
*Some Remarks on German Economic Historiography and its Understanding of the Industrial Revolution in Germany**

Karl W. Hardach
University of California, Berkeley

I.

It is almost 40 years since J.H. Clapham¹ wrote that, during the 1870s, « economic history in its comprehensive modern form and with its modern title had first grown in the German speaking countries ». Past glory always provides rather cold comfort and encourages apologetic rationalization. It seems to this writer, however, that without an understanding of the development of economic historiography in Germany neither her present unsatisfactory level of economic historical research nor the relatively limited knowledge on the German Industrial Revolution can be properly understood.²

There are perhaps certain disadvantages inherent in chronological priority — not only in economic development but also in economic historiography. Quite possibly the pioneer wastes a lot of energy running into various dead-end roads and thus bears sub-

* The author wishes to thank his esteemed colleague and friend R. Roehl for helpful comments on an earlier draft of this article. The priceless services of Mr. U. Nocken who acted as research assistant, were financed by the United States Government and the E. H. Heller Fund.

¹ *Economic History, Survey of Development to the Twentieth Century*, « Encyclopaedia of the Social Sciences », New York 1931, vol. 5, p. 318.

² At this point it would be futile to attempt for Germany an as extensive critical survey such as the one of the English Industrial Revolution by K. BORCHARDT, *Probleme der ersten Phase der Industriellen Revolution in England*, « Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte » (subsequently referred to as VSWG), vol. 55, Wiesbaden 1968.

stantial costs for leading the way. The debate on the preeminence of deductive reasoning versus inductive research in economics and — in today's terminology — in economic history could serve as an example. This famous Methodenstreit between Gustav Schmoller, representing the so-called Younger Historical School of Economics, and Carl Menger, the spokesman of the Viennese marginalists, was long conducted with vigour and a considerable dose of gall and gradually came to an end «for lack of a real problem when it was recognized that the two points of view complement each other».³ Though Schmoller in all likelihood⁴ has to be declared the intellectual loser of this debate, he won de facto by imprinting his aversion to theory — some say his hostility to theory — on German economists and economic historians for many decades.

Once the beaten track was established and the «method of production» prescribed, vested interests made it difficult to change and all the psychological disadvantages of an early start came into play: inertia, self-content, the Buddenbrooks-phenomenon in general. Playing the game was profitable — not only in society but even more so in German academia. Loyalty to one's old school tie, devotion and reverence to one's Doktorvater not only showed good manners but insured against a life-long fate as a maverick and against ostracism. In addition, «the burden imposed by interrelatedness» played its role. Even though economic historians might have shown some aversion towards economic theory, it nonetheless remained that economic history, as a hybrid, can only be as progressive as its parents, one of which is economics. Established as a field,

³ E. HEIMANN, *History of Economic Doctrines*, New York 1964, p. 178.

⁴ Rather critical on Schmoller as an economist: A. KRUSE, *Geschichte der volkswirtschaftlichen Theorien*, Munich 1948, pp. 160, 176; G. EISERMANN, *Die Grundlagen des Historismus in der deutschen Nationalökonomie*, Stuttgart 1956, p. 238; more positive: C. BRESCIANI-TURRONI, *Annual Survey of Statistical Data: Pareto's Law and the Index of Inequality of Incomes*, «*Econometrica*», Menasha, Wis., vol. 7, 1939, pp. 116-118; C. BRINKMANN, *Gustav Schmoller, Handwörterbuch der Sozialwissenschaften* (subsequently referred to as HdSw), vol. 9, Stuttgart 1956, p. 135f. The economic historian in any case to this very day owes to Schmoller and his school a vast body of factual information and sometimes even quantitative data. Thus for good reasons reprints appear: G. SCHMOLLER, *The Mercantile System and its Historical Significance*, London 1967, German original 1884.

but without a method of its own, economic history depended on the methodological advances in the parent sciences which were limited indeed.

For the historian it is an old disadvantage that he cannot fall back on a systematic body of theory as a source of generalization. What he calls « historical method » often looks rather archaic to the social scientist. While the latter spends a substantial amount of his professional time considering his methods and objectives, the historian is rather negligent in this respect.⁵ Shortly before the turn of the century the pattern was set in German historiography which was to remain for a long time: the use of sociology within historical research was declared undesirable.⁶ German historians in contrast to their West European colleagues saw the danger of a « Soziologismus » in the use of sociological methods which threatened to destroy the uniqueness of historical events and to eliminate from history the factor of concrete political decisions by men of free will.⁷ According to H. von Treitschke the historian's concern had to be the state not the society,⁸ a claim neither surprising nor unreasonable for a latecomer nation, but highly objectionable if permanently upheld as a dogma. On the other hand the preoccupation with the influence of ideas upon the course of human affairs, the emphasis on *Geistesgeschichte*,⁹ left little room for economic and social history in Germany « especially since the country prided

⁵ This problem seems not to be confined to Germany alone; W. W. WAGAR notes of the present American situation: « The rank and file of professional academic historians do not help the cause of Clio when they stubbornly refuse to be introspective about their discipline, or when they groan with resentment if asked to teach a course in historiography or historical thinking, or when they discourage graduate students from writing theses in philosophy of history ». « American Historical Association Newsletter », vol. 8, no. 2, Washington, D. C., Dec. 1969, p. 13.

⁶ G. OESTREICH, *Die Fachhistorie und die Anfänge der Sozialgeschichtlichen Forschung in Deutschland*, « Historische Zeitschrift », Munich 1969, vol. 208.

⁷ W. BESSON (ed.), *Geschichte*, Hamburg 1961, p. 314.

⁸ K. BOSL, *Geschichte und Soziologie. Grundlagen ihrer Begegnung, Der Mensch in Staat und Gesellschaft*, Munich 1956, p. 25 ff.

⁹ « Through the work of Troeltsch about the social teachings of the Christian churches and the famous study of Max Weber, The Protestant Ethic and the Spirit of Capitalism, the field of the history of ideas likewise received a new impulse... It was not, they thought, social and economic developments that conditioned ideas; rather, it was the other way around ». (W. J. MOMMSEN, *Historical Study in Western Germany*, B. C. SHAFER, (ed.), *Historical Study in the West*, New York 1968, p. 85).

itself upon its cultural and political superiority over the philistine-materialistic West ».¹⁰

The rejection of positivistic sociology, a characteristic feature of German historical writing since Droysen's *Historik* of 1882 was reinforced after the First World War; in the view of leading German historians the sociological method frequently led into uncomfortably close vicinity of Marxism.¹¹ It is not surprising that this apprehension increased after 1933 when « the sociologically oriented historical writings in general were suspected of Marxism ».¹² The incipient efforts of younger historians¹³ to liberate themselves from the *Ideengeschichte* tradition of Meinecke and to open new vistas through the stronger consideration of economic and social factors unfortunately did not come to fruition in Germany.¹⁴

However, after 1945, while history departments remained relatively intact, this new viewpoint did begin slowly to characterize a rising generation of German historians. In addition there were the favorable influences from political science¹⁵ and sociology which

¹⁰ K. EPSTEIN, *The Socioeconomic History of the Second German Empire*, « The Review of Politics », vol. 29, Notre Dame, Ind. 1967, p. 100. On the present relations between *Geistesgeschichte* and economic history in Germany cf. H. ROSENBERG, *Probleme der deutschen Sozialgeschichte*, Frankfurt/Main 1969, p. 106 f. and H. U. WEHLER, *Theorieprobleme der modernen deutschen Wirtschaftsgeschichte (1800-1945)*, Rosenberg-Festschrift (forthcoming).

¹¹ G. v. BELOW, *Über historische Periodisierungen, mit besonderem Blick auf die Grenze zwischen Mittelalter und Neuzeit*, Berlin 1925, p. 15

¹² OESTRREICH, p. 363.

¹³ E. KEHR, *Schlachtflottenbau und Parteipolitik 1894-1901*, Berlin 1930; E. KEHR, *Der Primat der Innenpolitik, Gesammelte Aufsätze zur preussisch-deutschen Sozialgeschichte im 19. und 20. Jahrhundert* (H. U. Wehler, ed.), Berlin 1965; H. ROSENBERG, *Die Weltwirtschaftskrise von 1857-59*, Stuttgart 1934.

¹⁴ For most of the German historians the advent of Nazism did not present any deep crisis although they often resented its plebeian origins and demagogic nature. As German historiography had retained the conservative-authoritarian attitudes inherited from the pre-democratic and pre-industrial setting of its nineteenth century origin and had absorbed so much of ultranationalist and racist thought during the Wilhelminian and Weimar eras, peace with the new régime could be made rather easily. On the affinities between Nazi ideology and classical German historiography: H. HEIBER, *Walter Frank und sein Reichsinstitut für Geschichte des Neuen Deutschland*, Stuttgart 1966; K. F. WERNER, *Das NS-Geschichtsbild und die deutsche Geschichtswissenschaft*, Stuttgart 1967; G. G. IGGERS, *Review of Heiber's book*, « Central European History », vol. 2, Atlanta 1969; MOMMSEN, *Historical Study in Western Germany*, op. cit.

¹⁵ H. MOMMSEN, *Zum Verhältnis von Politischer Wissenschaft und Geschichtswissenschaft in Deutschland*, « Vierteljahrshefte für Zeitgeschichte », vol. 10, Stuttgart 1962.

had virtually to start anew and could therefore show little regard for tradition. Nevertheless as late as 1956 the use of sociological methods was not yet explicitly advocated;¹⁶ by 1961, however, it was noted that very recently various demands were put forward « to make modern sociology fruitful for historical research ».¹⁷ The regeneration of the historical profession after 1945 was not an easy task as it took place in an unfavorable intellectual environment. The shock of the German people once they became aware of the full extent of the Nazi terror led to a 'flight from history', to an exclusive preoccupation with the pressing problems of daily life.¹⁸

The past decade has been productive and brought forth a considerable number of contributions in German social history which have been received well in other countries. This was possible because, in addition to the new methodological approach, a new thematic self-limitation was instituted. The German historical profession, insofar — or shall one say, in so little — as it is interested in the industrialization process, today treats the political, religious and cultural factors, which are related as cause and effect to technological innovations and economic growth.¹⁹ While, therefore, German social history has reached qualitatively, — but not quantitatively — the international research standard, the methodological and substantive backwardness of German economic history is still quite substantial and is a result of the longstanding disappointing situation in German economics.

Although a renewed interest in economic theory had already manifested itself around the turn of the century,²⁰ the real revival occurred after the First World War, since the descendants of the German Historical School of Economics proved unable to cope with the economic problems of the post-war period.²¹ However a

¹⁶ H. PROESLER, *Sozialgeschichte*, « HdSw », 1956, vol. 9, pp. 447-455.

¹⁷ BESSON, *op. cit.*, p. 313.

¹⁸ « The nation's, as well as the individual's own past was generally regarded as taboo and this, too, had an unfavorable effect on the development of historical consciousness. For, a short time, as Alfred Heuss demonstrated in a masterful study (*Verlust der Geschichte*, Goettingen 1959), there resulted a 'loss of history' » (MOMMSEN, *Historical Study in Western Germany*, *op. cit.*, p. 123).

¹⁹ Details and an extensive bibliography in O. BÜSCH, *Industrialisierung und Geschichtswissenschaft*, Berlin 1969.

²⁰ KRUSE, *op. cit.*, p. 175.

²¹ F. A. LUTZ, *Walter Eucken*, « HdSw », vol. 3, 1961, p. 354.

theoretical rethinking was made more difficult because the Marginal Utility School in the early twenties was either totally unrepresented at German universities²² or had much of its original and highly valuable theoretical content diluted. Germany stood at a low point of analytic-deductive thinking; what theory there was, was either a superficial Ricardo-renaissance or a totally dogmatic orthodox Marxism.²³ A regeneration could only come from the outside.

The textbook of the Swede Gustav Cassel²⁴ became the standard work of the interwar period;²⁵ however, several German economists²⁶ though closely following Cassel in some points, frequently adopted a more practical viewpoint. Cassel propagandized his and Leon Walras' idea on a system of general equilibrium; but despite its great analytical value such an all-inclusive static approach had to be of minor importance for economic history.²⁷ Other purely theoretical research was found only sporadically. Although there were several promising signs of a renaissance of economic theory in the 1920's, their eventual success was achieved not in Germany but in other countries where many German-speaking economists had emigrated before and after 1933.²⁸ Fundamental contributions to micro-theory²⁹ could find no response among German economic historians who were primarily accustomed to viewing the national economy as a whole.³⁰ Dynamic macroeconomic questions, however,

²² G. STAVENHAGEN, *Geschichte der Wirtschaftstheorie*, 2. ed., Göttingen 1957, p. 252.

²³ *Ibid.*, p. 251.

²⁴ G. CASSEL, *Theoretische Sozialökonomie*, Leipzig 1918.

²⁵ KRUSE, *op. cit.*, p. 175.

²⁶ AD. WEBER, F. TERHALLE, H. RITTERSHAUSEN, E. CARELL.

²⁷ When Cassel tried a partial dynamic approach to analyze the business cycle he « could do so only by ignoring his theoretical system and referring to historical data in a realistic way » (HEIMANN, *op. cit.*, p. 213). Similar: W. KROMPHARDT, *Gustav Cassel*, « HdSw », vol. 2, 1959, p. 476.

²⁸ H. MÖLLER, *Heinrich Freiherr v. Stackelberg*, « HdSw », vol. 9, 1956, p. 771.

²⁹ E. g. by H. v. STACKELBERG, E. SCHNEIDER.

³⁰ To the detriment of economic history this has not changed up to this day. On the relationship between economic history and business administration: K. HAX, *Die Bedeutung der historischen Methode für die Betriebswirtschaftslehre*, « Zeitschrift für Handelswissenschaftliche Forschung », Cologne 1949, and F. DECKER, *Betriebswirtschaft und Geschichte*, « VSWG », vol. 53, 1966. On business history: W. FISCHER, *Some Recent Developments of Business History in Germany, Austria and Switzerland*, « Business History Review », vol. 37, Boston 1963. On the role of public finance informative: F. NEUMARK, *Nationale Typen der Finanzwissenschaft*, in « Wirtschafts- und Finanzprobleme des Interventionsstaates », Stuttgart 1961.

were basically the concern of only three economists: W. Sombart, J. Schumpeter and A. Spiethoff.³¹

Although Sombart and Spiethoff were clearly influenced by the Historical School,³² they strove for a synthesis of theory and history in order to bring about a reconciliation between the mutually hostile positions. Even though he was once Schmoller's assistant, Spiethoff was the more theoretically oriented; but his influence was limited due to his exclusive devotion to the analysis of crises.³³ Sombart was successful in a systematic presentation of the material but only achieved a limited synthesis insofar as the part of theoretical analysis remained relatively small. His relationship to economics remained essentially ambiguous because he considered economics to be sociology and would not concede the existence of a separate discipline of economics. Schumpeter was educated in the Viennese Marginalist School and possessed (perhaps for that reason) a more analytical inclination than the other two.³⁴ He most clearly advocated a pluralism of methods and believed, similar to Spiethoff, that a combination of theoretical, historical and quantitative analysis would be the most adequate method of studying the phenomenon of economic growth.³⁵ However, his influence in Germany remained rather limited for quite some time.³⁶ This was the result first of his short academic career in Germany³⁷ and second of the

³¹ An excellent analysis of their role in economics and economic history is provided by F. C. LANE, *Some Heirs of Gustav v. Schmoller*, J. T. Lambie (ed.), « Architects and Craftsmen in History », Festschrift für A. P. Usher, Tübingen 1956, and E. SALIN, *Sombart and the German Approach*, in the same volume.

³² Sombart, Spiethoff and Max Weber were considered as « the youngest Historical School » by SCHUMPETER, *History of Economic Analysis*, New York 1954, pp. 815-819.

³³ He published two important articles on *Krisen*, « Handwörterbuch des Staatswissenschaften », Jena 1925 and on *Overproduction*, « Encyclopaedia of the Social Sciences », New York 1933. His « Die wirtschaftlichen Wechsellen » (1955) is a reprint of the article on *Krisen* with the addition of some tables.

³⁴ On the development of economic historiography in Austria in general: H. HASSINGER, *Die Wirtschaftsgeschichte an Oesterreichs Hochschulen bis zum Ende des ersten Weltkrieges*, W. Abel et al. (eds.), « Wirtschaft, Geschichte und Wirtschaftsgeschichte », Festschrift F. Lütge, Stuttgart 1966.

³⁵ G. WEIPPERT, *Werner Sombart*, « HdSw », vol. 9, 1956, pp. 300 f.; E. SALIN, *Arthur Spiethoff*, « HdSw », vol. 12, 1965, pp. 651 f.; R. SCHAEFER, *Joseph Alois Schumpeter*, « HdSw », vol. 9, 1956, pp. 153 ff.; STAVENHAGEN, *op. cit.*, p. 184.

³⁶ U. WEINSTOCK, *Das Problem der Kondratieff-Zyklen*, Berlin-Munich 1964, p. 74.

³⁷ Bonn University 1925-32.

fact that his *Business Cycles* unfortunately appeared in the war year of 1939.³⁸

After World War II economics, in contrast to political science and sociology, experienced a smooth transition. The liberal economic ideology of the twenties and early thirties was revived and was given an excessive importance in German economic thinking for a few years. Neo-Liberalism with its credo of a minimum of state regulation proved itself well in daily economic affairs so that Keynesianism, which tended to be (or was suspected to be) oriented toward more state intervention, could only gain gradual acceptance.³⁹ The reception of the «New Economics» (not least a generational problem) became widespread during the second half of the 1950's and finally provided the German economists with modern scientific tools.⁴⁰

In the following years, young German economists worked especially hard to attain the international level of economic sophistication. This attempt also led to the widespread acceptance of the Anglo-Saxon growth theory in the early 1960's.⁴¹ It is true that there were already indications of this acceptance in the latter half of the 1950's;⁴² but it is at least suggestive that the article on economic

³⁸ *Business Cycles, A Theoretical, Historical, and Statistical Analysis of the Capitalist Process*, 2 vols., New York 1939; German edition: *Konjunkturen*, 2 vols., Göttingen 1953.

³⁹ When E. SCHNEIDER tried to explain in a quite elementary way the Keynesian theoretical approach and its analytical tools to his fellow economists at the meeting of the *Verein für Socialpolitik* in 1950 he was rather ill-received by the old guard who asked for a down-to-earth theory à la Knies, List and Schmoller. *Die Problematik der Vollbeschäftigung*, «Schriften des Vereins für Socialpolitik», vol. 3, Berlin 1951, pp. 17-32, 50, 53, 55, 88-91, 155.

⁴⁰ This is not meant to deny that important contributions to the theory of employment were made by German scholars (C. FÖHL, *Geldschöpfung und Wirtschaftskreislauf*, Munich 1937; K. BURKHEISER, *Grenzen des Staatskredits*, Berlin 1937) but their initial impact was rather slight.

⁴¹ SCHNEIDER's reference in 1950 to «brand new theoretical developments» citing Harrod, Domar and Hicks was as totally ignored as the paper of W. HOFFMANN on *Full Employment within a growing economy*, elaborating on these new theories in more detail, «since it presented macroeconomic models of such a gigantic size hardly possible to understand in so short a time». *Die Problematik*, op. cit., pp. 30 f., 33-49, 81.

⁴² E. g. German edition of W. A. LEWIS, *The Theory of Economic Growth*, Homewood/Ill. 1955, already in 1956; Conference of the «Verein für Socialpolitik» on growth theory and growth policy in 1958; S. KLATT, *Zur Theorie der Industrialisierung*, Cologne 1959.

growth in the twelve volume *Handwörterbuch der Sozialwissenschaften* appeared in 1965 only as a supplement to the volume in which it would have been published normally.⁴³ Although growth theory provided important stimulation and conceptual questions, it should not be overlooked that, especially in the treatment of technical change, in the measurement of capital inputs and also in the analysis of the separate contributions to output made by the factors of production,⁴⁴ it cannot yet offer very much to the economic historian. Presently it may be more significant that research in economic growth opens the possibility for developing a new relationship between economic theory and economic history and thus acts as the integration factor. This has been recognized in Germany, too; as one author put it: there are « three main variants of growth research »: growth theory, empirical-statistical analysis of the development process and the historical-descriptive study.⁴⁵

This basically well-meaning attitude toward economic history was also found in the HdSw-article on the methodology of economics⁴⁶ where, besides econometrics and economic policy, economic history was characterized as one of the « applications of theoretical models ». The author further stated as self-evident today that economic history without economic theory is impossible if it aspires to be more than a simple chronicle of events. Meanwhile, among older German theorists, the aversion against economic history persisted for some time. This attitude became indirectly apparent when the leading textbook author of the postwar period, Erich Schneider⁴⁷ explained that the investigation of the data for the economy and

⁴³ G. BOMBACH, *Wirtschaftswachstum*, « HdSw », vol. 12, 1965.

⁴⁴ F. H. HAHN and R. C. O. MATTHEWS (*Surveys of Economic Theory*, prepared for the American Economic Association and the Royal Economic Society, vol. 2, New York 1965, p. 1) note in their discussion of the theory of economic growth its increasingly formal character: « The authors of these models have naturally had in mind as a rule that their work should contribute to an understanding of the way economies actually grow over time; but this approach to growth theory is none the less different from that which would be used if the immediate purpose was to provide the best available explanation of the variety of historical growth experience ».

⁴⁵ BOMBACH, *op. cit.*, p. 764.

⁴⁶ N. KLOTEN and H. KUHN, *Wirtschaftswissenschaft: Methodenlehre*, « HdSw », vol. 12, 1965, p. 323.

⁴⁷ E. SCHNEIDER, *Einführung in die Wirtschaftstheorie*, vol. 2, Tübingen 1949, p. 194; in English: *Pricing and Equilibrium*, London 1962, p. 231.

their development through time is not a task of economic theory, but of the theory of population, of sociology, of legal history, of technology, and other studies, and thus did not refer to the most obvious example, economic history, at all. When J. K. Galbraith⁴⁸ tried to characterize the situation in economic history in his own country by 1963, he wrote: «The marriage of economics and history produces a hybrid which regularly combines the inadequacies of both. For economists, history is a featherbed into which fall those who are unfitted by temperament or training for economic theory, econometrics, economic statistics, or the other more rigorous forms of economic scholarship». The German translator a year later showed his profound insight into the attitude of many German theorists, by translating «featherbed» as «Lotterbett».⁴⁹

Nevertheless the relationship between economic history and theory gradually began to change. Already in 1962, the agrarian historian W. Abel,⁵⁰ an economist himself, cautiously noted that «theoreticians, possibly tired of constructing models, were approaching historians to test their intellectual constructions in the real world whereas the historians, possibly overwhelmed by material, asked economic theory for measurement and classification»; and E. Schneider now maintained: «Economic history is just as necessary an auxiliary science for theory as statistics. But the reverse is also true that successful economic historical research as well as statistical studies are impossible without the aid of theory. Economic history without theory is just as little thinkable as theory without empirical foundation and verification through economic history and statistics. In the cooperation of both rests the welfare of our discipline».⁵¹ In 1966 K. Borchardt,⁵² who may be the most theoretically oriented German economic historian, could optimistically report that while the justifiable struggle against the hegemony of the supporters of

⁴⁸ J. K. GALBRAITH, *The Liberal Hour*, New York, 1963, p. 14. German edition: *Tabus in Wirtschaft und Politik der USA*, Hamburg 1964, p. 8.

⁴⁹ «The bed one shares with one's mistress».

⁵⁰ W. ABEL, *Neue Fragen an die Wirtschaftsgeschichte*, Göttingen 1962, p. 6.

⁵¹ E. SCHNEIDER, *Einführung in die Wirtschaftstheorie*, vol. 4, Tübingen 1962, p. 329.

⁵² K. BORCHARDT, *Aufwertung der Wirtschaftsgeschichte*, «Der Volkswirt», Frankfurt/Main, January 28, 1966.

the Historical School temporarily led to the near extinction of economic history as an academic discipline, this anti-historic attitude luckily had been abandoned; in fact sometimes the pure theoreticians try to prepare the ground for economic history.⁵³ Shortly thereafter in the same year, Hans Rosenberg⁵⁴ remarked that the « areas of interest of the Younger Historical School, their formulations of scientific problems, categories of thoughts and descriptive and primarily anti-theoretical methods still characterize the predominant direction of West Germany economic historiography ». ⁵⁵ He added that: « Indeed, promising, yet still hesitant, impulses are stirring particularly among the younger historians ».

But the foreign reader must be cautioned not to raise his expectations too highly; especially in view of the modest role assigned to economic history in the Federal Republic. Presently only about twenty senior positions are allotted there to economic and social history. These chairs are occupied mainly by historians whose primary interest is social history and certainly not more than one third have received extensive training in the systematic social sciences. This tiny group is fortunately enlarged through the addition of several first rank foreign economic historians from neighboring countries and the United States. It is therefore not surprising that the contributions of German economic historians have remained relatively modest, in comparison to the Anglo-Saxon level of achievement. It was surely not an expression of polite reserve or overdone hospitality that no West German scholar read a paper in many sections of the Third Congress of the International Economic History Association in Munich in 1965.

The term West German was employed quite deliberately, as noteworthy contributions have been coming from scholars in the

⁵³ Probably he referred to the conference of the *Verein für Socialpolitik* in 1964, when the long missed intellectual handshake between the two groups was achieved and the first step towards an interlocking of economic history and economic theory was taken. *Weltwirtschaftliche Probleme der Gegenwart*, « Schriften des Vereins für Socialpolitik », vol. 35, Berlin 1965.

⁵⁴ H. ROSENBERG, *Grosse Depression und Bismarckzeit*, Berlin 1967, p. 18.

⁵⁵ The 12 volumes of the *Handwörterbuch der Sozialwissenschaften*, published 1956-65, contain indeed articles on the Fugger, guilds, Hanseatic League, staple rights etc. but no analytical essay on the industrial revolution in Germany.

DDR and it is fitting that some comments be devoted to these efforts.⁵⁶ Although the work of East German scholars frequently still degenerates into « stereotypes »⁵⁷ because they too readily resort to in-verbo-magistri argumentation, one should not be unaware that the contribution of the DDR to research in economic history is relatively more comprehensive than the West German share and that, more significantly, a certain opening and readiness for international and interideological exchange of thoughts has manifested itself recently.⁵⁸ Furthermore, Eli Heckscher's dictum of 1939, that Marxist scholars make few contributions to economic history since their prime concern is the ideological superstructure and not the material basis,⁵⁹ no longer commands universal validity with respect to the researchers in the DDR. Therefore, if the currently debated plan to establish Marxist teaching and research institutes in West German Universities and to staff them with learned experts were to be realized, this development could have a positive effect on economic history there.⁶⁰

The longstanding reluctance in Germany to engage in scientific

⁵⁶ This writer feels obliged to do so as the work of East German scholars is abroad not seldom quite unfairly degraded by sweeping generalizations. K. EPSTEIN, *op. cit.*, p. 100 for example refers to « historical pamphlets reeking with the wisdom of Lenin and Ulbricht which have emerged from the prostituted historic seminars » of the DDR. For a brief, equally critical but now dated review see: A. TIMM, *Das Fach Geschichte in Forschung und Lehre in der Sowjetischen Besatzungszone Deutschlands seit 1945*, Bonn 1965. As a remedy against the tendency of many East German historians to drag in the class struggle by the heels at every occasion and to press upon the reader a heavy dose of contemporary partypolitical comments, T. S. HAMEROW has suggested: « It is probably best to consider these digressions as a sort of stylistic convention, like the invocation of the Trinity in the treaties of old-style diplomacy ».

⁵⁷ ROSENBERG, *Grosse Depression*, p. 32.

⁵⁸ J. KUCZYNSKI, *Jahrbuch für Wirtschaftsgeschichte*, Berlin 1960, p. 342 admitted: « One hears often today that our scholarly work in this or that field is more or less not up to world standards ».

⁵⁹ « The curious thing, however, is that so little attention has been paid to economic history by Marxist historians. One might expect that scholars who believe that all human developments have their roots in economic conditions would be particularly eager to study the evolution of these conditions; but in actual fact they have been so much taken up by attempting to show how all sorts of political events and changes have been created by economic interests that they have had little time left for studying economic conditions themselves ». E. F. HECKSCHER, *Quantitative Measurement in Economic History*, « The Quarterly Journal of Economics », vol. 53, Cambridge, Mass. 1939, p. 169.

⁶⁰ Compare the not unfriendly review of ERNEST MANDEL's *Marxistische Wirtschaftstheorie*, Frankfurt 1968 by W. Zorn, « VSWG », vol. 56, 1969, p. 277.

discussion with Marxism,⁶¹ the belated recognition of sociology as a tool of historical analysis, the often blurred and still not fully clarified relationship of economic history to economic theory⁶² are the main reasons for the modest general level of understanding of the history of industrialization when compared to England and America, notwithstanding certain exceptional individual contributions after World War II. Despite all criticism which one can rightfully make against the classic contributions of W. Sombart⁶³ (1903), A. Sartorius v. Waltershausen⁶⁴ (1920) and J. Schumpeter⁶⁵ (1939), they represent high points in analysis or in factual presentation of the Industrial Revolution in Germany which have hardly been equalled today. Their observations and ideas, conceptual questions and conclusions appeared valuable enough to this author to sketch them with broad brush strokes. It is not therefore denied that Sombart's view of the German industrialization process as an example of the dominant influence of the capitalistic spirit was too onesided, that Schumpeter's interpretation leaned too heavily in the direction of forcing German economic development into his model of Kondratieffs⁶⁶ and Juglars and that finally Sartorius' work showed considerable analytical weakness. This writer also recognized the difficulty of doing full justice to works of many hundred pages within a brief space and he is aware of the somewhat arbitrary character of his decision to exclude other important contributions.⁶⁷ The division of Germany into an eastern-communist

⁶¹ Not only could the scholars of the Federal Republic very well compete in absurd non-cognizance of the other side with their colleagues in the DDR, but the latter failed for obvious reasons to interpret and question Marxist thoughts with Marxist methods.

⁶² Though especially conspicuous in Germany this is a universal problem. A. LEWIS, *Economic Growth*, op. cit., p. 15: «Every economist goes through a phase where he is dissatisfied with the deductive basis of economic theory, and feels sure that a much better insight into economic processes could be obtained by studying the facts of history. The instinct is sound, yet the enthusiasms of this phase seldom survive any serious attempt to get to grips with the facts of history».

⁶³ *Die deutsche Volkswirtschaft im neunzehnten Jahrhundert*.

⁶⁴ *Deutsche Wirtschaftsgeschichte 1815-1914*.

⁶⁵ *Business Cycles*.

⁶⁶ An excellent summary of the debate on the Kondratieff-cycles is provided by U. WEINSTOCK, *Kondratieff-Zyklen*, op. cit., who denies their existence in price and production series.

⁶⁷ E.g. F. SCHINABEL, *Deutsche Geschichte im Neunzehnten Jahrhundert*, vol. 3, «Erfahrungswissenschaften und Technik», 3. ed., Freiburg 1954.

and western-capitalist sphere of influence is of course clearly reflected in present interpretations of the German industrial revolution. It seems therefore appropriate to display both sides: marxist economic history will be represented by H. Mottek, the foremost expert on 19th century industrialization in the DDR,⁶⁸ while the more condensed outline of W. Hoffmann will exemplify the economist's approach⁶⁹ in the Federal Republic. This procedure has the advantage of bringing a few facts about the Industrial Revolution to the attention of the reader and at the same time outlining the evolution of the systematic analysis of the German industrialization process in the period ending with the foundation of the Bismarck-Reich. Incidentally some of the problem areas which still occupy the researchers today will become apparent but these will be more fully discussed through a topical approach in the third section.

II.

W. Sombart saw the 1850s as the real Gründerzeit in which modern capitalism became the basis of the German economy and during which the purposeful pursuit of a goal and the utilitarian thinking of capitalist entrepreneurs acted as the main driving forces in the transformation process of the German economy. Before the 19th century the state bureaucracy was the prime agent of economic progress; it ceased to play this role during the 19th century.⁷⁰

⁶⁸ Another DDR historian pointed out that Mottek has been successful « to do away with a certain too narrow approach in our economic historical research ». H. WEHNER, *Deutschlands Weg zum Industriestaat*, « Jahrbuch für Wirtschaftsgeschichte » 1969/I, Berlin 1969, p. 373. Mottek's contribution — by the way — got a positive if not enthusiastic reception in the Federal Republic. See the review by G. KOROWSKI, « VSWG », vol. 49, Wiesbaden 1962.

⁶⁹ His department colleague R. H. TILLY noted (maybe based on inside knowledge) that « Hoffmann might not appreciate being classified as an economic historian, but surely historical work is one of his claims to fame ». *Soll und Haben: Recent German Economic History and the Problem of Economic Development*, « Journal of Economic History », vol. 29, New York 1969, p. 312.

⁷⁰ W. SOMBART, *Die deutsche Volkswirtschaft im neunzehnten Jahrhundert*, Berlin 1903, pp. 66, 84, 90.

Since the 1770s and esp. since the early 1790s a rush and push for gain by capitalist methods could be recognized for the first time since the days of the Fuggers. This «early spring» saw rising prices and the creation of large fortunes⁷¹ which led their owners into further investment but not into industrial activities as the «essential preconditions» of a sufficient labor force and an adequate product market were still lacking. Thus the permanent results of the period 1770-1820 were minor, except for a general growth of business acumen, esp. pronounced among the great landowners; the total structure of the German economy in 1820 answered almost the description of that in 1750 or 1800.⁷²

Nothing much happened between 1820 and 1848, a period of declining prices; it was «an undynamic time, almost untouched by the breath of the capitalistic spirit» due to a loss of bullion.⁷³ Nevertheless in these years the textile, coal and iron industries grew slowly since the mid-1830 and two essential preconditions for further capitalistic development were laid: the coming into being of a huge surplus population and the creation of the Zollverein.⁷⁴

Though the year 1848 already experienced the miraculous discovery of new sources of bullion, German growth started in 1851 after the victory of the reaction and with the reappearance of stable political times. The politically quiet 1850s brought the «hour of birth of the new Germany». Besides industrial and railroad enterprises, the new forms to provide capital by means of joint stock companies and promotion banks were especially an expression of the spreading capitalist spirit. The desire for gain embraced the masses and after its previous, only ephemeral manifestations this capitalist spirit asserted itself forever; later periods only brought

⁷¹ This was caused by an expansive movement on the monetary side: considerable French and English subsidies to the various German states throughout the entire second half of the 18th century, higher German silver production, agricultural exports to England and an active German balance of trade in general, capital imports due to French immigrants and French reparation payments after 1815.

⁷² SOMBART, *op. cit.*, pp. 75-79.

⁷³ The German balance of trade turned passive since agricultural exports declined and an increased French and English competition made German industrial exports more difficult and even led to a flooding of the home market with English merchandise.

⁷⁴ SOMBART, *op. cit.*, p. 79.

its further expansion.⁷⁵ However it could be realized only after certain requirements concerning land, labor, law and technology were fulfilled.⁷⁶

Sombart emphasized the general mediocrity of Germany's natural endowment: rather limited agricultural and seafaring possibilities matched by a favorable reserve of coal and iron ore, with the latter being responsible for her « resolute turn to industrial activities » during the second half of the 19th century. But natural resource endowment exerted only a minor influence on the economy, other more important factors were decisive, esp. the human resources.⁷⁷

According to Sombart the Germans shared with all the other Europeans the ability for capitalism, i.e. « to enter the unlimited path toward financial gain » and « to transform the economic activities into a rationally organized business mechanism »; on top of that Germans showed a specific talent for capitalism because they had few sensuous-artistic leanings, were practical and « born bureaucrats » excelling in systematic activities. Besides these special German attitudes of orderliness, discipline and sense of duty, it was important that a constant stream of talent was diverted into business pursuits while Germany remained a semi-absolutistic state. The initially only partly realized emancipation of the Jews also had a positive effect on the economy; German economic life of the 19th century was unthinkable without the important contributions of the Jews.⁷⁸

By comparison, the impact of legislative and administrative measures on economic development had been slight. Though Sombart admitted that the Zollverein and the agrarian reforms were « acts of truly fundamental character », he cautioned against an overestimation of the role of the state. To deal with public educa-

⁷⁵ Sombart's interpretation of German economic development should be seen as an example of his general explanation of capitalism which he treated as a creation of the capitalistic spirit, emphasizing the importance of psychological, motivational or spiritual causes.

⁷⁶ *Ibid.*, pp. 80-85, 90, 299.

⁷⁷ *Ibid.*, pp. 96-99.

⁷⁸ *Ibid.*, pp. 101-112, 117-120, 274.

tion, patent and tariff laws, subsidies and « a thousand similar matters » would just fill pages but would not provide a deeper understanding of the essential features of German economic development.⁷⁹ Technological progress was more important; without it, the economic revolution would not have been possible, but one should not equate technological with economic development. He gave credit to the railroads « as the greatest productive act of the 19th century », which lowered transportation costs and gave impetus to the coal, iron and engineering industries, but saw their most important impact in shaping the stock market. The stock market and the banks, « these fortresses of capitalism » were the heart of the economy; both were the pure embodiment of the new economy and of capitalism. They command the utmost importance for economic development.⁸⁰

Significantly less satisfying — for the economist at least — was *Sartorius von Waltershausen*,⁸¹ who presented mainly a narrative with too great an emphasis on political, cultural, even diplomatic history and who provided very few economic causal explanations. But as he addressed himself critically to Sombart's interpretation, it is worthwhile to consider him, especially since he mellowed some of Sombart's overemphases.

Already in his introduction, Sartorius turned against the one-sided viewpoint which regarded the acquisitiveness of the individual as the single moving force and instead he stressed the necessity of giving credit to the role of « leadership from above » in German economic history in contrast to the experience of England or France.⁸² Apparently for him industrialization begun already in the 1830s and especially 1840s, both of which saw « perhaps not an especially rapid but nevertheless general economic progress ». He admitted that « making money through work and invention as well as through speculation and exploitation did not yet dominate public thinking

⁷⁹ *Ibid.*, pp. 122, 132.

⁸⁰ *Ibid.*, pp. 134, 171, 201, 240-246.

⁸¹ A. SARTORIUS VON WALTERSHAUSEN, *Deutsche Wirtschaftsgeschichte 1815-1914*, Jena 1920.

⁸² *Ibid.*, pp. 1-2.

in the thirties and forties as it did in the following decades ». However this was the « adolescence of German industry » and was characterized by the transition of many branches of industry from handicraft to machine production.⁸³

While Sombart understood the whole period from 1820 to 1848 as a weary time, Sartorius detected symptoms of fatigue only between 1815 and 1833 due to the great physical and psychological strains of the Napoleonic Wars and due to the deep disappointment over the political and social reaction. The economic recovery was very slow since the previous enterprising spirit and economic energy were lacking; the legal reform in the agrarian sector and the new industrial freedom (both historical necessities) did not change this situation despite additional efforts by the state. The « cancer » of German particularism prevented economic progress; firstly the small states possessed neither the means nor the agreement necessary for the construction of larger transportation networks, and secondly their protectionistic-particularistic tariff policies hindered intra-German trade without which an industrial upswing was impossible. Therefore the Prussian tariff of 1818 was « a ray of hope for economic progress » the worth of which the other German states still had to be convinced of before they were prepared to join.⁸⁴ The Zollverein of 1834, soon supported by the coming of the railroads, mobilized through its liberation of the internal trade « such an amount of unused economic energies » that an industrial and commercial upswing set in. This economic advance led to higher profits for agriculture which therefore was stimulated to make needed improvements — an absolutely necessary process for the economy. In the 1840s the Zollverein finally adopted a somewhat protectionist trade policy which fostered a golden age for various industries. Sartorius with his strong anti-English bias (1920!) hinted that earlier and higher tariffs would have been even better. In any case the venturesome spirit of enterprise permeated all occupational levels during this decade and a half; there was a distinct,

⁸³ *Ibid.*, pp. 71-72, 85.

⁸⁴ *Ibid.*, pp. 16, 21, 24, 31-32, 51, 68.

portance of the railroads which became since the early 1840s « the outstanding feature that dominated economic activity ». He held that « for Germany railroads meant much more than they did for England. The revolution they wrought in her economic system in some respects almost suggests analogy with America; and so do, in some cases, the financial methods of the early stages ». With regard to railroad construction he tried to steer a middle course between the views of Sombart and Sartorius by claiming that the German railroads were essentially the work of private initiative; however, public officials, « supremely efficient, quite above temptation, entirely independent of politics, did much, in many ways besides exerting discretion in charting, to prune promotion, to sober finance and to steady advance ».⁹¹ From the early 1850s onward railroad development was greatly assisted by the creation and growth of the universal banks. This financial apparatus, the innovation of vertical integration in industry and railroadization « formed the core of the innovations » till the early 1870s. They were adequate to induce all the investments and to produce all the phenomena of that prosperous period. Without explicit reference to Sombart he argued that German industrial development was « not at all astounding » since the « anthropological and sociological possibilities reasserted themselves after the break which had interrupted development for more than two centuries ».⁹²

Though Schumpeter was explicitly referred to by H. Mottek,⁹³ his influence on economic historiography in the DDR was only scant, while the partial impact of W. W. Rostow,⁹⁴ although he was not quoted, can be clearly seen in Mottek's analysis. Mottek presented a more analytical approach than his three predecessors and clearly defined industrial revolution as massive investments in fixed capital which — under capitalistic conditions — anticipated

⁹¹ *Ibid.*, pp. 303, 346, 354.

⁹² *Ibid.*, pp. 348, 350, 353, 356, 361.

⁹³ H. MOTTEK, *Einleitende Bemerkungen - Zum Verlauf und zu einigen Hauptproblemen der industriellen Revolution in Deutschland*, Mottek, Blumberg, Wutzmer, Becker (eds.), « Studien zur Geschichte der industriellen Revolution in Deutschland », Berlin 1960, p. 42.

⁹⁴ W. W. ROSTOW, *The Take-off into Self-sustained Growth*, « Economic Journal », vol. 66, London 1956. His debt to Marxism is of course substantial.

demand and led to cyclical developments. Enlarged quantity meant a qualitative change which occurred in Germany during the mid-1830s. The industrial revolution from 1834-1873 was preceded by a preparation period, beginning in 1784 with the introduction of new technology (spinning machines and steam engines).⁹⁵

The main reasons for such an exceptionally long preparation,⁹⁶ compared to England's, were the belated bourgeois revolution (i. e. the slowly doing-away with the feudal relations of production, serfdom and guild system, during the early decades of the 19th century) and the national disunity with regard to politics and economics. Moreover, there were minor circumstances which temporarily hampered German development, since the net-effects of both the European wars and of Napoleonic rule in Germany were negative for German industrialization. The wars, though at first stimulating some German industries and giving rise to some individual fortune making, brought later on substantial capital losses from physical destruction, plunder and war contributions. Napoleonic rule meant especially that Germany was subjected to the French trade policies which served only the interests of the latter; the harmful effects resulting from the opening of the German market to French products without reciprocity and the loss of German overseas trade could not be compensated by the benefits derived from the exclusion of English competition due to the Continental System. With regard to England Mottek did acknowledge that the import of technological improvements especially facilitated the preparation and the Industrial Revolution proper in Germany but he placed more importance on the severe English competition (in iron and cotton yarn) from the 1790s which discouraged the transformation of merchant capital into industrial capital in Germany.

In 1815 with the ending of the wars, with the achievement of national independence and the beginning of a long period of peace, all of which were more important as preconditions for a faster

⁹⁵ *Op. cit.*, pp. 11-18, 63. [Mottek's *Wirtschaftsgeschichte Deutschlands*, vol. 2, Berlin 1964 supplied more factual details and tackled some further problems but it did not provide additional analysis of the nature of the industrial revolution and its periodization].

⁹⁶ *Op. cit.*, pp. 18-26.

development of German industry than the alleged advantages of Napoleon's rule and his wars, this reappearing English competition prevented a major industrial upsurge in Germany. But the German bourgeoisie was also discouraged from undertaking large scale investments by the postwar depression and the international crisis in agriculture. Without a national market and proper protection there occurred until 1834 only a small increase in German industrial production, a somewhat more considerable application of steam engines, the introduction of the puddling process and the development of an engineering industry. In addition, there were «significant beginnings» in the transport sector through increased road construction and the introduction of steamships in river transport. Altogether thus «the preconditions for the breakthrough to industrial capitalism» were laid.⁹⁷

During the 1830s the conditions for industrialization improved significantly. There was neither a general scarcity of capital (but it was difficult to mobilize it for industrial purposes) nor a lack of labor force (although the barriers to free movement could create local shortages). The customs union tended to lessen the restraints against investments in fixed capital, while due to the cyclical upswing in England her competition on the German market became less severe. But it was still too keen to give the German textile industry the chance to usher in the industrial revolution, a task accomplished by the transport industry instead.

The railroads, not hampered by any English competition, could make ideal use of unskilled workers in their labor-intensive construction and draw on an indigenous body of engineers (once road builders). Capital was readily forthcoming from the general public due to the relative scarcity of secure investment possibilities and from the industrial bourgeoisie who understood that a better transport system would foster their own industrial pursuits. However, the state, especially in Prussia, tended to retard railroadization during the 1830s. Its attitude towards industrialization and economic change as well was somewhat ambivalent; the state was neither a bitter enemy nor an ardent supporter of the new develop-

⁹⁷ *Op. cit.*, p. 25 f.

ment but accepted it in accordance with mercantilist reasoning, i. e. considering its fiscal, military and economic needs. From the early 1840s the Prussian state vigorously backed railroad construction, mainly by guaranteeing dividends. Swift railroadization directly stimulated the heavy and engineering industries and provided an indirect fillip to the consumer goods industries to bring the first cyclical upswing in Germany and led to her first industrial crisis in 1847.

Thus, Mottek⁹⁸ claimed, the main problems of the Industrial Revolution are essentially explained, as the cyclical process of industrial capitalism, once set into motion, continued by its built-in momentum. The 1850s saw a second wave of mass investment in fixed capital, but the bulk of it went no longer solely into railroads but also into the capital goods industry. The European-wide upsurge was encouraged by American railroadization and the bullion discoveries from 1848 onward, while in Germany the creation of joint stock companies in industry and banking provided additional stimuli; but he claimed that especially the impact of the new form of banking has been overemphasized by Schumpeter and other bourgeois economic historians. The crisis of 1857 was followed by a new upsurge, which was only mildly interrupted in 1866 and lasted till 1873, the year with which the German Industrial Revolution ended.⁹⁹

Despite their different ideological points of departure Mottek and W. Hoffmann¹⁰⁰ often reached strikingly similar results and their main difference seemed to lie in Hoffmann's more persistent attempt for quantification and his use of economic terminology. He suggested that the period of sustained growth in Germany began after 1855-60 and was preceded by a preconditions period

⁹⁸ *Op. cit.*, p. 26.

⁹⁹ *Op. cit.*, pp. 26-63.

¹⁰⁰ W. HOFFMANN, *The Take-off in Germany*, W. W. Rostow (ed.), « The Economics of Take-off into Sustained Growth », London 1963, pp. 95-118. HOFFMANN's *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Berlin 1965, a massive statistical compendium, covered only the period since 1850. Its aims were « to serve the economic historian » as it wanted to answer only how but not why economic growth occurred. On national income: his and J. H. MÜLLER's *Das deutsche Volkseinkommen 1851-1957*, Tübingen 1959. On prices still: A. JACOBS and H. RICHTER, *Die Grosshandelspreise in Deutschland von 1792 bis 1934*, Berlin 1935.

from the end of the 18th century up to 1830-35 and a take-off period from 1830-35 to 1855-60. His use of Rostow's terminology¹⁰¹ looked very much like an act of courtesy when he stated in passing that «there was no sudden acceleration in the rates of growth in real income and in number of production series». As proportions of net capital formation, growth rates of per capita real income and other quantitative information on the over-all performance of the economy before 1850 were either insufficient or entirely lacking, qualitative criteria had to be used to arrive at periodization. Since qualitative changes were numerous, sometimes with immediate and sometimes with only long run effects, he regarded the application of both sets of criteria as adequate.

Hoffmann denied that industrialization was directly either the cause or the consequence of population growth; they both stemmed from the same source: the dissolution of the old social and economic order, which changed in rural and urban surroundings the attitudes toward marriage and the size of the family. Thus between 1816-65 the German population grew by 59%; the resulting additional food requirements, increased by a rising income, could be met by the agricultural sector which enlarged its production by about 135% (for vegetable products by 62%, for animal products by 213%). The increase in production originated from a slow increase in yields and a considerable reduction of waste land (from 23% in 1800 to 7% in 1864 in Prussia). Labor productivity went up by about 1.3% per annum during the period 1816-61 due to more rational methods of cultivation (esp. crop rotation) and a greater labor intensity (work incentives of peasant emancipation).¹⁰² The thus

¹⁰¹ In the meantime Germans in general have adopted the English term «take-off» in interesting contrast to their French neighbors who prefer «démarrage».

¹⁰² Hoffmann derived his figures from: E. BITTERMANN, *Die landwirtschaftliche Produktion in Deutschland 1800-1950*, Kühn-Archiv, vol. 70, Halle 1956; H. W. GRAF FINCK v. FINCKENSTEIN, *Die Entwicklung der Landwirtschaft in Preussen und Deutschland 1800-1930*, Würzburg 1960. These figures have however been declared as too low: G. HELING, *Berechnung eines Index der Agrarproduktion in Deutschland im 19. Jahrhundert*, «Jahrbuch für Wirtschaftsgeschichte» 1965/IV, Berlin 1965; Id., *Zur Entwicklung der Produktivität in der deutschen Landwirtschaft im 19. Jahrhundert*, «Jahrbuch für Wirtschaftsgeschichte» 1966/I, Berlin 1965; Id., *Review of W. G. HOFFMANN, Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Berlin 1965, «Jahrbuch für Wirtschaftsgeschichte», 1967/III, Berlin 1967.

rising per capita income in agriculture formed the essential demand for industrial goods (esp. textiles) while the demand exerted by industrial workers was initially insufficient to promote growth. Consequently the emancipation, largely accomplished by 1830 in the west and by 1840 in the east, was a necessary precondition to break down the obstacles against progress in agricultural production and to make possible regional and social mobility which were indispensable in the course of economic growth. The increase in agricultural output permitted Germany to continue her food exports and to acquire sufficient foreign exchange to import English capital goods which greatly facilitated industrial growth during the early stage of industrialization.

Growing foreign trade induced, after a setback during the 1820s, a steady increase of the German merchant marine, esp. after 1835, when tonnage grew until 1870 at an annual rate of 3.7%. This growth was partly due to the establishment of the Zollverein which favored the expansion of foreign trade by the removal of domestic customs barriers. Thus the internal exchange of goods between different regions was intensified and further development of inland transport became necessary. Railroadization reached its first peak between 1842-48 and initiated the cyclical movements of the capital goods industry. It constituted an important incentive both qualitatively and quantitatively for the early industrial development and went on at a lower level during the 1850s, reaching the level of 1846 again in 1868.

Consequently the output of the capital goods industry grew at about 6.3% annually between 1834 and 1855-60; coal production already increased significantly after 1832-35 while the iron industry showed an accelerated growth only after 1850-55. Besides these two leading industries, the engineering industry which also received a decisive impulse from railroadization, could respond to the challenge mainly by adopting the technological know-how from abroad up to 1850. During the first third of the 19th century technical training could only be acquired abroad or from hired foreigners, while later on the impact of the new technical education made itself felt. Although a rise in demand was the most significant factor for the growth in the capital goods industry, it played in

general only a minor role in the consumer goods industry which grew at 2% p.a. between 1834 and 1860. Not an increase in population and real income but the change in production technique (mechanization) was the main agent, esp. in the textile industry which could only very slowly surpass the handicraft production. By 1855-60 the consumer goods industry as well as the capital goods industry had achieved progressive and sustained growth.¹⁰³

Hoffmann had to admit that information on the origin of initial capital for industry is scant; in few cases the government provided the first outlay. But financing presented a problem neither for the substantial estate owners in Silesia nor in general for the usually very small enterprises pioneered by gifted technicians whose main source was the reinvestment of profits. Capital imports occurred only to a very small extent with the exception of the 1840s when, during the first railway boom, Germany's balance of trade turned passive for some years. Otherwise it was the public sector which provided the bulk of social overhead capital. While road construction was almost entirely public, the government played an important role by guaranteeing dividends and financing railroad construction, although the majority of railroad lines were financed by private funds.

For lack of data prior to 1850 no analysis of investment ratios and distribution of investments can be given. From his data on the 1850s (investment ratio: 1851-55 7.4%, 1856-60 8.4%; distribution of investment 1851-60: railways about 20%, industry about 16%) Hoffmann argued that an impression of the entire period 1830-60 could be conveyed and that it could hardly be doubted that by 1850 economic conditions were well set in Germany to allow for a transition into sustained growth.

¹⁰³ Interestingly Hoffmann who did construct a production index of British industry since 1700 did not so for Germany. R. WAGENFÜHR provided the following index figures of industrial production (1860=100): 1800 18, 1830 46, 1845 70. *Die Industriegewirtschaft, Entwicklungstendenzen der deutschen und internationalen Industrieproduktion 1860-1932*, Berlin 1933, p. 6. These figures have been criticized by J. KUCZYNSKI, who claimed that the undue inclusion of artisanal manufacturing bolstered the figures. He gave the following index of industrial production (1860=100): 1801-10 6, 1811-20 7, 1821-30 12, 1831-40 23, 1841-50 36, 1851-60 78. *Darstellung der Lage der Arbeiter in Deutschland von 1789 bis 1849*, Berlin 1961, p. 93; *Darstellung der Lage der Arbeiter in Deutschland von 1849 bis 1870*, Berlin 1962, p. 15.

These five to some extent self-contained descriptions and in whole or in part successful explanations of the German industrial revolution might provide an impression of the significant changes in methodological and substantive treatment of the industrialization process in German economic historiography. The observations and conclusions of these scholars differed quite often to a considerable extent or only in nuances — although this writer in general refrained to show that explicitly. These conflicting interpretations form to a large extent the points of controversy in current research on Germany's industrialization prior to 1870.

III.

Of course the question of *the start of German industrialization* is exceedingly important. This naturally relates to the question of *the contributions of mercantilism* in general and of the many state manufactories of the 18th century in particular to the industrial revolution. Not only for the 18th century but also for the 19th century, *the role of the state* in economic life is a point of debate. The creation of a new institutional framework as an eventual precondition of industrialization, i. e. the impact of the liberal reforms, is as much of interest as the role of the state as a provider of an *infrastructure* and as a driving force towards greater political and economic union by means of the *Zollverein*. In connection with the diversion effects of this customs union, the question of *the contribution of other countries* to German industrialization through the imports of machines, men and capital is raised. Closely related to this is the question of whether a general *scarcity of capital* or a *lack of entrepreneurial talent* in Germany caused the delayed industrialization. The realization of the variety of economic and social conditions in Germany before and during the industrial revolution increased the importance of more detailed *regional studies* which have shown their usefulness in the debate on the extent and the causes of *pauperism* during the industrial revolution. The author, however reluctantly, must limit himself to these ten problems and

he waives his right to even name all the other controversies and the many main and side lines of current research.¹⁰⁴

Any answer to the question of *the beginning of the industrial revolution* in Germany is made difficult because frequently no adequate definition is given for « industrial revolution », « industrialization », « modern economic development », « industrial capitalistic development » or all the other vague and superfluous poetic terms like « youthful days », « adolescence », « coming-of-age » and so on. Therefore it frequently remains unclear what was changed (industry or economy or society) and what constituted the change in these particular spheres: introduction of machine technology (through assimilation or through independent development), displacement of handicrafts through industry, formation of an industrial labor force and the development of class antagonism, growth of industry to the dominant economic position, measured by its contribution to the social product etc. In addition 19th century Germany, that is, the territory of the Bismarck Reich, was characterized by a variety of economic and social conditions and due to her political disunity before 1871 can only with difficulty be compared to the larger European nation states. It has to be borne in mind that the individual regions were effected by the industrialization at vastly different times.

The criteria provided by Kuznets¹⁰⁵ for the beginning of modern economic growth prove to be inoperable. The criterion of the « presence of international contacts » is not applicable for a country so much a part of the mainstream of western civilization since medieval times, while the criterion « application of modern scientific thought and technology to industry, transport, and agriculture » raises the obvious question what « application » means in quantitative terms. The very lack of sufficient statistical evidence in the German case at the present excludes the use of the two other

¹⁰⁴ In this sense and in order to keep the footnotes in a reasonable relationship to the text, the cited publications serve only as illustrations and do not represent a bibliography of German industrialization.

¹⁰⁵ K. OHKAWA and H. ROSOVSKY, *A Century of Japanese Economic Growth*, « The State and Economic Enterprise in Japan » (W. W. Lockwood, ed.), Princeton 1965, p. 53; S. KUZNETS, *Notes on the Take-off*, Rostow (ed.), « The Economics of Take-off », *op. cit.*, pp. 22-43.

criteria: « sustained and rapid rise in real product per capita combined with high rates of population growth » and « high rates of transformation of the industrial structure ».¹⁰⁶ As a result extreme dates — a hundred years apart — are given as the beginning of German industrialization.

WAGENFÜHR,¹⁰⁷ who did not ask when the industrialization began but when did Germany become an industrial nation, compared the output of agriculture and industry (artisanal production excluded) and estimated a ratio of 1.5:1 around 1860 and 1:1 in the 1880s when Germany achieved « the transformation from an agricultural to an industrial state ». Though he recognized that German industrial production quintupled between 1800 and 1860, nevertheless the « predominant agrarian character of the economy » remained and was demonstrated, for example, by the phenomenon that in Prussia the movement of real income until the 1860s was inversely related to the price of rye. Only in the 1860s did industry in Germany gain ground rapidly.

Another quantitative measure, the size and growth of towns, was regarded by CLAPHAM¹⁰⁸ as the best test of a country's industrialization. Prussia which he considered thoroughly representative of all Germany and which provided statistics sufficiently suitable for intertemporal comparison¹⁰⁹ had a rural population of 73.5% in 1816, thus showing « an exceedingly low level of industrialization ». During the next half a century change was barely susceptible, as in 1852 71.5%, 69.3% in 1861 and in 1871 67.5% of the population were classed as rural. Clapham's view was originally

¹⁰⁶ For a more detailed discussion on the applicability of the KUZNETS- criteria: D. S. LANDES, *Japan and Europe: Contrasts in Industrialization*, « The State and Economic Enterprise in Japan » (W. W. Lockwood, ed.), Princeton 1965, pp. 154-156. S. KUZNETS, *Modern Economic Growth, Rate, Structure, and Spread*, New Haven 1966, p. 473 claimed that modern economic growth began in the « first group of European followers » in the late 1830s.

¹⁰⁷ R. WAGENFÜHR, *op. cit.*, pp. 6 ff.

¹⁰⁸ J. H. CLAPHAM, *The Economic Development of France and Germany 1815-1914*, Fourth Edition 1936 (Reprint Cambridge 1966), pp. 82, 278. Clapham incidentally did not provide a comparative discussion of French and German industrialization but presented a narrative alternating between the two countries.

¹⁰⁹ The early 19th century Prussian definition of a town was a legal one while later a statistical one (communities of 2000 inhabitants and more) was used.

followed by W. O. HENDERSON¹¹⁰ who termed the period 1815-71 as « the genesis of the Industrial Revolution in Germany ». Later on, however, he argued¹¹¹ that « the genesis of the industrial revolution must be sought in the years 1740-1815 ». He did not explicitly provide a definition of « industrial revolution » but mentioned that « industrial expansion requires capital as well as machinery and communications », and « the development of large units of production and the geographical concentration of manufactures in particular regions ». As all these elements were given he detected « a sufficient move towards industrialization »; compared with Britain, German growth was slow, but « important economic advances » could be seen, « if the extension of manufactures be studied without reference to so exceptional a standard ». Such a view was supported by R. ENGELSING¹¹² who maintained that « the late 18th century was the epochal division in Germany between the traditional and the modern economy and society » and that with this upheaval a process of sustained change was set into motion. Similarly, F. G. Dreyfuss¹¹³ held: « It was only between the years 1775-80 that west Germany, after having tended to the wounds of the Seven Years War, began to participate in the economic revolution which characterized western Europe ».¹¹⁴

Several noted authors singled out the year 1850 in dating the beginning of industrialization. Rostow¹¹⁵ dated the German take-off from 1850 to 1873 and saw the Revolution of 1848 as providing the special stimulus. A. GERSCHENKRON¹¹⁶ also understood the 1850s

¹¹⁰ W. O. HENDERSON, *The Zollverein*, Cambridge 1939 (Preface by J. H. Clapham), p. 338.

¹¹¹ W. O. HENDERSON, *The Genesis of the Industrial Revolution in France and Germany in the 18th century*, Kyklos, « Internationale Zeitschrift für Sozialwissenschaften », vol. 9, Bern 1956.

¹¹² R. ENGELSING, *Kleine Wirtschafts- und Sozialgeschichte Deutschlands*, Hanover 1968, p. 73.

¹¹³ F. G. DREYFUSS, *Bilan Economique des Allemagnes en 1815*, « Revue d'Histoire Economique et Sociale », vol. 43, Paris 1965, p. 433.

¹¹⁴ This opinion was shared by G. ADELMANN, *Strukturwandlungen der rheinischen Leinen- und Baumwollgewerbe zu Beginn der Industrialisierung*, « VSWG », vol. 53, Wiesbaden 1966.

¹¹⁵ W. W. ROSTOW, *The Stages of Economic Growth*, Cambridge 1960 (1967 reprint), p. 38.

¹¹⁶ A. GERSCHENKRON, *Economic Backwardness in Historical Perspective*, « A Book of Essays », Cambridge/Mass. 1966, pp. 13, 17.

as «the beginning of rapid industrialization in Germany» in connection with the development of the universal bank. One of the younger theoretically oriented German economic historians, H. WINKEL¹¹⁷ believed that «in any case, an extensive industrial, capitalistic development had begun in Germany only in the middle of the 19th century». The young social historian H. BÖHME¹¹⁸ also placed the start of the take-off around 1850, although he limited it — not very convincingly — to only seven years, when «in one big spurt the integration and competitiveness of German industry on the world market was achieved». D. S. LANDES¹¹⁹ also originally had termed the years after 1848 as «Germany's industrial coming-of-age» but seemed later, in 1965, to be inclined to opt for the 1830s.¹²⁰ ROSTOW¹²¹ also explained that he had «no strong objections to putting back German take-off to the 1830s», as advocated by HOFFMANN¹²² in 1960. A few years before, the latter had written that the Industrial Revolution had developed in Germany as in many other European countries between 1821 and 1860 but he had added that «it was not until the end of the 1840s that modern industries began to develop in Germany».¹²³ In an earlier German edition he had even maintained that «a broader expansion and intensification was successful only after 1850».¹²⁴

¹¹⁷ H. WINKEL, *Die Ablösungskapitalien aus der Bauernbefreiung in West- und Süd-deutschland*, Stuttgart 1968, p. 2.

¹¹⁸ H. BÖHME, *Prolegomena zu einer Sozial- und Wirtschaftsgeschichte Deutschlands im 19. und 20. Jahrhundert*, Frankfurt 1968, pp. 40, 51.

¹¹⁹ D. S. LANDES, *Entrepreneurship in Advanced Industrial Countries: The Anglo-German rivalry*, «Entrepreneurship and Economic Growth», Cambridge/Mass. 1954, p. 4.

¹²⁰ LANDES, *Japan and Europe*, p. 155 f. In 1960 he wrote that Germany was «in 1815 on the eve of her industrial revolution», that «German industry developed slowly after 1815 — though faster after 1834 — and not until the 1850s did it pick up the speed that was soon to be the wonder of Europe». *The Structure of Enterprise in the 19th Century, The Cases of Britain and Germany*, Rapports of the XI^e Congrès International des Sciences Historiques, Stockholm 1960, reprinted in D. S. LANDES (ed.), *The Rise of Capitalism*, New York 1966, pp. 105, 107.

¹²¹ W. W. ROSTOW, *The Economics of Take-off into Sustained Growth*, New York 1965, p. 346.

¹²² See above, p. 63.

¹²³ W. G. HOFFMANN, *The Growth of Industrial Economies*, revised edition, Manchester 1958, pp. 47, 50.

¹²⁴ W. HOFFMANN, *Stadien und Typen der Industrialisierung*, Jena 1931, p. 78.

Hoffmann's most recent view coincided in this respect with that of Mottek,¹²⁵ while the other leading economic historian of the DDR, J. KUCZYNSKI¹²⁶ designated 1785 as « the decisive year in the development of the German factors of production » (first German built Watt-type steam engine and first spinning jennies adopted) and described the period 1814-1839 as the Industrial Revolution since « never before in German history had productive energies developed in such a forward rushing haste ». But this viewpoint did not prevail over Mottek's in the DDR research.¹²⁷ In the Federal Republic by comparison, W. FISCHER,¹²⁸ probably the foremost expert on the socio-economic aspects of the German industrial revolution took a compromising mid-position because he termed the period 1815-48 as the « onset of the industrialization » meaning the take-off phase, « because during this period clearly those forms, methods and techniques develop which in the second half of the century markedly led to the industrialization of Germany ». Before Schumpeter, already K. LAMPRECHT¹²⁹ had spoken out in favor of the early 1840s and A. SPIETHOFF¹³⁰ also wrote: « The entire period 1843-1852 was filled with economic and political upheaval, ... it ... signified for Germany the transition to a new stage ». Referring to Spiethoff R. H. TILLY¹³¹ maintained: « The turning point dates from around 1840 and was closely related to railroad building ».

After all this it is not surprising that recently several German authors have taken an almost agnostic position. Thus H. U. WEHLER¹³² dated the take-off, the breakthrough of industrializa-

¹²⁵ See above, p. 60.

¹²⁶ J. KUCZYNSKI, *Darstellung der Lage der Arbeiter in Deutschland von 1789 bis 1849*, Berlin 1961, 24 f, p. 87.

¹²⁷ H. SCHEFL, *Zur Darstellung der deutschen Geschichte 1789 bis 1848*, « Jahrbuch für Wirtschaftsgeschichte » 1968/IV, Berlin 1968, p. 237.

¹²⁸ W. FISCHER, *Das Verhältnis von Staat und Wirtschaft in Deutschland am Beginn der Industrialisierung*, « Kyklos », vol. 14, 1961, p. 342.

¹²⁹ K. LAMPRECHT, *Deutsche Geschichte der jüngsten Vergangenheit und Gegenwart*, vol. 1, Berlin 1912, pp. 239 ff.

¹³⁰ A. SPIETHOFF, *Krisen*, « Handwörterbuch der Staatswissenschaften », vol. 6, Jena 1925, p. 50.

¹³¹ R. H. TILLY, *The Political Economy of Public Finance and the Industrialization of Prussia, 1815-1866*, « Journal of Economic History », vol. 26, New York 1966, p. 484.

¹³² WEHLER, *Theorieprobleme*, op. cit.

tion in Rostow's sense, « between 1835/51 until 1873 » and also O. BÜSCH¹³³ placed the industrial revolution between the decades of the 1830s and 1850s respectively and the 1870s, while K. BORCHARDT¹³⁴ bluntly declared: « It is still controversial whether the phase of the true industrialization of Germany begins with the 1830s, 40s, or 50s ».¹³⁵ At this moment the best bet seems to be to place the onset of an uninterrupted industrialization process in the 1830s, when the customs union in connection with railroad construction and the renewed agrarian exports to England made possible permanent industrial progress from the mid- 1830s which continued at an even stronger pace in the 1850s. After substantial industrial beginnings in the 18th century, a stagnation, even in some places a regress, set in because first the Napoleonic Wars and then the return of English competition after 1815 demanded such rapid and thorough adjustments of the nascent German industry exceeding its very limited strength in capital reserves¹³⁶ or entrepreneurial flexibility. Thus maybe it will turn out that it is not entirely inappropriate to talk in the German case of an industrialization « in fits and starts ».

The question of whether there were already relatively small or large industrial beginnings in Germany before 1800, however, is not settled.¹³⁷ The one and a half centuries from the Thirty Years War until the wars of the French Revolution, frequently called the « *period of mercantilism* » or — in Marxian terminology — « the

¹³³ O. BÜSCH, *op. cit.*, p. 15.

¹³⁴ K. BORCHARDT, *Grundriss der deutschen Wirtschaftsgeschichte*, W. Ehrlicher et al. (eds.), « Kompendium der Volkswirtschaftslehre », vol. 1, Göttingen 1967, p. 368.

¹³⁵ Already T. VEBLEN, *Imperial Germany and the Industrial Revolution*, New York 1915, p. 168 wrote: « ...the new industrial era opens, say, in the second quarter of the 19th century ».

¹³⁶ BORCHARDT, *Kapitalmangel*, *op. cit.*, p. 417 assumed, that due to the Napoleonic Wars Germany suffered a net loss of real assets, « but it would be more important to know, what were the changes in the wealth of those who could have acted as industrial investors, in other words of the merchants and certain business men. About this we know very little... ».

¹³⁷ There are three excellent analyses of the state of the German national economy at the end of the 18th century in F. LÜTGE (ed.), *Die wirtschaftliche Situation in Deutschland und Oesterreich um die Wende vom 18. zum 19. Jahrhundert*, Stuttgart 1964; H. KELLENBENZ, *Der deutsche Aussenhandel gegen Ausgang des 18. Jahrhunderts*; W. ZORN, *Binnenwirtschaftliche Verflechtungen um 1800*; W. ABEL, *Die Lage in der deutschen Land- und Ernährungswirtschaft um 1800*.

period of manufactories», has been the focus of significant interest for German economic historians since the works of the Historical School. Nevertheless there are many questions on the economic history of the 18th century¹³⁸ which have not yet been satisfactorily answered and only a few have been partially resolved. In the latter category one can rank the problems of the extent and the economic viability of the frequently state organized manufactories.¹³⁹

The discussion of manufactories has progressed from the merely typological observation¹⁴⁰ of these centralized large-scale concerns using handicraft technology to regional studies of this form of production.¹⁴¹ At the end of the 18th century manufactories clustered in Saxony, Brandenburg, the Magdeburg area, Ansbach-Bayreuth, Baden, while large-scale smelting and iron works were concentrated in Westphalia (Siegerland, Sauerland), the southern Rhineland (Eifel, Saar, Aachen area), in the Harz and in Upper Silesia in accordance to the overriding importance of natural resource requirements. The regions that had a relatively large density of manufactories were not necessarily identical with the areas of exceptional industrial activity; the northern Rhineland and Lower Silesia, both

¹³⁸ To discuss earlier periods in this paper is not possible. But it should be noted that MAX WEBER, *General Economic History*, New York 1966, p. 124 f, saw the 16th and 17th centuries as « the critical period », when « the stream of the unchained forces of capitalism flowed through England and the Netherlands, less strongly even through France, while Germany remained in the background ».

¹³⁹ W. ZORN, *Probleme der Deutschen Gewerbe- und Handelsgeschichte 1650-1800*, Festschrift Hermann Aubin, Otto Brunner et al. (eds), vol. 1, Wiesbaden 1965, p. 303.

¹⁴⁰ For a summary of marxist and bourgeois definitions see: R. FORBERGER, *Zur Auseinandersetzung über das Problem des Ueberganges von der Manufaktur zur Fabrik*, Beiträge zur Deutschen Wirtschafts- und Sozialgeschichte des 18. und 19. Jahrhunderts, Deutsche Akademie der Wissenschaften zu Berlin (ed.), Berlin 1962, pp. 171-177.

¹⁴¹ G. KRAUTER, *Die Manufakturen im Herzogtum Württemberg und ihre Förderung durch die Württembergische Regierung in der zweiten Hälfte des 18. Jahrhunderts*, Diss. Tübingen 1952; R. FORBERGER, *Die Manufaktur in Sachsen vom Ende des 16. bis zum Anfang des 19. Jahrhunderts*, Berlin 1958; H. KRÜGER, *Zur Geschichte der Manufakturen und Manufakturarbeiter in Preussen: die mittleren Provinzen in der zweiten Hälfte des 18. Jahrhunderts*, Berlin 1958; W. MERTINEIT, *Ostpreussische Manufaktur- und Merkantilpolitik im 18. Jahrhundert*, « Zeitschrift für Ostforschung », vol. 9, Marburg 1960; W. ZORN, *Handels- und Industriegeschichte Bayrisch-Schwabens 1648-1870*, Augsburg 1961; O. REUTER, *Die Manufaktur im fränkischen Raum*, Stuttgart 1961; W. FISCHER, *Der Staat und die Anfänge der Industrialisierung in Baden 1800-1850*, vol. 1, Berlin 1962; G. SLAWINGER, *Die Manufaktur in Kurbayern*, Stuttgart 1965; M. EDLINTHIEME, *Studien zur Geschichte des Münchner Handelsstandes im 18. Jahrhundert*, Stuttgart 1969.

poor in manufactories, had a highly organized putting-out system i.e. decentralized large scale production, based on private initiative.¹⁴²

Private initiative also led to the creation of manufactories, the so-called « spontaneous manufactories ». In Saxony where government was very reluctant to give subsidies, manufactories were largely the complex product of local initiative and surplus labor.¹⁴³ In Brandenburg manufactories could and did thrive during the 18th century notwithstanding the mercantilist interventions.¹⁴⁴ Whether the net effect of state paternalism was helpful or harmful is still debated,¹⁴⁵ though at the moment the pessimists seem to have the better case. A recent comparative study of the Berlin and Krefeld silk industry described the contrasting effects of restrictive and liberal governmental policy on local manufacture in Prussia: the industry, close to the court, under strict royal control was not really viable, while a free and unencumbered regime allowing full scope to the entrepreneur brought thriving enterprises.¹⁴⁶ The political fragmentation of the Rhineland and the resulting impotence of the state authorities has been seen as the direct precondition of the rapid development of Rhenish « rural industry ».¹⁴⁷ While Frederick the Great's economic policy recently received a favorable assessment,¹⁴⁸ it has been pointed out that almost two thirds of the

¹⁴² ZORN, *op. cit.*, p. 309.

¹⁴³ FORBERGER, *op. cit.*, pp. 34, 260 f.; ZORN, *op. cit.*, p. 311.

¹⁴⁴ KRÜGER, *op. cit.*; R. H. TILLY, *Soll und Haben*, *op. cit.*, p. 306.

¹⁴⁵ It is not possible to touch on another debate whether there existed — besides the mercantilist policies of the sovereign German states — a Reichsmerkantilismus. Compare I. BOG, *Der Reichsmerkantilismus. Studien zur Wirtschaftspolitik des Heiligen Römischen Reiches im 17. und 18. Jahrhundert*, Stuttgart 1959.

¹⁴⁶ H. KISCH, *Prussian Mercantilism and the Rise of the Krefeld Silk Industry*, « Transactions of the American Philosophical Society », vol. 58, pt. 7, Philadelphia 1968, also important: Id., *The Textile Industries in Silesia and the Rhineland: A comparative Study in Industrialization*, « Journal of Economic History », vol. 19, New York 1959.

¹⁴⁷ M. BARKHAUSEN, *Der Aufstieg der rheinischen Industrie im 18. Jahrhundert und die Entstehung eines industriellen Grossbürgertums*, « Rheinische Vierteljahrsblätter », vol. 19, Bonn 1954, pp. 135-177; Id., *Staatliche Wirtschaftslenkung und freies Unternehmertum im westdeutschen und im nord- und südniederländischen Raum bei der Entstehung der neuzeitlichen Industrie im 18. Jahrhundert*, « VSWG », vol. 45, Wiesbaden 1958, pp. 168-241.

¹⁴⁸ W. O. HENDERSON, *Studies in the Economic Policy of Frederick the Great*, London 1963.

industrial subsidies of his government had been regarded as lost, while Prussian manufactories showed only an average return of about 4%.¹⁴⁹

This supports well the two main explanations of the sudden death of many manufactories after 1800. One opinion¹⁵⁰ emphasized the role of manufactories as a cover for the corrupt practices of the bureaucrats who administered the state subsidies. The end of the Ancien Régime, this «utterly corrupt time», and the improved administrative controls of the modern state¹⁵¹ brought an end to the manufactories. Another view¹⁵² emphasized that probably before the end of the Ancien Régime the time of large pioneer profits for this new organization of production had already passed and that the handicraft and especially the factory as a newer and more efficient organizational form of production drove the manufactory from the field. The contribution of the manufactories to industrial development thus must have been slight, though probably not negligible. Slawinger¹⁵³ pointed out that the thesis that manufactories did not make a contribution to industrialization must be modified and that instead a closer relationship existed between manufactories and factories than had previously been believed. Reuter's¹⁵⁴ evidence went in the same direction, a viewpoint, which closely approached the Marxist interpretation.¹⁵⁵

Similar as for the 18th century *the role of the state* as an engine of economic progress during the first half of the 19th century is controversial. In Prussia for example, monarchical absolutism had

¹⁴⁹ ZORN, *op. cit.*, p. 311.

¹⁵⁰ J. J. VAN KLAVEREN, *Die Manufakturen des Ancien Régime*, «VSWG», vol. 51, Wiesbaden 1964, p. 159 ff.; Id., *Die Problematik der Manufaktur-Erscheinung im Ancien Régime*, «Zeitschrift für die gesamte Staatswissenschaft», vol. 120, Tübingen 1964; Id., *Das «Zeitalter des Merkantilismus»*, «VSWG», vol. 50, 1963; Id., *Fiskalismus, Merkantilismus, Korruption*, «VSWG», vol. 47, 1960, reprinted in D. C. Coleman (ed.), *Revisions in Mercantilism*, London 1969.

¹⁵¹ On the state apparatus in general: F. FACIUS, *Wirtschaft und Staat, Die Entwicklung der staatlichen Wirtschaftsverwaltung in Deutschland vom 17. Jahrhundert bis 1945*, Boppard 1959.

¹⁵² ZORN, *op. cit.*, p. 313.

¹⁵³ SLAWINGER, *op. cit.*, p. 11, 68.

¹⁵⁴ REUTER, *op. cit.*, p. 152 ff.

¹⁵⁵ H. BLUMBERG, *Manufaktur, Staat und beginnende Industrialisierung in Deutschland*, «Jahrbuch für Wirtschaftsgeschichte», 1967/IV, Berlin 1967.

transmuted after the death of Frederick the Great into bureaucratic absolutism;¹⁵⁶ the new political elite of bureaucrats was startled by the military defeat of 1806 into accepting and actively promoting liberal organisational forms of society and economy to maintain and extend the state's power and authority.¹⁵⁷ German governments tried to influence the course of economic and social change by making use of their functions as legislators, administrators and entrepreneurs.¹⁵⁸ As legislators they created a new legal framework through the liberal reforms and initiated the gradual transformation of the feudal system into a bourgeois society (the so-called «revolution from above»)¹⁵⁹ and set the ground rules for industry by enacting e.g. patent, trade and tariff laws. As administrators the governments used fiscal and general economic policy¹⁶⁰ as well as

¹⁵⁶ H. ROSENBERG, *Bureaucracy, Aristocracy and Autocracy; the Prussian experience, 1660-1815*, Cambridge/Mass. 1958, pp. 202-228.

¹⁵⁷ K. BORCHARDT, *Grundriss*, pp. 365 ff.

¹⁵⁸ W. FISCHER, *Government Activity and Industrialization in Germany 1815-70*, W. W. Rostow (ed.), «The Economics of Take-off into Sustained Growth», London 1965, pp. 83-94.

¹⁵⁹ The basic assumption of the «revolution from above» thesis is «that the population was not yet ready nor prepared for freedom which the reform laws wanted to provide». W. TREUE, *Wirtschaftsgeschichte der Neuzeit, 1700-1965*, Stuttgart 1966, p. 364. Similar: R. KOSELLECK, *Preussen zwischen Reform und Revolution*, Stuttgart 1965. The validity of this assumption has been doubted recently: e.g. by the DDR historians H. H. MÜLLER, *Märkische Landwirtschaft vor den Agrarreformen von 1807*, Potsdam 1967 and H. BLEIBER, *Zwischen Reform und Revolution*, Berlin 1966. There is a vast literature on the elimination of the feudal agrarian system, «the most important social precondition for industrialization» (BORCHARDT, *Grundriss*, p. 366): W. CONZE, *Die Wirkungen der liberalen Agrarreform auf die Volksordnung in Mitteleuropa im 19. Jahrhundert*, Hanover 1947; G. IPSEN, *Die preussische Bauernbefreiung als Landesausbau*, «Zeitschrift für Agrargeschichte und Agrarsoziologie», vol. 2, Frankfurt/Main 1954; F. LÜTGE, *Ueber die Auswirkungen der Bauernbefreiung in Deutschland*, F. Lütge (ed.), «Studien zur Sozial- und Wirtschaftsgeschichte», Stuttgart 1963; E. SCHREMMER, *Die Bauernbefreiung in Hohenlohe*, Stuttgart 1963; O. EGGERT, *Die Massnahmen der preussischen Regierung zur Bauernbefreiung in Pommern*, Cologne 1965; E. KLEIN, *Von der Reform zur Restauration, Finanzpolitik und Reformgesetzgebung des preussischen Staatskanzlers K. A. v. Hardenberg*, Berlin 1965; V. GROPP, *Der Einfluss der Agrarreformen des beginnenden 19. Jahrhunderts in Ostpreussen auf Höhe und Zusammensetzung der preussischen Staatseinkünfte*, Berlin 1967. On the belated reforms in Saxony after 1830: G. SCHMIDT, *Die Staatsreform in Sachsen in der ersten Hälfte des 19. Jahrhunderts*, Weimar 1966.

¹⁶⁰ E.g. monetary policy. Despite the great interest Sombart had shown in the supply of money as an important factor for economic growth, few scholars followed this suggestion. Recently, however, Prussia's monetary policy in the Rhineland has been debated by R. TILLY, *Financial Institutions and Industrialization in the Rhineland 1815-*

the creation and extension of the infra-structure to promote economic growth. Lastly, as entrepreneurs they could use their substantial holdings in land, forests, mines, industrial and financial enterprises — all legacies of mercantilism — to achieve the desired ends.

The scope of government activities was thus quite extensive encompassing general measures (such as agricultural and industrial reforms, establishment of educational and transport systems, creation of tariff regions and systems) and direct measures aimed at some specific objectives (financial and technical assistance for industrial entrepreneurs as well as the founding and operation of economic enterprises by the bureaucracy). While the considerable extent of government interference in economic affairs in comparison to other West European nations cannot be doubted, the rationale behind it remains somewhat in doubt.

In the tradition of the *Acta Borussica* some scholars¹⁶¹ interpreted this gamut of state activities as the conscious effort of the bureaucracies to promote economic growth by initiating or accelerating industrialization. Thus the Prussian policy between 1740 and 1870 has been seen as « a somewhat rudimentary form of 'economic planning' » by using a « nationalized sector of the economy » to foster industrial expansion and to « promote social welfare ». ¹⁶² Though some contradictory measures of the Prussian bureaucracy were acknowledged a relatively consistent conception of the governmental activities in the economic sphere prevailed.¹⁶³ These activities were mercantilist in character as well as liberal; the latter ideology gained ground with the increasing strength and self-reliance of private industrialists and with the state's voluntary

1870, Madison, Wis. 1966 and by P. C. MARTIN, *Monetäre Probleme der Frühindustrialisierung am Beispiel der Rheinprovinz, 1816-1848*, « *Jahrbücher für Nationalökonomie und Statistik* », vol. 181, Stuttgart 1967 and *Die Einbeziehung der Rheinlande in den Preussischen Währungsraum*, « *Rheinische Vierteljahrsblätter* », vol. 32, Bonn 1968.

¹⁶¹ W. O. HENDERSON, *The State and the Industrial Revolution in Prussia 1740-1870*, Liverpool 1958; U. P. RITTER, *Die Rolle des Staates in den Frühstadien der Industrialisierung*, Berlin 1961; J. MIECK, *Preussische Gewerbepolitik in Berlin 1806-1844, Staatshilfe und Privatinitiative zwischen Merkantilismus und Liberalismus*, Berlin 1965.

¹⁶² HENDERSON, *op. cit.*, pp. XIX-XXII.

¹⁶³ RITTER, *op. cit.*, p. 13.

abandonment of its important and usually beneficial mercantilist tutelage.¹⁶⁴

In direct opposition to this view, it has been claimed that the state did not play a leading role in Prussian industrialization, but rather tried to restrict industrialization.¹⁶⁵ The Junkers realized that industrialization would bring them only few advantages while endangering their political prerogatives and social status. Since they held the decisive positions within the Prussian bureaucracy, they could bring to bear their aversion to governmental promotion of industry. Thus the Junker-oriented administration pursued restrictive monetary and banking policies, favored agriculture in taxation, hindered the foundation of joint stock companies and took further measures to restrict industrial development, especially in the Rhineland. In contrast to this opinion, although the negative aspects of state influence have been partially recognized, it has been pointed out that regional economic policies were already practiced in the 18th century and that « a type of early infra-structure and development policy » was aimed at closing the gap between the rapid industrializing Western provinces and the agrarian, less developed Prussian East,¹⁶⁶ a legacy from pre-industrial times.¹⁶⁷ Whether the Prussian government can be rightfully credited with such a farsightedness remains to be seen.

A third group of scholars, who probably made the best argument tried to steer a middle course presenting neither a eulogy nor an indictment. Marxist scholars pointed out the « objective, retarding character of the absolutist state » for the industrialization process but emphasized the erroneousness of the thesis « that Prussia and other German states attempted to prevent the establish-

¹⁶⁴ MIECK, *op. cit.*, pp. 12, 107 f., 115, 224, 232.

¹⁶⁵ R. H. TILLY, *Financial Institutions*, *op. cit.*; Id., *Finanzielle Aspekte der preussischen Industrialisierung 1815-1870*, W. Fischer (ed.), « Wirtschafts- und Sozialgeschichtliche Probleme der frühen Industrialisierung », Berlin 1968.

¹⁶⁶ W. ZORN, review of R. H. TILLY's *Financial Institutions*, *op. cit.*, « VSWG », vol. 53, 1966, pp. 554-556; similar: H. CROON, review of the same book, « Historische Zeitschrift », vol. 207, Munich 1968, pp. 659-661.

¹⁶⁷ K. BORCHARDT, *Regionale Wachstumsdifferenzierung in Deutschland im 19. Jahrhundert unter besonderer Berücksichtigung des West-Ost-Gefälles*, W. Abel et al. (eds.) « Wirtschaft, Geschichte und Wirtschaftsgeschichte », Festschrift F. Lütge, Stuttgart 1966, p. 336.

ment and expansion of the capitalistic factory system »;¹⁶⁸ a clear distinction between intention and effect of governmental economic policies was therefore regarded as necessary. This realistic evaluation of the general role of the Prussian state was also extended to the evaluation of specific measures by the state (for example with regard to the promotion of industry): Not their quantitative effect but their qualitative impact, i.e. to provide an example and to overcome the initial difficulties of industrialization, was important;¹⁶⁹ but qualitative effects are rather difficult to quantify.

Given the ambivalent character of governmental impact on industrialization, esp. in Prussia, the multiplicity of states in Germany must be seen in a new light. Certainly the many negative aspects of the political particularism have been correctly and frequently emphasized,¹⁷⁰ but the occasional not insignificant advantages of this political situation have been neglected: the absence of a homogeneous and nationwide economic policy made possible by-passing of restrictive regulations of individual states.¹⁷¹ A certain degree of competition among the German states can be detected¹⁷² and may have led to better allocation of the scarce resources of real and human capital.

¹⁶⁸ MOTTEK, *Einleitende Bemerkungen*, op. cit., pp. 34-35. It is surprising that even Marxist scholars have shown relatively little interest for the relationship between capitalism and military expenditures. Compare: W. SOMBART, *Krieg und Kapitalismus*, Munich 1913 and W. W. ROSTOW's hint (STAGES, op. cit., p. 56) that the «enlargement and modernization of armed forces... was a factor in the... German take-off». Recently: G. KRAUSE, *Altpreussische Uniformfertigung als Vorstufe der Bekleidungskonfektion*, Hamburg 1965. On Prussian militarism, work discipline and human relations within German factories: C. HELFER, *Ueber militärische Einflüsse auf die industrielle Entwicklung in Deutschland*, «Schmollers Jahrbuch», vol. 83, Berlin 1963. On the Prussian military-agrarian system: O. BÜSCH, *Militärsystem und Sozialleben im alten Preussen, 1713-1807: Die Anfänge der sozialen Militarisierung der preussischdeutschen Gesellschaft*, Berlin 1962.

¹⁶⁹ D. S. LANDES, *Japan and Europe*, pp. 102-105; BÜSCH, op. cit., pp. 34-35.

¹⁷⁰ See above, p. 54.

¹⁷¹ E.g. Prussian capitalists, denied the right to establish joint stock banks and banks of issue, could successfully establish them in Southern Germany; Saxony granted patents more easily due to its liberal law in comparison to Prussia. These examples are not meant to deny that quite often Prussia was the first to modernize, as W. FISCHER, *Government Activity*, op. cit., p. 86 rightly pointed out.

¹⁷² In railroad construction as well as in establishing of technical education. The creation of some technical universities showed a considerable desire to keep up with one's neighboring prince: Karlsruhe started in 1825, followed by Darmstadt in 1826, Munich 1827, Dresden 1828, Stuttgart 1829, and Hanover in 1831.

In the creation of human capital as well as *public overhead capital* the German states were most active. Especially — in comparison to England and France — the better educational system in Germany has often been seen as important for her successful industrialization,¹⁷³ since a vigorous promotion of human capital could compensate for the limited availability of the other factors of production. But a direct connection between a higher literacy rate and economic growth at a very early stage of industrialization is difficult to establish and the contemporaries failed to see how literacy could effect the productivity of a simple agricultural or industrial worker and thus justify tax financed mass education on economic grounds. The connection must have been a more indirect one and long-term productivity gains probably resulted from literacy which in turn meant « a more rational and more receptive approach of life » and which « made people more adaptable to new circumstances and receptive to new ideas », ¹⁷⁴ thus lowering the costs of social friction; in addition, primary education provided the possibility to locate and encourage talent at an early age and thus helped to optimize the allocation of human resources.¹⁷⁵ But the quantitative impact of the latter was probably only very small; the « cultural ghetto position » of the worker within German society already began with the first school year and resulted in the perpetuation of the unequal educational opportunities and in the continuation of the traditional class divisions.¹⁷⁶ The advanced technical education and the fast growing German natural sciences had little impact on economic growth during the early stage of industrialization, although their influence was of great importance later with the coming of the so-called Second Industrial Revolution.¹⁷⁷ On the

¹⁷³ D. S. LANDES, *Industrialization and Economic Development in Nineteenth-Century Germany*, First International Conference of Economic History, Stockholm 1960, Paris 1960, p. 84.

¹⁷⁴ C. M. CIPOLLA, *Literacy and Development in the West*, London 1969, pp. 88, 102.

¹⁷⁵ D. S. LANDES, *Technological Change and Development in Western Europe, 1750-1914*, « Cambridge Economic History of Europe », vol. 6 I, Cambridge 1965, p. 567.

¹⁷⁶ H. ROSENBERG, *Grosse Depression*, op. cit., p. 220; K. BORCHARDT provided a quantitative analysis of « monopolized education » in 19th century Germany in his suggestive article *Zum Problem der Erziehungs- und Ausbildungsinvestitionen im 19. Jahrhundert*, H. Aubin et al. (eds.), « Beiträge zur Wirtschafts- und Stadtgeschichte », Festschrift für H. Ammann, Wiesbaden 1965.

¹⁷⁷ On technological education: W. TREUE, *Die Geschichte des technischen Unter-*

other hand, the development and improvement of the transportation system played a role hard to underestimate in German industrialization. A. Marshall¹⁷⁸ emphasized the significance of Germany's efficient railroad network as an important factor promoting industrial growth; Rostow¹⁷⁹ regarded it as the leading sector in the German take-off and Borchardt¹⁸⁰ pointed to the «central importance» of railroadization for the German industrialization process. These positive assessments of the railroads should increase even more in the future; only recently after an examination of the long neglected transportation system of the pre-railroad age¹⁸¹ was it shown how underdeveloped this had been and that this backwardness was a principal factor in the belated start of the Industrial Revolution.¹⁸² Inland waterways and roads were in bad shape but transport was probably more hampered by the obstructions to domestic trade since various conventions to free navigation on German rivers turned out to be «half-measures»¹⁸³ and roads and river tolls remained important sources of revenue. The anticipated loss of these revenues — besides social and political reasons — caused an initial reluctance of the Prussian government to encourage private railroad construction.¹⁸⁴ In the same manner that the domestic transportation network facilitated domestic communication, merchant shipping was the carrier for communication with other countries. The North Sea ports in the first half of the 19th century were «the representatives of modern English-style conduct of business for Germany» and by their organization of foreign

rechts, Festschrift zur 125-Jahrfeier der TH Hannover 1831-1956, Hannover 1956; U. TROITZSCH, Ansätze technologischen Denkens bei den Kameralisten des 17. und 18. Jahrhunderts, Berlin 1966; K. H. MANEGOLD, Eine Ecole Polytechnique in Berlin. Über die im preussischen Kultusministerium in den Jahren 1830-50 erörterten Pläne, «Technikgeschichte», vol. 33, Düsseldorf 1966; G. GRÜNER, Die Entwicklung der höheren technischen Fachschulen im deutschen Sprachgebiet, Brunswick 1967.

¹⁷⁸ A. MARSHALL, *Industry and Trade*, London 1919, pp. 125-126.

¹⁷⁹ ROSTOW, *The Stages of Economic Growth*, op. cit., p. 55.

¹⁸⁰ BORCHARDT, *Grundriss*, op. cit., p. 369.

¹⁸¹ Mottek for example made only scant reference to transportation.

¹⁸² H. WEHNER, *Deutschlands Weg zum Industriestaat*, op. cit., p. 364.

¹⁸³ *Ibid.*, p. 362.

¹⁸⁴ HENDERSON, *The State*, op. cit., pp. 53, 130, 160. D. EICHHOLTZ, *Junker und Bourgeoisie vor 1848 in der Preussischen Eisenbahngeschichte*, Berlin 1962 contended that the government was suspicious of railroads, seeing in them instruments of middle-class influence and a dangerous experiment that, however, could not be prohibited.

trade contributed greatly to economic growth.¹⁸⁵ Not only improvements in transportation but also institutional innovations led to a wider market necessary for industrialization.

Stimulated by the present development and problems of Western European integration, the *Zollverein* has received special attention¹⁸⁶ since for the 19th century it represented the only example in which the establishment of a customs union involved the surrender of some sovereign rights of the participating independent states.¹⁸⁷ Thus today's questions were the problems of yesterday: Can politically neutral states become members of customs unions? (e.g. the discussion on Belgian membership in 1840). Are customs unions political coalitions against others? (e.g. Austria's relationship to the *Zollverein*: *kleindeutsch* or *grossdeutsch*). And — the most important problem — does economic integration lead to political unification?

While the traditional view saw Prussia's intention to use the *Zollverein* from the beginning as a vehicle towards political union,¹⁸⁸ present German scholars emphasized the rather modest intentions of Prussia, i.e. the promotion of her political authority and the improvement of her financial situation.¹⁸⁹ They were also often inclined to argue that not only the intentions but also the consequences were limited. Contrary to the view, especially popular among non-German authors, that the *Zollverein* fostered the indu-

¹⁸⁵ ENGELSING, *op. cit.*, p. 91; ID., *Technik, Unternehmensorganisation und Kapitalinvestition in der deutschen Seeschifffahrt des 19. Jahrhunderts*, W. Fischer (ed.), « Probleme der Frühen Industrialisierung », *op. cit.*

¹⁸⁶ A. WEBER, *Der deutsche Zollverein als Präzedenzfall für die Bildung eines freien europäischen Marktes*, « Schmollers Jahrbuch », vol. 78, Berlin 1958 (versus W. Röpke's denial of a comparability); W. FISCHER, *Der Deutsche Zollverein, die Europäische Wirtschaftsgemeinschaft und die Freihandelszone. Ein Vergleich ihrer Motive, Institutionen und Bedeutung*, « Europa-Archiv », vol. 5, Frankfurt 1961.

¹⁸⁷ W. O. HENDERSON, *The Genesis of the Common Market*, London 1962. On early abortive attempts: A. H. PRICE, *The Evolution of the Zollverein, A Study of the Ideas and Institutions leading to German Economic Unification between 1815 and 1833*, Ann Arbor/Mich. 1949. On the painstaking work to create a system of 130 odd treaties: W. FISCHER, *The German Zollverein*, « Kyklos », vol. 13, 1960.

¹⁸⁸ SARTORIUS V. WALTERSHAUSEN, *op. cit.*, p. 59, 68 f.; II. v. TREITSCHKE, *Die Anfänge des deutschen Zollvereins*, « Preussische Jahrbücher », vol. 30, Berlin 1872, p. 400.

¹⁸⁹ BORCHARDT, *Grundriss*, p. 366; H. BLUMBERG, *Manufaktur, Staat und beginnende Industrialisierung*, « Jahrbuch für Wirtschaftsgeschichte » 1967/IV, Berlin 1967, p. 430; also: LANDES, *Europe and Japan*, *op. cit.*, p. 147.

ustrialization and economic preponderance of Prussia leading to her political hegemony,¹⁹⁰ West German historians frequently stressed the fact that despite 30 years of economic cooperation Zollverein members fought each other in 1866; thus the idea was regarded as indefensible that the Zollverein was already on its way before 1866 to necessarily bringing about political unity by its economic repercussions.¹⁹¹ On the other hand it could not be disputed that the deep-rooted Zollverein prevented a return to particularism before and after 1866¹⁹² since Prussia — in the words of Landes¹⁹³ — was « armed with a powerful economic and political lever » which had « a curious ratchet effect ». The same author, to a considerable extent, interpreted the aversion toward assigning much importance to economic factors as a « reaction against a simplistic, allegedly Marxist interpretation of German history ».¹⁹⁴ However in the DDR sometimes a more indirect relationship was drawn between the Zollverein and the formation of the Reich: economic unification stimulated industrialization which in turn augmented the proletariat; then, to check revolutionary aspirations Bismarck had to unify and centralize political power.¹⁹⁵ Altogether the balanced opinion of Henderson is still valid in that the foundation period of the Reich should be seen as an interplay of economic and political factors where it is difficult to give prime credit to any of them.¹⁹⁶ All the problems of the process of political unification in Germany seem to be, all things considered, of more interest for the political historian and look, on first sight, of not much particular concern for

¹⁹⁰ J. M. KEYNES, *The Economic Consequences of the Peace*, London 1919, p. 75; P. BENAERTS, *Les Origines de la Grande Industrie Allemande*, Paris 1933; G. W. F. HALLGARTEN, *Imperialismus vor 1914*, Munich 1951; T. S. HAMEROW, *Restoration, Revolution, Reaction; Economics and Politics in Germany 1815-71*, Princeton 1958. On the relations between politics and economics in general: H. BÖHME, *Deutschlands Weg zur Grossmacht. Studien zum Verhältnis von Wirtschaft und Staat während der Reichsgründungszeit 1848-1881*, Cologne 1966.

¹⁹¹ W. ZORN, *Wirtschafts- und Sozialgeschichtliche Zusammenhänge der Deutschen Reichsgründungszeit (1850-1879)*, « Historische Zeitschrift », vol. 197, Munich 1963, p. 322; F. ZUNKEL, *Der rheinisch-westfälische Unternehmer 1834-1879*, Cologne 1962, p. 149.

¹⁹² ZORN, *Reichsgründungszeit*, *op. cit.*, p. 322.

¹⁹³ LANDES, *Europe and Japan*, *op. cit.*, p. 148.

¹⁹⁴ *Ibid.*, p. 147.

¹⁹⁵ ZORN, *op. cit.*, p. 319.

¹⁹⁶ HENDERSON, *Zollverein*, pp. 336-44.

the economic historian. However if one accepts Gerschenkron's notion that nationalism was Germany's « specific industrialization ideology » suitable « to grease the intellectual and emotional wheels of industrialization », ¹⁹⁷ the political process leading to the foundation of the Reich would appear in a different light and thus become more familiar to the economic historian. At the same time the Zollverein raises a whole series of purely economic problems which are also not unfamiliar to the present West European situation: e. g., how far do customs unions develop their own dynamics toward strengthening economic integration, and especially how far do they force a harmonization, particularly in the areas of fiscal or monetary policies? ¹⁹⁸ How great is the attraction of customs unions on foreign entrepreneurs and foreign capital? What trade diverting and trade creating effects appear? The solution to these and similar questions — apart from purely qualitative statements — is made very difficult if often not impossible by the lack of good statistics. However it might eventually be possible to get some quantifiable information from isolated economic data. Whether the very large body of over 5000 German company histories could be of any help remains to be seen. ¹⁹⁹ The question of the contribution of the Zollverein to German economic growth nevertheless must be seen as difficult perhaps as unsolvable. Whether and to which extent the increase in intra-German trade and transport was due to the formation of a larger market by the Zollverein in 1834 or due to railroadization starting in 1835 or due to the upsurge in industrialization since the 1830s and 1840s must remain open

¹⁹⁷ GERSCHENKRON, *Economic Backwardness*, op. cit., pp. 26, 86. Gerschenkron's « industrialization ideology » sounds very much like a fortunate extension of terms such as « Wirtschaftsgesinnung » and « Wirtschaftsgeist » which already have played a great role in the writings of Werner Sombart, Max Weber and a number of other German social scientists.

¹⁹⁸ W. M. FRIHR. VON BISSING, *Der Deutsche Zollverein und die monetären Probleme*, « Schmollers Jahrbuch », vol. 79, Berlin 1959.

¹⁹⁹ WHILE HOFFMANN, *Das Wachstum*, op. cit., p. 9, regarded these publications with very few exceptions as rather disappointing for the economist, a more optimistic view was held by F. REDLICH, *The Beginnings and Development of German Business History*, « Supplement to Bulletin of the Business History Society », Boston 1952. On post World War II developments: W. FISCHER, *Some Recent Developments of Business History in Germany, Austria, and Switzerland*, « Business History Review », vol. 37, Boston 1963.

since such a problem of attribution can only be solved if the *ceteris-paribus*-clause is applicable.²⁰⁰

While it is universally acknowledged that the Zollverein favorably influenced the industrialization by the creation of a larger internal market, it is unclear how it affected the *impact of foreign countries* on German industrialization. The Zollverein has been seen quite frequently as a means to improve Germany's trade position and especially as an economic weapon against an industrial hegemony of England; this thesis, which has its roots in the writings of Friedrich List and the Historical School, is generally still accepted in both states of the German nation.²⁰¹ It is argued that — apart from the English Corn Laws and their detrimental effect on Prussian wheat exports²⁰² — England damaged the German economy especially because her cheap industrial exports were

²⁰⁰ K. BORCHARDT, *Integration in wirtschaftshistorischer Perspektive, Weltwirtschaftliche Probleme der Gegenwart*, « Schriften des Vereins für Socialpolitik », vol. 35, Berlin 1965, p. 388.

²⁰¹ In the Federal Republic: F. LÜTGE, *Deutsche Sozial- und Wirtschaftsgeschichte*, Berlin 1966, pp. 462-471; W. TREUE, *Wirtschafts- und Sozialgeschichte Deutschlands im 19. Jahrhundert*, Bruno Gebhardt (ed.), « Handbuch der Deutschen Geschichte », vol. 3, Stuttgart 1960, pp. 318, 340; W. TREUE, *Neuzeit*, op. cit., p. 526; H. WINKEL, *Ablösungskapitalien*, op. cit., pp. 5, 22, 23; rather vague: H. BÖHME, *Prolegomena*, op. cit., pp. 32-35. In the DDR: G. BONDI, *Deutschlands Aussenhandel 1815-1870*, Berlin 1958, p. 13; H. MOTTEK, *Wirtschaftsgeschichte Deutschlands*, op. cit., p. 78 maintained that till the mid 1830s Germany was in danger to become a « semi-colony of English capitalism »; H. WEHNER, *Deutschlands Weg zum Industriestaat*, « Jahrbuch für Wirtschaftsgeschichte », 1969/I, Berlin 1969, pp. 359 f., 366, 372.

²⁰² Till the middle of the 19th century the share of grain in total German exports increased: in 1828 8.1% for Prussia, in 1850 15.2% for the Zollverein. K. BORCHARDT, *Kapitalmangel*, op. cit., p. 407. But a full-fledged export-led, or staple, growth model of the East-Elbian economy has not yet emerged. On this theoretical approach see: R.E. CAVES, *The Export-Led Growth Model as a Research Tool in Economic History* (forthcoming). Recognizing this method in Germany: K. BORCHARDT, *Regionale Wachstumsdifferenzierung*, op. cit., pp. 336-339. Providing a quantitative precondition by re-computing of the vastly underestimated German wool, timber and grain exports to England: M. KUTZ, *Die deutsch-britischen Handelsbeziehungen von 1790 bis zur Gründung des Zollvereins, Ein statistischer Beitrag zu einer Neuorientierung*, « VSWG », vol. 56, 1969. For more details on economic aspects of German agriculture see the important contributions of W. Abel and his school: W. ABEL, *Geschichte der deutschen Landwirtschaft vom Mittelalter bis zum 19. Jahrhundert*, Stuttgart 1962; Id., *Agrarkrise und Agrarkonjunktur*, Hamburg 1966. On agricultural institutions, esp. F. LÜTGE, *Geschichte der deutschen Agrarverfassung vom frühen Mittelalter bis zum 19. Jahrhundert*, Stuttgart 1963. Significantly less convincing: H. HAUSHOFER, *Die deutsche Landwirtschaft im technischen Zeitalter*, Stuttgart 1963. On German agrarian historiography in general see the spicy chapter *Deutsche Agrargeschichte in alter und neuer Sicht* in HANS ROSENBERG's, « Probleme der deutschen Sozialgeschichte », Frankfurt 1969.

too competitive over a long period for the struggling German industry and that only the Zollverein brought protection, even if minimal. Moreover, it is significant that the united Zollverein states could not be coerced anymore into accepting «unequal» trade and shipping agreements.²⁰³

As correct as this viewpoint may be in certain respects, since ultimately the basic validity of the infant industry argument cannot be denied, it is nevertheless significant to point out the considerable advantages of English exports for the German industrialization. Tilly²⁰⁴ argued this thesis quite convincingly: «To begin with, British exports to Germany were in substantial measure industrial inputs, e.g. cotton and woolen yarn, and encouraged the growth of Germany's finishing industries. Secondly, British finished goods opened up new markets in Germany which were not (and would not have been) accessible to German producers. This success is attributable to the relatively low price and the quality of British goods, as well as to the energy and skill of British merchants in introducing new marketing techniques. Thirdly, the success of British wares showed German producers and merchants what product standards had to be maintained and which market channels were available, and stimulated imitation».

However German scholars not only saw the influence of English imports on the German industrialization as predominantly negative but also the foreign contribution to German economic growth in the early 19th century was either overlooked or considered relatively unimportant. In general only the ideological influence of France and England found greater interest, especially the diffusion of classical economic theory.²⁰⁵

For a long time, German economic historians paid rather slight attention to the foreign experiences of German entrepreneurs²⁰⁶

²⁰³ WEHNER, *op. cit.*, p. 385.

²⁰⁴ R. H. TILLY, *Los von England: Probleme des Nationalismus in der deutschen Wirtschaftsgeschichte*, «Zeitschrift für die gesamte Staatswissenschaft», vol. 124, Tübingen 1968, p. 196 (English summary).

²⁰⁵ W. TREUE, *Adam Smith in Deutschland*, Rothfels-Festschrift, Düsseldorf 1951; M. E. VOPELIUS, *Die aliliberalen Oekonomen und die Reformzeit*, Stuttgart 1968.

²⁰⁶ W. ZORN, *Typen und Entwicklungskräfte deutschen Unternehmertums*, K. E. Born (ed.), «Moderne deutsche Wirtschaftsgeschichte», Cologne 1966, p. 35.

who travelled primarily to England to observe technological innovations, sometimes on their own but quite often on state instructions in order to practice industrial espionage.²⁰⁷ Today it may be regarded as certain that hundreds of such travels were undertaken and that therefore quantitatively the role of foreign travels during the early period of German industrialization was very great. About their qualitative significance not much is known but many indications point to the fact that it was noticeably small since only relatively few travellers could establish meaningful contacts abroad.²⁰⁸ That in itself is not surprising since it is after all difficult for the novice to grasp the essential point whereas it is easy for the teacher to convey that which is essential. Experts working in Germany were therefore in much stronger measure the promulgators of technological progress. However these foreign influences also remained neglected by German researchers;²⁰⁹ there is of course in local and regional studies, as also in historical investigations of particular industries, an abundance of indications of technical and financial influences from Europe and overseas,²¹⁰ but characteristically a systematic examination of foreign influences on German industrial development by German researchers is lacking. The fundamental works for England have been done by W.O. Henderson²¹¹ and for France by R.E. Cameron.²¹² These studies demonstrate that the

²⁰⁷ K.D. EINBRODT and J. ROESLER, *Die Industriespionage Preussens in England in den Jahren 1790-1850*, Berlin 1962; J. KUCZYNSKI, *Materialien zu einer Geschichte der Wirtschaftsspionage*, «Jahrbuch für Wirtschaftsgeschichte», 1969/II, Berlin 1969.

²⁰⁸ M. SCHUMACHER, *Auslandsreisen deutscher Unternehmer 1750-1851 unter besonderer Berücksichtigung von Rheinland und Westfalen*, Cologne 1968.

²⁰⁹ An exception made F. SCHNABEL, *Deutsche Geschichte im 19. Jahrhundert*, vol. 3, Freiburg 1950.

²¹⁰ E.g. on Anglo-American influences: R. ENGELSING, *England und die USA in der bremischen Sicht des 19. Jahrhunderts*, «Jahrbuch der Wittheit zu Bremen», vol. 1, Bremen 1957; C. BRUCKNER, *Zur Wirtschaftsgeschichte des Regierungsbezirks Aachen*, Köln 1967 on Belgian and French influences in the 1830s and 1840s; on Swiss influences: W. FISCHER, *Industrialisierung in Baden*, op. cit.

²¹¹ W.O. HENDERSON, *England und die Industrialisierung Deutschlands*, «Zeitschrift für die gesamte Staatswissenschaft», vol. 108, 1952; Id., *Britain and Industrial Europe 1750-1870*, Liverpool 1954, pp. 139-193; Id., *Industrial Britain under the Regency*, London 1968.

²¹² R.E. CAMERON, *Some French Contributions to the Industrial Development of Germany 1840-1870*, «Journal of Economic History», vol. 16, 1956; Id., *France and the Economic Development of Europe 1800-1914*, Princeton 1961; rev ed. Chicago 1966; Still useful: P. BENAERTS, *Grande Industrie Allemande*, op. cit., Paris 1933, especially

import of technological know-how and entrepreneurial talent from abroad contributed considerably to German industrialization and sometimes « played a decisive role ». ²¹³ In comparison the import of foreign capital played a substantially less important role in German industrialization. In the first half of the 19th century, when the proportion of current assets to total capital in industry was still exceptionally high, the extensive British short-term commercial credits facilitated German industrialization. ²¹⁴ British investments in fixed assets, however, were rather limited and an estimate of 5% of the capital stock of German industrial undertakings was considered « too high rather than too low ». ²¹⁵ Belgian and French investments were always estimated as being larger, ²¹⁶ but only 2% of French foreign investments between 1816 and 1851 went into the German states and the French portion of the total investment in German industrial and financial enterprises prior to 1870 has been estimated at 4-5%. In mining and metallurgy, however, probably 10-15% of the total capital was French owned. ²¹⁷ More important than its quantitative effect was the qualitative influence of foreign capital investments; foreign investors were usually less afraid of taking risks and were more receptive to new developments than domestic investors and therefore may have performed significant pioneering services and influenced by demonstration. ²¹⁸

chapter 9, *L'influence et la participation active de l'étranger*; J.R. MARÉCHAL, *La contribution des Belges et des Français à l'essor de la Grande Industrie Allemande*, « Revue Universelle des Mines », vol. 80, Liège 1937. On German-French trade: R. RENZING, *Die Handelsbeziehungen zwischen Frankreich und Deutschland von der Gründung des Zollvereins bis zur Reichsgründung*, Diss. Frankfurt 1959.

²¹³ CAMERON, *France*, op. cit., p. 242, who did somewhat overemphasize the impact of France; at least it should be taken into account the de-facto « bi-nationality » of the Alsatians to evaluate properly the genuine French contribution.

²¹⁴ R. H. TILLY, *Los von England: Probleme des Nationalismus in der deutschen Wirtschaftsgeschichte*, « Zeitschrift für die gesamte Staatswissenschaft », vol. 124, 1968, pp. 191-195.

²¹⁵ *Ibid.*, p. 191.

²¹⁶ H. BLUMBERG, *Die Finanzierung der Neugründung und Erweiterungen von Industriebetrieben in Form der Aktiengesellschaften während der fünfziger Jahre des neunzehnten Jahrhunderts in Deutschland, am Beispiel der preussischen Verhältnisse erläutert*, H. Mottek (ed.), « Studien zur Geschichte der Industriellen Revolution in Deutschland », Berlin 1960, pp. 192, 194.

²¹⁷ CAMERON, *France*, op. cit., pp. 65, 242.

²¹⁸ WINKEL, op. cit., p. 11.

Foreign capital participated only in small measure in German industrialization because fundamentally sufficient *domestic capital* was present. The traditional viewpoint was somewhat different and emphasized much more the large volume of foreign capital imports, especially during the early decades of the Industrial Revolution, and asserted that domestic capital was lacking.²¹⁹ Although this viewpoint was already contradicted rather early by pointing to German capital exports and to the falling interest rates from the 1820s to the mid 1840s,²²⁰ it was only in the 1960s that the older interpretation was proven totally unjustified. While Mottek²²¹ already called it in 1960 « a widespread legend », K. Borchardt²²² especially provided new evidence and argued that there was no general shortage of capital in Germany during the first half of the 19th century, but a lack of investment possibilities in industry regarded as sufficiently secure and a want for an effective way to channel savings from the traditional sectors into industry. Imperfections of the finance market and additional socio-cultural restraints on lending or borrowing risk capital obstructed industrial investment more than an allegedly too small volume of savings.²²³

Whether an earlier development of a banking system would have helped has been doubted and it has been argued that, given the socio-cultural environment, it is more likely that a more efficient financial sector would have drained capital away from industrial

²¹⁹ Besides K. Lamprecht, J. Kulischer, J.H. Clapham the capital scarcity thesis was advocated by F. SCHNABEL in 1950, K. WIEDENFELD in 1954, W.O. HENDERSON in 1958, W. TREUE and H. HAUSSEHERR in 1960. For details see: K. BORCHARDT, *Kapitalmangel*, op. cit.; Compare also: K.E. BORN, *Moderne deutsche Wirtschaftsgeschichte*, Introduction of the editor, Cologne 1966, p. 18.

²²⁰ J. RIESSER, *Zur Entwicklungsgeschichte der deutschen Grossbanken*, Jena 1905; B. BROCKHAGE, *Zur Entwicklung des preussisch-deutschen Kapitaleports*, Leipzig 1910; SARTORIUS, op. cit., pp. 32, 55. BORCHARDT, *Kapitalmangel*, op. cit., p. 412, however was sceptical whether it is correct to assume, as Brockhage did, that Germany had a net capital export.

²²¹ MOTTEK, *Einleitende Bemerkungen*, op. cit., p. 27; WEHNER, *Industriestaat*, op. cit., p. 370 f. emphasized that Mottek was able to disprove the thesis of Stalin enshrined in the textbooks of the DDR in the early 1950s, that industrialization in capitalist countries started in light industries; they needed fewer investments in fixed assets, the turning over of capital was faster and profits could be reaped and accumulated more easily and thus provided the funds for the founding of heavy industries.

²²² BORCHARDT, *Kapitalmangel*, op. cit.

²²³ Affirmative: H. WINKEL, *Ablösungskapitalien*, op. cit., pp. 1-14.

investments and into domestic and foreign government loans.²²⁴ A new type of banker who was more than a mere purveyor of finance, but a risk-taking entrepreneur as well was necessary. This view, convincingly put forward by A. Gerschenkron²²⁵ in 1952, has been further elaborated upon by Tilly:²²⁶ Since between 1815 and the 1840s German industrialization proceeded step-by-step, it could be financed internally out of profits, though extensive use of partnerships with friends, relatives and merchants was made; to a considerable extent, however, also private bankers supplied credits, mostly for working capital, but they were flexible enough to finance investments in fixed capital as well.²²⁷ Since the 1840s, however, the expansion of heavy industry and railroads required external finance to a much larger extent and demanded new financial devices. A relative scarcity of savings available for industrial purposes since the 1840s demanded an extension of the liberal lending activities of the private bankers as well as the introduction of new institutional mechanism for the accumulation and mobilization of capital: the joint stock companies in industry and banking.²²⁸

The traditionally high assessment of joint stock companies for the development of industry²²⁹ is not fully shared anymore: first, in the two decades before as well as after 1850, seventy percent of the initial capital of all corporations was invested in the railroads and between 1850 and 1870 only eight percent was invested in

²²⁴ R. H. TILLY, *Soll und Haben*, op. cit., p. 315.

²²⁵ A. GERSCHENKRON, *Economic Backwardness*, op. cit., pp. 11-16.

²²⁶ R. H. TILLY, *Financial Institutions*, op. cit.; ID., *Germany 1815-1870*, R. Cameron (ed.), «Banking in the Early Stages of Industrialization», New York 1967, pp. 151-182. Informative also, especially on regional differences: C. DUNKER, *Der Kapitalbedarf und seine Befriedigung bei den Kölner Unternehmungen im 19. Jahrhundert*, Diss. Cologne 1950; A. ISAAC, *Der Wandel in der Finanzierung der Unternehmung*, in: «Gestaltungswandel der Unternehmung, Nürnberger Abhandlungen zu den Wirtschafts- und Sozialwissenschaften», Heft 4, Berlin 1954; W. ZORN, *Die Struktur der rheinischen Wirtschaft in der Neuzeit*, «Rheinische Vierteljahrsblätter», vol. 28, Bonn 1963.

²²⁷ Now consenting: BORCHARDT, *Grundriss*, p. 370; ID., *Kapitalmangel*, p. 415.

²²⁸ H. BLUMBERG, *Finanzierung*, op. cit., pp. 166, 168 argued in 1960 in a similar way but dated the relative scarcity of capital from the 1850s onwards.

²²⁹ W. TREUE, *Wirtschaftsgeschichte der Neuzeit*, op. cit., pp. 542 f. Similar P. BENAERT, *Les origines de la grande industrie allemande*, chapter 7, *Les capitaux, le crédit et la monnaie*, Paris 1933.

industries outside of the heavy industry sector;²³⁰ second, the concept of limited liability remained rather unclear before the legal reforms of 1870 and gave the joint stock company the character of a larger partnership and therefore impeded its access to the capital market.²³¹ The joint stock banks also no longer enjoy their previously high estimation. Although still today the formation of the Schaaffhausenscher Bankverein in 1848, the first of the new type of banks, is occasionally seen as «the starting shot of the German take-off»²³² new research has pointed out that «their appearance deserves mention not so much because of their impact in this period (1815-70), but because they were the forerunners of the German 'great banks', which in subsequent years were the dominant financial institutions in Germany».²³³ Before 1870, however, the private bankers were «the most important class of German financial institutions», combining commercial and industrial banking functions;²³⁴ but they did not only operate on the supply side, i.e. providing credit, but on the demand side as well, i.e. pointing out new investment opportunities and thus reduced the scarcity of entrepreneurial talent typical of a backward country.²³⁵

A more important cause of the belated start of German industrialization seems to have been the temporary shortage of *entrepreneurial talent* for industrial activities.²³⁶ A high liquidity pre-

²³⁰ However, P. C. MARTIN, *Die Entstehung des preussischen Aktiengesetzes von 1843*, «VSWG», vol. 56, Wiesbaden 1969 argued recently that scholars have somewhat underestimated the importance of the joint stock company in non-railroad pursuits during the first half of the nineteenth century.

²³¹ BORCHARDT, *Kapitalmangel*, op. cit., pp. 145 f.

²³² BÖHME, *Prolegomena*, op. cit., p. 40.

²³³ TILLY, *Germany 1815-1870*, op. cit., p. 162.

²³⁴ *Ibid.*, pp. 159, 180. This view does not contradict Gerschenkron who carefully talked only of «industrial banking», «investment banking» or «universal banks», while SCHUMPETER, op. cit., pp. 349 f. referred to the joint stock banks.

²³⁵ GERSCHENKRON, op. cit., p. 14.

²³⁶ Already pointed out by B. BROCKHAGE, *Zur Entwicklung des preussisch-deutschen Kapitalexports*, Leipzig 1910, p. 188; BORCHARDT, *Grundriss*, claimed that there was no lack of entrepreneurs (365) but conceded «it has been pointed out» that the banks helped to overcome «a certain lack of entrepreneurial talent» (370); LANDES, *Structure of Enterprise*, op. cit., p. 105 pointed to a lack of entrepreneurial talent by 1815 which was only slowly overcome. On the conditioning of entrepreneurial talent in general: R. BRAUN, *Zur Einwirkung soziokultureller Umweltbedingungen auf das Unternehmertum*.

ference, a preference for investing in domestic and foreign government loans and little inclination to invest in industrial ventures for a long time characterized rational entrepreneurial behavior; traditional investment habits, for example the preference toward investment in land, also played an important role.²³⁷ In the 1840s the readiness to invest in industrial enterprises grew for several reasons: e.g. the railroads reduced the capital requirements of commercial enterprises and decreased their profitability through elimination of local monopolies; merchants, who were until then the undisputed masters over producers, became afraid of losing their independence to larger production units and decided to become producers themselves; conversions reduced the income from government securities.²³⁸ New foreign industrial undertakings not infrequently set an example that stimulated imitation and « the Germans were facile pupils. They willingly accepted — for a time — the tutelage of other nations, but they learned quickly ».²³⁹

A socio-cultural basis for the creation of entrepreneurial talent existed in all social strata and in all geographical areas although certain greater concentrations were evident.²⁴⁰ Shortly after the turn of the century, Sombart²⁴¹ and Schumpeter²⁴² among others, studied the types of capitalistic entrepreneurs and initiated directly or indirectly, a number of studies on this topic.²⁴³ Built upon these works, a five part typology of industrial entrepreneurs is frequently

potential und das Unternehmerverhalten, W. Fischer (ed.), « Wirtschafts- und Sozialgeschichtliche Probleme der frühen Industrialisierung », Berlin 1968.

²³⁷ BORCHARDT, *Kapitalmangel*, op. cit., pp. 412-414.

²³⁸ *Ibid.*, pp. 418-419.

²³⁹ CAMERON, *France*, p. 242. Learning meant in 1800 as well as in 1850 the acquisition of technological and commercial knowledge in an empirical, self-taught manner and seldom rigorous theoretical education; compare H. BEAU, *Das Leistungswissen des frühindustriellen Unternehmertums in Rheinland und Westfalen*, Cologne 1959 for a statistical analysis of the education of 400 Rhenish entrepreneurs between 1790 and 1870.

²⁴⁰ W. FISCHER, *Das Verhältnis von Staat und Wirtschaft in Deutschland am Beginn der Industrialisierung*, « *Kyklos* » vol. 14, 1961, p. 354.

²⁴¹ W. SOMBART, *Der Kapitalistische Unternehmer*, « *Archiv für Sozialwissenschaften und Sozialpolitik* », vol. 29, Tübingen 1909.

²⁴² J. SCHUMPETER, *Theorie der wirtschaftlichen Entwicklung*, Wien 1912.

²⁴³ In accordance to the general principle not to quote specialized literature published before 1945 these studies cannot be mentioned here. For details see: W. ZORN, *Typen und Entwicklungskräfte deutschen Unternehmertums*, « *Moderne deutsche Wirtschaftsgeschichte* » (ed. K. E. Born), Cologne 1966.

used for the early 19th century: 1. merchants and bankers, 2. artisans and technicians, 3. descendents of families active in middle-sized agricultural activities and in commercial-industrial pursuits, and — of much less importance — 4. large estate-owners and 5. scientists.²⁴⁴ Besides this classification which is largely based on occupational origins, the social origins are of importance. According to this criterion, between 1800 and 1840, over sixty percent of the parents of entrepreneurs were workers and petty bourgeois; twenty-eight percent were middle class (artisans, merchants, intermediate bureaucrats) and eleven percent belonged to the upper class (aristocracy, clergy, higher administrators). For the period 1840-1890, there is evidence of a strong shift in these proportions because only twenty-one percent came from the lower class but sixtyfive percent came from the middle class. Although the statistical basis for the present findings is still relatively small, this shift would contradict Sombart's view who believed in a democratization of the social origins of German entrepreneurs in the 19th century in that the leaders of the economy came from ever broader and lower social strata. With regard to the geographical origins of the entrepreneurs in the 19th century, Rhein- und Niederfranken were especially important, followed by Westphalia and Lower Saxony and then, to a lesser extent, by the remaining regions. It is interesting to note that the relatively heavy and early developed areas of Saxony and Silesia ranked low in relative importance.²⁴⁵

Thus while there does not seem to be any consistent correlation between regional industrial development and the regional source of entrepreneurial talent, a certain similarity in the occupational and social origins of entrepreneurs could be established in some industries.²⁴⁶ The founders of chemical factories which had high technological and scientific requirements were overwhelmingly trained chemists. Technical expertise also played an important

²⁴⁴ ZORN, *op. cit.*, p. 30.

²⁴⁵ *Ibid.*, pp. 33-35; F. EULENBURG, *Die Herkunft deutscher Wirtschaftsführer*, «Schmollers Jahrbuch», vol. 74, Berlin 1954.

²⁴⁶ H. WUTZMER, *Die Herkunft der industriellen Bourgeoisie Preussens in den vierziger Jahren des 19. Jahrhunderts*, H. Mottek (ed.), «Studien zur Geschichte der Industriellen Revolution in Deutschland», Berlin 1960.

role in the production and marketing of the engineering industry; combined with the modest capital requirements of this industry, most of the entrepreneurs were originally artisans and skilled workers. The origins of the entrepreneurs of the textile industry were not so uniform because the relatively smaller significance of technical knowledge and the greater importance of marketing skills led to the predominant position of merchants and merchant-manufacturers in this industry. Some well-to-do master craftsmen were also successful in establishing themselves as entrepreneurs, especially in the woolen-industry. In contrast, the origins of the entrepreneurs in the mining and iron industry were very heterogeneous. While in Silesia the landed aristocracy possessed the necessary means for the development of heavy industry, in the Rhineland this role was assumed by the coal and iron traders and transporters who possessed marketing skills and, in the iron industry where technical knowledge was even more important, by the descendents of families who had a long tradition of working and processing iron, i. e. foundry workers, blacksmiths or owners of small iron works. The early entrepreneurs were pious or religiously indifferent but « typically » catholics among them were rare.²⁴⁷ Initial and important steps toward analysis and synthesis have therefore been taken but further studies are necessary: « It is above all a duty of economic history to carry on the systematic research on the bearer of economic risk in the 19th century and to deepen the understanding by the use of international comparison »;²⁴⁸ these comparisons might be especially useful with respect to the German-speaking parts of Switzerland and of Austria-Hungary because of the close economic ties.²⁴⁹ For Germany herself, more regional studies should lead to a clearer understanding; fortunately there

²⁴⁷ F. REDLICH, *Frühindustrielle Unternehmer und ihre Probleme im Lichte ihrer Selbstzeugnisse*, W. Fischer (ed.), « Frühindustrialisierung », *op. cit.*, p. 409; very important also: *Id.*, *Der Unternehmer*, Göttingen 1964. On Religion: A. MÜLLER-ARMACK, *Religion und Wirtschaft*, Stuttgart 1959.

²⁴⁸ ZORN, *op. cit.*, p. 40.

²⁴⁹ H. H. MÜLLER and H. KUBITSCHKE, *Reformen und industrielle Revolution*, « Jahrbuch für Wirtschaftsgeschichte » 1965/II, Berlin 1965, p. 194 carefully raised the question whether a general inclusion of Austria would not provide a better understanding of German economic history in the 19th century.

are already a series of such studies²⁵⁰ but many gaps are yet to be filled.

The significant trend toward *regional and local studies* is one of the most striking characteristics of post-war German economic historiography. Until the end of the Second World War, Prussian economic history was frequently equated with German economic history, as both foreign and German historians tended to stress the Prussian-Hohenzollern experience and to overlook the role of the — rather important — rest of Germany. The undoubted dominating influence of Prussia on the structure and development of the national economy all too often led to generalizing from the particular to the whole, ignoring the heterogeneous character of Germany. The end of the Prussian state and of the German Reich as well turned the view of economic historians in a different direction — in the Federal Republic which comprises virtually no old Prussian territories, especially to South Germany and her easily accessible archives.²⁵¹ Researchers in the DDR had to be satisfied with Saxony and the middle Prussian provinces²⁵² and «in spite of nominally friendly relations between their country and Poland, have up to now done little work»²⁵³ on the Polish held territories in Eastern Germany. Specialization, involuntary as it may be, gave

²⁵⁰ M. BARKHAUSEN, *Der Aufstieg der rheinischen Industrie im 18. Jahrhundert und die Entstehung eines industriellen Grossbürgertums*, «Rheinische Vierteljahrsblätter», vol. 19, Bonn 1954; W. TREUE, *Der landwirtschaftliche Unternehmer in Ostdeutschland*, «Tradition», vol. 1, Baden-Baden 1956; R. ENGELSING, *Bremisches Unternehmertum*, «Jahrbuch der Witttheit zu Bremen», vol. 2, Bremen 1958; W. KÖLLMANN, *Sozialgeschichte der Stadt Barmen im 19. Jahrhundert*, Tübingen 1960; F. ZUNKEL, *Der Rheinisch-Westfälische Unternehmer, 1834-79*, Cologne 1962; F. DECKER, *Die betriebliche Sozialordnung der Dürener Industrie im 19. Jahrhundert*, Cologne 1965.

²⁵¹ W. Zorn on Bavarian Swabia, *op. cit.*, 1961; W. Fischer on Baden, *op. cit.*, 1962; E. Klein on Württemberg, *op. cit.*, 1967; forthcoming: E. Schremmer on Bavaria with a probably pronounced theoretical approach as in this *Bemerkungen zur Zahlungsbilanz Baierns in der zweiten Hälfte des 18. Jahrhunderts (Manufakturperiode)*, W. Abel et al. (eds), Festschrift F. Lütge, *op. cit.*

²⁵² KRÜGER on central Prussia, *op. cit.*, 1958; FORBERGER on Saxony, *op. cit.*, 1958; F. BECK, *Die wirtschaftliche Entwicklung in der Stadt Greiz während des 19. Jahrhunderts*, Weimar 1955; A. ZIMM, *Die Entwicklung des Industriestandortes Berlin*, Berlin 1959; L. BAAR, *Die Berliner Industrie in der industriellen Revolution*, Berlin 1966; H. BLUMBERG, *Die deutsche Textilindustrie in der industriellen Revolution*, Berlin 1965; A. SCHRÖTER and W. BECKER, *Die deutsche Maschinenbauindustrie in der industriellen Revolution*, Berlin 1962; K. H. BLASCHKE, *Bevölkerungsgeschichte von Sachsen bis zur industriellen Revolution*, Weimar 1967.

²⁵³ D. S. LANDES, *Technological Change*, *op. cit.*, p. 982.

rise in both cases to increasing returns,²⁵⁴ and provided the factual basis for a future analysis of regional growth within the national economy. The importance of regional investigations has been demonstrated by W. Fischer²⁵⁵ in his study of the development of handicrafts in the early phase of industrialization who showed how easily an exclusively aggregate economic or aggregate social analysis can lead to inaccuracies and incorrect conclusions.

The question of *pauperism* among the lower strata of society between 1815 and 1848 — closely connected with the question of the rise of the industrial labor force — is one of the topics on which social and economic historians have spent a considerable amount of energy during the last fifteen years. The problem — actually an old one²⁵⁶ — is whether mass poverty really existed and, if so, what were its causes.

An impressive number of scholars²⁵⁷ pointed to the nation-wide,

²⁵⁴ H. HELLGREVE, *Dortmund als Industrie- und Arbeitsstadt*, Dortmund 1951; E. DENZEL, *Wirtschafts- und Sozialgeschichte der Stadt Wetter*, Dortmund 1952; N. J. G. POUNDS, *The Ruhr, A Study in Rural and Economic Geography*, London 1952; L. BEUTIN, *Geschichte der südwestfälischen Industrie- und Handelskammer zu Hagen und ihrer Wirtschaftslandschaft*, Hagen 1956; W. BREPOHL, *Industrievolk im Wandel von der agraren zur industriellen Daseinsform, dargestellt am Ruhrgebiet*, Tübingen 1957; N. J. G. POUNDS and W. N. PARKER, *Coal and Steel in Western Europe*, London 1957; N. J. G. POUNDS, *The Upper Silesian Region*, Bloomington/Ind. 1958; F. SCHULTE, *Die Entwicklung der gewerblichen Wirtschaft in Rheinland-Westfalen im 18. Jahrhundert*, Cologne 1959; W. KÖLLMANN, *Sozialgeschichte der Stadt Barmen im 19. Jahrhundert*, Tübingen 1960; F. LERNER, *Wirtschafts- und Sozialgeschichte des Nassauer Raumes 1816-1964*, Wiesbaden 1965; W. ZORN, *Die wirtschaftliche Struktur der Rheinprovinz um 1820*, «VSWG», vol. 54, 1967; G. ADELMANN, *Der gewerblich-industrielle Zustand der Rheinprovinz im Jahre 1836*, Bonn 1967; H. HERZFELD (ed.), *Berlin und die Provinz Brandenburg im 19. und 20. Jahrhundert*, Berlin 1968; H. BÖHME, *Hamburg und Frankfurt*, Frankfurt/Main 1968.

²⁵⁵ W. FISCHER, *Das Deutsche Handwerk in der Frühphase der Industrialisierung*, *Zeitschrift für die gesamte Staatswissenschaft*, vol. 120, Tübingen 1964, p. 690.

²⁵⁶ For details see the useful summary of F. D. MARQUARDT, *Pauperismus in Germany during the Vormärz*, in «Central European History», vol. 2, 1969.

²⁵⁷ W. CONZE, *Vom 'Pöbel' zum 'Proletariat'*, «VSWG», vol. 41, 1964; W. SCHULTE, *Volk und Staat, Westfalen im Vormärz und in der Revolution 1848/49*, Münster 1954; W. ABEL, *Die Lage in der deutschen Land- und Ernährungswirtschaft um 1800*, op. cit., Id., *Der Pauperismus in Deutschland am Vorabend der Industriellen Revolution*, Dortmund 1966; R. STRAUSS, *Die Lage und die Bewegung der Chemnitzer Arbeiter in der ersten Hälfte des 19. Jahrhunderts*, Berlin 1960; H. BLUMBERG, *Textilindustrie*, op. cit.; L. BAAR, *Die Berliner Industrie*, op. cit.; J. KUCZYNSKI, *Darstellung der Lage der Arbeiter in Deutschland von 1789 bis 1849*, Berlin 1961; H. MOTTEK, *Wirtschaftsgeschichte*, op. cit.; T. S. HAMEROW, *Restoration, Revolution, Reaction; Economics and Politics in Germany 1815-1871*, Princeton 1958.

and probably increasing misery among impoverished cotters and laborers, poor artisan masters and journeymen during these three decades. Besides more or less debatable quantitative evidence (real wages, consumption of proteins, mortality rates, working hours, industrial accidents etc.), various source collections²⁵⁸ reporting the view of contemporary writers backed this opinion. Nevertheless the picture thus provided was criticized as being too bleak by some scholars.²⁵⁹ They argued that economic conditions had basically not deteriorated for the laboring classes in comparison to the late 18th century but had improved and that increasing distress was confined to some rural areas and depression was only transitional among out-workers since it was more or less limited to the 1840s. They added that the income distribution among the lower classes was rather uneven and that the emancipation had made them more sensitive to economic and social disparity; not an absolute increase in poverty but an increase in awareness of one's low standard of living was the root of the widespread disenchantment.²⁶⁰

Since the « pessimists » had a better case the question of the cause of this pauperization had to be answered. The proponents of an overpopulation thesis and those scholars who saw the misery

²⁵⁸ E. SCHRAEPLER, *Quellen zur Geschichte der sozialen Frage in Deutschland*, vol. 1, Göttingen 1955, 2nd ed. 1960; J. KUCZYNSKI, *Bürgerliche und halbfeudale Literatur aus den Jahren 1840 bis 1847 zur Lage der Arbeiter*, Berlin 1960; C. JANTKE and D. HILGER, *Die Eigentumslosen. Der Deutsche Pauperismus und die Emanzipationskrise in Darstellungen und Deutungen der zeitgenössischen Literatur*, Freiburg 1965.

²⁵⁹ R. STADELMANN and W. FISCHER, *Die Bildungswelt des deutschen Handwerkers um 1800*, Berlin 1955; W. FISCHER, *Soziale Unterschichten im Zeitalter der Frühindustrialisierung*, in « International Review of Social History », vol. 8, Assen 1963; Id., *Das deutsche Handwerk in den Frühphasen der Industrialisierung*, in « Zeitschrift für die gesamte Staatswissenschaft », vol. 120, Tübingen 1964; Id., *Social Tensions at Early Stages of Industrialization*, in « Comparative Studies in Society and History », vol. 9, The Hague 1966; D. G. ROHR, *The Origins of Social Liberalism in Germany*, Chicago 1963.

²⁶⁰ Early factories had quite often to pay very high wages to attract a sufficient labor force; initially no huge « reserve army » eagerly volunteered for industrial employment, but the factories to some extent created a reservoir by proletarianization of the artisans especially after 1850, BORCHARDT, *Grundriss*, p. 372; on that period see: K. E. BORN, *Sozialpolitische Probleme und Bestrebungen in Deutschland von 1848 bis zur Bismarckschen Sozialgesetzgebung*, « VSWG », vol. 46, 1959; F. BALSER, *Sozial-Demokratie 1848/49-1863*, 2 vols., Stuttgart 1962; H. WACHENHEIM, *Die deutsche Arbeiterbewegung 1844 bis 1914*, Cologne 1967; H. VOLKMAN, *Die Arbeiterfrage im preussischen Abgeordnetenhaus, 1848-1869*, Berlin 1968.

as the social costs of the beginning industrialization have tried to provide monocausal explanations. East German scholars²⁶¹ especially held that early industrial capitalism and its exploitation of the working class has to be seen as the primary reason for the increasing mass pauperization. They understood this period as the beginning of proletarianization and class antagonism due to the rise of the capitalist factory system. The more discriminating among them, however, recognized that an agrarian «preproletariat» existed before the industrial revolution due to the substantial increase of population during the 18th century.²⁶² The very absence of a significant industrial sector has been seen by the Malthusians²⁶³ as the main cause of pauperism. The poverty of that time was not part of industrialism but belonged to a fading agricultural era which was unable to provide the livelihood for a population growing since the middle of the 18th century.²⁶⁴ An equilibrium between supply and demand on the labor market «was not reached until the process of intense industrialization began during the last decades of the 19th century».²⁶⁵

It should be possible to reconcile «pessimists» and «optimists», Malthusians and champions of the social costs thesis. Though the income reductions were in many cases quite considerable, even a minor change in income must have been regarded as entirely unbearable since the increased regional and occupational mobility of the lower strata, the presence of extremely well-paid foreign engineers and technicians and similar factors influenced the

²⁶¹ KUCZYNSKI, MOTTEK, STRAUSS, BLUMBERG, BAAR; in the US: HAMEROW.

²⁶² MOTTEK, *Wirtschaftsgeschichte Deutschlands*, op. cit., p. 221; W. BECKER, *Die Bedeutung der nichtagrarischen Wanderungen für die Herausbildung des industriellen Proletariats in Deutschland, unter besonderer Berücksichtigung Preussens von 1850 bis 1870*; MOTTEK (ed.), *Studien*, op. cit., p. 211; J. PETERS, *Ostelbische Landarmut, Sozialökonomisches über landlose und landarme Agrarproduzenten im Spätfeudalismus*, «Jahrbuch für Wirtschaftsgeschichte», 1967/IV, Berlin 1967, p. 256.

²⁶³ CONZE, ABEL, to some extent also FISCHER; in the US: ROHR.

²⁶⁴ German population in 1817 25 mill., 1850 35.5 mill., 1870 40.8 mill. BORCHARDT, *Grundriss*, p. 372.

²⁶⁵ W. KÖLLMANN, *Population and Working-Power Potential in Germany 1815-1865*, Resumé, Fifth International Conference of Economic History, Bloomington/Ind. 1968 (forthcoming). Also important: ID., *Industrialisierung, Binnenwanderung und Soziale Frage*, «WSWG», vol. 46, 1959. On the important safety-valve of emigration see: M. WALKER, *Germany and the Emigration 1816-1885*, Cambridge, Mass. 1964.

structure of needs and wants. On the other hand, the factory during the 1840s — especially the textile factory — is likely to have been a fairly damaging competitor for many an outworker; since the income effect of early industrial investments in textile mills was rather slight in comparison to the capacity effect, destitution must have been aggravated in the short run. Exact and definitive conclusions will be possible only after more regional studies²⁶⁶ are available and more statistical evidence has been gathered and analysed.

The challenge facing German economic historians — as W. Fischer²⁶⁷ formulated it in 1965 — must remain now as then: « More precision in formulating questions, more careful reflection on economic causality and more courage for presenting and analyzing of orders of magnitude. In short: No fear of theory and statistics ».

Basically, even without considering the present transformation and regeneration process which German universities are undergoing the preconditions for fruitful economic-historical research in Germany are even markedly favorable. The fact that in Germany economic history and social history are usually combined in one chair, leads by virtue of less division of labor and less specialization to lower productivity of individual researchers in particular problems, but this disadvantage should be equalized by the close contact between economic and social history. In contrast to the United States, where « the traditional parochialism of the American economic historian »²⁶⁸ is deplored and where there is a pleading for closer collaboration by the two sub-branches, the material interweaving of the two subjects is much closer in Germany due to this personal union. Secondly, there is also a good possibility that especially in Germany a bridge might be built between the two

²⁶⁶ E. g. A. KRAUS, *Die Unterschichten Hamburgs in der ersten Hälfte des 19. Jahrhunderts, Entstehung, Struktur und Lebensverhältnisse*, Stuttgart 1965; E. W. BUCHHOLZE, *Ländliche Bevölkerung an der Schwelle des Industriezeitalters. Der Raum Braunschweig als Beispiel*, Stuttgart 1966.

²⁶⁷ W. FISCHER, *Oekonomische und soziologische Aspekte der frühen Industrialisierung*, « Wirtschafts- und Sozialgeschichtliche Probleme der frühen Industrialisierung » (ed. W. Fischer), Berlin 1968, p. 12.

²⁶⁸ A. FISHLOW, *Fifth International Conference of Economic History*, Bloomington/Ind. 1968, paper delivered at the Plenary Session (forthcoming).

ideological systems, between the so-called bourgeois and Marxist historians, and that this bridge might be seen as a benefit of the otherwise painfully felt division. Thirdly, it should be possible to enlarge and intensify the as yet only beginning collaboration between economic theory and economic history. Since German economic theory depends on developments in the primarily American led international research and teaching level, it will necessarily remain somewhat behind because of the time consuming informational and adoption processes. Thus Germany may be spared the necessity of repeating every ephemeral *dernier cri*. It is also likely that in Germany the understanding of the political element in economics may not have been lost to the extent to which in part has been in the case in the Anglo-Saxon world. The metamorphosis, some even say retrogressive metamorphosis, of the science once called political economy into economics is correctly and frequently deplored and the warnings of Myrdal, Schumpeter, Robinson and Stigler among others should not be disregarded.

Lastly, how the New Economic History will affect German economic history remains to be seen. But one should not fail to recognize that after about a decade of American cliometrics with «sometimes overbold and immoderate claims of the power of the postulates of theory, and economic theory in particular»²⁶⁹ the initial overexuberance has given way to a more balanced and introspective attitude. A. Fishlow, one of the foremost scholars in the new field, even suspects that «the New Economic History, and conventional economic theory for that matter, may not be as exportable as some of its more enthusiastic adherents claim» and points to the complex legal or cultural or political factors where «the more fundamental explanation may reside». Furthermore in «a curious and paradoxical parallel» to the German Historical School, the New Economic Historians have made a substantial contribution to data augmentation, but have failed to present thoroughly global interpretations: «analysis rather than synthesis has been their typical product».²⁷⁰ This author hopes that his essay will be outdated

²⁶⁹ FISHLOW, *op. cit.*

²⁷⁰ FISHLOW, *op. cit.*

in the very near future as the profession eagerly anticipates at the moment (April 1970) some forthcoming German publications²⁷¹ covering the economic and social history of 19th century Germany; he wonders whether they will provide analysis and synthesis and give due consideration to economic and socio-cultural factors in their treatment of the German Industrial Revolution.

²⁷¹ W. ZORN (ed.), *Handbuch der deutschen Wirtschafts- und Sozialgeschichte*, 2 vols.; H. KELLENBENZ (ed.), *Handbuch der europäischen Sozial- und Wirtschaftsgeschichte*, 5 vols.; K. E. BORN (ed.), *Wirtschaft und Gesellschaft im Industriezeitalter*, 5 vols.; W. TREUE, *Wirtschafts- und Sozialgeschichte Deutschlands im 19. Jahrhundert*, B. GEBHARDT (ed.), *Handbuch der deutschen Geschichte*; and especially K. BORCHARDT, *The Emergence of Industrial Society in Germany 1700-1914*; C. M. CIPOLLA (ed.), *The Fontana Economic History of Europe*.