regional effects had not been captured by the explanatory variables in the models for the anthropometric indices. Both Tables 2 and 3 report the adjusted R^2 values for a specification which only included the regional dummy variables. For states using the 1900 data, just knowing region alone could explain 69 percent in the variation in height and 48 percent of the variation in BMI, compared with 81 percent and 72 percent respectively when the other variables were included. The results were similar for the 1910 state data. For the county groups, just knowing region of recruitment could account for 62 percent of variation in stature and 44 percent of variation in the BMI, in contrast to 79 percent and 66 percent respectively for the full models. This confirms the geographic concentration of height and BMI seen in Maps 1 and 2. Regional differences in stature in 1917/18 were rather considerable: about five centimeters or two inches across states and county groups. The regional dummy variables actually do a reasonably good job of accounting for height, though the magnitudes of the coefficients do not give such a large effect as two inches.

For mortality, in contrast, region alone explained only 13-18 percent of variation across states, as opposed to 50-60 percent when socioeconomic variables were added. For county groups, the contrast was 4-15 percent for region alone and 28-51 percent for all variables. Clearly, the mortality pattern was more geographically heterogeneous in this period. This was a likely consequence of the uneven pattern of the mortality transition, well underway by the first decade of the 20th century. Map 3, which portrays the child mortality index by states for 1910, shows some limited clustering but considerable regional heterogeneity.

IV. Discussion

What then have we learned from this exercise? First, this paper has examined the relationship between anthropometric indicators of health and mortality, which helps to explain what an inch of height means to social scientists. This is an agenda which has been pursued for two decades in the anthropometric literature – comparing average heights with other social indicators such as per capita income and mortality rates.[41] In the present instance, across states a one point (about 1 percent) reduction in childhood mortality index around 1895 would have resulted in a .27 inch increase in stature. For childhood mortality centered around 1903/1904, the increase in height would have been about .55 inch. For the county group data and the 1910 mortality index, the height increase would have been around .29 inch. These are substantial effects.

Second, measurement of regional differences in health in the United States has not been historically abundant.[42] While we have regional income estimates after 1840,[43] we do not have as them on health. Maps 1 and 2 show substantial regional clustering both height and BMI. The shortest recruits came from the Northeast and eastern Midwest and the tallest from the western South, part of the Mountain region, and the upper Midwest. In contrast, the least robust recruits

41 *Steckel*, Stature and the Standard of Living, passim.

42 See *Preston/Haines*, ch. 1.

43 *Easterlin*, State Income Estimates. *R.A. Easterlin*, Interregional Differences in Per Capita Income, Population, and Total Income, 1840-1950, in: Trends in the American Economy in the Nineteenth Century, Princeton, NJ 1960, pp. 73-140.

(measured by BMI) originated in the South and the most robust in the Northeast, upper Midwest, and far West.

It appears that large health differentials did exist in the United States early in the 20th century, especially when using height as an indicator. Stature differences were relatively large by modern standards – a range of two inches between Texas and Rhode Island. The childhood mortality index also showed very large variation across states – from .57 in Vermont to 1.9 in New Mexico in 1910, although rather different aspects of health experience were being measured.

Socioeconomic factors do provide clues to the sources of these regional health differences. An analysis of variance explained is illustrative. For states in 1900, the adjusted R^2 value for the socioeconomic variables without regional dummy variables was .501 when predicting the mortality index. It was .039 when only regional dummies were the explanatory variables and .505 when all variables were included. The result for states in 1910 was quite similar. For county groups, the adjusted R^2 value was .471 in predicting the 1910 mortality index with only the socioeconomic variables included in the model, but it was .176 for regional dummies alone and .51 for all variables included. Clearly, the socioeconomic factors accounted for much more of the observed variation in childhood mortality than regions alone. The results for height were quite different. Socioeconomic variables alone explained .659 of the variation in heights for states in 1900, while the regional dummies accounted for .69. Both sets of variables together gave an adjusted R^2 of .806. For county groups the results were .49 for socioeconomic variables, .622 for regional dummy variables, and .793 for all variables. The analysis for BMI was similar to that for height. This suggests that regional clustering of anthropometric measures of health was significant in the early 20th century, but that childhood mortality was more spatially diffuse. This is consistent with the contention that public health improvements could affect mortality much more quickly than nutrition and generalized standard of living, the latter being more likely to affect stature.[44] Socioeconomic variables explain relatively well the spatial differences in all cases. Urbanization tended to be one of the main factors increasing mortality and leading to shorter stature. Adult illiteracy, an index of lack of socioeconomic advancement, had a strong effect in raising childhood mortality. Mortality itself 13-24 years prior to World War I predicted shorter heights and (for states) lower BMI. Also, recruit heights for states and county groups in 1917/18 was able significantly to predict childhood mortality in 1910.

In general, then, even with substantial international and internal migration and other confounding factors, it appears that height and height for weight are reasonable social indicators and can assist in evaluating the state of health and the biological standard of living within the United States in the early twentieth century. This is a particularly important period, because the mortality transition was fully underway. Even during the critical period 1890-1920, however, urbanization continued to exhibit a strong effect on both childhood mortality and stature in the expected directions. In other words, the „urban penalty" had not yet been eliminated.

Mortality itself, particularly infant and childhood mortality, is an excellent social indicators; but we lack complete mortality information on mortality conditions around 1900, since national coverage by vital registration (of births and deaths) was not complete until 1933. The census-based indirect estimates (the child mortality index) used here are good substitutes, but they are based on samples and must be extended to adult mortality. Anthropometric measures can supplement that information.

---

44 *S.R. Johannson*, Food for Thought: Rhetoric and Reality in Modern Mortality History, in: Historical Methods 27, 1994, pp. 101-125.

Substantial variation in both mortality and anthropometric outcomes was characteristic of the era. It seems that childhood health conditions can provide reasonable predictions of stature and height for weight in adulthood. More importantly, there is a case to be made for using auxological data for backcasting mortality predictions, especially valuable for time periods and locations lacking good mortality data but having information on anthropometry. Most of the 19th century has inadequate statistical information. The results in this paper confirm that the urban mortality penalty, which had only begun to diminish substantially by the late 19th century, was still influencing health conditions in the early 20th century. The shortest recruits came from the most urbanized and industrialized states and counties in the northeastern United States. The most robust recruits came from the western upper Midwest and the West, while the leanest originated in the South. These are results undoubtedly related to the epidemiological, health, dietary, and general living conditions prevailing in those regions.

Table 1: Heights of Native-Born White Males. United States, 1755-1944

Dates of Measurement	Age	Sample Size	Mean (cm)
1755-63(a)	24-35	767	172.0
1755-63(b)	21-30	885	172.2
1775-83	24-35	968	172.9
1861-65	25-30	123,472	173.2
1917-18	21-30	868,445	171.4
1943-44	20-24	119,443	173.2

Source: Reproduced from *R.H. Steckel*, "Stature and Living Standards", Table 6.7. 1755-1763(a) and 1775-1783: *K.L. Sokoloff/G.C. Villaflor*, The Early Achievement of Modern Stature in America, in: Social Science History 6, 1982, pp. 453-481. 1755-1763(b): *A.T. Steegmann, Jr./P.A. Haseley*, Stature Variation in the British American Colonies: French and Indian War Records, 1755-1763, in: American Journal of Physical Anthropology 75, 1988, pp. 413-421. 1861-1865: *B.A. Gould*, Investigations in the Military and Anthropological Statistics of American Soldiers, Cambridge, MA 1869. 1917-1918: *C.B. Davenport/A.G. Love*, Statistics: Army Anthropology, Vol. 15, Part 1, Medical Department, U.S. Army, The Medical Department of the United States Army in the World War, Washington, DC 1921. 1943-1944: *B.D. Karpinos*, Height and Weight of Selective Service Registrants Processed for Military Service during World War II, in: Human Biology 30, 1958, pp. 292-321.

Table 2: Relationship of Child Mortality ca 1904 & 1895, and the Physical Characteristics of World War I Recruits, 1917/18. United States. State Level Data.

VARIABLE	MEAN	STAND. ERROR	CORRELATION	COEFF.	SIGNI.	MEAN	STAND. ERROR	CORRELATION	COEFF.	SIGNI.
DEPENDENT VARIABLE			CHILD MORTALITY INDEX: 1900					CHILD MORTALITY INDEX: 1910		
Constant				2.126	—				15.406	**
Proportion Urban	0.335	0.227	0.148	0.267	—	0.389	0.225	-0.048	0.063	—
Proportion Black	0.116	0.175	0.337	0.041	—	0.110	0.164	0.332	-0.967	***
Proportion Foreign born	0.138	0.101	-0.162	0.779	—	0.139	0.100	-0.207	-0.280	—
MD's per 10,000 pop	168.406	51.292	0.083	0.000	—					
Propor Adults Illiterate	0.124	0.111	0.502	1.418	***	0.083	0.073	0.646	3.104	***
Persons per Dwelling	5.055	0.555	0.002			4.980	0.704	0.121		
Persons per Family	4.649	0.313	-0.305	-0.426	**	4.512	0.290	0.038	-0.062	—
Mean height (in)	67.677	0.511	-0.250	0.007	—	67.677	0.511	-0.220	-0.209	**
Mean weight (lbs)	142.003	2.540	-0.555			142.003	2.540	-0.580		
Body Mass Index	21.798	0.321	-0.416			21.798	0.321	-0.478		
Earnings per worker, 1900	285.735	100.414	-0.158	-0.000	—	285.735	100.414	-0.190	-0.000	—
Income per capita, 1900	123.796	52.580	-0.070			123.796	52.580	-0.167		
Region										
Northeast	0.184		0.196	0.027	—	0.184		0.066	-0.231	—
North Central	0.245		-0.434	-0.064	—	0.245		-0.476	-0.175	—
South Atlantic	0.184		0.114	0.152	—	0.184		0.237	-0.010	—
South Central	0.163		0.162	0.194	—	0.163		0.157	-0.030	—
West	0.224		0.016	NI		0.224		0.069	NI	
N				49					49	
Adjusted R-squared				0.505					0.605	
F-ratio				5.07	***				7.68	***
Adjusted R-squared: Regions only				0.134					0.176	
DEPENDENT VARIABLE:			HEIGHT, 1917/18 (1900 State Data)					HEIGHT, 1917/18 (1910 State Data)		
Constant				68.136	***				68.066	***
Proportion Urban	0.335	0.227	-0.723	-1.151	***	0.389	0.225	-0.698	-0.667	***
Proportion Black	0.116	0.175	0.226			0.110	0.164	0.234		
Proportion Foreign born	0.138	0.101	-0.415	0.258	—	0.139	0.100	-0.521	-1.121	—
MD's per 10,000 pop	168.406	51.292	-0.052	0.002	***					
Propor Adults Illiterate	0.124	0.111	0.220			0.083	0.073	0.165	-0.176	—
Persons per Dwelling	5.055	0.555	0.488			4.980	0.704	-0.599		
Persons per Family	4.649	0.313	0.293			4.512	0.290	0.142	0.194	—
Mortality Index: 1910						0.947	0.223	-0.220	-0.557	**
Mortality Index: 1900	1.029	0.253	-0.250	-0.274	*					
Earnings per worker	285.735	100.414	0.038	0.000	—	285.735	100.414	0.038	0.000	—
Income per capita	123.796	52.580	-0.152			123.796	52.580	-0.152		
Region										
Northeast	0.184		-0.796	-0.749	***	0.184		-0.796	-0.864	***
North Central	0.245		0.143	-0.152	—	0.245		0.143	-0.288	—
South Atlantic	0.184		-0.017	-0.156	—	0.184		-0.017	-0.443	*
South Central	0.163		0.397	0.115	—	0.163		0.397	-0.110	—
West	0.224		0.255	NI		0.224		0.255	NI	
N				49					49	
Adjusted R-squared				0.806					0.812	
F-ratio				23.17	***				21.75	***
Adjusted R-squared: Regions only				0.690					0.690	

Table 2 continued

DEPENDENT VARIABLE:	BODY MASS INDEX, 1917/18 (1900 State Data)					BODY MASS INDEX, 1917/18 (1910 State Data)				
Constant				21.559	***				21.662	***
Proportion Urban	0.335	0.227	0.237	-0.162	—	0.389	0.225	0.275	-0.376	*
Proportion Black	0.116	0.175	-0.595			0.110	0.164	-0.595		
Proportion Foreign born	0.138	0.101	0.801	1.971	***	0.139	0.100	0.757	2.383	***
MD's per 10,000 pop	168.406	51.292	-0.012	0.000	—					
Propor Adults Illiterate	0.124	0.111	-0.632			0.083	0.073	-0.632	-0.326	—
Persons per Dwelling	5.055	0.555	-0.032			4.980	0.704	0.045		
Persons per Family	4.649	0.313	-0.309			4.512	0.290	-0.272	0.025	—
Mortality Index: 1910						0.947	0.223	-0.478	-0.324	*
Mortality Index: 1900	1.029	0.253	-0.416	-0.276	**					
Earnings per worker	285.735	100.414	0.604	0.001	—	285.735	100.414	0.604	0.000	—
Income per capita	123.796	52.580	0.654			123.796	52.580	0.654		
Region										
Northeast	0.184		0.214	0.142	—	0.184		0.214	0.039	—
North Central	0.245		0.386	0.158	—	0.245		0.359	0.114	—
South Atlantic	0.184		-0.330	0.164	—	0.184		-0.330	0.139	—
South Central	0.163		-0.551	-0.014	—	0.163		-0.559	-0.057	—
West	0.224		0.233	NI		0.224		0.233	NI	
N				49					49	
Adjusted R-squared				0.719					0.710	
F-ratio				14.66	***				12.73	***
Adjusted R-squared: Regions only				0.484					0.484	

SOURCE: See text.

— = not significant at least at a 10% level.
*** = significant at a 1% level.
** = significant at a 5% level.
* = significant at a 10% level.

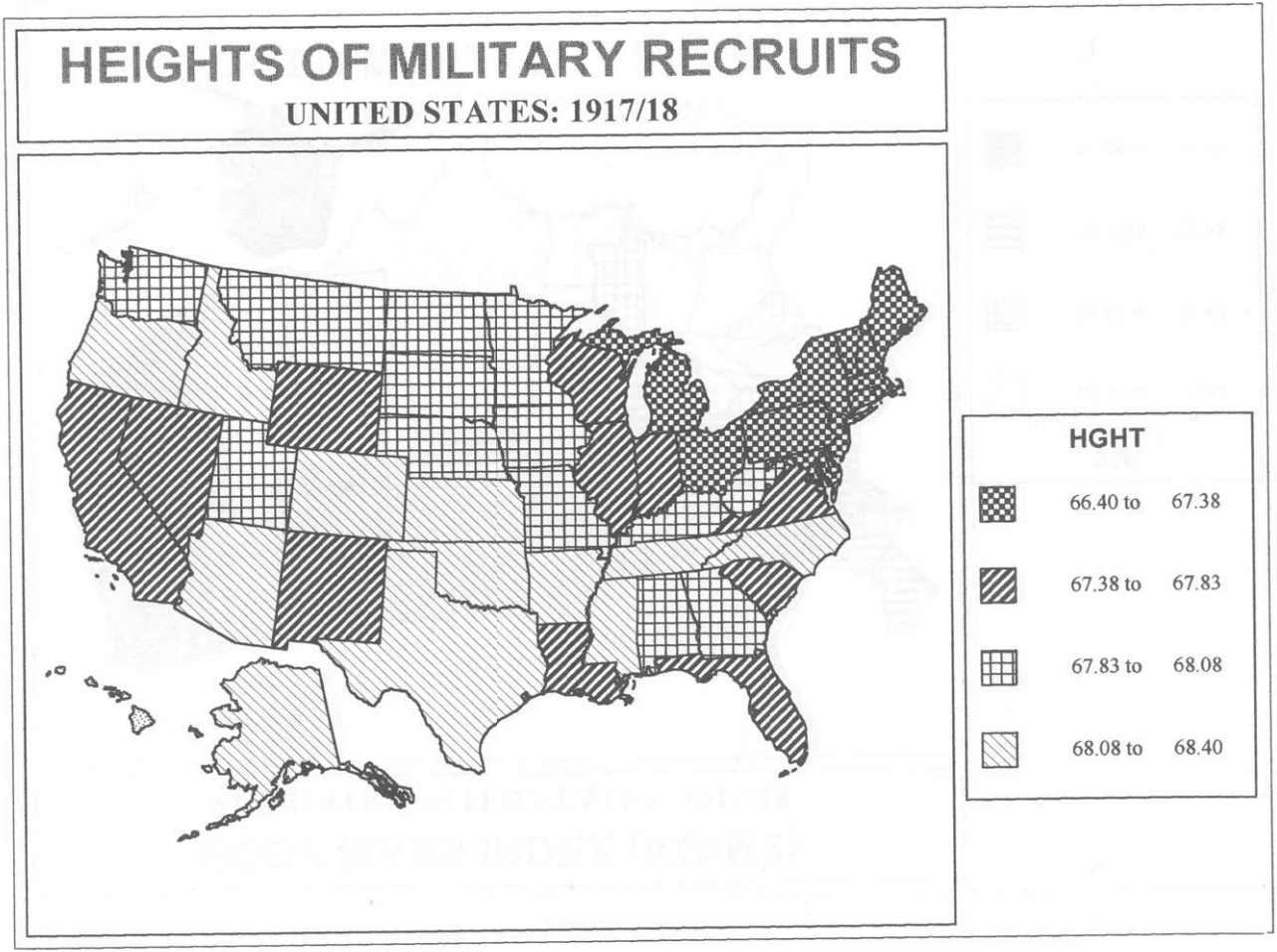
Table 3: Relationship of Child Mortality ca 1904 & 1895, and the Physical Characteristics of World War I Recruits, 1917/18. United States. Country Groups.

VARIABLE	MEAN	STAND. ERROR	CORRELATION	COEFF.	SIGNI.	CORRELATION	COEFF.	SIGNI.
DEPENDENT VARIABLE			CHILD MORTALITY INDEX: 1900			CHILD MORTALITY INDEX: 1910		
Constant				13.487	—		13.281	***
Proportion Urban	0.387	0.294	0.090	0.574	***	0.040	0.226	**
Proportion Black	0.117	0.185	0.151	-0.513	—	0.408	-0.040	—
Propor. Foreign Born White	0.144	0.108	-0.016	-0.903	—	-0.104	-0.064	—
Propor Adults Illiterate	0.090	0.087	0.396	4.030	***	0.592	2.183	***
Persons per Dwelling	5.038	1.153	0.055			0.059		
Persons per Family	4.544	0.354	-0.053	-0.133	—	0.043	-0.115	*
Mean height (in)	67.664	0.537	-0.128	-0.182	—	-0.166	-0.178	***
Mean weight (lbs)	141.942	2.506	-0.255			-0.412		
Body Mass Index	21.798	0.355	-0.152			-0.287		
Region								
New England	0.083		0.044	NI		0.068	NI	
Middle Atlantic	0.115		-0.028	-0.079	—	-0.045	-0.084	—
East North Central	0.154		0.009	0.180	—	-0.158	0.017	—
West North Central	0.128		-0.066	0.274	—	-0.222	0.093	—
South Atlantic	0.173		-0.036	-0.080	—	0.156	0.094	—
East South Central	0.077		0.037	-0.058	—	0.120	0.099	—
West South Central	0.083		0.115	0.189	—	0.217	0.262	**
Mountain	0.122		0.061	0.166	—	0.091	0.153	*
Pacific	0.064		-0.127	0.011	—	-0.212	-0.049	—
N				154			155	
Adjusted R-squared				0.281			0.510	
F-ratio				5.26	***		12.45	***
Adjusted R-Squared: Regions only				0.039			0.147	
DEPENDENT VARIABLE:				HEIGHT, 1917/18 (1910 County Data)			BODY MASS INDEX, 1917/1 (1910 County Data)	
Constant				67.779	***		21.779	***
Proportion Urban	0.387	0.294	-0.678	-0.547	***	0.266	-0.363	***
Proportion Black	0.117	0.185	0.213			-0.422		
Proportion Foreign born	0.144	0.108	-0.533	-1.100	***	0.693	2.318	***
Propor Adults Illiterate	0.090	0.087	0.213	-0.311	—	-0.390	0.185	—
Persons per Dwelling	5.038	1.153	-0.403			0.142		
Persons per Family	4.544	0.354	0.097	0.029	—	-0.084	-0.016	—
Mortality Index: 1910	1.029	0.274	-0.166	-0.287	***	-0.287	-0.094	—
Mortality Index: 1900	1.063	0.465	-0.128			-0.152		
Region								
New England	0.083		-0.403	NI		0.086	NI	
Middle Atlantic	0.115		-0.547	-0.200	**	0.221	0.114	—
East North Central	0.154		-0.103	0.385	***	0.180	0.073	—
West North Central	0.128		0.271	0.746	***	0.272	0.092	—
South Atlantic	0.173		0.053	0.383	***	-0.347	-0.108	—
East South Central	0.077		0.255	0.722	***	-0.324	-0.204	*
West South Central	0.083		0.263	0.813	***	-0.291	-0.234	**
Mountain	0.122		0.140	0.657	***	-0.041	-0.165	*
Pacific	0.064		0.112	0.734	***	0.241	0.197	**
N				155			155	
Adjusted R-squared				0.793			0.655	
F-ratio				46.45	***		20.61	***
Adjusted R-Squared: Regions only				0.622			0.443	

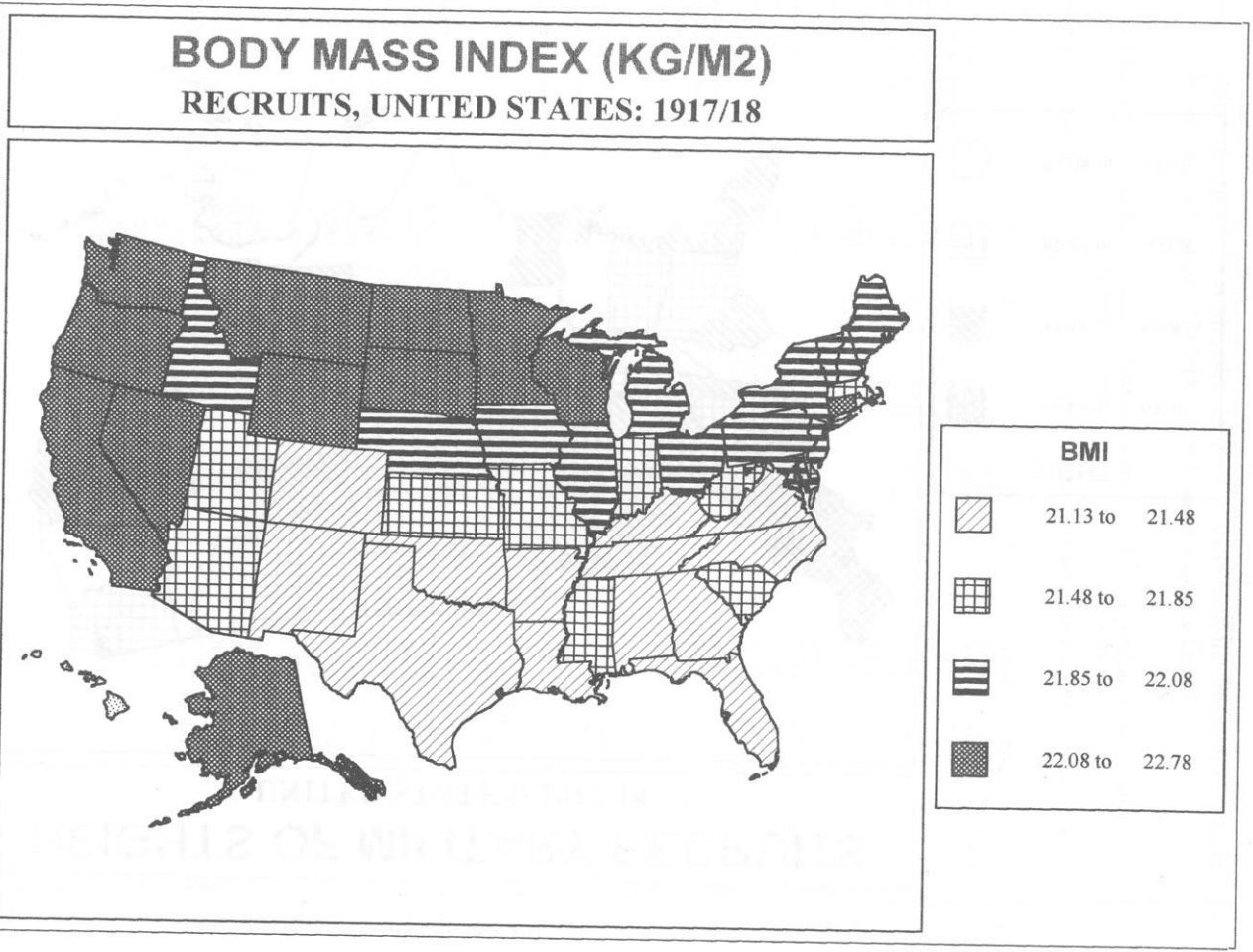
SOURCE: See text.

— = not significant at least at a 10% level.
*** = significant at a 1% level.
** = significant at a 5% level.
* = significant at a 10% level.

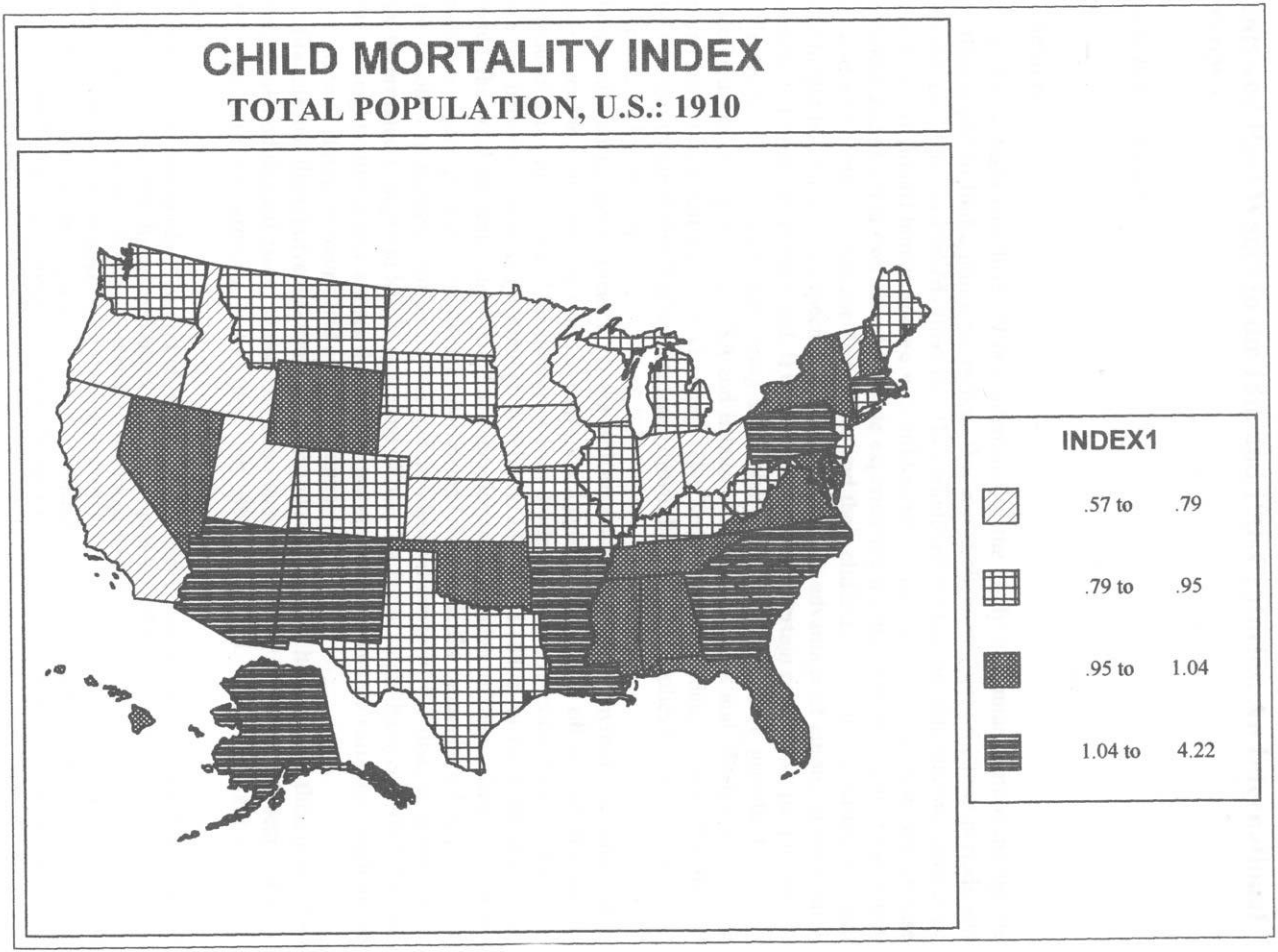
Map 1: Heights of Military Recruits. United States: 1917/18



Map 2: Body Mass Index (kg/m^2). Recruits, United States: 1917/18



Map 3: Child Mortality Index, Total Population, U.S.: 1910



Heights and Real Wages in the 18th and 19th Centuries: An International Overview

Von Jörg Baten (München)[1]

Introduction

When economic historians first became interested in the study of human stature during the 1970s, they hoped to find a proxy for income that would allow estimates for time periods and regions that could not be studied otherwise. They employed the finding of human biologists that average (not individual) human stature was influenced by the quality of nutrition, the disease environment and physical exertion. As people experiencing income growth usually tend to buy better food and medical goods for themselves and their children, a close correlation between average height and GDP was expected.[2] However, the main advantage of empirical research is the possibility to find the unexpected: It turned out that under certain conditions, people born in poorer regions became taller, and during some phases of substantial GDP growth, heights in fact declined, for example in the USA and Britain between the 1820s and 1840s.[3] This article compares height and real wages in Germany, The Netherlands, Sweden, France, Austria and Britain in order to see if this "Early Industrial Growth Puzzle" also applies to other countries in the 18th and 19th centuries.

The puzzle led to more research on the influence of the disease environment and public hygiene, because rising incomes and catastrophic hygienic conditions often coexisted in the large industrial towns, such as Manchester or New York.[4] Feinstein recently reduced the unexplained gap between height and income growth in the 1830s and 1840s for the English case: he estimated that real earnings (adjusted for unemployment, number of dependants and urban disamenities) were probably stagnating, not rising.[5] But still, the unexplained gap has led several scholars to suggest that a nutrition-independent influence of the disease environment mainly determined changes in height over time. While this factor might have contributed to the decline in heights, this article argues that real wages and other economic variables (such as the relative price of animal proteins) had a stronger impact.

We first discuss the relative influence of GDP and real wage on heights, and then proceed to address a methodological issue: many European samples consist of 19- or 20-year-old conscripts who were still growing at the time they were measured. It is important to clarify,

---

1 I wish to thank to John Komlos, Timothy Cuff, Michael Haines, John Murray, Richard Steckel and participants of the 1997 SSHA session on 'Biological Wealth of Nations' in Washington for helpful comments.

2 For recent overviews see *J. Komlos/J. Baten (eds.)*, The Biological Standard of Living in Comparative Perspective. Stuttgart 1998; *R. Steckel/R. Floud (eds.)*, Health and Welfare during Industrialisation, Chicago 1997. "Genetic" determinants are less and less regarded as powerful explanations, see for an overview: *J. Baten*, Ernährung und wirtschaftliche Entwicklung in Bayern, 1730-1880, Stuttgart 1999, pp. 21-37; genetic height differences are not visible in France after controlling for economic variables, see *J. Baten*, Kartographische Residuenanalyse am Beispiel der regionalökonomischen Lebensstandardforschung über Baden, Württemberg und Frankreich, in: *D. Ebeling (Hg.)*, Historisch-thematische Kartographie. Konzepte - Methoden - Anwendungen, Bielefeld 1999, pp. 98-109.

3 *J. Komlos*, Shrinking in a Growing Economy: the Mystery of Physical Stature during the Industrial Revolution, in: Journal of Economic History 58/3, 1998, pp. 779-802; *J. Komlos*, The Secular Trend in the Biological Standard of Living in the United Kingdom, 1730-1860, in: Economic History Review 46/1, 1993, pp. 115-144.

4 There are other factors that have an impact on height, see *Komlos*, Shrinking.

5 *C. Feinstein*, Pessimism Perpetuated: Real Wages and the Standard of Living in Britain during and after the Industrial Revolution, in: Journal of Economic History 58/3, 1998, pp. 625-658.

whether the influence of economic conditions in the years preceding measurement, or the influence of the years following birth had the biggest influence on height at the time of measurement.[6] The third and fourth sections compare height and real wages for the 18th and 19th centuries respectively. Section 5 explores the influence of real wages on heights and the potential influence of the disease environment (proxied by infant mortality rates), and section 6 concludes.

I. Real wages and real income per capita

The traditional measures of the standard of living include real wages and real GDP per capita. For the 20th century, real GDP per capita was found to be closely correlated with anthropometric measures, provided the income distribution was controlled for.[7] For prior centuries, however, we have only scattered data on both GDP and income distribution. As most studies are on lower class heights in this epoch, one would expect real wages in lower class occupations to be more closely correlated with height than with GDP, particularly without controlling for shifts in the income distribution. The real wage variable has the additional advantage to be available for a number of countries in the 18th and 19th centuries for which no GDP series have been estimated. For Germany, no annual data are available prior to 1850, and the series for 1850-1900 is still under debate.[8] For the Dutch case, Horlings and Smits showed that real wages and real income per capita deviated considerably from one another in the 19th century, as the commercial gains from colonial activities boosted GDP, but the additional income was unevenly distributed and did not show up in real wages. Hence, it had little influence on the nutritional status of the poorer segments of the population.[9] Average real income per capita increased nearly at a constant rate during the 19th century, while real wages failed to do so until the 1850s. To be sure, afterwards they did reach the growth rates of GDP.

Real expenditures per capita of course includes many components that are not directly related to nutrition, such as financial services, while real wages - at least up to the middle of the 19th century - were relevant, in the main, for the poorer segments of the society, whose income elasticity of demand for food was relatively high.[10] Hence, fluctuations in real wages would have had a larger impact on food expenditures than those of real income (in wealthier economies, clothes and other consumption goods had a more substantial influence). Perhaps an even closer correlation with height might be expected with nominal wages divided by food prices, particularly if dairy and animal products were given a larger weight than warranted, insofar as (a) animal protein was particularly scarce and expensive in Europe before the 20th century, and

---

6 More precisely: if height H is measured at age 19 at time t and real wages are denoted by W, then are H_t and W_{t-1} more highly correlated, or H_t and W_{t-19}.

7 The following studies showed this empirically: *R. Steckel*, Height and Per Capita Income, in: Historical Methods 16/1, 1983, pp. 1-7; *H. Brinkman/J W. Drukker*, GDP per Capita and the Biological Standard of Living in Contemporary Developing Countries, in: *Komlos/Baten*, Biological, pp. 55-89; *R. Steckel*, Stature and the Standard of Living, in: Journal of Economic Literature 33/4, 1995, pp. 1903-40.

8 *R. Fremdling*, German National Accounts for the 19th and Early 20th Century, in: Scandinavian Economic History Review 43/1, 1995, pp. 77-100. *A. Ritschl/M. Spoerer*, Das Bruttosozialprodukt in Deutschland nach den amtlichen Volkseinkommens- und Sozialproduktsstatistiken, in: Jahrbuch für Wirtschaftsgeschichte 1997/2, pp. 27-54.

9 *E. Horlings/J. Smits*, The Quality of Life in the Netherlands 1800-1913. Experiments in Measurement and Aggregation, in: *Komlos/Baten*, Biological, pp. 321-343, here 331.

10 *J. Komlos/P. Coclanis*, On the "Puzzling" Cycle in the Biological Standard of Living: The Case of Antebellum Georgia, in: Explorations in Economic History 34, 1997, pp. 433-459.

(b) the income elasticity of demand for such food items tends to be higher than for carbohydrates.

II. The effects of birth year (BY) and the years before measurement (YBM) on height

A significant methodological question that has not yet been clarified convincingly is the relative importance of environmental circumstances on physical stature at different ages. This is irrelevant as long as anthropometric historians put the main emphasis on long-term trends of human stature. In order to determine whether there was a decline in height in the late 18th century, for example, it is relatively unimportant to know exactly whether this decline started in 1746 or 1748. Yet, short-term variations in height might provide further insights into the relationship between anthropometric and economic processes.[11]

Environmental factors during the first three years of life have undoubtedly the most important influence on *final* height. This influence is apparent, for instance, among Germans born during the hunger years of 1945-48, who remained significantly shorter than the preceding or subsequent generations.[12] Many examples reported below illustrate a close correlation between adult height and real wages at the time of birth.[13] Tanner reports in a recent essay that 1.3 cm (or 70 percent) of the ultimate 1.9 cm height difference between social classes in the United Kingdom was already present at age 2.[14] However, the question remains, how should we compare individuals across time who are *still growing*? That is, should we organize their height by year of birth or year of measurement, or a weighted average of both? The poorly nourished 19th-century Europeans were growing up to age 22 or 23, while 20th century populations and Americans and Australians of the 19th century reached their terminal height much earlier (around age 18). In the following paragraphs, I shall focus on the height of individuals still growing .

Measured in 1947, seven to nine year old boys and girls born in 1938-40 were obviously malnourished (Figures 1 and 2)[15]. Measured again years later, this nutritional insult has left virtually no effect on their heights.[16] Catch-up growth during the following, much more favorable period of the 1950s and 1960s brought their height back to the growth trajectory that was mostly determined by the first two or three years of life. Those who were *born* in 1945-1947 remained shorter, however.

James Tanner recently suggested that "a low mean height at age 18 may be due to real stunting of growth and still be present at 25, or may be due simply to a delayed tempo and overcome by age 25."[17] He added furthermore that when environmental circumstances change,

---

11 See also *U. Woitek*, Cycles in Heights, Unpublished manuscript Univ. Glasgow 1999, who finds a strong influence of the two years before measurement using spectral analysis.

12 *H. Greil*, Age- and Sex-specifity of the Secular Trend in Height in East Germany, in: *Komlos/Baten*, Biological, pp. 483-496.

13 Real wages and heights of male and female Bavarian convicts (organized by birth year) between the 1830s and 1870s are closely correlated, see *J. Baten/J. Murray*, Influences on Heights of Men and Women in Nineteenth Century Bavaria, Munich/Toledo mimeo. Figure downloadable under www.vwl.uni-muenchen.de/ls_komlos/-joerg.html. Real wages are from *R. Gömmel*, Wachstum und Konjunktur der Nürnberger Wirtschaft (1815-1914), Bamberg 1978.

14 *J.M. Tanner*, Introduction: Growth in Height as a Mirror of the Standard of Living, in: *J. Komlos (ed.)*. Stature, Living Standards, and Economic Development: Essays in Anthropometric History, Chicago 1994, pp. 1-6.

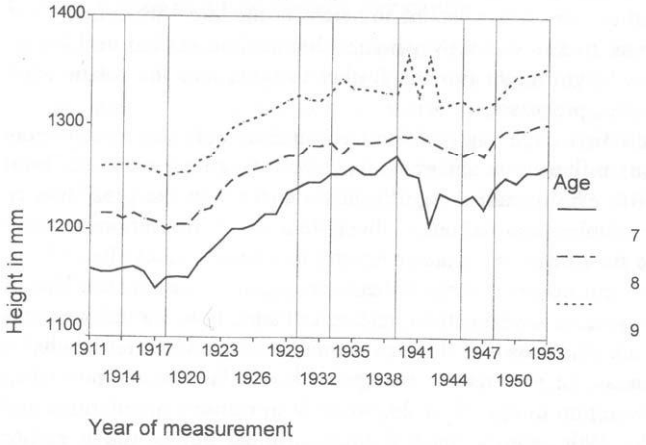
15 Data from *J.M. Tanner*, Foetus into Man: Physical Growth from Conception to Maturity, Cambridge 1990, p. 130.

16 *Greil*, Age- and Sex-specifity.

17 Ibid., p. 3.

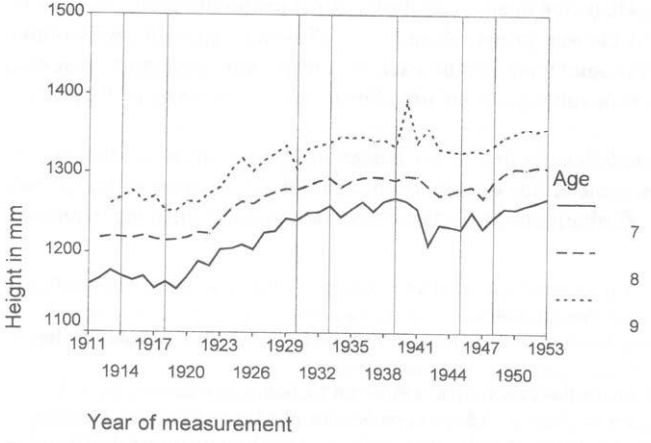
"growth is the first thing affected".[18] This points to a greater relative importance of the years preceding measurement. This notion is supported by the fact that the height series of the 7, 8, and 9-year-old children are closely correlated if they are organized by year before measurement, but nearly uncorrelated if organized by year of birth (except for the common trend). The same is true for Richard Steckel's slave manifest sample of black children.[19] The growth delay effect of the years around measurement dwarfs the birth year effect in those cases.

Figure 1: Height of Stuttgart girls



Source: *Tanner*, Foetus, p. 130.

Figure 2: Height of Stuttgart boys



Source: *Tanner*, Foetus, p. 130.

18 *Tanner*, Foetus.

19 *R. Steckel*, The Health of American Slaves: New Evidence and Analysis. Paper given on SSHA conference in Chicago 1995. I thank Rick Steckel for letting me analyze his data, but I will not present them in table or graph before he firstly published using them.

The same is true for a sample of 21,064 Bavarian conscripts of age 20. They were no exception to the fact that the relatively poorly nourished men of the 18th and 19th centuries grew until age 22 or 23: some of the conscripts were measured at age 21 and 22 again; a sample of 91 conscripts grew 1.4 cm between age 20 and 22, and 0.5 cm of this growth took place between age 21 and 22. While average growth is overestimated with this sample, as only those soldiers were repeatedly measured that were initially unfit for service (for disease or height reasons), the values fit growth standards of that time relatively well.[20]

Table 1: Weights given to environmental influence on adult height

Age	YASSIS Weight	Coll Weight
01	15.4	1.00
02	9.2	1.00
03	7.5	1.00
04	6.7	1.00
05	5.8	1.00
06	5.0	0.45
07	5.0	0.45
08	4.2	0.45
09	3.3	0.45
10	3.3	0.45
11	3.3	0.45
12	4.2	0.45
13	4.2	0.45
14	4.2	0.50
15	5.0	0.50
16	5.0	0.50
17	4.2	0.50
18	2.5	0.50
19	0.8	0.50
20	0.8	0.50
Sum	100	12.1

Notes:
YASSIS: 'yearly age- and sex-specific increase in stature'. The weights of environmental influence according to the average growth at all ages as proposed by *Brinkman/Drukker/Slot*, Height.
Coll: see *Coll*, Human Stature.

In a regression analysis of heights on real wages, a significant influence of the real wage level during the two years before measurement was found for Bavarian soldiers (Tables 1 and 2). In contrast, regressing heights on real wages of the birth year (or an average of the first three years of life) yielded no significant results. Two alternative methods have been proposed to assign weights to different ages that might affect height: The YASSIS ('Yearly age- and sex specific increase in stature') and Coll's weights. Brinkman, Drukker and Slot developed the YASSIS weights arguing that the influence of environmental circumstances at a given age might be proportional to the share of growth accomplished at that age (see Table 1, column 1).[21] As infants grow fastest, the impact on later height is also large. Afterwards, the impact declines,

20 *E.Ph. Mackeprang*, De vaernepligtiges Legemshojde i Danmark, [Copenhagen] 1907-11.

21 *H. Brinkman/J.W. Drukker/B. Slot*, Heights and Income: A New Method for the Estimation of Historical National Income Series, in: Explorations in Economic History 25, 1988, S. 227-264.

rebounds during puberty, and declines again. Coll simplified this method by assigning weights that remained constant for a number of growth years (see Table 1, column 2).[22] Looking at the influence of real wages by weighing them with the YASSIS or Coll index did not produce statistical significance either.[23]

Table 2: Four weighted least square regressions of height at age 20 (=dependent variable) on real wages in Bavaria, different weighing procedures (N=30 years)

Regr. No	1	2	3	4
Age	19/20	1-20	1-20	1-3
method	YBM	YASSIS	Coll	BY
Real wage	0.03*	0.00	0.00	0.00
R square	0.35	0.00	0.00	0.00
Durbin-Watson	1.65	1.58	1.59	1.56

Notes and abbreviations:
* Indicates significance at the 1percent level. None of the series contains a significant time trend (0.01-level).
YBM: real wages are those of the two years before measurement. One outlier was excluded (1843), that was more than 2 s.d. from the mean, otherwise the R square would have been 0.26, significance levels and coefficients remain unchanged.
YASSIS and Coll: see Table 1 for the relevant weights used to weigh the real wages during the life course of the recruits.
BY: real wages are those of the first three years of life.

The correlation coefficient of the heights of the *still-growing* conscripts by year before measurement (YBM) with the *final* stature of adult convicts from the same region, but organized by birth cohorts is 0.59 (Figure 3). Only the conscripts measured in 1835-39 (=birth cohort 1815-19) deviates from the expected trend - probably because they were born during the greatest famine of the century (1816/17), and this produced a permanent effect. If the famine cohort is omitted, the correlation coefficient rises to 0.79.

The more dependent a regional population was on buying food in the market, the higher was the elasticity of their heights with respect to real wages. The most obvious example is the weaving district of Stadtsteinach in Northeastern Bavaria (Figure 4), but the conscripts born in the other early industrial districts also show a significant relationship (Figure 5).[24]

Hence, the following rule-of-thumb seems appropriate: if the analysis pertains to youth, then the economic and environmental conditions during the year immediately preceding the year of measurement should be considered, while for adult heights one should use explanatory variables at time after birth. One possible explanation is that for infants the immediate impact of exogenous factors on growth may very well be substantial. Over the years, however, a certain amount of catch-up growth may occur with the result that the anthropometric impact of insults during the early years might well be dwarfed by strong but temporary growth retardations or increases, and this temporary effect is measured in the heights of still-growing-conscripts. Additional catch-up growth might occur later, leading to a final stature mainly determined by the

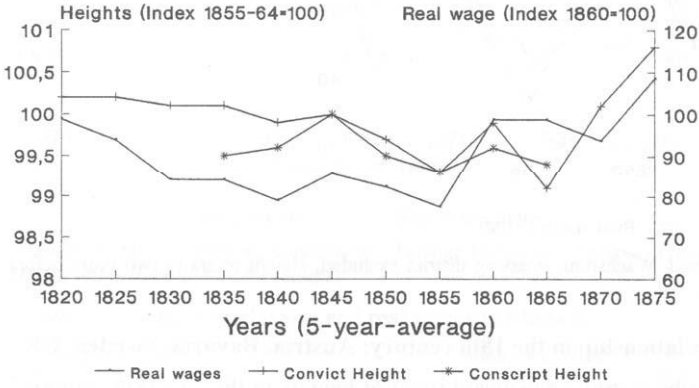
22 *S. Coll*, The Relationship between Human Physical Stature and GDP (Some Experiments with European Time Series), in: *Komlos/Baten*, Biological, pp. 384-407.

23 For other subsamples of Bavarian conscripts that were still growing, calculating composite indices based on the YASSIS curve always yielded lower R^2s in regressions on real wages, compared to regressions using real wages in the two years before measurement alone.

24 See also *Woitek*, Cycles.

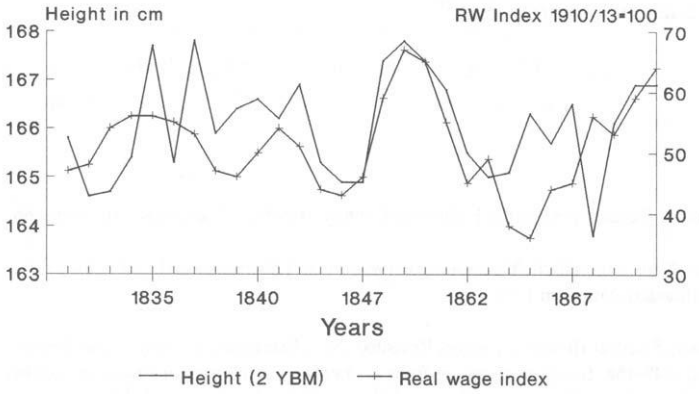
first years of life. Hence, in the long run as far as final adult heights are concerned, the nutritional status of the infant might have mattered the most.

Figure 3: Real wages and male heights (convicts and conscripts) in Bavaria



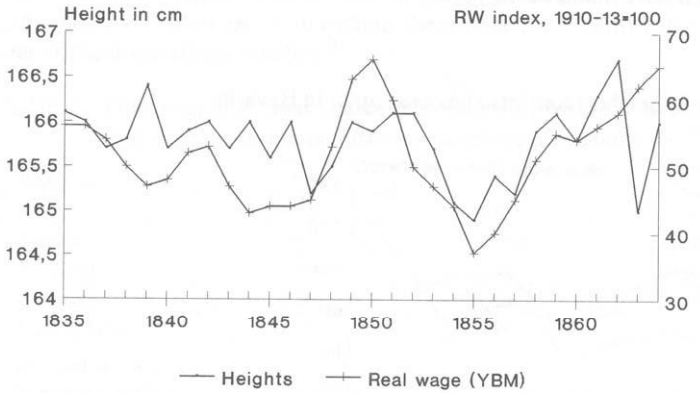
Source.: *Gömmel*, Wachstum; *Baten*, Ernährung. Conscripts by year before measurement (adolescents), convicts by BY.

Figure 4: Heights and real wages in a weaving region of Bavaria, 19th century



Sources: State Archive Bamberg; *Gömmel*, Wachstum. Height refers to two years before measurement. 1842/43/69/70 miss.

Figure 5: Heights and real wages, other industrial Bavarian districts



Sources: *Baten*, Ernährung; *Gömmel*, Wachstum. Weaving district excluded. Height refers to two years before measurement. 1842/43/69/70 miss.

III. The height-real wage relationship in the 18th century: Austria, Bavaria, Sweden, UK

Komlos was the first to describe a strong downward trend of heights in the late 18th century.[25] Comparing his height estimates for the three western provinces of the Habsburg Empire to the purchasing power of daily wages reported by Sandgruber, a common movement of the two series between the 1750s and the 1790s is quite apparent (Figure 6).[26] During the two decades before mid-century the series do not move together, however. In the 1730s, real wages in Austria seem to have reached their 18th century peak, while heights were increasing and reached their maximum a decade later. The downward deviation of real wages in the 1740s is known to be caused by the hunger years of 1740/41 that seems to have left no permanent mark on adult heights. The same is true for Bavaria (Figure 7). In this figure, heights by birth cohort and real wages are given by five year averages.[27] In Sweden, the climatically favorable 1730s stand out even stronger in terms of real wages (Figure 8). After this decade, real wages declined mildly or stagnated until about 1800, while heights started to recover somewhat in the very last decades- similarly to the Bavarian and Austrian case.[28]

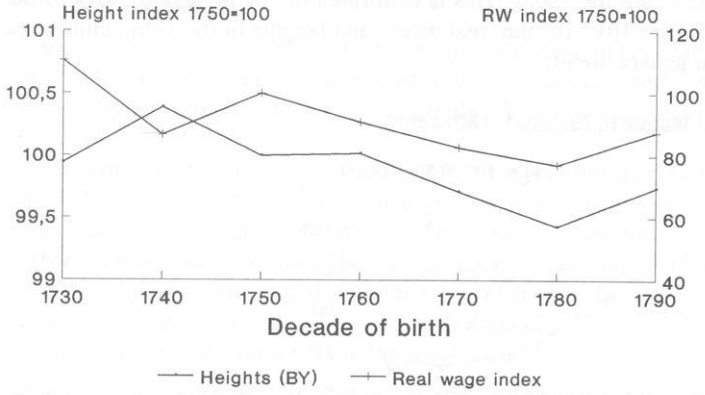
25 *J. Komlos*, Nutrition and Economic Development in the Eighteenth-Century Habsburg Monarchy: An Anthropometric History, Princeton 1989.

26 *R. Sandgruber*, Die Anfänge der Konsumgesellschaft: Konsumgüterverbrauch, Lebensstandard und Alltagskultur in Österreich im 18. und 19. Jahrhundert, München 1982.

27 *Baten*, Ernährung.

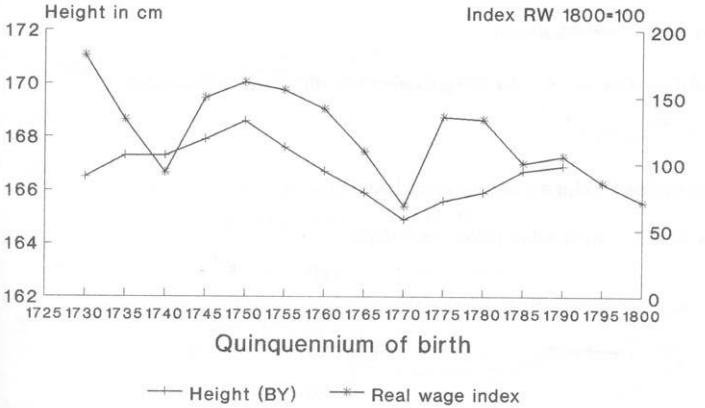
28 *M. Heintel/L. Sandberg/R. Steckel*, Swedish Historical Heights Revisited: New Estimation techniques and Results, in: *Komlos/Baten*, Biological, pp. 449-458. Swedish prices are from *L. Joerberg*, A History of Prices in Sweden 1732-1914, vol. 2, Lund 1972. The districts of Vaestermanland and Vaesternorrland were excluded, because they followed a completely different path, compared with the other 11 districts, so that I would regard them as outliers. Otherwise, Swedish real wages would stagnate, not decline.

Figure 6: Heights and real wages in Austria



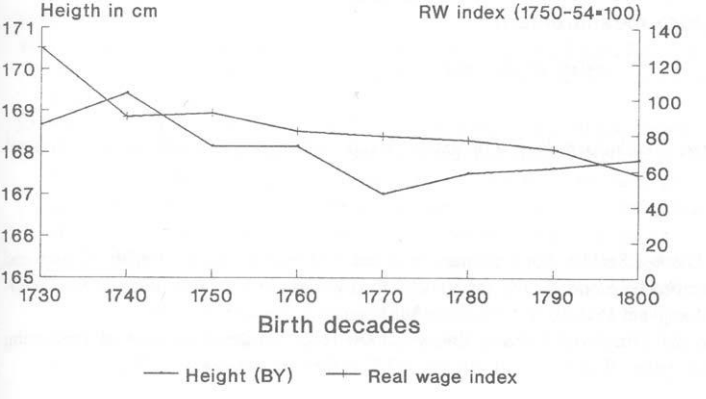
Sources: *Komlos*, Nutrition; *Sandgruber*, Anfänge (wage / (70 percent bread price + 30 percent meat price. Height refers to birth decades (adults).

Figure 7: Heights in Bavaria and real wages in Munich



Source: *Baten*, Ernährung. Height refers to birth decades (adults).

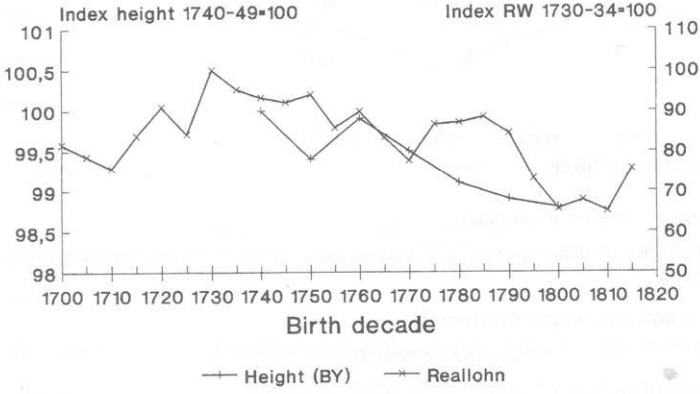
Figure 8: Heights and real wages in Sweden, 18th century



Sources: *Joerberg*, History, p. 188; *Heintel/Sandberg/Steckel*, Swedish. Height refers to birth decade (adults).

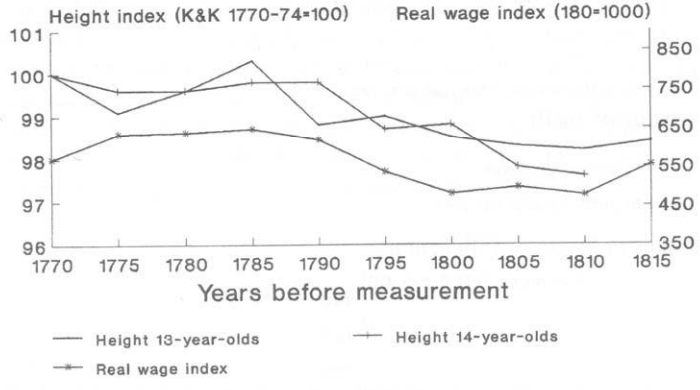
A similar recovery did not take place in England (Figure 9).[29] Perhaps due to the Napoleonic wars, English heights declined until the 1800s. This is confirmed by the heights of boys of the Marine society in London (Figure 10).[30] In sum, real wages and heights in the 18th century are characterised by very similar general trends.

Figure 9: Heights and real wages in England, 18th century



Sources: *Wrigley/Schofield*, Population; *Komlos*, Secular. Height refers to birth year (mainly adults).

Figure 10: Heights of London boys (Marine society) and real wages



Sources: *Heintel/Baten*, Smallpox; *Wrigley/Schofield*, Population. Height refers to years before measurement (boys).

29 According to the estimate in *Komlos*, Secular. For a contrary view see *R. Floud/B. Harris*, Health, Height and Welfare: Britain, 1700-1980, in: *Steckel/Floud*, Health, pp. 91-126. Real wages are from *E.A. Wrigley/R.S. Schofield*, The Population History of England 1541-1871, Cambridge 1981.

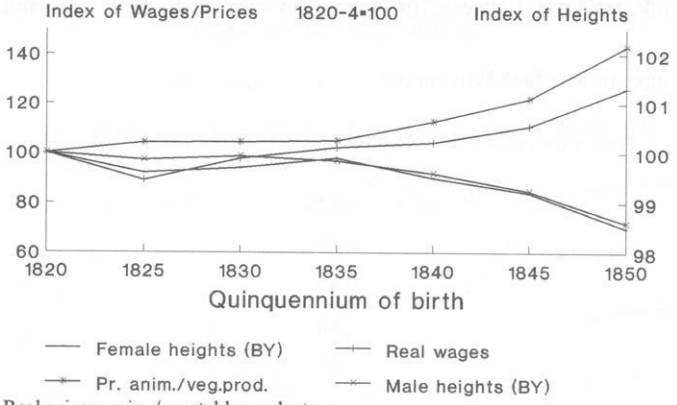
30 *M. Heintel/J. Baten*, Smallpox and Nutritional Status in England, 1770-1873. On the Difficulties of Estimating Historical Heights, in: Economic History Review 51/2, 1998, pp. 360-371; *Komlos*, Shrinking, p. 781.

IV. Heights and real wages in the 19th century: UK, US, Sweden, Bavaria, France, Netherlands

Between the 1800s and 1820s, both the Marine society and military data display a strong recovery.[31] Mokyr and O'Grada's estimates for the East India company`s army confirm this recovery, while Riggs' estimates based on a sample of Scottish convicts are less optimistic for this regard.[32]

That the trend of heights and real wages diverged after the 1820s in the United Kingdom and the U.S., is known as the early industrial growth puzzle (Figure 11).[33] A key to the understanding of this puzzle might be that the heights of rural population declined the most, while those of urban workers the least, and that the real price of nutrients increased. In the UK, the height of female rural criminals declined about 1.5 cm between the 1820s and the late 1840s, while the urban ones declined only about 1 cm.[34] Similarly, the height of Scottish female prisoners declined more in the rural than in the urban areas.[35]

Figure 11: English heights, real wages and relative prices for animal products



Real prices: anim./vegetable products.
Source: *Baten*, Ernährung, based on *Johnson/Nicholas* and other sources, see text.

31 *Heintel/Baten*, Smallpox.

32 *J. Mokyr/C. O'Grada*, Height and Health in the United Kingdom 1815-1860: Evidence from the East India Company Army, in: Explorations in Economic History 33, 1996, pp. 141-168; *P. Riggs*, The Standard of Living in Scotland, 1800-1850, in: *Komlos*, Stature, pp. 60-75.

33 *Komlos*, Shrinking.

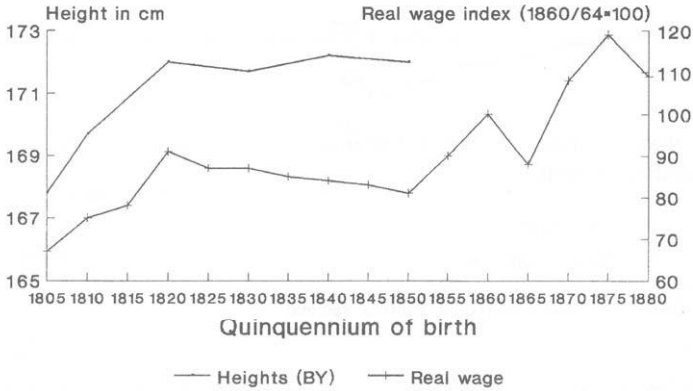
34 *P. Johnson/S. Nicholas*, Health and Welfare of Women in the United Kingdom, in: *Steckel/Floud*, Health, pp. 201-249, here p. 221; for the most recent survey - but contrary arguments - on English height studies, see *Floud/Harris*, Health.

35 *Riggs*, Standard. In contrast, Floud, Wachter and Gregory argued that urban heights declined more than rural ones. *R. Floud/K. Wachter/A. Gregory*, Height, Health and History. Nutritional Status in the United Kingdom, 1750-1980, Cambridge 1990, pp. 205-7. However, their result might be due to their defininition: "urban" were all inhabitant of large regions around London, Manchester, Newcastle and in South Wales, including many rural inhabitants of the English North, the area around London, and the Walisian South. On the other hand, a lot of smaller towns outside of these areas were counted as "rural", see ibid., p. 201. It is likely that the inhabitants of areas near towns declined most between 1820 and 1840, the period of rapid urbanization, because farmers in these areas near towns sold more and more milk and meat on the urban markets. In contrast, day-laborers of these regions, who previously consumed milk at negligible prices, might have had to buy food in the market subsequently, competing with urban dwellers of higher purchasing power.

There are a number of additional potential reasons for this divergence. In the U.S. case Komlos argued that the two most important reasons probably were: the increasing relative price of nutrients and market integration. The U.S. was gradually developing from a frontier economy (with extremely high protein supply) to a modern industrialized society. Other potential explanations, such as increases in the inequality of income, or high income variability effects also affected the other European countries, for which we find positive height-real wage correlations in the 1830s and 1840s.[36]

A factor that caused pressure on the UK and U.S. economies was the strong population growth during the early 19th century.[37] But how could population growth affect people's nutritional status, if real wages were not declining? I have argued elsewhere that in the British case, the increasing relative price of protein might have played a role, as it was more difficult to nourish this already densely settled and rapidly urbanizing country with enough animal protein, while starches were easier and cheaper to import.[38] Horrell found a shift in lower class budgets during this time away from animal proteins towards starches and industrial goods: Household budgets of 1840-54 contained 19 percent more expenditures on starches and grain (compared to 1830-39), but 8 percent less milk, butter and cheese, 19 percent less for meat, fish, eggs and fat.[39]

Figure 12: Heights and real wages in Sweden, 19th century



Sources: *Heintel/Sandberg/Steckel*, Swedish; *Joerberg*, History. Height refers to birth years (mainly adults).

Aside from these two exceptional (Anglo-Saxon) cases, the general pattern of height and real wage trends in the rest of Europe is similar to one another. In Sweden, real wages and heights improved considerably between 1800 and the nutritionally favorable 1820s. Afterwards real

36 *Komlos*, Shrinking. On income inequality and real wage variability in Bavaria, for example, see *Baten*, Ernährung, pp. 105-109.

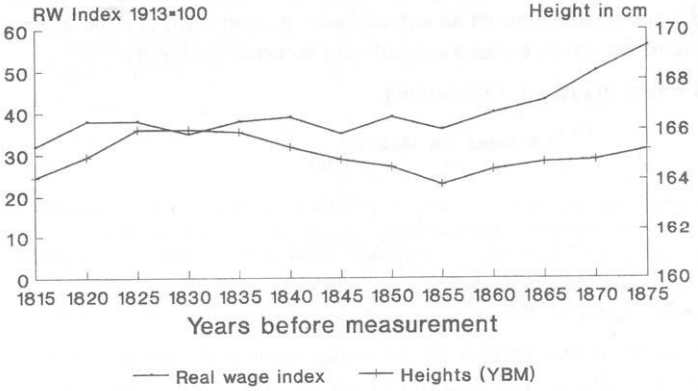
37 The English population grew by 1.4% per year during the early 19th century, the Prussian only by 1.1% and the French population by 0.45%. The population of Saxony was growing faster. See *Baten*, Ernährung, p. 45.

38 *Baten*, Ernährung, p. 108-110. Relative prices are calculated from *A. Jacobs/H. Richter*, Die Grosshandelspreise in Deutschland von 1792 bis 1934, in: Sonderhefte des Instituts für Konjunkturforschung, 37, 1935. On England, see *B.R. Mitchell*, British Historical Statistics, London 1988.

39 *S. Horrell*, Home Demand and British Industrialization, in: Journal of Economic History 56/3, 1996, pp. 561-604, here p. 580.

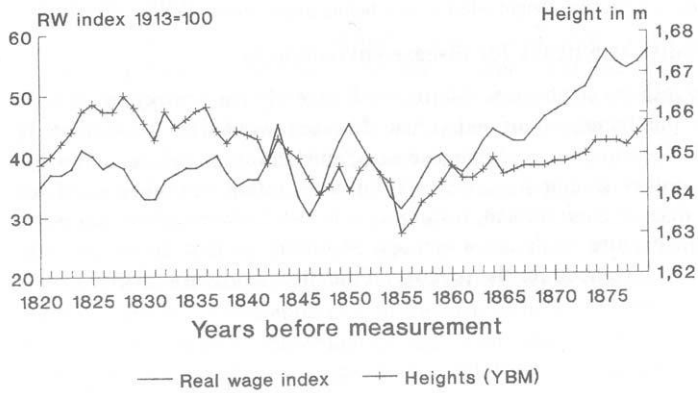
wages declined modestly and heights stagnated until mid-century, starting an upward trend thereafter (Figure 12). Essentially the same pattern was found for Bavarian female convicts: real wages at the year of birth is positively correlated with heights.[40]

Figure 13: Dutch heights and real wages, 19th century



Sources: *Vermaas*, Wages; *Drukker/Tassenaar*, Paradoxes. Height refers to two years before measurement (adolescents).

Figure 14: Dutch heights and real wages, 19th century



Source: see figure 13. Height refers to two years measurement (adolescents).

Dutch heights also increased until the late 1820s and declined considerably thereafter (Figure 13).[41] Real wages increased in the Netherlands until the early 1820s; afterwards there was no permanent improvement, until after the 1860s. If one recalculates real wages by giving greater weight to foods rich in animal protein, the result would be a decline in "protein weighted" real

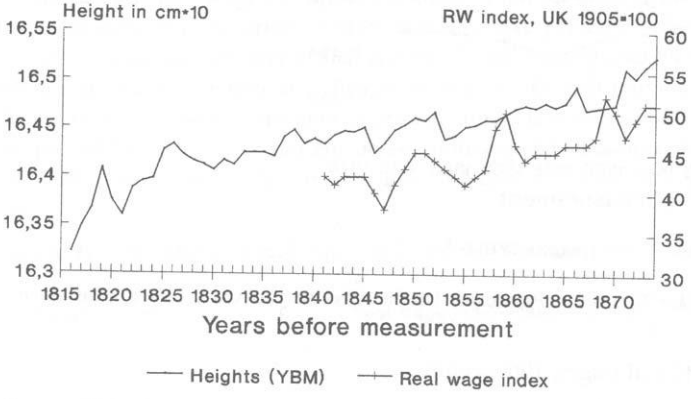
40 *Baten/Murray*, Influences. In addition, we have seen above, that the male conscript sample responded sensitively to real wage changes, especially in the more industrial districts.

41 *J.W. Drukker/V. Tassenaar*, Paradoxes of Modernisation and Material Well-Being in the Netherlands during the Nineteenth Century, in: *Steckel/Floud*, Health, pp. 331-378.

wages from the 1820s to 1850s. The consumption of bread and potatoes declined much less than the intake of protein-rich meat, cheese and milk.[42]

If one considers Dutch real wages and heights on an annual basis, the elasticity of height at age 19 becomes quite clear (Figure 14).[43] Especially during the crises and recoveries around mid-century, heights reacted very sensitively to real wage changes. France experienced a similar stability of real wages - averaged by five-year-groups - as the Netherlands did.[44] If one examines the height and real wage relationship on an annual basis, a short term decline around 1846/47 and 1853/54 is visible in the series, causing a significant correlation (Figure 15).

Figure 15: Heights and real wages in France, 19th century



Sources: *Weir*, Economic; *Williamson*, Evolution. Height refers to year before measurement (adolescents).

V. Heights and infant mortality as a proxy for disease environment

The disease environment also influences physical stature.[45] A frequently used proxy for it is the infant mortality rate. Using the incidence of individual diseases would be problematical, because it is difficult to weigh the importance of one disease against another, and the classification of disease in the 19th century is unsystematic.[46] To be sure, infant mortality itself has drawbacks as a proxy for the disease environment, insofar as it is also influenced by nutritional intake. Future research should explore methods of orthogonalization, so that an index, independent of food intake, could be developed for the severity of the disease environment.

---

42 *Horlings/Smits*, Quality, p. 331.

43 Dutch real wages are from A. Vermaas, Wages, Salaries and Income Inequality in the Netherlands 1850-1913 (forthcoming), cited after *Horlings/Smits*, Quality, p. 342.

44 *D. Weir*, Economic Welfare and Physical Well-Being in France, 1750-1990, in: *Steckel/Floud*, Health, pp. 161-200. Real wages are from *J.G. Williamson*, The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses, in: Explorations in Economic History 32, 1995, pp. 141-196.

45 For arguments, why this factor also alone does not explain the "Early Industrial Growth Puzzle", see *Komlos*, Shrinking. For example, the growth of large industrial cities with problematic hygienic conditions should also have had an influence on heights between the 1800s and 1820s, but during this period heights were increasing.

46 *R. Spree*, Der Rückzug des Todes. Der epidemiologische Übergang in Deutschland während des 19. und 20. Jahrhunderts, in: Historical Social Research 23-1/2, 1998, pp. 4-43.

Table 3: Six Regressions of height on infant mortality and real wage

	1	2	3	4	5	6
	NL	FRA	BAV	NL	FRA	BAV
Constant	163.1*	162.2*	164.8*	163.6*	162.3*	164.4*
Infant mortality				-0.45	-0.08	0.13
Real wage	4.77*	5.41*	1.90*	4.73*	5.45*	1.85*
Lagged dependent var.	0.89*			0.70*		
Log Likelihood	-164.0			-150.6		
R square		0.78+	0.14		0.78+	0.14
Durbin-Watson		1.30+	1.87		1.36+	1.84
N	63	39	29	41	39	29

* Indicates statistical significance at the 10 percent level. + Invalid due to unit root, but cointegration analysis (see tests on www.vwl.uni-muenchen.de/ls_komlos/joerg.html) confirmed consistent estimate. Cofficients (except constants) are multiplied by 100 for better readability.

Sources: See text. Infant mortality rates are from *B.R. Mitchell*, International Historical Statistics: Europe 1750-1988. New York, 3rd ed. 1993; and for Bavaria: Beiträge zur Statistik des Königreichs Bayern. München (various years).

Infant mortality had little influence on heights according to the six multiple regressions reported in Table 3. Only in the Dutch case is its coefficient close to statistical significance (p-value=0.11) and has the expected sign. For France, the real wage variable has a significant influence, but not the disease proxy. The Bavarian real wage coefficient is also significant, and it makes no difference whether infant mortality is included or not.[47]

VI. Conclusion

The real wage - height relationship is apparent in most of the cases we considered, with the exception of the U.S. and Great Britain between 1820 and 1840. The "Early Industrial Growth Puzzle" of Britain and the U.S. appears to be the exception, rather than the rule. The only other significant exception deserving additional attention is the 1730s, which witnessed favorable real wages in several countries, but had less of a positive response in terms of heights. In addition, Dutch real wages displayed no significant trend, while heights declined until mid-century. This might be explained by a shift from protein-rich foods to starches.

The methodological section of this paper was devoted to the question whether the influence of real wages on heights of individuals still growing was stronger when the year of measurement was the basis of comparison or the year of birth. The results were based on the analysis in the anthropological literature and on regression analysis of the height-real wage relationship for both ages (or a weighted average of all ages). I conclude that the years before measurement had an influence on heights, if the measured individuals were still growing. If they were measured after reaching their final height, then the environmental circumstances of the first years after birth had the stronger influence.

Finally, the influence of real wages was contrasted with a possible additional influence of the disease environment, proxied by infant mortality rates. This influence was not found in the French or Bavarian cases of the 19th century, only in the Netherlands is there some evidence of a significant influence. The reason for this might be that the Netherlands was the most urban-

47 I also tested the height and real wage series for trends and for unit roots, using the Augmented Dickey Fuller test (ADF). The results are available on http://www.vwl.uni-muenchen.de/ls_komlos/joerg.html.

ized country of Europe, and therefore quite vulnerable to disease encounters. In conclusion, the generalization might be appropriate that the correlation between height and real wages in the 18th and 19th centuries was stronger, the less developed the economy was. Further anthropometric research in this direction should reveal more such relationships.

Shrinking Dutchmen in a Growing Economy: The Early Industrial Growth Paradox in the Netherlands[1]

By J.W. Drukker (Delft;Groningen) and Vincent Tassenaar (Groningen)

I. Introduction and Summary

This paper is an attempt to investigate whether the 'early industrial growth paradox', or 'antebellum puzzle'[2], as the same phenomenon is sometimes labeled in the United States, also applies to the case of The Netherlands in the first half of the 19th century. By now, it is commonly understood among anthropometric historians, that this puzzle refers to a sustained decline of the biological standard of living (commonly proxied as some measure of sex- and age-specific heights) during the early phases of economic modernization, while conventional measures, such as GDP per capita increase at the same time. Komlos, who originally coined the phrase 'early industrial growth puzzle', suggested himself several factors which might account for it[3]. This paper will address both parts of the paradox, i.e. the divergence itself and its possible determinants, tested against the case of The Netherlands during its earliest phase of modernization, that is, the first half of the 19th century. Not withstanding the fact that first attempts generally provide only tentative answers, we shall conclude that The Netherlands can be added to the list of countries that support the paradoxical finding that is at the heart of the 'puzzle'. "..Is there still life in the pessimist case?..", Mokyr asked in 1988[4]. Less than a decade later the question

---

1 Research for this article was supported by the *Stichting voor Economische, Sociaal-Culturele en Ruimtelijke Wetenschappen (E.S.R.)*, which is part of the Dutch National Foundation for Scientific Research, the *Nederlandse Organisatie voor Wetenschappelijk Onderzoek (N.W.O.)*. The authors are indebted to John Komlos, whose comments on a draft version of this paper proved most valuable. The authors, however, remain fully responsible for all errors.

2 The first empirical evidence of this so called early industrial growth puzzle or paradox (cf.: *J. Komlos*, Modern Economic Growth and the Biological Standard of Living, Paper, presented to the European Social Science History Conference (Economics-session 23: "Biological Standards of Living in Rural Regions During the Early Nineteenth Century"), Noordwijkerhout (The Netherlands), May 9-11, 1996, p. 2) was reported by Margo and Steckel in 1983 for American white men, born between 1830 and 1860 (*R. Margo/R.H. Steckel*, Heights and Native-Born Whites during the Antebellum Period, in: Journal of Economic History 43, 1983, pp. 167-174). Several other, similar cases were collected and discussed by Komlos and Steckel, among others (*J. Komlos*, On the Significance of Anthropometric History, in: Rivista di Storia Economica 11, 1994, pp. 97-109; *J. Komlos (ed.)*, Stature, Living Standards, and Economic Development: Essays in Anthropometric History, Chicago 1994; *R.H. Steckel*, Stature and the Standard of Living, in: Journal of Economic Literature 33, 1995, pp. 1903-1940). A daring attempt to explain the early industrial growth puzzle by applying straightforward economic theory was for the first time presented by Komlos during the European Social Science History Conference, held at Noordwijkerhout, The Netherlands, from 9-11 May, 1996, (*Komlos*, Modern Economic Growth) and subsequently vigourously debated during the Pre-Conference for the A-Session of the XII International Economic History Congress "The Biological Standard of Living and Economic Development: Anthropometric Measures, Nutrition, Health and Well-Being in Historical Perspective", January 18-21, 1997, Munich. The essential characteristics of the e.i.g.-puzzle are summarized in section 2 of this paper.

3 *Komlos*, On the significance, pp. xii-xv; *Komlos*, Stature; *Komlos*, Modern Economic Growth. The commonly accepted names, both for that special branch of economic history that deals with the relation between anthropometric measures and material circumstances in the past - anthropometric history - and for the variable that is at the heart of this new discipline - biological standard of living -, were also introduced by Komlos.

4 *J. Mokyr*, Is there still life in the pessimist case? Consumption during the industrial revolution, 1790-1850, in: Journal of Economic History 48, 1988, pp. 69-92.

mark is fading away more and more, as long as we restrict ourselves to *early* phases of economic modernization.

II. The 'Puzzle' and Komlos's Attempt to Explain it

Margo and Steckel were the first to report in 1983 the famous anomaly of a marked decline in the physical stature of common people (and probably the vast majority of the population) during a time when the economy in which they lived was - according to a wealth of historical evidence - vigourously growing. Similar paradoxical findings were reported in the years that followed: for Swedish recruits, born between 1730 and 1790[5]; for Habsburg soldiers, born between 1740 and 1790[6]; for Bavarian males born between 1755 and 1775[7]; for English and Irish soldiers in the British army between 1740 and 1790, and for English boys between 1740 and 1840[8]; for boys in the Habsburg monarchy, born between the 1760s and the 1790s[9]; for both English adult convicts and British servants in colonial North-America between 1720 and 1755, and finally for English convicts sent to Australia, between 1780 and 1800[10].

While all these cases apply to people born in the 18th century, that is, during the "classical phase" of the Industrial Revolution, the 'early industrial growth puzzle' became even more enigmatic when it became clear that the pattern repeated itself in numerous countries during the first half the 19th century, a period that - for almost all of the countries involved - can be characterized as the onset of modern economic growth, in the sense that modernization was well underway. Both free black males and females became shorter between 1820 and 1840 (decade of birth)[11]; the height of young white convicts, born in the American South and convicted in Georgia decreased between the 1820s and 1860[12]; heights of Bavarian men and women declined between the first years of the 1820s and the 1840s[13], and the same can be said of Scottish and Irish adult convicts, born between 1810 and 1830[14], and of West Point Cadets, born between 1843 and 1858[15]. Recently Drukker and Tassenaar discovered yet another similar case: The nowadays notoriously tall Dutch consripts, who were by the way not exceptionally tall during the first half of the 19th century, shrunk on average by more than 3 cms. between 1830 and

---

5 *L.G. Sandberg/R.H. Steckel*, Heights and Economic History: The Swedish Case, in: Annals of Human Biology 14, 1987, pp. 101-110.

6 *J. Komlos*, Nutrition and Economic Development in the Eighteenth Century Habsburg Monarchy: An Anthropometric History, Princeton 1989.

7 *J. Baten*, Ernährung und wirtschaftliche Entwicklung in Bayern, 1750-1850, Stuttgart 1999.

8 *J. Komlos*, The Secular Trend in the Biological Standard of Living in the United Kingdom, in: Economic History Review 46, 1993, pp. 115-144.

9 *Komlos*, Nutrition.

10 *S. Nicholas/R.H. Steckel*, Heights and Living Standards of English Workers during the Early Years of Industrialization, in: Journal of Economic History 51, 1991, pp. 937-957; *J. Komlos*, A Malthusian Episode Revisited: The Height of British and Irish Servants in Colonial America, in: Economic History Review 46, 1993, pp. 768-782.

11 *J. Komlos*, Towards an Anthropometric History of African Americans: The Case of the Free Blacks in Antebellum Maryland, in: *C. Goldin/H. Rockoff (eds.)*, Strategic Factors in Nineteenth Century American History: A Volume to Honor Robert W. Fogel, Chicago 1992, pp. 297-329.

12 *J. Komlos/P. Coclanis*, On the Puzzling Cycle in the Biological Standard of Living: the Case of Antebellum Georgia, in: Explorations in Economic History 34, 1997, pp. 433-459.

13 *Baten*, Ernährung.

14 *J. Riggs*, The Standard of Living in Scotland, 1800-1850, in: *Komlos*, Stature, pp. 60-75.

15 *J. Komlos*, Anomalies in Economic History: Reflections on the Antebellum Puzzle, in: Journal of Economic History 58, 1998, pp. XX-YY.

1857 (conscription-years)[16]. As a result Dutch conscripts in the late 50s of the 19th century were, for instance, smaller than their French counterparts[17].

Perhaps one of the most intriguing aspects of the 'early industrial growth puzzle' is the fact that some groups have been found whose height either increased or remained constant, while most of the people were becoming smaller. These groups include German - upper and middle class - students during the third quarter of the 18th century[18]. Moreover, adult American male slaves and American middle class cadets increased in height between 1820 and 1840[19].

In 1996 Komlos proposed an explanation of the e.i.g.-puzzle within a framework of standard economic theory. To be consistent, he also incorporated the 'exceptions' to the e.i.g.-puzzle into his model. His explanation rests on eleven basic arguments. According to Komlos, on the eve of economic modernization[20]:

(1) Incomes tended to become more unevenly distributed; (2) Food prices rose relative to the prices of other goods, due to a lagging of technological change and capital accumulation in agriculture, compared with industry; (3) The year to year variability of income of common people tended to increase; (4) Large groups of people, who had before been living in a situation of more or less economic selfsuffiency, were gradually integrated into the market economy, and thus, became more vulnerable to rising food prices; (5) Population growth, in combination with diminishing returns to labor in the agricultural sector, contributed to a deteriorating nutritional status; (6) Increased urbanization in itself led to higher food prices for a growing percentage of the population, as long as an insufficient transport technology hampered a reduction of differences between rural and urban food prices; (7) Accelerated industrialization meant substantial sectoral shifts within the labor force, which in turn implied that an ever smaller number of farmers had to produce food for a steadily increasing number of industrial households; (8) Intensification of labor would occur, as the spread of industries provided more opportunities for children to work in factories; (9) Increasing population density, in combination with growing urbanization and a rising trade volume, created a increasingly favorable environment for transmitting diseases.

To these nine arguments that are, so to say, endogeneous or unavoidable factors accompanying the general historical process of modernization, wherever it took place in Europe or in the United States, somewhere during the second half of the 18th and the first half of the 19th century, Komlos added two other arguments of a more exogeneous character:

(10) Weather conditions worsened in Europe during the second half of the 18th century, which had a negative impact on agricultural productivity, thereby worsening the nutritional status of Europeans; (11) The periods of decline in the biological standard of living culminated in major wars in Europe, the first period of declining heights culminated in the Napoleonic

16 *J.W. Drukker/V. Tassenaar*, Paradoxes of Modernization and Material Well-Being in the Netherlands during the Nineteenth Century, in: *R.H. Steckel/R. Floud (eds.)*, Health and Welfare during Industrialization, Chicago 1997, pp. 331-377.

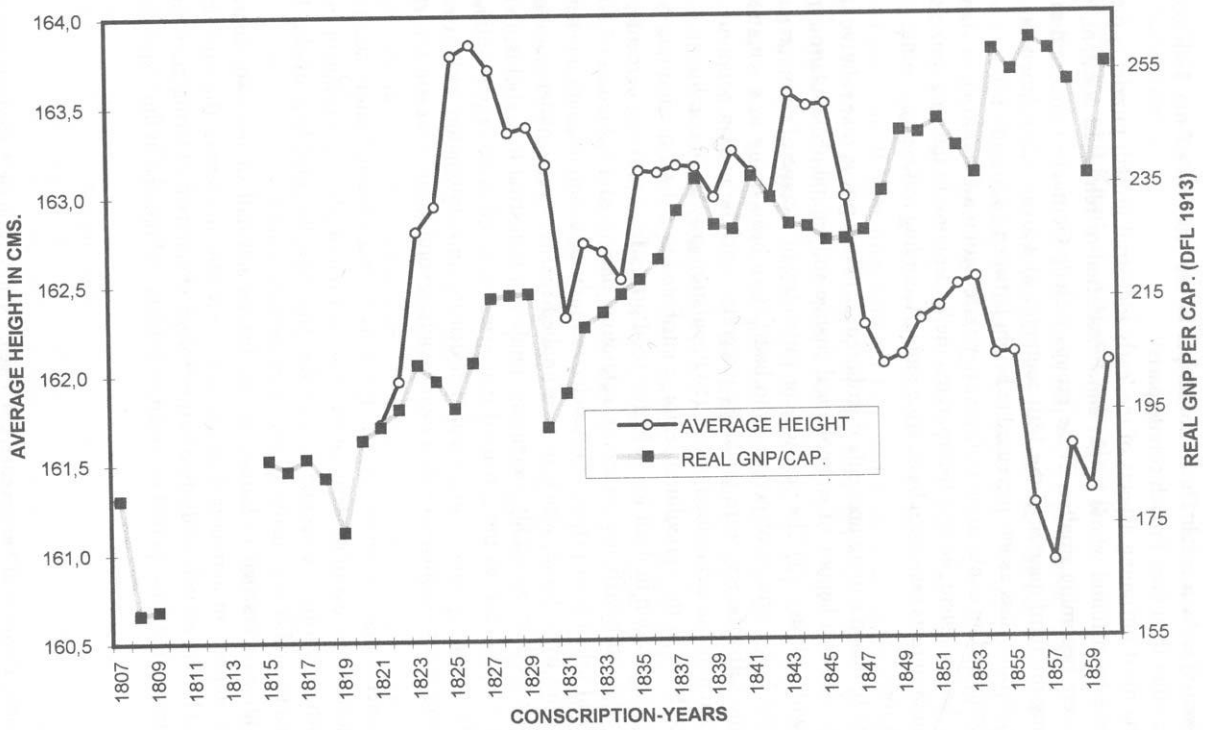
17 *Drukker/Tassenaar*, Paradoxes, Fig. 9.2, p. 342.

18 *J. Komlos*, Height and Social Status in Eighteenth Century Germany, in: Journal of Interdisciplinary History 20, 1990, pp. 607-621.

19 *Komlos/Coclanis*, On the Puzzling Cycle; *R.H. Steckel*, The Health of American Slaves: New Evidence and Analysis (unpublished manuscript), Ohio 1995.

20 *Komlos*, Modern Economic Growth, pp. 2-11.

FIGURE 1: REAL GNP PER CAPITA AND AVERAGE HEIGHT, 1807-1860



Source:
Statistical Appendix, Columns 1 and 2.

Wars, while the outbreak of the American Civil War marked the end of the second period of worsening material conditions[21].

Given the fact that, as Komlos's explanatory scheme suggests, the majority of the factors cited above, were unavoidable side-effects of the modernization-proces, the question arises whether the same mechanisms were also at work in a country that has not yet been mentioned so far in connection to the early industrial growth puzzle, The Netherlands. It is of particular interest in this respect, as it was the first 'modern economy' in the pre-modern era of the western world, the golden age of the Dutch Republic in the 17th century, while, two centuries later, it was slower to industrialize than most other European countries. In other words, it would be interesting to examine the extent to which the e.i.g.-puzzle pertains to The Netherlands, during its renewed attempt at modernization in the first half of the 19th century. We shall also examine whether Komlos's explanatory scheme fits the experience of The Netherlands.

III. Another Puzzling Example: Shrinking Dutchmen in a Growing Economy

If the 'early industrial growth puzzle' can be characterized by a continuous and substantial decline in the biological standard of living of the majority of the population over a prolonged period - say, 20 years or more - , in which the economy was growing, it becomes evident from Figure 1, that the case of The Netherlands between the late 1820s and the late 1850s is another example of this historical paradox. While the average height of Dutch conscripts rose between 1821 and 1826 (reflecting most probably a rapid improvement of general living conditions after the notouriously bad circumstances during the French occupation in the Napoleonic period), heights began to fall rapidly from 1830 to 1857, only interrupted by a temporary and partial recovery between 1832 and 1844. As a result, 20-years old Dutch conscripts measured in the late 1850s were smaller than their counterparts had been been around the beginning of the 19th century. Yet, Dutch real GNP per capita was growing at an average rate of more than 0.50 percent per year. It is interesting to see that a clear pattern of economic growth and stagnation can be identified for the first half of the 19th century: A decline during the last years of French occupation (1807-1812); Vigourous growth (approximately 1.5 percent per year on average) between 1812 and 1840, that may be interpreted (at least for the first years) as a catching-up process after the extremely depressed period of the French occupation; a short period of decline between 1840 and 1847, followed by a moderate but steady growth-rate of slightly less than 1 percent per year during the two decades between 1847 and 1867. This pattern implies that only the cohorts measured between 1827 and 1831, and those measured between 1847 and 1851 experienced sometime during their lifetime a drop in the real product per capita, and that the decline in physical stature of cohorts, measured after 1851 (so, born after 1831) correlated negatively with the trend of real GNP per capita.

Given that Komlos's explanation of the 'early industrial growth puzzle' centers around the process of economic modernization, we next compare the trend of heights between relatively modern and backward regions. The Netherlands is of special interest in this respect, because

---

21 The author himself admits that the last argument (war) cannot possibly have been a major factor in the explanantion of the declining biological standard of living: "...Yet, the beginning of the decline in nutritional status preceeded the onset of both these conflicts, and hence could not have been caused by them. Moreover, the fact that slaves and middle class cadets born in the 1840s, who lived through the Civil War as teenagers did not decline in height is an indication that the war's impact was not general. Moreover, the fact that heights rose among the Ohio National Gueardsmen as well as among West Point Cadets born shortly after the war indicates that its impcat was temporary..." (*Komlos*, Modern Economic Growth, pp. 11-12).

there were clear and distinguished regional differences in economic backwardness during the first half of the nineteenth century.

IV. Regional Differences in Economic Modernization in The Netherlands[22]

Small as the country may be, there were - and to a certain degree, there still are - substantial regional differences in physical geography, economic structure, and social conditions. The most crude regional division is three-fold: urban, modern-agricultural, and traditional-rural. The urban region consists of the provinces of Noord-Holland and Zuid-Holland in the west of the country, and is characterized by relatively large towns, of which some were known as centers of urban industry as early as the Middle Ages, and declined substantially thereafter (for example, Delft or Leyden), while others gained their reputation as international ports during the Golden Age of the Republic (i.e., Amsterdam or Rotterdam). Together with the province of Zeeland in the south-west, Noord- and Zuid-Holland constituted the core of the maritime empire in the 17th century. Of course, agriculture also existed in Holland and Zeeland in the days of the Republic, and it continued to do so when the waning of the Dutch empire began: Agriculture in these regions was dominated by horticulture, and advanced dairy farming. With the decline of the seaports of Zeeland (Middelburg or Veere, for instance) after the 17th century, agriculture grew relatively in importance, so that at the beginning of the 19th century, Zeeland was generally considered to belong to the modern-agricultural regions, of which the other part was in the northern provinces of Groningen and Friesland. Large-scale, specialized, market-oriented, "capitalistic" agriculture, dairy-farming and animal husbandry dominated the picture in these regions, as early as the 17th century, and continued to do so in the following centuries, until the present day. Broadly speaking, the modern-urban and modern-agricultural provinces of the nation consisted of rich, alluvial soils, while the rest of the country, the traditional-rural provinces of Drenthe, Overijssel, Gelderland, Utrecht, Noord-Brabant and Limburg, located in the east and south-east were characterized by poor, diluvial soils. It is important to realize that the famous 'modernity' of the 17th century Republic hardly applied to these so called 'landlocked provinces'. In fact, these regions were rather isolated from the rest of the country, except for the inter-regional export of peat, the main industrial fuel. A traditional rural economy dominated. Local and regional markets played a more important role than the national or international markets. Self-suffiency became even more pronounced when market prices deteriorated. This traditional system persisted well into the first decade of the 20th century.

V. Regional Differences in Height and Mortality

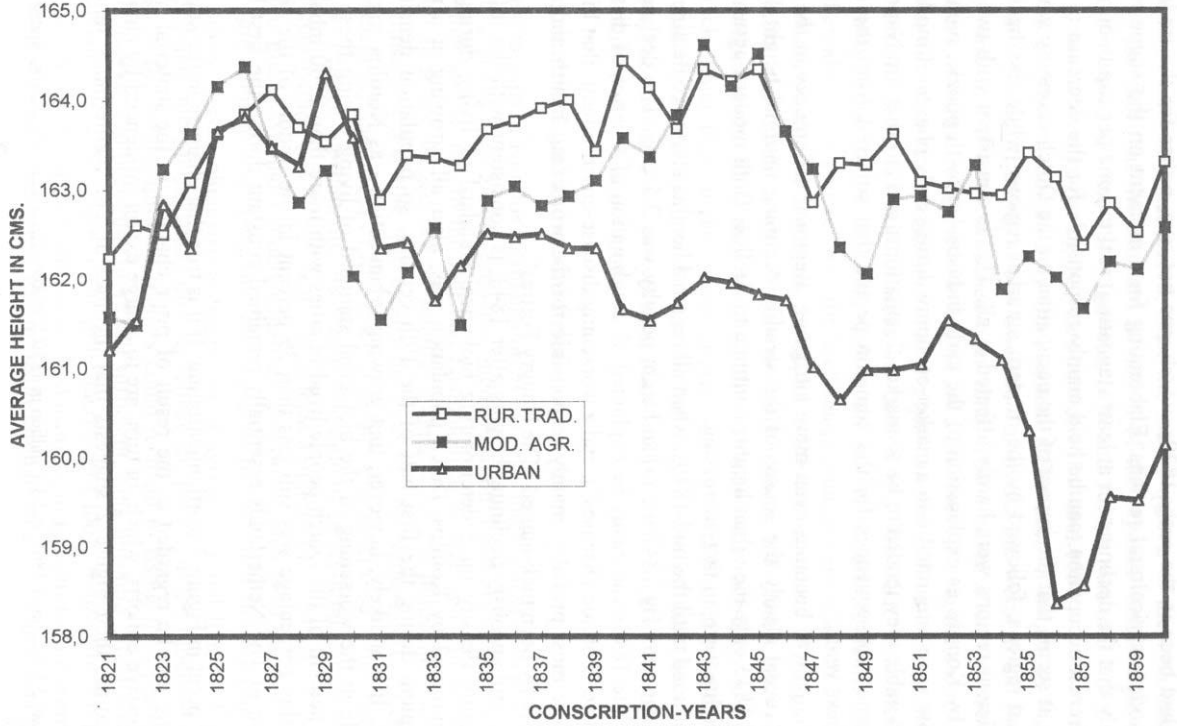
When we examine the regional differences in height in order to explain the contradictory picture of declining heights in a growing economy that prevailed in The Netherlands between 1830 and 1857, the following pattern becomes apparent (Figure 2):

1. Up to 1827 the rising national average height is clearly reflected in the three regional averages that rise also steeply and all at about the same rate;

2. Between 1827 and 1833 all three regional averages declined, but at a markedly different rate: Heights in the traditional-rural regions were hardly affected, while modern-agrarian heights declined much faster. The worst, however, were heights in the urban areas. There the fall in heights was so severe that Dutch city-dwellers in the early 1830s were significantly

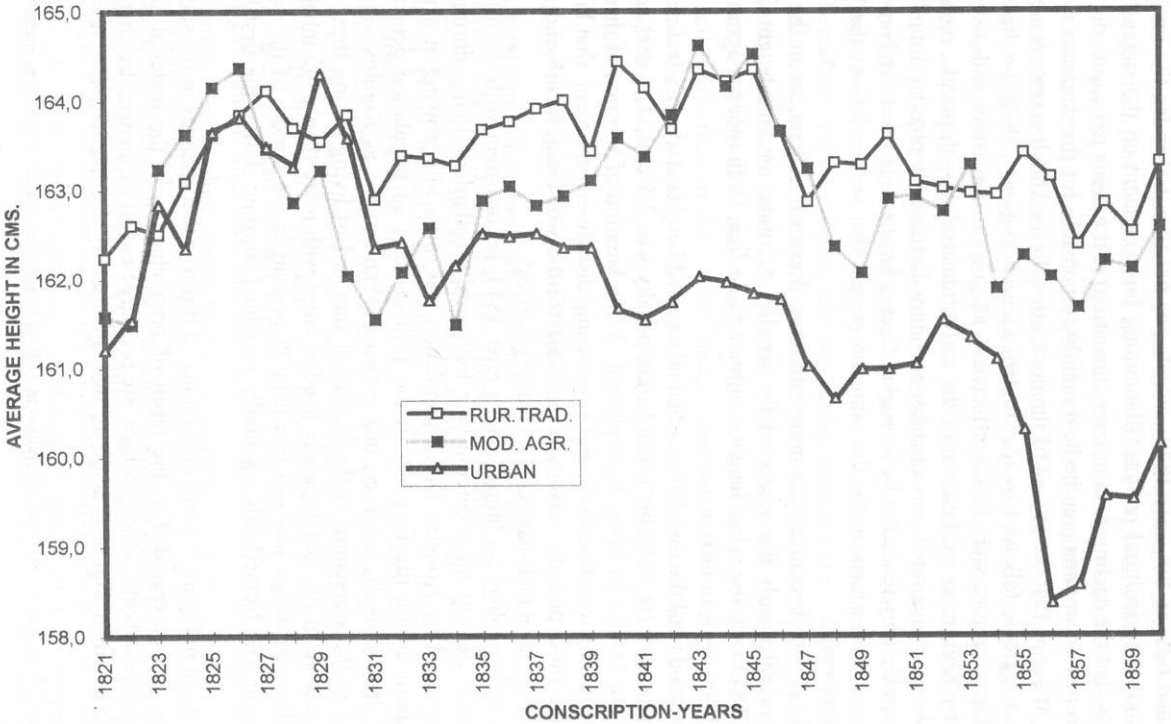
22 A more elaborate treatment of regional economic differentiation and relative backwardness in The Netherlands during the 19th century can be found in: *Drukker/Tassenaar*, Paradoxes.

FIGURE 2: RURAL-TRADITIONAL, MODERN-AGRICULTURAL AND URBAN HEIGHTS, 1821-1860



Source:
Statistical Appendix, Columns 3, 4 and 5.

FIGURE 2: RURAL-TRADITIONAL, MODERN-AGRICULTURAL AND URBAN HEIGHTS, 1821-1860



Source:
Statistical Appendix, Columns 3, 4 and 5.

smaller than they had been in the early 1820s, which was not true, either for the traditional-rural, or for the modern-agricultural regions. Elaborating for a moment on the suggestion we made above, namely that the declining (or at least stagnating) real income per capita during the last years of the French occupation, can be held mainly responsible for the decrease in height during these years, it seems that the impact of the occupation on the Dutch economy was most severe on the urban regions, followed by the modern agrarian regions, while the 'backward', relatively self-sufficient regions were hardly affected at all. This is consistent with two of the factors, suggested by Komlos as explanation of the early-industrial-growth puzzle, namely (a) that the more people were integrated into a market-economy during early phases of modernization, the more vulnerable they tended to be to market fluctuations; and (b) that the Napoleonic period had disasterous consequences for the common people that suffered from the French agression during these years.

3. After 1833 the pattern becomes even more intriguing: Regional differences in the development of stature reveal clearly the source of the steadily declining national height figures. Between 1833 and 1843 only the urban heights continue to decline; Both modern-agrarian and rural-traditional heights were, in fact, increasing.

This pattern continued until the mid-1840s, when all regional heights started to decline again, and again at the same rate. By 1847 the urban height penalty was 2.5 cms. The decline in all heights during the late 1840s can easily be explained: A combination of a series of disastrous harvests (the so called "Potatoe Diseases"), and a worsening disease-environment, that hit especially the cities, were most probably mainly responsible for the worsening health and stature during these years, aptly been nick-named "The Hungry Forties".

The pattern of simultaneously declining heights after 1843, is consistent with the influence of growing population density on a deteriorating biological standard of living during early modernization, mentioned by Komlos. Dutch population was, after all, growing at a rate of 0.8 percent per annum during the first half of the 19th century, so population density was indeed increasing[23]. It is unlikely, however, that growing urbanization - as Komlos suggests - played a major role in the worsening of the biological standard of living during these years: Approximately 37 percent of the Dutch people lived in cities with more than 2500 inhabitants around 1800, and this percentage was still less than 39 percent in the middle of the century. Hence, urbanization in The Netherlands essentially remained constant during the first half of the 19th century[24].

There is another point in Figure 2 worth mentioning: If it is true that changes in the stature of conscripts over time can be regarded as the result of prior changes in the material circumstances of the successive cohorts, which, in turn, are to a large extent influenced by changes in real disposable income, then Figure 2 suggests that incomes in The Netherlands tended to

23 Dutch population was 2.1 million in 1805 and 3.1 million in 1850 (*Drukker/Tassenaar*, Paradoxes, Statistical Appendix, Table 9A.3).

24 According to De Vries and Van der Woude, 40 % of the Dutch population in 1795 lived in cities. However, 7.1 % of the city-dwellers lived in cities that had less than 2500 inhabitants. So: 40 % - (0.071 * 40 %) = 37.2 % lived in cities with 2500 or more inhabitants. The year 1795 was taken as a proxy for 1800 (*J. De Vries/A.M. van der Woude*, Nederland 1500-1815. De eerste ronde van moderne economische groei, Amsterdam 1995, pp. 82-83). According to the official census of December 1849, 36 % of the total population of The Netherlands lived in cities. The same source indicates that 0.9 % of total population lived in cities that had fewer than 2500 inhabitants, but not every urban center had the official status as a city. In these places lived 3.4 % of total population. So, the urbanization rate (percentage) was in 1850 approximately 36.0 % - 0.9 % + 3.4 % = 38.5 %. Cf.: *Steckel/Floud*, Health and Welfare, p. 442.

become more unevenly distributed, since the second quarter of the 19th century. This is illustrated by the fact that the standard deviation of the regional height figures was on average 1.4 cm. between 1823 and 1827; between 1828 and 1843 it rose to 5.4 cm., while it was more than 7.4 cm. on average during the years between 1844 and 1851.

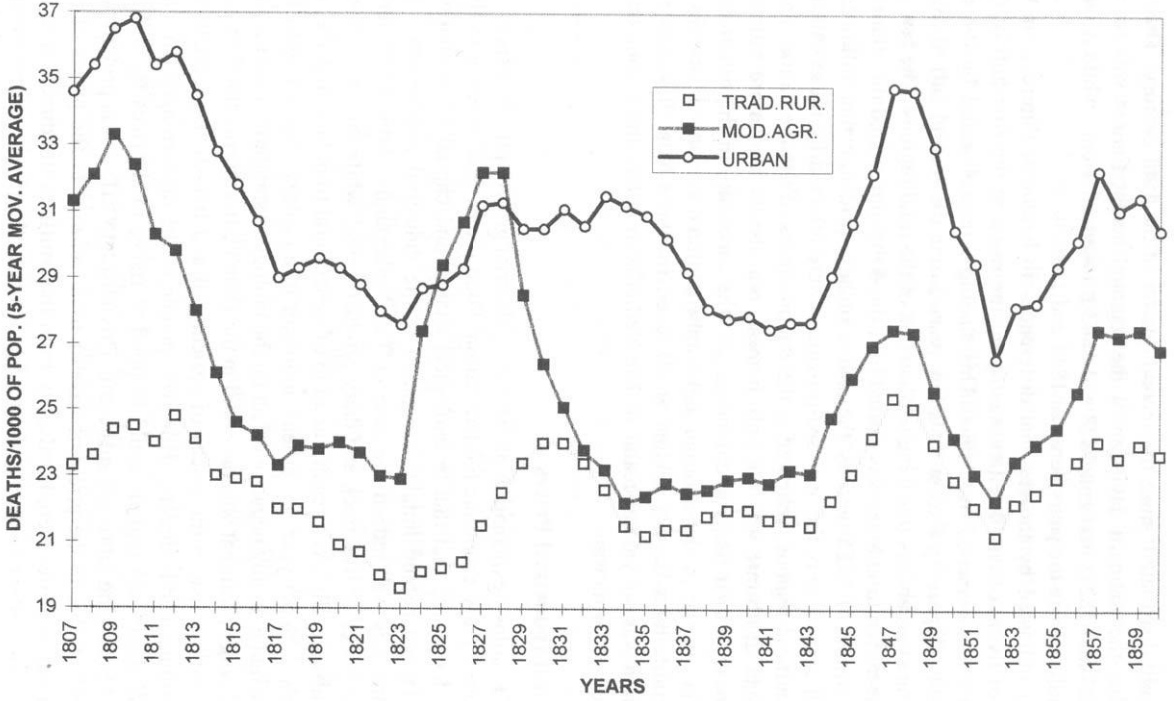
The main pattern indicated by the regional differences in height in Figure 2, is that the biological standard of living of city dwellers was by far the worst in the first half of the 19th century, and that it even worsened over time. This finding is corroborated by the regional differences in mortality (Figure 3). Except for a few years during the second half of the 1820s, the urban mortality rate was always much higher than that of the rural regions. The few years of crisis mortality in the agricultural areas was caused by a flood that devastated the shores of The Netherlands in the winter of 1825, and by the severe malaria-epidemic that followed in the years thereafter[25]. Of course, only the 'wet' sea-provinces were affected by these catastrophes, but all modern-agricultural regions, belonged to the sea-provinces of the the nation. For all the other years, the urban death-rate was not only highest, but clearly also more vulnerable to sudden negative shocks to their material circumstances: the variability of the urban death-rate was much larger than in the moder-agrarian and rural-traditional regions. It should also be noted that the mortality-rates do not decline at all, even by the 1860s. It seems that, the demographic transition was not yet noticeable in The Netherlands before the second half of the 19th century was well under its way.

VI. Agricultural and Industrial Prices

An essential part of Komlos's explanation of the early industrial growth puzzle rests on changes in relative prices during early economic modernization: Food prices rose, relative to the prices of all other goods, due to the fact that technological change and capital accumulation in the agricultural sector lagged behind initally, compared to the industrial counterparts. Figure 4 clearly illustrates that this was indeed the case in The Netherlands. After 1825 agricultural prices (inclusive the prices of live-stock and dairy products) rose, while the price of industrial products declined substantially. As a result, the ratio of agricultural to industrial prices rose at a rate of approximately 1 % per year, for at least a quarter of a century. According to Komlos's view, this must have had a doubly negative effect on the biological standard of living: Given the rather rigid nominal wage level that was prevailed in the Dutch cities during the first half of the 19th century, the absolute rise in the prices of agricultural and live-stock products impinged most probably nutritional status directly. However, people in the modern-agrarian - and even more so in the rural-traditional regions could respond to rising food prices by shifting away from the market and becoming more self sufficient. This 'absolute' effect was probaly acerbated by a 'substitution' effect: due to the price increase of food, *relative* to the prices of industrial products, consumer expenditures were lured away from foodstuffs in the direction of non-food items. And of course, this effect was probably stronger in cities, than it was in the countryside.

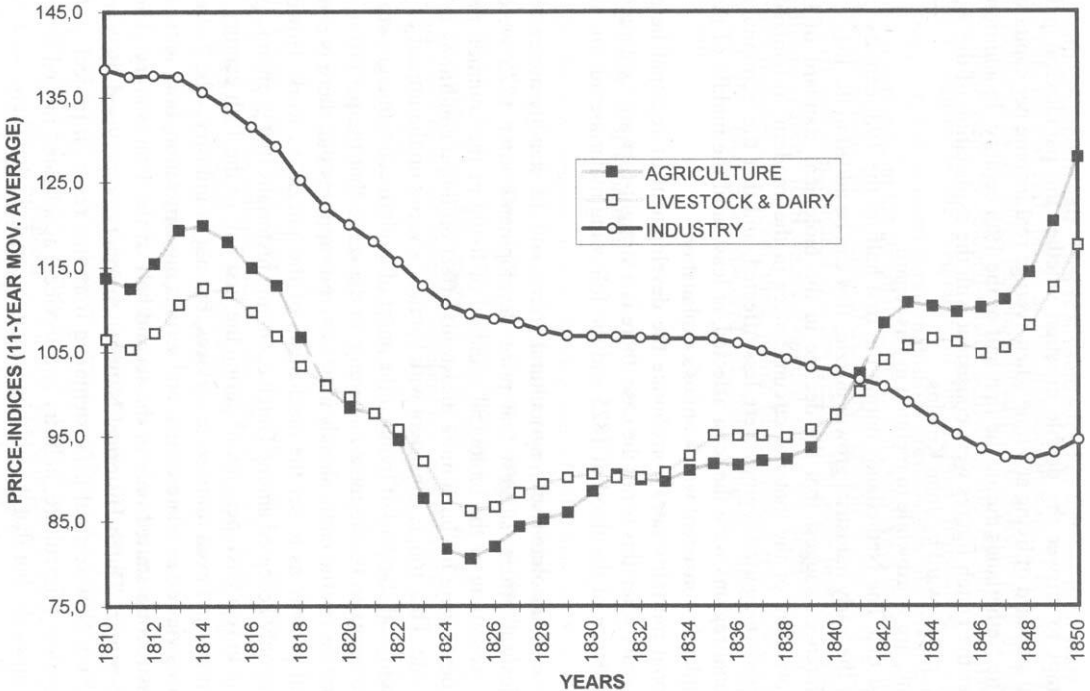
25 *W. Tromp*, Een Vliegende Dood. Een onderzoek naar de relatie tussen een overstroming in 1825 en de plotselinge toename van het aantal sterfgevallen in de provincie Groningen (unpublished manuscript), Groningen 1997.That there is already a steep rise in the mortality-rate in the modern-agricultural regions, beginning with 1824 -that is: a year before the flood- is caused by some 'slur' in the numbers on which Figure 3 is based: a 5-year moving average of yearly mortality rates.

FIGURE 3: TRADITIONAL-RURAL, MODERN-AGRICULTURAL AND URBAN DEATH RATES, 1807-1860



Source:
Statistical Appendix, Columns 6, 7 and 8.

FIGURE 4: TRENDS OF AGRICULTURAL PRICES, PRICES OF LIVESTOCK & DAIRY PRODUCTS, AND INDUSTRIAL PRICES, 1810-1850



Source:
Statistical Appendix, Columns 9, 10 and 11.

VII. Conclusion

We made an attempt to answer the double question whether the paradoxical pattern of a declining biological standard of living at a time when average real income per capita was rising, also pertained to The Netherlands during the first half of the 19th century. In addition, we tried to ascertain whether the Dutch figures were consistent with the explanation of the 'early industrial growth puzzle', put forward by John Komlos.

Five points, we think, are worthwhile to mention in this regard:

1. We found that that The Netherlands during the first half on the 19th century constitutes another example of the 'early industrial growth puzzle', that can be added to the list;

2. Regional differences suggest that the decline in the biological standard of living was dominated by a worsening of the material circumstances in the 'modern', urbanized areas of Holland, that the modern-agarian regions were less affected, and that the 'economically backward', rural-traditional regions were the least affected, at least until the middle of the century. This pattern is completely consistent with Komlos's explanation.

3. Data on regional mortality-rates corroborate the development of regional height differences. For the few years when this is not the case, there is a straight-forward explanation, based on the historical evidence of the flood of 1825 and the following malaria-epidemic to account for it.

4. Both the long-term, absolute rise in agricultural prices, and the steadily increasing ratio of agricultural to industrial prices, suggest that price developments after 1825 were, indeed, contributing to the worsening of the biological standard of living of the common people, and that these developments were having a more disastrous effect on living conditions in the cities than in the countryside. This, too, is consistent with Komlos' s views on the impact of economic processes on the biological standard of living at the onset of modern economic growth.

5. The last point seems to be the most intriguing, in the sense that the pattern of the 'early industrial growth puzzle' (as the name already indicates), presupposes that there is some noticeable 'early industrial growth' as to set the mechanism of the 'puzzle' to work. However, until recently it was commonly accepted among Dutch economic historians that economic growth (as measured by the rise in real GNP per capita) during the first half of the 19th century, was concentrated in agriculture, and even more so in services, but not in industry. The Netherlands in the 19th centrury, was viewed as a late-comer, and serious modernization, both in the industrial sector, and in infrastructure started only in the second half of the 19th century. The recently completed research-project 'Dutch Historical National Accounts', supervised by Van Zanden, has altered this picture. New sectoral data, stemming from this research project, indicate that productivity in all sectors (agriculture, industry and services) accelerated indeed from the mid-nineteenth century onwards, but that it would be wrong to conclude that there were no productivity gains at all in the industrial sector during the first half of the 19th century. The annual average compound growth rate of real value added per capita between 1807 and 1857 was 0,16 percent for the agricultural sector; 0,60 percent for industry, and 0,87 percent for services[26]. We conclude that there was indeed some early industrial growth in The Netherlands, be it

---

26 Value added at constant prices (Dutch guilders of 1913) in 1807 was for the agricultural sector 170.8; for industry 79.7; for services 141.2. In 1857 they were respectively: 282.0; 164.3, and 331.0. Dutch population stood at 2.16 million in 1807 and at 3.29 million in 1857. Data from: *J.P. Smits/E. Horlings/J.L. van Zanden*, The Measurement of Gross National Product and its Components The Netherlands, 1800-1913, Research Memorandum of the N.W. Posthumus Institute 1, 1997, Table II.4, pp. 62-63; Table III.4, p.74.

that the rate of economic modernization in the first half of the 19th century was very modest, compared with the second half. That real value added in services grew faster than in agriculture or in industry during this early phase of Dutch modernization, is less surprising than it seems at first sight. Research by Horlings has shown that productivity growth in this sector was dominated during these years by colonial-related activities, and that the very nature of these activities tended to aggravate the inequality of the income distribution: "....International trade, merchant shipping, and selected export industries grew rapidly in response to the opportunities provided by government in the colonial sector. (...) In many ways the economic expansion of the Golden Age resembled the process of economic growth in the first half of the nineteenth century. Growth was concentrated in a few sectors that were prodominantly oriented towards the international market. Real wages stagnated, while the distribution of incomes and wealth became more unequal..."[27]. Again, these points fit seamlessly into Komlos's explanation of the worsening of the biological standard of living during the early phase of economic modernization.

Sources to the Statistical Appendix:

Column 1: Dutch real gross national product (Dutch guilders of 1913) from: *J.P.Smits/E. Horlings/J.L.van Zanden*, The Measurement, Table II.5, Total and per capita gross national product at current and constant prices, 1807-1913. Note: The first printing of this source contains a separate (and disturbingly elaborate) 'Erratum'. We corrected our figures with the data from the 'Erratum', where necessary.
Column 2: Average height of Dutch conscripts (19-3/4 years of age) in cms. (conscription years). These figures are new estimates by Drukker and Tassenaar, calculated as a weighted average from Provincial data. Earlier figures (c.f: *Drukker/Tassenaar*, Paradoxes, Table 9A.1, p. 356) underestimated national height figures over this period, as city dwellers were over-represented in the sources where these earlier estimates were based upon. For details, see: *J.W. Drukker/Vincent Tassenaar*, New National and Regional Estimates of the Height of Dutch Conscripts, 1821-1860, Research Memorandum from the Groningen Growth and Development Centre, Groningen, (forthcoming).
Column 3: Average height of Dutch conscripts (19-3/4 years of age) in cms. (conscription years) in the rural-traditional regions of The Netherlands, calculated as a weighted average of provincial data from the provinces of Drenthe, Noord-Brabant, and Limburg. Provincial numbers of births (20 year lagged) were used as weights for the consecutive cohorts. For details, see: *Drukker/Tassenaar*, New National and Regional Estimates.
Column 4: Average height of Dutch conscripts (19-3/4 years of age) in cms. (conscription years) in the modern-agricultural regions of The Netherlands, calculated as a weighted average of provincial data from the provinces of Groningen, Friesland and Zeeland. Provincial numbers of births (20 year lagged) were used as weights for the consecutive cohorts. For details, see: *Drukker/Tassenaar*, New National and Regional Estimates.
Column 5: Average height of Dutch conscripts (19-3/4 years of age) in cms. (conscription years) in the urban regions of The Netherlands, calculated as a weighted average of provincial data from the provinces of Noord-Holland en Zuid-Holland. Provincial numbers of births (20 year lagged) were used as weights for the consecutive cohorts. For details, see: *Drukker/Tassenaar*, New National and Regional Estimates.
Column 6: Five-year moving average of the crude death rate in the tradiotional-rural regions of The Netherlands per 1000 of total population (yearly; end of year). The data are calculated from: *E. Horlings*, De ontwikkeling van de Nederlandse bevolking in de negentiende eeuw, 1795-1913 (unpublished manuscript), Amsterdam 1993, Appendix 2, pp. 18-22. The yearly mortality figures in the traditional-rural regions are calculated as weighted averages of the figures for Noord-Brabant, Gelderland, Utrecht. Overijssel, Drenthe en Limburg, with yearly total population figures of these provinces as weights. Yearly total population per province from: *Horlings*, De ontwikkeling, Appendix 1.

---

27 *E. Horlings*, The Economic Development of the Dutch Service Sector 1800-1850: Trade and Transport in a Pre-modern Economy, Amsterdam 1995, pp. 300; 309-310.

Column 7: Five-year moving average of the crude death rate in the modern-agricultural regions of The Netherlands per 1000 of total population (yearly; end of year). The data are calculated from: *Horlings*, De ontwikkeling, Appendix 2, pp. 18-22.The yearly mortality figures in the modern-agricultural regions are calculated as weighted averages of the figures for Groningen, Friesland and Zeeland, with yearly total population figures of these provinces as weights. Yearly total population per province from: *Horlings*, De ontwikkeling, Appendix 1.
Column 8: Five-year moving average of the crude death rate in the urban regions of The Netherlands per 1000 of total population (yearly; end of year). The data are calculated from: *Horlings*, De ontwikkeling, Appendix 2, pp. 18-22.The yearly mortality figures in the urban regions are calculated as weighted averages of the figures for Noord-Holland and Zuid-Holland, with yearly total population figures of these provinces as weights. Yearly total population per province from: *Horlings*, De ontwikkeling, Appendix 1.
Column 9: Eleven year moving average of the price index (1831/=50=100) for agricultural products. Original yearly data from: *R.F.J. Paping*, Voor een handvol stuivers. Werken, verdienen en besteden: de levensstandaard van boeren, arbeiders en middenstanders op de Groninger klei, 1770-1860, Groningen 1995, Table G.6, pp. 406-407.
Column 10: Eleven year moving average of the price index (1831/=50=100) for livestock and dairy products. Original yearly data from: *Paping*, Voor een handvol stuivers, Table G.6, pp. 406-407.
Column 11: Eleven year moving average of the price index (1831/=50=100) for industrial products. Original yearly data from: *Paping*, Voor een handvol stuivers, Table G.6, pp. 406-407.

Statistical Appendix 1

Year	Real GNP per Cap. (DFL 1913) (Col. 1)	National Height (CMS.) (Col. 2)	Rur.-Trad. Height (CMS.) (Col. 3)	Mod.-Agr. Height (CMS.) (Col. 4)	Urban Height (CMS.) (Col. 5)
1807	180	–	–	–	–
1808	160	–	–	–	–
1809	161	–	–	–	–
1810	–	–	–	–	–
1811	–	–	–	–	–
1812	–	–	–	–	–
1813	–	–	–	–	–
1814	–	–	–	–	–
1815	187	–	–	–	–
1816	185	–	–	–	–
1817	187	–	–	–	–
1818	184	–	–	–	–
1819	174	–	–	–	–
1820	191	–	–	–	–
1821	193	161,7	162,2	161,6	161,2
1822	196	162,0	162,6	161,5	161,5
1823	204	162,8	162,5	163,2	162,8
1824	201	162,9	163,1	163,6	162,4
1825	196	163,8	163,6	164,2	163,7
1826	204	163,8	163,8	164,4	163,8
1827	215	163,7	164,1	163,5	163,5
1828	216	163,4	163,7	162,9	163,3
1829	216	163,4	163,5	163,2	164,3
1830	193	163,2	163,8	162,0	163,6
1831	199	162,3	162,9	161,5	162,4

Statistical Appendix (continued –2)

Year	Real GNP per Cap. (DFL 1913) (Col. 1)	National Height (CMS.) (Col. 2)	Rur.-Trad. Height (CMS.) (Col. 3)	Mod.-Agr. Height (CMS.) (Col. 4)	Urban Height (CMS.) (Col. 5)
1832	210	162,7	163,4	162,1	162,4
1833	213	162,7	163,4	162,6	161,8
1834	216	162,5	163,3	161,5	162,2
1835	219	163,1	163,7	162,9	162,5
1836	222	163,1	163,8	163,0	162,5
1837	231	163,2	163,9	162,8	162,5
1838	236	163,2	164,0	162,9	162,4
1839	228	163,0	163,4	163,1	162,4
1840	227	163,2	164,4	163,6	161,7
1841	237	163,1	164,1	163,4	161,5
1842	233	163,0	163,7	163,8	161,7
1843	228	163,6	164,3	164,6	162,0
1844	228	163,5	164,2	164,2	162,0
1845	225	163,5	164,3	164,5	161,8
1846	226	163,0	163,7	163,7	161,8
1847	227	162,3	162,9	163,2	161,0
1848	234	162,0	163,3	162,4	160,7
1849	245	162,1	163,3	162,1	161,0
1850	244	162,3	163,6	162,9	161,0
1851	247	162,4	163,1	162,9	161,0
1852	242	162,5	163,0	162,8	161,5
1853	237	162,5	163,0	163,3	161,3
1854	259	162,1	162,9	161,9	161,1
1855	255	162,1	163,4	162,3	160,3
1856	261	161,3	163,1	162,0	158,4
1857	259	160,9	162,4	161,7	158,6
1858	253	161,6	162,9	162,2	159,6
1859	237	161,3	162,5	162,1	159,5
1860	256	162,1	163,3	162,6	160,1

Statistical Appendix (continued -3)

Year	Rur.-Trad. Deaths	Mod.-Agr. Deaths	Urban Deaths
	(5-Year Mov. Av. per 1000 of Pop.)		
	(Col. 6)	(Col. 7)	(Col. 8)
1807	23,3	31,3	34,6
1808	23,6	32,1	35,4
1809	24,4	33,3	36,5
1810	24,5	32,4	36,8
1811	24,0	30,3	35,4
1812	24,8	29,8	35,8
1813	24,1	28,0	34,5
1814	23,0	26,1	32,8
1815	22,9	24,6	31,8
1816	22,8	24,2	30,7
1817	22,0	23,3	29,0
1818	22,0	23,9	29,3
1819	21,6	23,8	29,6
1820	20,9	24,0	29,3
1821	20,7	23,7	28,8
1822	20,0	23,0	28,0
1823	19,6	22,9	27,6
1824	20,1	27,4	28,7
1825	20,2	29,4	28,8
1826	20,4	30,7	29,3
1827	21,5	32,2	31,2
1828	22,5	32,2	31,3
1829	23,4	28,5	30,5
1830	24,0	26,4	30,5
1831	24,0	25,1	31,1
1832	23,4	23,8	30,6
1833	22,6	23,2	31,5
1834	21,5	22,2	31,2
1835	21,2	22,4	30,9
1836	21,4	22,8	30,2
1837	21,4	22,5	29,2
1838	21,8	22,6	28,1
1839	22,0	22,9	27,8
1840	22,0	23,0	27,9
1841	21,7	22,8	27,5
1842	21,7	23,2	27,7
1843	21,5	23,1	27,7
1844	22,3	24,8	29,1
1845	23,1	26,0	30,7
1846	24,2	27,0	32,2
1847	25,4	27,5	34,8
1848	25,1	27,4	34,7

Statistical Appendix (continued -3)

Year	Rur.-Trad. Deaths	Mod.-Agr. Deaths	Urban Deaths
	(5-Year Mov. Av. per 1000 of Pop.)		
	(Col. 6)	(Col. 7)	(Col. 8)
1849	24,0	25,6	33,0
1850	22,9	24,2	30,5
1851	22,1	23,1	29,5
1852	21,2	22,3	26,6
1853	22,2	23,5	28,2
1854	22,5	24,0	28,3
1855	23,0	24,5	29,4
1856	23,5	25,6	30,2
1857	24,1	27,5	32,3
1858	23,6	27,3	31,1
1859	24,0	27,5	31,5
1860	23,7	26,9	30,5

Statistical Appendix (continued -4)

Year	Trend of Prices in:		
	Agriculture	Livest. & Dairy	Industry
		(11-Year Mov. Av., 1831/'50=100)	
	(Col. 9)	(Col. 10)	(Col. 11)
1810	113,8	106,5	138,3
1811	112,5	105,3	137,4
1812	115,4	107,2	137,5
1813	119,4	110,6	137,4
1814	119,9	112,5	135,6
1815	118,0	112,0	133,8
1816	114,9	109,7	131,5
1817	112,9	106,9	129,2
1818	106,7	103,3	125,2
1819	101,1	101,0	122,0
1820	98,3	99,6	120,0
1821	97,7	97,7	118,0
1822	94,5	95,8	115,6
1823	87,7	92,1	112,8
1824	81,7	87,6	110,6
1825	80,6	86,2	109,5
1826	82,0	86,7	108,9
1827	84,4	88,3	108,4
1828	85,2	89,3	107,5
1829	86,0	90,1	106,9
1830	88,5	90,5	106,8
1831	90,4	90,1	106,8
1832	89,8	90,1	106,7

Statistical Appendix (continued -4)

Year	Trend of Prices in: Agriculture (Col. 9)	Livest. & Dairy (11-Year Mov. Av., 1831/'50=100) (Col. 10)	Industry (Col. 11)
1833	89,7	90,7	106,6
1834	91,0	92,7	106,5
1835	91,7	95,0	106,6
1836	91,6	95,0	106,0
1837	92,1	95,0	105,0
1838	92,2	94,8	104,0
1839	93,6	95,7	103,1
1840	97,4	97,4	102,7
1841	102,3	100,2	101,6
1842	108,4	103,9	100,8
1843	110,8	105,6	98,9
1844	110,3	106,5	96,9
1845	109,7	106,1	95,1
1846	110,2	104,7	93,5
1847	111,1	105,4	92,4
1848	114,3	108,0	92,2
1849	120,3	112,5	93,0
1850	127,8	117,5	94,5

On the Height of Spanish Recruits During the Early Phases of Modern Economic Growth*

By José Miguel Martínez-Carrión (Murcia) and Juan José Pérez-Castejón (Murcia)

I. Introduction

This paper is part of a larger project that investigates long-run changes in the biological standard of living of Spaniards during the 19th-20th centuries. Data collected focus on physical stature at the onset of modern economic growth. We will analyze whether there is any evidence of the historical divergence between the trends in heights and income, as observed for many now-developed countries in the nineteenth century. The existence and nature of the phenomenon referred to as the mystery of the "early industrial growth puzzle" or the "antebellum puzzle" in the American context, has been the subject of discussion and debate in North America and Europe[1].

We construct a height series on the basis of records of 127,310 conscripts born between 1837 and 1913 in nine towns of Southeastern Spain and examine the relationship between height and GDP per capita. Data show that physical stature declined between the 1850s and 1870s. From these results, we derive implications about the biological standard of living at the beginning of Spain's modern economic growth. Finally, the height trends are placed in an international context.

II. Anthropometric history in Spain

The beginning of anthropometry in Spain is associated with the so called "health debate" initiated by military and hygienist physicians, including Monlau whose, *Remedios del pauperismo* (1845), marked the beginning of this debate[2]. In view of "the moral and physical decline of the population", as some put it, reports on physical stature were published and the causes of the "physiological degeneration of civilised countries"[3] explored. The Spanish response to the pioneering work of Villermé and Quetelet in epidemiological auxology appeared from the 1860s onwards[4]. The issue was first left in the hands of military physicians, but by the turn of the twentieth century it was also being discussed by anthropologists, who warned about the disparity of "races" and the existence of inequalities across social groups. The military physi-

---

* This paper received grants from the DGICYT, Project PB94-1149 and de Departament for Universities of Murcia´s Autonomous Goverment, Projects PSH 95/35 and HUM 96/43. We are indebted to Bernard Harris and John Komlos for their hepful comments on an earlier version of this paper, and to Ginés Diaz Carmona for his help in the data collection and computation between 1995-1997, and to Pilar Martínez Pelegrin for her review of the English version.

1 *J. Komlos*, Shrinking in a growing economy? The mystery of physical stature during the Industrial Revolution, in: Journal of Economic History 58, 1998, pp. 779-802.

2 The firt study was by the physician *G. Andrés-Espala*, Consideraciones sobre las variedades de estatura e influencia que ejercen en la salud. Discurso leído en el acto de investidura de Doctor, Facultad de Medicina y Cirugía, Universidad Central Madrid, 1854.

3 *M. Tschouriloff*, Estudio sobre la degeneración fisiológica de los pueblos civilizados (causas de la degeneración), in: La Gaceta de Sanidad Militar III, 1877, pp. 45-52, 109-115, 192-199, 276-283, 301-05, 363-66, 384-92.

4 *F. Bona*, Estadística fisica de las tallas y de los defectos fisicos, in: Revista General de Estadística II, 1863, pp. 305-321. *A. Chinchilla*, Estadística de Sanidad Militar, in: Revista General de Estadística III, 1864, pp. 1-31.

cian Gregorio Andrés-Espala pointed out that *"a direct relationship exists between height and the welfare, strength and energy of a nation"*, and that *"in poor and decaying countries, short stature prevails, whereas the opposite is the case in prosperous, flourishing ones"*[5]. Some decades later, the works of the anthropologists Telesforo Aranzadi and Luis de Hoyos-Sainz revealed regional differences in height and explained them by variations in the *"environment in its broadest sense"*[6]. The works of other authors[7], were also supported by the Reales Academias de Ciencias Políticas y Morales y de Medicina, by the Comisión de Reformas Sociales, and the Congreso Internacional de Higiene y Demografía held in Madrid in 1898. The social issue from an anthropometric point of view, thus did not escape the notice of Spanish scholars in the nineteenth century.

Now, a century later, studies in anthropometric history have unveiled considerable evidence on the trends and cycles of heights from the beginning of the industrial revolution. Hand in hand with economic history, anthropometry has reinvigorated the debate on the standard of living during industrialisation. The incorporation of hundreds of thousands of data to the study of height and weight in different countries has allowed the debate to extend to broad areas of the world and to cover virtually all social groups. Thus, the most general issue may now be approached: that of welfare during the various stages of economic growth[8].

This new "anthropometric history", as John Komlos and more recently Richard H. Steckel[9] have come to call it, has also found an echo in Spain. Height data have for some years been explored using various sources and methods[10]. Given the limitations posed by some conventional indicators of welfare, the possibilities opened up by anthropometric studies are wide-ranging, and relevant to the economic and social history of contemporary Spain. The anthropometric

---

5 *G. Andrés-Espala*, Reflexiones sobre la talla, peso y perímetro torácico, in: Gaceta de Sanidad Militar III, 1877, pp. 2-3.

6 *T. Aranzadi/L. Hoyos-Sainz*, Lecciones de antropología, Madrid 1893.

7 *L. Figuerola*, La talla de los mozos para el servicio militar sorteados y medidos en las quintas de 1858 a 1867, in: Memorias de la Real Academia de Ciencias Políticas y Morales, tomo VII, 1893, pp. 305-311; *F. Olóriz-Aguilera*, Discursos leídos en la Real Academia de Medicina, Madrid 1896; *L. Sánchez-Fernández*, El hombre español útil para el servicio de las armas y para el trabajo. Sus características antropológicas a los 20 años de edad, Asociación Española para el Progreso de las Ciencias, Madrid 1913; *P. Suárez-Inclán*, El problema del reclutamiento en España, Madrid 1905.

8 *C. Floud/K.W. Watcher/A.S.Gregory*, Height, health and history: nutritional status in Britain 1750-1980, Cambridge 1990; *J. Komlos*, Nutrition and economic development in the eighteenth-century Habsburg monarchy. An anthropometric history, Princeton 1989; *J. Komlos (ed.)*, Stature, living standard, and economic development. Essays in anthropometric history, Chicago 1994; *J. Komlos (ed.)*, The biological standard of living on three continents. Further explorations in anthropometric history, Boulder 1995; *J. Komlos/J. Baten (eds.)*, Studies on the biological standard of living in comparative perspective, Stuttgart 1998; *J. Komlos/T. Cuff*, Classics in Anthropometric History, 1998 *R.H. Steckel/R.C. Floud (eds.)*, Health and welfare during industrialization, Chicago 1997.

9 *R. Steckel*, Strategic ideas in the rise of the new anthropometric history and their implications for interdisciplinary research, in: Journal of Economic History 58/3, 1998, pp. 803-820.

10 *A. Gómez-Mendoza/V. Pérez-Moreda*, Heights and welfare in Spain 1900-1930, in: *Komlos*, The biological standard of living, pp. 81-91; *J.M. Martínez-Carrión*, Niveles de vida y desarrollo económico en la España contemporánea. Una visión antropométrica, in: Revista de Historia Económica XII, 1994, pp. 685-716; *J.M. Martínez-Carrión*, Stature, welfare and economic growth in nineteenth century Spain: the case of Murcia, in: *Komlos*, Stature, p. 76-89; *J.M. Martínez-Carrión/J.J. Pérez-Castejón*, Height and standard of living during the industrialisation of Spain: the case of Elche, in: European Review of Economic History II/2,1998, pp. 201-230; *J.M. Martínez-Carrión/J.J. Pérez-Castejón*, Height and standard of living in Spain 1860-1969: evidence from the southeastern region, in: *Komlos/Baten*, pp. 31-46; *G. Quiroga*, Height evolution in Spain, 1893-1954. An anlysis by regions and professions, in: *Komlos/Baten*, pp. 359-383.

data used so far in Spain have come from military records. These data are easier to process than many other historical economic data[11].

III. Data and reconstruction of a height series

Table 1: The heights of conscripts by birth quinquennium, nine municipalities in South-eastern Spain

Quinquennium of birth	Total number of conscripts	Number of conscripts measured	% of conscripts measured	Mean Height (cm.)	Age
1837-1840	3,361	3,076	91.5	161.4	20
1841-1845	6,365	6,162	96.8	161.2	
1846-1850	5,190	4,580	88.2	162.1	
1851-1855	2,797	2,052	73.4	161.7	
1856-1860	10,811	8,937	82.7	161.0	
1861-1865	10,748	9,365	87.1	161.4	19
1866-1870	12,482	12,160	97.4	161.0	
1871-1875	13,052	12,823	98.2	160.7	
1876-1880	11,986	11,648	97.2	161.0	
1881-1885	12,622	12,037	95.4	162.5	20
1886-1890	14,378	13,862	96.4	163.3	21
1891-1895	11,715	10,153	86.7	163.3	
1896-1900	8,483	6,357	74.9	163.6	
1901-1905	7,568	6,037	79.8	164.0	
1906-1910	7,205	5,505	76.4	164.6	
1911-1913	3,148	2,556	81.2	165.0	
TOTAL	141,911	127,310	89.7		

Source: *Archivos municipales*, Actas and expedientes de reemplazo; see Appendix.

Aggregate annual height series can be constructed for Spain from the 1850s onwards. Earlier data are both scarce and fragmentary, and almost non-existent for the end of the eighteenth century. This study begins with the 1857 draft and presents data on cohorts born between 1837 and 1913, a period when GDP per capita was increasing[12]. The series pertains to nine municipalities of Southeastern Spain: Elche, Orihuela, (the south of Valencia), Murcia, Cartagena, Torre Pacheco, Totana, Cieza, Yecla (in Murcia), and Vera (in east Andalusia). Because of its economic and environmental characteristics, the geographic area considered is representative of the Spanish economy of the nineteenth century[13]. We have a sample of the height of 127,310 conscripts out of a total of 141,911 men (89.7 per cent) called up for service (Table 1). The rest – 10.3 percent – were either deserters, emigrants or missing men.

We used the following criteria in the selection of municipalities: (1) availability of long enough anthropometric series, (2) reliability of data, (3) socio-economic characteristics of the

11 *J.M. Martínez-Carrión*, Los niveles de vida del campesinado en la España contemporánea. Algunas reflexiones, in: Noticiario de Historia Agraria 14, 1994, pp. 25-57.

12 *L. Prados de la Escosura*, Spain's Gross Domestic Product, 1850-1990. A New Series. Documento de Trabajo, Madrid 1993. *A. Carreras*, Industrialización española: estudios de historia cuantitativa, Madrid 1990.

13 A series based on six of the nine municipalities between 1837 and 1948, in: *Martínez Carrión/Pérez Castejón*, Height.

populations considered – either agricultural or industrial –, (4) areas defined both geographically and environmentally, and (5) availability of demographic and socio-economic information supporting an anthropometric interpretation. The towns of Cartagena and Vera were characterised by a large percentage of mining population; Cartagena, Murcia, Orihuela, and Elche were important urban centres; Cartagena and, notably, Elche experienced industrial development particularly in metallurgy and shoe-making. In general, the surroundings of all the towns had a large share of their rural population engaged in farming activities. They experienced processes of agricultural specialisation: Totana (orange), Cieza (fruit, *esparto*), Yecla (wine), Torre Pacheco (cereals) beginning in the second half of the nineteenth century. The height series in some towns do have some gaps, particularly at the end of the 'six-year revolutionary period' (1868-1874) in 1873, as a result of the riots and popular revolts against the "Quintas" (compulsory conscription)[14].

The main problems in height series may be posed by the introduction of changes affecting conscription age and by the rounding of height data. The biases associated with a truncated height distribution are not present in this study, because of universal conscription established in the "Ordenanza para el Remplazo del Ejército" (Ordinance on Military Drafts)[15]. The reliability of the data has been ascertained using the Kolmogorov-Smirnow and χ^2 tests (See Figures 1 and 2 for a comparison between sample and theoretical distribution for some years in Elche). Only after 1970 are we able to find marked irregularities and a more widespread use of rounding due to the implementation of the new National Service Law of 1968.

IV. The results

Figure 3 shows the trend of the Spanish heights at the onset of modern economic growth. The results obtained, using three-year moving averages, point to the existence of two marked trends: a decline in the reign of Isabel II and the Revolutionary Period, and an increase during the Restoration. Annual data are presented in Table 2. It is immediately apparent, that heights of 20-years-olds born between 1838 and 1865 declined by 0,8 cm. Between 1848 and 1860 the decline was still bigger: some 1,6 cm. This pattern suggests an initial worsening of welfare measured in net nutritional terms as in a number of other countries including the United States[16]. Secondly, a recovery is evident among those born after 1876. The increase in physical stature became decisive by the 1890s. Between 1865 and 1885 the average heights increased by some 1,2 cm; thus, the losses of the 1840s and 1850s were made up entirely: those born after the late 1880s tended to be taller than their mid-century counterparts. The height of 21-years-olds increased between 1886 and 1905 by 1,3 cm. Hence, biological living standards improved considerably for young men born at the end of the 19th and the beginning of the 20th century. By WWI Spanish military recruits were on average 165 cm tall.

To assess the degree of consistency between height and other welfare indicators, we compare *per capita* income with the height series even though the former refers to the nation-wide average, whereas the latter is regionally restricted. *Per capita* income refers to the year when the recruit was measured (Figure 4). The results reveal no relationship between both series un-

14 *A. Feijóo-Gómez*, Quintas y protesta social en el siglo XIX, Madrid 1996.
15 *Martínez-Carrión/Pérez Castejón*, Height.
16 *Komlos*, Shrinking, p. 779.

Figure 1: Gaussian distribution vs. sample distribution. Elche: 1970

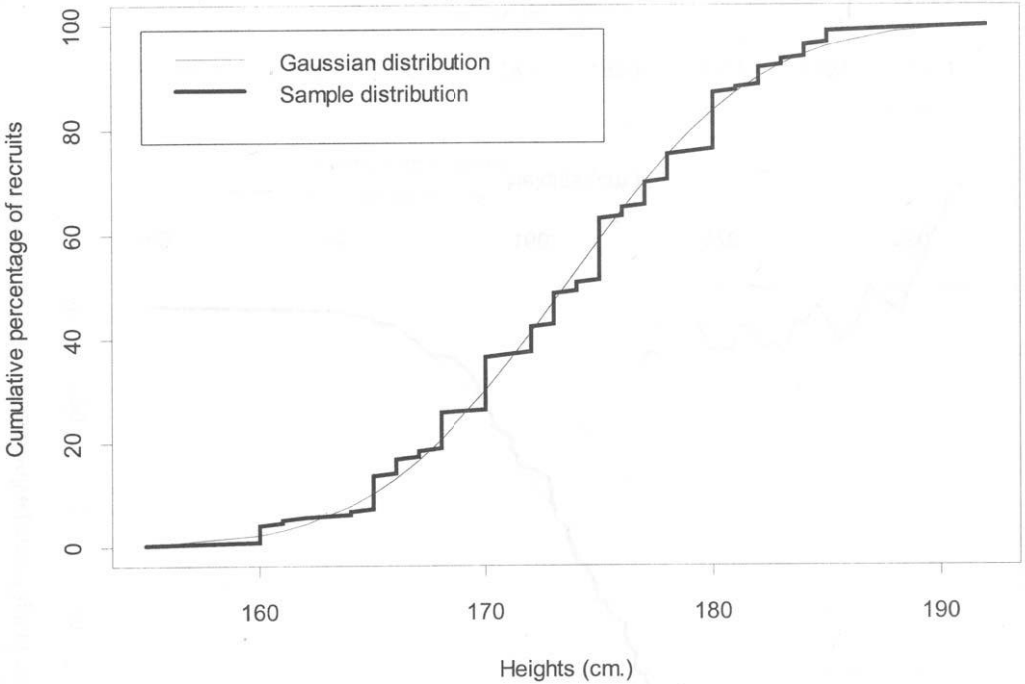


Figure 2: Gaussian distribution vs. sample distribution. Elche: 1870

Figure 3: Trend of height in Spain

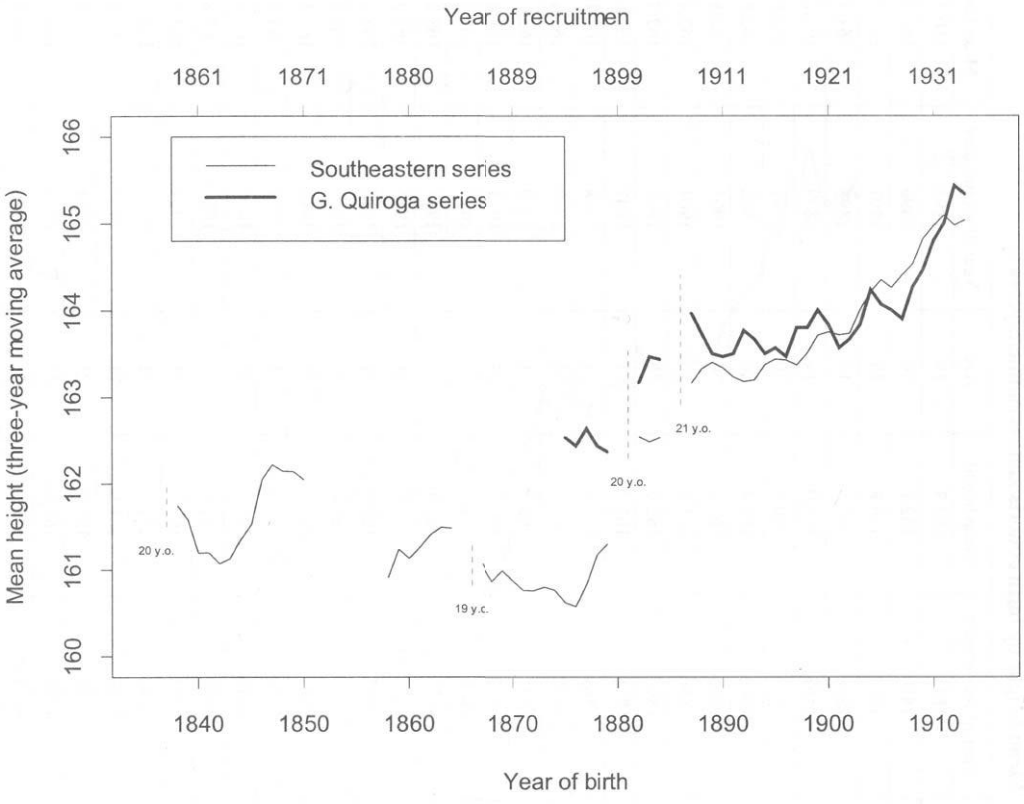


Table 2: Mean height by birth cohorts and recruitment years

Age	Year of recruitment	Mean height	Age	Year of recruitment	Mean height
20	1858	162,3	19	1895	160,5
20	1859	162,1	19	1896	160,8
20	1860	160,8	19	1897	161,2
20	1861	161,8	19	1898	161,5
20	1862	161,0	19	1899	161,2
20	1863	160,8	20	1901	162,6
20	1864	161,4	20	1902	162,5
20	1865	161,2	20	1903	162,5
20	1866	161,4	20	1904	162,4
20	1867	162,0	20	1905	162,7
20	1868	162,7	21	1907	163,0
20	1869	162,0	21	1908	163,1
20	1870	161,7	21	1909	163,4
20	1871	162,7	21	1910	163,5
20	1872	161,7	21	1911	163,4
20	1873	n.d.	21	1912	163,2
22	1875 (*)	160,7	21	1913	163,2
21	1875 (*)	161,5	21	1914	163,2
20	1875	162,5	21	1915	163,2
19	1875 (*)	161,1	21	1916	163,7
20	1877	160,2	21	1917	163,4
20	1878	161,4	21	1918	163,2
20	1879	161,1	21	1919	163,5
20	1880	161,1	21	1920	163,8
20	1881	161,1	21	1921	163,8
20	1882	161,5	21	1922	163,6
20	1883	161,6	21	1923	163,7
20	1884	161,4	21	1924	163,9
20	1885	161,5	21	1925	164,4
19	1885 (*)	161,6	21	1926	164,3
19	1886	160,5	21	1927	164,3
19	1887	161,1	21	1928	164,2
19	1888	160,9	21	1929	164,8
19	1889	160,9	21	1930	164,7
19	1890	160,8	21	1931	165,0
19	1891	160,6	21	1932	165,2
19	1892	160,9	21	1933	165,0
19	1893	160,9	21	1934	164,7
19	1894	160,5			

(*) Extraordinary Draft /Conscription.

Source: Archivos Municipales, Expedientes de reclutamiento y reemplazo.

Figure 4: Mean height of recruits and GDP per capita at recruitment year

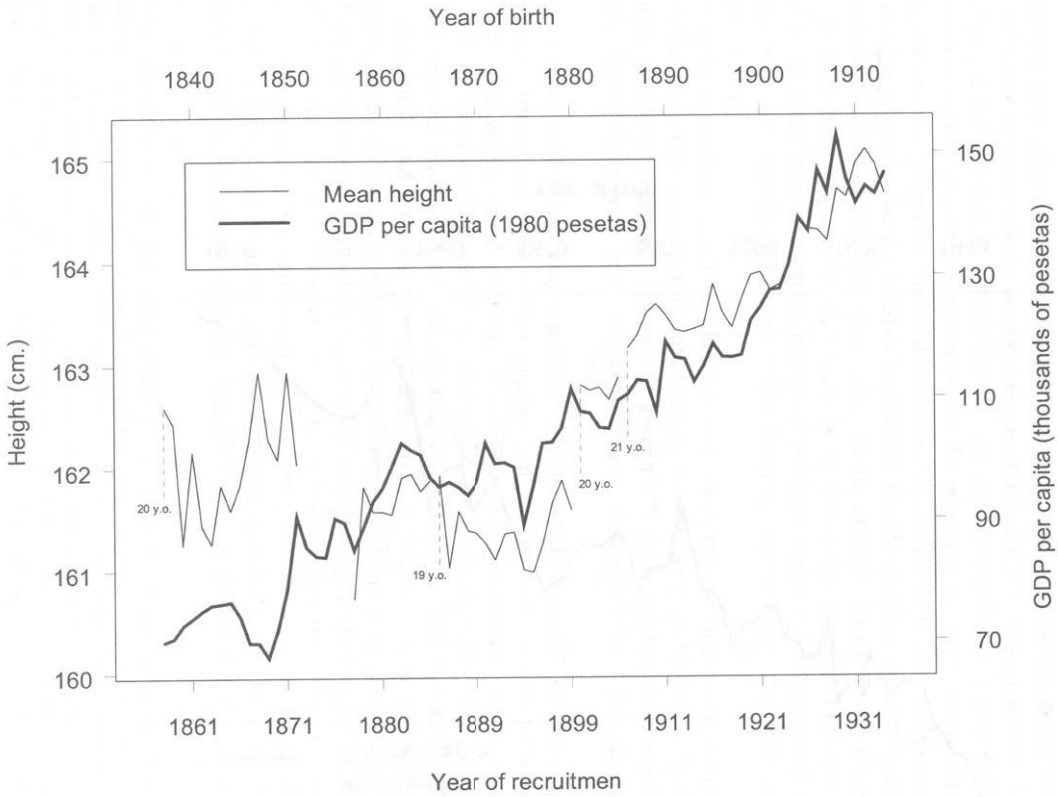
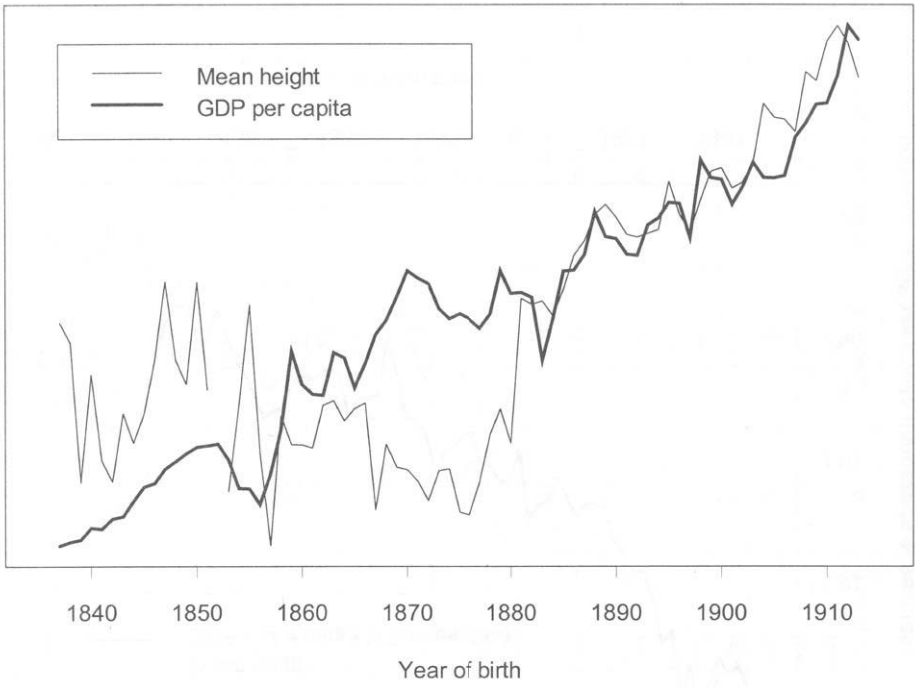


Figure 5: Mean height and GDP per capita at age 13



til about the birth cohort of 1875 when the correlation between the two series increases. Certainly, relationship seems also to be high between 1860 and 1875, though the levels differ[17].

We believe that the lack of correlation between income and height during the initial stages of modern economic growth in Spain may well be related to Kuznets' inverted U hypothesis, namely that income inequality rises and then falls with the level of economic development. The Spanish case supports the Kuznetsian hypothesis already verified in other countries during early industrialisation and the first stages of economic growth[18]. In any event, the decline in the height of those born between the 1840s and 1870s shows that the period of economic growth did not bring about improvements in biological welfare standards. The greater physical stature of those born between the 1880s and 1910s, however, are in agreement with an increase in average earnings.

The Spanish evidence confirms that the environmental and nutritional conditions during adolescence were very important for physical growth (Figure 5) in keeping with the biological and anthropometric literature[19]. The rate of growth is faster at adolescence, and therefore it is precisely during these years that environmental and economic factors play the most decisive role.

A comparison with other living standard indicators would be useful, but are scarce at the regional level. Among the other welfare indexes conventionally used, such as consumption expenditures, real wages, child mortality, life expectancy, and literacy, the most abundant for Southeastern Spain is child mortality. The infant and child mortality series available at the local and regional level for rural and urban areas of Biscay[20], Madrid, Castilla la Nueva, and País Valenciano[21], and for some towns in the province of Murcia such as Yecla and the rural and mining areas of Cartagena show increased infant mortality from about 1850 to the 1880s. Data from various sources reveal that, in general, morbidity and infant and child mortality rates up to 9 years old, were not favourable in most parts of the country. "The decline in mortality typical of the period 1780-1840 (with the exception of the great mortality crises of early nineteenth century) was reversed during the central decades of the century"[22]. Hence, life expectancy and height moved in unison. The final years of the nineteenth century marked the

17 We then explore the possible relationship between average height and the *per capita* income at certain ages of childhood and adolescence. This approach is based on the assumption that a generation's final average height reflects the net nutrition, that is the food intake less energy output resulting from environmental factors during childhood and adolescence. Biometric studies have shown that growth may be retarded, even halted as a consequence of malnutrition suffered in childhood and adolescence: hence the importance of food intake prior to reaching maturity we therefore, compare average height of recruits with income at various ages: at birth, and at the ages of eight and thirteen. The comparison between height and income at age 13 showed the most similarity, but only for the generations born after the mid 1880s.

18 *Steckel/Floud*, Height and welfare. *Komlos*, Shrinking, pp. 793-95.

19 *Eveleth/Tanner*, Worldwide variation in human growth, Cambridge 1990. *J.M. Tanner*, A History of the Study of Human Growth, Cambridge 1981. *J.M. Tanner*, Fetus into Man: Physical growth from conception to maturity, Cambridge 1978. *R.H. Steckel*, Stature and the standard of living, in: Journal of Economic Literature XXXIII, 1995, pp. 1903-1940.

20 *M.E. González-Ugarte*, Mortalidad e industrialización en el País Vasco, Vizcaya 1860-1930, in: Boletín de la ADEH, XII/1, 1994, pp. 33-53. *M. Arbaiza/A. Guerrero/A. Pareja*, Mundo rural y mundo urbano en la transición de la mortalidad vizcaína 1770-1930, in: Boletín de la ADEH XIV/2, 1996, pp. 19-55.

21 *D.S. Reher/V. Pérez-Moreda/J. Bernabeu-Mestre*, Assessing change in historical contexts: childhood mortality patterns in Spain during the demographic transition, in: *C.A. Corsini/P.P. Viazzo (eds.)*, Long-term study of infant and child mortality, The Hague 1997, pp. 35-56.

22 *D.S. Reher*, La familia en España. Pasado y presente, Madrid 1996, p. 171.

dividing line of Spain's epidemiological transition and – as with physical stature – child and general mortality rates started to improve.

V. Accounting for Spanish height cycles in the first phases of modern economic growth

1. The evidence

Table 3: Heights of Spanish recruits by birth year and age

Birth year	Conscripion year	Age (years)	Southeastern Spain	SPAIN SP_1[a)]	SP_2[b)]	SP_3[c)]	SP_4[d)]	SP_5[e)]
1838	1858	20	162.3		160.9			
1840	1860	20	160.8			163.5	162.1	
1845	1865	20	161.2					
1850	1870	20	161.7					
1855	1875	20	161.1					
1860	1880	20	161.1					
1865	1885	20	161.5					
1870	1889	19	160.9					
1875	1894	19	160.5	162.2				
1880	1899	19	161.2	162.1				
1885	1905	20	162.7	163.2				163.5
1890	1911	21	163.4	163.1	162.4*			
1895	1916	21	163.7	163.1	163.0**			
1900	1921	21	163.8	163.8				
1905	1926	21	164.3	164.5	163.4***			
1910	1931	21	165.0	164.5				
1913	1934	21	164.7	165.8				

a) Sources and methods, see *Quiroga*, Height Evolution.

b) Estimated heights of the Statistical Annuals, see *Gómez-Mendoza / Pérez-Moreda*, Heights and Welfare. *1892, **1894-95, ***1905-06.

c) Id, see *Oloriz-aguilera*, Talla humana, cohorts of 1839-41.

d) Id, see *Aranzadi / Hoyos*, Lecciones de antropología. Cohorts of 1839-41.

e) *Sánchez-Fernández*, El hombre español, cohorts of 1883-86.

Based on the above findings we now turn to the explanation of the cycles of height and of the biological standards of living. We find that our explanation of the decline in height is quite similar to the one outlined by Komlos[23]. The beginnings of Spain's modern economic growth between 1850 and about 1890[24] coincided with a deterioration of height of the cohorts born between 1840s and 1860s. Increases in *per capita* income were not translated into better nutritional status and biological living standard for male adolescents until the cohorts born in the 1880s and 1890s. The decline in physical stature by 0,8-1 cm between 1840s and 1870s indi-

23 *Komlos*, Shrinking.

24 *A. Carreras*, Industrialización. *P. Martín-Aceña/J. Simpson (eds.)*, The economic development of Spain since 1870, Aldershot 1995. *L. Prados de la Escosura*, Spain's gross. *L. Prados de la Escosura*, De imperio a nación. Crecimiento y atraso económico en España 1780-1930, Madrid 1988. *G. Tortella*, El desarrollo de la España contemporánea. Historia económica de los siglos XIX y XX, Madrid 1994.

cates that Spaniards experienced a nutritional deterioration. The gains were too significant. Conscripts born between the late 1880s and 1910 increased in stature by 2 cm. This fact leads us to reconsider the slightly pessimistic view depicted in some studies on the standard of living of Spaniards in the early twentieth century. Similar conclusions to our own can be derived from the height series constructed by Quiroga with a representative sample of Spanish recruits (see Table 3 and Figure 3). Different estimates of Spanish heights are compared in Table 3.

2. The causal factors

The deterioration of health measured in terms of infant and child mortality had a decisive influence on physical stature. In addition, the greater variability of income, greater income inequality, and trends in real wages also had an impact on biological living standards until the 1880s. The epidemic outbreaks of 1833-35, 1853-56, 1859-60, 1865, 1868, and 1885 must have weakened the organism of children and adolescents. In contrast, improved health, measured by the downward trend of the various mortality rates after 1890, led to taller stature. Once the high morbidity demographic regime disappeared by the late nineteenth century, the positive relationship between stature and income at age 13 became evident, also at time of recruitment.

Population growth also contributed to the deterioration in nutritional status in rural areas. Demographic pressure resulted in subdivision of land, fragmentation of land tenancy, and the expansion agriculture into of low productivity areas. In addition, urbanization also led to an increase in food prices, relative to the prices of other goods between 1850 and the 1870's[25]. As a consequence, caloric intake declined and nutritional status of a large segment of the population deteriorated. Emigration was the only solution to this problem for many rural families. Moreover, increasing population density, in combination with growing urbanization and increasing trade, created the environmental conditions conductive to rapid transmission of diseases.

The effect of market integration on the evolution of welfare is another factor accounting for the deterioration of height between 1850 and 1890. The redefinition of property rights after the liberal reforms between 1830 and 1850 favoured the mobility of factors of production, promoted investment, and increased employment[26]. However, agricultural specialisation and the intensification of agricultural output were achieved by increasing working hours and the participation of youth in agricultural production[27]. This was in response to the loans incurred in order to market agricultural produce, and to repay debts accumulated due to both more expensive rents[28] and higher taxes[29]. The probable outcome was the impairment of health as a result

25 *E. Ballesteros*, Una estimación del coste de la vida en España 1861-1936, in: Revista de Historia Económica 15, 1997, pp. 363-95. Real wages in: *D.S. Reher/E. Ballesteros*, Precios y salarios en Castilla la Nueva: la construcción de un índice de salarios reales 1501-1991, in: Revista de Historia Económica XI/1, 1993, pp. 101-151. *J. Simpson*, Real wages and labour mobility in Spain 1860-1936, in: *P. Scholliers/V. Zamagni (eds.)*, Labour's reward. real wages and economic change in the 19th- and 20th-century Europe, Hants 1995, pp. 182-200.

26 *A. Garcia-Sanz*, Crisis de la agricultura tradicional y revolución liberal, in: *A. Garcia-Sanz/Garrabou (eds.)*, Historia agraria de la España contemporánea, vol. I: Cambio social y nuevas formas de propiedad 1800-1850, Barcelona 1985, pp. 7-99. *R. Garrabou/J. Sanz-Fernández*, La agricultura española durante el siglo XIX: inmovilismo o cambio?, in: *R. Garrabou/J. Sanz-Fernandez (eds.)*, Historia agraria de la España contemporánea, Vol. II: expansión y crisis 1850-1900, Barcelona 1985, pp. 7-191. *Prados*, De imperio a nación.

27 *J.M. Borras-Llop (ed.)*, Historia de la infancia en la España contemporánea 1834-1936, Madrid 1996.

28 *R. Robledo*, La renta de la tierra en Castilla la Vieja y León 1836-1913, Madrid 1984.

29 *F. Comin*, Public finance in Spain during the nineteenth and twentieth centuries, in *Martin-Aceña/Simpson*, Economic developmen in Spain, pp. 521-60.

of greater intensity of human effort and energy output. Under these conditions, family food intake in *per capita* terms was probably reduced and part of the output normally intended for subsistence was diverted to the market, in order to counterbalance the impact of increased need for cash. Conditions were then ripe for morbidity and mortality to rise. Exhausted bodies from long hours of straining physical work and malnutrition must have been easily seized with diseases and epidemics, thus giving rise to higher mortality and shorter statures.

3. Some implications and consequences

From the 1850s until well into the 1880s there was a large and increasing percentage of undernourished men as shown by in the increase of conscripts with heights under 155 cm (Figure 6). Table 4 compares various percentiles of the stature of men born in Southeastern Spain, with conscripts enjoying one of the highest standards of living namely those of the US born in the 1960s[30]. This physiological and nutritional pattern of the 1860s and 1870s (table 4) with adverse impact on morbidity lasted until about 1890. The vicious circle between morbidity and mortality was alleviated with the vaccination and health programes launched by national and local authorities from the 1890s which led to the disappearance of epidemic outbreaks.

Table 4: Sample percentiles of Spanish recruits compared to modern height standards

Year of birth	10^{th} percent.	25^{th} percent.	50^{th} percent.	75^{th} percent.	90^{th} percent.	Number of recruits	Recruitmen Age
1850	154,9	159,0	163,2	167,1	171,0	610	20
1875	149,5	156,1	161,2	165,5	169,5	2312	19
1890	156,0	159,5	163,2	167,5	171,0	2789	21
1910	157,5	161,3	165,2	168,9	172,2	1031	21
USA[a]	168,5	172,4	176,8	181,2	185,1		18

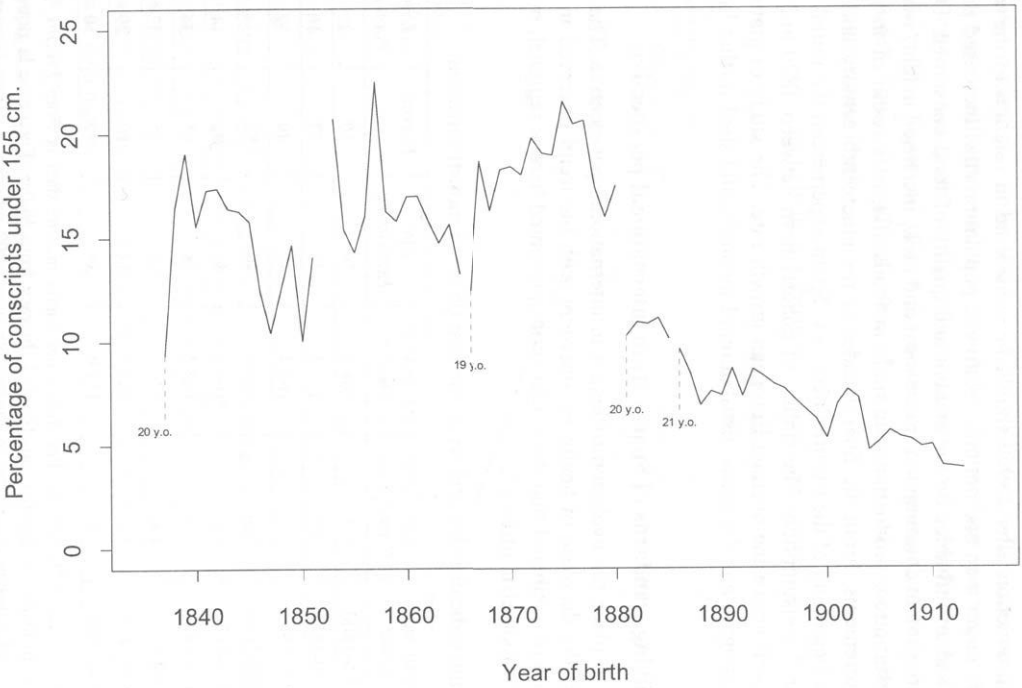
[a]*Note:* USA data (for 1960) from National Center for Health Statistics 1977, reported in Steckel (1996).

Was the deterioration in mean height at the beginning of modern economic development brought about by greater economic inequality? Data on family income, and wealth reveals that land concentration in a few hands was widespread. As the Gini coefficient reveals, land was unequally distributed until 1900 when the agrarian crisis brought about changes in farm management[31]. The hypothesis, that the deterioration in height which meant that the human organism was weakened, and more prone to disease prevented the increase in labour productivity during the second half of the 19^{th} century should be considered in future studies. The diminution in the height of adolescents was evident from about 1860 to 1890, and the existence of taller, healthier, stronger men after 1890 may have had positive feedback effects on labour productivity.

30 *R.H. Steckel*, Percentiles of modern height standards for use in historical research, in: Historical Methods 29, 1996, pp. 157-166.

31 *R. Garrabou (ed)*, La crisis agraria de fines del siglo XIX, Barcelona 1988. *R.. Garrabou (ed.)*, Propiedad y explotación campesina en la España contemporánea, Madrid 1992.

Figure 6: Percentage of conscripts under 155 cm



The increase in food production after 1890[32] should be considered in relation to the energy requirements of slightly larger men and not only relative to population size. Increased population and urbanisation had an influence on the amount and quality of food consumed. Dietary diversification and more protein consumption (more meat and milk) increased height, which in turn increased the consumption, production, and trade in foodstuffs, as a result of increased *per capita* energy requirements. From the final decades of the nineteenth century and, even more notably, from the beginning of the twentieth century, Spain experienced the initial phase of expansion of personal consumption. The stature of cohorts born between 1870 and 1910 increased by 3,5 cm, well above the average European growth rate. The study of stature by occupation and social category and the social distribution of income could shed further light on this issue.

VI. The height and living standards of Spaniards in international perspective.

Finally, it is revealing to place the evolution of height in international perspective. The question now is to check if the decrease in height is consistent with the trend observed in other populations. It should be remembered that the height series presented here is regional, but that is often the case in anthropometric history[33].

Table 5: Socio-economic indicators by country in the first phase of industrialisation.

	Approximate Period	*GDP/Capita Growth Rate*	*Mean Male Height*	*Life Expectancy*	*Literate*	*Urban Population*
United Kingdom	1760-1800	0.2	168.2	36	50	29
USA	1820-1850	0.9	172.4	42	77	10
France	1820-1850	1.3	164.4	40	49	22
The Netherlands	1850-1870	0.5	165.9	40	80	44
Sweden	1850-1870	1.2	169.1	44	92	11
Germany	1850-1870	1.5	166.2	38	95	34
Australia	1860-1890	1.8	172.0	48	55	42
Spain	1860-1890	1.3	161.5	33	30	29
Japan	1880-1900	1.0	157.0	38	70	50

Source: *Steckel/Floud*, Welfare, pp. 425, 438-46. For Spain, per capita income data is from *Prados*, Spain' gross, p. 58; life expectancy from *Reher*, Familia, pp. 169-171; literacy from *Núñez*, Fuente de la riqueza, p. xxx; and urbanisation (1887 rate, urban population in towns with over 5000 inhabitants) from *Gómez-Mendoza/Luna-Rodrigo*, desarrollo urbano, p. 20.

Table 5 shows some standard of living indicators by country and phase of industrialisation. Although the data are approximate, they allow us to compare the welfare level attained in the first stages of economic development. We consider that Spain experienced that stage between 1860 and 1890, although it might have occurred earlier according to Carreras[34], and we use the estimates of growth of *per capita* income Prados, and compare them to estimates of life expectancy[35], literacy[36], and urban population[37] for the period considered (Table 5).

32 *J. Simpson*, Spanish Agriculture: The Long Siesta, 1765-1965, Cambridge 1995.

33 See *Steckel/Floud*, Welfare. *J. Baten*, Ernährung und wirtchaftliche Entwicklung in Bayern, 1730-1880, Stuttgart 1999.

34 *Carreras*, Industrialización.

35 *Reher*, La familia en España.

The data confirm that Spain had very low living standards in international comparison at the early stages of industrialisation. Spaniards were among the shortest in Europe, but probably as tall as eastern Europeans and people living around the Mediterranean[38]. However Spaniards were taller than Japanese, one of the countries that began their industrialisation at about the same time[39]. Spain also had the lowest life expectancy and literacy levels, but urbanisation was at an intermediate level.

Table 6: Decline in height at the onset of modern economic growth

Country	*Approximate Period By Birth Cohorts*	Decline in Height Cm
Habsburg Empire	1750-1790	3.5
United Kingdom (male)[a]	1760-1790	0.7
	1820-1850	5.4
United Kingdom (female)[b]	1790-1815	2.5
	1835-1855	2.5
The Netherlands	1810-1837	3.5
USA	1830-1890	4.0
Russia	1830-1865	3.0
Germany[c]	1750-1770	3.0
Germany[d]	1860-1872	2.5
	1879-1885	2.0
Sweden[e]	1840-1859	4.0
Australia	1867-1893	3.0
Spain[f]	1838-1865	0.8

a) The years 1760 to 1850 embraced two downturns and an upturn from 1790 to 1820 such that the net decline was 2.0 cm over the period. The upturn between 1790 and 1820 was 4.1 cm.

b) Height improved by about 0.75 cm between 1815 and 1835.

c) Data of Bayern,

d) Data of Wurttemberg, Height improved by 3.3 cm between 1872 and 1879.

e) Data of West regions.

f) Data of Southeastern regions.

Source: *Steckel/Floud*, Welfare, p. 430; *Komlos*, Nutrition; *Drukker/Tassenaar*, pp. 356-356; *Mironov*, Diet, p. 73; *Baten*, Ernährung, p. 70; *Sandberg/Steckel*, Height and Economic History: The Swedish Case, in: Annals of Human Biology 14, p. 104 *Spain*, see Table 2.

That Spain had low living standards compared to those of industrialised countries is well-known[40]. However, the question remains to what extent the diminution in the biological standard of living in Spain between 1850 and 1870 (at a time when the industrialisation and

36 *C.E. Núñez*, La fuente de la riqueza: educación y desarrollo económico en la España contemporánea, Madrid 1992.

37 *A. Gómez-Mendoza/G. Luna-Rodrigo*, El desarrollo urbano en España 1860-1930, in: Boletín de la ADEH IV/2, 1986, pp. 3-22.

38 *B.N. Mironov*, Diet, health, and stature of the Russian population from the mid-nineteenth to the beginning of the twentieth century, in: *Komlos*, The biological standard, pp. 59-79.

39 *T. Shay*, The level of living in Japan 1885-1938: New evidence, in: *Komlos*, Stature, pp. 173-201.

40 *N.F.R.. Crafts*, Some dimensions of the quality of life during the British industrial revolution, in: Economic History Review 50, 1997, pp. 617-39.

economic growth process accelerated, at least in some regions), found parallels in other countries at similar stages of economic development. The findings confirm that the United Kingdom, USA, Germany, Sweden, Australia, and the Habsburg Empire all experienced reductions in height at the onset of modern economic growth (Table 6). The alarm raised by scientists and hygienist physicians in the 1860s and 1870s on the "physiological degeneration of civilised nations" was empirically founded: there were more shorter people and an increase in epidemics. To be sure, the debate on the causes of this phenomenon is still far from over.

Secular Improvement in Well-Being: Britain and Japan Compared

By Carl Mosk (Victoria, British Columbia)

I.

One of the avenues through which economic development potentially exercises a positive impact upon subsequent development - that is one of the sources of positive feedback - is through secular improvement in well-being. In this paper the term "well-being" means the ability, the capacity, to do physical and mental work and to successfully and quickly master new skills. Because it is not possible to directly measure well-being in this manner, a series of proxy measures are used for it. These are the standard anthropometric measures for children and young adults, namely height and weight; and measures of academic achievement, namely literacy. The focus is on trends and fluctuations in the well-being proxy variables over a long but not excessively protracted period, from 1750 to the present. The comparison of industrialization in Britain and Japan invites the question: why does well-being improve during the early phase of industrialization in some countries but not in others?[1] Why is positive feedback through enhanced well-being an important feature of industrialization in some settings and not in others? Specifically, during the first century of European industrialization, that is from the mid-18th century until the mid-19th century, why did well-being appear to deteriorate and/or fail to improve? And why did Japan during its first century of industrialization, that is from the 1870's until the 1970's, enjoy an almost unbroken record of positive secular improvement in well-being?

In short, my argument is that trends in the average net nutritional intake of children underlie trends in well-being.[2] My thesis is that early British industrialization brought about deterioration in the net nutritional intake of the young, in part because the technology of public health and medicine during Britain's first century of industrial development was unable to effectively counter the ills associated with it, in part because compulsory schooling was introduced well after the onset of industrialization, and in part because with the state of agricultural and food processing/food transport industry technology, the cost of nutrient intake relative to manufactured goods remained high and in some cases even rose.[3] By contrast Japan, industrializing after 1870, faced an environment informed by public health and medical technology advance through growth in the applications of the germ theory of disease and by major improvements in the transporting, refrigerating and processing of foods. Moreover the Japanese government systematically promoted compulsory primary schooling from the very inception of industrialization. For these reasons during the first century of industrialization while well-being stagnated and

---

1 I compare Britain and Japan for a variety of reasons. Both countries are island nations and both lie on the periphery of Eurasia. Within their respective zones - Britain on the Western periphery and Japan on the Eastern periphery - each became the first nation to industrialize. Finally, prior to industrialization, infrastructure knitting the various parts of the country together (and thereby generating relatively well integrated national markets), was built up in both Britain and Japan. I also compare the two countries because one began to industrialize a full century before the other. The difference in the timing of industrialization helps us gauge the impact of technological changes in food transportation, refrigeration and processing, and in public health and medicine, over the century separating the inception of industrialization in the two countries, upon the interaction of well-being with economic development.

2 Net nutritional intake is defined as gross nutritional intake net of the demands placed upon the stored up reserves of youthful bodies by physical work and the ravages of infectious disease.

3 On the terms of trade between agriculture and manufacturing see *C. Mosk*, Making Health Work: Human Growth in Modern Japan, Berkeley 1996 for Japan, and *G. Clark/M. Huberman/P.H. Lindert*, A British food puzzle, 1770-1850, in: Economic History Review 48/2, 1995, pp. 215-237 for Britain.

floundered in Britain, entering upon pronounced downward swings after the Industrial Revolution in the mid-18th century and after the 1820's, it dramatically and continuously improved in the case of Japan.[4]

II.

Before reviewing the evidence concerning secular trends in heights and weights for Britain and Japan since the onset of industrialization, something must be said justifying use of the anthropometric measures as proxies for productivity enhancing well-being. According to Tanner's work there are a number of secular improvements in the anthropometric measures which can not be accounted for by genetic drift.[5] For instance there has been secular trend in the average adult levels of the anthropometric measures for every society that has experienced a sustained rise in per capita product: eventually terminal heights and weights go up. In addition there has been secular trend in the tempo or timing of growth in children and in youth as they mature and approach their terminal heights and weights.[6] The mean age when children experience their most pronounced post-infancy physical maturation has declined. Moreover, while at the individual family level, transmission of genes plays a role, at a general population level the process takes millennia, whereas dramatic secular gains in height and weight have been recorded for countries like Japan over periods far shorter than a century.[7] Finally, it should be kept in mind that the tempo of human growth, including the timing of the adolescent growth spurt, affects

4 There has been debate over whether the anthropometric measures improved or deteriorated between 1750 and 1820. For the optimistic position that they improved see *R. Floud/K. Wachter/A Gregory,* Height, Health and History: Nutritional Status in the United Kingdom, 1750-1980, Cambridge 1990. On the other hand, *J. Komlos*, The Secular Trend in the Biological Standard of Living in the United Kingdom, in: Economic History Review 46/1, 1993, pp. 115-144 argues that height and weight deteriorated, thus adopting a pessimistic position. The debate between optimists and pessimists over the anthropometric measures parallels the long-lived debate over the course of real wages in Britain between 1750 and 1850. On the real wage debate, on the income elasticity of demand for foodstuffs, and on the impact of changes in food production and in food marketing and transportation, see *Clark/Huberman/Lindert, C.H. Feinstein*, Pessimism perpetuated: Real wages and the standard of living in Britain during and after the Industrial Revolution, in: The Journal of Economic History 58/3, 1998, pp. 625-658 and *J. Williamson*, Did Capitalism Breed Inequality?, Boston 1985. For other research concerning physical stature in Britain see *Komlos*, The Secular Trend, *J. Riley*, Height, nutrition and mortality risk reconsidered, in: Journal of Interdisciplinary History 24, 1994, pp. 465-492 and *J.M. Tanner*, A History of the Study of Human Growth, Cambridge 1981. On the course of real wages in Japan between 1885 and 1939 see *C. Mosk*, Competition and Cooperation in Japanese Labour Markets, Houndmills, Basingstoke, Hampshire 1995, pp. 65-66.

5 C.f. *Tanner*, A History of the Study of Human Growth, *J.M. Tanner*, Growth at Adolescence, Oxford 1962, *J.M. Tanner*, Foetus into Man, Cambridge, MA. 1978.

6 The mean age when children experience their most pronounced adolescent growth spurt has declined.

7 Chapter 1 of *Mosk*, Making Health Work, contains a discussion of the so-called co-evolution thesis, namely of the notion that genetic change is interrelated with cultural change. Examples of co-evolution include the relative length of legs and the relative size of lungs. For instance, it is observed that individuals of African descent have on average longer leg to trunk length than do individuals of Asian descent. Perhaps this is due to the fact that taller individuals lose heat at a brisker pace than do shorter individuals (since the ratio of skin surface to body volume is greater in most taller individuals than in shorter persons) and therefore the long legs of Africans reflect the fact that they live in unusually warm climes. Consider, furthermore, the children of the Quechua tribe in Peru. Those members of the tribe living near the seacoast have smaller lungs than those living high up in the Andes. Sickle cell anaemia offers yet another instance of this phenomenon. Incidence of the condition is traced to the impact of the S allele on the structure of hemoglobin, which provides natural immunity against malaria. Hence, in yam producing regions of West Africa where malaria is unusually prevalent, there is a high frequency of sickle cell anaemia, suggesting that there was a long run genetic adaptation to environmental hazards.

more than the physical work capacity of the adult population. Because the organs of the body develop in a regular sequence, a child's brain size is influenced by the pace at which his or her physique enlarges. Since many skills essential to adult learning capacity are internalized in childhood, the younger is the average age at which the brain is developed, the more youthful is the potential for mastering basic skills. Juvenal's famous dictum "Mens sana in corpore sano" (A healthy mind in an healthy body) captures the essence of this point which undergirds the linking of secular trends in the anthropometric measures to improvements in labor productivity.

From the evidence available to us, it appears that after declining during the second half of the 18th century, adult terminal heights in Britain entered into a three decade long downswing after 1820.[8] In short, it seems that deterioration which went on for almost an hundred years was not decisively reversed until the middle of the 19th century. As can be seen from Panels A of Table 1, after 1870 terminal heights began to improve. The post-1850 secular trend towards improvement in well-being as measured by height of adults, is mirrored by declines in the mean age of maturation of children. For instance over the course of the 1906-1933 period, a tendency for children aged 12 to reach heights increasingly closer to their heights at age 18 - that is, a tendency for greater proportions of the population to reach their adolescent growth spurt before age 12 - is evident. Panel B of Table 1, which gives figures for schoolchildren during the first half of the 20th century, and Panel C concerning illiteracy supports the view that after a protracted period of deterioration in well-being associated with incipient industrialization, Britain entered into a period of secular improvement in well-being.

The Japanese secular trend in adult physical stature contrasts sharply with that for Britain. The pattern is corroborated with figures on schoolchildren from the turn of the twentieth century and with pre-World War II military recruitment data. During the pre-World War II period there was a steady improvement in terminal heights both for military conscripts and for male students aged 24 (Panels D and E of Table 1). The increase in adult heights was paralleled by a decrease in the mean age of the adolescent growth spurt (Panel E). Moreover after World War II there was an acceleration in the pace at which the adolescent growth spurt was experienced at younger ages. Finally, the improvement in well-being was enjoyed by both sexes: gains in heights for males are highly correlated with gains in heights for women (Panel F). In short, well-being improved under conditions of incipient industrialization in Japan.[9]

III.

How can we explain the secular improvements in height, weight and the other anthropometric measures? In my work concerning well-being in Japan, the net nutritional hypothesis has proven compelling. According to that hypothesis, the average well-being of a population depends positively upon gross nutritional intake enjoyed by children, and negatively upon the demands placed upon the bodies of those children by disease incidence and by physical work. That is letting GN stand for gross nutrition, D for disease, and L for physical labor: [1] WB = f(GN, D, L) where f is a mathematical function and WB stands for well-being.[10]

---

8 See *Komlos*, The Secular Trend, and the discussion in footnote 4 above.

9 *Mosk*, Making Health Work, pp. 16-56. Chapter 2 also discusses the fact that there was one break in the upward secular trends for the proxies of well-being, namely the 1940's, that is the period of the Pacific War and its immediate aftermath.

10 For the derivation of this formula see *Mosk*, Making Health World, p. 14. See also *J. Komlos*, Nutrition and Economic Development in the Eighteenth Century Habsburg Monarchy: An Anthropometric History, Princeton 1989, Chapter 1.

Table 1: Secular Trends in Heights for Children, Youths and Adults in Britain and Japan

Panel A: Heights of Boys at Christ=s Hospital, 1870's-1930's, Ages 12 and 18
(Levels in Centimeters and Index Based at 100 on Earliest Data Available), and Implied Gain from Age 12 to 18 (centimeters)

Measurement Date	Age 12		Age 18		Implied Gain, Age 12 to 18
	Height (cm)	Index	Height (cm)	Index	
1870's	137.8	100.0	n.e.	n.e.	n.e.
1906-18	140.4	101.9	172.2	100.0	31.8
1919-22	142.4	103.3	172.5	100.2	30.8
1923-26	143.5	104.1	173.4	100.7	29.9
1927-30	143.6	104.2	173.8	100.9	30.2
1931-33	145.3	105.4	174.1	101.1	28.8

Panel B: Height of 5-Year-Old Schoolchildren (cm) [Index with 1908-12 = 100 in parentheses]
Four British Communities and Average of Indices, 1908-1939

Community	Height, 1908/12	Height, 1922	Height, 1938-9
Bradford	102.4 (100)	105.0 (102.6)	107.3 (104.8)
Cambridge	102.7 (100)	104.7 (101.9)	110.1 (107.2)
Croydon	104.1 (100)	107.7 (103.4)	109.5 (105.1)
Leeds	102.1 (100)	104.1 (102.0)	106.9 (104.7)
Average (of Indices)	100	102.5	105.5

Table 1 [continued]

Panel C: Average Illiteracy Rate of Males in Britain and in Ireland (ILRM) and of Army Recruits (ILRAR), 1864-1895 (Rates per 1,000)

Date	ILRM [1]	ILRAR [2]	Ratio [2]/[1]
1864	268.7	333.9	124.2
1885	118.9	184.0	141.8
1895	54.5	35.0	64.2

Panel D: Heights of Military Recruits (MRAH) and of Male Students Age 24 (SAH) (cm), and Percentage of Military Recruits who were Short [145 cm or less] (MRSP) and who were Tall [170 cm or more] (MRTP), Japan, 1892-1941 [(a)]

Period	Military Recruits				Male Students Age 24	
	MRAH	MRAH Index	MRSP	MRTP	SAH	SAH Index
1892-1900	156.5	100.0	3.6%	1.1%	160.9	100
1901-1910	157.6	100.7	2.2	1.8	161.1	100.2
1911-1920	158.3	101.2	1.6	2.5	162.1	100.8
1921-1930	159.5	101.9	0.8	3.7	163.0	101.3
1931-1941	160.2	102.4	0.6	4.9	164.0	101.9

Table 1 [continued]

Panel E: Height of Males and of Females Aged 6, 12 and 18 and Implied Gains in Height Between Ages 6 and 12, and 12 and 18 (cm), Japan, 1901-10 to 1971-80 (b)

Period	Males					Females				
	Height (cm) at Age			Gains in Height		Height (cm) at Age			Gains in Height (cm)	
	6	12	18	6 to 12	12 to 18	6	12	18	6 to 12	12 to 18
1901-10	106.7	133.6	159.9	27.2	26.8	105.6	133.8	148.0	29.0	15.1
1941-50	108.5	138.4	162.9	28.6	25.2	107.6	139.7	152.9	31.1	13.7
1971-80	115.3	148.6	169.0	34.4	21.5	114.4	149.7	156.6	36.2	7.6

Panel F: Correlations Between Male and Female Gains in Standing Height, Japan

	1900-1985			1900-1940		
	At Age 6	At Age 12	At Age 18	At Age 6	At Age 12	At Age 18
Males with Females	+.997	+.99	+.97	+.97	+.98	+.96

Notes: n.e. = not estimated or not available.
(a) Figures for SAH for 1892-1900 are actually for 1900 only and index has 1900 = 100. For MRAH index has 1892-1900 = 100. For 1931-41 figures for MRAH are actually for 1931-37 only, and figures for SAH are for 1931-39 only.
(b) Gains in height and weight are calculated from annual figures and are secured for birth cohorts by lagging in 6 year intervals. For instance persons aged 6 are measured in year t, the figure for age 12 is secured for year t+6, and then the gain from 6 to 12 is calculated by taking the difference between the two numbers.

Sources: Panels A and C *from Floud/Wachter/Gregory*, p. 112 and 183; Panel B from *B. Harris*, The height of schoolchildren in Britain, 1900-1950, in: *J. Komlos (ed.)*, Stature, Living Standards and Economic Development, Chicago 1994, p. 35; Panel D from *T. Shay*, The level of living in Japan, 1885-1938: New evidence, in: *Komlos*, Stature, p. 201; Panels E and F from *Mosk*, Making Health Work, p. 20, 23, and 25.

A brief summary of my findings for Japan over the 1900-1980 period follows. The first finding is that the impact of gross nutrition was positive. Although it was positive, its scope of was limited, being most evident with measures for nutritional intake which incorporate proxies for calcium and fat intake along with proxies for the input of calories, proteins and vitamins. That is a shift in diet after 1945 towards dairy products and meat accounted for some of the improvement in the physique of Japanese children and for the speeding up of their adolescent maturation. In the wake of Japan's surrender in 1945, Americans who regularly drank milk and ate ice cream occupied the country. Thus American food preferences began to loom large in the Japanese diet. The fact that Japanese schools began to provide milk as part of the standard school lunch after World War II testifies to this. Now calcium is important in the development of the bones. Thus through its impact on bones, it seems plausible that enhanced intake of calcium lengthened legs of Japanese children, thereby shaping the pace and vigor of their overall physical maturation.

My second set of findings is that declines in the demands placed upon physical growth of young persons seem to have played a role in the improvement in well-being in Japan. The most important demands placed on the growth of Japanese children before the Pacific War were due to the depletion of food reserves stemming from illness and the rigors of physical work. Medicine does not appear to have been highly successful in counteracting illness during the prewar period. Indeed before the introduction of antibiotics, the capacity of medicine to provide effective therapy for infectious conditions was limited. Public health did play some role but its impact was not great. Use of antibiotics like penicillin, which was developed during the 1930's but was unavailable for widespread use until the late 1940's, was of far greater import than were the contributions of public health and medicine made before the Pacific War. For this reason my statistical findings demonstrating that medicine and public health were not especially important in improving well-being before 1945 but had a considerable impact thereafter, makes sense in terms of the timing of technological improvements in health maintenance. Nevertheless during the prewar period the demands placed on the growth of children did diminish. This decline in demands placed on children was associated with a pronounced trend away from physical work. For instance, my statistical analysis revealed a sharp decline in child/youth labor input between 1900 and 1940. This decline was closely linked to the introduction of compulsory elementary education and to the diffusion of voluntary secondary education. And it gave a strong fillip to improvements in well-being.

What accounts for the substantial differences between the British and Japanese experiences? What do my findings suggest happened in Britain between 1750 and 1850 so that well-being failed to improve even as the economy was expanding? And why did well-being enter onto a course of sustained enhancement after the mid-19th century? First in stark contrast to the Japanese case, for much of the working class of Britain daily nutritional intake failed to increase from the mid-18th century to the mid-19th century.[11] But after about 1850 or so gross nutritional intake did begin to improve decisively. Thus, trends in gross nutritional intakes offer a partial explanation for Britain's long lag in developing positive feedback through an improvement in well-being. Of equal importance to gross nutrition is the deplorable state of British public health prior to the 1850's.[12] The well documented unsanitary environment of British in-

11 See *Clark/Huberman/Lindert* and *Feinstein*.

12 See *S. Szrete*, Economic growth, disruption, deprivation, disease and death: On the importance of politics of public health for development, in: Population and Development Review 23/4, 1997, pp. 693-728 for the deteriorating situation in British cities. It should be stressed that urbanization is only one of the factors I emphasize in my argu-

dustrial core towns after the Napoleonic wars - the streets of Birmingham, Manchester, Leeds, and Liverpool teemed with horse manure under a sky fouled by soot from the burning of coal - points to a pathogen/human host balance injurious to the health of young children. Given the state of knowledge about washing hands before eating, and given the ineffectiveness of most medical interventions at the time, can there be a reasonable doubt about the demands placed upon the meager diets available to most offsprings of the industrial working class?

A third factor which surely impeded improvement in well-being was the slow progress of schooling in Britain. Because during its early industrialization Japan was a follower country with a strong demand for an educated labor force capable of mastering diverse new skills associated with manufacturing, a government committed to growth through technological improvement decided to make elementary schooling compulsory as early as the 1870's when industrialization was just commencing.[13] In particular, as heavy manufacturing with its voracious demand for workers who could cope with a myriad of sophisticated machines became the engine of Japanese growth after World War I (a mere four decades after industrialization began in earnest), there was a dramatic surge in the number of institutions offering post-elementary schooling. Because of the strong positive linkage between education and industrialization in Japan, and because agriculture was labor intensive, requiring copious amounts of physical effort from early spring until late fall, the structural shift away from agriculture and towards manufacturing tended to reduce the physical labor demands placed upon Japanese children.

However, in Britain education was not a concomitant of early industrialization and the structural shift out of agriculture towards manufacturing was not associated with such a marked decline in the physical demands placed upon the young. British agriculture, with its pastures and herds of livestock, relied more on draft animals for the hard work of furrowing fields and for the hauling of crops, and therefore it tended to be less labor intensive than was the rice cultivation agriculture of East Asia. When industrialization came to the British isles, it was either the artisan laborer to whom the factory beckoned, that is to the family head accompanied by spouse and children all supplying labor services for the factory, or the children of self-employed artisans such as handloom weavers. In short, because parents were expected to train their children themselves and/or to exploit directly the services of these children by putting them in factories, the British Industrial Revolution did not witness concerted pressure for state sponsored schooling coming from the government, business interests or the working class. To be sure, other political impediments to state sponsored schooling existed also, as exemplified by disputes between advocates of dissenting religions and those supporting the primacy of the Anglican church in matters involving the moral training of the young. In any event it was a full century after the beginning of the Industrial Revolution that a major education bill finally did make its way through Parliament. In sum, the demands of physical work imposed on British children did not diminish during the decades following the Industrial Revolution, as it did in Japan between 1880 and 1940.

Thus, in explaining why well-being was positively associated with early industrialization in Japan and negatively associated with it in Britain, three factors appear important: gross nutritional intake; the incidence of disease, the pathogen/human host balance, and the capacity of medical therapy to cope with illness; and education and the burden placed upon children for

---

ment. Indeed, heights deteriorated in both rural and urban Britain prior to the mid-19th century. I am grateful to John Komlos for this point.

13 On the importance of education for the development of Japanese labor markets see Chapters 2 and 4 of *Mosk*, Competition and Cooperation.

physical work. These follow from the net nutrition hypothesis and from my earlier analysis of the secular improvement of well-being in Japan after 1900.

V.

The thesis above was presented in terms of averages for populations. We now turn to the important issue of inequality within populations, that is to the distribution of well-being by geography, by socioeconomic status, and by parity (that is according to birth order). Differential opportunity within and between families is a fact of life at all times, but especially so in populations with stem family systems and with moderate levels of fertility.

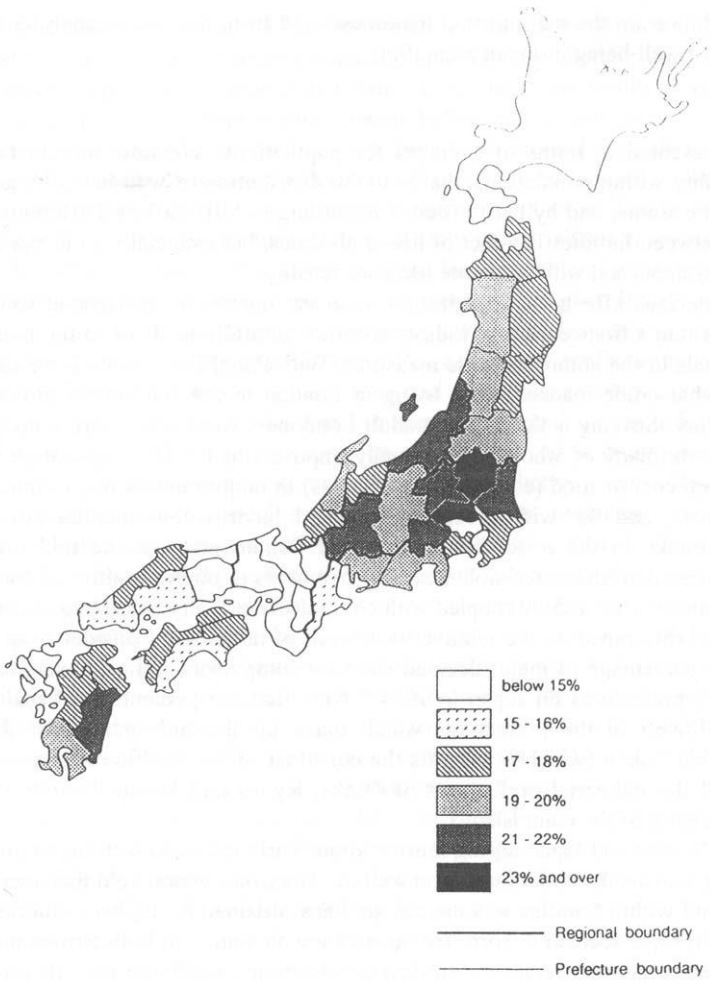
Discussion of the deleterious effects of urbanization upon net nutritional intake and well-being in Britain during Britain's first century of industrialization naturally leads us to the issue of geographical differentials in the anthropometric measures. With Panel D of Table 2 we can gauge, albeit in a somewhat crude manner, what living in London meant for human growth during the early 19th century. Striking is the fact that adult Londoners were very short, considerably shorter than the Irish, many of whom were actually impoverished.[14] The implication is that urban squalor, the high cost of food (especially perishables) in major centers due to transportation and storage costs, and the widespread use of child labor within manufacturing depleted net nutritional intake in the major conurbations of Britain prior to the mid-19th century. Yet, as the Japanese data show, technological improvements in public health and food transportation over the century after 1850 - coupled with compulsory primary schooling - seem to have made a substantial difference on the relative well-being of urbanites. Consider Map 1 which illustrates how the percentage of males deemed short on compulsory military examinations varied across the 46 prefectures on Japan in 1934.[15] Note that the percentage of males classified as short was lowest in the prefectures which make up the industrial core: the prefectures in white include Tokyo (which is towards the northeast of the Pacific coastline of Japan's main island) and the industrial prefectures of Osaka, Kyoto and Hyogo (which are slightly southwest of the center of the main island).

For the populations of Britain and Japan during those nations' early industrialization, anthropometric differentials also had a substantial impact on welfare. Doctrines which held that social differentiation between and within families was natural, perhaps ordained by higher authority, gained credibility when physique seemed to correlate positively with status. In both Britain and Japan, the elite outstripped the lower classes in physical development. Sandhurst recruits towered above Marine Society recruits (Panels B, C and E of Table 2). The stature of Japanese male students aged 24 was considerably above that of the average military conscript. And the fresh factory recruit in Japan (who was likely to have been sold into factory work by her parents struggling with the burden of tenancy) was far shorter than female students.

---

14 Data for the 1980's, presented in *Floud/Wachter/Gregory*, p. 203 shows that British geographical differentials in height have been considerably refashioned since the early 19th century (Panel D of Table 2). In the 1980's the Scottish (who were the tallest in Britain in 1815) were near the bottom in terms of ranking by height.

15 The source for Map 1 is Map 3 of *Mosk*, Making Health Work, Map 1 provides a map of Japan giving the location of all of the prefectures with the exception of Okinawa.



Map 1. Percentage of Males Examined for Military Service Who Are Short (150 cm or Less) in Each Prefecture of Japan, 1934

Source: *C. Mosk*, Making Health Work: Human Growth in Modern Japan, Berkeley: *University of California Press*, 1996): Map 3 (pg. 109).

Table 2: Differentials in Health, Height and Weight in Britain and Japan
The Influence of Socioeconomic Status, Family Size, Birth Order and Geography

Panel A: Sandhurst and Marine Society Recruits by Date of Birth, Height (cm) at Ages 13 and 16, 1771-1840

Age	Marine Society Recruits (Poor)			Sandhurst Recruits (Gentry)	
	1771-1773	1800-1802	1828-1829	1802	1837-1839
13	131.0	129.4	142.8	148.2	154.0
16	150.1	151.1	155.5	n.e.	171.0

Panel B: Heights (cm) of Boys and Girls Aged 8, 10 and 12 According to Work Status of Child and Parents and/or Locale of Residence, Circa 1873 [FC/FP = Factory Child of Factory Parents; NFC/FP = Non-Factory Child in Factory Districts; NFC/NFD = Non-Factory Child in Non-Factory Districts. Indices with FC/FP = 100 in Parentheses]. Britain

Age	Males			Females		
	FC/FP	NFC/FD	NFC/NFD	FC/FP	NFC/FD	NFC/NFD
8	116.2 (100)	118.7 (102.1)	118.5 (102.0)	118.1 (100)	120.4 (102.0)	118.7 (100.5)
10	126.4 (100)	129.6 (102.5)	129.5 (102.5)	125.8 (100)	126.4 (100.5)	127.2 (101.0)
12	134.2 (100)	136.0 (101.4)	137.3 (102.3)	135.0 (100)	135.6 (100.5)	138.2 (102.4)

Panel C: Height (cm) and Weight (kg) for Children Age 11 in Scotland in 1947 According to Socioeconomic Class (Class I-III and VII) and Number of Children in Family (NCF) [a]

Socioeconomic Class	Height by NCF			Weight by NCF		
	1	4	5	1	4	5
I-III	140.4-140.6	139.1-139.3	139.7-139.9	33.4-33.6	32.4-32.6	33.3-33.5
VII	137.7-137.9	135.6-135.8	134.1-134.3	31.7-31.9	30.6-30.8	30.0-30.2

Table 2 [continued]

Panel D: Geographic Differentials in Male Military Recruit Height (in cm), Circa 1815
English Urban (An Area Inclusive of Liverpool, Leeds, Manchester, Birmingham, and Sheffield)

Region		Region	
Name	Difference from English Urban	Name	Difference from English Urban
Scottish Rural	+0.58	English Rural	-0.14
Scottish Urban	+0.47	London	-0.30
Irish	+0.45		

Panel E: Height (cm) and the Body Mass Index of Japanese Females Aged 15, 18 and 20, Circa 1910
Students (S), Fresh Factory Recruits (FR), Spinning Mill Operatives (O), Spinning Mill Operatives with 0-1 Years of Experience (O1Y), and Operatives with Two or More Years of Experience (O2Y)

Age	Height (cm) for Group Below					Body Mass Index for Group Below				
	S	FR	O	O1Y	O2Y	S	FR	O	O1Y	O2Y
15	143.0	136.4	136.7	139.7	134.8	18.9	20.4	19.1	18.5	20.2
18	148.2	141.5	141.5	140.3	145.6	21.5	22.2	22.2	23.4	20.9
20	147.9	143.3	145.1	143.3	142.7	22.0	23.4	22.4	23.2	22.8

Panel F: Changes in Heights (in Absolute Number of Centimeters and in Percentages), 1910/1930's
Female Students (S) and Factory Operatives (O), Aged 15-18, Japan

Age	Absolute Gains, 1910/1930's		Percentage Gains, 1910/1930's	
	S	O	S	O
15	6.0	8.8	4.2	6.4
16	3.3	5.8	2.3	4.2
17	2.0	5.1	1.5	3.6
18	n.e.	4.8	n.e.	3.4

Table 2 [continued]

Panel G: Health Rating for Male Offsprings in a Prewar Shizuoka Prefecture Village, 1913-1943
Rating by Birth Order, in Percentages, Category A = Most Healthy and E = Least Healthy, Japan

Birth Order	A	B	C	D	E	Total
First Born Son	45	22	12	17	4	100
Sons Two and Three	43	12	16	24	5	100
Sons Four to Seven	35	17	20	19	9	100

Notes: n.e. = not estimated or not available.
(a) I have taken these figures from graphs. In Panel C, the grouping "I-III" represents higher social status groups, and the group denoted by "VII" represents unskilled manual wage earners.

Sources: Panels A and D from *Floud/Wachter/Gregory*, pp. 167-169, 176-178, and 201; Panel B from *Tanner*, History of the Study, p. 171; Panel C from J.M. *Tanner*, Growth at Adolescence, Cambridge 1962, p. 138; Panels E and F from *Mosk*, Making Health Work, p. 126-129; Panel G from *Honda*, Table 1.

But what is striking about Japanese differentials in socioeconomic status is that they narrowed very rapidly during the interwar period (Panel F of Table 2). What accounts for the diminution in the Japanese differentials?[16] Several factors are suggested by the net nutritional hypothesis: if they were evenly distributed, technological improvements in public health and medicine between the mid-19th century and the mid-20th century, and the early promotion of compulsory education in Japan. It is likely that the latter factor was especially important. For instance, ill children in a classroom usually affect the health of other students. Therefore, school authorities were under constant pressure to regulate the food children consume within schools. They were also under pressure to discover the diseases of their pupils and to take measures to combat their spread. In short the Japanese evidence suggests that education can act as a great equalizer in well-being. Compelling proof of this point is the fact that the gains in height of male and female students during the 1900-1985 period are highly correlated with one another (Panel F of Table 1). Despite discrimination against women in Japanese society, the force of compulsory education and of advances in public health and medicine was to confer gains in well-being on females and males alike.

Moreover, equalization within the household was also occurring. Higher parity children tend to be less healthy and shorter than their older siblings (Panels C and G of Table 2). Higher parity children are reared in a family environment in which colds and infections are more prevalent, and they may also be less valuable than first- or second-born offsprings. Thus they may be less likely to be given adequate nutrition and health care. For instance, primogeniture was a device, albeit not an exclusive one, for arranging the transmission of family assets from one generation to the next in both early industrializing Japan and Britain. One of the most important roles of the higher parity child was to serve as a potential stand-in for an older sibling, but downward social mobility was his/her typical fate. Moreover the force of nature seemed to conspire to make it so, because the higher parity child was generally less healthy and shorter. In a world where socioeconomic status was inextricably linked to physique, being shorter meant that one was less likely to command respect. Was it surprising that social systems in which first-born tended to inherit appeared to be in harmony with the natural order of things?[17]

Into this world of profound inequality of opportunity was introduced the compulsory school system and the public health authorities. Their thrust was to improve well-being - and hence opportunity - across the socioeconomic spectrum and within the family. This public policy in turn reduced fertility and mortality and therefore had a positive feedback on welfare.

VI.

If we take a broad view of the history of the last several centuries, it is apparent that economic development, and the concomitant revolution in public health and medicine, has promoted significant improvements in well-being. In turn improvements in welfare helped to increase

16 See Panel C of Table 2 for socioeconomic differentials in the anthropometric measures in Scotland in 1947. For definitions of the British socioeconomic classes see *C. Leys*, Politics in Britain: From Labourism to Thacterism, London 1989, pp. 162-163. *G. Honda*, Short tailors and sickly Buddhist priests: Birth order and household effects on class and health in Japan, 1893-1943. A paper presented to the 1995 annual meeting of the Social Science History Association, Chicago, Illinois discusses socioeconomic differentials in Japanese health.

17 Sociobiology or co-evolutionary theory -see footnote 6 above - emphasizes the biological factors undergirding social behavior and the interaction of culture with biology. My argument concerning the interaction of social rules like primogeniture with differential well-being in the family according to birth order differs from sociobiology or co-evolutionary arguments because I place primary weight on social and economic factors.

productivity in the long run, thereby accelerating the pace of technological change in industrial societies. In Japan this seems to have been the case since it began to industrialize in the 1870's. In Britain it happened at about the same time, but that was a century after the beginning of the Industrial Revolution. The net nutritional hypothesis emphasizing the food intake, illnesses and physical work of children offers a consistent explanation for why there is divergence between the Japanese and the British cases in the period of early industrialization. It also explains why in the long run there is a secular enhancement in well-being in all countries which have successfully industrialized.

One of the interesting by-products of the analysis offered here is its implication for social inequality. A growing demand for - and supply of - well-being in populations experiencing economic development implies equalization of opportunity as shown by the diminution of differentials across the population. An excellent illustration of this principle is the high correlation between improvements in male and in female well-being in Japan, a nation where there is a deeply rooted social bias in favor of males. In sum, the secular improvement in biological living standards is a key concomitant of economic development since the mid-19th century. Thus measuring and studying well-being - its dynamics over time, and the changing degree of disparity by socioeconomic status, geography and birth order - offers an important avenue for historical research, an avenue which still needs further exploration.

Change in the stature of North Indians from British Rule to early independence

*By Lance Brennan, John McDonald and Ralph Shlomowitz (Adelaide, South Australia)**

In a recent publication D.A. Low argues that there has been a widespread failure of land reform movements in the developing world to deliver benefits to the tillers.[1] He argues that the local landholders - the dominant peasants - became politically powerful at the regional and national levels because their control over the local people enabled them to manipulate the political system to their advantage and therefore to preserve their privileges. This paper considers whether there is any anthropometric evidence to support this argument in Uttar Pradesh[2], the most populous Indian state (Figure 1). In previous papers we considered the changes in North Indian heights from the last half of the nineteenth through the first half of the twentieth century using conventional economic and demographic explanations.[3] We now take the discussion further by situating these trends within the broad changes of the agrarian structure and political context. Two questions are addressed: was there a change in the general pattern of well-being following the independence of India from British rule; and did different strata of rural society benefit equally from the changes introduced by Indian governments in the agrarian and political systems?

I. A framework of Uttar Pradesh politics: 1870-1970

Massive shifts in political control have occurred since the last quarter of the nineteenth century. British rule was then at its height and numerous Indians became indentured labourers in other parts of the Empire - especially in those colonies which grew sugar cane. During this period a nationalist movement, expressed formally through the Indian National Congress (INC), began to grow, mainly in the cities of British India, but gradually spreading to the rural areas - especially after the First World War and during the Great Depression. From 1920, the contest against the British was led by Mahatma Gandhi and, in the United Provinces, by Motilal Nehru and his son, Jawaharlal. When the British relaxed their control over the provincial level in 1937, the INC formed a government in the United Provinces, but resigned in 1939 when the British would not extend its influence to the Government of India during the war. At the end of the war, the British held fresh provincial elections, in which the INC again was successful and returned to control the province. Shortly afterwards the British partitioned the sub-continent, transferring power to the INC in India and to the Muslim League in Pakistan. At this stage then, the INC controlled power at both the national and the provincial - later state - levels.

---

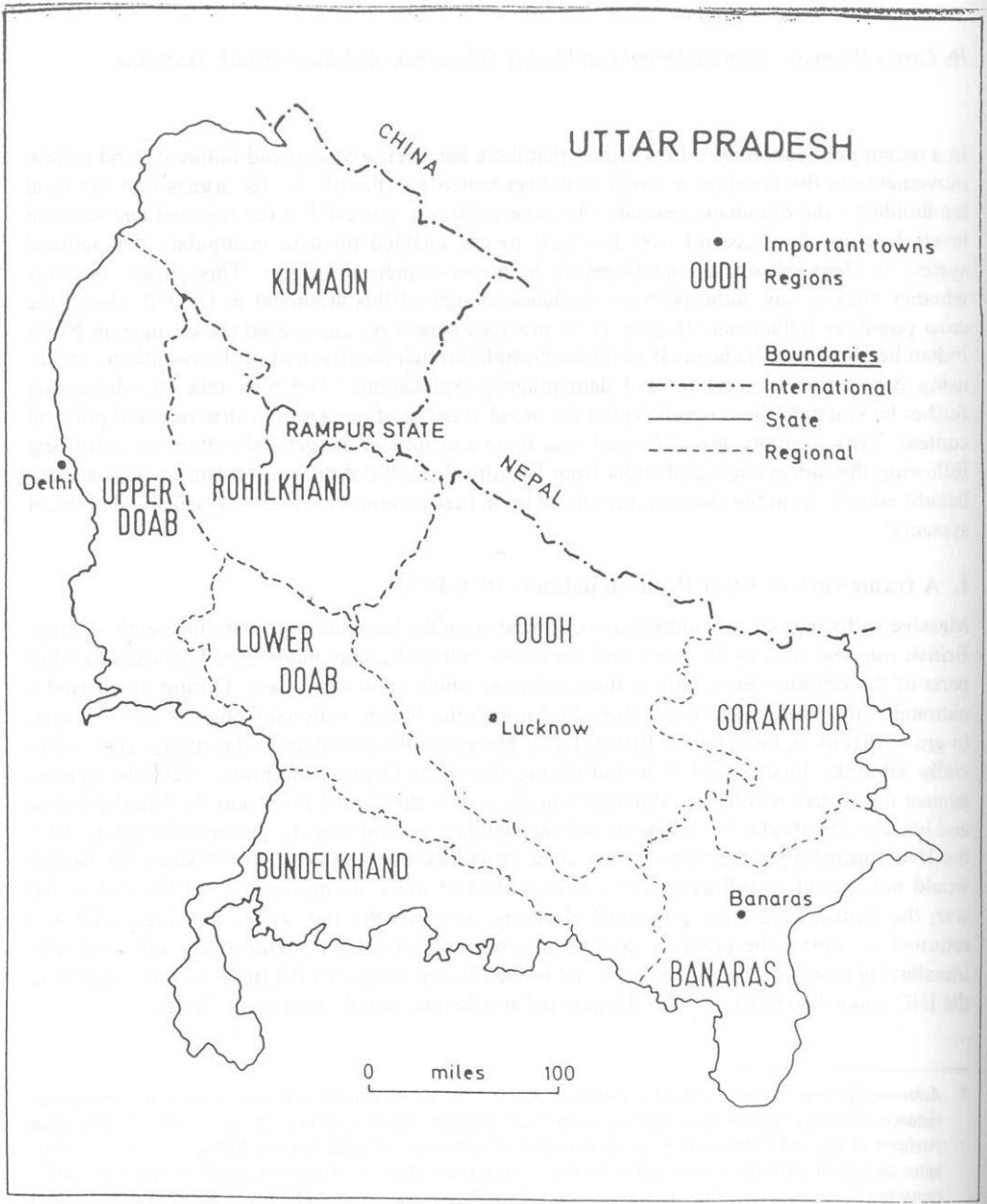
* *Acknowledgments*: We are indebted to Eva Aker, Kathy Prior, Leone Randall and Anne Brennan for research assistance; to Unnay Narrine and Pieter Nel of the Natal Archives, Pietermaritzburg, Margaret Patel of the National Archives of Fiji, and S.Deerpalsingh and V.Govinden of the Mahatma Gandhi Institute, Moka, Mauritius, for assistance using their archival holdings; and to Joy Brain, Sumit Guha, Harish C. Srivastava, and K.Visweswara Rao for providing documents, references, and advice. The funding for the research was provided by the Australian Research Council.

1 *D.A. Low*, The Egalitarian Moment, Cambridge 1996.

2 The province was known as the North Western Provinces and Oudh from 1877 until 1902 when it became the United Provinces of Agra and Oudh. In 1950 the state received its present name.

3 *L. Brennan/J. McDonald/R. Shlomowitz*, The Heights and Economic Well-Being of North Indians under British Rule, in: Social Science History 18/2, 1994, pp. 288-295; and *L. Brennan/J. McDonald/R. Shlomowitz*, Toward an Anthropometric History of Indians under British Rule, in: Research in Economic History 17, 1997, pp. 223-227.

Figure 1: Regions of Uttar Pradesh



From 1946 until 1967 Congress governments held most of the seats in the Uttar Pradesh Legislative Assembly and had no significant opposition. However, following the loss of a large number of seats in the election of 1967, and the defection of an important leader of the wealthy

peasants, Chaudhuri Charan Singh, and his followers, the Congress lost government for the first time.[4]

In the early years of independence the Congress, under Nehru's leadership, portrayed itself as socialist and as the party best able to represent the interests of the poorer elements of society through land reform, planned industrialisation and the processes of democratic politics.[5] For example, during the 1957 election campaign Shriman Narayan, the General Secretary of the party, claimed that the Congress candidate "[S]hould approach the voter with the pledge of securing the greatest good not only to the greatest number, but to all the millions that dwell in this land."[6] But by the mid-1960s the agrarian measures which were to achieve this end - lower individual ceilings on the holding of land and cooperative farming in the villages - were defeated in the courts and parliament.[7]

What impact did Congress agrarian reforms of the period 1937-1960 have upon the people of Uttar Pradesh? Were there improvements in their condition and were these shared evenly? The most important measure of this is whether they had sufficient food to maintain life and livelihood. Measures of calorific intake and consumption of food grains during the early 1960s indicate that there was a significant differentiation in calorific intake between various levels of rural society, and that thirty percent of the population existed on inadequate food.[8] But whether there had been any improvement from the British period, and if so, whether this improvement was shared equitably, are unclear from these measures. One way to test the hypothesis that the Congress was able to improve the conditions of the poor in the first twenty-five years of its rule in Uttar Pradesh (1937-1962) is by considering the changes in heights of rural men over the period. We cannot do this by assessing the changes in height of different social classes - such as cultivators, artisans, and field hands - because this information was not recorded. However, different castes were measured, and therefore it is possible to use these records as proxies for social status.

II. Castes and class

The Hindu caste system at the village level is about ritual hierarchy intimately linked with economic and political power. To secure an insight into how different sections of society fared we follow the changes in mean height of four specific castes of different status: Brahman, Kurmi, Kewat and Chamar, and four caste groupings: 'high caste', 'superior Sudra', 'inferior Sudra', and 'scheduled caste'. The Brahman caste is representative of the 'high castes'; Kurmis of the group of 'superior Sudras' (with lower status than the 'high castes'); Kewats of the group of 'inferior Sudras'; and Chamars of the lower status 'scheduled castes'. The individual castes are a much more homogenous population than the caste groupings. By charting changes in their heights we have more confidence that we are comparing like with like. On the other hand, comparisons of height changes for the broad groups allow more general statements to be made. That is, we test the hypothesis on the more general categories as well as on the specific castes.

---

4 *P.B. Mayer*, The Year the Vote Banks Failed, in: *J. Masselos (ed.)*, India: Creating a Modern Nation, New Delhi 1990.

5 *O. Mendelsohn/M. Vicziany*, The Untouchables, Cambridge 1998, pp. 14, 118, 131-32; *Planning Commission, Government of India*, The Second Five Year Plan, New Delhi 1956, para. 4, ch. 1.

6 *S.L. Poplai (ed.)*, National Politics and 1957 Elections in India, Delhi 1957, p. 52.

7 *Low*, The Egalitarian Moment, pp. 24-25.

8 *V.M. Dandekar/N. Rath*, Poverty in India, Bombay, Indian School of Political Economy 1971, pp. 6-9.

We constructed the categories from the ritual positions accorded castes by the ethnographers in the nineteenth century: these were based on the discussions of local informants - usually high caste and always elite.[9] Hindu society was theoretically divided into two groups, „the twice-born" and the Sudras. The latter, according to the theory, were obliged to serve the former - the scholar-priests (brahmans), warrior-leaders (ksatryas) and wealthy pastoralists and traders (vaishya).[10] Outside this ritually sanctioned structure but an essential part of it in economic-societal terms were the so-called „untouchables" who performed tasks thought of as ritually polluting, and who are now usually referred to as Scheduled castes.[11]

Castes within the Sudra category stretched across a wide range of occupations, from the highly skilled cultivating and artisan castes to those whose work was generally less rewarding and bordered on the polluting - like fishermen. In order to differentiate within this broad group, we have divided them into those from whom the higher castes would accept water (the „superior Sudras") and those from whom they would not.[12] Though this is a ritual differentiation it also broadly accords with the socio-economic position of the castes. Generally, the higher the ritual status the better the economic position of a caste, or group of castes. In the late nineteenth century, the 'superior Sudras' were likely to come from tenant families that controlled the cultivation of land even if they did not own it. The 'inferior Sudras' were usually minor artisans, fishermen or boatmen, who might work as petty cultivators or agricultural labourers for part of the time.[13] People from 'high castes' tended to come from families with land and/or access to education, while those from 'scheduled castes' worked in ritually polluting jobs in the villages as well as by labouring. Individuals in castes did improve their positions and vice-versa, but this did not alter the position of the whole caste. If through broad shifts in opportunities a caste, or an endogamous regional section of a caste, improved its economic position it would also, through a host of individual economic, political and social transactions, improve its ritual position.[14] That is, the caste structure was not immutable - nonetheless there was a broad correspondence between caste status and economic roles in rural society.

1. Brahmans:

Brahmans as a group were divided by birth, status and economic position but were united by their superior ritual position in Hindu society. By the last half of the nineteenth century a minority were involved in the new professions introduced by the British, while there were more who were landholders and cultivators, and there were even a few who tilled the land them-

9 Census of India, 1901, 16, pt 1, Calcutta 1902, pp. 218-58. The informants had in mind the ritual categories of ancient and medieval Hindu social theory (the varna system). The contemporary differentiation was on the basis of the direction of the ritual pollution associated with transfers of food and water between different castes.

10 See *A.L. Basham*, The Wonder that was India, London 3rd ed.1974, pp. 138-145.

11 For a description of the Hindu caste structure at the time of the Muslim invasion in the 12th century, see *Alberuni*, Kitab-i-Hind, ch. 9 passim. The term „scheduled caste" stems from the list or schedule of untouchable castes constructed by the British in 1936 to indicate which individuals were able to vote for particular parliamentary seats reserved for untouchables. For a discussion of the terminology associated with untouchable castes see *Mendelsohn/Vicziany*, The Untouchables, pp. 2-5.

12 *Basham*, Wonder that was India, p. 144 indicates that a similar division also held in ancient India.

13 Villagers who owned some land often leased extra land from others; or leased in land while working as an agricultural labourer for someone else; others made their living as share-croppers. Some artisans leased land to supplement their incomes. See *Reeves*, Landlords and Government, pp. 25-27.

14 *F.G. Bailey*, Caste and the Economic Frontier. Manchester 1957, pp. 270-271; some Kurmis claimed Brahman status. *W. Crooke*, The Tribes and Castes of the North Western Provinces and Oudh, III, Delhi 1996 (reprint 1975) pp. 219; 346-7.

selves. They were also orderlies and gatekeepers, or made a living as shopkeepers and pedlars.[15] Perhaps surprisingly, the Brahmans who officiated as priests were low in the estimation of their fellows, though scholars were accorded much higher status.[16] The Brahmans who migrated as indentured workers were likely to come from cultivating families, while those measured in the anthropometric exercises in 1941 and the 1960s are more likely to have been spread through the range of Brahman groups and economic circumstances. Brahmans were among the leaders of the nationalist movement in U.P., including the Nehru family, and continued to be leading figures in the state Congress party and bureaucracy up to the 1980s.[17]

2. Kurmis:

The Kurmis were (and are) among the most important agricultural castes in Uttar Pradesh. They were mainly small landholders or tenants (both secure and tenants-at-will), and occasionally even magnates. The poorer Kurmis were sharecroppers and agricultural labourers. They had the highest reputation as cultivators of grains, and their productivity in the fields was assisted by the work of their wives and children. Like the Brahmans there are a number of different endogamous groups among them, and most of these were regarded as 'clean' or 'high caste S[h]udras'[18], or in our terminology, 'superior Sudras'.

3. Kewats:

The Kewats are now a caste of „fishermen, boatmen and cultivators".[19] This is the same description accorded them a century ago by Willam Crooke, who also suggests that they ate all kinds of fish and drank spirits.[20] Though they were orthodox in their Hindu religious observances, in the United Provinces their position was lower on the ritual scale than the Kurmis, and we have situated them in our category of 'inferior' sudra.

4. Chamars:

In Uttar Pradesh Chamars are the most numerous and important Scheduled Caste. Traditionally their occupations have been associated with leather working but in the nineteenth century most worked as labourers. Many migrated from villages to towns, while others formed a considerable proportion of the indentured workers who left India. The Chamars had low ritual status because the men dealt with dead cattle, in addition to ploughing, the women acted as midwives (another polluting activity), and they were said to eat beef, pork and fowls.[21]

III. Height Data

The data base of individual measurements pertaining to the anthropometric history of India during the 19th and 20th centuries consists of nearly 200,000 measurements of the height of male and female Indians. The indentured workers, usually between 16 and 40 years of age were

15 *J.N. Bhattacharya*, Hindu Castes and Sects, Calcutta 1896 (reprinted 1973), p. 39.

16 *Bhattacharya*, Hindu Castes, p. 9.

17 *B.S. Stone*, Institutional Decay and the Traditionalization of Politics, in: Asian Survey XXVIII/10, p. 1021.

18 *Bhattacharya*, Hindu Castes, pp. 218-19. In Bihar, „Brahmans will take water from their hands", according to *H.H. Risley*, Castes and Tribes of Upper India, vol.III, Calcutta 1891, p. 535; *W. Burns (ed.)*, Sons of the Soil, New Delhi 1941, pp. 41-42.

19 *M.K. Banerjee/A. Basu*, Uttar Pradesh, Calcutta, Anthropological Survey of India 1991, p. xxiii.

20 *Crooke*, Tribes and Castes, III, pp. 217-19. Non-vegetarianism and drinking spirits reduce the status of a caste.

21 *Crooke*, Tribes and Castes, II, pp. 189-91. It is equally likely the Chamars were kept in these polluting occupations because someone had to do them, and doing them kept them in their place.

measured on embarkation at Calcutta and Madras for employment on overseas sugarcane plantations between 1842 and 1916. We also have data from anthropometric surveys of the 1940s and 1960s which enable us to analyse changes in average height by age, social group (caste, community or tribe), and region of origin.[22]

This paper focuses on the heights of adult males from Uttar Pradesh, the state for which we have the most extensive data and which embarked earliest on land reforms.

The analysis of indentured workers is complicated by the fact that, to a degree, mean heights were affected by demand and supply conditions for recruits. We have dealt with this problem by averaging the demand and supply effects by calculating mean height over an extended period of time - the last quarter of the nineteenth century. Most indentured workers were recruited when aged 24 to 30 years, so most were born during the period 1845-75. Those measured in the 1941 survey were born 1901-1917 and those measured in the 1966-67 survey between 1926 and 1943.

The indentured workers were prospective sugar cane plantation labourers destined for the West Indies, Natal, Mauritius or Fiji. The height information is available from Emigrant Passes or Ship's Lists, which also include information on age, district of origin and caste, community or tribe.[23] Height was measured and recorded to assist in the identification of the workers and, as most recruits would not have possessed shoes, it is likely that they were measured barefoot. Although height measurements were made to the half and quarter inch, as with much height data, there is considerable heaping of observations at integer values. There is also heaping of the age data at ages 18, 20, 22 and 25, which is understandable given that many recruits would have been unaware of their exact age. As this study focuses on adult height, 24-40 years, errors in age within this interval are of little importance.[24]

The more recent data come from two separate investigations, both associated with Indian institutions and scholars of high reputation. The 1941 survey of anthropometric data in Uttar

22 See for example, *Brennan/McDonald/Shlomowitz*, Toward an Anthropometric History, pp.185-246.

23 Emigrant Passes or Ship's Lists are held in the national archives of Fiji, Jamaica and Trinidad, the provincial archives of Natal, and the Mahatma Gandhi Institute of Mauritius.

24 Details of the origin, accuracy, reliability and representativeness of the indentured worker data are contained in our earlier work. See especially *L. Brennan/J. McDonald/R. Shlomowitz*, Trends in the Economic Well-being of South Indians under British Rule: The Anthropometric Evidence, in: Explorations in Economic History 31, 1994, pp. 225-260; and *Brennan/McDonald/ Shlomowitz*, The Heights and Economic Well-being of North Indians, pp. 271-307. An important issue is whether the recruits were subject to a minimum height restriction. Evidence on the matter is of two kinds. First, surviving recruiting instructions do not contain a minimum height standard but instead suggest that chest circumference should be used as an indication of the applicant's ability to labour on the sugar plantations. For example, the 1882 instructions of the Trinidad Emigration authorities did not mention height but included: „Strong healthy field labourers are required…no men should be taken of soft hands or weak." *D.G. Pitcher*, Report on the System of Recruiting Labourers for the Colonies, 17 June 1882, Calcutta, Government of India, Revenue and Agriculture Department, Emigration branch, Feb.1883, India Office Records, P/2057 (British Library, London). The 1883 *Instructions for Surgeons when Examining and Selecting Emigrants* included the following: „The chest should be round and well-developed. Flat-chested men should be rejected," and „Dwarfs and scarecrows are not wanted, but short stature or slimness is not a fatal objection if the emigrant is wiry and tough…" *G.A. Grierson*, Report on Colonial Emigration from the Bengal Presidency, Calcutta, Government of Bengal 1883, Appendix IV. Additional evidence can be gleaned from empirical height distributions. They indicate no shortfall of short recruits and give a reasonable approximation to the normal. *Brennan/McDonald/ Shlomowitz*, Towards an Anthropometric History, pp. 187-199.

Table 1: Height of Males aged 24-40 (in centimetres) Uttar Pradesh, North India

Caste	Indentured Workers 1874-1900			1941 Survey			1966-67 Survey		
	n	mean	s.d.	n	mean	s.d.	n	mean	s.d.
Brahman	130	165.68	7.02	136	164.78	5.29	629	167.44	6.12
High caste group	817	165.59	5.98	253	164.26	5.32	1362	167.25	6.16
Kurmi	308	163.68	5.54	76	161.62	5.51	129	165.44	4.92
Superior sudras group	1463	163.95	5.76	144	161.38	5.47	762	165.74	6.07
Kewat	81	162.51	5.71	22	160.13	3.70	58	161.91	6.67
Inferior sudras group	998	162.59	5.92	129	161.54	5.33	543	163.47	5.96
Chamar	774	162.90	6.01	124	162.04	5.37	596	163.61	5.76
Scheduled castes	988	162.81	6.03	144	162.12	5.40	741	163.57	5.87
All Hindus	4266	163.68	6.00	670	162.66	5.51	3408	165.51	6.26

Note: All Hindus consist of all men in the High caste, Superior sudra, Inferior sudra and Scheduled caste groups. Those excluded mainly consist of Muslims, Christians and tribals.

Pradesh was reported by Mahalanobis, Majumdar and Rao in 1949.[25] Between 1961 and 1969 the Anthropological Survey of India measured the heights of over 60,000 adult males in their All-India Anthropometric Survey, and published the results from 1988 to 1992. The Survey was conducted in two stages. Information on 14,048 individuals belonging to 109 social groups in the four states comprising the South Zone was collected between 1961 and 1963, while information on 46,789 individuals belonging to 195 social groups in the eleven states making up the North Zone was collected between 1964 and 1969.[26] Table 1 contains summary sample information and Table 2 indicates the results of tests of divergence from the normal distribution, of skewness, kurtosis and Lilliefors test for normality, for the height samples used in the study.[27]

Table 2: Tests of Skewness, Kurtosis and Lilliefors Normality Test
Height of Males 24-40, Uttar Pradesh

	Test		
Indentured Workers 1874-1900	**Skewness**	**Kurtosis**	**Lilliefors**
Brahman	√	√	*
Kurmi	√	√	**
Kewat	√	√	√
Chamar	*	√	**
1941 Survey			
Brahman	√	**	√
Kurmi	√	√	√
Kewat	√	√	√
Chamar	√	√	√
1966-67 Survey			
Brahman	√	√	√
Kurmi	√	√	√
Kewat	√	√	√
Chamar	√	√	√

Notes: √ indicates not significantly different from the normal distribution.
* indicates significantly different from the normal distribution at the 5% level.
** indicates significantly different from the normal distribution at the 1% level.

In order to work with large sample sizes (and hence obtain more precise mean estimates), the samples are constructed so they consist of the heights of Indians over a broad age group (24-40

25 *P.C. Mahalanobis/D.N. Majumdar/C.R. Rao,* Anthropometric Survey of the United Provinces, 1941, *Sankhya*, vol. 9, 1949, pp. 90-234.

26 The Uttar Pradesh information was collected between January 1966 and February 1967.

27 *H.W. Lilliefors*, On the Kolmogorov-Smirnov Test for Normality with Mean and Variances Unknown, in: Journal of the American Statistical Association 63, 1967, pp. 399-402. Only one sample (Chamar indentured workers) is significantly skewed, and only one (Brahman males from the 1941 Survey) exhibits kurtosis that is significantly different from the normal. Three samples (indentured worker Brahmans, Kurmis and Chamars) are judged significantly different from the normal on Lilliefors test. For these samples, departures from normality are not great. Examination of normal probability plots of the three samples shows that deviations from a straight line are minor, thus suggesting that deviations from normality are also minor. The deviations can be attributed to a few dubious observations: for example a short Kurmi with a height of 146.05cm, a tall Kurmi 180.34cm tall; a short Chamar with a height of 143.51 cm, and a tall Chamar 182.88 cm tall. These observations could be typographical errors (there are many in the supporting documents), the short individuals could be women or youths rather than men, or the caste attribute may be incorrect.

years). There is a 16 year gap between the birth of the 40 year old and a 24 year old (for example a 40 year old measured in the 1941 survey would have been born in 1901 and a 24 year old in 1917). The strategy of using a broad age group would not be sensible if mean height varied greatly over the birth cohorts. For indentured workers we have traced variations in height by birth cohort in our earlier papers,[28] but in this paper we are using the indentured labour sample as a base to evaluate changes in height during the twentieth century. For the survey data there are many older males. Nevertheless Table 3 indicates there is little change in mean height with age for these data. Using the 1966-67 and 1941 survey data, we have constructed sub-samples for men aged 24-31 years and those aged 32-40 years. The differences in mean height between the two age groups are usually small, and none of the differences is significantly different from zero at the usual significance levels.

Table 3: Birth Cohort Effects. Heights of Males (in centimetres) Uttar Pradesh, North India.

	Age 24 - 31		Age 32 -40		Change
	n	mean	n	mean	in mean
1966-67 Survey					
Brahman	326	167.62	303	167.24	0.38
High caste group	720	167.25	642	167.26	-0.01
Kurmi	57	164.84	72	165.92	-1.08
Superior sudra group	391	166.06	371	165.41	0.65
Inferior sudra group	290	163.57	253	163.37	0.20
Chamar	336	163.52	260	163.73	-0.21
Scheduled castes	427	163.52	314	163.65	-0.13
All Hindus	1828	165.54	1580	165.49	0.05
1941 Survey					
Brahman	85	164.72	51	164.89	-0.17
High caste group	133	164.22	120	164.30	-0.08
Kurmi	33	161.67	43	161.57	0.10
Superior sudra group	70	161.51	74	161.25	0.26
Inferior sudra group	51	160.78	78	162.04	-1.26
Chamar	43	161.72	81	162.20	-0.48
Scheduled castes	51	162.03	93	162.17	-0.14
All Hindus	305	162.78	365	162.66	0.12

Note: None of the differences in mean is significantly different from zero at the 1%, 5% or 10% significance levels.

28 *L. Brennan/J. McDonald/R. Shlomowitz*, The Heights and Economic Well-Being of North Indians under British Rule, in: Social Science History 18, 1994, pp. 288-295; Towards an Anthropometric History of Indians under British Rule, in: Research in Economic History 17, 1997, pp. 223-227.

IV. Changes in height

Table 1 reports the mean height and standard deviation for each of the samples. The general tendency is for the castes of the 'high caste' group to be taller than those in the 'superior Sudra' group, who in turn were taller than the castes in the 'inferior Sudra' and 'scheduled caste' groups. The mean heights of Brahmans, Kurmis and Chamars are similar to those of their respective caste grouping, but the Kewat means calculated from the survey data are about 1.5 cm smaller than their caste group mean.

The most interesting result is that there was a general decline in mean height from the late nineteenth century to 1941, although this is less marked for the scheduled castes. In most cases the change is statistically significant. For Kurmis and Kewats the decline was over 2 cm, and for the 'high caste' and both 'Sudra' caste-groupings the fall was over 1cm. For the average of all Hindus, the fall was about 1 cm.

In contrast, there was a general increase in mean height from 1941 to the 1960s, with most changes being statistically significant. The increase was more pronounced for the 'high castes' and 'superior Sudra' caste-groupings. Mean height for Brahmans increased by over 2.5cm and for Kurmis by more than 3.5cm. For the average of all Hindus, the increase was 2.85 cm.

Because mean height declined and then increased, the increases in mean height over the entire period from the late nineteenth century to the 1960s were small (although usually statistically significant). Only for Kewats was there a small and insignificant fall in mean height. For 'high' and 'superior Sudra' caste groupings the increase was about 1.5 cm, but for the 'inferior Sudra' grouping and 'scheduled castes' the increase was less than 1cm. For the average of all Hindus, the increase was 1.8 cm.

Over the twenty five year period 1941 to the mid-1960s, the rates of increase in mean height were about the same as those for Indians in Fiji and the Caribbean; and for Europeans, 1900 to 1950. The increase in mean height of Fijian Indian males from 1876-1916 to 1982, about 95 years, was approximately 6 cm,[29] and the increase in mean height of Caribbean Indians from 1905-1913 to 1969, about 60 years, was about 2.8 cm.[30] Steckel [31]records the increase in height of males over the fifty year period 1900 to 1950 in the U.S. to be 4cm; for the U.K., 8cm; Sweden, 5cm; Norway, 7cm; The Netherlands, 9cm; and France, 5cm. Comparable figures in Asia for 20 year old Japanese military conscripts, show that between 1892 and 1937 their mean height increased from 156.1 cm to 160.3 cm.[32] In the light of the decline of the mean of all groups in U.P., this increase is an impressive testament to the advantages of industrialisation and, perhaps, imperialism.

V. Discussion

What can these figures tell us about the well-being of the rural sectors of Uttar Pradesh society? Adult height is influenced by environmental conditions - that is, economic and health conditions - during the period of growth. Our samples of adults between the ages of 24 and 40,

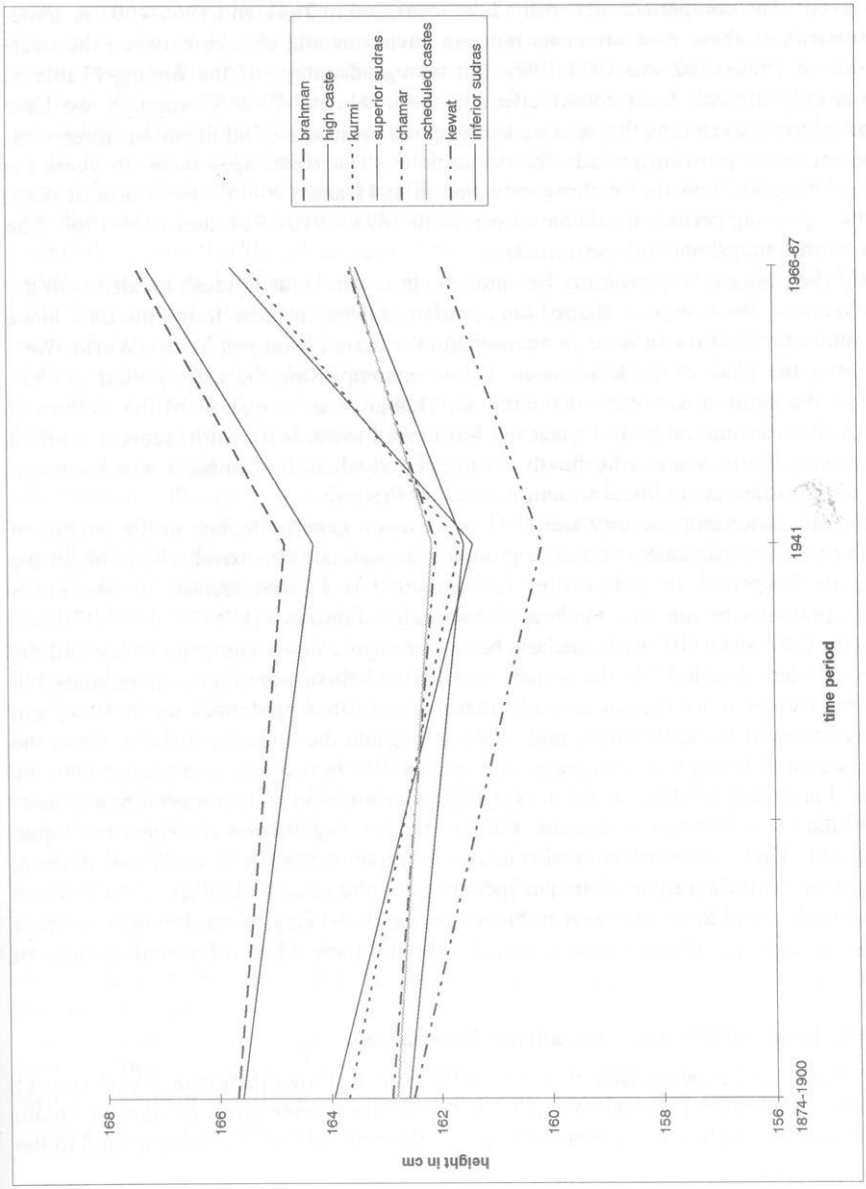
29 *L. Brennan/J. McDonald/R. Shlomowitz*, Secular Changes in the Height of Fijians and Indo-Fijians, in: Journal of the Australian Population Association 11, 1994, pp. 159-169.

30 *L.Brennan/J. McDonald/R. Shlomowitz*, Secular Change and Sex Differences in the Heights of Afro-Caribbeans and Indo-Caribbeans, in: Social and Economic Studies 44, 1995, pp. 73-93.

31 *Steckel*, Stature and the Standard of Living, Table 6, p. 1919.

32 *T. Shay*, The Level of Living in Japan, 1885-1938: New Evidence, in: *J. Komlos (ed.)*, Stature Living Standards and Economic Development, Chicago 1994, p. 201.

Figure 2: Mean height, males 24-40, Uttar Pradesh



measured during the three periods 1876-1900, 1941, and 1966-1967, therefore provide indications of environmental change between the three periods 1836-1899, 1901-1940, and 1926-1966, respectively. The comparison between adults measured in 1941 and 1966-1967 is somewhat problematical, as these measurements indicate environmental change between the overlapping periods of 1900-1940 and 1924-1966. But taking advantage of the finding (Table 3) that there was only a small birth cohort effect in the 1941 and 1966-67 surveys, we have adopted a procedure to overcome this overlap by using the mean age of adults in our three samples to construct mean growing periods for the samples. The mean ages were 26 years for indentured workers and 31 years for those surveyed in 1941 and 1966-67. For those of these mean ages, their growing periods would have been 1850-1898, 1910-1934, and 1936-1960. The study is in fact three snapshots of these periods.

Before 1937 the political responsibility for rural conditions in Uttar Pradesh resided with the British: subsequently, the Congress shaped the agrarian system. In these terms the data make points about the last half of the nineteenth century and the period from just before World War I until shortly after the peak of the Depression, before encompassing the early period of Congress control of the agrarian structure of the region. This gives us snapshots of the welfare of the four castes, first during the period when the Raj moved towards it zenith; second, while it was under considerable pressure; and, finally, of the period when the Congress was the major influence on the agrarian and political structures of Uttar Pradesh.

Between the late nineteenth century and 1941 there was a general decline in the heights of adults of all the four specific castes and caste groupings measured. This trend tells us about the severe impact of the period 1910-34 on the rural population. In some senses the decline is surprising: the previous period was marked by two major famines (1878-79, 1896-97), and difficult years in 1892 and 1907, while malaria became endemic in the Gangetic valley and the death toll from cholera doubled.[33] In the period from 1910-34 there were no major famines, but there were a number of other factors at work: there were serious epidemics up to 1920, and then economic crises in the early 1920s and 1930s, alongside the endemic malaria. From the early 1920s population began to increase at a rate greater than in the past, and greater than the increase of food production.[34] That is, from 1921 there was a period of less mortality and morbidity that enabled the population to increase, but this was accompanied by declining per capita food consumption. These circumstances, dictated to a certain extent by drought and disease, were played out within the agrarian relations experienced by the great bulk of the Uttar Pradesh population. To understand these and their influence on the well-being of rural people we need to turn first to the agrarian changes during British rule and their relationship with politics in Uttar Pradesh.

VI. The political and agrarian context during British Rule

Following the mutiny and rural uprising in 1857-58, the British shifted their stance with respect to the landlords – especially those known as taluqdars in the former princely state of Oudh. Previously they had sought to remove their influence in the countryside, transferring land to the

33 *I. Klein*, Population Growth and Mortality in British India, Part I: The Climacteric of Death, in: The Indian Economic and Social History Review 26, 1989, p. 389; *D. Arnold*, Cholera Mortality in British India, in: *T. Dyson (ed.)*, India's Historical Demography, London 1989, p. 264.

34 *Klein*, Population Growth and Mortality, Part II, in: The Indian Economic and Social History Review 27, 1990, pp. 51-63; the extent of the morbidity of the period between 1900 and 1920 is signaled by a decline of about four percent in the Uttar Pradesh population. Census of India 1942, vol. 5, United Provinces, pp. 10, 19.

maliks (the influential men in the villages). In Oudh they now restored the villages to the taluqdars, and generally throughout the provinces they took a more sympathetic view of landlords. In return, the landlords supported the British. However, tenants in the North Western Provinces who could prove that they had occupied the same land for twelve years were granted 'occupancy' status by the British revenue officers. As long as they paid rent and looked after the land they could not be dispossessed, nor could the rent be raised by more than a small percentage. These rules legitimated the position of a privileged group within the village.[35] In Oudh, however, the landlords were much more powerful, and few tenants had a secure status. In the North Western Provinces the differential between the occupancy tenants and the tenants-at-will started to emerge from the 1870s, but it was not until the first twenty-five years of the twentieth century that the advantages of the occupancy tenant became significant, as prices and yearly tenant rents doubled while occupancy rents advanced only by twenty-five percent.[36]

In the period 1910-1934, as well as the general health considerations and reduction of per capita food production discussed above, there were two periods when particular groups were placed under extra stress because of economic crises. During 1918-22 those who paid for at least part of their food, such as the poor unsecured tenants, artisans, fishermen and agricultural labourers, were under heavy pressure because of high prices - and the attempts of the landlords to exact more profit from their lands. (The castes affected by this situation included the Kewats and Chamars, though poorer Brahmans and Kurmis were also affected - especially in Oudh where there were few occupancy tenants). This added to the growing difficulties of the tenants-at-will whose landlords were increasingly making extra demands to compensate themselves for the advantages of the occupancy tenants whose rents could not be raised to keep pace with prices. The secured tenants and small landlords producing for the market generally did better than the poorer groups discussed above, though they too were affected by the plague and influenza epidemics, and by the general pressure on land.

The inflation following World War I brought enormous pressures on the agrarian system, especially when the larger landlords sought to extract a proportion of the profits they believed their tenants were making. In 1921 these pressures erupted in rural rioting among the poorer tenants in southern Oudh.[37] The riots forced the government to attempt to give tenants in Oudh greater security. The legislation succeeded to a limited extent, but the landlords used their majority in the Legislative Council, to increase their power to bring land under their own 'cultivation' - ejection under another name.[38] Congressmen played an equivocal role in the agrarian disputes of the early 1920s. They were unsure how far they should support tenants against landlords - many of whom were relatives or clients - and were also concerned about the violence that sometimes erupted. They were more anxious to score points off the British than to take a strong stand.

The position of the Congress became clearer during the Civil Disobedience Movement of 1930-33. This was political in its objectives, though it drew upon the discontents of the commercial and industrial elites over policies that favoured their British competitors. The collapse of prices during the Depression affected the wealthier peasants who were engaged in the market

35 *T.R. Metcalf*, Land, Landlords, and the British Raj, Delhi 1979, pp. 70-73.

36 *E. Stokes*, The Peasant and the Raj, New Delhi 1980, p. 210.

37 *D.N. Dhanagare*, Peasant Movements in India, 1920-1950, Delhi 1983, pp. 115-116. The slogan of the protesters was „No nazrana! No ejectment!" A nazr was a gift - often a large multiple of the yearly rent - that had to be paid by a non-occupancy tenant for the renewal of his right to cultivate the land. The alternative was ejection.

38 *Reeves*, Landlords and Government, pp. 94-113.

and carried considerable debt. The marginal tenants who supplemented their incomes with agricultural labour were less damaged. By the close of 1930 the income of occupancy tenants declined, and landlords began to evict tenants who could not pay their rents. This created widespread discontent, and at this stage the upper levels of the tenantry became involved in the nationalist pressure for a 'No Tax' campaign. This reached its climax in a 'No Rent' campaign sponsored by the United Provinces Congress from December 1931 to mid-1932.[39] This campaign testified to the economic hardships brought by the Depression; at the same time it linked the upper peasantry to the Congress, and gave focus to the latter's agrarian policy. This was now supportive of the tenants and small landlords, and opposed to the magnates. It was against this background that the Congress in the United Provinces drew up its agrarian program and made it the centre of its provincial election campaign in 1937.

Bearing the above in mind, it is not surprising that the health and nutrition of the population we are considering came under stress and was reflected in a decline in their mean height over the previous period. What is interesting is that this was a general decline, shared by virtually all groups of Indian rural society apart from the landlords. In broad terms, children from all rural caste-groupings were affected by nutritional or health problems that slowed or halted their growth and, because rural conditions remained severe throughout the period, they were unable to 'catch-up' to their normal growth path.

VII. Congress and Agrarian politics

From its first meeting in 1885 the Congress was concerned with poverty, blaming the British for expensive administration and for the 'drain' of wealth to Britain.[40] But it was not until the 1930s that the Congress in Uttar Pradesh, led by Jawaharlal Nehru, began to question the landholding system and to press for reforms. When it came to power in 1937 it delivered some of the reforms promised during the election campaign. These took shape in the Uttar Pradesh Tenancy Act of 1940 which removed some of the privileges of the magnates with large estates, but protected the landlords with smaller holdings, and extended the rights of the tenants with limited tenure. It is important to note that the legislation did not assist sub-tenants of secured tenants[41] or the agricultural labourers. Indeed it is arguable that the reforms made it harder for sub-tenants and agricultural labourers to become tenants in their own right.[42]

The outbreak of the war in 1939 improved the economic situation for grain growers as prices began to climb above the levels that had prevailed through the Depression decade, forcing the government of the United Provinces to introduce rationing of wheat and rice in urban areas from 1943.[43] During the war, and thereafter, cultivators with surplus grain prospered. The maliks - the resident non-cultivating proprietors - found that they could do better by *directing*

---

39 *Dhanagare*, Peasant Movements, pp. 122-23. The change from a 'No Tax' campaign against the government to a 'No Rent' campaign against the landlords is a significant marker of the alliance of the wealthy tenants and the Congress.

40 *S.R. Mehrotra*, A History of the Indian National Congress, vol.1, New Delhi 1995, pp. 28-29; *N. Charlesworth*, British Rule and the Indian Economy 1800-1914, London 1982, p. 52.

41 Tenants with security of tenure as long as they paid their rents were known as occupancy tenants in U.P.

42 Memorandum on U.P. Tenancy Bill for discussion in Executive Council, United Provinces Provincial Congress Committee, in All-India Congress Committee Papers Misc./17/38 (Nehru Memorial Library, New Delhi).

43 The rupee price of wheat increased nearly fourfold between August 1939 and January 1946. *S.K. Rudra*, Rationing of Foodgrains in the United Provinces during World War II, Allahabad, Dept of Economics and Statistics, Government of U.P., 1946, p. 5.

cultivation themselves than by leasing out their land, and so ejected their former tenants or share-farmers.[44] The terms of trade moved in favour of agriculture - at first because of market forces - and later (from about 1955) when the rich peasants were able to raise government procurement prices because of their political power.[45] The increase of grain prices meant that a lower proportion of the crop had to be used for the land tax and rents. On the other hand villagers who had to buy part of their food supplies had a more difficult time until rural wages began to catch up towards the end of the war.[46]

Following their victory in the 1946 elections, the United Provinces Congress, took the further step of abolishing intermediaries between the State and the 'cultivators' - the Zamindari Abolition Act of 1950. Cultivators in this sense meant those who controlled the cultivation, not those who did the cultivating. Large and absentee landlords lost much of their lands but were allowed to keep the land they themselves 'cultivated', and were granted compensation in the form of bonds for that which they lost. Their tenants were offered the option of buying from the State the right to become *bhumidars* (i.e. to pay the old land revenue demand in return for the right to sell their land) or to stay as they were with heritable rights and pay their old rents to the State[47]. Most chose the latter.[48] The strengthening of the control of the land by village landlords and those who had been the direct tenants of the landlords was deliberately engineered. Chaudhuri Charan Singh, one of the Congress leaders who designed the Zamindari Abolition Act, later wrote: „The political consequences of the land reforms are no less far-reaching. Much thought was given to this matter since the drafters of the legislation were cognisant of the need to ensure political stability in the countryside. By strengthening the principle of private property where it was weakest, i.e. at the base of the social pyramid, the reforms have created a huge class of strong opponents of the class war ideology. By multiplying the number of independent land-owning peasants there came into being a middle of the road stable rural society and a barrier against political extremism."[49]

Charan Singh exaggerates somewhat the idea that his measures strengthened land-holding at the *base* of the social pyramid. Though absolute landlessness in Uttar Pradesh was less common than in most other states, Sharma indicates that in 1961-62, 57.5 percent of households held 12.3 percent of the land.[50] The reforms did, however, strengthen the resident landholders in the villages, and this was a class that was already expanding its economic - and hence, political - influence in rural society. Most of these maliks, and the occupancy tenants, who would be able to become bhumidars under the Congress land reforms of 1950, came from the 'high castes', such as Brahmans and Thakurs, or from the 'superior Sudra' castes such as the Jats and Kurmis.

---

44 *D. Thorner*, The Agrarian Prospect in India, New Delhi 2nd ed. 1956, p. 47.

45 *T.J. Byres*, Land Reform, Industrialization and the Marketed Surplus in India: An Essay on the Power of Rural Bias, in: *D. Lehman (ed.)*, Agrarian Reform and Agrarian Reformism, London 1974, pp. 251-252.

46 *S.C. Chaturvedi*, Rural Wages in the United Provinces, Allahabad 1947, pp. 95-96.

47 Rents paid by secure tenants were usually about twice the land revenue demand. By 1950, inflation had reduced the significance of the land revenue.

48 *P.D. Reeves*, Landlords and Government in Uttar Pradesh, Bombay 1991, p. 294.

49 *Charan Singh*, Agrarian Revolution in Uttar Pradesh, Lucknow, Publications Bureau, Govt of U.P., 1957, p. 42.

50 *H.R. Sharma*, Distribution of Land Holdings in Rural India, in: Economic and Political Weekly 29/39, p. A-122.

Between 1937 and the early 1950s the Uttar Pradesh Congress had recast the agrarian system, but without destroying the landlords or passing land to the tiller,[51] and had done so at a time of booming agricultural prices.

VIII. The early years of Congress rule: increase in heights

Our data indicate that in the period 1935-59 there was a distinct improvement in the mean heights of all the groups in comparison with the previous period. But the Brahmans and Kurmis (and their respective caste-groupings) did significantly better than the Kewats and Chamars (and their groupings). This indicates that the former enjoyed significant advantages in access to nutrition and health resources. There is ample evidence that a considerable proportion of the people were not receiving adequate food.[52] But the height data suggest that though it was inadequate, they were receiving more food than previously. In terms of conditions promoting health we need to include adequate housing, warmth in winter and clean water, as well as the capacity to consult competent health professionals. It is difficult to quantify the relative capacity of various groups to maintain their health, but the poor had difficulties in this respect. Wadley makes the point that in the village she studied there were few young widows among the Brahman families, in contrast to the lower caste families in the village.[53]

During the post-independence period there was also an expansion of education and of government positions in the lower grades of the bureaucracy and the police. Those families which valued literacy had the resources to seize the new educational opportunities, and connections in the district and region, were well placed to fill these jobs. Therefore, families with sons in these organisations had another source of income with which to deal with the difficulties and fluctuations - as well as the opportunities - of rural life.

It is also possible that there was an increasing differential in the amount of work the different castes were called on to perform, but it is difficult to find evidence to assess the extent of this. A government investigation in 1944 made two general points about hours of work: they were longer in the eastern districts; and where there were factories established in near-by towns (as in some western districts) the hours of work had been reduced. The report pointed out that the cultivator often worked alongside the agricultural labourer in the field, but also argued that where the cultivator was of high caste and had influence over the low caste worker because of debt, the latter was in effect a serf.[54] It is possible then, that over the period there was a reduction of working hours as industrial growth occurred, but it is not possible to be sure of this. Similarly, as children increasingly attended school they would be less likely to be involved in heavy work at an early age. This was an advantage that would accrue to the higher castes rather than to the 'inferior Sudras' and 'Scheduled castes'.

What this indicates, therefore, is that though there were improvements for all during the early years of Congress rule, the greatest benefits went to the 'high castes' and the 'superior Sudras'. If we can assume that public health benefits such as the anti-malarial campaigns were evenly spread across socio-economic groups, the crucial determinant of the differentiation

---

51 *E. Whitcombe*, 'Whatever Happened to the Zamindars?', in: *E.J. Hobsbawm et al. (eds.)*, Peasants in History, Calcutta 1980, pp. 177-79.

52 *Dandekar/Rath*, Poverty and Food, pp. 6-9; see also *R.M. Sundrum*, Growth and Income Distribution in India, New Delhi 1987, p. 139.

53 *S.S. Wadley*, Struggling with Destiny in Karimpur, 1925-1984, Berkeley 1994, pp. 136-139; 218-219.

54 *Chaturvedi*, Rural Wages, pp.17, 20.

appears to be economic, and in a society reliant on agriculture, this directs us to focus on the changes in the agrarian structure.

Despite many of those measured in the mid-1960s being born towards the end of the Depression, and growing up through the war years, the evidence suggests that they had been able to 'catch-up' towards a higher growth path during the early years of Congress rule. In view of explicit Congress agrarian policy, it is not surprising that there should have been a differentiation in nutrition and health between those castes that benefited from the reforms of 1940 and 1950, and those that did not. It is more difficult to understand why there should have been a general improvement. Their lives were lived in a situation of increasing population and relatively stagnant methods of production. Indeed, in order to support the growth in population, the Government of India had to import food until the success in the early 1970s of the new agricultural methods introduced as the Green Revolution.[55] There were, it is true, no cataclysmic famines as in Bengal in 1943, but there had been difficult years. Possibly the impact of the anti-malarial campaigns made the difference,[56] alongside India's financial ability to import food. It would be a terrible irony if the money that paid for the food was in fact the Sterling balances - themselves the residue of the deficit financing which lay at the heart of the Bengal Famine.

IX. Conclusion

This discussion of the trajectory of heights of representative castes from across the social spectrum draws our attention to the shifts in nutrition and health that were intimately connected with the momentous political developments of the periods under review.

This paper demonstrates that from the mid-1870s until the mid-1930s there was a decline in the condition of rural people in the Uttar Pradesh. From that time until 1959 there were problems of food shortage, inflation and political dislocation. Despite these problems, *average* per capita availability of foodgrains increased between 1950 and 1961,[57] at a time when a significant proportion of the population was not receiving sufficient food. Despite the latter there was an increase in height of all castes and caste-groupings: that is, the opportunity existed for all caste-groupings to 'catch-up'- in anthropometric terms. This demonstrates that in the previous period the nutritional and health conditions under which most rural groups lived were *extremely difficult*. The height data suggest that though for many nutrition was inadequate from 1937-1960, they were receiving more food than previously. Given the evidence here of a significant decline in the living standards of the great majority of rural people in the Uttar Pradesh from the last quarter of the nineteenth century to the mid-1930s, it is not hard to understand the resentment of the great bulk of rural society towards the British and their agents, and their support for the Congress.

From 1935 the anthropometric data indicate that the Brahmans and Kurmis (and their colateral caste-groupings) did much better than the Kewats and Chamars - and similar castes. This

---

55 Between 1947 and 1961, an average of 2.9 million tons of grain was imported each year. *B.M. Bhatia*, India's Food Problem and Policy since Independence, Somaiya 1970, p. 137.

56 For the impact on one village of the government anti-malaria campaign (assisted by the WHO) see *W. and C. Wiser*, Behind Mud Walls, 1930-1960, with a sequel: the Village in 1970, Berkeley 1971, pp. 178-179.

57 The figures quoted by Vaidyanathan, indicating an increase from 376 grams per person per day in 1951 to 459 grams in 1961, probably overestimates the improvement because 1950 was a year of food crisis in parts of India. *A. Vaidyanathan*, The Indian Economy since Independence (1947-70), in: *D. Kumar (ed.)*, The Cambridge Economic History of India, vol. II, Cambridge 1982, pp. 965-66.

physical evidence confirms Low's point that the land reforms of the post-independence period mainly benefited the dominant peasants, who came to occupy a crucial role in the political life of the state. A role which enabled them to buttress their position by also taking advantage of the expansion of the civil service and police. That is, political independence from the British had a beneficial impact on the physical well-being of all groups in Uttar Pradesh society, but those sectors of rural society closely associated with the ruling party benefited most.

Diskussion

Dem Fortschritt entgegen. Ausstellungen und Museen im Modernisierungsprozess des Königreichs Württemberg (1806-1918)[1]

Von Ingeborg Cleve (Saarbrücken)

I. Popularisierung von Naturwissenschaft und Technik - das Beispiel Württemberg

Die Expo 2000 macht deutlich, dass die Popularisierung von naturwissenschaftlichen Erkenntnissen und von technischen Errungenschaften ebenso notwendig wie kompliziert ist. Die Notwendigkeit ergibt sich daraus, dass eine öffentliche Verständigung über Chancen und Risiken für die Gesellschaft zunehmend Akzeptanz oder Ablehnung von industriellen Anwendungen beeinflusst; das Komplizierte besteht darin, dass diese öffentliche Verständigung nicht auf der Basis einfach gefasster Erläuterungen zu wissenschaftlichen und technischen Neuerungen in einem klar definierten öffentlichen Raum vonstatten geht, sondern dass sie auf den verschiedensten Ebenen - einbegriffen den Konsum und die Unterhaltung - passiert und dass dabei politische, moralische, ästhetische und lebenspraktische Aspekte mit disparaten Erfahrungen und Erwartungen verquickt werden. Dieser Kompliziertheit der Vermittlung entspricht die Komplexität der Materie. Nicht nur, dass Innovationen der Vermittlung bedürfen - geklärt werden muss zugleich, was eine Innovation darstellt, wo sie gesucht werden soll, welche Ressourcen in die Suche investiert werden sollen, und wer sie zur Verfügung stellt. So, inspiriert von Denkansätzen aus der Forschungsdiskussion zur politischen Kultur, betrachtet, erscheinen Innovationen nicht nur abhängig von naturwissenschaftlichen Erkenntnissen und technischen Erfindungen, sondern auch von der Popularisierung von Naturwissenschaft und Technik; diese ist keine bloße Randerscheinung, sondern nimmt über öffentliche Meinungen und Stimmungen Einfluss auf politische Vorgaben und ökonomische Zwänge und damit auf die Richtung der wissenschaftlichen, technischen und industriellen Entwicklung.

Derartige Beobachtungen und Überlegungen haben nicht zuletzt dazu geführt, dass die Frage nach dem gesellschaftlichen und kulturellen Kontext von Naturwissenschaften und Technik ins Historische gewendet worden sind[2] und Bemühungen um die Popularisierung von Wissenschaft und Technik historiografisch verstärkt Aufmerksamkeit gefunden haben.[3] Insbesondere die Untersuchung der vielfältigen Institutionen und Medien der Popularisierung der Naturwissenschaften in Deutschland, ihrer Träger, Themen und Medien durch Daum hat deutlich gemacht,

---

1 Eine erste Fassung des Aufsatzes in englischer Sprache wurde auf einer der Wissenschaftspopularisierung durch Ausstellungen und Museen gewidmeten Tagung in La Villette bei Paris am 13. Mai 1995 vorgetragen, die sich an ein Forschungsprogramm: "Sciences and their publics" des Centre de Recherches en Histoire des Sciences der Cité des Sciences et de L'Industrie anschloss. Anderweitige Verpflichtungen verzögerten die Überarbeitung des Beitrags. Unter den geduldigen Leserinnen und Lesern diverser Manuskriptfassungen möchte ich besonders den Professorinnen Elisabeth Fehrenbach, Margrit Grabas und Brigitte Schroeder-Gudehus für Anregungen und Kritik danken.

2 Umfassend *J. Radkau*, Technik in Deutschland. Vom 18. Jahrhundert bis zur Gegenwart, Frankfurt a.M. 1989. Beispielhaft *M. Szöllösi-Janze*, Fritz Haber 1868-1934. Eine Biographie, München 1998.

3 An erster Stelle bei *A. Daum*, Wissenschaftspopularisierung im 19. Jahrhundert. Bürgerliche Kultur, naturwissenschaftliche Bildung und die deutsche Öffentlichkeit, 1848-1914, München 1998. Zu Frankreich vgl. *B. Béguet (Hg.)*, La science pour tous. Sur la vulgarisation scientifique en France de 1850 à 1914, Paris 1990. Für die angelsächsische Geschichtsschreibung vgl. *R. Cooter/St. Pumfrey*, Separate spheres and public places. Reflections on the history of science popularization and science in popular culture, in: History of Science 32, 1994, S. 237-267, sowie *N. Jardine/J.* and *A. Secord/E.C. Spary (Hg.)*, Cultures of natural history, Cambridge 1996.

dass Popularisierung auch im 19. Jahrhundert keine bloße Diffusion gegebenen Wissens war, sondern dass darin kollektive Ansprüche und Interessen von Adressaten wie Vermittlern zum Ausdruck gebracht wurden. Die bisherige, forschungsstrategisch bedingte Konzentration auf die thematischen und institutionellen Aspekte expliziter Popularisierungsbestrebungen legt es nahe, nach den Wechselwirkungen von gesellschaftlichem Kontext und Popularisierung fragen. Auch die Entstehungsgeschichte der Popularisierungsbemühungen und deren Beziehungen zu anderen Institutionen des Kultur- und Wirtschaftslebens müssen genauer untersucht werden, um die Bedeutung dieser Bemühungen für die industrielle und gesellschaftliche Entwicklung besser einschätzen zu können. Dazu bedarf es einer weiteren quellenmäßig gesicherten Annäherung an den konkreten Umgang mit naturwissenschaftlich-technischem Wissen, an dessen Präsentationsformen im Rahmen spezifischer Orte und Öffentlichkeiten wie Ausstellungen, Gebrauchs- und Nutzungsweisen, Aneignungsmodalitäten und -techniken sowie an die Abgrenzung von respektive Nähe zu anderen Wissensbeständen, kurz, einer Herangehensweise, welche an einzelnen Beispielen die Entstehungszusammenhänge und die Querbezüge von Quellen stärker berücksichtigt.

Auf diese Weise lässt sich eine Brücke schlagen zur Geschichte der Gewerbeförderung im 19. Jahrhundert, die bisher die erheblichen Popularisierungsbemühungen, die in jenem Kontext stattfanden, zu Gunsten einer Analyse des Einflusses staatlicher Interventionen und Investitionen auf den Industrialisierungsprozess vernachlässigt hat.[4] In seiner Untersuchung der staatlichen Gewerbeförderung Preußens in der ersten Hälfte des 19. Jahrhunderts hat Brose die Bedeutung der unterschiedlichen Perspektiven auf Industrialisierung herausgearbeitet, welche das Agieren der Administration und der Unternehmer bestimmte. Diese Perspektiven waren durch unterschiedliche Bildungs-, Wahrnehmungs- und Handlungshorizonte ebenso wie durch starke gesellschaftliche Barrieren zwischen beiden Gruppen und innerhalb der Gruppen selbst bestimmt. Ein Erfahrungs- und Meinungsaustausch zwischen diesen Gruppen unter Einbeziehung des politisch und gesellschaftlich einflussreichen Bildungsbürgertums konnte nur innerhalb exklusiver Zirkel etabliert werden, was sich auf die gesellschaftliche und politische Akzeptanz der Industrialisierung negativ auswirkte und wesentlich mit zur Krise von 1848 beitrug.[5] Brose hat damit kulturelle Faktoren wie die Mentalität verschiedener Eliten und die Etablierung öffentlicher Sphären des Austausches über die Ziele und Strategien gesellschaftlicher Entwicklung wieder in die Debatte um Gewerbeförderung eingeführt. Die Mentalität anderer gesellschaftlicher Gruppen oder die Bemühungen, diese im Rahmen der Gewerbeförderung durch Bildungsangebote zu beeinflussen,[6] hat Brose ebenso wie den Erfahrungsaustausch mit dem entwickelteren Ausland nicht näher untersucht. Dort lägen wichtige Bindungsglieder zur Geschichte der Industrialisierung selbst, die vor allem unter dem Einfluss der historischen Konsumforschung und neuer technikhistorischer Ansätze allmählich als

4 Zusammenfassend *H.-W. Hahn*, Die industrielle Revolution in Deutschland, München 1998, S. 76-88; *T. Pierenkemper*, Umstrittene Revolutionen. Die Industrialisierung im 19. Jahrhundert, Frankfurt a.M. 1998, S. 123-126.

5 *E.D. Brose*,The politics of technological change in Prussia. Out of the shadows of antiquity, 1809-1848, Princeton 1993.

6 Vgl. *P. Lundgreen*, Techniker in Preußen während der frühen Industrialisierung. Ausbildung und Berufsfeld einer entstehenden sozialen Gruppe, Berlin 1975; *Ders.*, Bildung und Wirtschaftswachstum im Industrialisierungsprozeß des 19. Jahrhunderts. Methodische Ansätze, empirische Studien und internationale Vergleiche, Berlin 1973; *A. Lipsmeier*. Technik und Schule. Die Ausformung des Berufsschulcurriculums unter dem Einfluß der Technik als Geschichte des Unterrichts im technischen Zeichnen, Wiesbaden 1971.

Prozessgeschichte kulturellen Wandels entdeckt wird.[7] Dabei wurden insbesondere in Großbritannien und in Frankreich die Rolle der Popularisierung technischer Innovationen und naturwissenschaftlichen Wissens wie auch von Kulturmustern des Konsums als Faktoren der Industrialisierung stärker ins Blickfeld gerückt,[8] die von Brose ausgeblendet worden sind. Beide Faktoren wirken als qualitative und sind schwer sinnvoll zu quantifizieren. Ihre umfassende Bedeutung wird deutlich, wenn der gesellschaftliche Umgang mit ihnen in eng gefassten und möglichst dicht in den Blick genommenen historischen Räumen untersucht wird. Erst auf diese Weise lässt sich die Bedeutung gesellschaftlicher Beziehungen und Einrichtungen wie auch die Bedeutung von Mentalitäten und von spezifischen Öffentlichkeiten für Industrialisierungsprozesse angemessen in den Blick bekommen, die sich, das hat insbesondere die Untersuchung Frankreichs gezeigt, nicht auf Phasen wirtschaftlichen Wachstums reduzieren lassen.[9] Für die Rolle von Kulturmustern des Konsums wurde in Deutschland am Beispiel des Königreichs Württemberg in der ersten Hälfte des 19. Jahrhunderts eine solche umfassende Beziehungsgeschichte versucht.[10] Am Beispiel der dortigen Bemühungen um die Popularisierung naturwissenschaftlichen und technischen Wissens im Laufe des Jahrhunderts soll im Folgenden skizziert werden, welche Rolle diese Popularisierungsbemühungen für die Gewerbeförderung spielten, welche gesellschaftlichen Gruppen einbezogen waren und wie sie damit umgingen.[11] Dabei wird der Entstehung spezifischer Öffentlichkeiten und deren Rolle für die Ausprägung von Sichtweisen auf die Industrialisierung besondere Bedeutung zugemessen. Festzustellen, inwiefern diese Popularisierungsbemühungen sich auf die gewerbliche Produktion oder auf die technisch-naturwissenschaftliche Entwicklung auswirkten, bleibt weiteren Forschungen vorbehalten.

Von Anfang an waren unter den Besuchern der Weltausstellungen, die als zentrale Popularisierungsagenturen galten, hunderte von Württembergern zu finden. Die meisten waren

---

7 *Radkau*, Technik in Deutschland, folgt einem solchen Ansatz. Zusammenfassend vgl. demnächst *E. Fehrenbach*, Vom Ancien Régime zum Wiener Kongreß, 4. überarb. Aufl., München 2000. Zum Zusammenhang von kulturellen Wahrnehmungsmustern und Technologietransfer neuerdings an einem Beispiel aus Württemberg: *B. Stier*, Der „Wirtschafts-Spion" König Wilhelms I. Gewerbeförderung, Technologietransfer und interkulturelle Wahrnehmung im Württemberg der Frühindustrialisierung, in: Zeitschrift für württembergische Landesgeschichte 58, 1999, S. 131-164.

8 Zur Technikgeschichte vgl. *J. Mokyr*, The lever of riches. Technological creativity and economic progress, Oxford 1992; *D.S. Landes*, The fable of the dead horse; or, the Industrial Revolution revisited, in: *J. Mokyr (Hg.)*, The British Industrial Revolution. An economic perspective, Boulder 1993, S. 132-170. *C. Buchheim*, Industrielle Revolutionen. Langfristige Wirtschaftsentwicklung in Großbritannien, Europa und in Übersee, München 1994. Zur Konsumgeschichte vgl. *N. McKendrick u.a.*, The birth of a consumer society. The commercialization of eighteenth-century England, London 1982; *J. Brewer/R. Porter (Hg.)*, Consumtion and the world of goods, London 1993; *H. Siegrist u.a. (Hg.)*, Europäische Konsumgeschichte. Zur Gesellschafts- und Kulturgeschichte des Konsums (18. bis 20. Jahrhundert), Frankfurt a.M.1997.

9 Vgl. *Pierenkemper*, Revolutionen, S. 75-78.

10 Vgl. *I. Cleve*, Geschmack, Kunst und Konsum. Kulturpolitik als Wirtschaftspolitik in Frankreich und Württemberg (1805-1845), Göttingen 1996.

11 Für den Aufsatz wurde auf Material zurückgegriffen, das bei Forschungen zu Konsumkultur und gewerblicher Entwicklung in Württemberg gesammelt worden war, die von der Robert-Bosch-Stiftung unterstützt worden waren. Dieses Material wurde ergänzt durch die Untersuchung von Stipendienanträgen und Reiseberichten von Gewerbetreibenden an die Zentralstelle für Gewerbe und Handel in Stuttgart (Staatsarchiv Ludwigsburg (StAL) im Bestand E 170. Durchgesehen wurden die Büschel 460, 466, 471-474, 477, 480, 484, 490-492, 504 und 506. Zusätzlich herangezogen wurden ferner gedruckte Quellen zu naturwissenschaftlich-technischen Sammlungen in Württemberg.

Fabrikanten oder Handwerker, viele waren von der 1849 gegründeten Zentralstelle für Gewerbe und Handel mit dem Auftrag geschickt worden, den technischen Stand in ihrem jeweiligen Gewerbe zu analysieren und ihre Erkenntnisse nach der Rückkehr umzusetzen. Die Ausstellungserfahrung sollte dazu dienen, ein relativ peripheres und industriell rückständiges Land wirtschaftlich zu entwickeln.[12] Im Folgenden soll es besonders um diese Ausstellungserfahrung gehen. Worauf beruhte sie? Wer machte sie? Welche andern Popularisierungsbemühungen strukturierten sie vor oder standen ihr entgegen? Welche Interessen verbanden die Zentralstelle und die von ihr unterstützten Reisenden? Wie wurden die jeweiligen Interessen kommuniziert? Um diese Fragen beantworten zu können, müssen die Wahrnehmungsvoraussetzungen der Reisenden vor dem Hintergrund derjenigen Institutionen gesehen werden, die bereits zur Orientierung in naturwissenschaftlichen und technischen Bereichen bereitstanden, und der Öffentlichkeiten, die sich darum entwickelt hatten. Beides muss wiederum in Beziehung gesetzt werden zu weiteren Institutionen der Wissensvermittlung einerseits, zu vergleichbaren Vermittlungsbemühungen im industriell fortgeschrittenen Ausland andererseits. Erst vor diesem Hintergrund werden die Ausstellungserfahrungen der württembergischen Gewerbetouristen nachvollziehbar und damit mögliche Wirkungen einschätzbar.

Die Ergebnisse der Untersuchung werden in drei Abschnitten präsentiert. Zunächst wird die Entwicklung von Einrichtungen dargestellt, die seit dem Anfang des letzten Jahrhunderts der Popularisierung naturwissenschaftlicher Kenntnisse dienen sollten, wobei ihr politischer, wirtschaftlicher und sozialer Kontext besondere Berücksichtigung findet. Im nächsten Abschnitt geht es um die Rezeption und die Adaptation ausländischer Modelle der Präsentation von Naturwissenschaft und Technik, die als Mittel der Förderung wirtschaftlicher Entwicklung wahrgenommen wurden, von deren Nachahmung sich in der zweiten Jahrhunderthälfte die Initiatoren der Übernahme eine vergleichbare Wirkung versprachen, wie sie den Vorbildern von informierten Zeitgenossen zugesprochen wurde. Die beiden Abschnitte sollen die Möglichkeiten deutlich machen, welche den Besuchern der Weltausstellungen in Württemberg zur Verfügung standen, um sich vor und nach der Reise naturwissenschaftlich und technisch zu orientieren, und unterschiedliche Einstellungen zu Naturwissenschaft und Technik aus einer spezifisch kanalisierten Zugangsweise erklären. Im letzten Abschnitt sollen die soziale Situation, die professionelle Qualifikation und die Wahrnehmungen der von der Zentralstelle unterstützten Ausstellungsbesucher der Pariser Weltausstellung von 1867 dargestellt und es sollen Gründe für die wachsende Trennung der Zielgruppen von Popularisierungsöffentlichkeiten und deren Ausdifferenzierung analysiert werden.

12 Von den fünfhundert württembergischen Besuchern auf der Londoner Weltausstellung 1851 hatte ein Zehntel selber ausgestellt, rund ein Drittel waren von der Zentralstelle geschickt worden. Bericht *Ferdinand Steinbeis*, StAL E 170 Bü 490. Eine offiziöse Selbstdarstellung der Zentralstelle liefert: *L. Vischer*, Die industrielle Entwicklung im Königreich Württemberg und das Wirken seiner Centralstelle für Gewerbe und Handel in ihren ersten 25 Jahren, Stuttgart 1875. Die ersten, wichtigen Jahre sind dargestellt in einem Artikel in der Deutschen Vierteljahrsschrift 1, 1857, S. 88-124: Die württembergische Centralstelle für Gewerbe und Handel und für die Landwirthschaft, und ihre Tätigkeit unter ihren Vorstande Direktor v. Sautter. Das von der Behörde wöchentlich herausgegebene Gewerbeblatt ist neben der Aktenüberlieferung im Staatsarchiv Ludwigsburg die wichtigste Quelle für deren Tätigkeit. Es liefert einen guten Einblick in die Popularisierungsbemühungen und in die damit verbundenen Erwartungen.

II. Die Entstehung eines öffentlichen Interesses an *Naturalia*

Das 1806 im Gefolge der napoleonischen Eroberungen gegründete Königreich Württemberg musste mit dem alten Herzogtum, mehreren ehemals freien Reichsstädten und Kirchenländern sowie Teilen Vorderösterreiches geografisch, ökonomisch und konfessionell unterschiedliche Regionen politisch integrieren und zugleich einen Platz unter den anderen deutschen und europäischen Mächten finden.[13] Die geringe Größe und die Abgelegenheit von wirtschaftlichen und politischen Zentren, der Mangel an Rohstoffen und die wirtschaftliche und technologische Rückständigkeit definierten diesen Platz als einen nachgeordneten. Von Anfang an bestimmte die Distanz zu den beginnenden Industrialisierungs- und Modernisierungsprozessen das Königreich.[14] In den dreihundertundvierzig Unternehmungen, die 1832 als Fabriken statistisch erfasst wurden, wurden noch kaum Maschinen verwendet.[15] Die Textilindustrie, ein gutes Drittel der erfassten Betriebe, bildete die Ausnahme.[16] In einigen größeren Betrieben fanden maschinelle Herstellungsmethoden - mechanische Spindeln, Webstühle und andere Gerätschaften - in der ersten Jahrhunderthälfte Eingang. In einer Heidenheimer Baumwolldruckerei wurde 1841 die erste Dampfmaschine installiert.

Im ersten Jahrzehnt mangelte es der Regierung des neuen Staates an Konzepten und an finanziellen Ressourcen für eine Politik der wirtschaftlichen Entwicklung. Die mitteleuropäische Agrarkrise von 1816/17 warf das Land weiter zurück. König Wilhelm I., der 1816 den Thron bestieg, zeigte ein größeres Interesse an Landwirtschaft und Gewerbe als sein Vorgänger. So unterstützte er aus seiner Privatschatulle einen Kaufmann und Reiseschriftsteller, der über landwirtschaftliche, gewerbliche und auch technische Innovationen aus England berichten sollte. Allerdings waren viele seiner Neuigkeiten auch in zeitgenössischen Publikationen nachzulesen, viele waren nicht verwertbar. Mehrfach wies er auf Popularisierungsbemühungen hin und suchte sie selber durch eine Naturaliensammlung zu unterstützen. Innerhalb der Administration wurden seine Berichte kritisch zur Kenntnis genommen. Nachdem eine Verfassungsreform zu Stande gekommen war, ermutigte und steuerte die neue Regierung eine Debatte über Wirtschaftspolitik unter Mitgliedern der Regierungsbürokratie und der noch schmalen kommerziellen und industriellen Elite.[17] Statt einer direkten Subventionierung industrieller Unternehmungen bevorzugte sie fiskalische Maßnahmen und Investitionen in die Infrastruktur, wie Steuersenkungen, Zollvereinsbeitritt, Straßen- und Eisenbahnbau, um indirekt die Marktchancen der einheimischen Unternehmer zu steigern. Besonders gefördert wurde

---

13 Vgl. *B. Mann*, Württemberg 1800-1866, in: Handbuch der baden-württembergischen Geschichte, Bd. 3, Stuttgart 1992, S. 235-331.

14 *W. v. Hippel*, Wirtschafts- und Sozialgeschichte 1800-1918, in: Handbuch der baden-württembergischen Geschichte, Bd. 3, S. 477-784; *K. Megerle*, Württemberg im Industrialisierungsprozeß Deutschlands. Ein Beitrag zur regionalen Differenzierung der Industrialisierung, Stuttgart 1982, S. 71-106; *W.A. Boelcke*, Wirtschaftsgeschichte Baden-Württembergs von den Römern bis heute, Stuttgart 1987, S. 164-214.

15 *J. Gysin*, "Fabriken und Manufakturen" in Württemberg während des ersten Drittels des 19. Jahrhunderts, St. Katharinen 1989.

16 *G. Kollmer-v.Oheimb-Loup*. Zollverein und Innovation. Die Reaktion württembergischer Textilindustrieller auf den deutschen Zollverein 1834-1874, St. Katharinen 1996.

17 *Stier*, „Wirtschafts-Spion"; *Hippel*, Wirtschafts- und Sozialgeschichte, S. 593-598; *D. Langewiesche*, Liberalismus und Demokratie in Württemberg zwischen Revolution und Reichsgründung, Düsseldorf 1974, S. 27-70; *M. Hettling*, Reform ohne Revolution. Bürgertum, Bürokratie und kommunale Selbstverwaltung in Württemberg von 1800 bis 1850, Göttingen 1990, S. 177-181; *H. Medick*, Von der Bürgerherrschaft zur staatsbürgerlichen Gesellschaft - Württemberg zwischen Ancien Régime und Vormärz, in: *L. Niethammer (Hg.)*, Bürgerliche Gesellschaft in Deutschland. Historische Einblicke, Fragen, Perspektiven, Frankfurt a.M. 1990, S. 52-79.

zugleich die Verbreitung von einschlägigen Kenntnissen durch spezielle Gewerbeschulen und durch die Einrichtung eines Polytechnikums in der Landeshauptstadt Stuttgart.[18] Diese Politik wurde von den wenigen Wirtschaftsliberalen toleriert, die wenig Interesse an staatlichen Interventionen in das Wirtschaftsleben aufbrachten, während einem größeren Teil der Bevölkerung vor allem daran gelegen war, die herkömmlichen korporativen Strukturen des Wirtschaftslebens gegen den Markt und das Fabriksystem zu verteidigen. Bis sich ihr Unmut in den Revolten von 1847 und 1848 massiv äußern würde, hatten ihre Einwendungen gegen Liberalisierung, Modernisierung und Industrialisierung jedoch wenig Chancen, von der Regierung und den Debattenzirkeln der Elite ernst genommen zu werden.[19] Das Interesse an einer Steigerung der landwirtschaftlichen Produktion dominierte die Wirtschaftspolitik der Regierung bis zur Jahrhundertmitte. Der größte Teil der Staatseinnahmen stammte aus Domänenpacht oder aus Steuern auf landwirtschaftliche Einnahmen. Die Erhöhung der agrarischen Produktivität schien durch das Bevölkerungswachstum ebenso geboten wie durch die zaghaft beginnende industrielle Produktion. Landwirtschaftliche Produkte bildeten den Hauptteil der Exporte und waren Rohstoff für eine wachsende Lebensmittelindustrie. Auf dem Lande selber ergänzten Heimgewerbe das Einkommen zahlloser kleinbäuerlicher Haushaltungen, die so zugleich von landwirtschaftlicher Produktion abhängig blieben. Insgesamt gesehen dominierte die Landwirtschaft Arbeit, Sitten und Gewohnheiten, Einstellungen, kurz: die Lebensweise des größten Teils der Gesellschaft. Selbst in den vielen kleinen Städten des Königreiches hingen die ansässigen Handwerker oft von dem Ertrag ihrer Felder ebenso ab wie vom Verdienst, den ihr Gewerbe abwarf. Für die Mehrzahl der Bevölkerung war die kleinbäuerlich organisierte landwirtschaftliche Produktion lebensnotwendig, für die Selbsterhaltung ebenso wie für ihre Selbstachtung und eine kleine Chance zu politischer Partizipation, weil nur dieses landwirtschaftliche Einkommen einen Grad von ökonomischer Selbstständigkeit erlaubte, den die Gesellschaft forderte und den die frühliberale Theorie zur Voraussetzung für das Stimmrecht erklärt hatte. Entsprechend trieb die Regierung vor allem die Agrarreformen voran, die zur Steigerung der agrarischen Produktion unabdingbar war.[20]

Das Interesse an landwirtschaftlicher Produktion bestimmte auch den Charakter naturwissenschaftlicher Sammlungen, welche seit den zwanziger Jahren des 19. Jahrhunderts zuerst in Stuttgart allmählich zugänglich gemacht wurden. 1791 war die königliche Kuriositätensammlung reorganisiert und in ein Münz- und Medaillenkabinett und eine Naturaliensammlung aufgeteilt worden, deren Bestand an ausgestopften Exemplaren heimischer Fauna der Karlsakademie als Lehrmittel dienen sollte. An dieser herzoglichen Eliteschule war ein breites

18 *Hippel*, Wirtschafts- und Sozialgeschichte, S. 543-552, S. 574-578 und passim; *G. Zweckbronner*, Ingenieurausbildung im Königreich Württemberg. Vorgeschichte, Einrichtung und Ausbau der Technischen Hochschule Stuttgart und ihrer Ingenieurwissenschaften bis 1900 - eine Verknüpfung von Institutionen- und Disziplingeschichte, Stuttgart 1987.

19 *P. Gehring*. Von List bis Steinbeis. Aus der Frühzeit der württembergischen Industrialisierung, in: Zeitschrift für württembergische Landesgeschichte 7, 1943, S. 405-444; *Ders.*: Das Wirtschaftsleben in Württemberg unter König Wilhelm I (1816-1864), in: Zeitschrift für württembergische Landesgeschichte 9, 1949/50, S. 196-257; *Langewiesche*, Liberalismus, S. 27-70. *Hettling*, Reform, S. 177-181; *H. Sedatis*, Liberalismus und Handwerk in Südwestdeutschland. Wirtschafts- und Gesellschaftskonzeptionen des Liberalismus und die Krise des Handwerks im 19. Jahrhundert, Stuttgart 1979; *W. Kaschuba/C. Lipp*, 1848 - Provinz und Revolution. Kultureller Wandel und soziale Bewegung im Königreich Württemberg, Tübingen 1979.

20 *H. Brandt*, Parlamentarismus in Württemberg 1819-1870. Anatomie eines deutschenLandtags, Düsseldorf 1987, S. 323-440; *Sedatis*, Liberalismus, S. 37-61; *W. v. Hippel*, Die Bauernbefreiung im Königreich Württemberg, Bd. 1, Boppard/Rh. 1977, S. 330-516; *Hettling*, Reform, S. 52-62.

Spektrum naturwissenschaftlicher Fächer dem traditionellen Curriculum und der Kunstabteilung angegliedert worden.[21] Diese Hochschule wurde 1794, in einer Zeit politischer Unruhe und wirtschaftlicher Krise, geschlossen, und gegen 1800 wurden die Sammlungen aus den Universitätsbaracken hinter der Residenz in das Alte Stuttgarter Schloss gebracht. Dort konnten sie nach Anmeldung betrachtet werden.[22] Ein Reisehandbuch wies besonders auf Mumien und auf einen versteinerten menschlichen Foetus als Hauptstücken der Sammlung hin.[23] Umfang und wissenschaftlicher Wert des Naturalienkabinetts wurden nach der Säkularisation verbessert, weil mehrere Sammlungen aus Kirchen- wie auch aus Privatbesitz hinzugefügt wurden. Außerdem wurden Funde aus Fossiliengrabungen sowie eine Sammlung russischer Mineralien, eine Schenkung des Zarenhofes, eingefügt.[24] 1817 wurden die Sammlungen zu Staatseigentum erklärt und staatlicher Verwaltung unterstellt. Zehn Jahre darauf wurde die gewachsene Sammlung in das neu gebaute Staatsarchiv am Rande der Altstadt transferiert und dort in einer Weise aufgestellt, die nicht nur wissenschaftlichen Interessen, sondern auch den Bedürfnissen eines größeren Publikums entgegen kommen sollte. Der Bestand wurde außerdem durch die Ausbeute von Expeditionen nach Afrika, Asien und Amerika weiter vermehrt. 1834 enthielt sie eine variantenreiche Mischung einheimischer und exotischer Tierkadaver, Skelette, Pflanzenpräparate, Mineralien, Fossilien und Gipsabdrücke, die mehrere Stunden am Tag öffentlich zugänglich waren. Allerdings hatten der Ausbau und die komfortable Aufstellung der Sammlung mit den wissenschaftlich geschulten Ansprüchen aus dem Publikum nicht mithalten können: Gustav Klemms kritischer Überblick über Sammlungsbestände in Deutschland bezeichnete sie als wenig bemerkenswert.[25]

Außer dem Naturalienkabinett existierten zwei weitere öffentlich zugängliche Naturaliensammlungen in der Landeshauptstadt. Eine davon war seit 1828 von der halbamtlichen Centralstelle des königlichen landwirthschaftlichen Vereins angelegt worden, welcher 1817 als Zweig der landwirtschaftlichen Akademie Hohenheim gegründet worden war und dazu dienen sollte, Kenntnisse über die Rationalisierung von Landwirtschaft und die Einführung von Gewerben in einem gebildeten und interessierten Publikum zu verbreiten und auszutauschen.[26] Die Sammlung enthielt teils inländische Nutzpflanzen, teils solche, die für den kommerziellen Anbau als

---

21 *F. Quarthal*, Die "Hohe Carlsschule", in: *C. Jamme/O. Pöggeler (Hg.)*, "O Fürstin der Heimath! Glükliches Stutgard". Politik, Kultur und Gesellschaft im deutschen Südwesten um 1800, Stuttgart 1988, S. 35-54; *K.T. Kanz*, Die Naturgeschichte (Botanik, Zoologie, Mineralogie) an der Hohen Karlsschule in Stuttgart (1772-1794), in: Jahreshefte der Gesellschaft für Naturkunde Württemberg 149, 1994, S. 61-74.

22 *M. Warth/B. Ziegler*, Aus der Frühzeit des Naturalienkabinetts, in: Aus der Geschichte des Stuttgarter Naturkundemuseums, Stuttgart 1991, S. 5-20. Dort S. 13 f.

23 Merkwürdigkeiten von Stuttgart und seinen Umgebungen. Ein Wegweiser besonders für Fremde, Stuttgart 1814, S. 68 f.

24 *Warth/Ziegler*, Frühzeit, S. 14.

25 *W. Plieninger*, Beschreibung von Stuttgart hauptsächlich nach seinen naturwissenschaftlichen und medicinischen Verhältnissen. Eine Festgabe der Stadt-Gemeinde Stuttgart zur Begrüßung der deutschen Naturforscher und Aerzte bei ihrer zwölften Versammlung im September 1834, Stuttgart 1834, S. 79-82; *W.F. Schwarzmann*, Wegweiser für die königliche erste Haupt- und Residenzstadt Stuttgart und ihre nächsten ausgezeichneten Umgebungen, Stuttgart 1829, S. 159 f.; *G. Klemm*, Zur Geschichte der Sammlungen für Wissenschaft und Kunst in Deutschland, Zerbst 1837, S. 251.

26 Correspondenzblatt des Würtembergischen[!] Landwirthschaftlichen Vereins, 1, 1822. Schwäbische Chronik, 10. August 1827, Beilage. Vgl. *G. Franz (Hg.)*, Universität Hohenheim. Landwirtschaftliche Hochschule 1818-1968, Stuttgart 1968, S. 11-103; *H. Winkel (Hg.)*, Universität Hohenheim. Festschrift zum 175jährigen Jubiläum, Stuttgart 1993, S. 69-80.

geeignet angesehen wurden, und war von einem Garten für experimentelle Botanik umgeben.[27] Die andere Sammlung entstand seit den 1840er Jahren durch Bemühungen von Mitgliedern des Vereins für vaterländische Naturkunde.[28] Die Sammlung sollte eine *gaea wurttembergensis* repräsentieren, also Beispiele oder Präparate sämtlicher Arten Mineralien, Pflanzen- und Tierarten, die im Königreich zu finden waren, umfassen und öffentlich zugänglich sein. Mitgliedern und Gästen des Vereins stand die Sammlung dienstags und freitags von 14 bis 16 Uhr zur Verfügung, während das allgemeine Publikum Mittwoch und Samstag Nachmittag eingelassen wurde.[29] Nach dem Vorbild einheimischer und ausländischer Vorläufer erklärte sich der Verein zuständig für die Förderung der Naturwissenschaften und ihrer Anwendungsmöglichkeiten für Landwirtschaft und Industrie, ohne jedoch staatlichen Aktivitäten in die Quere kommen zu wollen. Respekt vor der politischen Verfassung demonstrierte die Vereinigung, indem sie die von Mitgliedern der königlichen Familie Protektion erbat.[30] 1851 wurde sie von der Regierung mit der Betreuung der Sammlung der Landwirthschaftlichen Gesellschaft betraut, 1864 wurde die Sammlung patriotischer Naturalien dem staatlichen Naturalienkabinett inkorporiert und in einem neuen Anbau des Staatsarchivs ausgestellt.

Außer diesen Sammlungen gab es noch speziellere zu medizinischen Forschungszwecken oder für den Schulunterricht, zu denen der Zugang engeren Beschränkungen unterlag,[31] und schließlich zahlreiche Privatsammlungen in- und außerhalb Stuttgarts, während erst zum Ende des Jahrhunderts in der Industriestadt Reutlingen eine weitere öffentliche Sammlung von einiger Bedeutung zugänglich gemacht werden sollte.[32] Die Universität Tübingen hatte 1805 einen Botanischen Garten erhalten, in dem besonders Pflanzen kultiviert wurden, von denen man sich ökonomischen Nutzen versprach, während das Naturalienkabinett der Hochschule mit Doubletten aus der königlichen Naturaliensammlung versehen wurde. Auch die Landwirtschaftliche Akademie in Hohenheim besaß Sammlungen für Forschungs- und Unterrichtszwecke, während die Ortsgruppen der Landwirtschaftsgesellschaft Jahrmärkte in den größeren Städten des Königreichs organisierten und den Vergnügen Suchenden Pflanzen, Tiere und landwirtschaftliche Geräte zur Belehrung vorführten. Der Canstatter Wasen ging aus einem solchen erzieherischen Fest hervor.[33]

Die Erweiterung des Wissens über Pflanzen, Tiere und Mineralien beschränkte sich nicht auf den Umkreis von Sammlungen, es gab Vereine und Behörden, die derartige Informationen zusammentrugen, um etwa den Weinbau zu verbessern oder vergleichbare, beschränkte Ziele

---

27 *Plieninger*, Beschreibung, S. 30 f.

28 *K.T. Kanz*, Das naturwissenschaftliche Vereinswesen in Württemberg vor 1844: Zur Vorgeschichte des Vereins für vaterländische Naturkunde in Württemberg, in: Jahreshefte der Gesellschaft für Naturkunde Württemberg 149, 1994, S. 61-74.

29 Jahresheft des Vereins für Vaterländische Naturkunde in Württemberg 7, 1851, S. 15.

30 Jahresheft des Vereins für Vaterländische Naturkunde in Württemberg 1, 1844, S. 114.

31 *Plieninger*, Beschreibung, S. 85 f. *Ders.*, Ueber den gegenwärtigen Standpunkt der vaterländischen Naturkunde Württembergs, in: Jahresheft 1, 1845, S. 21 f. Zu Beginn des 20. Jahrhunderts bildeten Naturaliensammlungen einen wichtigen Bestandteil der Unterrichtsmittel an höheren Schulen. In Stuttgart stellte ein Museum für Lehrmittel Modellsammlungen für Unterrichtszwecke aus. *K. Lampert*, Pflege der Naturkunde, *in: V. Bruns*, Württemberg unter der Regierung König Wilhelms II, Stuttgart 1916, S. 731-748.

32 *Plieninger*, Beschreibung, S. 85-87. *Lampert*, Naturkunde, S. 738 f. Vgl. die Berichte über Jahreshauptversammlungen in den Jahresberichten des Vereins für Vaterländische Naturkunde, in denen über Sammlungen von Mitgliedern an den jeweiligen Versammlungsorten berichtet wurde. Die kommunale Sammlung in Reutlingen war vom Ortsverein des Nazturkundevereins in den 1880er Jahren begonnen worden und seit 1892 öffentlich zugänglich. Vgl. 100 Jahre Städtische Naturaliensammlung Reutlingen, Reutlingen 1891.

33 Vgl. die Berichte im Correspondenzblat; *Zweckbronner*, Ingenieurausbildung, S. 34 und passim.

zu verfolgen. Wohl vor allem aus solchen praktischen Erwägungen von Provinzgelehrten wie Lehrern, Pfarrern oder Apothekern war die Menge an Literatur über vaterländische Naturkunde seit der Jahrhundertwende stark angewachsen.[34] Seit 1820 war das statistische Landesamt angewiesen, naturkundliche Daten in den Landesbezirken zu erheben und zu publizieren. Zusammen mit allgemeiner gehaltenen Beiträgen über die vaterländische Topografie und Naturgeschichte wurden sie in Jahresberichten und Ortsbeschreibungen veröffentlicht.[35] Im Zentrum Stuttgarts befand sich die Landesbibliothek, die für Benutzer mit einem höheren Bildungsabschluss zugänglich war und in erster Linie den höheren, akademisch geschulten Beamten als Referenzmittel dienen sollte, und in deren Beständen sich Publikationen über Landwirtschaft und Naturwissenschaft in größerer Anzahl befanden.[36] Dieser Benutzerklientel wurde in großzügiger Weise die königliche Privatbibliothek zugänglich gemacht, die kostbar illustrierte Bände zur Naturgeschichte, Pflanzenpräparate aus Südafrika, englische Grassorten sowie eine Insekten- und Schmetterlingssammlung enthielt.[37] Naturwissenschaftlich oder technisch Interessierten stand die Bibliothek der Landwirtschaftlichen Gesellschaft zur Verfügung. Die Büroregale des Vereins für vaterländische Naturkunde standen voller Broschüren vergleichbarer Vereine außerhalb Württembergs und bezeugten einen regen Austausch insbesondere mit französischen Naturkundlern.[38] Auch die Ortsgruppen des Vereins verfügten über einschlägige Literatur. Einschlägige Neuerscheinungen wurden in der halboffiziellen Landeszeitung, der "Schwäbischen Chronik", und in den Vereinsblättern annonciert, viele davon erkennbar an ein Laienpublikum oder an Heranwachsende gerichtet und oft aufwendig illustriert.

Mineralien, Pflanzen und Tiere sowie technische Modelle, naturwissenschaftliche und technische Literatur wurden schließlich zum Verkauf ausgestellt. Apotheken vermittelten Wissen über Chemikalien und Kräuter.[39] Reisende Menagerien stellten seit den 1840er Jahren in Stuttgart regelmäßig exotische Tiere aus. Sie fanden das Interesse eines hohen juristischen Beamten und prominenten Botanisten, der ihr Verhalten untereinander, gegenüber ihren Pflegern und den Besuchern beobachtete und darüber Abhandlungen in den Jahresheften des Naturkundevereins veröffentlichte.[40] In Stuttgart selbst existierte ein Privatzoo mit lebendigen Tieren, während ausgestopfte Spezies entweder im Naturkundekabinett beim Staatsarchiv oder, arrangiert zu sentimental-menschlichen Situationen, in der Werkstatt des Taxidermisten Hermann Ploucquet (1816-1878) besichtigt werden konnten.[41] Einheimische und exotische Bäume, Sträucher und Blumen waren schließlich in Parks und in Pflanzenhandlungen zu finden.[42] Romantisch beleuchtete Tropfsteinhöhlen der Schwäbischen Alb wurden ebenso wie die Präsentationen von Naturstillleben durch reisende Schausteller zu populären Ausflugsattraktionen. In der zweiten Jahrhunderthälfte wurden, oft in Landschaftsparks, so genannte

34 *Plieninger*, Naturkunde, S. 23-63.

35 Siehe die Württembergischen Jahrbücher für vaterländische Geschichte, Geographie, Statistik und Geographie, Stuttgart 1818 ff. Sie wurden 1863 umbenannt in Württembergische Jahrbücher für Statistik und Landeskunde. Vgl. 150 Jahre amtliche Statistik in Baden-Württemberg, Stuttgart 1970.

36 *Plieninger*, Beschreibung, S. 25-28; *K. Löffler*, Geschichte der Württembergischen Landesbibliothek, Leipzig 1923, S. 52-169 passim. Der alte Sachkatalog der Bibliothek ist erhalten.

37 *Plieninger*, Beschreibung, S. 25-28 u. 79.

38 Vgl. die Buchnotizen in den Jahresheften des Vereins.

39 Vgl. die Schwäbische Chronik.

40 Zu Georg v. Martens vgl. ADB 20, S. 467-472. Jahreshefte 4, 1850, S. 85-123.

41 Jahreshefte 8, 1852, S. 118-127. Neues Tagblatt, 20. u. 21. Februar 1878. Schwäbischer Merkur, Sonntagsbeilage, 31. Oktober 1925.

42 *Plieninger*, Beschreibung, S. 61 f. Vgl. die Annoncen von Saisonblumen in der Schwäbischen Chronik.

geologische Pyramiden als Landschaftszeichen errichtet, welche die geologische Struktur der Region verdeutlichen sollten.[43]

Die vorgestellten Sammlungen dienten unterschiedlichen Zwecken. Ihre Objekte etablierten, zusammengenommen, ein Wissensfeld, das von vier strategischen Interessen bestimmt war: - in erster Linie der Rationalisierung und Kommerzialisierung der Landwirtschaft, - zweitens der Vermehrung von Rohstoffen für pharmazeutische Zwecke und für den Bergbau, - erst danach wissenschaftlichen Zwecken - und schließlich der Information von akademisch gebildeten Freizeitforschern und von Schülern. Diese Interessen wurden vom König, von der Regierung und vom Landtag und von einer wachsenden administrativen und professionellen akademischen Elite geteilt. Letztere dominierten die Mitgliedschaft der Landwirtschaftsgesellschaft und des Naturkundevereins, dessen Mitgliederzahl von anfänglich dreihundertfünfzig auf über achthundert zur Jahrhundertwende anwuchs.[44] Während die Landwirtschaftsgesellschaft Wissen über Werkzeuge, Geräte und Feldfrüchte zu sammeln und in der bäuerlichen Bevölkerung zu verbreiten suchte, entwickelte sich der Naturkundeverein zu einer korrespondierenden Gesellschaft, die ihre Mitglieder zu Forschungen im je eigenen lokalen Umfeld ermutigte, um empirische Daten anzuhäufen. In beiden Fällen ließ sich bereits absehen, dass der wissenschaftliche respektive praktische Nutzen des angehäuften Wissens zunehmend an Bedeutung verlor. Den Eifer bremste das zunächst nicht.

Die naturwissenschaftlichen Sammlungen spiegelten wesentliche Teile des Modernisierungsprozesses, so wie er sich den Sammelnden selber darbot. Dabei fehlte ein zentraler Aspekt - Industrialisierung - fast völlig. In der Orientierung auf die Landwirtschaft hin folgten sie einem Pfad, der ein Jahrhundert vorher in England in die Industrialisierung geführt hatte, ohne darüber zu reflektieren, ob der gleiche Weg das neue Königreich unter den wesentlich veränderten Bedingungen der Gegenwart zum gleichen Ziel führen würde. Wenn Probleme der Landeswohlfahrt und der Fürsorge thematisiert wurden, die angesichts eines verelendenden ländlichen Heimgewerbes drängten, dann wurden die Sammlungsobjekte eher nach veralteten kameralistischen Prinzipien ausgesucht als dass sie eine Vision von Fortschritt verrieten. Der Bezug zu Anwendungsnutzen wurde zu Gunsten einer positivistischen Vorstellung von reiner Wissenschaftlichkeit allmählich verringert. Die Zielsetzungen der Sammlungen wurden vermutlich von denen geteilt, die sie aufsuchten - Wissenschaftler und Studenten der Naturwissenschaft und der Landwirtschaft, höhere Beamte oder Angehörige akademischer Berufe, auf deren Bedürfnisse sie zugeschnitten waren. Die gleichen Bildungsbürger stellten die Mitglieder der naturwissenschaftlichen Vereine und Gesellschaften, botanisierten und klassifizierten eigene Sammlerstücke, bereicherten die *gaea wurttembergensis*, besuchten Vorträge über Naturgeschichte und schrieben Beiträge für die Vereinspublikationen. Im Laufe des Jahrhunderts wandelte sich das Interesse gegenüber dem Sammeln und dem Betrachten von Sammlungen von einer gewissen Vorliebe für tierische und menschliche Monstrositäten[45] hin zu einer distanzierten, analytischen Beobachtung von Tier- und Pflanzenarten einerseits, zu einer

43 *Lampert*, Naturkunde, S. 742-744.

44 Mitgliederlisten wurden regelmäßig im Correspondenzblatt und in den Jahresheften veröffentlicht.

45 So wurde beispielsweise im Mai 1827 eine "wohl proportionierte" jugendliche Zwergin als lebendes Naturwunder in Stuttgart zur Schau gestellt. In den Jahresheften des Naturkundevereins wurde regelmäßig über missgebildete menschliche Körper berichtet. Allmählich verschwand diese Thematik aus den Jahresheften. 1887 stellte eine anatomische Wanderausstellung in Stuttgart präparierte menschliche Gruselmonster aus. Die Gewerbehalle als Ausstellungsort, die späten Öffnungszeiten und spezielle Damenprogramme deuten darauf hin, dass in erster Linie ein unterbürgerliches Publikum angesprochen werden sollte. Vgl. die Berichte in der Schwäbischen Chronik.

humanisierenden Empathie mit bestimmten Arten von Tierverhalten andererseits. Ein kompliziertes Muster des Verhaltens zum Sammeln entwickelte sich, das die sozio-kulturelle Kohärenz zwischen den Sammlern, den Vereinsmitgliedern und dem Publikum verstärkte und diejenigen ausschloss, die sich ihm nicht anpassten.

Falls Kaufleute und Fabrikanten sich unter dem Sammlungspublikum befanden, so verrieten sie innerhalb des etablierten gesellschaftlichen Rahmens kein eigenes kommerzielles oder technisches Interesse. Ein eventuelles Interesse an technischen Innovationen wurde kaum bedient, zu besichtigen gab es in dieser Richtung allenfalls Präzisionsuhren und astronomische Modelle und Automaten aus der ehemaligen fürstlichen Wunderkammer, die teils in der öffentlichen, teils in der königlichen Bibliothek aufgestellt worden waren.[46] In der Universität Tübingen war in den 1820er Jahren eine Modellsammlung angelegt worden, die den Bedürfnissen des technologischen Studienganges dienen sollte. Dessen Leiter, der Technologe Johann Poppe (1774-1854), galt in der Fachwelt als bereits unzeitgemäß.[47] Ein moderneres Curriculum wurde von der 1829 gegründeten Polytechnischen Schule in Stuttgart angeboten, die über eine Sammlung Maschinenmodelle verfügte, während die Sammlung des Landwirtschaftlichen Vereins vorwiegend Modelle für landwirtschaftliche Geräte umfasste.[48] Literatur zu technischen Innovationen war auch in der Stuttgarter Öffentlichen Bibliothek wenig zu finden, bis der Verleger Johann Friedrich Cotta (1746-1832) und dessen Nachfolger seit den 1820er Jahren ein breites Spektrum an technischen Publikationen zu offerieren begannen. Aber aus Texten und Illustrationen allein konnte keine Vertrautheit mit industriell interessanten technischen Innovationen entstehen. Dazu musste man sich im Ausland umschauen.

III. Modernität als Ausstellungsprojekt

Von Beginn an waren die Schausammlungen von *naturalia* in Württemberg nach ausländischen Vorbildern aufgebaut. Die wichtigsten waren das *Musée d'histoire naturelle* in Paris und die Sammlung der *Society for the encouragement of Art, Manufacture and Commerce* in London. Es lässt sich nachweisen, dass eine ganze Reihe von hohen Staatsbeamten, Wissenschaftlern, Kaufleuten und Industriellen das Pariser Museum samt dem Botanischen Garten aus eigener Anschauung kannten;[49] über beide Institutionen waren Informationen in der Öffentlichen Bibliothek Stuttgarts zu finden. In Cottas Verlagsprogramm befanden sich mehrere Reisebeschreibungen, in denen auf die Sammlungen hingewiesen wurde, während der Verleger selbst über gründliche Frankreicherfahrung verfügte.[50] Für den einschlägig interessierten und informierten Reisenden mussten sich seit der Revolution die Museen und Ausstellungen der Metropole als ein großartiges Reservoir des Wissens darstellen, geschaffen, um es der Allgemeinheit zugänglich zu machen und damit Wohlfahrt und Wachstum zu befördern.[51]

Auch in London wurden Geräte und Maschinen für industrielle Produktion in einer Dauerausstellung präsentiert, Konsumgüter in Industrieausstellungen gezeigt, manchmal zusammen

46 *Plieninger*, Beschreibung, S. 79.
47 Johann Heinrich Moritz Poppe, ADB 26, S. 418-420.
48 *Plieninger*, Beschreibung, S. 30. *Zweckbronner*, Ingenieurausbildung, S. 37-85.
49 *Cleve*, Geschmack, S. 296-305.
50 *M. Neugebauer-Wölk*, Revolution und Constitution. Die Brüder Cotta. Eine biographische Studie zum Zeitalter der Französischen Revolution und des Vormärz, Berlin 1989.
51 *Cleve*, Geschmack, S. 29-113.

mit Kunstwerken, Landwirtschaftsprodukten oder Naturaliensammlungen.[52] Wohl nach diesem Vorbild hatte seit 1818 die Zentralstelle des Landwirtschaftlichen Vereins geplant, eine Sammlung einheimischer Produkte anzulegen und mit einer Sammlung von ausländischen Produkten zu ergänzen, um die ansässigen Gewerbe zu unterstützen und ihnen Anregungen für Produktinnovationen zu liefern. Aber beide Projekte waren nicht recht vorangekommen.[53] Die französischen nationalen Industrieausstellungen, die periodisch nahe dem Louvremuseum abgehalten wurden, zogen ein internationales Publikum an. Dort wurde augenscheinlich, dass die französische Industrie unmittelbar von den Museen der Hauptstadt profitierte, sowohl durch die Übertragung von Kunst- und Naturformen auf Konsumgüter als auch durch die Verwendung von neuen Rohstoffen und Techniken, die sich im *Conservatoire des Arts et Métiers* studieren ließen. Diese fruchtbaren Bezüge hatten in Frankreich selbst zu weiteren Museumsgründungen in der Provinz geführt, wo Rohmaterialien, Werkzeuge und Maschinen, Produkte und Kunstwerke zusammen ausgestellt wurden. Gerade auch für ausländische Besucher musste der Eindruck entstehen, dass die Verbreitung von Wissen durch Museen und Ausstellungen eine wichtige, wenn nicht eine wesentliche Voraussetzung für die industrielle Entwicklung einer Region darstellte, wobei die naturwissenschaftlichen und technischen Objekte Innovationen befördern, die Kunstobjekte den Geschmack von Produzenten und Konsumenten bilden sollten.[54]

Durch die Initiative einiger Fabrikanten wurden in Württemberg allmählich vergleichbare Einrichtungen, allerdings in einem kleinen Maßstab, geschaffen. 1812 war die erste Kunst- und Industrieausstellung in Stuttgart organisiert worden, die zweite gleich nach der Thronbesteigung Wilhelms I. In dreijährigem Abstand folgten danach die Ausstellungen aufeinander, die sich dem französischen Vorbild anzugleichen suchten, indem sie Kunstwerke und Gewerbeprodukte räumlich aufeinander bezogen.[55] Organisiert wurden sie von der Zentralstelle des Landwirtschaftlichen Vereins, der eine weitere Zentralstelle für Industrie und Handel beigefügt worden war. Diese wiederum wurde 1830 mit der Aufsicht über eine neu gegründete Gesellschaft für Beförderung der Gewerbe beauftragt, die in erster Linie als Forum für hohe Beamte und Unternehmer dienen sollte.[56] Deren Mitglieder wiederum ermutigten Handwerker, ihre Fähigkeiten im Ausland systematisch zu entwickeln, und sie bemühten sich um Berichte über Industrieausstellungen andernorts. Zusammen mit dem Landwirtschaftsverein publizierten sie Berichte über produktionstechnische Erfindungen oder Neuerungen, die ihnen für die einheimischen Gewerbe als passend erschienen. Bald verfügte die neue Gesellschaft über Zweigvereine in den meisten größeren Städten des Königreichs, die sich wiederum Büchersammlungen zulegten, Vorträge organisierten und Ausstellungen regionaler Gewerbeprodukte veranstalteten. Regierungsmitglieder und liberale Opposition im Landtag verbündeten sich, um die Finanzierung für eine Kombination von Kunstmuseum, permanenter Industrieausstellung, Polytechnikum und Kunstschule in der Landeshauptstadt zu sichern. Während die Schulanstalt, der eine Sammlung von Rohstoffen, technischen Modellen und Industrieprodukten angegliedert

52 Vgl. *L. Stewart*, A meaning for machines. Modernity, utility and the eighteenth-century British public, in: Journal of modern history 70, 1998, S. 159-294.

53 *Plieninger*, Beschreibung, S. 30.

54 Vgl. *M. Mohl*, Aus den gewerbswissenschaftlichen Ergebnissen einer Reise in Frankreich, Stuttgart 1845.

55 *Cleve*, Geschmack, S. 248-263. Vgl. *H.R. Schwankl*, Das württembergische Ausstellungswesen. Zur Entwicklung der allgemeinen Gewerbe- und Industrieausstellungen im 19. Jahrhundert, St. Katharinen 1988. Siehe auch die ausführlichen Berichte im Correspondenzblatt und in der Schwäbischen Chronik.

56 Vgl. die Mitgliederlisten in den Rechenschaftsberichten der Gesellschaft.

war, relativ rasch eröffnet werden konnte, kam das Museumsprojekt nur schleppend voran, und der Kunstmuseumsteil verlor schließlich den geplanten industriellen Annex.[57]

Ausführlich wurde die Rolle von Museen und Industrieausstellungen für die industrielle Entwicklung thematisiert vom württembergischen Wirtschaftswissenschaftler Moriz Mohl (1802-1888). Seine Karriere hatte er 1828 mit einem Plädoyer für den Aufbau großer Industrien im Königreich begonnen, weil darin die einzige Chance läge, den Lebensstandard der großen Mehrheit der Bevölkerung dauerhaft zu verbessern.[58] Nach einer mehrjährigen Exkursion durch den Norden Frankreichs kehrte er 1844 mit einer Sammlung Gewerbeprodukten zurück, die er den einheimischen Gewerben als vorbildlich empfehlen wollte. Dazu hatte er eine umfangreiche illustrierte Abhandlung verfasst, in welcher er grundlegende politische und administrative Maßnahmen zur Hebung der einheimischen Kleingewerbe darlegte, die sich seit Jahren in der Krise befanden.[59] Er riet zur Ausstellung ausländischer Produkte als nachahmenswerten Beispielen und empfahl seine Sammlung an Korbwaren, Kämmen, Knöpfen und Spielzeugen, damit die Gewerbetreibenden sich an dem orientieren könnten, was an französischer Warte guten Absatz fände. Darüber hinaus riet er zur Fortbildung von Handwerkern und Facharbeitern durch Handelsschulen, aber auch durch Naturalienkabinette und Unterricht in Naturwissenschaften.[60] Die Überzeugungskraft seiner Empfehlungen wurde noch dadurch gestärkt, dass Reisende aus anderen Ländern zu ähnlichen Ergebnissen gekommen waren und vergleichbare Programme gestartet hatten.[61] Trotz Zollvereinsbeitritt hatte sich allerdings in den 1840er Jahren die wirtschaftliche Lage im Königreich zugespitzt, und so wurden keine öffentlichen Finanzmittel für derartige Entwicklungsprojekte bereitgestellt.[62]

Die Märzrevolution in Württemberg war wesentlich auch ein Resultat der andauernden Krise der Kleingewerbe, welche nach langen Krisenerfahrungen zum Teil von einer diffusen Abwehr der wirtschaftlichen Modernisierung erfüllt waren. Die Regierung reagierte auf die Gewerbeunruhen, indem sie endlich eine Behörde gründete, welche die industrielle Entwicklung des Landes vorantreiben und zugleich die Kleingewerbe in diese Entwicklung integrieren sollte. Die Zentralstelle für Gewerbe und Handel griff dabei auf bereitstehende Konzepte zurück, die sich auf das französische Vorbild der *Société d'Encouragement* zurückführen lassen. Aber auch das belgische Vorbild wurde sorgfältig analysiert.[63] Ihr technischer Direktor und späterer Präsident Ferdinand v. Steinbeis (1807-1893) verstand es, die vorgefundenen Konzepte der rasanten industriellen Entwicklung der zweiten Jahrhunderthälfte anzupassen und den Kleingewerben in

---

57 Vgl. die Protokolle des württembergischen Landtags 1830-1833; *J. Zahlten*, Zwischen Dürer und Kepler. Die Anfänge der Polytechnischen Schule und die Künste, in: *J.H. Voigt (Hg.)*, Festschrift zum 150jährigen Bestehen der Universität Stuttgart. Beiträge zur Geschichte der Universität, Stuttgart 1979, S. 404-437; *Ders.*, "Die Kunstanstalten zur Staats- und Nationalsache gemacht ..." Die Stuttgarter Kunstakademie in der ersten Hälfte des 19. Jahrhunderts, Stuttgart 1980; *J. Beder-Neuhaus*, Studien zur öffentlichen und privaten Baukunst der ersten Hälfte des 19. Jahrhunderts in Stuttgart, Bonn 1976, S. 29-68.

58 *M. Mohl*, Ueber die württembergische Gewerbs-Industrie, Stuttgart 1828. Vgl. *J. Westermayer*, Politik als Beruf: der Parlamentarier Moritz Mohl 1802 - 1888, Düsseldorf 1998, S. 25-38.

59 Vgl. *Mohl*, Ergebnisse; *Westermayer*, Politik, S. 43.

60 *Mohl*, Ergebnisse, S. 345 und passim.

61 *F. Steinbeis*, Die Elemente der Gewerbeförderung, nachgewiesen an den Grundlagen der belgischen Industrie, Stuttgart 1853, S. 3-7 und passim.

62 *Hippel*, Wirtschafts- und Sozialgeschichte, S. 611-619. Vgl. die Württembergischen Jahrbücher des Zeitraums für Analysen und Statistiken.

63 *Steinbeis*, Elemente, S. 223-84. Vgl. *H.-O. Binder*, Württembergs Weg zur Industrie. Eine zeitgenössische Diskussion, in: *F. Quarthal/W. Setzler (Hg.)*, Stadtverfassung, Verfassungsstaat, Pressepolitik: Festschrift für Eberhard Naujoks zum 65. Geburtstag, Sigmaringen 1980, S. 191-203.

erster Linie Wege Kenntnisse und Qualifikationen zusammen mit einer Vision eigener Chancen innerhalb dieses unaufhaltsamen Entwicklungsprozesses zu vermitteln. Dabei kamen ihm die regionale Verwurzelung ebenso zustatten wie sein technisch ausgerichtetes Studium, Managementerfahrungen in der Stahlindustrie und internationale Verbindungen.[64] Plötzlich erschienen die Anstrengungen der ersten Jahrhunderthälfte in einem anderen Licht; insbesondere war deutlich geworden, dass die bisherigen Bemühungen, gewerblich nützliches Wissen anschaulich zu vermitteln, inhaltlich ungenügend gewesen waren und eine wichtige Zielgruppe, die von der Modernisierung überrollten Kleingewerbe, nicht erreicht hatten. Jetzt kam es darauf an, Vermittlungsformen zu finden, die neben Industriellen auch solche Gruppen gezielt ansprachen, und Kommunikationswege zu eröffnen, die Rücksprache, Einwendungen und Dialoge ermöglichten, aber zugleich die Unumkehrbarkeit der Entwicklung verdeutlichten. Das Kernstück der Gewerbeförderungsbemühungen bildete das in einer ehemaligen Stuttgarter Kaserne untergebrachte so genannte Musterlager, in dem neben der Mohlschen Sammlung vorbildliche industrielle Produkte und Konsumgüter aus dem Ausland, technische Geräte und laufende Maschinen untergebracht waren, die Steinbeis und seine Mitarbeiter vornehmlich auf den großen Weltausstellungen ankauften. Darunter waren auch Objekte, die sich Naturalien- oder Kunstsammlungen zuordnen ließen, aber sie waren stets im Hinblick auf ihren Nutzen für die gewerbliche Produktion ausgewählt und entsprechend aufgestellt worden.[65] Beim Musterlager befand sich außerdem ein chemisches Labor für Werkstoff- und Warenanalysen nach Vorgaben der Gewerbetreibenden, ein Zeichensaal, wo Konstruktionszeichnungen erläutert und technisches Zeichnen sowie Produktdesign gelehrt wurden, sowie eine umfangreiche Bibliothek mit Werken zu Naturwissenschaften und Technik, elementarer Mathematik, Geografie, Ökonomie, Recht und Kunstgeschichte, abgestimmt auf die Rezeptionsbedürfnisse und -möglichkeiten der angesprochenen Klientel.[66] Wichtiges Bindeglied zwischen dieser und der Zentralstelle war das wöchentlich erscheinende Gewerbeblatt[67], das über Erfindungen, neue Produkte, Absatzchancen, Ausstellungen und über die Aktivitäten der Zentralstelle und ihres von den Gewerbetreibenden gewählten Beirats berichtete und die Leser zu eigenen Beiträgen ermutigte, während zugleich ein Hauptthema die Überwindung des zünftischen Denkens und des Schlendrians war. Ein zweites zentrales Reformprojekt waren für Steinbeis die Gewerbeschulen, in denen Lehrlinge und Junghandwerker im Zeichnen, in Geometrie, Buchhaltung und elementaren Naturwissenschaften neben weiteren Fächern unterrichtet wurden. Er übte einen entscheidenden Einfluss auf Organisation, Curricula und die Qualifikation und Auswahl der Lehrenden aus. Bald wurden zahlreiche Gewerbeschulen in allen Landesteilen umorganisiert oder neu gegründet. Die Teilnahme an Kursen war freiwillig und musste außerhalb der langen Arbeitszeiten absolviert werden, aber es gelang wohl, einen gewissen sozialen Druck in Richtung Teilnahme besonders unter denjenigen Heranwachsenden auszuüben, die sich den

64 ADB 35, 1893, S. 789-791. Vgl. *P. Siebertz*, Ferdinand von Steinbeis. Ein Wegbereiter der Wirtschaft, Stuttgart 1952.

65 Vgl. den Katalog über die Sammlungen der Kgl. württembergischen Centralstelle für Gewerbe und Handel, Stuttgart 1867, und die Berichte im Gewerbeblatt.

66 Vgl. *Vischer*, Entwicklung; *W.A. Boelcke*, "Glück für das Land". Die Erfolgsgeschichte der Wirtschaftsförderung von Steinbeis bis heute, Stuttgart 1992. Aufschlussreich sind die seit 1857 gedruckt vorliegenden Bibliothekskataloge. Während der ersten beiden Dekaden wurden mit wenigen Ausnahmen vor allem populärwissenschaftliche Bücher angeschafft.

67 *Königlichen Centralstelle für Gewerbe und Handel (Hg.)*, Gewerbeblatt aus Württemberg, Stuttgart 1849-1921.

Aufbau einer selbstständigen Existenz vorgenommen hatten. Indem die Schüler verpflichtet waren, ein geringes Schulgeld beizusteuern, sollten sie motiviert werden durchzuhalten.[68]

Ein Bild von der Entwicklung der württembergischen Industrie nach der Jahrhundertmitte lässt sich durch den Vergleich der Beiträge aus Württemberg zu den beiden Weltausstellungen von 1851 und 1867 gewinnen. Die Zentralstelle für Gewerbe und Handel organisierte jeweils die Teilnahme und sorgte für die Aufstellung im Rahmen einer eigenständigen Präsentation, in welcher das Warenangebot und die technischen Errungenschaften des Königreichs zur Geltung kommen sollten, so weit das innerhalb der riesigen, von England und Frankreich dominierten Gesamtschau möglich war.[69] 1851 befand sich unter den Schaustücken von 114 württembergischen Ausstellern[70] als einzige, allerdings äußerst populäre Attraktion eine Gruppe ausgestopfter Tiere Ploucquetscher Provenienz, die, weil der Präparator sich keine Vitrine leisten konnte, unter dem ständigen Andrang der Massen allmählich verstaubten und verfielen.[71] Ansonsten waren außer einigen nur teilweise fabrikindustriell hergestellten Textilien und Metallwaren Gegenstände ausgestellt, die einen Bezug zu den naturwissenschaftlichen und technischen Sammlungen der ersten Jahrhunderthälfte besaßen und denen von daher ein überregionales Interesse zugesprochen werden konnte: Chemikalien und chemische Apparate, mathematische Instrumente, Präzisionsuhren einerseits, die eher auf feinmechanische und pharmazeutische Traditionen verwiesen als auf industriellen Fortschritt, auf der anderen Seite Proben getrockneter Früchte und Insekten, Holzmuster und Mühlsteine, die den agrarischen Charakter des Landes herausstellten.[72] 1867 beteiligten sich mehr als zweihundertfünfzig Aussteller aus dem Königreich an der Pariser Universalausstellung, und mehr als die Hälfte von ihnen profitierte von den großzügig verteilten Auszeichnungen, darunter Eisenwaren- und Maschinenbaufabrikanten. Die Mehrzahl unter den Prämiierten produzierte allerdings Güter von der Art, wie sie bereits 1851 gezeigt worden waren. Zur Produktion von Chemikalien, Nahrungsmitteln, Stoffen und Metallwaren waren die Papierfabrikation und die Musikinstrumentenmacherei hinzugekommen - die beide nicht eben avantgardistische Technologien erforderten.[73] Württemberg hinkte der industriellen Entwicklung sichtbar weiter hinterher.[74]

---

68 In den 1880er Jahren existierten über einhundertsechzig derartiger Schulen, die von rund dreizehntausend Schülern besucht wurden. *Vischer*, Entwicklung, S. 189-210; *C. Genauck*, Die gewerbliche Erziehung durch Schulen, Lehrwerkstätten, Museen und Vereine im Königreich Württemberg, Reichenberg 1882; *F. v. Steinbeis*, Die Entstehung und Entwicklung der gewerblichen Fortbildungsschulen und Frauenarbeitsschulen in Württemberg, Stuttgart, 2. erg. Aufl. 1889; *H. Christmann*, Ferdinand Steinbeis. Erziehung zur Arbeit am Anfang der Industrialisierung, Diss. Stuttgart 1967, bes. S. 95-150.

69 Vgl. aus der umfangreichen Ausstellungspublizistik den Official catalogue of the Great Exhibition of the Industry of all Nations, London 1851, L'Exposition Universelle de 1867 illustrée, Paris 1867, und die Beschreibungen und Beurteilungen in: Exposition universelle de 1867. Rapport du jury international, 13 Bde., Paris 1868, sowie den Illustrirten Katalog der Pariser Industrie-Ausstellung von 1867, Leipzig 1867.

70 Gewerbeblatt 5, 1851, S. 33-38. Gewerbeblatt 16, 1851, S. 129.

71 Die Popularität der Tiere lässt sich an den zahlreichen Abbildungen in der umfangreichen Ausstellungspublizistik ablesen.

72 Official catalogue, S. 114-1121.

73 Gewerbeblatt 27, 1867, Beilage, S. 245-251. Vgl. den Beschreibenden Katalog der Erzeugnisse des Königreichs Württemberg (Allgemeine Pariser Ausstellung von 1867), *hg. durch die K. Württembergische Ausstellungs-Commission*, Stuttgart 1867.

74 Der Befund wird durch die neuere regionale Wirtschaftsgeschichte bestätigt. *Megerle*, Württemberg, S. 107-195; *Hippel*, Wirtschafts- und Sozialgeschichte, S. 662-700. Vgl. *O. Borst (Hg.)*, Wege in die Welt. Die Industrie im deutschen Südwesten seit Ausgang des 18. Jahrhunderts, Stuttgart 1989.

Inwiefern überhaupt die wirtschaftliche Entwicklung des Landes von der Zentralstelle und von den Aktivitäten Steinbeis' beeinflusst wurde, lässt sich nicht eindeutig feststellen. Es lag im Interesse der Person und des Amtes, in dieser Hinsicht Zusammenhänge herauszustellen, die nicht zwangsläufig oder eindeutig gegeben waren.[75] Der Einfluss auf staatliche Infrastrukturmaßnahmen und Konsumausgaben, auf rechtliche und administrative Rahmenbedingungen war gering, ebenso der Umfang der Subventionen. Der Hauptteil des nicht eben großen Budgets wurde auf die Präsenz auf den Weltausstellungen und auf den Ankauf von Mustern verwandt.[76] Die wenigen bedeutenden Unternehmer waren weder auf die vom Musterlager gebotenen Informationen noch auf die Aktivitäten der Zentralstelle angewiesen, und die Zahl derjenigen Interessenten, die von diesen Angeboten wirklich profitierten, bleibt im Dunklen. Die im Gewerbeblatt monatlich abgedruckten Besucherzahlen des Musterlagers schwankten je nach Jahreszeit beträchtlich, einzelne spektakuläre Exponate wie etwa ein im Krieg von 1870/71 erbeutetes französisches Maschinengewehr konnten sie nach oben treiben. Bis 1873 wurden immerhin über eine Million gezählt, das entsprach einem durchschnittlichen Tagesbesuch zwischen hundert und hundertzwanzig Personen. Sicher lässt sich sagen, dass sich die Zentralstelle in erster Linie darum bemühte, für ihre Klientel ein detailliertes und attraktives Bild von Industrialisierung als einem einlinig fortschreitenden Zivilisationsprozess zu zeichnen, wie es von den Weltausstellungen mit großer Überzeugungskraft vorgezeichnet wurde, und ihnen konkrete Anhaltspunkte zu geben, selbst einen Platz darin einzunehmen, statt von der Dynamik der Entwicklung überrollt zu werden. Dabei respektierte die Zentralstelle den tradierten Wunsch nach Selbstständigkeit als Ziel bürgerlicher Respektabilität, während sie zugleich die realistische Perspektive abhängiger Arbeit in der Industrie differenzierte, indem sie spezifisches Fachwissen und damit die Möglichkeit zur Statusverbesserung in der betrieblichen Hierarchie vermittelte. Dieses Bild lag wiederum den Qualifikationsangeboten der Gewerbeschulen zu Grunde, die außer Fachwissen auch Abschlüsse und damit Status in einer Zeit wachsender sozialer Mobilität verliehen. Die Zentralstelle erweiterte insgesamt die Optionen derer, die ihre Angebote, allerdings auf eigenes Risiko, nutzten, und wirkte damit gerade innerhalb derjenigen Bevölkerungsteile, die von der Industrialisierung in ihrer Existenz als Selbstständige bedroht wurden, ökonomisch und gesellschaftlich im Sinne eines frühliberalen Gesellschaftsbildes stabilisierend. Dass dieses Konzept funktionierte, hing wesentlich damit zusammen, dass sich allmählich Spezialindustrien entwickelten, die auf hohe technische Qualifikationen angewiesen waren. Durch die Metallwaren- und Elektroindustrie konnte Württemberg um die Wende zum 20. Jahrhundert endlich Anschluss an den Fortschritt gewinnen. Auch wenn die Zentralstelle solche Industrien propagierte - das lag angesichts der Ressourcen des Landes und der allgemeinen industriellen Entwicklung nahe - sie dafür verantwortlich zu machen hieße das Wissen und das Innovationspotenzial der schwäbischen Unternehmer zu unterschätzen.[77] Der Beitrag der Zentralstelle war stattdessen gesellschaftspolitisch. Sie trug wesentlich dazu bei, untere Mittel- und obere Unterschichten, deren gesellschaftliche Deklassierung mit der strukturellen Krise der alten Gewerbe einhergegangen war, sozio-kulturell in die neue Industriekultur zu integrieren. Zu den gerade etablierten Museen und Sammlungen hatten diese Schichten keinen Zugang gefunden, auch wenn jene gegründet worden waren, um der Krise abzuhelfen, und den

75 Vgl. *Vischer*, Entwicklung, S. 369-486 und passim.

76 Ebda S. 44-56; *O. Borst*, Staat und Unternehmer in der Frühzeit der württembergischen Industrie, in: Tradition 11, 1966, Teil 1, S. 105-126; Teil 2 S. 153-174. Vgl. die Protokolle der Etatverhandlungen des Landtags. Der Etat der Centralstelle wurde rechnerisch etwa vom Hundesteueraufkommen gedeckt.

77 Vgl. *Kollmer-v.Oheimb-Loup*, Zollverein.

exklusiven Zirkeln der Naturkunde- und, mit Ausnahme einiger etablierter Meister, auch den Gewerbeförderungsvereinen hatten sie nicht angehört: Handwerker und Facharbeiter, technisches Personal und Händler. Das wichtigste Indiz dafür liefert der 1896 fertig gestellte (und vor einigen Jahren aufwendig restaurierte) neo-barocke Industriepalast, der die Zentralstelle und das trotz periodischer Revisionen enorm angeschwollene Musterlager in seine mit Marmor, allegorischen Wandgemälden und Büsten von Industriepionieren geschmückten Räume aufnahm. Die Eröffnung wurde mit einer spektakulären Elektrizitäts- und Kunstgewerbeausstellung gefeiert - und dabei wurden die Nutzpflanzen nicht vergessen. Zumindest symbolisch war die Moderne in der Hauptstadt des Königreichs angekommen.[78]

IV. Expeditionen in die Zukunft

Anhand der anfangs erwähnten Reisestipendien, welche die Zentralstelle Gewerbetreibenden auf Antrag gewährte, lässt sich die Klientel der Zentralstelle genauer erfassen und auf ihrem Weg in die Moderne verfolgen. Diesen einzuschlagen war Bedingung für das Stipendium; anhand des einzureichenden Lebenslaufs ließen sich die Voraussetzungen überprüfen, welche die Kandidaten (darunter eine Gewerbelehrerin)[79] mitbrachten, der Reisebericht, den zu schreiben sie verpflichtet waren, gab Aufschluss darüber, inwieweit sie die Bedingung erfüllt hatten.[80] Auch diejenigen Unternehmer, die sich zu einer trotz aller Förderung kostspieligen Teilnahme an den Ausstellungen entschlossen hatten, ihre Produkte in den Vitrinen der Zentralstelle auslegten und damit zum Beispiel nationalen Gewerbepotenzials erklären ließen, folgten diesem Weg, den sie selber weiter entwarfen, wenn sie als Preisträger in Ausstellungsausschüsse kooptiert wurden.[81] In der Regel wurden die Stipendien an selbstständige Handwerksmeister vergeben, die erklärten, sich mit neuen Techniken und Produkten vertraut machen zu wollen, aber die Reisekosten nicht aufbringen zu können. Die Vergabebedingungen wurden mehrfach überarbeitet, damit sichergestellt war, dass sie an die gewünschte, innovative Zielgruppe gelangten. Tatsächlich traten einige davon später als Unternehmer in Erscheinung. 1851 waren an einhundertdreiunddreißig selbstständige Handwerker, Unternehmer und Händler Reisestipendien vergeben worden. 1867 mussten die einhunderfünfzig erfolgreichen Kandidaten folgende Bedingungen erfüllt haben, um die Reisekosten erstattet zu bekommen: Schulabschluss, erfolgreich absolvierte Handwerkslehre, regelmäßigen und erfolgreichen Besuch der örtlichen Gewerbeschule sowie Französischkenntnisse und außerdem ein guter Leumund. Facharbeiter wurden ebenfalls subventioniert, wenn ihr Arbeitgeber sie vorschlug und einen Teil der Reisekosten übernahm, aber sie bildeten eine kleine Minderheit. Händler ohne eigene Produktion wurden nicht berücksichtigt. Sämtliche Bewerbungen mussten zuvor von den regionalen Handelskammern positiv begutachtet worden sein.[82] Die erfolgreichen Kandidaten - um die geht es im Folgenden - zeigten das professionelle Profil, welches auch die Gesamtheit

78 Vgl. die Stuttgarter Ausstellungs-Nachrichten. Zeitung für die Elektrizitäts- und Kunstgewerbeausstellung zu Stuttgart im Jahre 1896, sowie den Beschreibenden Katalog der Nutzpflanzen-Ausstellung, 18.-26. Juli 1896 zu Stuttgart im Pflanzenhaus des Stadtgartens, Stuttgart 1896.

79 Leider ist deren Teilnahme nur durch ein Dankschreiben an Steinbeis bezeugt, der sich energisch für die berufliche Qualifizierung von Frauen einsetzte; Bewerbungsunterlagen fehlten.

80 Zu den Quellen vgl. Anm. 10.

81 Die Beteiligung württembergischer Unternehmer an Ausstellungsjurys geht aus dem Gewerbeblatt hervor. Manche waren für Juryberichte verantwortlich, in denen Einschätzungen über Leistungen und Entwicklungen gegeben wurden. Lebenslauf und -leistung dieser Leute konnten nicht weiter verfolgt werden.

82 Gewerbeblatt 10, 1867, S. 101 f. u. 26, 1867, S. 229 f. StAL E 170 Bü 472.

der Antragsteller dieses Programms charakterisierte, zugleich spiegelten sich in ihrer Gruppe die regionalen Unterschiede in der Gewerbestruktur wider. Die meisten kamen aus der Hauptstadt, und das Interesse an einer Bewerbung war offensichtlich in den gewerblich weiter entwickelten Gegenden höher als in den agrarisch geprägten Landstrichen gewesen. Die größte Gruppe bildeten Mechaniker, die eine Mühlenbauerlehre absolviert und danach als Techniker in verschiedenen Fabriken gearbeitet hatten. Danach folgten Polsterer, Sattler und Kunsttischler. Diese wie auch die Graveure und Dekorateure arbeiteten für städtische Konsumenten, die sich an internationalen Standards des Geschmacks orientieren konnten, und sie wussten, dass sie sich darauf einstellen mussten. Auch die übrigen Bewerber waren entweder mit der industriellen Herstellung von Produkten beschäftigt oder im Bereich modenabhängiger Konsumgüter. Weitere Stipendienprogramme der Zentralstelle kamen Gewerbelehrern, den Geschäftsführern von Handels- und Gewerbekammern sowie Post- und Bahnbeamten zugute, deren Unkosten zum Teil der Staat beglich.

Bildungshintergrund und beruflicher Werdegang wiesen die erfolgreichen Kandidaten als geeignete Vermittler des Fortschritts aus. Ihre Generation war bereits mit Fabriken, Maschinen, Eisenbahnen und Industrieausstellungen vertraut, auch wenn sie selber nicht direkt damit in Berührung standen. Unter ihnen befanden sich vier delegierte Mitglieder des proto-sozialistischen Stuttgarter Arbeiterbildungsvereins.[83] Die anderen Teilnehmer erfüllten die wesentlichen Bedingungen von Selbstständigkeit. Die meisten stammten aus etablierten Handwerksmeister-Familien und hatten mindestens die Realschule, manche sogar ein Gymnasium besucht. Von dort stammten ihre naturwissenschaftlichen und ihre Französischkenntnisse. Nach einer oft beim eigenen Vater absolvierten Lehre und einem gewerblichen Schulabschluss waren sie auf Wanderschaft gegangen und dabei oft ziemlich weit in Deutschland, der Schweiz, in Frankreich oder in den Niederlanden herumgekommen. Sie hatten sich mit modernen Fabrikationsmethoden vertraut gemacht, indem sie in Fabriken gearbeitet hatten. Viele hatten nebenher ihre Zeichenfähigkeiten durch zusätzlichen Unterricht verbessert, einige bereits eine der vorherigen Weltausstellungen besucht oder sogar selbst ausgestellt. Etliche unter ihnen konnten mehrjährige Parisaufenthalte nachweisen, bis die fällige Wehrmusterung oder der Tod des Familienoberhauptes sie zurück in ihre Heimatstadt geführt hatte. Manche hatten sich durch den Besuch des Stuttgarter Polytechnikums auf eine Karriere in der Industrie oder im Staatsdienst vorbereitet. Mit Ende zwanzig hatten sich die meisten selbstständig gemacht, aber nur wenige wandten innovative Techniken an oder stellten neuartige Produkte her wie etwa elektrische Telegrafen oder fototechnische Geräte; die meisten versuchten sich im Hauptstrom technischer und modischer Neuerungen zu halten und diese einer Kundschaft anzubieten, die ihrerseits allmählich moderne Apparate, Konsumgüter und Interieurs schätzen lernte, ohne jeweils über den neuesten Stand des Fortschritts informiert zu sein.

Die von den Stipendiaten vereinbarungsgemäß an die Zentralstelle abgelieferten Berichte umfassten zwischen zwei und siebzig Seiten. Einige wurden auszugsweise im Gewerbeblatt veröffentlicht, aber die meisten landeten im Behördenarchiv. Reichliche Anstreichungen lassen jedoch vermuten, dass sie innerhalb der Zentralstelle sorgfältig gelesen wurden. Die 1851 und 1867 abgelieferten Berichte unterscheiden sich thematisch kaum. Technische Innovationen und geschmackvolles Design wurden beschrieben, die Namen von Fabrikanten genannt, manchmal Skizzen beigefügt, Gegenstände aus unterschiedlichen Ländern verglichen. Die Autoren

83 Vgl. *W. Schmierer*, Von der Arbeiterbildung zur Arbeiterpolitik. Die Anfänge der Arbeiterbewegung in Württemberg 1862/63-1878, Hannover 1970.

versuchten der Behörde zu vermitteln, dass sie ihre Pflicht erfüllt hatten. Sie gaben zu, vom Anblick der Ausstellung überwältigt gewesen zu sein, manche hatten Schwierigkeiten, sich zurecht zu finden, klebten an Details und waren unfähig, Entwicklungstendenzen zu erkennen. Einige boten an, ihre Erkenntnisse anderen mitzuteilen, oder schlugen Gegenstände zur Ausstellung im Musterlager vor. Nur wenige stellten fest, nichts Neues in ihrem Fach entdeckt zu haben. Erkennbar ist, dass viele nach Worten suchten und sich mit Phrasen behalfen, die aus Juryberichten oder Zeitschriften stammten, oder zum Thema Handels- und Gewerbefreiheit aufschrieben, was die Zentralstelle propagierte. Manche hatten sich an den Rat von Steinbeis gehalten, der die meisten Besucher als Delegationsleiter am württembergischen Ausstellungsstand persönlich begrüßt hatte, und orientierten sich in der Ausstellung über das, was sie dann in den Läden der Ausstellungsmetropole weiter beobachteten. Einige gaben persönliche Beobachtungen preis, etwa die Bewunderung für den neuen Stuttgarter Bahnhof und das alte Straßburger Münster (jemand erwähnte Erwin von Steinbach). In Paris wurde die Ausstellung eine Woche lang oder länger täglich um acht Uhr morgens aufgesucht und zehn Stunden später verlassen. Ein Fotoporträt auf dem Ausstellungsgelände diente als Dokument und Erinnerung an die Reise. Nacheinander wurden der Maschinensaal, die Bildergalerie, die Ausstellung zur "Geschichte der Arbeit" und die exotischen Gärten durchstreift. Ausgerüstet mit einem Baedeker oder begleitet von erfahrenen *compagnons* wagte man sich außerdem in den Louvre, die Tuilerien, zum Invalidendom und nach Versailles, auf den Montmartre, in das *Conservatoire des Arts et Métiers*, den zoologischen Garten, in Kaffehäuser, zu Friedhöfen und Grisetten. Gemäß den Bedingungen und den vorgefundenen Arrangements der Reise hatten sie sich wie Selbstständige verhalten und ihre Fahrt individuell organisiert. Sie waren weder ermutigt worden, noch hatten sie versucht, sich in Gruppen zusammenzuschließen und gemeinsame Ausstellungsbesuche zu organisieren. In dieser Hinsicht übersahen sie einen zentralen Aspekt der Weltausstellung von 1867, der Steinbeis selber bewusst war: die Thematisierung eines Bewusstseins von den sozialen Konsequenzen des Fortschritts und der politischen Mittel, ihnen zu begegnen, durch eine eigene Ausstellungsabteilung, durch Arbeiterdelegationen aus Frankreich und England, und auf internationalen Kongressen, die während der Ausstellung stattfanden.[84]

Ausgerechnet in dem Teil der Ausstellung, der dem Wohl der arbeitenden Klassen gewidmet war, hätten die württembergischen Besucher auf einige antediluvianische Präparate aus den Beständen des Stuttgarter Naturalienkabinetts stoßen können, die dort von einem Museumskurator als Unterrichtshilfsmittel vorgestellt wurden. Aber nur wenige der Stipendiaten, meist Gewerbelehrer, beachteten überhaupt naturwissenschaftliche Objekte. Meist wiesen sie auf physikalisch-mathematische Modelle hin oder auf naturkundliche Spezialsammlungen für den Unterricht, oder sie beschrieben in der Ausstellung aufgebaute Schulexperimente oder Modellklassenzimmer. Steinbeis selbst erwarb eine pharmakognostische Sammlung für die Landesuniversität. Die offensichtliche und beabsichtigte Mischung von Waren, Maschinen und Geräten, pädagogischen, sozialpädagogischen und kulturhistorischen Arrangements, naturwissenschaftlichen Objekten und Kunstwerken auf der Ausstellung, der die Mischung des Publikums entsprach, fand in Württemberg keine Nachahmung. Die wenigen Mitglieder des Vereins für vaterländische Naturkunde, die mit der Zentralstelle zusammenarbeiteten, taten dies, ohne auf den Verein Bezug zu nehmen. Sie unternahmen keinen Versuch, ihre

84 Vgl. *H. Fougère*, Les délégations ouvrières aux expositions universelles sous le Second empire, Montluçon 1905; *Christmann*, Erziehung, S. 49-94. Aufschlussreich ist die Liste der Buchtitel in der Bibliothek der Zentralstelle, die zum internen Gebrauch der Behörde in einem Handapparat standen; diese waren im Bibliothekskatalog markiert.

Anstrengungen und Ziele mit denen der Zentralstelle zusammenzubringen und deren Publikum damit vertraut zu machen. Mit Ausnahme des Tierpräparators Ploucquet waren die Ausstellungsteilnehmer nicht im Naturkundeverein aktiv. Dort schliefen nach der Jahrhundertwende die Debatten darüber, wie die Sammlungen für die gewerbliche Entwicklung nutzbar zu machen seien, ein, und es gab keine Überlegungen, sie für ein Publikum jenseits des etablierten akademischen Milieus attraktiv zu machen. Die Weltausstellungen wurden in den Publikationen des Vereins nicht erwähnt.

Das Publikum von Naturalienkabinett und Musterlager schien strikt getrennt, jedes verfügte über einen eigenen sozialen, bildungsmäßig verfestigten Hintergrund. Die akademisch Gebildeten hatten sich, nachdem ihre Vision eines eingehegten Fortschritts vom Prozess der wirtschaftlichen Entwicklung überrollt worden war, vom Entwicklungsprojekt zurückgezogen in Bereiche reiner Wissenschaft oder sentimentaler Betrachtung. Das praktisch-technisch qualifizierte Publikum des Musterlagers, dem industriellen Prozess unmittelbarer verbunden und ausgeliefert, konnte der distanzierten Erkenntnis oder der Projektion emotionaler Bezüglichkeiten auf tierisches Verhalten wenig abgewinnen und war stattdessen eingeladen in ein attraktives Dinguniversum, das für die Anstrengung, sich durch eine entsprechende Orientierung und Qualifizierung im Markt zu behaupten, Verdienst- und Konsummöglichkeiten versprach. Wohl bildete popularisierte Naturwissenschaft den Kern beider Öffentlichkeiten, aber zumindest in Württemberg waren sie mit unterschiedlichen Wahrnehmungsweisen, Vorstellungen, Motivlagen, Werten und Handlungsmustern verbunden, die zusammen die mentale und symbolische Trennlinie zwischen akademisch geschulten Bildungsbürgertum einerseits, einem aufstrebenden Kleinbürgertum andererseits konstituierten.[85] Beide wiesen Wege in die industrielle Zivilisation, beide markierten unterschiedliche gesellschaftliche Räume in der Industriegesellschaft, die sich in den jeweiligen Sammlungsöffentlichkeiten spiegelten. Die Präsenz ihres jeweiligen Publikums konnte als Option für wissenschaftlichen Fortschritt einerseits, für technischen Fortschritt andererseits verstanden werden.

Ploucquets Wandern zwischen beiden Sphären zeigt noch einmal, was sie trennte: Er kam aus einer angesehenen Familie, in der Handwerker, Fabrikanten und Akademiker vertreten waren. Als Schulversager deklassiert und in einer Gärtnerlehre untergebracht, fand er über seine Tierfiguren den Weg in die gute Gesellschaft als Fachmann für Taxidermie und als Unterhaltungskünstler nur halb zurück. Nach seinem unerwarteten Erfolg in London wurde er, lange noch abgesichert durch seine Stelle im Naturalienkabinett, zum Schausteller, dessen Tierfiguren gesellschaftliche Beziehungen karikierten. Scheinbar bloße Kuriositäten, lieferten sie die Mittel, diese in einer Zeit ihres rapiden Wandels zu thematisieren, der weder in eine eindeutige Richtung wies, noch den Regeln wissenschaftlicher Rationalität folgte. Aus der Natur in eine wissenschaftliche Ordnung der Klassifikation gepresst, wiesen sie, dieser entsprungen, auf Schattenseiten der Moderne hin. Die Karriere des Präparators war von der Trennlinie zwischen beiden Öffentlichkeiten bestimmt, und sie weist auf deren gesellschaftlichen Charakter hin. Verbanden sich in seinem familialen Hintergrund Bildungsbürgertum, Handwerk und frühindustrielles Unternehmertum, so lässt sich sein beruflicher Werdegang als Versuch verstehen, die zunehmende Abgrenzung zwischen staatlich alimentierten akademischen Bildungsschichten und technisch-industriell qualifizierten und auf den privatwirtschaftlichen Sektor verwiesenen

85 Vgl. dazu die umfangreiche Forschungsliteratur zur Bürgertumsforschung, wo die wachsende Bedeutung akademischer Studien und Abschlüsse betont wird. Zum Kleinbürgertum vgl. *H.-G.Haupt/G. Crossick*: Die Kleinbürger. Eine europäische Sozialgeschichte des 19. Jahrhunderts, München 1998. Zahlreiche der dort analysierten sozio-kulturellen Merkmale ließen sich bei den Stipendiaten finden.

Schichten, an der er zu scheitern drohte, durch Komik zu überspielen und zu entlarven.[86] Seine Kreaturen vermehrten sich gleichsam exponenziell in Kinderbüchern, als Spielzeug und auf unzähligem Nippes und wurden so zum Schrecken und Entzücken wohl präparierter Kinderstuben, zum Dauerrenner der Kitschsparte der Kulturindustrie und zu populären Ikonen der Moderne, gegen die sich der Anspruch der Bildungsschichten auf guten Geschmack behaupten und verfestigen musste. Weit über das wachsende Angebot an naturwissenschaftlicher und technischer Literatur hinaus[87] - an dieser Stelle sei auf die 1904 in Stuttgart gegründete Kosmos-Gesellschaft hingewiesen, einer reichsweit erfolgreichen naturkundlichen Buchgemeinschaft - wurde die Popularisierung von Technik und Naturwissenschaften neben der Popularisierung von Kunst, die durch analoge Einrichtungen erfolgte - Sammlungen und Ausstellungen, Reproduktionen und Elementarkurse, Literatur und Vorträge - über die Produktgestaltung und die Unterhaltung zu einem Bestandteil der modernen Konsumkultur.[88] Es war diese Konsumkultur, welche die auseinander strebenden gesellschaftlichen Gruppen zusammenhielt, weil sie ihnen zumindest bis zur Jahrhundertwende mehr als hinreichend Gründe gab, sich im industriellen Produktionsprozess zu engagieren oder diesen jedenfalls zu akzeptieren, und ihnen zugleich reichlich Mittel in die Hand gab, sich symbolisch voneinander abzusetzen. Nach 1900 allerdings wurden beide Gruppen zunehmend zu Zielgruppen kulturpessimistischer Zivilisationskritik und lebensreformerischer Bestrebungen, die schließlich auch in Württemberg öffentlichen Raum besetzte. Die Kulisse eines altertümelnden Gewerbedorfes in der Elektrizitätsausstellung, die der industriellen Moderne ein glorifiziertes Bild des Handwerks entgegensetzen sollte, wies bereits in diese Richtung voraus. Als Kulturkritik und Lebensreform dann populär werden sollten, gab es kein Königreich mehr.

86 Zum Typ des Wissenschaftspopularisierers allgemein nach 1848 *Daum*, Wissenschaftspopularisierung, S. 377-458.

87 Ebda S. 237-336. Zur Kosmos-Gesellschaft vgl. S. 184-187.

88 *I. Cleve*: Was können und sollen Konsumenten wollen? Die Formulierung moderner Leitbilder des Konsums als zentrales Problem des europäischen Ausstellungswesens im 19. Jahrhundert, in: *Siegrist u.a.*, Konsumgeschichte S. 549-562.

The First Large Firms in German Retailing – The Chains of Department Stores from the 1920's to the 1970/80's: Structures, Strategies, Management

*Von Heidrun Homburg (Basel)**

Preliminary Remarks

Although the 'modern business enterprise' constitutes the primary object of its study[1], modern business history, particularly as it is practiced in Germany, tends to ignore large retail firms. In general it focuses on the modern industrial enterprise. Modern mass distributors are at best relegated to the status of the insignificant stepchildren of business history. If large retail firms are mentioned as a subspecies of the modern business enterprise at all, they don't really attract the scholar's attention. This neglect reflects a bias toward the study of production in economic history. There are many reasons why business history has evolved in this way, including the lesser innovative power of the distributor. Distributors are limited to organizational innovations. They also experience comparatively lower rates of return in comparison with industry. They cannot derive their profits from research and development of new products and marketing. In addition, although modern mass retailing may offer tales of the entrepreneurial rise from rags to riches, triumphant stories on par with those of industrial entrepreneurs, there is often a suspicion, implicit or explicit in business histories, that successful retailers benefited not from hard work but from the skillful or ruthless use of opportunities and the cheating of the consumers, and required no or little professional training.

Without entering into the more than two-century old debate about whether trade can be classified as 'productive', it is beyond doubt that the most efficient way of organizing distribution in retailing has a direct impact on the budget of the final consumer. Thus, in a certain way, the situation provoked by the production bias seems rather paradoxical. Although retailing is perhaps the economic activity most pertinent to everyone's everyday life, rather little is known about its economic actors, i. e. about the retail firms, their management and organization, their plans for growth, and how the particular economic and socio-political challenges which they encountered in the marketplace shaped their evolution.

Given the broad economic and social impact of an efficient distributive system on a country's consumption and production, it is, however, high time to take a new look at the modern mass retailing firms and to study their history, by employing the concepts that prevail in recent business history research.

In the following, I shall focus on chains of department stores, the pioneering large firms in German retailing that emerged at the end of the 19th century, and analyse their evolution as 'mature' firms over a period of roughly six decades from the 1920's to the 1980's.

The first part of the article offers a brief historical outline. It discusses the emergence of the German chains of department stores; the founding entrepreneurs; and their visions to combine the economies of scale and of scope and to reduce transaction costs. It then analyses the structural changes in retailing brought on by the rise of these and additional types of mass retailers

---

* The article is a revised version of my paper presented at the 25th Fuji International Business History Conference, January 3-10, 1998 "Entrepreneurship and Organization", organized by Kenjiro Ishikawa and Seiichiro Yonekura. The proceedings of the conference will be published by Oxford University Press. – I am grateful for the critical reading of Robert G. Moeller. As a native speaker, he labored through the draft and made every endeavor to correct and improve my English.

1 Cf. *A.D. Chandler jr./T. Hikino*, Scale and Scope: The Dynamics of Industrial Capitalism, Cambridge/Mass. 1990, p. 14.

as they expanded their share in the retail sales. Finally it reviews the socio-political and economic challenges which the first German mass retailers, the chains of department stores, encountered in the period under scrutiny.

The second part takes a closer look at the three turning points in the history of German department stores - 1933/34, 1945/48 and the 1970's - that emerge from the historical outline. Organized as a comparative case study of the two most successful and long-standing chains of department stores, the joint-stock companies of Karstadt AG and Kaufhof AG (which originated from the Leonhard Tietz AG), the three sections of this part analyse how the two companies and their management coped with the major challenges confronting retailers at key moments in the twentieth century. The first section discusses both companies' transition from an entrepreneurial to a managerial firm in the early 1930's. It considers the impact of this transition on the top-level executives; the recruitment patterns of top management; and the problem of entrepreneurship or more precisely intrapreneurship in a large organization. The second section turns to the companies' growth strategies. It analyses how their plans for growth changed over time and which company set the faster pace in the 1970's/1980's when competition grew stiffer, and what factors contributed to success. Finally, the third section tries to offer some insight into the structure of the two companies and evolving schemes of governance. It discusses first the hiercharchy or teams of managers; it then outlines the mass retailers' basic organizational problems and the management concepts that informed the companies' (re-)organization in the 1970's/1980's.

The third, concluding part summarizes the main findings and tries to pin-point the similarities and dissimilarities between modern German industrial producers and large-scale retailers, which emerge from the historical study of the German department store companies' evolution between the 1920's and 1980's.

I. Historical Outline

Since the late 19th and early 20th century, retailing in Germany, as in other European countries and the USA, underwent remarkable structural changes due to the rise of large firms. Innovative strategies and organizational structures to secure dynamic growth were preconditions for this 'revolution in retailing'. To be sure, several decades before the turn of the century larger retail stores had come into existence, impressing the public by the size of their shopping facilities and their large display windows. Since the 1830's such stores opened their doors in royal residential cities like Berlin (Prussia), Munich (Bavaria), Dresden (Saxony) and in other economically important cities like Leipzig. In general, these were specialized clothing and home textile stores, serving the needs for conspicuous consumption of the aristocracy and the well-to-do bourgeoisie. These retailers risked strategies of scale in order to display the riches and the diversity of their collections because they wanted to attract the relatively small number of wealthy people. Scale, in these cases, was linked to a rather limited upscale segment of consumer demands and thus – in volume and numbers – to a rather stagnant portion of the market.

The take off into the 'revolution in retailing', however, required a different orientation. Its fantastic story of success only began when retailers addressed themselves to the remaining portions of the market and developed strategies that enabled them both to serve the more humble needs of the big masses of the population, the middle and lower income groups, and to make their firms competitive and profitable in spite of the predictable far lower average sale per customer. But how was it possible to achieve profits by selling "ordinary" commodities to "ordinary" people? Retailers provided two answers. They offered commodities in qualities and

designs that met mass demand and were affordable. And they understood that profits did not exclusively depend on markup but also – and even more – on volume and the rate or speed of the turnover. In other words profits could be realized by selling at low prices and low margins. Given this strategic option, retailers saw that they could make profits by selling many goods and realizing high rates of turnover.[2] Pursuing these goals presented challenges to retailers. They had to discover and refine the means to achieve a high volume and a high velocity of turnover, the preconditions for success and the firm's survival.

Of course, such marketing strategy had to respond to the basic needs of the masses. But which group of basic needs should retailers seek to meet? Among the range of options were food, beverages, coffee, tea, tobacco; clothing; kitchen and household utensils; health and body care products; tools, instruments, and vehicles for professional and home work; items for educational and leisure activities; and finally items for decorative purposes. Just like their forerunners in the US and France, the pioneering German mass distributors who were to become the founders of the first department stores opted for textiles and clothing at first. Like their counterparts abroad, they tried to communicate their new marketing concept to the public from the very beginning by putting advertisements in local newspapers and by using their well-arranged display windows as a sort of shopping guide, creating publicity and generating consumer desires. The means to speed up transactions, thus lowering costs and securing profits, at first consisted in offering a well balanced small selection of low-priced textiles, in marking fixed prices on each article, and in buying and selling without credit lines.

Whatever the success of these "specialized" variety stores – and in view of the firms' rapid expansion, it must have been satisfactory if not extraordinary – the pioneers soon realized that continuous growth depended both on strategies of scale *and* scope. The shops ventured into a variety of new articles – first clothing and textiles, then accessories like umbrellas, buttons, and yarns. They also added less clearly related products like carpets, curtains, small furniture, and kitchen and household utensils like china, stoneware, and cutlery. Last came food and groceries. This strategy of scope, a revolutionary innovation, the combination of different commodities, previously sold only in separate retail stores, was supplemented by a strategy of scale.

In Germany, where the pioneering mass retailers first opened their premises in relatively small towns, the limits of the local market soon forced them to envision paths of growth different from those of their French counterparts, who started their business in Paris and stuck to one emporium as they were able to rely upon the huge extent of the capital's market for their firms' expansionist strategies. The German answer was to expand geographically, and this not only in mere quantitative but also in "qualitative" terms. German retailers opened outlets in more and more distant places *and* in larger or differently structured towns and cities. German pioneers like Leonhard Tietz (1849-1914), Oskar Tietz (1858-1923), Theodor Althoff (1858-1931), and Rudolph Karstadt (1856-1944) first established chains of relatively small variety stores and only then proceeded to construct new large, multi-story premises, "real", full-fledged department stores. Thus Leonhard Tietz who in 1879 had opened his first shop in Stralsund, a middle-sized town in northeastern Germany, opened his first outlet ten years later in Elberfeld, a busy industrial city, far in the west. Other outlets followed in the surrounding area, before Leonhard Tietz moved even further to the west in order to open his first full-fledged department stores in Cologne (1902) and Duesseldorf (1908). By 1914 the firm had opened 17 outlets, in 1929 it

2 Cf. *A.D. Chandler jr.*, The Visible Hand: The Managerial Revolution in American Business, Cambridge/Mass. 1977, pp. 224-39 and *Chandler/Hikino*, pp. 419-23.

operated 43 department stores, mainly in western and southwestern Germany. Leonhard's younger brother, Oskar Tietz, assisted by his granduncle Hermann Tietz, opened his first variety store in Gera in 1880; the next branch, located in Weimar, was founded in 1886. Expanding further, he moved on from central to southern and southwestern Germany. Branches were opened in Karlsruhe (1888), Munich (1889), Stuttgart (1890), Strasbourg (1891), and the firm's first full-fledged department store was constructed in Munich (1895), only a few years later. In 1899, Oskar Tietz opened a second one in Berlin. By 1910 the chain consisted of 13 department stores scattered over southern and central Germany. Two decades later, the firm, operating under the name 'Hermann Tietz', made the German capital its main focus, although it maintained its activities in the older locations too. By 1929/30 it operated 11 department stores in Berlin, and 8 outlets in other parts of Germany. Rudolph Karstadt started his career in Wismar in 1881. After a number of outlets had been opened in northeastern Germany, Karstadt turned to Hamburg, the most populous and dynamic city in north Germany in order to realize his plan for a full-fledged department store in 1912. By 1919 the firm operated 31 branches. Theodor Althoff's chain of smaller variety stores was first concentrated in Westphalia and expanded beginning in the late 1880's, serving the needs of heavy industry's fast growing working-class population in the urban centers in the valley of the Ruhr. It was in this area, in Essen (1905) and Dortmund (1903), that Althoff proceeded to complete his chain of variety stores by opening his first department stores, before he decided to expand geographically further to the east, investing considerable sums in his next full-fledged department store in Leipzig, which opened to the public in 1914. By 1920, the year of Althoff's merger with Karstadt, Althoff's firm operated 15 branches. The joint-stock company 'Rudolph Karstadt AG' (= *Aktiengesellschaft*) which was formed after the merger, continued to expand rapidly, relying on the established path of growth. By 1929, the firm was operating 89 branches, the majority of which (59) used the 'Rudolph Karstadt'-label; the others continued to operate under the names of their founders (Theodor Althoff, Lindemann etc.).[3]

Whereas the German pioneers' strategy of scope could be classified a mere imitation of their American and French predecessors, their strategy to promote growth by expanding geographically and by establishing chains of different sized department stores in geographically scattered locations was unparalleled at the time: this was an innovative strategic decision, and it was Germany's original contribution to the economies of mass marketing.[4]

In this way, the German chains of department stores became the first mass retailers whose growth relied upon their ability to exploit the economies of scale, scope, and transaction costs.[5] Their dynamic was a logical outcome of the founding entrepreneurs' pathbreaking, decisive move to open up new market segments for their firms, responding successfully to the mass market of lower and middle income consumers. Their economic success was based upon their ability to serve and/or stimulate mass demand (and mass production), thanks to their unusual pricing, purchasing and selling philosophy. Although other systems of mass retailing originated shortly before and after the turn of the century in Germany, like food chain stores and specialized mail order houses, it was the department store or – more precisely – the chains of

3 Cf. *H. Homburg*, Warenhausunternehmen und ihre Gründer in Frankreich und Deutschland oder: eine diskrete Elite und mancherlei Mythen, in: Jahrbuch für Wirtschaftsgeschichte 1992/I, pp. 183-219.

4 Cf. *Chandler/Hikino*, p. 420.

5 The particular characteristics of the economies of scale and scope in distribution and the mass marketers' organization to exploit them are outlined in *Chandler/Hikino*, pp. 28-31 and 61.

department stores that were largely responsible for the 'second revolution in retailing' as well as the cultural and consumer revolution it triggered.

However, despite the dynamic growth after the 1890's, the number of department stores and their market share stayed rather modest for a long time. By 1928, roughly three decades after the first full-fledged department stores had been inaugurated in Germany, there were altogether 992,215 retail firms, and of these only 312 firms were classified as department stores. In the same year the taxable sales volume in retailing totaled 28,355 million marks, and the share of the 312 department stores amounted to 1,186 million marks or 4.2 per cent.[6] However modest the pace of change, the emergence of these mass retailers in Germany and their marketing and growth strategies provoked an intensive, mostly openly hostile debate, directed against their promotion of consumerism among lower income groups and the negative impact of the large firms' competition on the small shopkeeper. Moreover, the department stores were also attacked on moral and socio-political grounds. The small shopkeepers were presented (and presented themselves) as the healthy core and fundament of bourgeois society, honoring the good old standards of quality and honesty in the trades, while the large retailers were denigrated as ruthless profit hunters who employed disloyal commercial practices. The rather sophisticated pricing and marketing policies of large retailers were said to harm both the smaller competitors and the buyers. They seduced the ignorant lower-income consumer to spend his spare money on worthless items and neglect the less frivolous offerings of the small retailers. In the final analysis, department stores were thus – as their critics repeated endlessly – undermining not only the economic existence of the small shopkeepers but also the economic, social and moral foundation of the entire social order.

The attacks on big retailers became even more violent after the First World War. Anti-Semites and in particular the National Socialist German Workers' Party (NSDAP) mixed traditional socio-economic with racial arguments and incorporated into their political program a deadly battle against the department stores which in their view were the product of Jewish commercial ingenuity, aimed at destroying the "good" old German economic and social order. The great depression that hit Germany by 1930 stiffened competition among different types of retail firms and fuelled the shopkeepers' prejudice and resentment against the large mass retailers. The National Socialists' seizure of power in January 1933 opened new dimensions to this battle, as it was no longer limited to verbal attacks.

Once empowered, the Nazis did not hesitate to declare and practice an open war against the department stores. By means of well-organized boycotts and a broad range of legal provisions, they forced managers of Jewish origin to quit and deliberately endangered both the firms' survival and profitability. The so-called 'aryanization' of Jewish property and the expulsion of Germans of Jewish origin from their economic activities in Nazi Germany first hit the department stores. By March/April 1933, the pressure on the German department store chains and their branches had reached such an intensity and brutality that Jewish owners of department stores, shareholders sitting in the supervisory board, as well as Jewish top executives and middle and lower managers quit their post for the sake of the firm or were dismissed. The personal discrimination, violent blackmailing, and different forms of boycotts forced Jewish owners and shareholders of department stores to sell their property to non-Jewish banks or other institutional and/or non-institutional private buyers; this happened – given the depressed economic

6 Cf. Der Umsatz des Handels nach dem Ergebnis der Umsatzsteuerveranlagung 1928, in: Vierteljahrshefte zur Statistik des Deutschen Reichs 40, 1931/1, pp. 81-92, pp. 82-83.

situation and the general political context – in the overwhelming majority of cases under the most unfavorable conditions for the former owners.

The discriminatory practices of the Nazis that aimed at driving Jewish entrepreneurs out of business were directed against all department stores; they affected small-, middle-sized and large firms alike. Thus, by 1934, two to four years before the 'aryanization' hit industry and banking with full force[7], the three largest and oldest German department store companies, the firms of Leonhard Tietz, Hermann Tietz ('Hertie') and the Rudolph Karstadt AG were 'aryanized'[8]. The fact that since 1905 Leonhard Tietz was a joint-stock-company and Hermann Tietz was a general partnership made no difference to the Nazis. The founders' sons and other relatives who – notwithstanding the different legal forms – owned the majority of the shares and continued to actively manage the firms, were expelled from their former property rights and positions and forced into emigration.[9] In the third case, the Rudolph Karstadt AG which had been founded by Rudolph Karstadt and Theodor Althoff, neither of whom were Jews, the anti-Semitic discriminatory practices and 'aryanization' were limited to the Jewish share owners who sat in the firm's supervisory board, and Jewish members of the board of directors and other lower ranking managers of Jewish origin. Furthermore, in accord with a flood of legal provisions, the department stores were obliged to cut back their activities, reorganize shops and outlets and pay discriminatory, high taxes.[10]

However hard the Nazis tried, the wheel of history could not be turned back forever. Although with difficulties and under constraints, the largest German firms in mass retailing, the 'aryanized' chains of department stores survived Hitler's 'Third Reich'. Even during the war, the large firms' organizational efficiency in acquiring, storing and handling scarce consumer goods underlined their indispensability, and the battle against the department stores, motivated exclusively by ideological concerns, lost ground.[11]

In occupied postwar Germany, a society leveled by bombs and devastated by the war, the firms tried to resume business in those branches that had not been destroyed or in rented facilities. The new start, however, did not mark the beginning of an enduring future for all large retailers. In the Soviet-occupied Zone, the owners of department stores were expropriated. The firms were 'nationalized' in 1948 and merged with the two big, state-run trade-organizations

---

7 Cf. *P. Hayes*, Big Business and "Aryanization" in Germany, 1933-1939, in: Jahrbuch fuer Antisemitismusforschung 3, 1994, pp. 254-81, passim, and esp. p. 259 f. and 265-69.

8 Cf. *Homburg*, pp. 199-203; *R. Lenz*, Karstadt. Ein deutscher Warenhauskonzern 1920 - 1950, Stuttgart 1995, pp. 169-93 passim. See also below section II.

9 Though the pressure was enormous, not all owners or top managers of Jewish origin were able to choose this way. Some comitted suicide. Quite often, only the younger family members emigrated, the older stayed in Germany and became victims of the Shoah.

10 Cf. *H. Uhlig*, Die Warenhäuser im Dritten Reich, Cologne 1956 for a detailed account of these measures and their chronology.

11 Quite instructive in this regard is Lampe's lengthy report of 1936/1940 who as an expert was officially invited to discuss the present and future problems of domestic trades and the structures of retailing in particular, cf. *A. Lampe*, Zur Systematik der binnenhandelspolitischen Wirtschaftsprobleme: Gutachten im Auftrage des Reichsausschusses für wirtschaftlichen Vertrieb (RWV) beim Reichskuratorium fuer Wirtschaftlichkeit (RKW), MS xeroxed for internal use, Berlin: n.p., 1940, passim. See also the first monographs and handbooks on wholesale and retail trade that were published after 1945 and written by authors who were well-known experts in this field since the 1920's: *J. Tiburtius*, Lage und Leistungen des deutschen Handels in ihrer Bedeutung für die Gegenwart, Berlin 1949, p. 23 and 260 f.; *R. Seyffert*, Wirtschaftslehre des Handels, Cologne 1951 and *R. Nieschlag*, Die Gewerbefreiheit im Handel, Cologne 1953, pp. 46-50.

(Konsum and Handelsorganisation, = HO).[12] Integrated into the system of central planning, department stores continued to exist in the German Democratic Republic until German re-unification in 1990. However, except for the fact that scale and scope remained the decisive criteria of differentiation, they resembled their capitalistic, privately-owned counterpart only in one respect: both in east and west, department stores turned into a highly significant place of representation, as they were soon transformed into a display window for the competing economic and political systems. Indeed, it was in the department stores, in their display windows and premises that the performance of the communist or capitalistic system was most exposed to the general public.[13]

Table 1: Retail firms in Germany, classified by the volume of their sales, 1928-1988*[14]

Year	Total Number of Retail Firms	Total retail sales in million RM/DEM	Retail Firms with sales of 1 million RM/DEM and more			
			Firms	per cent	sales in million RM/DEM	per cent
1928	235,373	23,909	1,990	0.8	6,412	26.8
1937	210,200	17,870	1,200	0.6	4,820	27.0
1949	241,290	23,678	1,175	0.5	4,104	17.4
1955	398,391	50,938	3,788	0.9	16,958	33.3
1960	440,522	86,081	6,649	1.5	37,283	43.3
1970	382,482	169,916	18,083	4.7	100,054	58.9
1974	345,963	236,272	30,300	8.8	160,461	67.9
1980	367,505	375,832	53,649	14.6	287,276	76.4
1984	385,887	444,761	60,660	15.8	355,244	79.9
1988	396,674	537,813	71,637	18.1	446,983	83.1

RM = Reichsmarks, 1928 and 1937; DEM = German Marks, 1949 ff. 1928 and 1937: Territory of the German Reich; 1949-1988: Territory of the Federal Republic of Germany

* Sales tax statistics. Retail firms/retail sales. Included are only the so-called 'full firms' and their sales (Excluded are the so-called 'lesser firms' that did not reach a certain minimum annual return.) – The sales figures are not deflated. They represent retail sales in current prices.

12 Cf. *F. Poehler*, Der Untergang des privaten Einzelhandels in der sowjetischen Besatzungszone (Bonner Berichte aus Mittel- und Ostdeutschlad, ed. by Bundesministerium für gesamtdeutsche Fragen), Bonn 1952, passim; *H. Braunwarth*, Die führenden westdeutschen Warenhaus-Gesellschaften, ihre Entwicklung nach dem Kriege und ihre heutigen Probleme (Marktwirtschaft und Verbrauch, 4), Nuremberg 1957, pp. 22-25.

13 Cf. *E. Carter*, Alice in the Consumer Wonderland: West German Case Studies in Gender and Consumer Culture, in: *R.G. Moeller (ed.)*, West Germany under Construction: Politics, Society, and Culture in the Adenauer Era, Ann Arbor 1997, pp. 347-71 and *E. Carter*, How German Is She?: Postwar West German Reconstruction and the Consuming Woman, Ann Arbor 1997, pp. 109-70. See also *K. Pence*, Schaufenster des sozialistischen Konsums: Texte der ostdeutschen "consumer culture", in: *A. Luedtke (ed.)*, Akten, Eingaben, Schaufenster: die DDR und ihre Texte: Erkundungen zu Herrschaft und Alltag, Berlin 1997, pp. 91-118.

14 Cf. Der Umsatz des Handels nach dem Ergebnis der Umsatzsteuerveranlagung 1928 (1931), p. 82 f.; *R. Seyffert*, Wirtschaftslehre des Handels, Cologne 1951, p. 169/Table 63; *R. Seyffert*, Wirtschaftslehre des Handels, 3rd rev. edition, Cologne 1957, p. 218/Table 93; *B. Tietz*, Konsument und Einzelhandel: Strukturwandlungen in der Bundesrepublik Deutschland von 1950 bis 1975, Frankfurt a.M. 1966, p. 756/Table 233; *B. Tietz*, Einzelhandelsperspektiven für die Bundesrepublik Deutschland bis zum Jahre 2010 (Dynamik im Handel, 1), Frankfurt a.M. 1992, p. 197/Table 4.12.

In the three western zones of occupied Germany which were to form the Federal Republic of Germany in 1949, the total defeat of National Socialism, the national division of Germany and the integration of the FRG into the Atlantic alliance set free an 'economic miracle' under capitalistic auspices. Sustained high economic growth rates, the rapid absorption of the unemployed, the integration of millions of refugees and expellees, increasing wage incomes, the high propensity to consume after years of strains and scarcity, the need to replace worn-out clothes or to refurnish kitchens and apartments, the Americanization of West-Germany – all these circumstances combined to bring about optimal conditions for retailers and an unprecedented, long-lasting upturn in their sales. Newcomers, small, middle-sized and large firms, but also and in particular the oldest large mass retailers – the department stores – seized this opportunity. The general prosperity of the retail business helped to calm the smaller firms' resentment against the structural changes in retailing that now set it. Since the 1950's large firms became more and more prominent, and their share of the total retail sales increased markedly (see Table 1 above).

A few figures suffice to illuminate the trend. In 1928 and still sixty years later, only a minority of retail firms achieved annual sales of 1 million and more marks. However, both in absolute and relative terms, the number of firms entering into this level of sales and their part of the total retail sales increased markedly. From 1,990 firms or 0.8 per cent of the total in 1928, their number rose to 71,637 firms or 18 per cent of the total in 1988. Their share of the total sales grew accordingly. In 1928, their market share amounted to 27 per cent, by 1970, it had more than doubled (59 per cent), and in 1988, it exceeded four-fifths (83 per cent). Firms that made annual sales of 25 million marks and more contributed to this shift in a more and more noticeable way. Their share of total German retail sales amounted to 4.7 per cent in 1928. It more than doubled between 1960 and 1970 when it rose from 14 per cent to 29 per cent. In the following two decades the pace slowed down, although their share continued to increase. The firms entering into this category (25 million marks and more) accounted for roughly a third (34.5 per cent) of the total retail sales in 1975, their share was 37 per cent in 1980, 41 per cent in 1984, and 44.5 per cent in 1988.[15]

The booming consumer market explained the increasing significance of large department store chains. As only a few of them were joint-stock companies that were obliged to publish annual reports, the pace of growth can only be traced for this – qualified – minority. The two largest German firms, the Rudolph Karstadt AG whose name was shortened to Karstadt AG in 1963, and the former Leonhard Tietz AG whose name was changed to Westdeutsche Kaufhof AG in 1933 (following its 'aryanization') and later, in 1953, into Kaufhof AG belonged to this minority. And it was in particular due to the dynamic growth and extraordinary profits of these two giant retail firms that for two decades, from the 1950's to the early 1970's, the German department stores figured prominently in the top group of joint-stock companies, paying the highest dividends in Germany[16] (see Table 2).

---

15 The absolute numbers of firms (f) and their sales in million marks (s) developed as follows: 1929: 19 f - 1,134 s, 1960: 13 f - 12,031 s, 1974: 469 f - 81,405 s, 1980: 862 f - 138,293 s, 1984: 1,091 f - 183,295 s, 1988: 1,445 f - 239,142 s. Sources as above in Table 1.

16 Cf. *Wirtschaft und Statistik*, n. s. 11 (1959), pp. 427-29; 13 (1961), pp. 450-52 and *458; 14 (1962), p. *431; 20 (1968), p. *479; 23 (1971), p. *497; 24 (1972), p. *511; 26 (1974), p. *541; 27 (1975), p. *553.

Table 2: Karstadt AG and Kaufhof AG, 1925 to 1989: Retail-Turnover (in million marks), Retail outlets, Employees, Share capital (in million marks), Dividends (in per cent)*

KARSTADT AG						KAUFHOF AG				
Financial Year	Turnover (millions)	Retail outlets	Emplo-yees	Capital (millions)	Dividend	Turnover (millions)	Retail outlets	Emplo-yees	Capital (millions)	Dividend
	RM			RM		RM			RM	
1925		53	11,255	31.0	5.0%			7,500	25.2	6.0%
1926	174.7				10.0%				29.7	6.0%
1927	260.9				12.0%			9,500	31.2	10.0%
1928	296.8	76	30,000	70.0	12.0%	157.5	38	12,000	37.2	10.0%
1929	327.8			76.8	12.0%	190.0		13,700		10.0%
1930	310.6			80.0	0	205.6		15,000		8.0%
1931	247.2			55.0	0	178.6		14,752	31.2	6.0%
1932	207.2		21,000	55.0	0	147.0		14,200	31.2	0
1933	186.5			28.8	0	105.3		12,600	31.2	0
1934	209.6	70		28.8	0	109.4	32?	12,200	29.7	0
1935	213.1			28.8	0	101.7	38	10,334	29.7	0
1936	233.7		20,100	28.8	4.5%	109.4	38	10,355	29.7	0
1937	258.0		20,800	36.0	5.5%	127.0		10,518	27.0	5.0%
1938	282.5		21,000		6.5%	140.7	38	10,294		6.0%
1939	299.6				6.5%	145.0		10,367		6.0%
1941/42				60.0	3.9%				37.8	4.5%
	DEM			DEM		DEM			DEM	
1948			6,697	60.0	0				37.8	0
1949	228.0		8,717	60.0	0	157.9	31	5,004	37.8	4.0%
1950	354.0	43	12,333	60.0	5.0%	250.7	33	7,735	37.8	4.0%
1951	453.0	44	14,277	60.0	6.0%	352.7	33	9,983	37.8	5.0%
1952	500.0	45	16,565	60.0	7.0%	393.2	35	10,790	37.8	6.0%
1953	577.0		18,062	60.0	8.5%	485.4	35	11,903	37.8	8.0%
1954	660.0		20,862	60.0	9.5%	567.6		13,693	37.8	9.0%
1955	775.0	46	22,680	72.0	10.0%	658.6	35	15,872	60.0	10.0%
1960	1,812.0		37,369	160.0	16.0%	1,212.2	41	26,170	150.0	16.0%
1965	3,126.7	54	45,194	225.0	17.0%	1,949.6	59	34,186	270.0	15.0%
1970	4,551.0	130	64,300	270.0	20.0%	4,059.7	137	56,500	270.0	20.0%
1975	7,717.6	173	68,500	360.0	20.0%	6,685.7	171	57,100	300.0	20.0%
1980	9,611.0	157	74,877	360.0	16.0%	8,654.7	203	57,300	330.0	12.0%
1985	†8,977.0	†162	†60,751	360.0	14.0%	8,502.0	200	42,800	330.0	14.0%
1989	†10,497.0	†155	†59,105	360.0	20.0%	13,017.0	539	44,800	396.0	17.0%

RM = Reichsmarks, DEM = German Marks

* *Karstadt AG* = Rudolph Karstadt AG 1920-1962, *Kaufhof AG* = Leonhard Tietz AG 1905-1933, Westdeutsche Kaufhof AG 1933-1953. *Financial Year*: Tietz: 1925 to 1927 = calendar year; 1928 to 1935 = 1 Feb. - 31 Jan. of the following year; 1936 = 1 Feb. - 31 Dec., 1937 ff. = calendar year; Karstadt: 1920 to 1935 = 1 Feb. - 31 Jan. of the following year, 1936 = 1 Feb. to 31 Dec., 1937 ff. = calendar year.

† Karstadt 1985 and 1990: the figures represent only the retail sales, outlets and employees of the 'department store'-division, the total turnover was 11,980 mio. DEM in 1985, and 16,770 mio. DEM in 1990.

Source: 1925: cf. Handbuch der deutschen Aktien-Gesellschaften, edition 1926, p. 3860-63 and p. 5393-94; 1926 to 1934: cf. Handbuch der deutschen Aktiengesellschaften, edition 1935, p. 8289-98 and p. 8713-20. Turnover = 'Retail sales' (the sales of the variety-store chains Epa/Karstadt and Ehape/Kaufhof are not included). For 1928 cf. also Handbuch der Deutschen Aktien-Gesellschaften, edition 1929, p. 3708-12 and p. 3717-18; 1935-1941/42: Annual Reports (Karstadt) and newspaper clippings (Kaufhof). - 1941/42: Karstadt = 1941, Kaufhof = 1942; 1948-1989: 'Annual Reports' of Karstadt AG and Kaufhof AG. See also *Braunwarth*, p. 81 and p. 134, fn. 79 for 1939 and for Karstadt's turnover between 1949-1955.

The period of unparalleled expansion and profits in the department stores' history came to an end in the mid-1970's with the emergence of new forms of mass retailing. They confronted growing competition from the food and non-food discount stores, self service discount department stores, supermarkets specializing in one line of products (food, home appliances, furniture, gardening, sport wear), and shopping centers.[17]

These newcomers opened their businesses first in the city center, but eventually they moved to the outskirts and even beyond, where they constructed huge shopping malls on cheaper ground. The new mass retailers now became the fiercest and indeed most successful competitors of department stores that were mostly located in the busiest parts of the city center. The post-war economic prosperity of the 1950's and 1960's, inconceivable before the war, had drastically altered consumption patterns; the new mobility of a thoroughly motorized society now changed shopping habits and redefined the conventional wisdom about the best location for a retail store. Before motorization, a store's location in the city center had been considered an asset due to the proximity to urban housing, easy access by means of public transportation, and the concentration of a broad variety of stores that attracted consumers as it permitted rapid information, comparison and choice. Obviously, the new mass retailers, who opted for a site outside the city, did not pay heed to this sort of convenience, but they competed for clients by launching a price battle. The consumer accepted the new types of retail businesses and flocked to them in spite of the fact that the discount stores and supermarkets offered little service and forced the eager shopper to drive several miles in order to benefit from their competitive prices. The attractiveness of this new brand of retailers put pressure on the department stores to cut costs and to rationalize. It reminded these large-scale retailers, once the most dynamic, that a strong competitive position lasted only as long as there was not an even stronger, more innovative competitor who promised to better serve the consumer's need, even if these promises were not always fulfilled.

II. Turning Points

This brief outline makes it possible to identify three turning points in the short history of German department stores – 1933/34, 1945/48 and the 1970's. In each case, the turning point requires a different explanatory framework. Seen together, these turning points raise a broad range of questions. 1) Who was responsible for the firms' strategic decision-making process in the years before and after these turning points? Who qualified for a top-ranking position in a large retail firm? Is there any pattern of qualification, if one studies the recruitment of top executives in retailing over a longer period of time? 2) Under Nazi rule, the return to profits and growth after the end of the depression was hampered because of an adverse political setting that massively interfered in the firms' management. The firms regained a full, autonomous scope of action only in the Federal Republic of Germany after 1949. How did the firms seize the new opportunities in a prosperous economy? What strategies did they deploy in order to advance reconstruction and growth after 1945/48? And how did they try to cope with the new challenges of the 1970's? What strategies did they develop in order to maintain their market share when

17 Cf. *J.R. Lowry*, The Retailing Revolution Revisited (Ball State Monograph, 16. Publications in Business, 1), Muncie/Indiana 1969, passim *B. Tietz*, Konsument und Einzelhandel. Strukturwandlungen in der Bundesrepublik Deutschland von 1950 bis 1975, Frankfurt a.M. 1966, p. 483 f.; *B. Tietz*, Konsument und Einzelhandel. Strukturwandlungen in der Bundesrepublik Deutschland von 1970 bis 1995, 3rd rev. edition, Frankfurt a.M. 1983, p. 786, and *B. Tietz*, Einzelhandelsperspektiven für die Bundesrepublik Deutschland bis zum Jahre 2010 (Dynamik im Handel, 1), Frankfurt a.M. 1992, p. 284.

competition grew stiffer with the rise of new mass retailers? 3) Did the firms' organizational structure undergo noticeable changes in the course of time? Did changes in structure reflect the firm's strategic options for growth? How did the firm's structure and strategy define the scope of managerial hierarchies? How many managerial levels existed? Was the managerial hierarchy leveled-out or broadened over time? How well did the intra-institutional decision-making process function, and – if inadequacies were discovered – how did firms cope with them?

In the following I shall try to offer at least some tentative answers to these questions based on a case study of Karstadt AG and Kaufhof AG. These two firms have asserted themselves not only as the most successful and long-standing chains of department stores in Germany[18]; they also rank among the top fifty of the hundred largest German enterprises since the 1970's.[19] The tentative character of the following account reflects the difficulties in knowing what is going on inside a company. Neither company possesses rich, well-ordered historical archives, nor are they willing to give outsiders access to their collections. Thus the historian has to rely upon rather scattered printed material such as the companies' annual reports, newspaper clippings, and relevant articles in economic journals. This combination of factors makes it particularly frustrating to seek more precise information about the firms' strategic decisions and the ways in which those decisions were made. In the final analysis, the available material suggests that the economic results, performance and profits were far more significant than the means or the men that helped to achieve them.

From the entrepreneurial to the managerial firm. Top-level Executives: Careers, Recruitment Patterns, Responsibilities and Functions

The founders of the German chains of department stores that became Germany's most impressive and largest retail businesses were entrepreneurs. They shared the vision of revolutionizing traditional retail practices and implemented it by means of organizational innovations. The founders themselves made the strategic decision to foster their firms' growth by opening new branches in order to exploit the economies of scale, scope, and transaction costs. The firms' success and the continued search for further expansion, however, made it essential to go public, allowing for a more formalized, bureaucratic form of corporate governance. It was the founders themselves, Leonhard Tietz, and Rudolph Karstadt together with Theodor Althoff, who decided to convert their firms into joint-stock companies respectively in 1905 and 1920. This legal form seemed better suited for raising the additional funds that they needed to finance the firm's

18 Two additional large department store companies existed in Germany until 1994. The Hertie GmbH (limited liability company) - before its 'aryanization' in 1933/34 the firm and its department stores had been known as 'Hermann Tietz' - merged with Karstadt by 1 January 1994. The Horten company - first a personal firm, than a limitied liability company, and since 1968 a joint-stock company - had been founded by Helmut Horten in 1936 following the 'aryanization' of a group of smaller department store chains in Duisburg and Duesseldorf. It merged with Kaufhof in 1994.

19 Cf. *Monopolkommission*, Hauptgutachten 1994/1995: Wettbewerbspolitik in Zeiten des Umbruchs (Hauptgutachten der Monopolkommission, 11 - The 11th Biennial Report by the Monopolies Commission), 2 vols., Baden-Baden 1996, supplement, 347-50/Table III.1. The table lists the 100 largest German firms (according to turnover) between 1972 and 1994 covering all economic sectors. Karstadt ranked 30th in 1972, 32nd in 1982, 26th in 1992, and 23rd in 1994; Kaufhof ranked 35th in 1972, 44th in 1982, 27th in 1992 and 26th in 1994. See also ibid., main vol., 241-44/Table III.6: The hundred largest companies according to the criterion of the domestic value added. In this list, Karstadt ranked 23rd in 1992 and 20th in 1994; Kaufhof ranked 29th in 1992 and 28th in 1994.

further expansion.[20] Although it was more obvious in the case of the Leonhard Tietz AG than in the case of the Rudolph Karstadt AG, the new legal form did not mean an immediate transformation from a private into a managerial enterprise, but only the transition to an intermediate type, the entrepreneurial enterprise. In this structure, the firms' founders and members of their families combined the new function of shareholders with the function of the firm's chief executive officer and senior managers.

Notwithstanding this particular continuity, the new legal form of a joint-stock company defined the ranks of the top management in a new way. As is well known, the German regulation of joint-stock companies differs from the practice in the US and other countries. In contrast to the American one-board system, the German law prescribes a two-board system. The law prescribes the establishment of a supervisory board (*Aufsichtsrat*) and a board of directors (*Vorstand*), and it defines the differing functions of the two boards in general clauses.[21] Recent comparative research has, however, underlined that – regardless of the different legal framework – the actual similarities between the two systems are more pronounced than the formal dissimilarities. According to the German law, the supervisory board's main tasks consist of hiring or recruiting the firm's officers (inside directors) and controlling the firm's management. These tasks – it is argued – logically include the board's participation in the firm's strategic decisions. Although the inside directors (board of directors) are legally made responsible for the management of the firm, the members of the supervisory board, who in view of their recruitment and function represent the equivalent of the outside directors in American companies, actually do participate in the firm's strategic decision-making process. They thus perform a managerial function and consequently form part of the firm's top management.[22]

In line with this argumentation, I defined Karstadt's and Kaufhof's top management for the purpose of this study as follows: It includes all those persons who were sitting on the boards of each firm. For more information about this top group, I analysed the composition of both the supervisory board and the board of directors.[23] Let me briefly present the main findings of this

---

20 Cf. *A.L. Tietz*, Der Warenhauskonzern Leonhard Tietz A.-G., in: Ausschuss zur Untersuchung der Erzeugungs- und Absatzbedingungen der deutschen Wirtschaft, Verhandlungen und Berichte des Unterausschusses für allgemeine Wirtschaftsstruktur: Arbeitsgruppe 3: Wandlungen in den wirtschaftlichen Organisationsformen, part I, Berlin 1928, pp. 459-68, esp. pp. 459-61. The referee Alfred Leonhard Tietz was the founder's son and the firm's president since 1914; *Lenz*, pp. 55-57.

21 See *A. Knur*, Aktiengesellschaft, in: Staatslexikon, 6th edition, 1, Freiburg 1957, pp. 190-218 for a concise outline of the German company law, its provisions and history. For a more detailed comparative discussion see *E.J. Mestmaecker*, Verwaltung, Konzerngewalt und Rechte der Aktionäre, Karlsruhe 1958 and *R. Wiethoelter*, Interessen und Organisation der Aktiengesellschaft im amerikanischen und deutschen Recht, Karlsruhe 1961.

22 Cf. *S.C. Cassier*, Wer bestimmt die Geschäftspolitik der Großunternehmen: Das Verhältnis zwischen Kapitaleigentum und Entscheidungsgewalt, Frankfurt a.M. 1962; *E. Gutenberg*, Funktionswandel des Aufsichtsrats, in: Zeitschrift für Betriebswirtschaft 40, 1970, suppl., December 1970, pp. E 1 - E 9.; *K. Bleicher*, Konvergieren europäische und amerikanische Führungsstrukturen der Unternehmungsspitze?, in: Zeitschrift für Organsation 50, 1981, pp. 66-74; *G. Schreyoegg*, Der Aufsichtsrat als Steuerungsinstrument des Vorstands - die Verwaltung der Aktiengesellschaft im Lichte der neueren Managementlehre, in: Die Aktiengesellschaft 28, 1983, pp. 278-83.

23 The sources for this study are: the Annual Reports of the two companies, pertinent documents and newspaper articles in the Paper Clippings Collection of the Schweizerisches Wirtschaftsarchiv Basel (in the following quoted PCC SWA); Handbuch der deutschen Aktien-Gesellschaften, editions of 1921/22, 1926, 1929, 1935, 1939, Berlin and Leipzig 1922 ff.; *G. Wenzel*, Deutscher Wirtschaftsführer: Lebensgänge deutscher Wirtschaftspersönlichkeiten; Hamburg 1929; Wer leitet? Die Männer der Wirtschaft ... einschliesslich Adressbuch der Direktoren und Aufsichtsräte, editions 1 (1940); 2 (1941/42); Leitende Männer der Wirtschaft und der zugehörigen Verwaltung 3 (1951); 4 (1953); continued as: Leitende Männer der Wirtschaft 5 (1955) – 26 (1978); continued as: Leitende Männer und

exercise in the form of a collective biography to illustrate the personnel continuity of the two firms' top management and the recruitment and qualifications of the top-level executives in order to illuminate each firm's strategic decisions (see Table 3 below).

The table illustrates the fatal impact of the Nazi seizure of power on the department stores. Without any doubt, the drastic measures instituted by the Nazis resulted in the discontinuity in both firms' top management after 1933. Upon closer examination, the fate of the two firms was not identical. These differences reflected not only their past but apparently influenced their future too.

At the Leonhard Tietz AG, only one long-time member of the supervisory board, Dr Walter Seidel, a director of the Dresdner Bank who had joined in 1920, continued to sit on the board until 1942. Among those in the firm's former top management, no one else was permitted to continue to serve on one of the boards. Alfred Leonhard Tietz, the founder's son and the firm's president and chief executive officer in 1933, first hoped to maintain at least some influence on the course of events by resigning the leadership to others and continuing work as an "ordinary" member of the supervisory board. By early 1934, he realized that this was impossible. After a series of threats, violent attacks against himself and members of the family, burglaries and other acts of vandalism, he gave up. He left Cologne and Germany and immigrated together with his family to the Netherlands.[24]

In Karstadt's case the violation of 1933 was less pronounced. But this was mainly due to the fact that Karstadt's top management had already been thoroughly replaced in 1931 when the firm's economic survival was at stake. Without any doubt, the Rudolph Karstadt AG was the most dynamic of all the large department store companies in Germany in the 1920's. Its partly speculative expansion proved to be almost fatal with the onset of the economic depression. By 1931, the firm's losses were so enormous that it became dependent on external rescue and credit arrangements.[25] The banks (Commerz Bank, Dresdner Bank, M.M. Warburg & Co etc.) now gained full control over the company. Under their influence the supervisory board "purged" the old board of directors. It first dismissed seven of the firm's senior officers between 1931 and 1932 (one of them was Rudolph Karstadt himself who entered instead into the supervisory board). Only four directors were invited to continue their work, although two of them remained for only a short period of time. By 1933, they were fired because they were Jews. At the same time the supervisors recruited new members for the board of directors. Only one of those six newly hired managers who were put in place in 1931/32 to restore the firm to profitability were granted the time necessary to act; three were dismissed by 1932, and two others were forced to quit because of their Jewish origin in spring 1933. Thus by the spring of 1933, only three "elder" managers were left. Two of them, Dr Friedrich Schmitz (the son-in-law) and

---

Frauen der Wirtschaft 27 (1979) ff.; Who's who in Germany, editions 1 (1956) ff.; Degeners Wer ist's (1951 continued as Wer ist's: Der deutsche Who is who), Berlin, editions 9 (1928); 10 (1935); 11 (1951); 12 (1955); 14 (1962); 17 (1973); 20 (1979); 24 (1985); 28 (1989); 29 (1990).

24 Cf. the accounts of Albert U. Tietz, a son, and of Margaret Tietz, the wife of Alfred Leonhard Tietz, in: *H.A. Strauss (ed.)*, Jewish Emmigrants of the Nazi Period in the USA, 5, New York 1986, pp. 34-47, and pp. 289-295; see also the autobiography of a distant relative of A.L. Tietz and a member of the Firm's board of directors from 1922 to early 1934: *Julian Castle Stanford, ehemals Julius Schloss*, Tagebuch eines Deutschen im Untergrund, edited by the Deutsch-israelische Gesellschaft, Darmstadt 1980. - After Germany had attacked and occupied the Netherlands, the family managed to emigrate to Palestine under enormous diffculties. A.L. Tietz died there in 1941, Margaret Tietz and some of their children emigrated from Palestine to the US in 1947.

25 Cf. the obituary-like article: Das Ende eines Warenhaus-Konzerns, in: Neue Zürcher Zeitung, 18 August 1932, PCC SWA.

Heinz Althoff (a son) were relatives of Theodor Althoff, the co-founder of the Rudolph Karstadt AG, who sat on the company's board of directors until his death in 1931. The third, Dr Clemens Plassmann, was a banker, delegated to the board of directors by the controlling banks in 1932.

Table 3: Kaufhof AG - Karstadt AG: Composition and Change of the Supervisory Board* and the Board of Directors according to the respective members' period of entry, 1933 - 1995/96

a) Kaufhof AG (S = Supervisory Board, D = Board of Directors)†

Period of Entry	New Entries		Number of the period's entries (managers) who were still sitting on the respective board in:																					
			1945		1950		1955		1960		1965		1970		1975		1980		1985		1990		1995	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
pre 1933																								
1933-1944	12	7	4	5	3	1	1	1																
1945-1949	4	3	1	1	3	2	2	2	1	1	1	1												
1950-1959	10	2			0	1	5	1	7	1	7	0	2		2									
1960-1969	5	8							0	4	1	5	5	5	4	5	2	2	1					
1970-1979	8	4											1	0	2	2	8	4	4	2	3	2		
1980-1989	7	5															0	0	5	3	7	4	6	2
1990-1996		7																			.	2	.	5
Total			5	6	6	4	8	4	8	6	9	6	8	5	8	7	10	6	10	5	10	8		7

b) Karstadt AG (S = Supervisory Board, D = Board of Directors)†

Period of Entry	New Entries		Number of the period's entries (managers) who were still sitting on the respective board in:																					
			1945		1950		1955		1960		1965		1970		1975		1980		1985		1990		1995	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
pre 1933			3	2	1	2	1	1		1														
1933-1944	12	3	7	2	5	2	2	2	2	1	1	1												
1945-1949	7	1	2	0	5	1	2	1	2	1	1	1	1		1		1							
1950-1959	4	2			0	1	4	2	4	1	2	1	1	1	1	1	0							
1960-1969	10	5							1	0	5	5	7	5	4	4	2	3	1	3		3		1
1970-1979	8	4											1	0	4	4	7	4	4	4	2	3		0
1980-1989	7	1															0	0	5	0	7	1	4	0
1990-1995	7	5																			1	1	6	5
Total			12	4	11	6	9	6	9	4	9	8	10	6	10	9	10	7	10	7	10	8	10	6

* Included are only the members representing shareholders or capital. Not included in this survey are labor's representatives who were sitting on the supervisory board according to the German industrial relations law of October 1952 (amended in 1976). The law covered worker participation and representation.

† A '0' in the period of entry means that the person had not yet entered at the year indicated in the columns, two times '0' in the period of entry thus indicates that the person entered only at the end of the pertinent decade. The entries in the board of directors include those managers who were first recruited as deputy members before they were appointed full members in the following year.

Source: Annual reports, biographic dictionaries, and newspaper clippings, see above fn. 23.

The economic and racialist politics pursued by Nazi Germany, the boycott of the department stores, and the 'purge' and 'aryanization' forced through by the Nazis not only cut German

Jewish entrepreneurs from their life's work and caused utter despair for them and their families. In addition it implied an enormous waste of human capital. An exact account of the short- and long-term (literal and figurative) costs involved is impossible. However, even without a highly sophisticated counterfactual historiography, we can draw some tentative conclusions. Both firms, the Rudolph Karstadt AG and the Leonhard Tietz AG, were transformed from entrepreneurial to managerial firms by the events of the early 1930's. Although many aspects of this process were comparable, the outcome was by no means identical.

In the case of the Karstadt AG, the transition was at first brought about by the firm's deep economic crisis and grave mismanagement that became evident in 1930/1931. In the case of the Leonhard Tietz AG, comparable economic or managerial deficiencies did not exist. On the contrary. It was solely the politically motivated expulsion of its top management from their posts as members of the supervisory board and the board of directors that transformed an entrepreneurial firm into a managerial firm in 1933/34. As in Karstadt's case, this also implied the conversion of ownership. Since the Leonhard Tietz company had gone public in 1905, the members of the Tietz family owned the majority of the company's shares. After they had been forced to leave their positions in the firm, the top-ranking German banks – the Dresdner Bank, the Commerz Bank and (to a lesser extent) the Deutsche Bank – gained control. The rapid change in the firm's name into the depersonalized Westdeutsche Kaufhof AG in 1933, a name that no longer memorialized the founder and his successors but merely reflected the firm's economic function (literally translated, Kaufhof means a merchant's warehouse) powerfully symbolized the change. The discontinuity in its top management and internal form, externally forced upon the firm, not only implied a series of grave organizational and managerial challenges. In addition, it demolished the firm's tradition, thus destroying its corporate culture, an asset that was difficult to replace. A comparable fate was not inflicted on the Rudolph Karstadt AG, but this different treatment was not due to the firm's differing managerial or economic performance but to the arbitrariness of National Socialists' racialism.

The differing degree of discontinuity in management and corporate traditions in the early 1930's also affected the firms' performance in the long run. In the first decades after the war, the fluctuation in personnel sitting on Kaufhof's board of directors would be markedly higher than in Karstadt's case (see Table 3 above).

With respect to the qualification of those officers who stepped in beginning in the early 1930's, I shall focus on top management's most prominent figures: the chairmen and vice-chairmen of the supervisory board and the members of the board of directors between the early 1930's and 1995. The survey encompasses 28 persons who were acting as chairman or vice-chairman of the supervisory board of Karstadt or Kaufhof[26] and altogether 57 managers who were recruited after 1933 and were sitting on the board of directors of Karstadt or Kaufhof over the period between the early 1930's and 1995.

Let me first turn to the chairmen and vice-chairmen of the respective firm's supervisory board. The available information makes it possible to identify the following pattern. The banks gaining control over Karstadt's fate in 1931/32 called upon Hermann B. Fellinger to step in as president and chairman of the firm's supervisory board. He held this post from 1932 to 1957.

---

26 The Codetermination Law of 1976 strengthened labor's position on the supervisory board. Since 1978/79 the board's vice-president (or at least one of its two vice-presidents) was elected by the representatives of the employees and trade unions who according to the German law were sitting on the board. Labor's vice-presidents are not included in this survey.

Apart from his function as a trustee of the banks' interests[27], there is nothing in Fellinger's previous career that suggests that he was particularly qualified for this position. Until his entry into the department store's supervisory board, he had been a senior manager in the construction materials industries, most recently as president of the Stettiner Chamottefabrik AG previously Didier in Berlin, a firm that produced bricks, other sorts of building stones, and ceramics. Fellinger's counterpart at Kaufhof, Abraham Frowein was asked by Alfred Leonhard Tietz to step in and preside over Kaufhof's supervisory board. Frowein remained in that position until 1957. He seemed better prepared for the task; he was the co-owner of an established firm in Elberfeld (Rhineland) that produced ribbons, bands, braids, and laces. As a supplier of the Leonhard Tietz AG, Frowein had a long-standing friendly relationship with the department store company and its owners. Furthermore, textiles and accessories were a main field of both firms' activities; no less than 50 to 60 per cent of the department stores' retail sales at that time were in this line of commodities. While these two men were in charge, the vice-president of the supervisory board was a banker representing the most important shareholder. After death had put an end to Fellinger's and Frowein's extensive terms as chairmen of Karstadt's and Kaufhof's supervisory boards respectively, the banks' dominance became even more apparent. In the case of Karstadt, as a rule it was top managers of the Commerz Bank and the Deutsche Bank who were in charge as the president, often also as the vice-president of the firm's supervisory board. The same rule applied to the Kaufhof AG, only in this case, it was senior officers of the Commerz Bank and the Dresdner Bank who took turns in the leading posts.

This pattern, however, came to an end in 1980 when the two banks decided to sell the majority of their respective shares, representing more than fifty per cent of Kaufhof's nominal share capital. The most important shareholder was then an internationally operating wholesaler, the Metro International AG. Although the company's international division was located for the sake of fiscal advantages in Zug/Switzerland, its main operating divisions – headed by the Metro Vermögensverwaltungsgesellschaft (a limited liability company) in Duesseldorf – were located in Germany. The 'Metro' had entered the market only recently. It originated in Germany in the early 1970's. Its extraordinary success promoted it rapidly to the ranks of "sales giants", and its prosperity was based upon the cash-and-carry wholesale markets that the company had founded first in Germany and later in other European countries.[28] Although the Metro held only 24.7 per cent of Kaufhof's nominal share capital at first – another package of 26.3 per cent was bought by the Swiss Bank Corporation – it was evident that it was not the bank but the Metro corporation, which initiated the transaction. The wholesalers wanted to diversify into retailing and – assisted by the Swiss Bank Corporation – they actually gained control over the future fate of the Kaufhof AG. Thus, 101 years after the company's first shop had been opened by Leonhard Tietz and 47 years after the inroads of the Nazis into the firm, a new chapter in its history began. The shift was most apparent in the new composition of the firm's supervisory board. In 1981, Erwin Conradi, a senior manager of the Metro International, stepped in as president. He was joined by a representative of the Swiss Bank Corporation in the same year and two years later in 1983 by a second representative of the Metro International, Joern Dieter Roesch.

---

27 Cf. Berliner Börsen Courier, 18 May 1932, PCC SWA.

28 Cf. *J.J. Jeske*, Not und Tugend. Anmerkungen zur Kaufhof-Transaktion, in: Frankfurter Allgemeine Zeitung, 15 Dec. 1980; Die Metro-Beteiligung an Kaufhof. Der Riese im Aufsichtsrat des Warenhauses, in: Neue Zürcher Zeitung, 15 July 1981; Nur im absolut legalen Rahmen, in: Schweizer Handelszeitung, Zuerich, 13 Aug. 1981; Metro - Kaufhof: Nachfragemacht, in: Basler Zeitung, 1 Sept. 1981; Grosse Pläne. Kölner Warenhaus auf Diversifikationskurs, in: Finanz und Wirtschaft, Zuerich, 29 June 1985, PCC SWA.

Once again, Karstadt moved along a smoother path. Up to the present, it has experienced no large sale of shares. By 1997, however, a new major shareholder appeared. In this year, Germany's most successful and largest mail order house, the Schickedanz/Quelle Group bought a package that amounted to 20.3 per cent of Karstadt's nominal share capital. But in sharp contrast to management's quite skeptical attitude toward the new wholesaling majority shareholder that had gained control over Kaufhof in 1980, Karstadt's senior officers all united to welcome the mail order house's involvement. They did not hesitate to praise publicly the new opportunities for the company's future development presented by this strategic alliance.[29]

The involvement of the largest German credit banks in the two companies' top management might have contributed to growth and rationalization. This is the contention of recent studies that analyse interlocking directorates and the impact of the prominent role of financial institutions in the network of economic power and influence.[30] Consistent with these findings, it can be argued that the banks' direct involvement benefited both the department stores and the banks. On the one hand, it reduced the department stores' transaction costs in acquiring information about capital and finance markets, and it eased their access to credit. On the other hand, the banks gained more direct information about the department stores' credit-worthiness. Finally, the improved transparency of the retailers' business activities, their profits and prospects, might have developed a positive impact on the department stores' growth, because their expansion was facilitated thanks to lowered transaction costs for both partners.[31]

Whatever the possible (beneficial or detrimental) impact of the banks' involvement, auditing and financing the department stores' operation and growth was only one managerial task, even though it was a particularly important one. However, auditing and financing had to be complemented by the firms' strategic and operative management. As a rule, the first set of tasks constituted the realm of the supervisory board, while the latter task was incumbent on the board of directors. Entrepreneurship or intrapreneurship, the vision of the firm's future, its translation into strategic goals, a supportive structure, and devices to foster and control its implementation were vested thus more in this body of top managers than in the other group, the members of the supervisory board, who represented the interests of the shareowners.

To be sure, the legally prescribed division of labour between the two boards was flexible enough to allow for exceptions to the rule. If the most influential shareholder sitting on the supervisory board assumed its presidency and possessed the professional background and/or

---

29 Cf. Neue Zürcher Zeitung, 13 Aug. 1997, PCC SWA.

30 Cf. *D. Schoenwitz/H.-J. Weber*, Personelle Verflechtungen zwischen Unternehmen: Eine wettbewerbspolitische Analyse, in: Zeitschrift für die gesamte Staatswissenschaft 136, 1980, pp. 98-112; *O.H. Poensgen*, Between Market and Hierarchy - The Role of Interlocking Directorates, in: Zeitschrift für die gesamte Staatswissenschaft 136, 1980, pp. 209-25; *W. Eckstein*, The Role of the Banks in Corporate Concentration in West Germany, in: Zeitschrift für die gesamte Staatswissenschaft 136, 1980, pp. 465-482; *M.S. Mizruchi*, The American Corporate Network 1904-1974, Beverly Hills 1982; *H. Albach/H.-P. Kless*, Personelle Verflechtungen bei deutschen Industrieaktiengesellschaften, in: Zeitschrift für Betriebswirtschaft 52, 1982, pp. 959-77; *R. Ziegler*, Das Netz der Personen- und Kapitalverflechtungen deutscher und österreichischer Wirtschaftsunternehmen, in: Kölner Zeitschrift für Soziologie und Sozialpsychologie 36, 1984, pp. 585-614. *R. Ziegler et. al.*, Industry and Banking in the German Corporate Network, in: *F.N. Stokman et al. (eds.)*, Networks of Corporate Power: A Comparative Analysis of Ten Countries, Cambridge 1985, pp. 91-111; *F.U. Pappi et al.*, Die Struktur der Unternehmensverflechtungen in der Bundesrepublik Deutschland, in: Kölner Zeitschrift für Soziologie und Sozialpsychologie 39, 1987, pp. 693-717; *R. Tilly*, Zur Entwicklung der deutschen Grossbanken als Universalbanken im 19. und 20. Jahrhundert: Wachstumsmotor oder Machtkartell, in: *S. Pollard/D. Ziegler (eds.)*, Markt, Staat, Planung, St. Katharinen 1992, pp. 128-56.

31 Cf. *Tilly*.

well-defined interests to implement his vision of the firm's future and shape the firm's strategic decisions and structure, nothing could prevent him from interfering and curbing the board of directors. A case in point was Erwin Conradi, the senior manager of the Metro International, Kaufhof's new majority shareholder, who stepped in as president of Kaufhof's supervisory board in 1981 and took the reins. Admittedly, Conradi's exceptional position and entrepreneurship had a decisive impact on Kaufhof's strategic decisions and the pace of their implementation.[32] However, the exception proves the rule. For the most part, entrepreneurship in large corporations was delegated to hired managers and not reserved for the capital owner. Whom did the supervisory board recruit for this task? Who were the men who stepped in as "inside directors"?

In the case of Kaufhof, some 36 men were charged by the supervisory board with the task of managing the firm between 1933 and 1996. At Karstadt, 21 men were selected to the same jobs. The process of their recruitment was quite similar in both companies, although with a few, perhaps decisive differences. Until the late 1970's, the overwhelming majority of the new appointees were recruited for this office after years of service inside the company. Quite often this was the last step of an exceptional career path that began with their entry as an apprentice sales clerk and progressed through different lower, middle and higher ranking managerial positions, leading finally to the top. Kaufhof's tendency to rely upon insiders for this office was even more pronounced than Karstadt's. Only two of the 24 managers who were appointed members of the board of directors between 1933 and 1979 were recruited from the outside. The first of them, Gottfried Nagel, who was asked to join the board in 1965, established his reputation as a manager of the Unilever Group, one of the largest food-processing companies in Germany; the second, a former manager in the German headquarters of the Esso corporation, Dr Jens Odewald (in charge 1979-1995) was appointed after Nagel resigned in 1979. Both externally recruited managers were entrusted with Kaufhof's central finance department. After Metro started to control Kaufhof's fate in 1980, both the turnover of the "inside directors" and, apparently, their recruitment from the outside increased. However, the high turnover rate of the twelve managers who joined Kaufhof's board of directors between 1983 and 1996 as well as the secrecy about managerial biographies make it difficult to sketch out the careers of all of these appointees. The three who made available to the public details of their career trajectories were an experienced business consultant and software specialist (Bernd Bothe, who sat on Kaufhof's board of directors from 1989 to 1992); a high profile travel agent (Friedrich Carl Jannssen, 1990 to 1994); and last but not least a trained banker who had been a top ranking manager in heavy industry (Hoesch) before he was called to serve on Kaufhof's board of directors (Hero Brahms, 1994-1996).

In comparison with Kaufhof, Karstadt had a longer and more firmly established tradition of recruiting its top managers from the outside. Since 1932 when a banker (Dr Clemens Plass-

32 Erwin Conradi, born in 1935, received a degree in industrial engineering in Munich. After his graduation in 1959, he joined IBM Germany. He was trained at the IBM headquarters in New York in the 1960's. In 1969, he returned to Germany as director of IBM's German sales department. In 1971, Otto Beisheim, the founder of the Metro cash-and-carry wholesale markets, recruited Conradi as senior officer. In 1975, Conradi was appointed chief executive officer of the Metro International AG. Cf. Schweizer Handelszeitung, 21 Mai 1987; ibid., 8 October 1992; ibid., 23 Mai 1996; ibid., 3 July 1997; *W. Pellinghausen*, Wie Metro den Kaufhof steuert, in: Capital, July 1983, pp. 104-6; *I. Cornelssen/W. Hirn*, Ein Riese taucht auf: Metro, in: manager magazin 1986/November, pp. 66-81; *W. Hirn*, Ein Fall für zwei: Kaufhof, in: manager magazin 1987/5, pp. 38-54, p. 38, 41, 48; *S. Jensen*, Erwin Conradi: Meister aller Klassen, in: manager magazin 1990/December, pp. 160 f.; *W. Hirn/S. Jensen*, Stille Macht: Metro, in: manager magazin 1996/January, pp. 32-44.

mann) was recruited to sit on the firm's board of directors for the first time, it became the rule that one member of the board was a trained banker. After Plassmann was appointed to the board of directors of the Deutsche Bank in 1940, this position was filled by Max Hoseit (1940-1966) and following Hoseit, by Dr Walter Deuss, who joined the board in 1967 and is still in charge today.[33] While these men controlled the firm's central financial department, the overwhelming majority of those board members in charge of the firm's main trade activities of buying and selling continued to be in-house trained managers.[34] Since the 1970's, however this pattern has begun to change. The tendency to recruit externally qualified managers even for these activities intensified. In 1973, an 'outsider', Bernhard Schroeder, a former top manager of a textile syndicate, was recruited into Karstadt's board of directors and made responsible for the central textiles purchasing department (he was to sit on the board from 1973 to 1986); in 1978 Uwe Lorenzen, a top manager who had been trained in Neckermann's mail order house, stepped in; in 1986, Bernd Hebbering, the top ranking member of Horten's board of directors, notorious for his new organizational and marketing concepts that secured the department stores' survival, was successfully enticed to join Karstadt's top management; in 1990, Dr Klaus Eierhoff, a software specialist who had started his managerial career in Nixdorf's computer company, was recruited etc. The pattern of external recruitment was clear.

These appointments of 'outsiders', a practice that accelerated in the 1970's and 1980's, definitely marked the end of a tradition, but also the beginning of a new era in the department stores' history. On the one hand, the large retail firms' management confronted more general challenges. On the other hand, they continued to face innumerable specific problems.[35] At the core of the mass retailers' early success were organizational, rather than technological innovations. The volume distributors' organization aimed at maintaining a high-volume flow of goods through the enterprise. 'The critical measure of performance in coordinating this flow through the enterprise was' – as Alfred D. Chandler points out – '"stock-turn" , that is the volume of goods processed in relation to inventory by a single set of facilities and personnel within a specified period of time.' As Chandler argues, 'the greater the stock-turn, the more intensive the use of existing personnel, facilities and capital invested in inventory; therefore the lower the cost per unit.'[36] The organizational innovations in administering, coordinating, and monitoring a high volume flow of goods in line with the basic objective of assuring profits by maintaining a high velocity of stock-return allowed for economies of speed.

This particular organizational drive in modern mass distribution turned into a common concern both of mass producers and mass distributors in the 1970's and 1980's. Under the auspices of available computer technologies and Japanese competitive advantages, new management concepts stressed the need for an improved sophisticated management of information and

---

33 Dr Walter Deuss was, by the way, the son of Dr Hanns Deuss who - representing the Commerz Bank - had presided Karstadt's supervisory board from 1952 to 1976. His son Walter was the only member of Karstadt's board of directors who proudly characterized himself as Warenhausdirektor (department store director) in the entries for the Wer ist's? (the German Who is who). Cf. Die ZEIT, 9 July 1976; *J.J. Jeske*, Der Triumph des Konservativen: Warum Karstadt so erfolgreich ist, in: Frankfurter Allgemeine Zeitung, 24 June 1977, PCC SWA; *S. Jensen*, Ein schwerer Fall: Karstadt, in: manager magazin 1998/January, pp. 54-64.

34 Cf. *G. Freese*, "Von der Pike auf lernen": Wie Europas grösstes Warenhaus seinen Führungsnachwuchs ausbildet, in: Die ZEIT, 15 June 1979, PCC SWA.

35 Cf. *Renaissance im Handel.* Renaissance in Retailing. Renaissance dans le commerce: Internationale Handelstagung 1992. International Retail conference 1992. Conférence Internationale du Commerce 1992, organized and edited by Gottlieb Duttweiler Institut, Rueschlikon: n.p. 1992, passim and esp. pp. 7-12.

36 Cf. *Chandler/Hikino*, p. 58 and 29. See also *Chandler*, The Visible Hand, pp. 223-238.

economies of speed. The high velocity of flow and processing both of goods and information now ranked among the essential requirements for a firm's competitiveness. Thus, for example, the computerized processing of all relevant data, computer-aided logistics, ordering, storage, handling, and distribution of commodities, and related organizational innovations were no longer limited to one branch of trade or industry. Management confronted the tasks of perfection and implementation in most industries.[37] In a certain (if limited) way the borders between industries and between production and trade became permeable as managerial tasks and theories became more and more standardized. On the other hand, it is not surprising that the department stores reached out for external assistance to strengthen their managerial competency. The pattern of top management's recruitment changed beginning in the late 1970s, and this coincided with a new critical period in the department store's history.

From Strategies of Growth to Strategic Management

Let me now turn to my second set of questions, the strategies of growth which the German department stores deployed in order to enhance the firm's growth and to maintain their market share when competition grew stiffer with the rise of new mass retailers in the 1970's. Establishing chains of department stores was the German pioneers' strategy for combining economies of scale and scope. From the very beginning their strategy implied an effort to diversify into wholesaling. The profits from this form of diversification turned into a major force behind the decision to multiply the number of retail outlets; at first this goal was achieved primarily by constructing new outlets. By the 1920's, however, this "internally" generated growth in scale was amplified by the merger of other chains of department stores with the Rudolph Karstadt AG or the Leonhard Tietz AG. The new outlets were carefully integrated into the system of the company that acquired them. In addition, the large mass retailers also tried to increase their 'purchasing power' by offering wholesale services to other variety stores and smaller department stores or to other chains of department stores. Thus, in the late 1920's, the Rudolph Karstadt AG and the Leonhard Tietz AG each reportedly commanded a series of such 'community of interest'-arrangements with at least a hundred and fifty smaller retail firms. In search of the most efficient way to organize their purchasing activity in the early 1920's, both companies opened up purchasing agencies in the main centers of production of such commodities as textiles, clothes, kitchenware, and toys, products that formed the backbone of the department stores' sales. The companies centralized purchase and storage in these purchase departments, which were to supply the various outlets according to the outlets' demands. The search for partners was not limited to Germany. The Leonhard Tietz AG closely cooperated with Belgium and Dutch department stores after the turn of the century, and the Rudolph Karstadt AG proudly announced in 1928 that it had reached an agreement with the Grands

37 Cf. *U. Kiel*, Auf dem Weg zum Sozialsystem, in: manager magazin 1980/1, pp. 44-50; *I. Cornelssen*, Strichweise im Bilde: Warenwirtschaft, in: manager magazin 1983/7, pp. 80-92; *T. Sommerlatte*, Eine neue Spezies im Management: Informationsmanager, in: manager magazin 1985/9, pp. 195-99; *U. Lehning*, Partitur für zwei Kontrahenten: Hersteller und Handel, manager magazin 1985/11, pp. 220-29; *R. Schinnerl*, EDV-gestützte Steuerung des Warenflusses in Handelsbetrieben: Die Integrationsfunktion von Warenwirtschaftssystemen, in: zfo. Zeitschrift für Führung und Organisation 55, 1986, pp. 98-112; *H.G. Willers*, Planung in Handelsunternehmen: Grundlagen und Praxisbeispiel, in: zfo. Zeitschrift für Fuehrung und Organisation 57, 1988, pp. 38-42, 117-23; *M Gaitanides et al.*, Zum Erfolg von Strategie und Struktur des Kundenmanagements, in: zfo. Zeitschrift für Führung und Organisation 60, 1991, pp. 14-22, 121-24; *I. Behrend*, Strategische Informationssystemplanung als Beratungsleistung, in: zfo. Zeitschrift für Führung und Organisation 63, 1994, pp. 170-76; *J. Rieker*, Unter Strom: Informationstechnologie, in: manager magazin 1996/October, pp. 287-95.

Magasins Printemps in Paris. Karstadt's purchasing department provided the French department store with all commodities of German and Czech origin. One year later, Karstadt opened a purchasing agency in Paris.[38]

Diversification went even further. Since 1920, the number of production facilities under Karstadt's control increased rapidly. By 1931 it totaled 21 plants. The majority produced textiles, such as yarns and fabrics, laces and ribbons, men's, women's and children's dresses, and underwear. Of Karstadt's production outlets acquired in 1927, a minority were food processors. At the same time Tietz, though in a more moderate fashion, also established production facilities of its own, controlled by the department store's headquarters. Both companies tried to avoid their plants' dependency on the demand of the parent company as well as ensuring that the department stores' did not become dependent exclusively on what their plants offered. Consequently the retail firms limited the overall volume of the parent company's orders and purchase to 50 per cent of the dependent plants' capacity.[39] Nevertheless, the venture in vertical diversification did not meet the retailers' expectations. The economic depression merely accentuated the problems and deficiencies that were already apparent. Thus, this venture of diversification into production came to an end by the mid 1930's, and it was never to be repeated.

A second venture of the mid 1920's – the horizontal diversification into new types of retail shops in order to meet the needs of different consumer groups – definitely proved to be far more rewarding, indicating the firms' long term future orientation. The pioneering company that set out to pursue this strategy in Germany was the Leonhard Tietz AG. By 1925, Tietz opened its first five-and-ten-cent stores, thus anticipating the plans of the pioneering US-American Woolworth corporation to transport its successful retail strategy to Germany. Tietz's concept – a new type of retail business, a sort of small department stores selling highly standardized, low-priced goods – met a demand: In July 1927, Tietz decided to form an independent division, the EHAPE Einheitspreis-Handelsgesellschaft AG, encompassing the company's five-and-ten-cent stores. By August 1927, it operated 21 outlets of this new type of retail store. One year later, by July 1928, an additional 30 outlets had come into operation; by July 1934 the chain consisted of 74 outlets; and in January 1936, after the company had been forced to close down some branches, it was still running 65 of these stores. The Rudolph Karstadt AG ventured along the same line of diversification in 1926 and founded the EPA AG for this purpose. The subsidiary was operating 27 outlets in 1929, 57 outlets by December 1933, and 65 outlets by January 1936.[40]

After 1945 little new was added to these tried and true strategies. In the first decades after the end of the war, Karstadt's and Kaufhof's main plan for growth was to reconstruct the firms' outlets and to extend them quantitatively and qualitatively (upgrading). It was not until the 1970's that both department store companies, reacting to the discount stores' competition, launched diversification anew, proclaiming it to be the great managerial innovation of the day. Both diversified by taking on new lines or branches of activity (tourist industry, mail order by the merger of established mail order houses, catering, the restaurant trade, self service snack-bars, services of different kinds such as insurance, banking, hair dresser, beauty parlor, home electronics, and computers). Both companies developed a new mix of product lines for their

38 Cf. *A.L. Tietz*, Warenhauskonzern, p. 460 f.; Handbuch der deutschen Aktien-Gesellschaften, edition 1929, pp. 3708-3712, p. 3710.

39 Cf. *A.L. Tietz*, Warenhauskonzern, p. 461; Das Ende eines Warenhaus-Konzerns: Karstadt, in: Neue Zürcher Zeitung, 18 Aug. 1932, PCC SWA.

40 Cf. *Handbuch der deutschen Aktien-Gesellschaften*, editions of 1926, 1929, 1935; Annual Reports.

department store outlets in order to provide them with a more class-specific appeal and to make them more attractive for a broader range of consumer age and income groups. At the same time the companies sorted out some classes of products for sale in new specialized discount stores or supermarkets that were under their control, thus adding new types and chains of stores to their empire. In addition, the existing department store outlets, the range of articles offered, and the various lines of commodities were thoroughly screened in order to filter out those lines that did not pay off; first these unprofitable lines were closed down and, if this did not restore profitability, a branch might ultimately be shut down completely. Last but not least, the two firms extended their wholesale activities, both nationally and internationally.

Although not all of these new activities and managerial decisions proved to be long lasting, their cumulative impact on the companies' structure became more and more apparent. The importance of the (chains of) department stores and their retail sales diminished. Certainly, the department stores maintained their position as the companies' cornerstone, but their share in the companies' total profits steadily declined. This general tendency was particularly marked in the case of the Kaufhof AG, and the comparison with Karstadt's slower pace suggests that Kaufhof's new majority shareholder, the Metro corporation that gained control in 1980 played the leading role in setting a faster pace. In 1980, the retail sales of Kaufhof's 'classic department store branch' contributed 67 per cent to the company's total sales; by 1987 its share had been reduced to 53 per cent, and in 1989 it shrank to a meager 40 per cent. The corresponding data published by the Karstadt AG show the progress in diversification as well, but they also suggest that Karstadt's 'classic branch' fared differently. Its share of the company's total sales volume amounted to 76 per cent in 1980, 75 per cent in 1987, and 73 per cent in 1989 – in comparison with Kaufhof this was still a lion's share.[41]

Managerial hierarchies, plans for growth, and changes in structure

It is a basic assumption of recent business history that a firm's objectives and plans for growth have to be supported by a consistent 'governance structure' and a team or hierarchy of full-time salaried managers.[42] This leads me to my third set of questions. In the following, I shall see whether this assumption holds for the two German department store "giants". The chains of department stores that became Germany's most dynamic mass retailers by the late 19th/early 20th century were modern multi-unit business enterprises. They conformed with Alfred D. Chandler's definition of a modern firm as a 'collection of operating units, each with its own specific facilities and personnel, whose combined resources and activities are coordinated, monitored and allocated by a hierarchy of middle and top managers.'[43]

Although it is rather easy to demonstrate who performed managerial tasks in the department store companies, it is difficult to know more about the exact delimitation of functions and the interplay between different managerial levels (lower-level, middle-level and top-level). This leaves open a particularly interesting set of questions about middle-level managers and the top-level executives.

The differentiation between the sales force and the non-sales staff distinguished managerial functions. The only full statistical account I located permits some insight into Kaufhof's struc-

41 Cf. *Kaufhof*, Annual Reports; *Karstadt*, Annual Reports.
42 Cf. *Chandler/Hikino*, p. 14 ff.
43 Ibid., 15.

ture and managerial hierarchies in 1954.[44] In this year, the company's work force was composed of 13,693 full-time employees, among them 9,749 women (71 per cent). 12,403 employees (apprentices included) constituted the company's sales force; 1,290 employees formed part of Kaufhof's management. Non-managerial and managerial tasks were thus at a ratio of roughly 9 to 1. It is possible to differentiate six managerial levels. Three of them were exclusively or at least closely linked to the performance of specialized or supervisory functions in the individual shops (such as cashier, chief-cashier, receiver of goods, window-dresser, chief window-dresser, chief sales women/men, the senior sales clerks in charge of the shop's various sales departments, and the general managers of the outlets). 1,173 (= 91 per cent of the firm's managers) belonged to these echelons of line officers. The middle management was composed of 105 employees. 30 of these middle managers were working in the company's central purchasing offices, and 65 persons worked in the company's headquarters, coordinating, allocating, and monitoring the activities of its operative units (purchasing, accounting, auditing, selling and marketing, advertising etc.). The top echelon was composed of two levels: the four members of the board of directors and eight senior managers of their respective staffs. According to a 1979 newspaper article that detailed the in-house recruitment, training, and subsequent careers of management trainees practiced by Karstadt, managerial hierarchies did not differ dramatically 25 years later.[45] At the top-level, the seven members of the board of directors (inside directors) were assisted by staffs working under the supervision of 17 senior managers. The third echelon, the middle management, was composed of roughly 4,000 persons and covered a wide variety of line-positions in the central purchasing and sales departments, as specialized sales managers or as the senior managers of department stores.

Managers faced challenges raised by economies of scale and scope by operating chains of department stores that varied in size, location, and scope.[46] The long-standing problem was to find the best organizational solution capable of combining the advantages of a centralized handling of the basic economic functions (purchasing, storage, marketing, advertising, auditing) without any disadvantages that the solution might entail. Managers sought to maintain the flexibility and the scope of action needed both to react properly to the outlets' varying environments and to motivate their respective managers and sales staffs. No less intriguing was the problem of how to determine the most efficient division of labor. Was it indeed advisable to separate purchasing and storage from marketing and selling? What were feasible intermediate

44 Cf. *Kaufhof AG (ed.)*, Jahresbericht 1954 für unsere Mitarbeiter. Der Kaufhof in Zahlen und Bildern, Cologne: 1955, 16 f., PCC SWA.

45 Cf. *G. Freese*, "Von der Pike auf lernen": Wie Europas grösstes Warenhaus seinen Führungsnachwuchs ausbildet, in: Die ZEIT, 15 June 1979, PCC SWA.

46 Cf. *A.L. Tietz*, Warenhauskonzern, p. 462 f.; *A.L. Tietz*, Das Waren- und Kaufhaus, in: *R. Seyffert (ed.)*, Handbuch des Einzelhandels, Stuttgart 1932, pp. 61-75; *T. Althoff*, Waren- und Kaufhaus, in: *B. Tietz (ed.)*, Handwörterbuch der Absatzwirtschaft, Stuttgart 1974, pp. 2161-69; Die Karstadt- Reorganisation, in: Frankfurter Zeitung, 21 Jan. 1932; Betriebsorganisation bei Karstadt, in: Frankfurter Zeitung, 7 Feb. 1932; Neue Verwaltungsmassnahmen bei Karstadt, in: Frankfurter Zeitung, 10 Feb. 1932; Karstadt Umstellung, in: Berliner Börsen-Courier, 8 Feb. 1932. The rationalization schemes of the 1970's/1980's are discussed by *I. Cornelssen*, Kraftakt aus der Kniebeuge, in: manager magazin 1983/4, pp. 60-64 - a detailed account of the efforts to rationalize the department store branches of the Horten company that were introduced by Hebbering, Horten's new chief executive officer at that time -; *B. Hebbering*, Vor jedem Publikum ein anderer Hamlet, in: die absatzwirtschaft 1977/7, pp. 6-8.; *B. Hebbering*, Sortimente justieren, in: die absatzwirtschaft 1979/10, pp. 6-8; *K. Alberts*, Sortimentsfight statt Flächenklotzerei, in: die absatzwirtschaft 1979/8, pp. 7-9 - member of Karstadt's board of directors; *K. Vongries*, Sortiments-Schwerpunkte, in: die absatzwirtschaft 1979/9, p. 29 f. - Kaufhof, marketing division, and *K. Alberts*, Computer Aided Trading, in: die absatzwirtschaft 1992/3, pp. 12-18.

levels and forms between centralization and decentralization? How much centralization was needed, and if it was needed, how could one organize the feedback from the outlets in the most efficient way? How could the sales data and experiences of the outlets that were in touch with the consumer be taken into account in time before the orders for the next season or period of time were placed? The optimal size or scope of a branch was another constant problem. Which commodities or lines of commodities were to be combined in order to form a branch headed by a manager on the lower-, middle- and top-level? The problem of the branches' size or scope was quite crucial, because the branches were the basic units to measure and forecast performance.

I shall not enter into the different solutions that were attempted by management, solutions that were often changed or even abandoned, only to be tried again later on. Since the late 1970's/early 1980's, both Karstadt and Kaufhof once again attempted to cope with these old problems. The design of these efforts and the general concepts from which they emerged, however, had changed dramatically. Modern management theories came to dominate the language and informed the organizational and structural innovations that were implemented in both department store companies almost at the same time in the 1980's and early 1990's. Strategic management became the order of the day for years to come.[47] It called for an exact scrutiny of a firm's various operating units, their competitive position in the globalizing market place, and their chances to stay competitive in the short and long term. Based on this analysis, management was summoned to develop long-term strategic concepts to secure the firm's prosperity. These concepts had to reckon with a firm's strengths and weaknesses. Management fostered existing units or fields of activity that promised exceptional rewards and strong competitiveness. They sought means to foster and strengthen competitiveness by merger or diversification. Low-profile units or fields of activity were to be closed down and sold. These plans for growth, based upon the analysis of competitive advantages and their implementation required managerial time and manpower. A first step in this direction was the sorting out of strategic and operative management tasks, their organizational separation and clear-cut delegation. Next came the rewriting of organizational charts and regrouping of the firms' activities (their outlets of department stores included) into divisions and profit-centers.

In a certain way, the new 'philosophy' as a newspaper called the development[48], reflected and sealed the status of Karstadt and Kaufhof. They both were successful large modern business enterprises. Now, perhaps comparatively late, both companies' organizational orientation and structures started to resemble the organizational charts that modern business sciences had outlined. The chains of department stores that had started to revolutionize retailing in Germany roughly a hundred years earlier finally responded to the dominant theories about the governance and administration of large business enterprises.[49]

---

47 Cf. *M.E. Porter*, How Competitive Forces Shape Strategy, in: Harvard Business Review (March - April 1979) - German translation in: manager magazin 1980/4, pp. 126-37; *M.E. Porter*, Competitive Strategy. Techniques for Analyzing Industries and Competitors, New York 1980 - German translation 1983, 8th ed. 1995; *M.E. Porter (ed.)*, Competition in Global Industries, Boston/Mass. 1986; *M.E. Porter*, The Competitive Advantages of Nations, London 1990 - German translation 1991; *C.A. Montogomery/M.E. Porter (eds.)*, Strategie. Die brillianten Beiträge der weltbesten Strategie-Experten, Vienna 1996; *K. Ohmae*, The Mind of the Strategist: The Art of Japanese Business, New York 1982; *T. Levitt*, The Marketing Imagination, New York 1983; *W. Hill*, Das ungewisse Etwas: Strategische Planung, in: manager magazin 1983/9, pp. 168-81.

48 Cf. Karstadt-Umbau zeitraubender als gedacht, in: Süddeutsche Zeitung, Munich, 19 June 1979, PCC SWA.

49 Cf. *A.D. Chandler jr.*, Administrative Coordination, Allocation and Monitoring: Concepts and Comparisons, in: *T.K. McCraw (ed.)*, The Essential Alfred Chandler: Essays Toward a Historical Theory of Big Business, Boston/Mass. 1991, pp. 398-424, pp. 398-415 passim; *Chandler/Hikino*, pp. 14-46 and 593-628 passim; *Willers*;

However, one peculiarity was left and continued to haunt at least those divisions of Karstadt and Kaufhof, which faced consumers and the erratic behavior that often defied even the most sophisticated strategic schemes to control consumer demand and spending. In 1996, after Karstadt's strategic re-orientation had been successfully completed[50], Dr Klaus Eierhoff did not hesitate to pinpoint the problems with the consumer market.[51] Eierhoff, a software specialist, was 36 years old when he was asked to join Karstadt's board of directors. Six years later, in 1996, his area of responsibility covered 'organizational structures and strategies, the computer-aided handling of goods, the merchandise information system, logistics, auditing, building projects' and the operative management of the 'Division 3' which regrouped 37 of Karstadt's department stores. Eierhoff praised Karstadt's recent progress and explained the company's achievements in computer-aided trading and merchandise information system in particular before he discussed what still made it impossible to perfect the system: 'A good retailer must nowadays invest important sums in order to install an elaborate system of handling goods, and he tries to improve it continuously. He already knows exactly which commodities are sold by each outlet. The only thing he does not know yet is to whom the commodity is sold. This is a serious problem, the problem of the consumer's anonymity.'[52] The retailer's goal – to rationalize distribution, forecast and manage profits more efficiently – was thus permanently endangered. The next, logical step was to eliminate this disturbing uncertainty and to get control over this part of the market too, by ending the consumer's anonymity. The new system, desperately sought by Karstadt's top manager, was one that generated an 'efficient consumer response'[53] and made it possible to internalize this residual part of a free market into the company.[54] Without any doubt, large retail firms and their managerial staffs nowadays work hard to achieve this end. Nevertheless, it is doubtful that this reduction of the firms' transaction costs will ever be achieved and – should firms succeed – if this development would really benefit both mass retailers and the masses of consumers. If consumers have but little influence on production and the retail firms' pricing policy, they should at least be allowed to choose their suppliers and to act rationally or irrationally on their own behalf.

III. Conclusion

Informed by Alfred D. Chandler's path-breaking analysis of the modern business enterprise, this article discusses a set of basic assumptions. The modern industrial enterprise and the large modern retail firm are subspecies of the modern business enterprise. The historical analysis of both subspecies, their structures and strategies, reveals common traits. The evolution of the modern mass marketers follows the general pattern that characterizes the evolution of the mod-

---

O. Grassy, Diversifikation, in: *P.W. Meyer/R. Mattmueller (eds.)*, Strategische Marketingoptionen: Änderungsstrategien auf Geschäftsfeldebene, Stuttgart 1993, pp. 30-73..

50 Cf. *Alberts*, Computer Aided Training; Annual Reports of the Karstadt AG.

51 Cf. *K. Eierhoff*, Wir haben verstanden, in: die absatzwirtschaft 1996/9, pp. 16-20, passim.

52 Ibid., p. 18.

53 Cf. ibid., passim.

54 The extent of intra-institutional transactions at the detriment of competition and an exchange economy in the wholesale and retail sector has been blurred by traditional census methods and the firms' secrecy. These developments and their inherent problems have only recently been tackled by economists. Cf. *Marktstruktur und Wettbewerb im Handel*: Sondergutachten der Monopolkommission gemaess § 24 Abs. 5 Satz 4 GWB (Sondergutachten der Monopolkommission, 23), Baden-Baden 1994; *Monopolkommission*, Hauptgutachten 1992/93: Mehr Wettbewerb auf allen Märkten (Hauptgutachten der Monopolkommission, 10) Baden-Baden 1994, chapter 2, pp. 121-54 and p. 426.

ern industrial enterprise. The article focuses on the first large retail firms in Germany – department store chains – in order to develop this argument. The main findings of the preceding sections amply support the view that producers and distributors developed along roughly parallel lines. The comparative case study of the two most successful and long-standing chains of department stores in Germany: the joint-stock companies of Karstadt AG and Kaufhof AG (formerly Leonhard Tietz AG) in their "mature" period, the six decades between the 1920's and the 1980's, suggests that the retail firms' evolution shared common traits with the evolution of the modern business enterprise in industry. The organizational challenges confronting the retailers were similar to those in industry, and in order to cope with them the large retail firms' structures and strategies developed along similar lines. In the course of time, and particularly in the 1970/s/1980's, these common traits became more and more pronounced, although the defining characteristics of mass retailers – the fact that they produced no goods and faced the mass of ultimate consumers – persisted.

An important turning point in the mass retailers' history was reached in the early 1930's, when both Kaufhof and Karstadt were transformed from entrepreneurial to managerial firms. The transition, in both cases brought about by "external" pressure, necessitated a dramatic change in the composition of the top-level executives. With respect to the outside directors, i. e. the members of the supervisory board, the most salient trait for decades to come was that senior executives of the largest German banks (the Dresdner Bank, the Commerz Bank and the Deutsche Bank) stepped in and gained control as majority shareholders. The large banks' prominent role in the retailers' supervisory board meant that the composition of the board began to resemble the dominant pattern in German industry. The retail firms thus became integrated into Germany's central economic power network. In contrast to this "normalization", the recruitment pattern of the inside directors, who constituted the board of directors, preserved its peculiarities until the late 1970's when both companies reached out for externally trained managers and no longer relied almost exclusively upon the appointment of in-house trained managers for these offices.

This opening towards the outside was more than merely accidental or symbolic. It happened at a time when the department store companies' market share declined due to stiff competition from new types of retail businesses. Top management both in industry and trade was confronted with new concepts of 'strategic management' and new computerized information technologies that demanded a fundamental analysis and reform of the firms' established organization and structure of governance.

The retailers' increased recourse to "outsiders" was not limited to the recruitment of top-level executives. In addition, both retail "giants" joined in the mainstream of the mid 1970's/early 1980's when they no longer relied exclusively upon the in-house management, but asked large consulting firms for assistance and advice in order to implement the new concepts of strategic management and reshape the companies' organization accordingly.[55]

These innovations reflected the fact that the new organizational and technological challenges of the 1970's/1980's were common to production and distribution. It followed from this that the

55 Cf. *I. Cornelssen*, Facelift in der Provinz: Karstadt, in: manager magazin 1985/11, pp. 78-85; *I. Cornelssen*, Zwei und ein Halleluja: Karstadt, in: manager magazin 1987/10, pp. 98-107; *I. Cornelssen/R. Diekhof*, "Wir kämpfen ganz heftig": Karstadt, in: manager magazin 1985/9, pp. 126-40; *S. Jensen*, Ein schwerer Fall; *W. Stiller*, Traumstrasse: Warenhäuser suchen nach Überlebenschancen, in: Capital 1986/12, pp. 219-22; *W. Hirn* (1987), p. 41; *J. Schrader*, Managementberatung, internationale, in: *K. Macharzina et al. (eds.)*, Handwörterbuch Export und internationale Unternehmung, Stuttgart 1989, pp. 1371-82, p. 1372.

professional requirements at least for some managerial tasks became standardized. The boundaries between industry and trade became permeable.

Neither the new recruitment pattern of the retailers' top-level executives nor the recourse to the advice of large consulting firms for the reshaping of the retailers' organization, however, solved the problem of entrepreneurship or – more precisely – intrapreneurship in a large organization in a quasi-automatic fashion. In the period of unparalleled and sustained growth that marked the course of the department store companies in the first three decades after the end of the Second World War, nobody felt compelled to analyse the retailers' top management and its capacity for leadership or entrepreneurship in a critical way. 'The entrepreneur and his function', conceptualized by Schumpeter as 'the doing of new things or the doing of things that are already being done in a new way (innovation)'[56] however, once again became the order of the day in a time of crisis. The charge of deficient entrepreneurship came after the department store companies' growth rates and profits began to falter in the 1970's, as management had difficulties coping with new competitors and slackened consumer demand. In such a period of crisis and uncertainty, entrepreneurship could indeed make a difference in spite of widely shared sophisticated management concepts. In retailing, however, where innovations were primarily of an organizational nature, entrepreneurship might find its most obvious expression only in more rapid responses, quicker and more successful implementation of new strategic and organizational concepts, and a different pace in the firm's adjustment to new challenges, as it is suggested by the developmental paths followed by Kaufhof AG and Karstadt AG.

After Kaufhof's new majority shareholder, the Metro International AG, an international cash-and-carry wholesaler, gained control in 1980, the top-level executives of the Metro holding company influenced the reshaping of the retailer's activities and organization. The pace was set by Erwin Conradi, the senior executive officer of Metro's headquarters, who became president of Kaufhof's supervisory board. Although a hired manager himself, Erwin Conradi took on entrepreneurial functions. Conradi, supported by a team of managers both at Metro's and Kaufhof's headquarters, pushed for Kaufhof's adoption of the wholesaler's more efficient merchandise information system. He orchestrated the intensified horizontal diversification of the department store company into new, more profitable business types of retailing and propagated internationalization in some cases. Last, but not least, Conradi pushed for a new, more efficient organizational structure for retailing. The informal implementation of these schemes in June 1987 became legalized two years later when they were accepted by the shareholders' meeting of Kaufhof AG. The new structure was a first step towards the regrouping of the firm's activities into divisions and profit-centers, and it introduced a new system of governance. At the beginning, its most salient organizational feature was the founding of the 'Kaufhof Holding AG' and the announcement of the imminent spin-off of the 'Kaufhof Warenhaus AG'. The new holding company and its executives were charged to plan and allocate resources for the operating units and the enterprise as a whole and focus on the company's strategic concerns, while the management of the company's operative units (the department stores, the different branches of specialized retail stores, the mail order branch, wholesaling etc.) was sorted out and put in the

56 *A.J. Schumpeter*, Comments on a Plan for the Study of Entrepreneurship (1946), reprinted in: *R. Swedberg (ed.)*, Joseph A. Schumpeter: The Economics and Sociology of Capitalism, Princeton/N.J. 1991, pp. 406-428, p. 412. See also *M. Casson*, The Entrepreneur: An Economic Theory, Aldershot ^{2}1991 passim.

hands of units and their managers.[57] In the crucial field of governance, Kaufhof thus set the pace, too. In spring 1998, its main competitor, Karstadt AG, was still dreaming of introducing a new, more efficient governance structure similar to the holding structure that Kaufhof had started to implement several years ago.[58]

Looking across the borders of retailing, entrepreneurship in large organizations and the timing of investments and product or organizational innovations are by no means less crucial in industry than in trade. In both cases, they shape the firm's dynamism and its competitive position. And in a sustained period of crisis, it is perhaps even more the case that those who move first, get the highest rewards.

However, if the recent evolution of the modern business enterprise in retailing brings it closer to its counterpart in industry, this convergence by no means has led to the elimination of all differences between producers and retailers. On the contrary. The defining characteristics of mass retailers – the fact that they produce nothing and confront an anonymous market, made up of faceless consumers – remain. These characteristics, in particular the anonymous nature of the consumer market, continue to confront retail managers with challenges that have no equivalent in industry. Indeed, it can be argued that neither sophisticated organizational structures and strategies, entrepreneurship, intrapreneurship or the most refined and up-to date governance and management concepts will allow retailers to gain some sort of bureaucratic, institutionalized control of their primary market. They will continue to face the erratic behavior of the anonymous masses of consumers.

57 Cf. *Kaufhof AG*, Cologne, Invitations to the shareholders' meeting on July 6, 1988 and on July 6, 1989, PCC SWA. See also the company's annual reports for 1987, 1988, and 1989 and - for a general outline of recent trends in Germany - *R. Buehner*, Gestaltung von Konzernzentralen. Die Benchmarking-Studie, Wiesbaden 1996.

58 Cf. the article on Karstadt's future, in: Capital, March 1998, 24, quoting from an interview with Walter Deuss, the senior executive of Karstadt's board of directors.

Südamerika als Alternative? Bestimmungsfaktoren der deutschen Überseewanderung im 19. Jahrhundert

Von Walter Kamphoefner (College Station/Texas, USA)

Mehr als eine Generation ist es schon her, seit Frank Thistlethwaite seine berühmte und weitreichende Herausforderung an Migrationsforscher gestellt hat. Die Forschungsagenda, die er damals aufstellte, ist in der Zwischenzeit weitgehend erfüllt worden. 1986 befaßte sich ein Symposium ausschließlich mit den neuen Erkenntnissen, die im Laufe von 25 Jahren durch seine Anregungen hervorgebracht wurden.[1] Es bleibt jedoch ein Punkt auf seinem Programm, der immer noch zusätzlicher Arbeit bedarf. Thistlethwaite hatte US-Forscher vor der Annahme gewarnt, ihr Land sei das selbstverständliche Bestimmungsort von Europäern. Er verlangte mehr Aufmerksamkeit für alternative Wanderungsziele, insbesondere für Lateinamerika.[2] Daraufhin ist einiges an erstklassigen vergleichenden Arbeiten entstanden, besonders über Italiener.[3] Es gibt auch eine gute Studie über die Akkulturation der Deutschen in Brasilien, allerdings mit Schwerpunkt auf dem Ersten Weltkrieg, den der Autor zuvor bereits mit Blick auf die USA untersucht hatte.[4] Eine gute allgemeine Abhandlung über die Einwanderung nach Lateinamerika liegt mittlerweile vor, und ein wackerer Forscher hat sogar versucht, alle wichtigen Herkunfts- und Zielländer der transatlantischen Wanderungen (wohlgemerkt: Plural!) in Beziehung zueinander zu stellen.[5] Weitgehend vernachlässigt in diesen Studien ist der Aussiebungsprozeß – welche Faktoren das Wanderungsziel beeinflußt hatten – besonders bei einer Gruppe wie die Deutschen.

Wie sich herausstellt, war Thistlethwaites Ermahnung an die US-Historiker bezüglich der Wanderungsziele weniger zutreffend im Hinblick auf die Deutschen als auf einige andere Nationalitäten, vor allem diejenigen aus dem romanischen Sprachraum. Fast 90 Prozent aller Deutschen im Jahrhundert vor dem Ersten Weltkrieg haben die USA als Wanderungsziel gewählt. Trotzdem bleibt eine Gruppe von gut einer halben Million Auswanderern, deren Wahl der Zielorte erklärt und deren Auswirkung auf andere Gesellschaften evaluiert werden müssen.[6] Dieser Aufsatz nimmt hauptsächlich die erste Hälfte des Problems in Angriff: Worin unterscheiden sich die Deutschen, die »südwärts« nach Lateinamerika oder »ganz südwärts« nach Australien gewandert sind von denjenigen, die auf ihrem Weg in die Vereinigten Staaten in gewohnten Breitengraden blieben? Natürlich läßt sich die erste Hälfte der Frage nicht

---

1 *R.J. Vecoli/S.M. Sinke (Hg.)*, A Century of European Migrations, 1830-1930, Urbana 1991. Die Seiten 17-49 dieses Bandes enthalten auch eine Neuauflage des Essays von *F.E. Thistlethwaite*, Migration from Europe Overseas in the Nineteenth and Twentieth Centuries, ursprünglich vorgetragen in Stockholm 1960 anläßlich des 11. Internationalen Kongresses für Geschichtswissenschaften. In deutscher Übersetzung erschienen unter dem Titel, Europäische Überseewanderung im 19. und. 20. Jahrhundert, in: *W. Köllmann/P. Marschalck (Hg.)*, Bevölkerungsgeschichte, Köln 1972, S. 325-355.

2 *Thistlethwaite*, Migration, S. 23-25.

3 Sonderheft American Historical Review 88, 1983: *S. Baily*, The Adjustment of Italian Immigrants in Buenos Aires and New York, 1870-1914, S. 281-305; *H. Klein*, The Integration of Italian Immigrants in the U.S. and Argentina: A Comparative Analysis, S. 306-329, *Comments*, S. 330-346.

4 *F.C. Luebke*, Germans in Brazil: A Comparative History of Cultural Conflict During World War I, Baton Rouge 1987.

5 *M. Mörner*, Adventurers and Proletarians: The Story of Migrants in Latin America, Pittsburgh 1985; *W. Nugent*, Crossings: The Great Transatlantic Migrations, 1870-1914, Bloomington 1992.

6 *Nugent*, Crossings, S. 64.

vollkommen von der zweiten trennen. Die Eigenschaften der Menschen, die auswanderten, hatte einen Einfluß darauf, wie sie sich in der lateinamerikanischen Gesellschaft integrieren konnten. Und der Art der Nischen, die sie gefunden oder nicht gefunden haben, hat die Wanderungsentscheidungen von potentiellen Nachfolgern sicherlich beeinflußt.

Es liegt einiges an Erklärungen oder Hypothesen über die Wahl der Wanderungsziele vor, wenn auch selten genau ausformuliert. Die erste könnte man in der Sprache des Computerzeitalters nennen: die USA als »default option« bzw. Voreinstellung. Dieses grenzt an den Ethnozentrismus, wovor Thistlethwaite gewarnt hatte, nämlich die Annahme, daß die USA mehr oder weniger das automatische Wanderungsziel seien, wenn sich keine drastischen Abwehrfaktoren abzeichnen, wie zum Beispiel der US-Bürgerkrieg, schwere Wirtschaftskrisen oder die Schließung der Siedlungsgrenze.[7] Eine zweite Erklärung wäre die Annahme, daß die Auswanderung bestimmten Handelswegen folgt. Hier geht man davon aus, daß die Handelsbeziehungen der Auswandererhäfen die Bestimmungsorte der Auswanderer stark beeinflußt haben. Nach dieser Auffassung müßten Auswanderer aus Südwestdeutschland, die oft über Le Havre reisten, durch ihren Baumwollhandel mit New Orleans und von dort aus ins Mississippi-Tal gelenkt werden, während die Nordwestdeutschen aus den Hinterländern von Bremen durch ihren Tabakhandel mit Baltimore Richtung Ostküste gelenkt werden.[8] Wirtschaftshistoriker sprechen auch vom ›Humankapital‹, daß Einwanderer zu Zielorten neigen, die zu den Wirtschaftszweigen ihres Herkunftsortes passen, damit sie in gewohnten Berufen weiterarbeiten können.[9] Angesichts des hohen Anteils nicht nur der Spanier und Portugiesen, sondern auch der Italiener an der Lateinamerika-Einwanderung liegt die Vermutung nahe, daß Katholiken allgemein – auch aus konfessionell gemischten Gebieten wie Deutschland – mehr von Ländern angezogen wurden, in denen ihre eigene Konfession vorherrschte, als das bei Protestanten der gleichen Herkunft der Fall war.[10] Deutsche Nationalisten insbesondere neigen dazu, die Faktoren der Rekrutierung und Propaganda zu betonen, um dadurch zu vertuschen, daß die wahren Gründe für die Auswanderung gravierende soziale und wirtschaftliche Mißstände im Herkunftsland waren.[11] Die Kehrseite dieser nationalistischen Münze sind natürlich die deutschen Bestrebungen im Blick auf die

---

7 *Thistlethwaite*, Migration, S. 20-21; *P. Marschalck*, Deutsche Überseewanderung im 19. Jahrhundert, Stuttgart 1973, S. 42-51, 105.

8 Die Ursprünge der Hafenstädte-Theorie liegen vermutlich bei *M.L. Hansen*, The Atlantic Migration, 1607-1860, Cambridge 1940, S. 179-195; s. auch *D. Ward*, Cities and Immigrants: A Geography of Change in Nineteenth-Century America, New York 1971, S. 51-83. Meine Einwände gegen die Hafenstädte-Theorie in bezug auf die deutschen Auswanderer aus verschiedenen Regionen und ihre regionalen Konzentrationen in den Vereinigten Staaten wurden aufgeführt in *W.D. Kamphoefner*, The Westfalians: From Germany to Missouri, Princeton 1987, S. 72-79.

9 Ein Beispiel bieten *H. Runblom/H. Norman*, From Sweden to America: A History of the Migration, Minneapolis 1976, S. 249-252. Hinweise auf das Gegenteil bei *W.D. Kamphoefner*, Untersuchung zum wirtschaftlichen und kulturellen Hintergrund der deutschamerikanischen Urbanisierung im 19. Jahrhundert, in: Jahrbuch für Wirtschaftsgeschichte 1992/2, S. 129-143. Zum Beispiel hat sich nur knapp die Hälfte der Auswanderer aus der Hansestadt Hamburg in den 50 größten amerikanischen Städten niedergelassen. Transatlantische Datenverkettung (*tracing*) zeigt, daß eher der Lebenszyklus als der Beruf Einfluß hatte auf die Entscheidung, ob Deutsche sich in Städten oder auf dem Land niederließen.

10 Zu den Italienern s. *Klein*, Integration of Italian Immigrants, S. 317-318. Katholische Deutsche in Lateinamerika sind weniger erforscht worden als protestantische; s. *M.N. Dreher*, Kirche und Deutschtum in der Entwicklung der Evangelischen Kirche Lutherischen Bekenntnisses in Brasilien, Göttingen 1978; *H.-J. Prien*, Evangelische Kirchwerdung in Brasilien, Gütersloh, 1989 - beide weitgehend auf kircheninterner Perspektive beschränkt.

11 Als ein Beispiel unter vielen s. *W. Diener*, Die Auswanderung aus dem Amte Gemünden (Hunsrück) im 19. Jahrhundert, in: Rheinische Vierteljahrsblätter 5, 1935, S. 196-201, mit einem antisemitischen Anhang auf S. 207.

Kolonosierung von Lateinamerika als Alternative zur US-Auswanderung. Schließlich gibt es eine Erklärung, die ich mitentwickelt habe, und die ich recht überzeugend in der Erklärung der nordamerikanischen Siedlungsmuster gefunden habe: die Zusammenwirkung von Zufall und Kettenwanderung. Das heißt, wo auch immer sich die ursprünglichen Auswanderer einer bestimmte Region niederlassen – ob durch Zufall, Propaganda, Rekrutierung oder was immer herangezogen – wenn sie keinem vollständigen Desaster begegnen, ziehen sie ständig weitere Nachfolger aus demselben Gebiet an und bilden eine lokale Konzentration.[12] Ein beeindruckendes Beispiel dafür bietet Kreis Cottbus: Einige der frühesten Auswanderer waren Teil einer Gruppenwanderung von Alt-Lutheranern nach Südaustralien, die die Mehrheit aller Cottbuser in den 1840/50er Jahren aufgenommen hat. Das Resultat hiervon war, daß selbst während des Zeitraums zwischen 1861-88 mehr Cottbuser nach Australien als nach Nordamerika auswanderten oder zu irgendeinem anderen Zielort.[13]

Wenn die USA tatsächlich zur Voreinstellung der deutschen Wanderungsziele in der Mitte des 19. Jahrhunderts wurde, dann nicht, weil das schon immer so gewesen ist. In den 1820er Jahren lebte die Auswanderung wieder auf, nachdem sie für eine Generation infolge der Amerikanischen und Französischen Revolutionen und der Napoleonischen Kriege weitgehend ruhte. Damals konnte Brasilien durchaus mit den Vereinigten Staaten mithalten. Es gab sogar Brasilien-Lieder, die das Amazonas-Reich lobten und priesen, ähnlich wie das Columbus-Lied der 1830er Jahre den USA huldigte. Der luxemburgisch-amerikanische Journalist und Auswanderungsforscher Nikolaus Gönner dokumentierte ein Brasilien-Lied, das in mündlicher Überlieferung in die Tradition Luxemburgs eingegangen ist – ironisch aber bezeichnend wurde es ihm 1885 von einer Auswandererfrau in Ohio diktiert.[14] Nach einer Schätzung hat Brasilien 7.000 bis 8.000 Deutsche während der 1820er Jahre angezogen, etwa dieselbe Zahl deutscher Auswanderer, die in den US-Häfen zu dieser Zeit angekommen sind. Zieht man osteuropäische Wanderungsziele mit in Betracht, so ist nur etwa ein Viertel der deutschen Auswanderung während der 1820er Jahre in die USA gerichtet, aber in den 1830er Jahren sind es bereits mehr als Dreiviertel und dann bis zum Ende des Jahrhunderts um die 90 Prozent.[15]

Wohlgemerkt, Brasilien machte während der 1820er Jahre große Anstrengungen, Einwanderer zu rekrutieren, im Gegensatz zu den USA. Ausgerechnet zu dieser Zeit, gerade zu Beginn der Auswanderungsbewegung aus einer bestimmten Region konnten Rekrutierung und Propaganda sehr effektiv sein, zumindest kurzfristig. Bald nach der Erlangung der Unabhängigkeit schickte die Regierung Brasiliens 1823 einen deutschen Glücksritter Major Georg Anton von Schäffer zurück nach Deutschland. Sein Auftrag war die Rekrutierung von Söldnern und Siedlern für die Provinz Rio Grande do Sul. Er versprach Landschenkungen von etwa zweihundert

---

12 Die These von der Kettenwanderung wurde erstmals aufgestellt von *J.S. MacDonald/L.D. MacDonald*, Chain Migration, Ethnic Neighborhood Formation and Social Networks, in: Milbank Memorial Fund Quarterly 42, 1964, S. 82-97. Meine eigenen Belege wurden vorgelegt in *Kamphoefner*, The Westfalians, S. 70-105. Die Seiten 183-200 bieten einen Überblick über weitere Forschungen, die sich mit anderen Völkergruppen als den Deutschen befassen.

13 *U. Reich*, Aus Cottbus und Arnswalde in der Neuen Welt. Amerika-Auswanderung aus Ostelbien im 19. Jahrhundert, Osnabrück 1997, S. 122-135.

14 *J. Mergen*, Die Amerika-Auswanderung aus dem Stadtkreis Trier im 19. Jahrhundert, Trier 1962, S. 184 f.. *Dreher*, Kirche und Deutschtum, S. 35. *Prien*, Evangelische Kirchwerdung, S. 30. *N. Gonner*, Die Luxemburger in der Neuen Welt. Illustrierte Neuausgabe in 2 Bänden, hg. v. Jean Ensch et al, Esch-sur-Alzette [1889] 1985, Bd. 1, S. 66-67.

15 *Marschalck*, Deutsche Überseewanderung, S. 48-50; *Ders.*, Brasilienauswanderer aus dem Saar-Hunsrück-Raum in Bremen, 1826-1828, in: Zeitschrift für die Geschichte der Saargegend, 1986-7, S. 34 f., 164-185, hier S. 169.

Hektar, einen Grundstock an Vieh, volle Unterstützung für das erste Jahr, teilweise auch für das zweite, und Steuerbefreiung für die ersten zehn Jahre. Von Hamburg und von Bremen aus hatte Schäffer bis 1828 Auswanderer im Umfang von 25 Schiffsladungen rekrutiert, die nach Rio de Janeiro segelten, und dazu noch ein paar Schiffe aus Amsterdam. Rekrutierungsschwerpunkte waren Gebiete entlang der Mosel, darunter die preußischen Bezirke von Trier und Koblenz, Luxemburg und einige andere kleine Herrschaftsgebiete. Bald kamen Gerüchte in Umlauf, daß Brasilien auch freie Überfahrt angeboten hätte, was dazu führte, daß viele leichtgläubige Möchtegern-Auswanderer verarmt in Bremen und auf dem Weg dorthin gestrandet waren. Auch in Brasilien war die Aufnahme nicht so freundlich wie versprochen, und ab 1830 wurde die Einwandererpolitik zugunsten von Arbeitern statt Siedlern verändert.[16] In den 1830er Jahren wurde Brasilien von einigen Aufständen und Bürgerkriegen heimgesucht; einer davon war der Farroupilha-Aufstand in der Provinz Rio Grande do Sul, wo sich die meisten Deutschen angesiedelt hatten. Dieses führte dazu, daß in den 1830er Jahren weniger Deutsche nach Brasilien wanderten als in den 1820er Jahren.[17]

In den 1840er Jahren suchte Brasilien wieder – oder genauer gesagt, der Staat von Rio de Janeiro mit Hilfe der Handelsfirma Delrue in Dünkirchen –, Einwanderer aus Deutschland und Luxemburg zu rekrutieren. Mit dem Versprechen freier Überfahrt nach Brasilien und ohne zu erwähnen, daß es nachher abverdient werden müßte, gelang es Delrue im Jahr 1845, dreizehn Schiffe mit über zweitausend Auswanderern nach Brasilien zu schicken, zumeist aus denselben Herkunftsorten wie in den 1820er Jahren. Daraufhin hat er seinen Vertrag erfüllt und hat sein Angebot der freien Überfahrt zurückgezogen, wobei 800 Auswanderungswillige in Dünkirchen gestrandet sind. Letztendlich hat die französische Regierung einige davon »gerettet« durch den Transport nach Algerien. Trotzdem gab es im Jahre 1846 weiterhin eine starke Auswanderungswelle nach Brasilien, aus dem Regierungsbezirk Trier über 1.700, beinahe halb soviel wie nach Nordamerika. Aber noch im selben Jahr trafen schlechte Nachrichten aus Brasilien ein, so daß im Jahr 1847 lediglich 52 Personen heranzogen wurden, während über 500 nach Algerien auswanderten.[18]

Aber trotz dieser Rückschläge hatte diese frühe Auswanderung langfristige, wenn auch bescheidene Auswirkungen sowohl für Brasilien als auch für Deutschland. Die Gebiete der ersten Ansiedlungen blieben weiterhin die stärksten deutschen Siedlungsgebiete in Brasilien. Der Zensus von 1920 ermittelte mehr als 20.000 deutsche Einwanderer in Brasilien. Im Staat Rio Grande do Sul waren mindestens 10 Prozent der 2 Mio. Einwohner deutscher Abstammung, und einige ethnozentrische Schätzungen beliefen sich eher auf 20 Prozent.[19] Die Gebiete entlang der Mosel, wo die Rekrutierung der 1820er Jahre sich konzentrierte, blieben über die

16 *Gonner*, Luxemburger, S. 61-78; *J. Mergen*, Auswanderung aus den ehemals preußischen Teilen des Saarlandes im 19. Jahrhundert, Saarbrücken 1973, Bd. 1, S. 190-193; *Marschalck*, Brasilienauswanderer. Eine Studie dieser Rekrutierungsbestrebungen aus brasilianischer Sicht bietet *G.P. Browne*, Government Immigration Policy in Imperial Brazil, 1822-1870, Ph. D. Diss. Catholic University of America, Washington, D.C. 1972, S. 64-91, S. 106-108.

17 *Luebke*, Germans in Brazil, S. 39 f., Anm. 9; *L. Bethell/J.M. de Carvalho*, Brazil from Independence to the Middle of the Nineteenth Century, in: The Cambridge History of Latin America, Bd. 3, hg. v. L. Bethell, Cambridge 1985, S. 702-709; *J.L. Love*, Rio Grande do Sul and Brazilian Regionalism, 1882-1930, Stanford 1971, S. 13-15. Die offiziellen brasilianischen Zahlen, obwohl offensichtlich zu niedrig angesetzt, geben in den Jahren 1830-1835 gar keine Einwanderer an und lediglich 207 Deutsche während der 1830er Jahre im Vergleich zu fast 2.000 in den 1820er Jahren; *I. Ferenczi/W. Willcox (Hg.)*, International Migrations, Bd. I: Statistics, New York 1929, S. 549.

18 *Mergen*, Auswanderung des Saarlands, Bd. 1, S. 193-201; *Gonner*, Luxemburger, S. 71 f.

19 *Luebke*, Germans in Brazil, S. 9-13; s. auch die Zahlenangaben in *Willems*, A aculturacao dos alemaes, S. 114.

Mitte des 19. Jahrhunderts hinaus mitunter die führende Quelle der deutschen Auswanderung nach Südamerika, und in erster Linie vermutlich Brasilien.[20]

Noch bis in die 1860er Jahre blieb die »default option«, die Voreinstellung für Einwanderungen aus Birkenfeld, (eine Oldenburgische Exklave mitten im Regierungsbezirk Trier), nicht Nordamerika, sondern Südamerika. In den amtlichen Statistiken wurde dieses Phänomen so erklärt: »Aus dem Fürstenthum Birkenfeld ist der Auswandererzug bisher, wegen der Geschäftsverbindungen mit Brasilien zum Zweck des Ankaufs von Steinen für die Achatschleifereien, mehr nach Süd-, als nach Nord-Amerika [...] gegangen.« Solche Handelsbeziehungen verdienen nähere Untersuchung, aber es sei bemerkt, daß Birkenfeld bereits in den 1820er Jahren eines der führenden Rekrutierungsgebiete für brasilianische Söldner und Auswanderer war. Bei der nächsten Generation zwischen 1855 und 1860 wanderten weiterhin 70 Prozent der beinahe 500 Auswanderer nach Südamerika, und abgesehen von zwei Personen, deren Ziel Australien war, gingen die restlichen Auswanderer nach Nordamerika. Während des amerikanischen Bürgerkrieges zwischen 1861-64 war der nach Südamerika gerichtete Anteil noch höher, nämlich 87 Prozent. Dieser Zeitraum ist zu kurz und uneinheitlich, um zu beurteilen, ob Auswanderer Nord- und Südamerika als Alternativen betrachteten. Im Jahr 1864 jedoch wanderte nur ein einziger Birkenfelder nach Südamerika, und zugleich gingen in dem Jahr nur 9 Birkenfelder in die USA.[21] Leider endet die Zeitreihe hier, also kann man nicht sagen, ob 1864 eine Ausnahme bildet oder sich ein Wendepunkt abzeichnet: weg von Lateinamerika.[22] Aber der Rückgang in dem benachbarten Regierungsbezirk Trier deutet darauf hin, daß es ein Wendepunkt war.

Der preußische Kreis Simmern, der direkt an Birkenfeld grenzt, zeigt einen ähnlichen Wandel der Zielorte von Süden nach Norden. Bereits in den 1820er Jahren schickte Simmern 45 Auswanderer nach Brasilien. Beinahe die einzigen erfaßten Auswanderer der 1830er Jahre waren 9 Nordamerika-Wanderer im Jahre 1837. während der »hungrigen vierziger Jahre« stieg die Zahl auf auf 407 Auswanderer an; davon gingen 93 Prozent nach Brasilien. Die Auswanderung in den 1850er Jahren war doppelt so hoch wie in den 1840er Jahren, aber jetzt ging zum ersten Mal eine Mehrheit von über 70 Prozent in die USA. Auch der amerikanische Bürgerkrieg hatte keine große Veränderung mit sich gebracht; die Auswanderung ließ nach, aber wiederum ging ein Anteil von 70 Prozent in die USA. Kurz vor dem Krieg ging die Mehrheit aus Simmern 1857 nach Brasilien, 1858 in die USA, 1859 nach Brasilien, 1860 in die USA. Brasilien übernahm die Führung in den ersten zwei Kriegsjahren von 1861-1862, aber die USA gewann während der letzten drei Kriegsjahre von 1863-65 überhand, was sie (mit drei Ausnahmen) während jedes folgenden Jahres bis zur Jahrhundertwende behielt. In der Tat war 1863 das letzte Jahr einer Brasilienwanderung von mehr als 10 Personen aus dem Kreis Simmern. Danach ging Nordamerika immer weiter in Führung, mit 78 Prozent der Auswanderer in den 1870er Jahren bis auf 95 Prozent in den 1880er Jahren.[23]

---

20 In der brasilianischen Literatur wird die regionale Konzentration der Deutschen aus dem Hunsrück auch erwähnt, z.B. *Willems*, A aculturacao dos alemaes, S. 61-63. Allerdings unterschätzt er das Ausmaß, weil er übersieht, daß mit »Oldenburg« in Brasilien meist nur die Hunsrücker Exklave Birkenfeld und mit »Sachsen-Coburg« lediglich die Exklave Lichtenberg an der Mosel gemeint ist; vgl. *Marschalck*, Brasilienwanderer, S. 175.

21 Statistische Nachrichten über das Grossherzogtum Oldenburg 9, 1867, S. 164-177, 286.

22 *R. Mörsdorf*, Die Auswanderung aus dem Birkenfelder Land, Bonn 1939, S. 82 f., enthält Auswanderungszahlen nach Jahren, aber unterscheidet nicht zwischen nord- und südamerikanischen Wanderungszielen.

23 *W. Diener*, Die Auswanderung aus dem Kreise Simmern (Hunsrück) im 19. Jahrhundert, in: Rheinische Vierteljahrsblätter 8, 1938, S. 107, 123.

Allgemein lassen sich die Auswirkungen des US-Bürgerkriegs auf das Wanderungsverhalten mangels fortlaufender Statistiken schwer einschätzen. Die US-Wanderung ließ eindeutig nach, wodurch die lateinamerikanische Wanderung einen größeren *Anteil* einer unterdurchschnittlichen *Summe* ausmachte. Unwahrscheinlich ist es jedoch, daß eine zunehmende Zahl von Deutschen nach Süden gegangen ist, die ansonsten in die USA gewandert wären. Preußische Statistiken unterscheiden erst ab 1862 zwischen nord- und südamerikanischen Zielorten, was die langfristigen Tendenzen verdeckt. Hannoversche Statistiken liegen nur zwischen 1859-64 vor, aber sie wurden ab 1867 in der preußischen Statistik weitergeführt – in dem Jahr nach der Annektierung von Hannover, die an und für sich eine unnormale Situation mit sich brachte. Nach dem Prozentsatz für 1861 und 1862 zu beurteilen, hatte sich die südamerikanische Wanderung aus Hannover beinahe verdoppelt. Aber in absoluten Zahlen emigrierten in den ersten zwei Kriegsjahren nicht mehr Hannoveraner nach Südamerika als in den zwei Jahren zuvor, und bedeutend weniger in den Jahren 1863 und 1864. Nach Ende des Bürgerkriegs war die südamerikanische Auswanderung in den Jahren 1867-69 fast dreimal so stark wie in den vorhergehenden sechs Jahren, mit abnehmender Tendenz danach. Ähnlich wanderten 88 Hannoveraner jährlich nach Australien in den zwei Vorkriegsjahren und durchschnittlich 90 in den vier Kriegsjahren. Alles in allem läßt sich kaum eine Ablenkung des Wanderungsstroms von den USA nach Lateinamerika oder irgendeinem anderen Zielort als Folge des amerikanischen Bürgerkriegs erkennen. Peter Marschalck stellt überzeugend fest, daß der größte Teil der beabsichtigten Auswanderungen während des Krieges lediglich verzögert wurde, so daß die fünf Nachkriegsjahre eine überdurchschnittliche Auswanderungsrate nach den USA sozusagen aus Nachholbedarf mit sich brachten.[24]

Natürlich waren die USA nicht die einzige Gesellschaft, die von Kriegen heimgesucht wurde; der amerikanische Bürgerkrieg war unvergleichbar in der Größenordnung, aber Lateinamerika hatte mit größerer Häufigkeit kleinere Kriege erlitten, wie man bereits in den 1830er Jahren gesehen hatte. Ein anderer Krieg, der paraguayische Krieg von 1864-70 hat sich mit dem amerikanischen Bürgerkrieg überschnitten. Brasilien und Argentinien, die zwei bevorzugten deutschen Wanderungsziele, waren daran beteiligt. Obwohl Paraguay selbst am schlimmsten darunter litt, brachte der Krieg im Jahr 1865 auch fremde Truppen und Kampfhandlungen in das Haupteinwanderungsgebiet von Rio Grande do Sul.[25] Aber keiner dieser beiden Kriege zeigte einen deutlichen Einfluß auf die Schwankungen der Einwandererzahlen Brasiliens oder auch Argentiniens. Fast doppelt so viele Deutsche sind zwischen 1856 und 1860 nach Brasilien gewandert wie 1861-65, obwohl die Jahreszahlen zeigen, daß der Rückgang erst um 1863 einsetzte. Die Einwanderung zwischen 1866 und 1870 – in etwa der Zeitraum des paraguayischen Krieges – war geringfügig niedriger als in den fünf Jahren zuvor. Aber auch hier weisen die Jahresdaten einen Spitzenwert im Jahr 1868 auf, mitten im Krieg. Außerdem waren die Einwandererzahlen in den Friedensjahren 1871-75 noch niedriger als in den Kriegsjahren. Trotz kleinerer Abweichungen zeigen die Auswanderungszahlen von Hamburg im allgemeinen

24 *T. Böddicker*, Die Einwanderung und Auswanderung des preußischen Staates, in: Preussische Statistik 26, 1874, S. viii-ix, 302-5. Zur Statistik des Königreichs Hannover 9, 1863, S. 159-163; 11, 1865, S. 90-95; *Marschalck*, Deutsche Überseewanderung, S. 42-44.

25 *R. Graham*, Brazil from the Middle of the Nineteenth Century to the Paraguayan War, in: The Cambridge History of Latin America, Bd. 3, hg. v. L. Bethell, Cambridge 1985, S. 785-792; *Love*, Rio Grande do Sul, S. 15; *C. Moreira Bento*, Estrangeiros e Descendentes: na historia militar do Rio Grande do Sul, 1635 a 1870, Porto Alegre 1976, S. 132-152.

dieselben Tendenzen.[26] Also spricht wenig dafür, daß Brasilien während des US-Bürgerkriegs als alternatives Wanderungsziel gedient hat, und auch der Krieg in Brasilien scheint recht wenig Einfluß auf die Einwandererzahlen ausgeübt zu haben.

Ein anderer möglicher Einflußfaktor auf die jährlichen Wanderungszahlen ist das sogenannte Heydt'sche Reskript von 1859, ein Erlaß des preußischen Handelsministers August von der Heydt, der die Auswanderung nach Brasilien offiziell verurteilte, vor allem wegen gesetzlicher Diskriminierung der Protestanten, und die Werbung dafür in Preußen untersagte. Ein Blick auf die Jahreszahlen (Tab. 1) zeigt, daß nach brasilianischen Angaben die deutsche Einwanderung im Jahr 1859 tatsächlich im Vergleich zum vorhergehenden Jahr zunahm und im Jahr 1860 noch weiter anstieg, im Jahr 1861 knapp unter das Niveau von 1858 fiel und im Jahr 1862 zu einer bisher unerreichten Höhe gelangte. Fast möchte man meinen, daß die Auswanderer die offizielle preußische Mißbilligung als eine Empfehlung zugunsten Brasiliens gesehen haben. Im Gegensatz dazu nahmen die Einwanderungsraten nach 1862 stark ab, als Brasilien die von Preußen geforderten Gesetzesveränderungen erließ, die auch protestantischen Geistlichen das Recht gab, Eheschließungen zu vollziehen. Die Meinung von Fred Luebke scheint völlig gerechtfertigt, daß das Heydt'sche Reskript kaum Auswanderungen verhindert hatte, solange es in Kraft war, und hat umgekehrt auch kaum Auswanderungen begünstigt, als es endlich 1895 aufgehoben wurde.[27]

Im allgemeinen scheint die Konfession wenig Einfluß darauf gehabt zu haben, welche Deutschen sich lateinamerikanische Wanderungsziele aussuchten.[28] Zwar geht die früheste Migrationswelle nach Brasilien in den 1820er Jahren weitgehend von katholischen Gebieten aus, einschließlich Luxemburg. Aber während dieses Zeitraums war Auswanderung allgemein weitgehend auf Südwestdeutschland beschränkt, ein vorwiegend katholisches Gebiet. Außerdem waren die wenigen protestantischen Gebiete, die es im Südwesten gab, ebenfalls stark an der Brasilienwanderung beteiligt. In der Tat war eine der ersten Schiffsladungen deutscher Auswanderer, die in Brasilien ankam, eine Gruppe von Protestanten, die 1824 von ihrem Pastor begleitet wurden. Ein ähnliches Beispiel ist Birkenfeld, das kaum zu 20 Prozent katholisch war, aber fortwährend den größten Teil seiner Auswanderer noch bis zum Jahr 1863 nach Brasilien schickte.[29]

Im Laufe der Zeit neigten die protestantischen Gebiete Preußens genau so stark wie die katholischen Regionen dazu, Auswanderer nach Süden zu schicken. Statistiken auf Regierungsbezirksebene über Zielorte der Auswanderung liegen für ganz Preußen während der Jahre

---

26 *Ferenczi/Willcox*, International Migrations, Bd. 1, S. 549 f., 695, 700; *Graham*, Brazil, S. 771, faßt diese Zahlen für Deutsche und Einwanderer aus anderen Ländern nach 5-Jahres-Perioden zusammen.

27 *Luebke*, Germans in Brazil, S. 11 f.; *Prien*, Evangelische Kirchwerdung, S. 48 f; *Dreher*, Kirche und Deutschtum, S. 32. *Mörner*, Adventurers and Proletarians, S. 61, verleiht der Effektivität des Reskripts mehr Glaubwürdigkeit.

28 Nach einer Schätzung aus den 1920er Jahren war der Anteil der Protestanten unter Deutsch-Brasilianern 54% - weniger als die etwa 60% der Deutschen in den USA, aber immer noch eine Mehrheit; *Luebke*, Germans in Brazil, S. 36; *Dreher*, Kirche und Deutschtum, S. 17, 38, wagt keine nähere Schätzung als das "etwas mehr als die Hälfte" der deutschen Einwanderer Brasiliens protestantisch waren. Über die USA s. *K.N. Conzen*, Immigrant Religion and the Public Sphere: The German Catholic Milieu in America, unveröffentlichtes Papier zum Symposium Comparative Perspectives on German-American Migration, 22.-24. April 1997, College Station, Texas.

29 *Luebke*, Germans in Brazil, S. 8-9; Statistische Nachrichten über das Großherzogtum Oldenburg, Bd. 12, 1871, S. 54; Bd. 9, 1867, S. 176-177; s. auch *Willems*, A aculturacao dos alemaes, S. 476-482; *Browne*, Government Immigration Policy, S. 302-309.

1862-71 und wiederum von 1873-82 vor.[30] Wie es sich herausstellt, war das wichtigste Herkunftsgebiet der südamerikanischen Auswanderung sowohl in den 1860er als auch in 1870er Jahren die zwei pommerschen Bezirke von Stettin und Koeslin. Von insgesamt 36 Bezirken haben diese zwei mehr als ein Viertel der 7.400 Südamerikawanderer im dem Jahrzehnt vor 1871 aufgebracht, und über ein Drittel der knapp 2.000 mit solchen Zielorten in dem Jahrzehnt nach 1873. Jedoch hatten diese zwei Bezirke katholische Bevölkerungsanteile zwischen 1 und 2 Prozent.

Auch über ganz Preußen gab es kaum einen Zusammenhang zwischen Katholizismus und lateinamerikanischer Auswanderung (Tab. 2). Ob man nun den Anteil aller Auswanderer mit den drei vorrangigen Zielorten Nordamerika, Südamerika und Australien berechnet oder ob man die Pro-Kopf-Auswanderungsraten nach diesen drei Zielorten berechnet, sind die Resultate recht ähnlich. Es gibt kaum Anzeichen dafür, daß deutsche Katholiken Lateinamerika bevorzugten. Im Durchschnitt gibt es während der beiden Jahrzehnte eine durchaus positive Korrelation zwischen dem Anteil an Katholischen und dem Anteil mit südamerikanischem Zielort, aber von unerheblichem Umfang und nicht so stark wie die Korrelation zwischen Katholischen und nordamerikanischem Anteil, wobei keiner von beiden statistische Signifikanz erreicht. Der einzige Zielort, der klar von einer Konfession bevorzugt wurde, war Australien, das hauptsächlich Deutsche aus den protestantischen Gebieten anzog. Der Hauptfaktor dabei war wohl die altlutherische Gruppenwanderung von 1830er bis in die 1850er Jahre, die durch Kettenwanderung auch später nachwirkte. Auf einer pro-Kopf-Basis ist die Korrelation zwischen katholischen Gebieten und südamerikanischer Auswanderung sogar negativ für die 1860er Jahre und nur so eben positiv für die 1870er, aber im Grunde genommen gleich Null in beiden Fällen. Fast der einzige Beleg für die konfessionelle Hypothese ist die Tatsache, daß diese Korrelation mit katholischen Gebieten noch weitaus negativer für Nordamerika und besonders für Australien ist, letztere sogar von statistischer Signifikanz in den 1870er Jahren. Also gibt es viel stärkere Indizien dafür, daß Protestanten Australien bevorzugten, als daß Katholiken eine Vorliebe für Lateinamerika hegten. In Nordamerika sprechen die Vielzahl deutschsprachiger Kirchengemeinden, sowohl katholisch als auch protestantisch, dagegen, daß es eine konfessionelle Selektivität gegeben hat.[31]

Um einem ökologischen Trugschluß in den großen und heterogenen preußischen Regierungsbezirken vorzubeugen, erschien es ratsam, die konfessionellen Faktoren auch auf einer niedrigeren Aggregationsebene zu untersuchen. Für die Provinz Westfalen gibt es Daten über die drei Hauptzielorte auf Kreisebene für die Jahre 1862-71.[32] Auch hier bestätigen sich die obigen Ergebnisse: ob pro-Kopf oder prozentual berechnet, gab es eine schwache, aber insignifikante Korrelation zwischen katholischen Gebieten und südamerikanischen Zielorten, etwa 0,13. Anders ausgedruckt, sind weniger als 2 Prozent der Abweichungen auf der Konfession

30 Einwandererzahlen entnommen aus *T. Böddicker*, Die Einwanderung und Auswanderung des preußischen Staates, Preußische Statistik 26, 1874, S. xi; Der Erwerb und Verlust der Reichs- und Staatsangehörigkeit, in: Zeitschrift des Preußischen Statistischen Bureaus (Jahrgänge 1873 bis 1882). Angaben zur Konfessionsangehörigkeit stammen aus der Volkszählung von 1871 in: Preußische Statistik, Bd. 30, 1875, S. 80 f. Die offizielle Registrierung preußischer Auswanderer nahm im Laufe der Zeit an Gründlichkeit ab, aber es besteht kein Grund zur Annahme, daß Auswanderer nach Lateinamerika häufiger heimlich abreisten als andere.

31 *U.S. Bureau of the Census*, Religious Bodies, 1906, Teil I, Washington, DC 1910, S. 110-121; Religious Bodies, 1916, Teil I, Washington, DC 1919, S. 72-85.

32 Auswandererzahlen entnommen aus Preußische Statistik 26, 1874, S. 304-321. Angaben zur Konfession aus der preußischen Volkszählung von 1855, veröffentlicht in: Tabellen und amtlichen Nachrichten des preußischen Staates 1855, Berlin 1858, S. 62.

zurückzuführen. Es gibt zwar eine negative Korrelation zwischen katholischen Gebieten und nordamerikanischen Zielorten, die pro Kopf sogar statistische Signifikanz erreicht, aber darin spiegelt sich vor allem die starke Auswanderung aus den preußischen Gebieten von Ostwestfalen aus Gründen, die wenig oder nichts mit Konfessionen zu tun haben. Ein negativer Zusammenhang zwischen katholischer Bevölkerung und australischen Zielorten zeigt sich auch in schwacher Form hier.

Während die Aufmerksamkeit auf Preußen gerichtet war, wurden die stark katholischen Gebiete von Süddeutschland vernachlässigt, was aber keineswegs das Bild verzerrt. In den 1870er und 1880er Jahren ging mehr als 99 Prozent der bayerischen Auswanderung in die Vereinigten Staaten, die auch mehr als 95 Prozent der Überseewanderung aus Baden zwischen 1840 und 1855 aufnahm. Algerien stand an zweiter Stelle, und alle übrigen Zielorte einschließlich Lateinamerika bekamen weniger als 2 Prozent der badischen Auswanderung. Württembergische Behörden haben in den Jahren 1856/57 tatsächlich die Konfessionen der Auswanderer nach Zielorten aufgezählt. Auf den ersten Blick ist ein starker konfessioneller Einfluß scheinbar zu erkennen: Die Katholiken, etwa 30 Prozent der württembergischen Bevölkerung, machten 41 Prozent der Auswanderung nach Südamerika aus, aber nur 19 Prozent der Auswanderung zu nordamerikanischen Zielorten und nicht mal 10 Prozent von denen, die nach Australien gingen. Aber insgesamt ging nur einer von 30 katholischer Auswanderern nach Südamerika, so stark überwogen Zielorte in den USA.[33] Obwohl der konfessionelle Faktor nicht vollkommen irrelevant ist, übte er keine großen Einfluß auf die Zielorte der Deutschen aus. Das deutet darauf hin, daß die starke italienische Auswanderung nach Lateinamerika vielleicht mehr mit sprachlichen und kulturellen Affinitäten zu tun hatte als mit Konfession an und für sich.

Als Ortsnamen kann Brasilien zwar sowohl ein Neu Bremen als auch ein Novo Hamburgo vorweisen, aber die lateinamerikanische Auswanderung spielte sehr verschiedene Rollen für die zwei Hauptauswandererhäfen Bremen und Hamburg.[34] Bremen konzentrierte sich sehr stark auf die nordamerikanischen Routen: während der 1860er Jahre wanderten fast 97 Prozent der Auswanderer über Bremen in die USA. Im Gegensatz dazu schickte Hamburg in den Jahren zwischen 1836 und 1870 gerade 81 Prozent seiner Auswanderer in die USA und galt als führender deutscher Auswanderungshafen nach Südamerika und Australien.[35] Zugleich wuchs das Importgeschäft von Hamburg mit Lateinamerika viel stärker als das in Bremen der Fall war. Der Kaffeehandel war in Hamburg 1888 zwanzigmal so stark wie der in Bremen: dasselbe gilt für die Kaffeeeinfuhr aus Brasilien, die etwa die Hälfte der Gesamtmenge ausmachte.[36] Dieses war auch kein unnormales Jahr: Der Wert der Hamburger Ausfuhr nach Mittelamerika in den Jahren 1866-1873 war beinahe fünfmal so groß war wie der bremische. Um die Jahrhundertwende erreichten Bremens Einfuhrwerte aus Mittelamerika nur 13 Prozent der Einfuhrwerte von Hamburg, und der Abstand in bezug auf den Ausfuhrwert war noch größer.[37] Dies ist vielleicht

---

33 Beiträge zur Statistik des Königreichs Bayern 69, 1912, S. 133*; Beiträge zur Statistik der inneren Verwaltung des Großherzogtums Baden 5, 1857, S. 38 f.; Württembergisches Jahrbuch, 1856, S. 160-162; 1857, S. 10-12. Weitere Bestätigung kommt von der argentinischen Seite, wo zufälligerweise genau 41% der deutschen Einwanderer zwischen 1876 und 1909 katholisch waren; *A Saint Sauver-Henn*, Un siècle d'émigration allemande vers l'Argentine 1853-1945, Köln 1995, S. 262.

34 *Luebke*, Germans in Brazil, S. 19; *Willems*, A aculturacao dos alemaes, S. 349.

35 Zahlen aus dem Jahrbuch für die Amtliche Statistik des Bremischen Staats 1-7, 1868-74; Statistik des Hamburgischen Staats 4, 1872, S. 103, 114 f.

36 Statistik des deutschen Reichs N.F. 41, 1889, Teil III: S. 54, 64. Meinen Dank an W. Helbich für diesen Hinweis.

37 *Th. Schoonover*, Germany in Central America: Competitive Imperialism, 1821-1929, Tuscaloosa 1998, S. 215.

ein Beleg für die Hypothese, daß Auswanderung den Handelswegen folgt, aber bevor man zu diesem Schluß kommen kann, muß man feststellen, wer die Henne und wer das Ei war.

In Wirklichkeit hat die Auswanderung vielleicht eher den Handel vorangetrieben, als umgekehrt. In den 1820er Jahren wurden die brasilianischen Auswanderungswerber in Bremen freundlicher aufgenommen als in Hamburg, weil Bremer Behörden dabei hofften, ihren geringfügigen Handel mit Brasilien aufzubessern, was aber nicht erfolgte. Bremen entwickelte sehr früh eine symbiotische Beziehung zu den Vereinigten Staaten, wobei die Auswandererbeförderung eine entscheidende Rolle spielte. Sie wurde schnell zur Haupteinkommensquelle, anstatt, wie am Anfang, die auslaufenden Handelsschiffe einfach als Ballast zu dienen, um den Unterschied auszugleichen zwischen hochwertigen Exportgütern, die im Verhältnis zum Wert nur wenig Platz beanspruchten, und den billigen, sperrigen Rohstoffen, die eingeführt wurden.[38] Es war nicht so, als wären keine Bremer Schiffe nach Lateinamerika gesegelt, aber weniger Auswanderer wollten mitfahren. Bei 750 Schiffspassagen, die zwischen 1862-67 von Bremen in die USA gingen, wurden durchschnittlich 300 Auswanderer transportiert; die 33 Schiffspassagen, die im selben Zeitraum nach Brasilien gingen, nahmen jeweils nicht einmal 11 Auswanderer mit sich, und für die übrigen Gebiete von Lateinamerika und die Karibik waren die Zahlen noch geringer. Die Entfernung und die Kosten für die Überfahrt nach Lateinamerika waren offensichtlich größer als für die Reise nach Nordamerika, aber was die Bequemlichkeit angeht, war Ende der 1860er Jahre der Anteil der Dampfschiffe auf der Route zwischen Bremen und Lateinamerika genau so hoch wie zwischen Bremen und New York, etwa zwei Drittel in beiden Fällen. Und der Anteil der auf Dampfschiffen reisenden Passagiere war in Richtung Südamerika sogar noch höher als auf der Route nach New York. Somit erweist sich die Hypothese, daß Auswanderung dem Handel folgt, als mangelhaft bei der Bestimmung der Zielorte der Auswanderer, die aus deutschen Häfen anreisten (obwohl die Situation der Deutschen, die Frankreich, Belgien oder die Niederlande als Ausgangspunkt benutzten, zu schwach beleuchtet ist, als daß man daraus irgendwelche Schlüsse ziehen könnte).[39]

Die Geschichte der deutschen Kolonisierungsbestrebungen in Lateinamerika erweist sich eigentlich kaum als Wanderungsgeschichte, sondern als Geschichte von Ideen, Politik und bürokratischen Initiativen, die nur von geringfügiger Auswirkung auf die reale Welt waren. Obwohl die deutschen Kolonisierungsbestrebungen in Mittelamerika sich fast über ein Jahrhundert erstreckten und trotz einer ansehnlicher deutschen wirtschaftlichen Vertretung, war Guatemala das einzige Land der Region mit mehr als tausend deutschen Siedlern bis zum Ersten Weltkrieg.[40]

Faßt man die bisherigen Befunde zusammen, sieht man einige mäßige Auswirkungen von Rekrutierung nach Lateinamerika in Gebieten, die noch keine fest etablierte Wanderungstradition hatten, zumindest kurzfristig und besonders, wenn den Emigranten eine freie Überfahrt angeboten wurde. Aber die brasilianischen Verhältnisse bestätigen auch das deutsche Sprichwort »Lügen haben kurze Beine«. Wenn sich die Verheißungen der Rekrutierer als falsch erwiesen, konnte die Auswanderung nach Zielorten außerhalb der USA von einem Jahr zum anderen abrupt aufhören. Trotzdem schienen manche brasilianischen Rekruten so zufrieden zu sein mit dem, was sie vorgefunden hatten, daß sie Wanderungsketten in Gang setzten, die sich über

38 *Marschalck*, Brasilienauswanderer, S. 169; *R. Engelsing*, Bremen als Auswandererhafen, 1683-1880, Bremen 1961, S. 117-123.

39 Jahrbuch für die Amtliche Statistik des Bremischen Staats 1-7, 1868-74.

40 *Schoonover*, Germany in Central America, S. 223 f. und passim.

Jahrzehnte erstreckten. Im Laufe des 19. Jahrhunderts jedoch hat sich der Auswanderungsschwerpunkt auch aus diesen Gebieten in den nördlichen Wendekreis verlagert.

Sowohl auf Mikro- als auch auf Makro-Ebene gibt es aussagekräftige Belege, daß das Modell von »Zufall- und Kettenwanderung« ebenso für Brasilien gilt wie für Nordamerika. Auf der Makro-Ebene sieht man, daß die Schwerpunkte der Auswanderung nach Südamerika (sprich: Brasilien) sich ziemlich willkürlich über die Landkarte von Preußen verteilten. Jedoch von einem Jahrzehnt zum anderen gab es eine relativ starke Kontinuität bei der anteiligen Auswanderung eines Bezirkes, die nach Süden gerichtet war. In allen 36 Regierungsbezirken von Preußen bestand eine starke Korrelation zwischen den Auswandererzielen in den Jahren 1862-71 und denen von 1873-82 (Tab. 3). Ob pro-Kopf oder prozentual gemessen, zeigten die Auswanderungsbewegungen in die drei Kontinente Nordamerika, Südamerika und Australien alle stark signifikante Korrelationen zwischen einem Jahrzehnt und dem folgenden. Die höchsten Korrelationen zeigten die pro-Kopf-Raten: 0,95 für Nordamerika, 0,85 für Südamerika und 0,57 für Australien.[41]

Belege auf Mikro-Ebenen bestätigen, daß Kettenwanderung in der Tat diese Konsistenz erklärt. Die Südamerika- oder Australienwanderung war nicht gleichmäßig verteilt, sie bildete oft kleine konzentrierte Schwerpunkte. In den Jahren 1859-61 brachten allein 2 der 101 Ämter des Königreiches Hannover 70 Auswanderer nach Südamerika, dagegen die anderen 99 Ämter lediglich 105.[42] Die Kettenwanderung aus der Trier-Mosel-Region wurde bereits oben erwähnt. Die Siedler von Sao Leopoldo, die erste Kolonie, die auf die 1820er Jahre zurückgeht, bestand zu 75 Prozent aus Hunsrückern. In den isolierten Siedlungen der Gebirgsstadt Espirito Santo, nördlich von Rio, waren die zwei deutschen Hauptelkontingente aus dem Hunsrück und aus Pommern, beide von einer starken Kettenwanderung bestimmt. Als sie gefragt wurden, ob sie Deutsche seien, haben Einwanderer dieser Region oft geantwortet: »Wir sind nicht Deutsche, wir sind Hunsrücker«. Aber das pommersche Element war auch von Bedeutung dort. Auswanderung aus dieser Provinz, die ein Viertel bis zu einem Drittel der preußischen Südamerika-Wanderung stellte, schlug bereits vor 1850 diese Richtung ein, als die Überseewanderung aus Ostelbien gerade im Anfangsstadium war. So stark und kontinuierlich war dieser Wanderungsstrom, daß es bis heute brasilianische Siedlungen gibt, wo pommersches Plattdeutsch gesprochen wird.[43]

Ein drittes Beispiel betrifft ein Gebiet, Kreis Tecklenburg in Westfalen, wo ich bei meinen früheren Studien ein ausgeprägtes Kettenwanderungssystem in den mittleren Westen Amerikas festgestellt habe. In den meisten Gemeinden begann dieses bereits in den 1830er Jahren, aber in dem Dorf Leeden gab es vor 1850 relativ wenig Auswanderung in die USA. Jedoch im Jahre 1865 wanderte der protestantische Pastor J. F. W. Kleingünther, der zuvor Vikar des Dorfes war, nach Brasilien aus und wirkte bei der Gründung der Kolonie Teutonia mit. Infolgedessen gingen während der folgenden Jahrzehnte Dutzende von Emigranten von Leeden nach Brasilien

41 Angaben über Zielorte sind in deutschen Länderstatistiken oft recht vage; Preussen verzeichnet einfach „Südamerika", Hannover „Mittel- und Süd Amerika, besonders Brasilien". Datenqellen s. Anm. 30. Die Prozentzahlen basieren auf 36, die Pro-Kopf-Zahlen auf 27 Fällen, weil für die neu annektierten Gebiete Preußens Daten erst ab 1867 vorliegen.

42 Zur Statistik des Königreichs Hannover 9, 1863, S. 134-63; 40 Auswanderer mit Ziel Südamerika kamen vom Amt Alfeld im Bezirk Hildesheim, 30 vom Amt Neustadt im Bezirk Hannover. Von 1859 bis 1861 gab es von den 101 Ämtern und etwa 40 amtsfreien Städten im Königreich insgesamt 93, die keinen einzigen Auswanderer nach Südamerika stellten.

43 *Willems*, A aculturacao dos alemaes, S. 61-64, 93 f. Telefongespräch mit *Dr. R Mühle*, Universität Rostock, der weitreichende, aber bisher unveröffentlichte Archivforschung in Pommern durchgeführt hat.

und siedelten sich fast alle in Teutonia oder in der näheren Umgebung an. Aus anderen benachbarten Dörfern, in denen die Wanderung in die USA schon zur Tradition gehörte, gingen nur eine Handvoll von Menschen nach Brasilien, die oftmals auch in verwandtschaftlichem Verhältnis zu den Leedenern standen. Es wurde berichtet, daß der Tecklenburger Dialekt in Teutonia sogar bis in die 1990er Jahre gesprochen wurde.[44]

Nach dem, was wir bisher gesehen haben, scheint die deutsche Auswanderungsbewegung nach Brasilien große Ähnlichkeit mit derjenigen in den amerikanischen Mittelwesten zu haben, sowohl was die soziale Herkunft angeht als auch in bezug auf die Siedlungsmuster und die Akkulturation. Aber es gab noch eine andere Sorte von Brasilien-Deutschen, die Fred Luebke so beschrieb: Reichsdeutsche-Untertanen der deutschen Kaiser, die die brasilianische Staatsbürgerschaft ablehnten. Viele unter ihnen waren gebildete Personen aus der Mittelschicht. Nicht wenige waren mit deutschen Firmen in Brasilien assoziiert und verhielten sich wie Besucher in einem fremden Land, die sich auf den Tag freuten, an dem sie wieder in die Heimat zurückkehren konnten.[45]

Auch wenn dieser Bevölkerungsanteil nur eine kleine Minderheit der Deutschen in Brasilien ausmachte mit Schwerpunkt in Städten wie z.B. Rio, so bildete sie doch die Mehrheit derer, die sich außergewöhnlichere Zielorte in Lateinamerika aussuchten. Allein die Verteilung der Geschlechter der Auswanderer nach verschiedenen Zielorten ist ein starkes Indiz hierfür. Auswanderer in die USA und nach andere bevorzugte Zielorte hatten ein relativ ausgeglichenes Geschlechterverhältnis, ein charakteristisches Merkmal für anhaltende Familienwanderung. Aus den Unterlagen aus deutscher Hafenstädte im 1872 geht hervor, daß der männliche Anteil der Auswanderer in die USA, Kanada, Australien und Brasilien alle in der in der engen Spannweite von 51-56 Prozent lagen. Aber je weiter man von den vorgezeichneten Routen abweicht, desto stärker überwiegt der Anteil der Männer bei den Auswanderern: nach Argentinien 61 Prozent, nach Mexiko, Mittelamerika und in die Karibik 65 Prozent, in die restlichen Gebiete von Südamerika 74 Prozent, nach Asien 75 Prozent und nach Afrika 100 Prozent männliche Personen.[46] Auch die Rückwandererraten lagen höher bei exotischen Wanderungszielen: In den Jahren 1879 bis 1892 betrug die Rückwanderungsrate aus den USA 15 Prozent, aus Argentinien 31 Prozent und aus Uruguay 57 Prozent der deutschen Zuwanderer.[47]

---

44 *F.E. Hunsche*, Auswanderungen aus dem Kreis Steinfurt, Emsdetten 1983, S. 55-58, 126 f., vgl. auch S. 112, 138 f., 145, 174, 219-223, 303; *R. Niemann*, Die Plattdeutschen von Teutonia-Vorfahren verließen vor 130 Jahren unsere Region, in: Heimatjahrbuch Osnabrücker Land 1999, S. 146-152; die meisten der hier erwähnten Herkunftsorte liegen in der unmittelbaren Umgebung von Leeden. In der brasilianischen Literatur gilt Teutonia auch als westfälische Ansiedlung; s. *Willems*, A aculturacao dos alemaes, S. 62.

45 *Luebke*, Germans in Brazil, S. 31. Ähnlich wurden Kirchengemeinden der Großstädte Brasiliens nach 1900 als "ausgesprochene Kaufmannsgemeinden, die von einem Stamm Reichsdeutscher unterhalten werden" beschrieben. *Prien*, Evangelische Kirchwerdung, S. 185 f.

46 Berechnet aus *Böddicker*, Einwanderung und Auswanderung, S. xliv. Über 73% der Deutschen, die im argentinischen Zensus von 1869 erfaßt wurden, waren Männer und über 63% in den Volkszählungen von 1895 und 1914. Da deren Rückwanderungsrate höher lag, machten Männer zwischen den Jahren 1857 und 1897 fast 75% der Gesamtzahl aller deutschen Einwanderer aus; *Saint Sauver-Henn*, Un siècle d'émigration, S. 279.

47 Errechnet aus Daten von *Ferenczi/Willcox*, International Migrations, Bd. 1, S. 544, 573, 577 und von *G. Moltmann*, American-German Return Migration in the Nineteenth and Early Twentieth Centuries, in: Central European History 13, 1980, S. 378-392. Ich habe an anderer Stelle (Umfang und Zusammensetzung der deutsch-amerikanischen Rückwanderung, in: Amerikastudien/American Studies 33, 1989, S. 291-307) argumentiert, daß die Berechnungen von *Moltmann* viele Handelsreisende und Besucher umfassen, aber dasselbe würde auf die lateinamerikanischen Zahlen zutreffen. Die lateinamerikanischen Rückwanderungsraten waren auch in den späteren Jahren nicht rückläufig, in denen US-Zahlen nicht mehr verfügbar waren. In den Jahren 1879-1903 betrugen die Rückwanderungs-

Das erinnert an den Zusammenhang, den Thomas Archdeacon erkannt hat: Je höher der Anteil der Männer, desto höher die Rückwanderrate.[48] Zu bedenken ist auch die Unterscheidung, die Marschalck machte zwischen »sozio-ökonomischer« und »wirtschafts-spekulativer« Wanderungen: erstere eine Massenmigration, vorwiegend von Familien aus den unteren Schichten oder den unteren Mittelschichten mit dem Ziel der Ansiedlung; letztere eine Migration von Einzelpersonen, die keinem absoluten Wirtschaftsdruck unterlagen, mit dem Ziel, größere Gewinne zu machen, und dem Gedanken an langfristige Rückkehr.[49] Wie der Titel des Buches von Magnus Mörner über Lateinamerika andeutet, konnte Rückwanderung sowohl (spekulative) Abenteurer als auch Proletarier betreffen, aber es gibt Indizien dafür, daß die Deutschen eher zu den spekulativen gehörten. Diejenigen in Mittelamerika passen recht gut in das wirtschafts-spekulative Profil; wie ein Gesandter aus Berlin in den 1920er Jahren bemerkte: »Wir spielen in etwa dieselbe Rolle in Guatemala wie das, was die Antisemiten gegenüber den Juden in Deutschland behaupten«. Die Tatsache, daß bis 1920 etwa 1.500 Deutsche einheimische Frauen in Guatemala geheiratet hatten, spricht für die überwiegend männliche Zusammensetzung dieser Gruppe. Auch neigten die Deutschen, die während der 1880er Jahre in Uruguay ankamen, weniger als andere Nationalitäten dazu, die Arbeitsvermittlung der staatlichen Einwandererbehörde in Anspruch zu nehmen.[50] Die geographischen und sozio-ökonomischen Nischen, die die Deutschen in Argentinien und in den USA eingenommen haben, erscheinen auf den ersten Blick nicht sehr unterschiedlich. In beiden Fällen waren sie in der städtischen Bevölkerung zumindest um das Zweifache überrepräsentiert. In beiden Gebieten kamen die Deutschen in den ländlichen Gebieten eher als ihre Nachbarn in den Besitz von Realvermögen. Aber bei der städtischen Bevölkerung zeigen sich deutliche Kontraste, was den Wert der Realvermögen angeht. Bei Deutschen in Nordamerika lag es beim nationalen Durchschnitt oder darüber, aber bei den Argentinien-Deutschen lag es unter dem Durchschnitt. Die argentinischen Daten (von 1914) erscheinen zunächst fragwürdig, weil englische Einwanderer noch schlechter abschnitten als die deutschen, während italienische Einwanderer besser gestellt waren. Aber das spricht auch dafür, daß die Nordeuropäer eher Kaufleute waren, deren Aufenthalte von kürzerer Dauer waren und deren Kapital eher in mobiler als in immobiler Form angelegt wurde. Hinzu kommt die frühe Einwanderung der Italiener, was ihnen Zugang zu günstigen wirtschaftlichen Nischen verschaffte.[51]

Diese Indizien sind zu spärlich, um sichere Schlüsse daraus zu ziehen, aber sie bekommen zusätzliches Gewicht durch Daten über die Wanderungsselektivität auf deutscher Seite. Es gab

---

raten von Argentinien nach Deutschland im Durchschnitt 38%, die von Uruguay 59%. In den einzigen Jahre, für die brasilianischen Zahlen vorliegen, nämlich von 1904-1907, sind mehr Deutsche abgereist als angereist, was darauf hindeutet, daß die alte Siedungswanderung von einer anderen Wanderungsform abgelöst worden war; *Ferenczi/Willcox*, S. 550, 555.

48 *Th. Archdeacon*, Becoming American: An Ethnic History, New York 1983, S. 139. Unter 25 ethnischen Gruppen fand er eine Korrelation von 0,69 zwischen Anteilen männlicher Migranten und Rückwanderungsraten.

49 *Marschalck*, Deutsche Überseewanderung, S. 71, 82-84.

50 *Schoonover*, Germany in Central America, S. 187, 194. Berechnet nach Daten in *Ferenczi/Willcox*, International Migrations, I, S. 572-573. Deutsche Antragsteller machten 14,5% aller Neuankömmlinge aus, bei anderen Nationalitäten waren es 20,3%.

51 *Klein*, Integration of Italian Immigrants, S. 320-323. Nach einer anderen Studie schienen die Deutschen besser abzuschneiden, aber der Autor versäumt es, die Altersstruktur in Betracht zu ziehen, wie *Klein* es machte; *C. Solberg*, Immigration and Nationalism: Argentina and Chile, 1890-1914, Austin 1970, S. 57. Die Berufsstruktur der ankommenden Passagiere in Argentinien ist irreführend, weil die Erste Klasse nicht erfaßt wird. Sowohl im Jahre 1869 als auch 1914 wohnten mehr als 40% aller Deutschen in Argentinien in der Stadt Buenos Aires und mehr als 63% in der Stadt und der umliegenden Provinz, obwohl dieser Urbanisierungsgrad beim Zensus von 1895 zeitweilig niedriger war; *Saint Sauver-Henn*, Un siècle d'émigration, 263-266, S. 277 f.

tatsächlich eine regionale oder lokale Selektivität der Einwanderung in die ländlichen Gebiete Brasiliens, aber diese war von rein willkürlicher Art, hatte also nichts mit der Sozialstruktur zu tun. Die zwei Haupt-Rekrutierungsgebiete, die Hunsrück-Mosel-Region im Westen und Pommern im Nordosten, stellen zwei Extreme dar, was Geographie und Agrarverfassung angeht. Der Hunsrück war hügelig, fast bergig, mit kargem Boden und zersplitterten kleinbäuerlichen Besitztümern. Pommern mit seinen ausgedehnten Roggenfeldern, die sich über die norddeutsche Tiefebene erstreckten, war das andere Extrem der ›Junker latifunda‹ und abhängigen landwirtschaftlichen Tagelöhnern. (Und das westfälische Gebiet, aus dem Teutonia rekrutierte, lag in der Mitte davon, sowohl in geographischer als auch in sozial-struktureller Hinsicht).[52] Es ist unwahrscheinlich, daß die Auswanderer aus diesen Gebieten in das ländliche Brasilien sich wesentlich unterschieden von ihren Nachbarn, die nach Nordamerika wanderten, aber dieses würde eine nähere Untersuchung der Auswandererkonsenzen und anderen personenbezogenen Daten erfordern.

Aber die »andere« lateinamerikanische Auswanderung, die in die Städte Brasiliens und zu noch ungewöhnlicheren Zielorten gerichtet war, weist eine starke soziale Selektivität auf. Die Hansestadt Hamburg schickte im Jahr 1871 mehr Einwohner nach Brasilien als irgendein anderer deutscher Staat, bis auf Preußen und Sachsen. Was die Auswanderer nach Argentinien angeht, lagen die Hamburger sogar noch vor Preußen; tatsächlich stammten in 32 von 62 Auswanderern, die in dem Jahre von Hamburg nach Argentinien fuhren, aus der Stadt selbst. Überhaupt stammte aus dieser Stadt der Seeleute und Kaufleute ein hoher Anteil derjenigen, die exotische Bestimmungsorte anstrebten. Von den Auswanderern aus der Hansestadt selbst gingen nur 79 Prozent in die USA im Vergleich zu gut 91 Prozent aller Deutschen, die dort 1871 an Bord der Schiffe gingen; auch war der männliche Anteil der Hamburger Auswanderer bedeutend höher als bei deutschen Auswanderern allgemein.[53]

Vorsicht ist jedoch geboten, von einer Stadt und einem Jahr ausgehend zu verallgemeinern, zumal bei einem außergewöhnlichen Jahr wie 1871. Aber preußische Statistiken behandeln Berlin als eigenen Regierungsbezirk, was uns einen weiteren Blick auf städtische Auswanderungsmuster über einen längeren Zeitraum ermöglicht. Während der 1860er Jahre gingen kaum drei Viertel der Berliner Auswanderer nach Nordamerika, der niedrigste Anteil aus allen preußischen Regierungsbezirken bis auf einen. Während der 1870er Jahre sanken diese Zahlen noch weiter ab, jetzt gingen nur noch zwei Drittel der Auswanderer von Berlin nach Nordamerika. Südamerikanische Reiseziele wurden nicht genannt, dagegen betrug die Auswandererrate in Richtung Australien 15 Prozent. Fast 18 Prozent gaben afrikanische oder asiatische Zielorte an,

52 *Reich*, Aus Cottbus und Arnswalde, S. 149-188; *W. Helbich/W.D. Kamphoefner/U. Sommer (Hg.)*, Briefe aus Amerika: Deutsche Auswanderer schreiben aus der Neuen Welt, 1830-1930, München 1988, S. 427-441, S. 285, Anm. 3, S. 64-66. Trotz Kettenwanderung kommt es gelegentlich vor, daß zwei Geschwister nach verschiedenen Kontinenten auswanderten, beispielswiese der 1882 nach den USA ausgewanderte Ludwig Dilger, dessen Briefe veröffentlicht wurden in *Dies.*, S. 458-492, und seine Schwester, die 1893 mit Ehemann und Kindern nach Brasilien zog; dazu *S. Grosse/M. Grimberg/Th. Hölscher/J. Karweick (Hg.)*, »Denn das Schreiben gehört nicht zu meiner täglichen Beschäftigung«: Der Alltag kleiner Leute in Bittschriften, Briefen und Berichten aus dem 19. Jahrhundert, Bonn 1989, S. 136-149.

53 Statistik des Hamburgischen Staats 4, 1872, S. 118-119. Eine weitere Studie dokumentierte für Bremen eine ähnliche Art temporärer Wanderung, die überwiegend jung, männlich und auf Handelsberufe konzentriert, aber in diesem Fall, den Handelsbeziehungen der Stadt folgend, vorwiegend in die USA gerichtet war; *K. Schniedewind*, Begrenzter Aufenthalt im Land der unbegrenzten Möglichkeiten: Bremer Rückwanderer aus Amerika, 1850-1914, Stuttgart 1994.

die jetzt zum ersten Mal getrennt erfaßt wurden.[54] Ähnliche Tendenzen lassen sich im Königreich Hannover zwischen 1859-64 beobachten: Lediglich 20 Prozent der Hannoveraner Auswanderung nach Nordamerika stammte aus »amtsfreien« Städten und Gemeinden aus, und nur 29 Prozent dieser Auswanderung, die nach Australien gerichtet war. Aber 40 Prozent der Auswanderung nach nach Südamerika, und 46 Prozent der Auswanderer, die noch exotischere Zielorte anstrebten, stammten aus eben jenen amtsfreien Städten.[55] Dieses wäre ein deutlicher Widerspruch zu der Hypothese vom »Humankapital«; die Auswanderer aus den am höchsten entwickelten Gebieten Deutschlands bevorzugten Wanderungsziele, die in den am wenigsten entwickelten Teilen der Welt lagen (obwohl sie sich wahrscheinlich in den Hafenstädten dieser unterentwickelten Gebiete konzentrierten).

Wie Sherlock Holmes einmal bemerkte: »Wenn man das Unmögliche eliminiert hat, muß das, was übrigbleibt, ganz gleich wie unwahrscheinlich es auch ist, die Wahrheit sein.«[56] Was bleibt von den verschiedenen Hypothesen über die Zielorte der Auswanderer, die am Anfang aufgeführt wurden? Die Vereinigten Staaten waren offensichtlich nicht die voreingestellte, »default option« für deutsche Auswanderer zu jeder Zeit und von allen Herkunftsorten. Es gab Gebiete und Zeitabschnitte, in denen eine Mehrheit der Abreisenden sich für Lateinamerika oder andere Zielorte entschieden haben. Die Auswanderung folgte nicht unbedingt dem Handel, oft war es umgekehrt. Obwohl die ›Humankapital‹-Erklärung aufgrund von personenbezogenen Daten eine stringentere Überprüfung verdient hätte, wird sie von den bisherigen Ergebnissen zumindest in Frage gestellt. Es gibt nur wenige Anzeichen für die Annahme, daß Lateinamerika eine größere Anziehungskraft für die deutschen Katholiken besaß als für die Protestanten. Während Rekrutierung und Propaganda wohl eine etwas größere Bedeutung für die Auswanderung nach Südamerika hatten als für Nordamerika, waren sie nur unter ganz bestimmten Bedingungen effektiv und konnten sich kaum da durchsetzen, wo andere Wanderungstraditionen bereits vorhanden waren. Außerdem haben sie nur dann eine langfristige Auswirkung auf Lateinamerika gehabt, wenn die ursprünglichen Rekruten so zufrieden waren, daß auch andere Verwandte und Freunde nachgezogen sind. Besonders in den ländlichen Gebieten von Brasilien gibt es reichlich Belege für eine Kettenwanderung, die sich über Jahrzehnte hinzog und die ähnliche lokale und regionale Konzentrationen hervorbrachten, wie in der früheren Forschung bei verschiedenen Nationalitäten in ländlichen Gebieten und – in geringerem Maße – in den Städten der USA beobachtet worden waren. Gleichzeitig mit dieser Kettenwanderungen und auch später sind qualifiziertere Einzelwanderer zu Reisen aufgebrochen, die Grenzfälle bilden zwischen ausgedehnten Handelsreisen und vorübergehenden Aufenthalten in fremden Städten, insbesondere jahrelange Aufenthalte in Hafenstädten. Diese kleine Gruppe war so atypisch für den Querschnitt der deutschen Auswanderung wie die Kettenwanderer typisch waren. Aber abgesehen von dieser kleinen ausgewählten Gruppe, waren die Gemeinsamkeiten der deutschen Auswanderung nach Lateinamerika (und insbesondere nach Australien) viel bedeutender als die Kontraste mit den Deutschen, die in die Vereinigten Staaten auswanderten. Es kam vor allem darauf an, wo die *ersten* Auswanderer eines Dorfes oder Landkreises – sei es durch Anwerbung, durch Handelsbeziehungen, durch puren Zufall – sich ansiedelten.

---

54 Quelle: s. Anm. 30.

55 Zur Statistik des Königreichs Hannover 9, 1863, S. 158-163; 11, 1865, S. 90-95.

56 *A.C. Doyle*, The Sign of Four, London 1966, S. 55.

Tabelle 1: Migration aus Deutschland nach Nord- und Südamerika, 1855–1871

Jahr	Deutsche Einwanderung in:				Deutsche Auswanderung aus & nach:											
	USA	Argen-tinien	Brasilien		HH-BR		Simmern		Birkenfeld		Kgr. Hannover			Hemmende Faktoren		
	N	N	N	% USA	N	%USA	BR	USA	SA	NA	NA	SA	AU			
1855	71.918	kA	532	0,7	1.978	2,8	6	52	69	44	kA	kA	KA			
1856	71.028	kA	1.822	2,6	1.529	2,2	14	77	144	33	kA	kA	KA			
1857	91.781	74	2.639	2,9	1.772	1,9	122	118	43	37	kA	kA	KA			
1858	45.310	61	2.333	5,1	3.431	7,6	24	36	6	3	kA	kA	KA			
1859	41.784	43	3.165	7,6	1.757	4,2	33	6	23	6	3.604	65	92	HR		
1860	54.491	62	3.748	6,9	897	1,6	23	52	60	24	4.021	50	83	HR		
1861	31.661	57	2.211	7,0	1.017	3,2	37	19	198	5	1.589	60	29	HR	BK	
1862	27.529	72	4.037	14,7	1.025	3,7	36	10	139	21	1.476	52	97	HR	BK	
1863	33.162	83	367	1,1	847	2,6	12	18	43	24	2.041	35	118	HR	BK	
1864	57.276	97	234	0,4	447	0,8	2	16	1	9	4.597	24	116	HR	BK	PK
1865	83.424	117	275	0,3	414	0,5	8	57	kA	kA	kA	kA	KA	HR		PK
1866	115.892	122	360	0,3	417	0,4	7	54	kA	kA	kA	kA	KA	HR		PK
1867	133.426	185	1.128	0,8	1.155	0,9	1	42	kA	kA	8.977	156	29	HR		PK
1868	118.537	215	3.779	3,2	3.425	2,9	3	25	kA	kA	9.211	155	42	HR		PK
1869	131.042	202	375	0,3	3.475	2,7	2	16	kA	kA	7.928	162	15	HR		PK
1870	118.225	148	6	0,0	1.169	1,0	5	6	kA	kA	4.775	80	21	HR		PK
1871	82.554	155	296	0,4	920	1,1	3	20	kA	kA	5.453	36	24	HR		

Bemerkungen: kA = keine Angaben; HH = Auswanderungshafen Hamburg; BR = Brasilien; % USA = Ein- bzw. Auswanderung nach Brazilien als % der jeweiligen Migration nach den USA; SA = Südamerika; NA = Nordamerika; AU = Australien; HR = v.d.Heydt'schesReskript; BK = Amerikanischer Bürgerkrieg; PK = Paraguayischer Krieg

Quellen: Entnommen oder errechnet aus *I. Ferenczi/W. Willcox (Hg.)*, International Migrations, Volume I: Statistics, New York 1929, S. 377-78, 544, 549, 695, 700. *W. Diener*, Die Auswanderung aus dem Kreise Simmern (Hunsrück) im 19. Jahrhundert, in: Rheinische Vierteljahrsblätter 8, 1938, S. 123. Statistische Nachrichten über das Grossherzogtum Oldenburg 9, 1867, S. 175. *T. Böddicker*, Die Einwanderung und Auswanderung des preussischen Staates, in: Preussische Statistik 26, 1874, S. viii-ix, 302-5. Zur Statistik des Königreichs Hannover 9, 1863, S. 159-63; 11, 1865, S. 90-95.

Tabelle 2: Korrelation zwischen katholischem Bevölkerungsanteil und den Auswanderungsraten nach verschiedenen Zielgebieten

	Nordamerika	Südamerika	Australien	N
Preussische Bezirke, in % de Gesamtbevölkerung				
1862-71:	-.29	-.04	-.25	27
1873-82:	-.24	+.02	-.53*	36
Preussische Bezirke, in % de Gesamtauswanderung				
1862-71:	+.11	+.07	-.25	36
1873-82:	+.23	+.09	-.30	36
Westfälische Kreise, in % de Gesamtbevölkerung				
1862-71:	-.39*	+.14	-.16	36
Westfälische Kreise, in % de Gesamtauswanderung				
1862-71:	-.10	+.13	-.09	36

Bemerkungen: Statistische Signifikanz: ** = 0,01; * = 0,05.

Quelle: Auswandererzahlen aus *T. Böddicker*, Die Einwanderung und Auswanderung des preussischen Staates, in: Preussische Statistik 26, 1874, S. xi, 304-21; Der Erwerb und Verlust der Reichs- und Staatsangehörigkeit, in: Zeitschrift des Preussischen Statistischen Bureaus (1873 bis 1882). Angaben zur Konfession für preussische Bezirke aus der Volkszählung von 1871, in: Preussische Statistik 30, 1875, S. 80-81. Angaben zur Konfession für westfälische Kreise aus der Volkszählung von 1855, berichtet in: Tabellen und amtliche Nachrichten des preussischen Staates, 1855, Berlin, 1858, S. 62.

Tabelle 3: Korrelation zwischen der Auswanderungsraten nach den jeweiligen Bestimmungsorten in verschiedenen Zeiträumen

	Nordamerika	Südamerika	Australien	N
Preussische Bezirke, Auswanderungsrate 1862-71 und 1873-82				
in % der Gesamtbevölkerung:	+.96**	+.85**	+.57**	27
in % der Gesamtauswanderung:	+.72**	+.51**	+.57**	36

Bemerkungen: Statistische Signifikanz: ** = 0,01; * = 0,05.

Quelle: s. Tabelle 2.

Forschungs- und Literaturberichte

Some Aspects of J. M. Keynes's Theoretical Contributions to the Economic Debate of the 1920's[1]

By Jesper Jespersen (Roskilde, Denmark)

'Scarcely any one in England now believes in the Treaty of Versailles or in the Gold Standard or in the policy of deflation. These battles have been won - mainly by the irresistible pressure of events and only secondarily by the slow undermining of old prejudices'.[2]

I. Introduction

In the 1920's gold was considered the only ultimate anchor of the national financial systems and by simple aggregation it was assumed that it should be the anchor of the international monetary system as well. With regard to monetary theory 'The Quantity Theory of Money and Prices' still dominated the economic and political arguments. Free trade and international movements of capital were an integrated part of this theoretical heritage. The neoclassical equilibrium macro-economic theory, summarised by the 'Quantity Theory of Money', was ruling the roost.

Furthermore, the so-called 'Treasury View' on public finance was the orthodoxy of fiscal policy at that time. In brief, it expressed that the public sector budget ought to be balanced. At least no expansionary effect could be expected from a deficit. Public dissaving would mop up private savings with the consequence that private investments were crowded out at an equal scale. The total sum of savings available for real investments was considered fixed and constant.

Keynes was one of the few theoretical economists starting to challenge this orthodoxy during the 1920s.

II. The Maastricht Treaty on Monetary Union

The Monetary Union of Europe will only include member states that fulfil a number of macro-economic criteria listed in the Treaty. These (so called 'convergence') criteria have surprisingly many similarities to the arguments derived from the 'Quantity Theory', 'Gold Standard', and the 'Treasury View':

1. Budget deficit of the public sector must not exceed 3 percent of GDP.
2. Public sector debt must not exceed 60 percent of GDP.
3. The rate of (consumer price) inflation must not exceed 1 percent compared to the average of the 3 best performing member countries on inflation.
4. The long term rate of interest must not exceed 2 percent of the average of the rates of interest in the 3 best (with regard to inflation) performing member countries.
5. The currency shall have been integrated fully in the European Monetary System for at least two years without any need for support or exchange market intervention to keep the exchange rate within the EMS-band.
6. The national central bank has to be by law absolutely independent of any political interference.
7. The government must only borrow from the banking system on strict market terms.
8. The European Central bank has the sole responsibility of price stability.

---

1 I am very grateful to the very active participants at the ESHET-conference in Marseille who gave many valuable suggestions for improvements and clarification. Parts of the paper have been discussed at the 6th Post Keynesian Economic Conference in Knoxville, June 1996.

2 Quote from Keynes's preface to "Essays in Persuasion", p. xix, dated 8 November 1931.

One does see immediately that no real sector conditions are amongst the convergence criteria. This can be interpreted as an acceptance of (long run) neoclassical equilibrium theory with its clear cut dichotomy between the real sector and the monetary sector. The real sector of the economy is, according to this theory, assumed to be in equilibrium. Only monetary shocks can cause disturbances and should for that reason be avoided by all (institutional) means. Historically, it is argued, such disturbances have been generated from either an unbalanced public budget or uncontrolled monetary expansion.

Within this equilibrium approach to the European Monetary Union two competing arguments coexist. The 'French' view: put the monetary union into practice and the financial straitjacket combined with the free market forces will compel the participating economies into a stable macrofinancial framework. The 'German' view is more cautious: let the individual countries demonstrate political will power to secure financial convergence and stability. This view is less dependent on the 'correct' economic theory. It relies more on a general mistrust of the political system and of the politicians. The strength of the political will is judged on the economic performance. In practice, the German view has prevailed while a surprisingly large number of EU-governments qualified their monetary sectors to the Maastricht-criteria during the 1990s.

The theoretical contributions of Keynes from the 1920s might give some indication of why the economic debate and the economic policies are repeating itself.

III. The Quantity Theory of Money

Keynes's book from 1923 "A Tract on Monetary Reform" analyses the causes and consequences of inflation and deflation. Society had not only been marred by the horror of the first world war, but in addition inflation and depression had played havoc with income and wealth distribution just after the war. Keynes considered these random changes as unfair and damaging to the proper functioning of the economic system *as a whole.*

When inflation prevails, unhealthy business takes place, short term considerations dominate, and the planning horizon become truncated.

But, according to Keynes (1923), depression is even worse. Falling prices make business wish to reduce inventories to a minimum and to postpone real investments as long as possible. This makes business slow down even further and creates unemployment (CW IV, 25). It is the fear of a continuous fall in goods prices which might paralyse economic activity. Hence, even if wages would fall at the same speed as prices the fear of not being able to pay fixed costs is enforced. Furthermore, taking the psychology of the labour market into consideration, it is very unlikely that wages should fall as fast as prices in the short run. Keynes is quite explicit in claiming that for these two reasons involuntary unemployment will emerge during a period of deflation. This he finds an even greater injustice than what had happened to the rentiers during the war and early post war inflation.

The purpose of writing the book (CW IV) was to present a theoretical analysis of the causes (and consequences) of price instability. *That became a fundamental break with the idea of a stable relationship between money and prices.* The actual figures for the period October 1920 to October 1922 showed that prices fell by 33 percent whereas the money stock did only fall by 19 percent. That made Keynes conclude: "*Now 'in the long run' the Quantity Theory is probably true. But this long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again.*"(CW IV, 65)

To give a proper description of what is going on in a tempestuous season Keynes has to elaborate the Quantity Theory quite a lot. First of all he stresses that the supply of money should not be considered as exogenously determined. The development depends crucially on the respond of banks to the demand for deposits from households and firms. The increased use of bank money (instead of notes and coins) is one of the institutional innovations which had changed financial behaviour during and after the war.

As a result Keynes ends up with a transformed 'Quantity Equation' which in its simplest form can be written:

(1) $n = p\,(k + r\,k')$

where,

n - notes and coins (cash)
p - consumer price level
k - number of 'consumption units' held by the private sector in cash
k' - number of 'consumption units' held by the private sector as deposits
r - reserve ratio between deposits and cash required by banks

Keynes admits immediately that the parameters in this equation are unstable in the short run. Hence, keeping the domestic price level stable implies a very active policy by the central bank. It is not just to fix a growth rate of notes and coins in accordance to the desired rate of inflation (for instance, a zero rate). Within Keynes's model there is not any automatic tendency towards stable prices. Whenever prices start to rise the monetary authority has to counteract by reducing the amount of credit by either raising the discount rate and/or selling Treasury Bills, because "the internal price level is mainly determined by the amount of credit created by banks" (CW IV, p. 141).

The conclusion of the book is that the price level is determined by the market forces of the *entire* economy. There is no mono-causal relationship from an exogenous money supply to the price level. On the contrary, "the governors of the system would be bank-rate and Treasury Bill policy, the object of government would be stability of trade, prices, and employment" (CW IV, p. 153).

On top of that in 1923 Keynes foresaw that some kind of fixed exchange rate system and free capital import and export would emerge in the nearer future. That would bring even more instability into the supply of money due to inflow and outflow of gold. Therefore, stability of the price level would assume that the note issue became separated from the development of the gold reserve. He proposed, consequently, that the domestic money supply (notes and coins) should be disconnected from any formal requirement of gold backing (CW IV, p. 154). Of course, that made him look like a heretic to the financial establishment still living in the pre war era.

IV. The Gold Standard

Until the outbreak of WWI the gold standard had not been really disputed for at least 25 years. According to the conventional wisdom it served Britain quite well while she was the dominant industrial exporter and within the same period the most important financial centre of the world having a substantial surplus at the balance of payments. But Keynes started to argue in the inter war period that the preconditions for the automatic working of the international "price-specie-price" mechanism never really had been present (CW II, pp. 159-60), and certainly no longer were present (CW IX, part III). First, domestic costs (especially wages) were not in any respect as flexible as assumed by the quantity theory - the law of one price in the labour market was a

fiction. Second, the monetary authorities did not, anyhow, act in accordance with the price-specie-price mechanism. In particular, capital inflows were (partly) sterilised not allowing the price/cost level to be inflated to its full extent in surplus countries. In deficit countries the mechanism of deflating wages worked too slowly, putting the gold reserve at risk and creating unemployment.

Managing the gold standard in this way the international economic system was given a deflationary bias. Hence, deficit countries should have the option of making a devaluation, which in practice would imply a certain charge/subsidy of changing that specific currency into gold. (In "Means to Prosperity" published in 1933 Keynes proposed a 5 per cent tax on buying gold/ 5 per cent subsidy on selling gold as a complement to the slow adjustment of domestic cost level.)

One more reason for the deflationary bias, caused by the gold standard, was the shortage of international liquidity experienced by the deficit countries. There was no automatic recycling of funds from surplus to deficit countries. Hence, deficit countries had to raise the rate of interest to attract money from abroad to finance the deficit.

As predicted already in 1925 (The Economic Consequences of Mr. Churchill) the Gold Standard did not serve Britain well in the 2nd half of the twenties.

The gold standard, with its dependence on pure exchange, its faith in 'automatic adjustments', and its general regardlessness of social detail, is an essential emblem and idol of those who sit in the top tier of the machine. But we run a risk .... if we continue to apply the principles of an economic theory, which was worked out on the hypotheses of laissez-faire and free competition, to a society which is rapidly abandoning these hypotheses. (CW IX, p. 224).

Accordingly, in September 1931, the official gold exchange rate was suspended by Great Britain and the exchange rate became floating. Britain could at last cut the link to gold, because the well functioning of the financial sector did not any longer rely on this formal gold base. Paper money had become indisputable primary liquidity domestically.

In addition to the suspension of fixed exchange rates imports of goods were tied up by many kinds of restrictions which was partly retaliation towards other countries partly defensive trade policy. But for the sake of the activities in the City of London practically no restrictions on capital flows were imposed at that time (that had to wait until March 1940).

V. The Treasury View on 'Sound Finance'

'It is the orthodox Treasury dogma, steadfastly held, that whatever might be the political or social advantages, very little additional employment can, in fact, and as a general rule, be created by State borrowing and State expenditure'[3]

All way through the 1920's unemployment was high in Britain (and in most parts of Europe, contrary to the US). It was debated (mainly among politicians) to what extent public works could alleviate the situation.

Mainstream economists (Pigou, Hawtrey and Robbins) were in no doubt that too high costs (wages) were the main cause of unemployment. Economists within the Treasury 'defended a minimalist role for the state with the argument that government expenditure was unproductive, serving only to deplete the stock of capital available for investment'[4].

---

3 Chancellor of the Exchequer, Winston Churchill budget speech of 1929, quoted from *J.M. Keynes*, The Collected Writings of John Maynard Keynes, London 1971-89: Vol. IX: "Essays in Persuasion", mainly "The Economic Consequences of Mr. Churchill" (1931), p. 115.

4 *G.E. Peden*, Keynes, the Treasury and British Economic Policy, Basingstoke 1988, p. 11.

Keynes's view of savings available for domestic investments evolved during the 1920s. In the middle of the period his main concern was directed towards the part of the public budget used for repayment of public debt (the sinking funds accounts) and capital outflow. These two elements of savings were assumed - also according to Keynes's argument at that time - to reduce the resources domestic available to undertake active (real) investments. In this pamphlet from 1929, 'Can Lloyd George do it?' (by increased public works), he changed the emphasis from savings in general to active savings.

Keynes's main argument was that it is only active (real) savings that make a country rich. Too much savings are wasted through slack in the functioning of the financial sector by not being prepared to provide the adequate credit facilities (CW IX, p. 116). Banks could also behave too prudential looked upon from a macroeconomic point of view. Hence, during a depression the private sector could not by itself undertake the 'missing' *real* investments. Then the government had to take over and carry out investment in housing, roads, railways, telephones and electricity.

Furthermore, Keynes argued, the net financial burden from public investments would be smaller than the initial expenses because of reduced unemployment benefit, indirect employment derived from a beneficial and cumulative process of increased trade activities. These extra private expenditures would contribute to a transformation of passive private savings into active savings (i.e. real investments) and therefore not be a burden on the Government budget.

Ralph Hawtrey was one of the chief architects behind the Treasury view and he, of course, objected: *"Such spending (public works) can only increase employment if accompanied by the appropriate monetary or credit expansion, and this latter would in any case increase employment whether accompanied by increased public spending or not"*[5].

Hawtrey's summing up sounded: "The original contention that the public works themselves give additional employment is radically fallacious" which is followed by the conclusion of the deputy controller of finance Leith-Ross's memorandum (1928): "What Mr. Keynes is after, of course, is a definite inflation of credit"[6].

Keynes concludes the debate about the "Treasury View" the following way: 'Our whole economic policy during recent years has been dominated by the preoccupation of the Treasury with their departmental problem of debt conversion. The less the government borrows, the better, they argue, are the chances of converting the national debt into loans carrying a lower rate of interest. In the interest of conversion, therefore, they have exerted themselves to curtail, as far as they can, all public borrowing, all capital expenditure by the State, no matter how productive and desirable in itself (CW IX, p. 121).

This debate is a long time before Keynes put forward arguments that savings might not be constant. Just, to make his fellow economists to understand, that savings and investments are undertaken by different parties in society, was not possible at that time. His opponents were not able even to see the public sector budget balance as a mirror picture of the private sector excess financial savings.

According to the Treasury View it made no difference whether increased public expenditures are caused by unemployment benefit or by public investments. The parallel to the unconditioned maximum public sector deficit of 3 percent contained in the Maastricht Treaty is striking. Here the limit to the budget deficit is made independently of the kind of expenditure (or receipts). It is only the total at the bottom line that counts. (If business itself should follow the

5 *P. Clarke*, The Keynesian Revolution in the making 1924-36, Oxford 1988, p. 52.

6 *Clarke*, The Keynesian Revolution in the making, p. 53.

same principle of account any expansive and prosperous firm would have a considerable deficit due to real investments).

VI. Conclusion

It was steadfastly held in the 1920's that discretionary economic policy to reduce unemployment was at best without any positive effect, but more likely it would add an element of instability to the real/productive sector. Hence, a stable institutional framework was needed to protect the real sector against the use of these short sighted policy measures.

We all know how this era of "Gold Standard" and "Sound Finance policies" ended. I am still wondering why this old debate can repeat itself taking into consideration that the Keynesian revolution in macroeconomic thinking is in between the 1920s and the 1990s.

Literature:

Ph. Arestis/M. Sawyer, European Monetary Integration: a post Keynesian critique and some proposals. Paper presented at the second international Keynes conference, Leeds University, March 1996.

V. Chick, Macro economics after Keynes - a Reconsideration of the General Theory, Oxford 1983.

J.S. Cohen/G.C. Harcourt (eds.), International Monetary Problems and Supply-Side Economics - Essays in Honour of Lorie Tarshis, Basingstoke 1986.

Crotty, On Keynes and Capital Flight, in: Journal of Economic Literature XXI, 1983, pp.59-65.

P. Davidson, Money and the Real World, London 1972.

J. Jespersen, Peeling the Classical Onion - from "A Tract on Monetary Reform" to "The General Theory", in: Annal 1991, Institute of Social Sciences, Roskilde University.

J. Jespersen, Keynes on Bretton Woods Agreement - a lesson for today (forthcoming in B. Amoroso (ed.), Globalization and Marginalization - Challenges to the World Economy.

M. Keynes (ed.), Essays on John Maynard Keynes, Cambridge 1975.

J.M. Keynes, The Collected Writings of John Maynard Keynes, London 1971-89:
Vol. IV: A Tract on Monetary Reform (1923).
Vol. VII: The General Theory of Employment, Interest and Money (1936).
Vol. IX: "Essays in Persuasion", mainly "The Economic Consequences of Mr. Churchill (1931).
Vol. XXI: Activities 1931-1939. World Crisis and Policies in Britain and America.
Vol. XXVII: Activities 1940-6: Shaping the Post-War World - Employment & Commodities.

W. Milberg, Says Law in the Open Economy: Keynes's Rejection of the Theory of Comparative Advantage. Paper Presented at the 2nd International Conference on Keynes, Uncertainty and Knowledge, University of Leeds, March 1996.

D.E. Moggridge, Maynard Keynes - an Economist's Biography, London 1992.

D.E. Moggridge, Keynes and the International Monetary System, 1909-46, chap. 4 in: Cohen/Harcourt, International Monetary Problems.

M. Panic, European Monetary Union - Lessons from the Classical Gold Standard, Basingstoke 1992.

R. Skidelsky, John Maynard Keynes - the economist as saviour (1920-37), 1993.

A.P. Thirlwall (ed.), Keynes and International Monetary Relations - The Second Keynes Seminar held at the University of Kent at Canterbury 1974, London 1996.

A.P. Thirlwall (ed.), Keynes as a Policy Advisor - The fifth Keynes Seminar held at the University of Kent, 1980, London 1982.

T. Wilson, Policy in war and peace: The recommendations of J.M. Keynes, in: *Thirlwall*, Keynes as a Policy Advisor.

Aussiedler seit 1989 - Bilanz und Perspektiven

*Von Klaus F. Zimmermann (Bonn und Berlin)**

Die Einreise deutschstämmiger Spätaussiedler in die Bundesrepublik Deutschland ist ein weltweit einzigartiger Vorgang. In keinem Land der Welt findet eine derart historisch bedingte und verfassungsrechtlich begründete Zuwanderung einer bestimmten Volksgruppe statt. Auch die quantitative Dimension der Zuwanderung von Aussiedlern ist so erheblich, daß sie immer wieder zu innenpolitischen Diskussionen in Deutschland geführt hat. Das gilt insbesondere für die letzten zehn Jahre, die nach dem Fall des Eisernen Vorhangs einen deutlichen Anstieg des Aussiedlerzuzugs nach Deutschland gebracht haben.

Im Ausland - zumal sicher in einem traditionellen Einwanderungsland wie Kanada - ist im allgemeinen das Erstaunen darüber groß, daß Deutschland bislang auf eine gesetzliche Steuerung der Immigration von Ausländern weitgehend verzichtet. Um so überraschender erscheint deshalb die Tatsache, daß die Einreise von Spätaussiedlern de facto zuwanderungsrechtlichen Bestimmungen und Begrenzungen unterworfen ist. Grund genug, einmal näher hinzuschauen. Grund genug aber auch, sich aus deutscher Sicht zu fragen, was von den kanadischen Erfahrungen mit Zuwanderung möglicherweise zu lernen ist.

In meinem Vortrag möchte ich Sie zunächst mit den wichtigsten institutionellen Grundlagen sowie den wesentlichen Daten und Fakten zur Aussiedlerimmigration vertraut machen. Danach folgt eine kurze Betrachtung der ökonomischen Bedeutung dieser Zuwanderung. Zum Abschluß werde ich die Aussiedlerimmigration in den größeren Zusammenhang der Gesamtzuwanderung nach Deutschland einordnen. Dazu möchte ich einige Perspektiven aufzeigen und mit der Empfehlung enden, daß Deutschland von Kanada lernen sollte, selbstbewußt, aber eben auch aktiv gestaltend mit Zuwanderung umzugehen.

I. Historische und rechtliche Grundlagen

Die Einreise von Aussiedlern in die Bundesrepublik Deutschland vollzieht sich auf einer nur historisch zu erklärenden Grundlage. Zahllose Deutsche sind seit dem 18. Jahrhundert nach Osteuropa ausgewandert, ethnische Minderheiten im Deutschen Reich wiederum wurden durch die schon von Bismarck in der zweiten Hälfte des 19. Jahrhunderts eingeleitete „Germanisierungspolitik" zu Deutschen kraft Gesetzes. Die Gebietsverluste nach dem Ende des Ersten Weltkrieges machten viele von ihnen zu Ausländern.

Unter dem Terrorregime des Nationalsozialismus wurden wahnwitzige Umsiedlungs- und Vernichtungspläne für die einheimische Bevölkerung in den eroberten osteuropäischen Territorien umgesetzt, wieder andere Gruppen wurden zwangsgermanisiert, und es kam zu Umsiedlungen Deutscher in diese Gebiete. Das Ende des Zweiten Weltkrieges schließlich machte rund 15 Millionen deutsche Staatsangehörige zu Flüchtlingen und Vertriebenen. 1950 ergab die erste Nachkriegsvolkszählung in Westdeutschland, daß annähernd 10 Millionen Heimatvertriebene

---

* Diefenbaker Award Lecture am 26 Mai 1999 im Harbour Centre Campus der Simon Fraser Universität in Vancouver/Kanada. Dieses Papier entstand mit Unterstützung des Diefenbaker Awards, der dem Autor durch den Canada Council for the Arts in Zusammenarbeit mit der Alexander-von-Humboldt-Stiftung in Deutschland verliehen wurde. Ich danke Don DeVoretz, Holger Hinte und Anja Thalmaier wie den Teilnehmern der öffentlichen Vorlesung für hilfreiche Kommentare und Vorschläge.

aus den ehemaligen deutschen Ostgebieten in der Bundesrepublik Deutschland lebten. Das entsprach einem Bevölkerungsanteil von beinahe 20 Prozent.

Unverändert lebten und leben bis zum heutigen Tag jedoch zahlreiche Deutschstämmige und ihre Nachkommen außerhalb Nachkriegsdeutschlands. Ihre genaue Zahl läßt sich allenfalls vage auf heute noch mehrere hunderttausend Personen schätzen und hängt von den Anerkennungskriterien ab. Für diesen Personenkreis sieht die deutsche Verfassung im Grundgesetzartikel 116 bis heute zunächst die deutsche Volkszugehörigkeit und ab dem Zeitpunkt der Einreise nach Deutschland auf Antrag die Staatsangehörigkeit vor. Das „Bundesvertriebenengesetz" regelt die Einzelheiten der Anerkennung und Aufnahme als Spätaussiedler. Generell ist dafür der Nachweis erforderlich, sich zum „Deutschtum" zu bekennen, was an Merkmalen wie Abstammung, Sprache und Kultur festgemacht wird. Das gleiche Gesetz regelt Eingliederungsleistungen - etwa zinsgünstige Darlehen und Sprachkurse - für Spätaussiedler.

Um es auf einen Nenner zu bringen: wer als Spätaussiedler von den Behörden anerkannt wird, erhält die Einreiseerlaubnis, wird nach der Einreise nach Deutschland auf Antrag deutscher Staatsangehöriger, und erwirbt damit sämtliche Rechte und Pflichten eines Staatsbürgers. Hierfür gelten keinerlei Wartezeiten. Das macht einen der großen Unterschiede zur Immigration von Ausländern aus, die erst nach mehrjähriger Wartezeit deutsche Staatsbürger werden können. Übrigens sind die deutschstämmigen Aussiedler fast ausnahmslos Doppelstaatsbürger. Sie dürfen also ihren ausländischen Paß neben dem deutschen behalten, was für Ausländer nur in Ausnahmefällen möglich ist. Ihre Familienmitglieder erhalten ein Zuzugsrecht nach Deutschland auch dann, wenn sie selbst nicht als Aussiedler anerkannt werden. Sie gehen in die Aussiedlerstatistik ein, unabhängig davon, ob sie in Wirklichkeit als Ausländer anzusehen sind.

Zu Beginn der neunziger Jahre trat eine merkliche Veränderung in der Aussiedlerpolitik der Bundesrepublik Deutschland ein. So wurden die Anerkennungskriterien verschärft und die Eingliederungshilfen reduziert. Das geht ursächlich zurück auf die dramatische Entwicklung der Zuzugszahlen von Aussiedlern.

2. Quantitative Dimension und rechtliche Veränderungen

Die erleichterten Ausreisebedingungen in den osteuropäischen Staaten seit dem Fall von Stacheldraht und Mauer ließen den Zuzug von Spätaussiedler binnen eines Jahres explosionsartig nach oben schnellen (siehe Abb. 1). Allein 1989 und 1990 kamen knapp 800.000 Spätaussiedler in die Bundesrepublik. Wenn man dazu noch berücksichtigt, daß im gleichen Zeitraum auch die Ausländerzuwanderung sowie das Flüchtlingsaufkommen stark gestiegen sind, dann wird die völlig veränderte Situation deutlich, in der sich Deutschland plötzlich befand. Alle Zuwanderergruppen und Flüchtlinge zusammengenommen hat Deutschland zu Beginn der neunziger Jahre mehr Zuwanderung erfahren als die USA, Kanada und Australien zusammen. Das zeigt die wahre Dimension der Immigration nach Deutschland.

Diese Entwicklung hat zu erheblichen sozialen Spannungen und zu Akzeptanzschwierigkeiten sowohl von Ausländern als auch von Aussiedlern in der deutschen Gesellschaft geführt. Sie wurden noch dadurch verstärkt, daß zugleich die ersten deutlichen Anzeichen für die gravierenden ökonomischen Anpassungsschwierigkeiten im Zeichen der deutschen Wiedervereinigung sichtbar wurden. Die Politik sah sich gezwungen zu reagieren. Sie tat dies unter anderem mit einer Verschärfung des Asylrechts, aber eben auch mit Zuzugsbeschränkungen für Aussiedler. Die Anerkennungspraxis wurde wesentlich strenger, Integrationshilfen wurden gedrosselt, und - bemerkenswerterweise - beschloß das deutsche Parlament Ende 1992 eine Quotenregelung für Spätaussiedler. Es sollten fortan nicht mehr als etwa 200.000 Aussiedler

pro Jahr einreisen dürfen. Dieser Beschluß hat Wirkung entfaltet, auch wenn er nicht formell Gesetzeskraft erlangt hat.

Die Folgen dieser rechtlichen Änderungen lassen sich an der Einreisestatistik unmittelbar ablesen. Die Zuwanderung von Aussiedlern ist seitdem drastisch zurückgegangen. Weitere Gesetzesänderungen haben die Zuzugszahlen seit Mitte der neunziger Jahre nochmals sinken lassen. Gegenwärtig scheinen sie sich auf einem Niveau von rund 100.000 Personen jährlich einzupendeln.

Parallel dazu findet auch die Ausländerimmigration gegenwärtig unter veränderten Vorzeichen statt: Aus einem positiven Wanderungssaldo ist ein negativer Saldo geworden. Es gehört zu den Grundkennzeichen eines Einwanderungslandes ohne Einwanderungsgesetz, daß eine hohe Fluktuation von Immigranten zu beobachten ist. So ist in Deutschland - mit Ausnahme der Spätaussiedler - neben hohen Zuzugszahlen traditionell auch eine starke Abwanderung zu beobachten. Dadurch relativiert sich der eben angestellte Vergleich zu den klassischen Einwanderungsländern, bei denen der Wanderungssaldo bei weitem nicht so stark von den absoluten Zuzugszahlen abweicht -jedenfalls, soweit wir dies wissen.

In Deutschland standen Zuzügen von 1.000.000 und mehr Personen in den neunziger Jahren jeweils auch Fortzüge von 600.000 bis 800.000 Personen gegenüber. Der durchschnittliche Wanderungssaldo aus Zu- und Fortzügen bewegte sich bis 1995 um rund 350.000. Seit 1997 ist dieser Saldo erstmals seit Beginn der achtziger Jahre wieder negativ: es reisen also mehr Personen aus Deutschland aus als ein. Dieser Trend hat in Kombination mit der Reduzierung des Aussiedleraufkommens zu einer spürbaren Entspannung der Situation Deutschlands als Einwanderungsland in der Mitte Europas beigetragen. Im Gegensatz zu Deutschland, wo die Erfassung der Fortzüge unvermeidbaren Meßfehlern unterliegt, gibt es in den USA und Kanada keine offiziellen Auswanderungsstatistiken. Dies entspringt nicht der Ideologie eines Einwanderungslandes, sondern ist die Konsequenz der Tatsache, daß diese Länder kein Bevölkerungsregister kennen.

Für die erneut rückläufige Entwicklung der Aussiedlerzahlen war vor allem die Einführung eines Sprachtests für potentielle Spätaussiedler verantwortlich, der für manche Ausreisewilligen zur unüberwindlichen Hürde geworden ist. Gewiß hat zu dieser Entwicklung auch beigetragen, daß die Zahl der noch in Osteuropa lebenden potentiellen Aussiedler durch den anhaltenden Zuzug nach Deutschland zurückgegangen ist. Ein „natürliches" Ende der Aussiedlermigration ist zur Zeit jedoch nicht absehbar. Es könnte zwar politisch jederzeit beschlossen werden, doch das würde zu einer Torschlußpanik führen.

Schätzungsweise haben mehr als 200.000 deutschstämmige Aussiedler die Einreisegenehmigung nach Deutschland bereits in der Tasche und sitzen sprichwörtlich auf gepackten Koffern. Auch die „stille Reserve" derjenigen potentiellen Aussiedler, die sich noch gar nicht um Anerkennung bemüht haben, das aber in einem solchen Fall voraussichtlich umgehend nachholen würden, ist noch zu veranschlagen. Deshalb spricht alles dafür, den Aussiedlerzuzug weiterhin behutsam zu steuern. Das ist im wesentlichen auch die Auffassung aller im Parlament vertretenen Parteien.

Dessen ungeachtet zeigt die europäische Migrationsgeschichte seit 1989 eine enorme Anfälligkeit für politische Umbruchsituationen. Hinzuweisen sei nur auf das hohe Flüchtlingsaufkommen infolge der Bürgerkriege im ehemaligen Jugoslawien oder die nach wie vor angespannte ökonomische, soziale und politische Lage Rußlands, die Migrationsentscheidungen beeinflußt. Auf Veränderungen in dieser Hinsicht reagieren die Ost-West-Wanderungen innerhalb des europäischen Kontinents wie ein hochempfindlicher Seismograph. Es ist nicht völlig

ausgeschlossen, daß von dieser Seite ein neuer Wanderungsdruck für potentielle Aussiedler entstehen könnte, der sie zu verstärkten Bemühungen um die Übersiedlung nach Deutschland veranlassen könnte.

Was die Zusammensetzung der Aussiedlergruppen angeht, so fällt vor allem zweierlei auf: Es hat zum einen eine erhebliche Verschiebung hinsichtlich der Herkunftsländer gegeben. Spätaussiedler aus Polen und Rumänien waren noch vor zehn Jahren große Gruppen unter den neueinreisenden Aussiedlern. Die Verteilungsanalyse in Abb. 2 zeigt, daß sie seit 1950 etwa die Hälfte der Aussiedler stellen. Doch das Bild trügt. In Wirklichkeit spielen ethnisch Deutsche aus Polen und Rumänien seit 1993 praktisch keine Rolle mehr unter den Neueinreisenden. Für Polen erklärt sich das nicht zuletzt aus der vergleichsweise raschen Entwicklung demokratischer Strukturen und der bislang recht erfolgreichen Transformation von der Plan- zur Marktwirtschaft, was die Menschen zum Bleiben veranlaßt. Heute spielt deshalb eine temporäre Migration von Polen nach Deutschland eine größere Rolle, die auch für die deutsche Schattenwirtschaft von Bedeutung ist. Im Falle Rumäniens ist dagegen der Emigrationsprozeß von ethnisch Deutschen annähernd abgeschlossen.

Über 90 Prozent der nach Deutschland einreisenden Aussiedler kommen heute aus dem Gebiet der ehemaligen Sowjetunion, vor allem aus Kasachstan. Das ist insofern von einiger Relevanz, als die Integrationsfähigkeit der Spätaussiedler aus Polen, aber auch aus Rumänien, prinzipiell höher zu veranschlagen war und sie im Ganzen auch ein besseres Qualifikationsniveau mitbrachten, also auf dem Arbeitsmarkt erfolgreicher waren. Heute stehen ethnisch Deutsche vor teils identischen Arbeitsmarktproblemen wie Ausländer.

Ein zweiter wichtiger Aspekt ist die Gewichtsverlagerung hin zu jüngeren Aussiedlern, wie er sich aus Abb. 3 ergibt. Der starke Anstieg der Aussiedlerzahlen zum Ende der achtziger Jahre ist vor allem auf den gewachsenen Anteil junger Aussiedler zurückzuführen. So stellen die unter 25jährigen seit einigen Jahren rund 45 Prozent der jährlichen Neueinreisenden, während es vor nicht einmal 15 Jahren lediglich rund 35 Prozent waren. Das entspricht einem Zuwachs um fast ein Drittel. Damit weist die Altersstruktur der zuziehenden Aussiedler eine markant andere Schichtung auf, als dies bei der deutschen Gesamtbevölkerung der Fall ist.

Insgesamt ist der Anteil der Erwerbspersonen unter den Aussiedlern höher als bei der einheimischen Bevölkerung. Er liegt deutlich über 50 Prozent. Allein zwischen 1988 und 1995 sind auf diese Weise bei einem Gesamtzuzug von rund 2 Millionen Aussiedlern 1,1 Millionen zusätzliche Erwerbspersonen in den deutschen Arbeitsmarkt gelangt. Was aus demographischen Gesichtspunkten zu begrüßen ist und die Überalterung der deutschen Gesellschaft lindert, wirft andererseits hinsichtlich der sozialen Integration sowie der Ausbildungs- und Beschäftigungsperspektiven eine Vielzahl von Fragen auf.

3. Soziale und ökonomische Auswirkungen

Insgesamt ist die Integration von Spätaussiedlern bis zum Anstieg der Zuzugszahlen gewissermaßen „lautlos" erfolgt. Zwar waren auch in früheren Jahren gewisse Tendenzen hin zu einer Ghettoisierung und einer schwierigen Arbeitsmarktsituation einzelner Gruppen erkennbar. Ins öffentliche Bewußtsein ist dies aber erst seit dem Ende der achtziger Jahre gedrungen, als nicht zuletzt Probleme der räumlichen Unterbringung in den Vordergrund traten und die Anwesenheit von Aussiedlern endgültig „unübersehbar" wurde. Seitdem treten, ähnlich wie bei der Ausländerintegration, soziale Spannungen auf.

Das Konzept der Assimilation gilt mittlerweile für deutschstämmige Aussiedler nur noch in eingeschränktem Maße. Während in früheren Jahren überwiegend ältere Aussiedler einreisten,

die oft tatsächlich noch eine kulturelle und sprachliche Beziehung zu Deutschland mitbrachten, sind heute junge Aussiedler in der Überzahl, für die das Gegenteil zutreffend ist. Sie sind gleichaltrig mit der zweiten Ausländergeneration in Deutschland, deren Eltern in den fünfziger und sechziger Jahren als Gastarbeiter in die Bundesrepublik gekommen waren. Aber sie sind im Gegensatz zu ihnen eben nicht in Deutschland aufgewachsen, haben (ungeachtet eines bestandenen Sprachtests) gravierende Sprachdefizite und im Grunde keinen ernsthaften kulturellen Bezugspunkt zu Deutschland. Das führt fast unweigerlich zu Einigelungs- und Ausgrenzungstendenzen, und es erschwert die ökonomische Integration massiv. Die aus Kostengründen vorgenommenen Reduktionen der staatlichen Eingliederungsmaßnahmen tragen mit zu diesem Trend bei, wobei gleichzeitig auch die Bereitschaft nachgelassen hat, solche Integrationsangebote überhaupt anzunehmen. Politik und Gesellschaft werden angesichts dessen die Frage zu beantworten haben, ob die Assimilationsstrategie durch das Konzept des kulturellen Pluralismus ersetzt werden soll, was etwa bedeuten könnte, die russische Sprache in der schulischen Bildung stärker zu berücksichtigen. Letztlich liefe das jedoch dem gedanklichen Konstrukt zuwider, das hinter der Zuwanderung von Aussiedlern steht und von ihrer deutschen Volkszugehörigkeit ausgeht. Insofern wird das Assimilationskonzept sicher dominant bleiben, selbst wenn es an Glaubwürdigkeit inzwischen eingebüßt hat.

Stärker noch als bei den Ausländern konnte bei den in Deutschland lebenden Aussiedlern zu Beginn der neunziger Jahre eine auffällige Ghettoisierung festgestellt werden. Neueinreisende Spätaussiedler zogen zu Bekannten und Verwandten nach, die schon zuvor nach Deutschland gekommen waren. Ungeachtet der ökonomisch durchaus sinnvollen Bildung aussiedlerspezifischer Netzwerkstrukturen ging davon ein negatives Integrationssignal aus, das unweigerlich auch die Beschäftigungsaussichten ungünstig beeinflußt hat. Auch ein Anstieg der Kriminalität und Gewaltbereitschaft unter Aussiedlern konnte in diesem Zusammenhang beobachtet werden.

Die Politik hat hierauf zu Beginn des Jahres 1996 mit dem „Wohnortezuweisungsgesetz" reagiert, das den Sozialhilfeanspruch neueingereister Aussiedler an ihren Verbleib am einmal zugewiesenen Wohnort koppelte. Damit konnte einerseits eine Dezentralisierung der Unterbringung von Aussiedlern erreicht werden, andererseits aber bedeutet dies einen nicht unerheblichen Eingriff in die Freizügigkeit dieser Gruppe. Möglicherweise kann dieses Gesetz in absehbarer Zeit wieder aufgehoben werden, wenn sich die Zuzüge von Aussiedlern auf dem heutigen niedrigen Niveau dauerhaft stabilisieren sollten.

Von der eingeschränkten Wohnortwahl abgesehen, sind ethnisch Deutsche - im Unterschied zu Ausländern - den Einheimischen sofort nach ihrer Ankunft in Deutschland und ihrer Einbürgerung arbeitsrechtlich gleichgestellt. Insofern verfügen sie über ungleich günstigere Startvoraussetzungen auf dem Arbeitsmarkt. Dennoch weisen sie sehr ähnliche ökonomische Integrationsschwierigkeiten auf wie Ausländer in Deutschland.

Während für sehr viele Angehörige beider Migrantengruppen die berufliche Integration recht rasch und reibungslos verlaufen ist, ergeben sich für einen Teil von ihnen erhebliche Probleme. Grundsätzlich sind die Schwierigkeiten für Ausländer allerdings noch gravierender.

Die Dominanz der Spätaussiedler aus der ehemaligen Sowjetunion ist mit einer Veränderung in der Ausbildungs- und Berufsstruktur der ethnisch Deutschen einhergegangen. Es überwiegen unverändert industrielle, handwerkliche sowie Berufe im einfachen Dienstleistungsbereich, wobei zuletzt der Anteil industrieller Berufe zugunsten von Dienstleistungsberufen zurückgegangen ist. Zugleich aber wächst der Anteil von Aussiedlern mit land- und forstwirtschaftlichen oder nach deutschen Qualifikationsmaßstäben gar nicht zuzuordnenden Berufen. Vielfach stimmen die Qualifikationen mit dem Marktbedarf nicht überein, ebenso häufig ist gar keine quali-

fizierte Ausbildung vorhanden. All das macht die Arbeitsmarktperspektiven von Aussiedlern nicht einfacher und beschränkt sie oft auf einfache Dienstleistungen oder körperliche Arbeit.

Zur Zeit ist bekanntlich nicht nur in Deutschland das Arbeitskräfteaufkommen in der klassischen industriellen Fertigung stark rückläufig. Der technische Fortschritt fordert hier seinen Tribut. Er bietet zugleich auch neue Beschäftigungschancen im Dienstleistungs- und Technologiebereich, doch sind das bislang überwiegend Tätigkeiten, die eine höhere Qualifikation voraussetzen.

Als Folge dieser Entwicklung ist in der deutschen Erwerbsbevölkerung der Anteil der Geringqualifizierten an allen Arbeitslosen besonders hoch, auch im internationalen Vergleich. Das resultiert auch daraus, daß Deutschland sich ausgesprochen schwer damit tut, eine echte „Dienstleistungskultur" zu entwickeln, einfache Serviceangebote und einen Niedriglohnsektor zuzulassen. Hier hinken wir der Entwicklung in manchen anderen Staaten eindeutig hinterher, zu Lasten der Beschäftigung.

Was schon einheimische geringer Qualifizierte negativ betrifft, wirkt sich auf viele Spätaussiedler - und analog dazu viele Ausländer - um so gravierender aus. Ihre Qualifikation und Berufserfahrung wird oft genug nicht nachgefragt und hat Arbeitslosigkeit zur Folge. Das betrifft Aussiedler aus der ehemaligen Sowjetunion in besonderer Weise. Hinzu kommt, daß vor allem bei jugendlichen Aussiedlern, ähnlich wie bei jungen Ausländern, ein besonders hoher Anteil von Personen ohne beruflichen Abschluß anzutreffen ist. Das hat mit Informationsdefiziten zu tun, liegt aber oft auch daran, daß die Familien aufgrund ihrer Einkommenssituation einen zügigen Beginn der Erwerbstätigkeit ihrer Kinder für wichtiger halten als eine qualifizierte Ausbildung. Auf diese Weise wird Arbeitslosigkeit schnell zum Dauerzustand, und es überrascht nicht, daß Aussiedler wie Ausländer überproportional zu den Langzeitarbeitslosen gehören, die schon länger als ein Jahr nach einer Arbeit suchen.

Gemessen an den verfügbaren Zahlen, scheint die Arbeitslosigkeit von Aussiedlern im Jahr 1997 nur leicht auf das schon zuvor 1990 und 1993 erreichte Ausmaß gestiegen zu sein (siehe Abb. 4). Dabei ist allerdings zum einen zu berücksichtigen, daß Aussiedler nach fünf Jahren Aufenthalt in Deutschland definitionsgemäß nicht mehr separat in der deutschen Arbeitslosenstatistik erfaßt sind. Insofern liegen also keine Gesamtzahlen vor. Betrachtet man zum andern die zeitgleiche Entwicklung der Zuzugszahlen, dann wird deutlich, daß sich die Aussiedlerarbeitslosigkeit nicht dem starken Rückgang der Zuzüge zwischen 1990 und 1991 angeglichen hat, sondern im Gegenteil 1997 die Zahl der Zuzüge sogar übertroffen hat.

Dieser Befund wird allerdings dadurch relativiert, daß auch die Gesamtzahl der Spätaussiedler in Folge der Zuzüge kontinuierlich wächst. Doch das heißt vor allem, daß die Arbeitsmarktintegration von Aussiedlern in der wirtschaftlich günstigeren Situation unmittelbar nach der deutschen Wiedervereinigung akzeptabel verlaufen ist. Über die ökonomische Integration am Ende der neunziger Jahre bleibt die Aussage dennoch negativ. Die Arbeitslosigkeit der erwerbsfähigen Spätaussiedler ist unverkennbar gestiegen.

Das Hauptproblem liegt dabei offen zutage: gezielte Qualifizierungsmaßnahmen - gerade für junge Aussiedler - sind unerläßlich, um ihre dauerhafte Deklassierung zu verhindern. Dabei muß den Sprachkenntnissen ein besonderer Stellenwert zukommen. Es ist ohnehin erstaunlich, daß ausgerechnet Deutschland als dasjenige Land in Europa mit der weitaus meisten Zuwanderung hierauf bei seinen Integrationsangeboten an Migranten gleich wohl welcher Herkunft bislang kaum Wert gelegt hat. Es gibt zwar vielfältige Angebote, jedoch nicht flächendeckend und ohne obligatorischen Charakter. Im übrigen legt Deutschland hier einen noch zu starken Akzent auf staatliche Integrationsprogramme. In den USA, Kanada oder England sind die

staatlichen Hilfen für Immigranten eher begrenzt. Nicht sozialstaatliche Unterstützung, sondern Eigeninitiative, ethnische Netzwerke und familiäre Unterstützung stehen stärker im Mittelpunkt. Möglicherweise wird Deutschland sein Integrationsangebot nicht nur zielgenauer gestalten, sondern auch darauf abstellen müssen.

Nun wäre es freilich verfehlt, die soziale und ökonomische Integration von Spätaussiedlern in Deutschland ausschließlich unter einem negativen Blickwinkel zu betrachten. Insgesamt ist die Integrationsleistung der deutschen Gesellschaft und Wirtschaft, gemessen an den Zuzugszahlen, sogar sehr hoch einzuschätzen. Diverse Untersuchungen zeigen, daß die deutsche Volkswirtschaft von der anhaltenden Zuwanderung von Ausländern und Aussiedlern durchaus profitiert hat. Jedoch gilt diese Feststellung vor allem bis zum Beginn der neunziger Jahre. Danach trifft sie nur noch eingeschränkt zu. Unterm Strich ist der ökonomische Effekt der Zuwanderung weiterhin positiv zu veranschlagen, aber die Negativtendenzen, die, sich unter anderem auch in gestiegenen Sozialhilfeausgaben für Ausländer und Aussiedler niederschlagen, treten zunehmend in den Vordergrund.

Wenn man die zunehmende Belastung für den Wohlfahrtsstaat thematisiert, so muß man auch feststellen, daß der Anstieg dieser Lasten mehr mit den spezifischen Charakteristika der Migranten nach Beruf, Alter und Geschlecht erklärt werden kann, als mit ihrem tatsächlichen Verhalten. Eine genau gleiche Gruppe Einheimischer verursacht sogar noch größere Wohlfahrtsausgaben. Diese Entwicklung deutet auf eine verfehlte Zuwanderungspolitik hin.

4. Perspektiven

Für Deutschland stellt sich angesichts dieser Zusammenhänge die Frage, ob eine grundsätzliche Neuorientierung seiner Zuwanderungspolitik angezeigt ist und ob dabei die Sonderregelungen für Aussiedler aufrecht erhalten werden sollen. In jedem Fall sind mehr Transparenz und Kalkulierbarkeit des Zuwanderungsverfahrens dringend angebracht, da davon auch die soziale Akzeptanz von Zuwanderung abhängt. Was für Staaten wie Kanada und die USA selbstverständlich ist - Quoten und Auswahlkriterien für die Zulassung von Zuwanderern zu benennen - ist in Deutschland bislang zwar noch tabu, doch mittelfristig wird kaum ein Weg an einer solchen Politik vorbeiführen.

Aus ökonomischer Sicht spricht alles für ein Zuwanderungsgesetz in Deutschland. Anders ist eine Auswahl von Zuwanderern auf der Grundlage von wirtschaftlichen Bedarfslagen nicht möglich. Anders ist auch Berechenbarkeit nicht zu erreichen. Das Unwohlsein mancher Deutschen gegenüber Zuwanderung und Zuwanderern rührt vor allem daher, daß der Umfang der jährlichen Zuwanderung bislang in keiner Weise kalkuliert werden kann und sich so der Eindruck der Hilflosigkeit einstellt. Länder wie Kanada oder Australien zeigen, wie man es vernünftig anpacken kann, ohne daß dabei die soziale Integration auf dem Altar von kühlen Rechenoperationen geopfert zu werden braucht. Im Gegenteil: gewiß gründet sich die hohe Akzeptanz von Zuwanderung, wie sie in Kanada vorzufinden ist, neben der langen Immigrationstradition auch auf das Selbstbewußtsein, die Zuwanderung in das eigene Land aktiv zu gestalten und nicht einfach nur als gottgegeben hinzunehmen.

Natürlich gibt es auch in Kanada und in den Vereinigten Staaten eine zunehmende Debatte über die Dimensionen der zukünftigen Einwanderungspolitik. Doch ist diese Debatte weniger ausgeprägt und kontrovers und vollzieht sich auf der konzeptionellen Basis der nationalen Migrationspolitiken.

In Deutschland herrscht zur Zeit eine fast paradoxe Situation. Ausgerechnet die Einreise von Spätaussiedlern wird de facto gesetzlich gesteuert, während für Ausländer ähnliche Strukturen

nicht vorhanden sind. Für Aussiedler gibt es eine Höchstquote, die zur Zeit sogar um 50 Prozent unterschritten wird,
- es gibt den Ansatz eines Auswahlmechanismus auf der Basis von Sprachtests,
- es gibt das Prinzip der Antragstellung vom Ausland aus,
- es gibt - wenn auch reduzierte - Integrationshilfen,
- es gibt eine zunächst eingeschränkte räumliche Freizügigkeit.

Genau darauf könnte - neben Auswahlprinzipien für nichtdeutsche Zuwanderer, die denen Kanadas und der USA ähneln könnten - ein deutsches Zuwanderungsgesetz aufbauen. Es spräche aus meiner Sicht nichts dagegen, dieses Verfahren in ein neues Gesamtsystem zur Regelung der Zuwanderung nach Deutschland zu übertragen. Alle Zuwanderergruppen gehören auch in Deutschland unter ein gemeinsames gesetzliches Dach, das ihre Zulassung, Aufnahme und Integration regelt: Der prinzipielle, verfassungsrechtlich garantierte Einreiseanspruch von Aussiedlern braucht dabei nicht in Frage gestellt zu werden, wie immer auch die langfristigen Überlebenschancen dieser Regelung einzuschätzen sein mögen.

Allerdings setzt ein solches System voraus, daß man sich unbequemen Wahrheiten stellt, die eigene Interessenlage überhaupt erst einmal näher definiert und sich dazu bekennt, eine Auswahl von Immigranten anhand dieser Interessenlage zu treffen. Dabei muß man sich vor allem eingestehen, daß ein Zuwanderungsgesetz seiner Natur nach nur ein Gesetz zur Begrenzung der Zuwanderung sein kann. Das zu tun, wird in Deutschland nicht ganz einfach werden, zumal wir seit langen Jahren hitzig darüber streiten, ob Deutschland überhaupt ein Einwanderungsland ist. Obwohl die Fakten eine eindeutige Sprache sprechen, sind wir weit davon entfernt, diesen Streit um Begriffe zu den Akten zu legen.

Hinzu kommt die widerstreitende Interessenlage unserer europäischen Nachbarstaaten. Bislang konnten sie sich darauf verlassen, daß Deutschland schon den Hauptanteil aller Zuwanderer und Flüchtlinge in Europa aufnehmen würde. Zu Beginn der neunziger Jahre betrug der Anteil Deutschlands zeitweise mehr als 70 Prozent. Das würde durch ein deutsches Zuwanderungsgesetz naturgemäß anders werden und die Nachbarstaaten möglicherweise vor das Problem stellen, ihrerseits mehr Zuwanderung zuzulassen.

Das heißt mit anderen Worten: die Europäische Union wird sich alsbald auf eine gemeinsame Steuerung und Verteilung der Zuwanderung aus sogenannten Drittstaaten einigen müssen, wenn sie nicht einen Wettlauf um die schärfsten Einwanderungsverhinderungsgesetze auslösen will. Die Notwendigkeit einer solchen EU-weiten Steuerung wird auch dadurch unterstrichen, daß die anstehende Erweiterung der EU um Staaten Mittel- und Osteuropas potentiell Binnenwanderungen hervorrufen wird. Es ist zwar sehr wahrscheinlich, daß die Beitrittsländer für einen Zeitraum von einigen Jahren mit einer eingeschränkten Freizügigkeit ihrer Bürger in der EU werden leben müssen. Dennoch werden Wanderungen stattfinden - übrigens auch von West nach Ost in Europa - deren Umfang davon abhängen wird, wie erfolgreich die Integration der osteuropäischen Staaten in die EU verläuft. Aus außenpolitischen, aber auch ökonomischen Gründen wird man die Phase der reduzierten Freizügigkeit relativ kurz bemessen müssen. Ohne eine flankierende Steuerung der Immigration aus Staaten außerhalb der EU wird dies nicht vernünftig zu bewerkstelligen sein.

Über kurz oder lang wird Deutschland sich in die Reihe derjenigen Länder einreihen müssen, die die Zuwanderung mit Hilfe von Quoten und Kriterien systematisch regeln. Das eigene Selbstverständnis entsprechend zu ändern setzt Selbstbewußtsein und die Sicherheit über die eigene nationale Identität voraus. Das wird unserem Land und seiner in Wirklichkeit längst schon bunt gemischten Gesellschaft noch ein gehöriges Stück Arbeit abfordern. Dessen unge-

achtet wird es bei der historisch und rechtlich einzigartigen Rolle der Aussiedlerimmigration nach Deutschland bleiben. Sie wird Deutschland auch in das nächste Jahrhundert begleiten.

Literaturverzeichnis

Bauer, T., Arbeitsmarkteffekte der Migration und Einwanderungspolitik: Eine Analyse für die Bundesrepublik Deutschland, Heidelberg et al. 1997.

Bauer, T./K.F. Zimmermann, Gastarbeiter und Wirtschaftsentwicklung im Nachkriegsdeutschland, in: Jahrbuch für Wirtschaftsgeschichte, 1996/2, S. 73-108.

Bauer, T./K.F. Zimmermann, Integrating the East: The Labor Market Effects of Immigration, in: *S. Black (ed.)*, Europe's Economy Looks East: Implications for the EU and Germany, Cambridge 1997, S. 269-306.

Bauer, T./K.F. Zimmermann, Network Migration of Ethnic Germans, in: International Migration Review 31, 1997/l, S. 641-647.

Bauer, T./K.F. Zimmermann, Unemployment and Wages of Ethnic Germans, in: Quarterly Review of Economics and Statistics 37, 1997, S, 361-377.

Chiswick, B.R. (ed.), Immigration, Language and Ethnicity. Canada and the United States, Washington 1992.

Dietz, B., Zwischen Anpassung und Autonomie. Rußlanddeutsche in der vormaligen Sowjetunion und in der Bundesrepublik Deutschland, Berlin 1995.

Dietz, B., Aussiedler in der Bundesrepublik Deutschland - Integration als gesellschaftspolitische Herausforderung, in: Handbuch Kommunale Politik, 6. Ergänzungslieferung, Düsseldorf 1996.

Dietz, B./P. Hilkes, Integriert oder isoliert? - Zur Situation rußlanddeutscher Aussiedler in der Bundesrepublik Deutschland, München 1994.

Dunn, T.A./M. Kreyenfeld/M.E. Lovely, Communist Human Capital in a Capitalist Labor Market: The Experience of East German and Ethnic German Immigrants to West Germany, in: Vierteljahreshefte für Wirtschaftsforschung l, 1997, S. 151-158.

Koller, B., Aussiedler der großen Zuwanderungswellen - was ist aus ihnen geworden?, in: Mitteilungen aus der Arbeitsmarkt- und Berufsforschung Nr. 4, 1997, S. 766-789.

Münz, R./R. Ohlinger, Long-Distance Citizens: Ethnic Germans and Their Immigration to Germany, in: *Schuck, P./R. Münz (ed.)*, Paths to inclusion. The Integration of Migrants in the United States and Germany, New York 1998, S. 155-202.

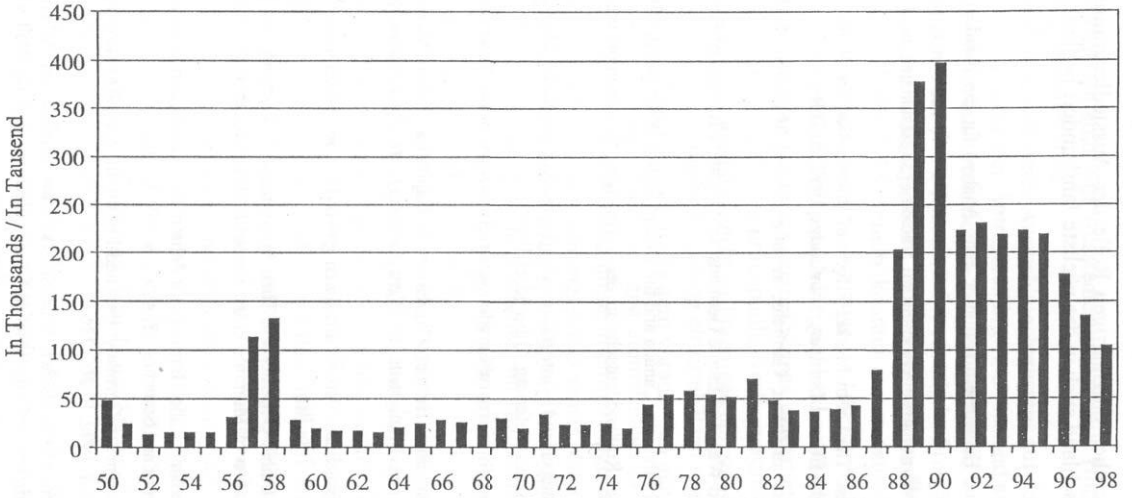
Schmidt, C.M., Immigrant Performance in Germany: Labor Earnings of Ethnic German Migrants and Foreign Guest-Workers, in: Quarterly Review of Economics and Statistics 37, 1997, S. 379-397.

Schmidt, C.M./K.F. Zimmermann, Migration Pressure in Germany: Past and Future, in: *K.F. Zimmermann (ed.)*, Migration and Economic Development, Berlin et al. 1992, S. 207-236.

Seifert, W., Neue Zuwanderungsgruppen auf dem westdeutschen Arbeitsmarkt: Eine Analyse der Arbeitsmarktchancen von Aussiedlern, ausländischen Zuwanderern und ostdeutschen Übersiedlern, in: Soziale Welt 47, 1996, S. 180-201.

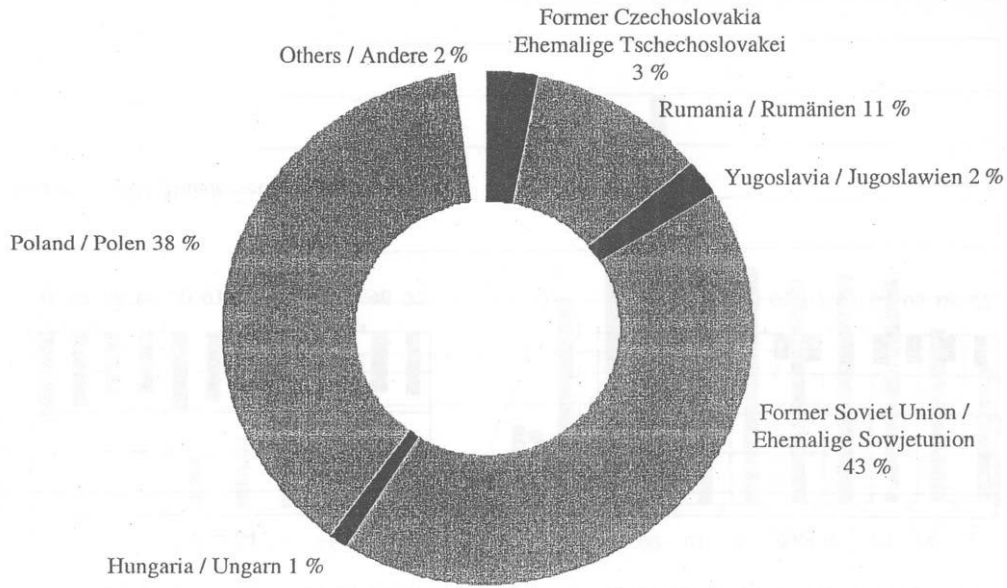
Zimmermann, K.F., Tackling the European Migration Problem, in: Journal of Economic Perspectives 9, 1995, S. 45-62.

Abbildung 1: Zuzüge von Aussiedlern 1950 - 1998



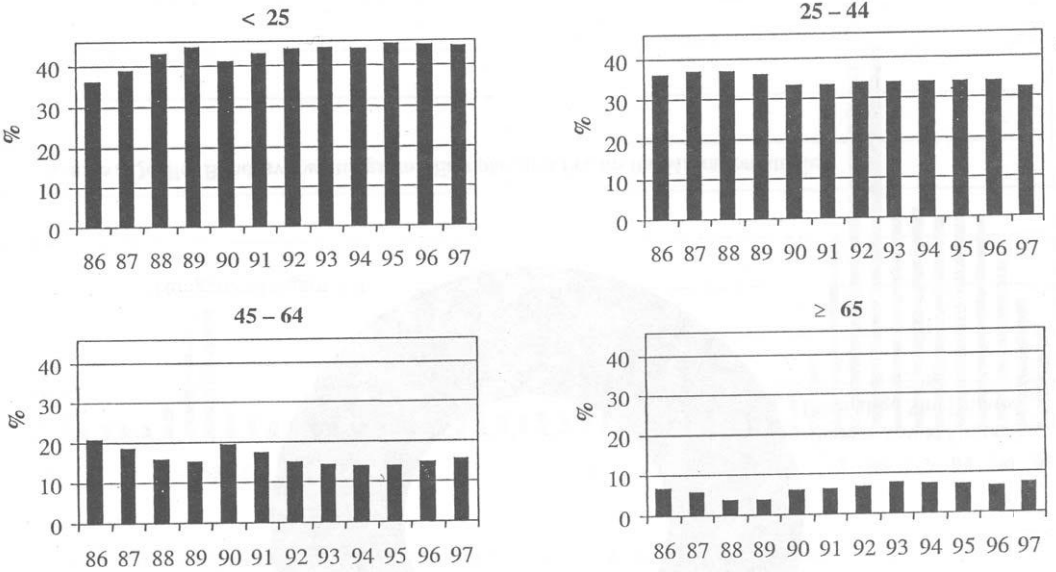
Source / Quelle: Bundesverwaltungsamt, Europäisches Forum für Migrationsstudien

Abbildung 2: Herkunftsgebiete der Aussiedler 1950 - 1998



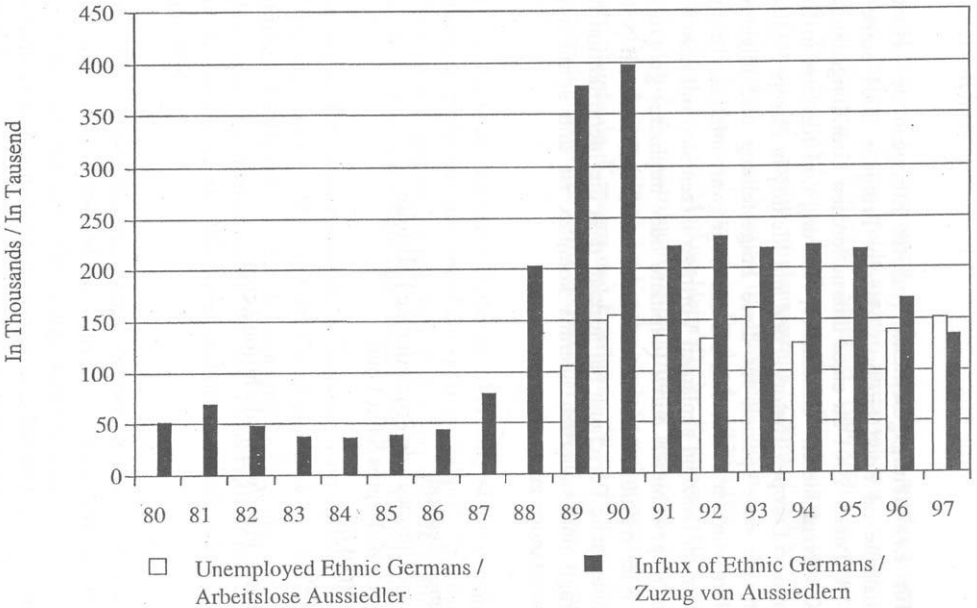
Source / Quelle: Bundesverwaltungsamt, Europäisches Forum für Migrationsstudien

Abbildung 3: Altersstruktur der Aussiedler



Source / Quelle: Bundesverwaltungsamt

Abbildung 4: Zuzüge und Arbeitslose 1980 - 1997



Source / Quelle: Bundesverwaltungsamt, Europäisches Forum für Migrationsstudien

Bekanntmachung

Das **Europäische Institut für Ernährungsgeschichte** (Institut Européen de l'Histoire de l'Alimentation / European Institute od Food History), das im Frühjahr 2001 seine Arbeit aufnehmen soll, lädt am 27.-28. Januar 2001 zu einer internationalen Gründungstagung nach Strassburg. Das Thema der Konferenz lautet: "Geschichte, Nahrung und Identität in Europa / Histoire et identités alimentaires en Europe / History, Food and Identity in Europe". Historiker, Ethnologen und Archäologen, die sich speziell für diese Fragestellung und allgemein für menschliches Nahrungsverhalten von der Prähistorie bis zur Gegenwart interessieren, sind zu dieser Tagung eingeladen. Die zwei Dutzend geplanten Vorträge setzen sich mit dem Konzept der Identität auseinander, das ja gewöhnlich durch (explizite oder implizite) geographische, politische, soziale, kulturelle oder religiöse Merkmale definiert wird und auch im Nahrungsverhalten Ausdruck findet. Historische Forschung hat gezeigt, dass die Identifikation mit und durch Nahrung oft fiktiv, fragil und sicherlich überaus komplex ist und somit sorgfältig untersucht werden muss, um verstanden zu werden.

Für weiterführende Information:

Rachel Menseau
Centre Européen de Promotion de l'Histoire
16 Grands Degrés Saint Louis
41000 Blois
France

Internet: http://www.rdv-histoire.com

Autorenverzeichnis

Baten, Jörg, Dr. M.A., wissenschaftlicher Assistent an der Universität München, Volkswirtschaftliches Institut. Seine Publikationen umfassen u.a.: Ernährung und wirtschaftliche Entwicklung in Bayern, 1730-1880, Stuttgart 1999 (Dissertation); Mitherausgeber von: The Biological Standard of Living in Comparative Perspective (mit John Komlos). Stuttgart 1998. Akutelle Zeitschriftenveröffentlichungen u.a.: Climate and Nutritional Status in 18th Century Southern Germany, in: Journal of European Economic History (2000, im Erscheinen); Smallpox and Nutritional Status in England, 1770-1873: On the Difficulties of Estimating Historical Heights, (mit Markus Heintel), in: Economic History Review (1998), Economic Development and the Distribution of Nutritional Resources in Bavaria, 1797-1839, in: Journal of Income Distribution (2000, im Erscheinen). Forschungsinteressen: Langfristige Entwicklung von Lebensstandards, Konsum und Ernährung, Wirtschaftsgeschichte von Unternehmen. Der letztere Forschungsbereich wird derzeit von der F. Thyssen Stifung als Forschungsprojekt gefördert.

Brennan, Lance, is an Associate Professor of History at Flinders University of South Australia. He is interested in the intersection of the agrarian and political history of North India in the 19th and 20th centuries, and with Prof. Brij V. Lal has recently edited a Special Issue of "South Asia", entitled: Across the Kala Pani: Indian Overseas Migration and Settlement.

Cleve, Ingeborg, Dr., wissenschaftliche Assistentin am Historischen Institut der Universität des Saarlandes, Saarbrücken. Mitarbeit am Forschungsprojekt "Weimarer Klassik in der DDR" der VW-Stiftung. Publikationen zur Konsumgeschichte, zur Geschichte des Sammelns und Ausstellens und zur Kulturgeschichte der Industrialisierung; u.a.: Geschmack, Kunst und Konsum: Kulturpolitik als Wirtschaftspolitik in Frankreich und Württemberg (1815-1845), Göttingen 1996.

Drukker, J.W., (1946) teaches design history at the Delft University of Technology, and economic and social history at the University of Groningen, The Netherlands. His research interests center around the relationship between changes in living standards and economic development, specifically the use of demographic and anthropometric data for reconstructing standard of living patterns in the past. He has published regularly on these and related subjects.

Haines, Michael R., is Banfi Vintners Professor of Economics at Colgate University (Hamilton, New York USA) and is also a Research Associate in the Development of the American Economy Program at the National Bureau of Economic Research (Cambridge, Massachusetts USA). He received his PhD. in economic history from the University of Pennsylvania in 1971 and is the author or editor of four books and many chapters and articles on both European and American economic, social, and demographic history, as well as in economic development.

Homburg, Heidrun, Dr. phil., Studium der Geschichte, Romanistik, Sozialwissenschaften in Bochum, Rennes, Freiburg. Lehr- und Forschungstätigkeit an der University of California Berkeley, der Universität Bielefeld, der University of Michigan, Ann Arbor, der Maison des Sciences de l'Homme, Paris, dem Centre de recherche en histoire des sciences et des techniques, Paris, der Ruhr-Universität Bochum und der Technischen Universität Chemnitz.

Veröffentlichungen: Rationalisierung und Industriearbeit. Arbeitsmarkt - Management – Arbeiterschaft im Siemens-Konzern Berlin 1900-1939, Berlin 1991, verschiedene Aufsätze zur deutschen und französischen Sozial-, Unternehmens- und Handelsgeschichte 18.-20. Jh. Derzeitiger Forschungsschwerpunkt: Handel, Marktbildung und Konsum in Sachsen 1750-1870.

Jespersen, Jesper, Professor of Economics, Department of Social Sciences, University of Roskilde, Denmark, MA in economics from University of Copenhagen, PhD. in international economics, European University Institute, Firenze, Italy; has written a number of journal articles on Keynes and macroeconomic Theory and Polticies in addition to several books on Macroeconomics and Environmental issues.

Kamphoefner, Walter D., Ph.D., Professor of History, Texas A&M University, College Station/Texas, USA mit Spezialisierung auf den Fachgebieten Einwanderung und Ethnizität, Urbanisierung und Quantitative Methoden. Fulbright-Gastprofesseure Bremen 1986-7, Osnabrück 1998-9. Veröffentlichungen: Westfalen in der Neuen Welt: Eine Sozialgeschichte der Auswanderung im 19. Jahrhundert, Münster 1982; The Westfalians: From Germany to Missouri, Princeton 1987; (Hg. zus. mit W. Helbich u. U. Sommer), Briefe aus Amerika: Deutsche Auswanderer schreiben aus der Neuen Welt, 1830-1930, München 1988 (engl. Übers.: News from the Land of Freedom: German Immigrants Write Home, Ithace 1991).

Komlos, John, chair of economic history at the University of Munich, has been, along with Richard Steckel, one of the major contributors to the literature on the biological standard of living. In a serious of articles starting with: Stature and Nutrition in the Habsburg Monarchy: The Standard of Living and Economic Development, in: American Historical Review 90 (1985), pp. 1149-1161, he explored the "early-industrial-growth puzzle", i.e., that human beings became shorter at the onset of modern economic growth. This was a part of the hitherto unknown stresses that industrialization placed on the human organism. He subsequently explored how economic and demographic processes affected the biological well being of such diverse populations as those of North America, France, Germany, and the United Kingdom. He is currently working on the anthropometric history of early-modern France.

Marquardt, Editha, M.A., geb. 1967, Studium der Kulturwissenschaften, Germanistik und Hispanistik in Leipzig und Edinburgh. 1998 Mitarbeiterin am Seminar für Wirtschaftsgeschichte an der Universität München. Seit 1.1.1999 wissenschaftliche Mitarbeiterin im Projekt „Sachsenbilder - Bildvorstellungen" am Sonderforschungsbereich „Regionenbezogene Identifikationsprozesse. Das Beispiel Sachsen" an der Universität Leipzig. Arbeitsschwerpunkte: Kulturgeschichte, Kulturphilosophie, Bilder als kulturwissenschaftliche Quellen. Veröffentlichungen: Feste und Feiern, in: U. Fix (Hg.), Ritualität in der Kommunikation der DDR, Frankfurt a.M. 1998; Ideologie und Inszenierung am Völkerschlachtdenkmal. Jubiläumsfeiern von 1913, 1938, 1963 im Vergleich, in: Stadtgeschichte 2, 1999.

Martínez-Carrión, José Miguel, PhD. in history and professor in economic history at the University of Murcia (Spain). His publications include: Height and standards of living during the industrialisation of Spain: The case of Elche, in: European Review of Economic History II,2 (1998), pp. 201-230. Heights and standards of living in Spain, 1860-1969: Evidence from the South-eastern region, in: Komlos/Baten (eds.), The biological standard of living in comparative

perspective, Stuttgart 1998. Agricultores e industriales en el negocio del pimentón, 1830-1935, in: Revista de Historia Económica XVII, 1, 1999, pp. 149-186. Editor of the review Historia Agraria. Two research projects are in progress: "Health, nutrition and social inequality in the region of Murcia during XIX and XX centuries" and "Economic and Social History of the region of Murcia".

McDonald, John, is Professor of Economics at Flinders University of South Australia. He has published widely in economics, economic history, statistics and population studies, and was for ten years an associate editor of The American Statistical Association journal, "Journal of Business and Economic Statistics". A recent publication is the book: Production Efficiency in Domesday England, 1086, London 1998.

Mosk, Carl, is Professor of Economics at the University of Victoria. He is the author of Patriarchy and Fertility: Japan and Sweden, 1880-1960 (Academic Press, 1983), Competition and Cooperation in Japanese Labour Markets (Macmillan Press Ltd., 1995) and Making Health Work: Human Growth in Modern Japan (University of California Press, 1996). He is presently working on a study concerning urbanization and technological change in Japan.

Pérez-Castejón, Juan J., PhD. in economics and professor in statistics at the University of Murcia (Spain). Research in statistics and econometrics. Some of his most recent publications (with J.M. Martínez-Carrión): Heights and standards of living in Spain, 1860-1969: Evidence from the South-eastern region, in: The biological standard of living in comparative perspective, Stuttgart 1998; Height and standards of living during the industrialisation of Spain. The case of Elche, in: European Review of Economic History 2, 1998, pp. 201-230. Two research projects are in progress: "Health, nutrition and social inequality in the region of Murcia during XIX and XX centuries" and "Switching regimes and expectations hypothesis in the term structure of interest rates".

Schutkowski, Holger, geb. 1956; Studium der Biologie mit Schwerpunkt Anthropologie sowie Völkerkunde an den Universitäten Gießen und Göttingen; Promotion und Habilitation in Göttingen; Habilitationsstipendiat der DFG; Forschungsaufenthalte in England, Dänemark, Syrien und den Vereinigten Arabischen Emiraten; Reader in Biological Anthropology, Universität Bradford, England. Arbeitsschwerpunkte: Historische Anthropologie, Humanökologie, Rekonstruktion von Lebensbedingungen und Umweltbelastung in historischer Zeit; biokulturelle Strategien der Ressourcennutzung und ihre bevölkerungsbiologischen Konsequenzen in rezenten und historischen Populationen.

Shlomowitz, Ralph, is a Reader in Economics at Flinders University of South Australia. His research is focused on the economics of coercive labour systems, anthropometric history and the association of mortality with migration in world history.

Steckel, Richard, H., is Professor of Economics and of Anthropology at The Ohio State University (Columbus, Ohio USA) and is also a Research Associate in the Development of the American Economy Program at the National Bureau of Economic Research (Cambridge, Massachusetts USA). He received his PhD. in economics from the University of Chicago in 1977. He is the editor of several books and many chapters and articles on American economic,

social, and demographic history with a particular emphasis on historical health and anthropometry.

Tassenaar, Vincent, (1967) teaches economic and social history at the University of Groningen, The Netherlands. Among his research interests are the reconstruction and analysis of standard of living patterns in rural-traditional areas in the 19th century. His PhD.-dissertation "Lost Arcadia: The biological standard of living in the province of Drenthe 1815-1860" will be published in the fall of 2000.

Zimmermann, Klaus F., geb. 1952. Professor für Wirtschaftliche Staatswissenschaften der Universität Bonn. Direktor des Instituts Zukunft der Arbeit (IZA) in Bonn, das von der Deutschen Post getragen wird. Seit Januar 2000 auch Präsident des Deutschen Instituts für Wirtschaftsforschung (DIW) in Berlin. Von 1989-1998 war er Ordinarius für Volkswirtschaftslehre, insbesondere Wirtschaftstheorie an der Universität München. Er ist ferner Programmdirektor für "Labour Economics" des Centre for Economic Policy Research (CEPR) in London und Herausgeber des Journal of Population Economics. Er studierte Volkswirtschaftslehre und Statistik an der Universität Mannheim.