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FROM *WERKSTATT* TO *FABRIK*

By Hisashi WATANABE*

I

The author previously attempted an analysis of an *Adress-Buch* for Rhineland=Westphalia¹⁾ as to *Kreis Elberfeld*²⁾. In this article, the author proposes to undertake similar analysis for the region comprised by four Lower Rhine *Kreise*³⁾ where cotton industry was dominant at that time. The purpose of such analysis, however, is necessarily different in the present article.

The analysis of Elberfeld and Barmen was made with a view to prove that so-called *Seidenfabriken* who were said to have largely used silk during 1830's were in fact *Fabriken* of semi-silk textiles, i.e., producers of silk-cotton fabrics, and for that reason, cotton continued to be their most important material. In other words, it was the cotton-based economy which supported the largest center of textile industry in Rhineland. Such a point of view, however, will no longer be necessary for the Lower Rhine industry. The left bank of Rhine around *Kreis Gladbach*, so-called "Manchester of the Rhine", was one of the biggest centers of cotton industry in the 19th century Germany, as is well known. Therefore, in order to look into this region, we must take it up as a good reference of measurement to determine the level of productivity achieved by the German cotton industry at that time, and we must go a step further to analyse directly the system of production of the industry. In considering the general characteristics of the age, then,

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1) *Offizielles Adress-Buch für Rheiland-Westphalen zum Vorteil armer Kranken* edited by Rütiger Brüning, compiled by Goswin Krackrügge, Elberfeld 1833. To be abbreviated as *Adress-Buch*.

2) Hisashi Watanabe "The Merchants of Wuppertal—Promoters of Social Division of Labor" *Keieishigaku (Japan Business History Review)*, Vol. 9, No. 2, Nov. 1974. Also my "Die Wuppertaler Unternehmer in den dreissiger Jahren des 19. Jahrhunderts. Eine Analyse des Adressbuches von 1833 unter besonderer Berücksichtigung des Verhältnisses zwischen Baumwolle und Seide." *Hokudai Economic Papers*, Vol. 3, 1972/73.

3) Four *Kreise* of Kempen, Gladbach, Grevenbroich and Neuss. This is an area which now comprises two Chamber of Industry and Commerce Districts of Mönchengladbach and Neuss. The today's Chamber of Industry and Commerce Mönchengladbach which was founded in 1837 as Chamber of Commerce of *Kreis Gladbach* in due course merged *Kreis Grevenbroich* and subsequently *Kreis Neuss* to become Chamber of Commerce Gladbach=Rheydt=Neuss, but it was split in two districts as above-mentioned after the Second World War. The Chamber of Commerce Gladbach was established as an independent institution out of Chamber of Commerce Krefeld who had been competent for Gladbach, because the latter was claimed not to represent adequately the interests of Gladbach cotton industry. The early history of Chamber of Commerce Gladbach is in itself a good picture of the process in which Gladbach cotton industry was established. Ref. *Industrie-und Handelskammer zu Mönchengladbach, Lebendige Wirtschaft im Wandel zum Morgen, Mönchengladbach* 1963, p. 17ff.

our attention should be focused to the development of the factory system⁴⁾.

The process of the spread of the factory system can be studied from two different angles. The first angle consists of defining the concept of factory and then to find evidence of its existence in historical documents, while the second is to see what the institution called "factory" in historical documents were in reality. It may be said that most of the past studies were made based on the first approach and for that reason, they tended to emphasize somewhat unilaterally the backwardness of mechanization in German industries. Therefore, perhaps it would be worthwhile to review the factory system from a phenomenological viewpoint, particularly because such an approach is essential to perceive the German characteristics of the concept of factory.

Consequently, the author is going to consider the words "Fabrik", "Manufaktur", "Mühle", "Werk" and others as they are used in *Adress-Buch* and to see how these words, all meaning working spaces, are actually used, in what sense and how often to describe various branches of the industry. It will be at the same time an attempt to see, by way of the terms prevailing at that time, how the contemporaries were beginning to understand varied systems of production. For such a reason, it is not towards the process of formation of the factory system in Germany, but to that of solidifying of the concept of factory that the present article is going to direct its attention. By analysing how the structure of cotton industry in Germany was related to the process of conceptual formation on the basis of Gladbach region, it is hoped that the characteristics of the factory system proper to Germany could be brought into reliefs.

II

Let us start by taking up all the names of individuals, who were concerned with the textile and other related industries in those four *Kreise*, out of *Adress-Buch*.

As for *Kreis* Kempen, it consisted of 20 communities (*Bürgermeistereien*) having the total area of 6.86 square miles. There were 8,184 households and the population was 50,229. *Adress-Buch* lists 909 of those inhabitants (including companies—same for the following), or approximately ten percent of the population engaged in industries⁵⁾. Of this number, those who could be considered to be related to textile industry are 204 Families (or 201 firms), who represents 22.4% of the listed names.

Kreis Gladbach was made up from 14 communities covering the land area of 4.30 square miles. It had 7,541 households and a population of 46,142. The number of names listed in *Adress-Buch* was 634, or roughly 8% of the population engaged in industries⁶⁾. Out of this total, 216 names (200 firms) were picked up, representing

4) *Adress-Buch* indicates branches of industry but not forms of business organization. Consequently, in this article, the author will utilize as a secondary reference Gerhard Adelman (edit.), *Der gewerblich-industrielle Zustand der Rheinprovinz im Jahr 1836. Amtliche Übersichten*, Bonn 1967. It will be abbreviated as *Zustand* in the present article.

5) *Adress-Buch*, pp. 328-353.

6) *Ibid.*, pp. 378-395.

34.1%.

Kreis Grevenbroich comprised 15 communities whose total land area was 4.18 square miles and counted 5,405 households or a population of 31,368. There are 419 names recorded in *Adress-Buch*⁷⁾, which is about 8% of the population in business. We took up of those 66 names (62 firms), which is approximately 16%.

Kreis Neuss had 15 communities (of which Grefrath is different from a community in *Kreis Kempen* of the identical name) with the land area of 5.14 square miles. Number of households was 5,204 and population was 31,198. *Adress-Buch* lists 560 individuals whose share to the population in business is approximately 11%⁸⁾. Out of those names, 107 (firms) were selected, representing 19% or so.

Thus, there are altogether 593 names (570 firms) taken out of the total of 2,522 for the four *Kreise*. The average sampling ratio is 23.5%.

Of those, we shall consider first the cotton weaving. Altogether, there were 94 manufacturers, of which 57 produced cotton fabrics only, while 22 weaved cotton-silk fabrics and 15 manufactured cotton-linen fabrics as shown in Table 1-A. The number (94) is the second largest after that of the wholesalers and retailers of fabrics (214 dealing businesses). Among the 94, 69 manufactures were located in *Kreis Gladbach*, although this should be understood as the address of the manufacturers, and actually, production was scattered all over within and out of the *Kreis*, as we shall see later on.

If those numbers of manufactures are compared with those in the statistics of 1836, we know that those in *Kreis Kempen* were only 10, while Gladbach had 84, Grevenbroich had 3 and Neuss only 5. There were altogether 102 manufactures⁹⁾, as shown in Table 1-B. With regard to the *Kreis Gladbach*, there were 83 recorded as semi-silk and cotton fabrics manufacturers and one as nessel fabrics manufacturer and spinner, totaling 84. This outnumbers those in *Adress-Buch* (69) by 15. As for two cities of Gladbach and Rheydt, *Adress-Buch* shows 19 manufacturers for Gladbach and 28 for Rheydt. However, according to W. Fränken¹⁰⁾, there were in Rheydt 29 manufacturers in 1833 and 37 in 1836, while in the same year (1836) those in Gladbach were 25. Thus, the number of cotton fabrics manufacturers differs somewhat from one document to another, but we could assume that for all of the four *Kreise*, there were in mid-1830's approximately 100 manufacturers, of which one-half were concentrated to the two cities of Gladbach and Rheydt.

With regard to the organization of production, *Adress-Buch* lists all manufactures under the title of *Fabrik* and it is necessary to turn our eyes to other documents in order to see if *Fabriken* were actually factory in its proper sense.

7) *Ibid.*, pp. 395-406.

8) *Ibid.*, pp. 406-421.

9) *Zustand*, pp. 58-59, 62-63, 64-67, 80-81.

10) Willy Fränken, *Die Entwicklung des Gewerbes in den Städten Mönchengladbach und Rheydt im 19. Jahrhundert*, Köln 1969, p. 56. In this case, Gladbach includes two *Landgemeinden* of Obergeburdt and Oberriedergeburdt.

Table 1 The list of cotton fabrics manufacturers

(1) Manufacturers of cotton fabrics

A	B
Kreis Kempen	
Süchteln	
1 <i>Sal. Cohen</i> , Baumwollenwaarenfabrik	<i>Salomon Cohen</i> , Seiden- und Samtfabrik (with other 4 <i>Fabriken</i> 375-250)
Lobberich	
2 <i>Jak. & Quirin Heythausen</i> , Baumwollenwaarenfabrik (Associe: <i>Jak. Heythausen</i> , Guts- und Mühlenbesitzer)	<i>Jakob und Quirin Heythausen</i> , Baumwollfabrik (126-85)
Kreis Gladbach	
Gladbach	
3 <i>Gust. & Ludw. Cramer</i> , Baumwollenwaarenfabrik	
4 <i>Joh. Mich. Lensen</i> , Kattunfabrik	
5 <i>Richard Lünen</i> , Baumwollenwaarenfabrik	
6 <i>Wilh. Stein</i> , Kattunfabrik	
Obergeburth	
7 <i>Ferd. Heimanns</i> , Kattunfabrik	
Oberriedergerburth	
8 <i>Joh. Wilh. Schrick</i> , Kattunfabrik	
9 <i>A. Troost, Kaulen & Comp.</i> , Baumwollenwaarenfabrik und Färberei (Associe: <i>Abr. Troost</i> , Gemeinderath)	
Unterriedergerburth	
(Wilh. Pongs, Baumwollspinnerei und Baumwollenwaarenfabrik)	
Vierssen	
10 <i>Amandus Berger</i> , Baumwollenwaarenfabrik und Ellenwaarenhandel	
11 <i>Joh. Heinr. Berrischen</i> , Baumwollenwaarenfabrik	
12 <i>Braß & Hardegen</i> , Baumwollenwaarenfabrik	
13 <i>Eyring & Lingenbrink</i> , Baumwollenwaarenfabrik und Türkischrothfärberei	
14 <i>Math. Furmanns & Söhne</i> , Baumwollenwaarenfabrik	
15 <i>Gebr. Hangohr</i> , Baumwollenwaarenfabrik	
16 <i>Joh. Heinr. Hoeges</i> , Baumwollenwaarenfabrik	
17 <i>Jonas Leffmann</i> , Baumwollenwaarenfabrik und Ellenwaarenhandel	
18 <i>Friedr. Lorentz</i> , Baumwollenwaarenfabrik	
19 <i>Witwe Jak. Müling</i> , Baumwollenwaarenfabrik	
20 <i>Joh. Pferdengenes & Sohn</i> , Baumwollenwaarenfabrik	
21 <i>Friedr. Adolph Schleicher & Sohn</i> , Baumwollenwaarenfabrik und Türkischrothfärberei	
22 <i>Jak. Tommessen</i> , Baumwollenwaarenfabrik	
23 <i>Th. Meyers</i> , Baumwollenwaarenfabrik und Ellenwaarenhandel	
Odenkirchen	
24 <i>Joh. Heinr. Bähren</i> , Baumwollenwaarenfabrik	
25 <i>Joh. Pet. Mühlen</i> , Baumwollenwaarenfabrik	
26 <i>Isaak Salomon</i> , Baumwollenwaarenfabrik	
	83 <i>Halbseiden- und Baumwollfabriken</i> (12960-6480)
	1 <i>Powerlooms Spinn- und Nesselweberei</i> (230-78, 1 steamengine of 12 hp)

Rheydt

- 27 *Beines & Joebges*, Baumwollenwaarenfabrik (Associe: Jos. Joebges, Gemeinderath)
- 28 *Bitter & Heinzenberg*, Baumwollenwaarenfabrik (Associe: Ludw. Bitter, Gemeinderath)
- 29 *Adam Bresges (Konrad's Sohn)*, Gutsbesitzer und Baumwollenwaarenfabrik
- 30 *Wilh. Clever*, Baumwollenwaarenfabrik
- 31 *Coenen & Keudel*, Baumwollenwaarenfabrik
- 32 *Joh. Fournell*, Baumwollenwaarenfabrik
- 33 *Goertz & Endepohl*, Baumwollenwaarenfabrik (Associe: Karl Goertz, Gemeinderath, Oehl- und Branntweinhandel, Mühlenpächter)
- 34 *Gebr. Goeters*, Baumwollenwaarenfabrik
- 35 *Wilh. Goeters*, Baumwollenwaarenfabrik
- 36 *Wilh. Heck*, Gemeinderath und Baumwollenwaarenfabrik
- 37 *Joh. Heinr. Hintzen*, Baumwollenwaarenfabrik
- 38 *Joh. Wilh. Jacobs*, Baumwollenwaarenfabrik und Spezereiwhandel
- 39 *Gebr. Junkers*, Baumwollenwaarenfabrik
- 40 *Heinr. Korn. Kauwertz*, Baumwollenwaarenfabrik
- 41 *Kopp & Thoenen*, Baumwollenwaarenfabrik
- 42 *Joh. Pet. Lambertz*, Baumwollenwaarenfabrik
- 43 *Wilh. Lenssen (Friedrich's Sohn)*, Baumwollenwaarenfabrik (Associe: Wilh. Mich. Lenssen Friedrich's Sohn, 2. Beigeordneter)
- 44 *Georg Heinr. Mettenius*, Gemeinderath, Baumwollenwaarenfabrik und Türkischrothgarnhandlung
- 45 *Mühlen & Kropp*, Baumwollenwaarenfabrik
- 46 *Joh. Pet. Nieper*, Baumwollenwaarenfabrik
- 47 *Joh. Heinr. Peltzer Söhne*, Baumwollenwaarenfabrik
- 48 *Joh. Heinr. Pferdmenges & Sohn*, Baumwollenwaarenfabrik
- 49 *Wilh. Rentenbacher*, Baumwollenwaarenfabrik
- 50 *Gebr. Stein*, Baumwollenwaarenfabrik

Kreis Grevenbroich

Elsen

- 51 *Friedrichs Boelling & Comp.*, Baumwollenwaarenfabrik an der Elsener Mühle

1 *Baumwollspinnerei* in two buildings (234, part. adults, part. children—7 Assortiments Watertwist, 3 Handspinnereien)

Garzweiler

- 52 *Jak. Blittersdorf*, Baumwollenwfabrik, Tuch- und Kattunhandel

1 *Baumwolltuchweberei* (8—4)

Wickrath

- 53 *Joh. Eduard Denhard*, Baumwollenwfabrik
- 54 *Offermann & Kamper*, Baumwollenwfabrik (Associe: Pet. Offermann, Gemeinderath)
- 55 *Pet. Rheydt*, Baumwollenwaarenfabrik
- 56 *Abr. Siebel*, Baumwollenwaarenfabrik

Kreis Neuß

Neuß

57 *Dietr. Bremenkamp*, Stadtrath, Baumwollenwaarenfabrik

Notes:

(1) The names in column A are selected from *Adress-Buch*, in B from *Zustand*

(2) The figures in parentheses in column B indicate the number of workers (left) and that of looms (right).

(2) Manufacturers of cotton-silk fabrics

A

B

Kreis Kempen

Süchteln

- 1 *Dietr. Adams*, Halbseiden- und Baumwollenwaarenfabrik auch Farbwaarenhandel
- 2 *Meier Binger*, Seiden-, Halbseidenwaaren-, Barchent-, Velbel-, Flanell- und Sayettfabrik
- 3 *Pet. Rath*, Seiden- und Halbseidenwaaren-, Velbel-, Sammet- und Mühlenbandfabrik

Diedrich Adams, Baumwollwarenfabrik (30-20)*David Binger*, Halbseidenwaren-, Seiden und Samtfabrik (with other 4 Fabriken 405-270)*Peter Rath*, Halbseidenwaren-, Seiden-, Samt- und Samtbandfabrik (with other 4 Fabriken 505-370)

Dülken

- 4 *Joh. Cornely*, 2. Beigeordneter, Baumwollen- und Halbseidenwaarenfabrik, Manufaktur- und Kolonialwaarenhandel

Johann Cornely, Seiden- und Baumwollfabrik (with other 2 Fabriken 390-300)

Brüggen

- 5 *Witwe J. J. Platzhoffs Erben*, Fabrik in Seidenplüsch, Halbseiden- und Baumwollenbändern in Elberfeld (Faktor: Aug. Schmitz)

Jakob Platzhoff, Plüschfabrik (146-120)

Kreis Gladbach

Gladbach

- 6 *Joh. Beines*, Halbseiden- und Baumwollenwaarenfabrik
- 7 *J. P. Boelling & Croon*, Seiden-, Halbseiden- und Baumwollenwaarenfabrik
- 8 *Franz Brands*, Halbseiden- und Baumwollenwaarenfabrik
- 9 *Karl Busch*, Halbseiden- und Baumwollenwaarenfabrik
- 10 *Franz. Herm. Charles*, Stadtrath, Halbseiden- und Baumwollenwaarenfabrik
- 11 *Joh. Pet. Pauen & Kaulen*, Baumwollen- und Halbseidenwaarenfabrik (Associe: Kasp. Th. Kaulen)
- 12 *Pet. Wilh. Lungen*, Halbseiden- und Baumwollenwaarenfabrik
- 13 *Dav. Metzger*, Halbseiden- und Baumwollenwaarenfabrik und Ellenwaarenhandel
- 14 *Gebr. Pferdenges*, Halbseiden- und Baumwollenwaarenfabrik
- 15 *Mauritz Plücker*, Halbseiden- und Baumwollenwaarenfabrik
- 16 *Wilh. Prinzen*, Stadtrath, Notabler des Handelstandes, Halbseiden- und Baumwollenwaarenfabrik und Kolonialwaarenhandlung

Ref. (1)

- Oberniedergeburch
 17 *M. Lambertz, Mai & Comp.*, Halbseiden- und Baumwollenwaarenfabrik
 Neersen
 18 *Pet. Adam Bohnen*, Halbseiden-, Baumwollen- und Halbleinenwaarenfabrik
 Rheydt
 19 *Dilthey & Comp.*, Seiden- und Baumwollenwaarenfabrik
 20 *Gebr. Drissen*, Seiden- und Baumwollenwaarenfabrik (Associe: Pet. Drissen, Gemeinderath)
 21 *Schulte & Friedrichs*, Seiden- und Baumwollenwaarenfabrik (Associe: Friedr. Arn. Schulte, Joh. Pet. Friedrichs, Gemeinderath)
 22 *Wilh. Peltzer & Jonathan Lohr*, Seiden- und Baumwollenwfabrik (Associe: Jonathan Lohr; Wilh. Peltzer, Gemeinderath)

(3) Manufacturers of cotton-linen fabrics

A

B

Kreis Kempen

Kempen

- 1 *Scheuten & Classen*, Siamoisenfabrik

Hüls

- 2 *Adam Joch*, Hut- und Siamoisenfabrik, Winkel in Spezereiwaaren

(*Adam Joch*, Siegellackfabrik)

Kaldenkirchen

- 3 *Joh. Bernh. Poensgen*, Gemeinderath und Siamoisenfabrik
 4 *Friedr. Wilh. Poensgen*, Siamoisenfabrik
 5 *Symons & Comp.*, Siamoisenfabrik

Joh. Bernh. Sönsen

Friedr. Wilh. Sönsen

Symons u. Comp.

} Siamoisenfabriken
 (250-200)

Kreis Gladbach

Vierssen

- 6 *Chrn. Mengen*, 2. Beigeordneter, Baumwollen-, Leinen- und Haarstofffabrik und Ellenwaarenhandel

Odenkirchen

- 7 *Gebr. (Friedr. & Heinr.) Moras*, Siamoisenfabrik
 8 *Gebr. (Gottfr. Wilh. & Chrn.) Vohwinkel*, Siamoisenfabrik
 9 *Friedr. Wiedemann & Chrn. van Eycken*, Siamoisenfabrik

Ref. (1)

Kreis Grevenbroich

Jüchen

- 10 *Korn Lindgens*, Siamoisenfabrik

1 Fabrik von baumwollenen Waren (110-80)

Kreis Neuß

Neuß

- 11 *Joh. Heinr. Elfes*, Stadtrath, Siamoisenfabrik und Ellenwhandel
 12 *Frings & Frohwein*, Siamoisenfabrik
 13 *Herm. Koch*, Siamoisenfabrik
 14 *Nathan Ochse*, Siamoisenfabrik
 15 *Samuel Pollitz*, Fabrik und Winkel in Siamois

5 Siamosenfabriken (236-118)

According to *Zustand*, names of cotton fabrics manufacturers, number of weavers and that of looms are as shown in Table 1-B. There are no names of manufacturers given for *Kreis* Gladbach, but it is known that there were 83 *Halbseiden- und Baumwollfabriken* employing 12,960 weavers over 6,480 looms. Consequently, a firm had 78 looms and 156 weavers on an average. Presumably, the number of weavers was estimated to be twice that of looms. At any rate, the number of looms, about 80, seems to give a fair idea of average scale of *Fabrik*¹¹⁾.

Were those weavers now assembled at the concentrated workshop of *Fabrikanten* to work in cooperation? It could not be said, in general, that the manufacturers did not have any cooperative process at all¹²⁾. In such cases where a cotton fabrics manufacturer also operates dyeing and other finishing processes in addition, those secondary processes were probably done by cooperative work at his concentrated workshop¹³⁾.

Nevertheless, as the *Landrat* of *Kreis* Gladbach stated as a commentary in his report that, "Generally speaking, the workers employed by weaving industry are living in *Kreise* Gladbach, Grevenbroich, Erkelenz, Kempen, Bergheim and Heinsberg"¹⁴⁾, the address of business and actual location of production were often separated by *Kreis* border, and the main form of the business is likely to have been *Verlagssystem*¹⁵⁾.

As to the cotton spinning, there were 13 *Spinnereien* as shown in Table 2-A, all of which were located in *Kreis* Gladbach. When the number is compared with those in *Zustand*, we see that the latter gives 15 for *Kreis* Gladbach and 1 for *Kreis* Grevenbroich, or total of 16 spinning mills as shown in Table 2-B, which exceed the number in *Address-Buch* by 3¹⁶⁾.

As for the number of spinning machines, those 15 spinners in *Kreis* Gladbach had

-
- 11) According to Fränken, in 1833, 29 *Baumwollfabriken* at Rheydt made use of 3,600 looms (or 124 looms per *Fabrik*). In 1836, the number of *Fabriken* increased by 37, but that of looms increased by only 75 (making average number of looms 99 per *Fabrik*). In 1836, 25 *Fabriken* in three *Gemeinden* of Gladbach, Obergeburth and Oberriedergerburth made use of 1,780 looms (average of 71 looms per *Fabrik*).
- 12) One firm in Gladbach was already using power looms and it is certain that the weaving process was run as cooperative organization. Also, it is interesting that for instance, the *Fabrik* of Pet. Rath in Süchteln (Table 1-(2)-A-3) is listed as business which included *Mühlenbandfabrik*. The term *Mühle* in this case would perhaps mean a specific type of ribbon weaving loom, the one called *Riementisch* which was known for its high productivity. *Zustand* lists a *Fabrik* of Wb. Wilh. Hr. Keussen in Kaldenkirchen which employed 60 workers to operate 19 *Bandmühlen* and the ratio of 3 men to one *mühle* suggests establishment of cooperative setup of labor. *Zustand*, pp. 66-67.
- 13) A. Troost, Kaulen & Comp. at Oberriedergerburth (Table 1-(1)-A-9) for instance, ran dyeing business also and was organized as a company. For these reasons, its dyeing process was probably carried out at a concentrated workshop.
- 14) *Zustand*, p. 59.
- 15) Workshop of domestic weavers was called a *Webstube* (or *Wäevstuev* in Gladbach dialect). Joh. Noever, *Die alte Handweberei*, M. Gladbach 1950, pp. 88-89. gives account as to how it was run.
- 16) *Zustand*, pp. 58-59, 62-63.

Table 2. The list of spinning mills

A	B
Gladbach	
1 <i>Friedrichs Boelling & Comp.</i> , Baumwollspinnerei und Mühlenbes. (Assoc: J. P. Boelling, Stadtrath, Landtagsdeputirter, Notabler des Handelstandes)	14 <i>Baumwollspinnereien</i> 1151 workers 2 steam engines (7 and 11 hp.) Spindles Mule 9260 (per spindle produces 32 Pfd. yarn of No. 20 a year) Ketten 1570 (per spindle produces 48 Pfd. yarn of No. 10-16 a year) Handmaschinen 18946 (per spindle produces 40 Pfd. yarn of No. 8-14 a year)
2 <i>Gebr. Busch (Math. & Chrn.)</i> , Kommissionsgeschäft, Kattunhandel und Baumwollspinnerei (Assoc: Math Busch, Stadtrath)	
3 <i>Gebr. Croon</i> , Twisthandel und Baumwollspinnerei	
4 <i>Ant. Lambertz (Chrn's Sohn)</i> , Baumwollspinnerei	
5 <i>Ant. Lambertz (Johannes Sohn)</i> , Baumwollspinnerei	
6 <i>Jak. Lambertz</i> , Baumwollspinnerei	
Oberniedergeburch	
7 <i>Wilh. Heinr. Busch</i> , Baumwollspinnerei	1 <i>Powerlooms Spinn- und Nesselweberei</i> 230 workers 1 steam engine (12 hp.) 78 looms, 3700 spindles
8 <i>Heinr. Ant. Horn</i> , Baumwollspinnerei	
9 <i>Pet. Moerschel</i> , Gemeinderath und Baumwollspinnerei	
Unterniedergeburch	
10 <i>Wilh. Pongs</i> , Baumwollspinnerei und Baumwollenwaarenfabrik	Elsen [Kreis Grevenbroich] 1 <i>Baumwollspinnerei in two buildings</i> 234 workers, part. adults, part. children 7 Assortiments Waterwist 3 Handspinnereien
Odenkirchen	
11 <i>Wilh. Chrn. Goeters</i> , Bürgermeister, Baumwollspinnerei und Fruchthandel	
Rheydt	
12 <i>Lenssen & Beckenbach</i> , Spinnerei- und Dampfmühlenbesitzer (Assoc: Joh. Heinr. Beckenbach, Gemeinderath, Handlung in Ellenwaaren)	Note: The names in column A are selected from <i>Adress-Buch</i> , data in column B from <i>Zustand</i> .
13 <i>Lenssen-Peuchen</i> , Baumwollen- und Strickgarnfabrik, Seifensiederei und Kouleurenfärberei (Assoc: Friedr. Wilh. Lenssen, Gemeinderath)	

33,476 spindles in total¹⁷⁾ including mule, throstle and jenny¹⁸⁾. Each mill had on the average 2,232 spindles, so that 2,000 spindles could be considered as the standard scale. However, as for the average number of spindles by each type, there were 660 spindles in mule, 110 in throstle and 1,350 in jenny, which gives the ratio of 6 : 1 : 12. In

17) The table 2-B shows data on mechanization of cotton spinning industry. According to Fränken, there was one spinning mill at Rheydt in 1836, having 3,500 spindles with 160 workers. In the same year, there were ten spinning mills in *Stadt- und Landgemeinde Gladbach* with 14,578 spindles. W. Fränken, op. cit., p. 58. In total, *Kreis Gladbach* is estimated to have had in 1838 19 spinning mills with 32,233 spindles. *Mitteilung der Handelskammer zu M. Gladbach*, 1 Jg. Nr. 5., M. Gladbach 27 Juni, 1908, p. 9. The History of Chamber of Industry and Commerce Gladbach lists the names of 14 important cotton spinning mills of which 13 mills coincide with those in *Adress-Buch* as to the names of owner, location and products. Only exception is Berger & Comp. of Viersen which is not shown in *Adress-Buch*. *Adress-Buch* lists *Amandus Berger, Baumwollenwaarenfabrik u. Ellenwaarenhandel* (Table 1-(1)-A-10) as well as *Klemens Berger, Ellenwaarenhandel*. Probably, both or either one of these two enterprises were reorganized as a company between 1833 and 1836 and started to run spinning business as well, or A. Berger was already operating spinning too in 1833. In the latter case it is interesting as an example that the term *Baumwollenfabrik* could also mean *Spinnerei*.

18) So-called *Handmaschine* meant spinning jenny. Ref. H. Busch, *Zur Technik und Geschichte der Baumwoll-Handspinnerei des M. Gladbacher Bezirks (1800-1860)*, M. Gladbach, 1909, p. 3.

terms of the production output, the ratio can be translated as 4 : 1 : 10, and this shows us that the jenny yarn accounted for two-thirds of the total production output, which is an indication of the limit of mechanization within the cotton spinning of Gladbach at that time.

The data available to us do not tell whether all of the three types of spinning machines were used by any mill at fairly even proportions or not. *Zustand* mentions that a mill in Elsen had "7 assortiments water twists und 3 handspinnereien". There is no question then that the mill made use of waterpower, although we can not infer from the description whether the spinning machines used were throstle or mule.

As for the power, there is enough evidence that not only the throstle but also the mule used water power. The fact that steam engines were also in use can be seen from *Adress-Buch* in connection with Lenssen & Beckenbach at Rheydt and also in *Zustand* for three spinning mills. For reference, Table 3 gives the number of various types of driving power used by cotton and woolen spinning industry in R. B. Düsseldorf in 1834¹⁹⁾. The use of steam engines was more widely spread in the spinning as compared to the weaving. However, in comparison with woolen industry, the steam engines were much less popular for cotton industry as a matter of fact²⁰⁾. It should be noted, in this connection, that introduction of steam engines into woolen spinning does not

Table 3. Spindles and powers in the spinning industry in the *Kreisen* of R. B. Düsseldorf in 1834

Kreis	Spinning mills by power:					Number of spindles		
	Water	Steam	Horse	Man	Total	Wool	Cotton	Total
Lennepe	10	6	—	—	16	10943	—	10943
Elberfeld	2	5	—	—	7	—	12676	12676
Solingen	2	1	—	—	3	1300	2800	4100
Düsseldorf	2	—	—	—	2	440	4784	5224
Duisburg	3	2	—	8	13	2192	5192	7384
Rees	—	—	—	21	21	102	1804	1906
Geldern	—	2	1	2	5	660	2024	2684
Krefeld	—	2	2	6	10	2060	100	2160
Kempen	—	—	—	3	3	180	—	180
Gladbach	3	3	—	10	16	—	29776	29776
Grevenbroich	2	—	—	—	2	—	3410	3410
Neuß	2	—	—	—	2	1300	—	1300
Total	26	21	3	50	100	19177	62566	81743

Note: 100 mills employ 3555 workers.

Johann Georg von Viebahn (edit.), *Statistik und Topographie des Regierungs-Bezirks Düsseldorf*, Düsseldorf 1836, part 1, p. 168.

19) According to Viebahn, there were 18 spinning mills in *Kreise* Gladbach and Grevenbroich using 33,186 spindles. Five mills used water power, while three made use of steam engines.

20) In 1836, there were 71 steam engines used by woolen industry and 11 by cotton industry in Rhine-province. *Zustand*, pp. 282-286.

necessarily mean that the engines were used to operate spinning machines. In any case we can conclude that use of water power in the spinning was far more developed in comparison to the state of the weaving, and that, because of such a background, concentration of labor, i.e., cooperation, was larger in the spinning. A good example of this is the spinning mills at Elsen, which employed 234 workers and used 7 assortments for the spinning of watertwist, which means there were 33 workers per one assortment. 14 Spinning mills in *Kreis Gladbach* had the total employees of 1,151, or 82 per mill. As it is, it would be appropriate to conclude that the average scale of a water-powered spinning mill was represented by circa 70 workers with two assortment.

Now, let us examine in more detail—in conjunction with the point of our analysis to follow—the relationship between the spinning and the weaving.

① *Friedrichs Boelling & Comp.* This firm also operated at Elsen in *Kreis Grevenbroich Baumwollenwaarenfabrik an der Elsenermühle* (Table 1-(1)-A-51). Consequently, “Mühle” in *Mühlenbesitzer* is assumed to mean the one located at Elsen. We may further assume with reference to *Zustand*, that the *Mühle* was water-powered, and for this reason, *Baumwollenwaaren* meant sometimes cotton yarn as well. It is not clear, therefore, whether the Boelling’s mill at Elsen did in fact include a weaving operation. However, Boelling had, as shown in Table 1-(2)-A-7, a company in Gladbach for production of fabrics of cotton, silk, and half-silk with Croon²¹). There is no doubt that the weaving manufactures at Elsen and Gladbach received the supply of yarns from this spinning mill.

② *Gebrüder Busch* The company sold cotton prints and acted as commission merchants at the same time. It is likely that the firm was related to the weaving in certain way. Perhaps the company’s possible relationship with Karl Busch, a *Halbseiden-und Baumwollwaarenfabrikant* of Gladbach included in Table 1-(2)-A-9, is worth to be investigated.

③ *Gebrüder Croon* As we saw already, Croon manufactured, along with Boelling, silk, half-silk and cotton fabrics.

④ *Lambertz* There are three spinners having the same family name. They could be related perhaps to Joh. Pet. Lambertz, a cotton fabrics manufacturer of

21) Johann Peter Boelling, who presided for ten years Chamber of Commerce *Kreis Gladbach* as its first chairman since the foundation in 1837, was born at Elberfeld in 1773 and emigrated to M. Gladbach in 1798, where he founded *J. P. Boelling*, a cotton spinning enterprise. *Mitteilungen*, p. 27. Quirin Croon was born at Hückelhoven (Kr. Heinsberg) in 1788 (*Mitteilungen* however states he was born in 1794 at M. Gladbach). In 1816, he and his younger brother, Theodor, established *Gebr. Croon* which produced cotton and silk fabrics and was engaged in dealing in cotton yarn. In the following decade, the firm started concentrated workshop (*Geschlossener Betrieb*) and a *Fabrik* was built adjacent to their house. This probably will mark the start of spinning business. In 30’s, the firm was merged with J. P. Boelling to become Boelling & Croon, but Boelling soon retired from the partnership, and the firm returned to its previous name, Gebr. Croon. Kurt Apelt, Quirin Croon, *Rheinisch-Westfälische Wirtschaftsbiographien*, Vol. IV, Münster 1941, pp. 49, 53–54. This description, however, seems to contradict with that of *Adress-Buch* which lists all three of Friedrichs Boelling & Comp., Gebr. Croon, and Boelling & Croon. 22) Ref. note 21).

Rheydt shown in Table 1-(1)-A-42, as well as to M. Lambertz, Mai & Co., cotton and half-silk fabrics manufacturer of Oberriedergerburth in Table 1-(2)-A-17²³⁾.

⑤ *Wilh. Heinr. Busch* He was probably related to Gebr. Busch of Gladbach which was mentioned already.

⑥ *Wilh. Pongs* The business had both spinning and weaving operations.

⑦ *Wilh. Chrn. Goeters* It could be that the mill was related with Gebr. Goeters and Wilh. Goeters, two cotton fabrics manufacturers of Rheydt shown in Table 1-(1)-A-35/36.

⑧ *Lenssen & Beckenbach* Because one of the partner, J. H. Beckenbach, was engaged in trading cotton fabrics, the company is likely to have been manufacturing textiles. It is also possible that they have had relationship with Wilhelm Lenssen Friedrich's Sohn, a cotton fabrics manufacturer in Rheydt shown in Table 1-(1)-A-43.

⑨ *Lenssen=Peuchen* may also have had some ties with the Lenssen family who was engaged in the weaving.

⑩ *Berger & Co.* had also weaving process as we have already seen²⁴⁾.

III

Thus, as we have seen already, it can be said that *Verlagssystem* was the principal form of weaving industry at that time, while on the other hand, mechanization or shift to cooperation was taking place in the spinning industry. Naturally, those two processes are not necessarily connected to each other directly, and mechanization without a move to cooperation does not always promote "Kojoka", expansion of factory system. Nevertheless, there is little doubt that factory, as a new form of production, was gradually being cristalized among the cotton industry in Lower Rhine region as a whole. The problem here would be that, while the development of factory system is clearly seen, the concept of *Fabrik* seems to have been in the process of gaining recognition apparently in an irrevalent manner, insofar as the data studied are concerned. In order to clarify in what sense the generalization of *Fabrik* concept should be construed, it would be appropriate to study the use of term *Fabrik*.

Table 4 illustrates for what branch or process and to what extent the term *Fabrik* or equivalent words were used among the textile industry about four *Kreise* of Lower Rhine in *Adress-Buch*. We could point out the following facts:

① In weaving, the term *Fabrik* is used regardless of materials, while the use of *Weberei* is exceptional.

② As for the spinning, the word *Spinnerei* is used, and *Garnfabrik* is rarely used. In woolen industry, however, the term *Fabrik* is used for production of sayett which

23) According to Kermann, Anton Lambertz, Johannes Sohn is shown as *Baumwollenspinnerei u. Ellenwaarenhandlung* by another data, and this seems to confirm that the enterprise had not only spinning but also weaving operation. Joachim Kermann, *Die Manufakturen im Rheinland 1750-1833*, Bonn 1972, p. 681.

24) Ref. note 18).

Table 4. Frequency of each term for workshop in branches of textile industry

	Cotton weaving	Cotton-silk weaving	Cotton-linen weaving	Silk weaving	Line weaving	Woolen weaving	Cotton spinning	Woolen spinning	Flax twisting	Dyeing	Turkish red dyeing	Printing	Bleaching	Hosiery knitting	Hat making	Machine manufacture	Soap boiling	Glue potting	Size making	Tailoring	Line making	Umbrella making	Ribbon weaving	Total
<i>Fabrik(ant)</i>	58	22	15	7	2	8	1	2	5					5	7	3	1	1	1			1	8	147
<i>Mühle</i>						2																		2
<i>Spinnerei</i>							12	3																15
<i>Färber(ei)</i>										48	6													54
<i>Drucker(ei)</i>												16												16
<i>Bleicher(ei)</i>													14											14
<i>Mechanikus</i>																3								3
<i>Schlosser</i>																8								8
<i>Macher</i>															3	3				1				7
<i>Verfertiger</i>																2								2
<i>Sieder(ei)</i>																	7							7
<i>Seiler</i>																						3		3

Note: When a manufacturer is engaged in several branches of industry, each line is included in the figures in this table. Therefore, the figure is not necessarily coincident with that in Table I.

is connected to flannel manufacture.

④ The term *Fabrik* is used for flax twisting in lieu of the word *Zwirnerei*.

⑤ The term *Fabrik* is used to mean, in addition to weaving, semi-carded yarn spinning and flax twisting, such manufacturing activities as hat, socks, machinery, soap production and others in a quite extensive manner.

⑥ In case of bleaching, dyeing and printing, the term to express branch or process of production, denotes at the same time the space at which such operation is taking place.

⑦ The term *Mühle* is used for carpet making and oil refining industry.

An immediate conclusion which could be drawn out of the preceding points is the fact that the term *Fabrik* is no longer used to designate any specific production of a commodity, but it does mean a place or an organization of production in general abstracted from technical characteristics of the operation to be performed.

On the other hand, such terms as *Spinnerei*, *Färberei* etc. mean all of the space, process and branch of production. Therefore, those words are inseparable from actual technique used in production process which is determined by utility of the object of processing. It is true that the term *Druckerei*, for instance, is used both for textile printing but also for printing industry at large, *Bleicherei* for bleaching of textiles as well as for that of wax, *Siederei* for soap and glue alike, and *Brauerei* for beers as well as vinegar. However,

unlike in the case of *Fabrik*, those terms originate from a given specific technique, and for that reason, although one word is used in common for several different producing processes of different commodities, it simply means that those commodities share a common but a special process during their production. Therefore, the use of such terms is fairly limited. The term *Fabrik*, on the contrary, does not mean any kind of technical mutuality in production process when it is used for tobacco-industry and cotton industry at the same time. A specific product or process, which the term should have meant originally, is no longer present in the concept, while the abstract sense of a space used for industrial production is emphasized. The fact that the concept of *Fabrik* as such was then beginning to mature can now be confirmed. The question to be asked then would be by what medium the term *Fabrik* came to possess the universal meaning of a place of industrial production in general, and in the meantime, what was meant by other words such as *Manufaktur*, *Mühle*, *Werke* etc. The first clue to answer the question would be found in the fact that the term *Fabrik* was used for the weaving but not for the spinning. In other words, there exists a strange contrast in that the term was used for an industry (weaving) which in general still stayed at the stage of domestic production rather than for spinning industry which reached a more advanced stage of factory system²⁵⁾, and we must focus our attention to this paradox.

Let us study the use of the term *Fabrik* at that time in other historical documents. An encyclopedia for merchants was published in the same year as *Adress-Buch* and its strong character as a practical guidebook—rather than academic—makes it an excellent reference to know the contemporary business terms. According to *Handelsschule*:

“Fabrik, Fabrique 1) der Ort, wo Waaren überhaupt erzeugt, zugerichtet, oder verarbeitet werden, die Werkstätte. 2) gemeinhin nennt man jede Unternehmung im Großen, wo Waaren, von welcher Art sie auch sein mögen, in Menge erzeugt werden, Fabrik. 3) insbesondere versteht man unter Fabrik eine Anstalt, in welder bloß Erzeugnisse aus dem Mineralreiche, und zwar durch Feuer und Hammer verarbeitet und zubereitet werden; ein Gewerk”²⁶⁾

According to these interpretations, *Fabrik* is 1) place of production, 2) organization for production, and for the first meaning, it implies that it is a place used for industrial production in general, and a place where metals are processed, i.e. a blacksmith's shop.

On the other hand, the term *Manufaktur* is explained as:

“Manufactur—ist diejenige Anstalt, in welcher Waaren durch Handarbeiter oder durch von solchen Arbeitern getriebene Maschinen verfertigt und zubereitet werden.

25) *Adress-Buch* is considered to be the largest list of businessmen in the Western Germany in 1830's, and for this reason, terminology used in it should reflect common usage of business at that time, although there remains a little doubt if such a generalization could be justified on the basis of only one material. The terminology used in *Zustand*, however, differs not so much from that of *Adress-Buch*.

26) By Albert Franz Jöcher compiled, *Die Hanhelsschule Real-Encyklopädie der Handelswissenschaften*, Quedlinburg und Leipzig, Vol. I, 1833, pp. 135-136. To be abbreviated as *Handelsschule*.

Manufactur=Waaren, Manufactur=Erzeugnisse, Manufacturen—nennen wir überhaupt jene Waaren und Erzeugnisse, bei deren Zubereitung die Hände des Arbeiters verbunden mit dem Mechanismus der Maschine alles bewirken, wobei sich also die Stoffe ganz leidend verhalten; allgemein versteht man darunter Erzeugnisse, bei deren Verfertigung und Hervorbringung man weder Hammer noch Feuer anwendet, Handarbeiten²⁷⁾.

Therefore, *Manufaktur* has dual meanings of 1) a workshop where production depends on manual labor of workers, whether or not machines are utilized, and 2) non-metallic products²⁸⁾.

Both of *Fabrik* and *Manufaktur* have the meaning of a *place* of industrial production in common and there is no clear-cut distinction between the two. As a place of production, *Fabrik* designates however a metal-processing workshop whereas *Manufaktur* means a workshop processing non-metallic objects (in fact, textile production mainly). Anyway, it should be noted that the special form of the organization in which a number of workers work in a same space at a same time does not seem to be used as a conceptual basis. Although the word *Fabrik* is accompanied by nonconceptual, quantitative character of mass-production, even such a character is absent in the term *Manufaktur*. For this reason, one can assume that *Fabrik* and *Manufaktur* have two different origins, and that the former originated in metal industry, while the latter had its origin in textile industry²⁹⁾. This leads us to the second question, which is, why the term *Manufaktur*, which had had its origin in textile industry, was used in *Adress-Buch* only in conjunction with products and in the form of *Manufakturwaaren* exclusively, whereas the term *Fabrik*, in spite of its origin in metal industry, was used to designate a process of production. Or the question should rather be, while both terms in their origins should have been relating to a technical character of specific branches of industry, why the term *Fabrik* alone came to have a universal meaning of space and organization for production in general.

For the moment, this question seem to be answered only in a negative way. In the case of *Manufaktur*, the manual labor aspect is emphasized, and for this reason, even at a time where machines replaced skilled manual work, it would have been difficult to shift the stress away from the concrete characteristic of mechanical functions as an

27) *Ibid.*, p. 156.

28) Another description in *Handelsschule* states: "Zum Handel mit Manufactur- und Fabrikwaaren gehören alle bereitete Stoffe, die noch anderweiter Verarbeitung fähig sind, als: Tuche, Cattune, seidene und linnene Zeuge, wie solche, die schon ganz zum Gebrauch fertig sind, als: Eisen-, Stahl- und andere Metallwaaren; wie auch Strümpfe, baumwollene Mützen, Handschuhe u. dgl." *Handelsschule*, Vol. II, 1834, p. 221.

29) Refer to the explanation as to the origin of the words *Manufaktur* and *Fabrik* in J. Kermann, op. cit., pp. 78-79. He states that the term *Fabrik* (*fabrica* in Latin) originally meant blacksmith's shop, but as the word began in the end of the 18th century to mean many other workshops, *Fabrik* came to be used specifically for those establishments which up to then had been called *Manufaktur*. Kermann however does not ask why in the end of the 18th century *Manufaktur* was replaced by *Fabrik*, and the aim of the present article is to cast a little more light as to the transformation of the terminology.

extension of workers' hands in process of production. On the other hand, the fact that *Manufaktur* was also a concept of product could be construed that the aspect of utility value had predominance in its meaning. *Fabrik*, on the contrary, stressed the "use of fire" or heating arrangement, hence the weight of manual work decreased in inverse proportion, and for this reason, it was more apt to be associated with the quantitative as well as abstract sense of mass-production. This perhaps was the reason why the term came to mean, relatively easily, a large-scale business.

At this point, there occurs in our mind another question. The term *Mühle* originally had an association with apparatus used to generate power³⁰⁾, and therefore it was even more free than *Fabrik* from each characteristic related to utility value of the object of processing. Why then such a word for a general concept of workshop became less universal compared with *Fabrik*? Naturally, *Fabrik* was associated with fire while *Mühle* with water or wind, and it is not easy to determine which of the two terms was more apt to acquire the sense of workshop in general. However, *Mühle* is associated with power generation by natural means and this tends to confine and fix its location as a workshop. Perhaps for this reason, its meaning was confined to a space for production, prevented from acquiring the concept of business or organization of production. It could be that the term *Manufaktur*, because of its direct association with manual work or working machine, could not embrace a general meaning as a space for production, while *Mühle*, because of its direct association with generating apparatus, could not enlarge its notion into the concept of an organization for production in general.

As it is, we may now conclude that the term *Fabrik* was gradually gaining the twofold generality as a space and an organization for production. But a question remains: why was that the basis of generality was not found in mechanization or cooperation but referred to mass-production? Further, even though spinning industry had already reached the stage of mass-production, why the term *Fabrik* was not used for the spinning, while in the weaving, which remained very much of domestic industry, the notion of mass-production came to be questioned?

In order to answer these questions, we must, after all, take into consideration the aspect of distribution. Under the *Verlagssystem* each domestic weaver who operates in his own isolated workshop is not concerned with mass-production. The merchant, as the *Fabrikant*, collects all of the products as output in the independent weaving process, which results at last in the phenomenon of mass-production. This could only mean that the quantity of products to be sold, or increase in the scale of sales activities and the resultant increase in difficulty, is the cause for mass-production to become a phenomenon, or a problem for the *Fabrikanten*. In other words, mass-sales characterizes mass-production, and in consequence, *Fabrik* would have meant a concept of production as it was understood by *Verleger* who obviously placed their primary concern to market activity. Moreover, since the concept of production in *Fabrik* was materialized by the interest to distribution

30) In this sense *Mühle* should have had a correlation with the terminology of *Industrie*, which is explained as "der Gewerb- und Kunstfleiß, der *Kraftaufwand* zur Hervorbringung nützlicher und brauchbarer kunst- und Handelserzeugnisse." *Handelsschule*, Vol. II, p. 149.

process, the term *Fabrik* cannot remain as a word to designate only a space for production. So long as the term is applied to *Verlagssystem*, it does not imply individual workshops which are scattered, but at the same time, it does not mean any of the office, warehouse, packaging or shipping room of *Verleger*, either. *Fabrik*, as the term which includes all of these separated spaces, can no longer designate simply a space for production, inasmuch as the term also includes the functions of *Verleger's* office which clearly are those of the starting point of distributing process, rather than the final point of manufacturing process. Perhaps, this was the main reason that *Fabrik* changed its meaning from a mere space to the concept of more abstract nature of business organization. It may look paradoxical that the concept of *Fabrik* was formed out of the *Verlagssystem* in which the relationship of capital-to-labor tends to be dissimulated because each worker can be engaged at his own house. However, if we recognize that the base of *Fabrik*-concept can be found in mass-sales, then it becomes no longer a paradox.

Conversely, the fact that the term *Fabrik* was not applied to the spinning industry in which mass-production was placed at far more advanced stage of rationalization due to mechanization and cooperation bears witness to the selfconsciousness of those manufacturers in the spinning industry themselves, who did not realize their enterprise as *Fabrik*. In that sense, the spinning was not a mass-producing industry, which could also be rephrased that it did not know "mass-sales". Consequently, we must clarify in which sense the spinning was unaware of mass-sales. This makes it necessary for us to investigate once again the difference in the market structures between the spinning and the weaving industry.

IV

Thus, our interest is now directed at market, and it reminds us immediately the fact that a great many merchants were engaged at that time in trade of cotton fabrics³¹⁾. The fact that accumulation of capital was steadily in progress in this sector of commerce also can be demonstrated by a large number of companies as shown in Table 5³²⁾.

Where then was the principal market of cotton fabrics produced in Lower Rhine?

31) The term *Ellenwaarenhandlung* which often appears in *Adress-Buch* may be interpreted, at least for the most of them in the four *Kreise* concerned, as trading in cotton textiles. However, we must bear in mind that the term *Ellenwaaren* could also mean cotton yarn. "Ellen- oder Schnittwaaren- Handlungen. Solche zerfallen wieder in mehre Abtheilungen, als: a) Tuch- und Wollwaaren- Handlung, ...b) Baumwollenwaaren- Handlung, wo nur Cattune, Gingham, Piqué u.s.w., *baumwollene Garne* u. dergl.; c) Seidenwaaren- Handlungen, ... d) Schnitt- Handlungen in denen die obigen Artikel theils alle, theils mehr oder weniger derselben, sowie halbseidene und halbwoollene und halbbaumwollene Waaren, Bänder, Tücher, *Garne*, Zwirne, Schnüre, Nähseide u. dgl. verkauft werden" *Ibid.*, Vol. II, p. 219.

32) The only clue to decide if an enterprise was organized as a company is its name (*Firma*). "Der Name der Handelsgesellschaft oder die Firma enthält entweder die Vor- und Zunamen aller Mitglieder, oder, wie es mehrentheils der Fall ist, nur einen oder zwei Namen, und die übrigen unter der Benennung: "und Compagnie" oder "und Consorten" *Ibid.*, Vol. I, p. 36.

Table 5. The number of companies by firm name

	Cotton weaving	Cotton-silk weaving	Cotton-linen weaving	Silk weaving	Woolen weaving	Cotton spinning	Woolen spinning	Flax twisting	Dyeing	Tailoring	Machine manufacture	Fabrics dealing	Fabrics retailing	Yarn dealing	Materials dealing	Coal dealing	Transportation	Total
A & B	9	4	3	3	1	2	1	1	3			3			1			31
A & Comp.	1	1	1			1						1					1	6
A, B & Comp.	1	1																2
A & Sohn(e)	4						1					1		1				7
A Söhne	1																	1
A Erben		1		1				1		1		1	1			1		7
Gebr. A	2	1	2			2			2			1					1	11
a & b A	2																	2
A	1										1							2
Total	21	8	6	4	1	5	2	2	5	1	1	7	1	1	1	1	2	69

Note: A & B, f.e. Braß & Hardegen
A & Comp., f.e. Dilthey & Comp.
A, B & Comp., f.e. A. Troost, Kaulen & Comp.
A & Sohn(e), f.e. Math. Furmanns & Söhne, Joh. Pferdemenes & Sohn
A Söhne, f.e. Joh. Heinr. Peltzer Söhne
A Erben, f.e. Witwe J. J. Platzhoffs Erben
Gebr. A, f.e. Gebr. Goeters
a & b A, f.e. Gust. & Ludw. Cramer
A, f.e. Dietr. Uhlhorn

The author once studied this problem³³⁾, but to recapitulate the conclusions, the domestic market was constituted mainly by sales of trousering and other materials for working cloths in the mining and manufacturing areas on the right bank of Rhine, while approximately a quarter of the total output was exported into the Netherlands and Belgium³⁴⁾. It would be necessary for us to remember in this connection that generally speaking, export of the German (cotton) fabrics already exceeded the import at the time when the *Zollverein* came into existence, that forms a striking contrast to the cotton yarn as shown in Table 6. It is certain that the cotton weaving in Lower Rhine

33) Hisashi Watanabe "An Analysis of the Annual Reports of the Chamber of Commerce of M. Gladbach (1838-1861)—From where did "the Manchester of the Rhine" obtain what and where did it sell what? —", *Tochiseidoshigaku (The Journal of Agrarian History)* Vol. XII, No. 3, April 1970.

34) *Ibid.*, p. 45. As for the Netherlands market, "Gladbach used to supply, 15 years ago (1833), 10,000 to 12,000 Ctr. cotton products per year". *Jahresbericht d. H. K. Kr. Gladbach pro. 1848*. According to *Zustand*, output of *Kreis* Gladbach for half-cotton and cotton textiles in 1836 was 18,000 Ctr. (*Zustand*, p. 59), which seems to suggest that the figures quoted by the Chamber of Commerce is a little exaggerated. There is little question, however, that the Netherlands market was of vital importance to the cotton industry of Gladbach.

Table 6. Production and trade of cotton yarn & fabrics of the Zollverein in the 1830's
(unit : centner=50 kg.)

Cotton yarn					
	Production	Import	Export	Internal consumption	Ratio of dependence on import
	I	II	III	IV = I + II - III	V = (II - III)/IV
1834	89786	265169	49696	305259	70.6%
35	74042	258579	37382	295239	74.9
36	125402	325969	36849	414522	69.7
37	168218	338216	42233	464201	63.8
38	148087	381041	43912	485216	69.5
39	112317	378764	56528	434553	74.2
40	209832	437473	45066	552239	71.1

Cotton fabrics					
	Production	Import	Export	Internal consumption	Ratio of export
	VI	VII	VIII	IX = VI + VII - VIII	X = (VIII - VII)/VI
1834	228944	13930	77114	165760	27.6%
35	221429	14156	83585	152000	31.4
36	310892	14050	86750	238192	23.4
37	348151	15395	77359	286187	17.8
38	363912	17048	90535	290425	20.2
39	325915	16558	103668	238805	26.7
40	414179	17844	97768	334255	19.3

Note: *Reichsenquete für die Baumwollen und Leinen=Industrie*, Berlin 1878, 2 Statistische Ermittlungen, Fascicle 1, pp. 72-75, 77.

was also beginning to present characteristics of export industry.

On the contrary, we can reasonably assume that outlet for the spinning was entirely limited to the local weaving because of the fact that the spinning operated weaving quite often or maintained personal relationship with fabrics manufacturers. *Zustand* quotes a statement of the *Landrath* of Gladbach to the effect that "these spinning mills (of Gladbach), along with that of Grevenbroich which works only for our *Kreis*, supplies ca. 10,000 Ctr. yarn, which meets over one-half of the demand from the weaving"³⁵⁾, which bears witness to the fact that the output of the spinning of Gladbach was consumed by the local weaving. Thus, two branches of cotton industry were closely connected locally, and to that extent, the spinning had to remain a preparatory process for the local weaving. In England, spinning managed to become an export industry along with the weaving, but this was not the case with the spinning in Germany. While the weaving found it necessary to exert constant effort to develop overseas market, there were no such needs for the spinning because of its dependence on the local market. We cannot deny the fact that the primary concern of the cotton spinners of Lower Rhine

35) *Zustand*, p. 61.

in the first half of the 19th century was how to take back the home market from their English competitors. However, we should realize that for the cotton spinning of Lower Rhine, competition with English cotton yarn in the domestic market was no more than a provisionality to achieve their eventual supremacy at home, but competition in foreign market was a structural matter for the weaving industry. Therefore, even if we can admit that factory system was most developed in the cotton spinning compared with others their very structure of the market made it perhaps difficult to make the term *Fabrik* acceptable.

We have been able to confirm that the concept of *Fabrik* reflects the market structures of cotton industry by example of Lower Rhine. The tradition or the dependence of the terminology *Fabrik* on the market structure continued for a long time in Germany. It was only in the latter half of the 19th century that the term began to be used as a term of reference for production process³⁶⁾. However, this should not be used as an argument to conclude that the term, which was frequently used already in the third decade of the 19th century in connection with quite a few industries, could not be construed as an evidence that factory system was well established at that time.

Rather, we should perhaps bear in mind the point that the concept of a space and organization of production in general, as expressed by the word *Fabrik*, was gradually being established on the basis of a new market structure, and further that the terminology expresses, quite eloquently, the fact that the destiny of national economy of Germany to have to export was already present in the mind of contemporaries of Rhineland at that time. Couldn't it be called a herald of the new industrial age to come also in Germany?

36) In the Industry Statistics of the *Zollverein* of 1846, *Fabrik* is defined as "*Gewerbeanlage* for the purpose of mass-sales rather than *Handwerk* to meet local demands" and "includes those enterprise which are not on a small scale, even though individual workers are not concentrated to a large workshop but are distributed, in which they work under a *Factor* or a *Fabrikverleger* from whom they receive materials and to whom they deliver the products". Also in the Statistics of 1861, *Fabrik* was exclusively used as *Gewerbeanstalt* producing for mass-sales, and the Statistics for 1875 still classified enterprises only in terms of the number of employees between five (or less) and six (or more). The questionnaire to those who employed 6 or more, however, states "how many people are employed *within your workshop, factory, ...*" which therefore excluded such *Verleger* who did not employ 6 or more personnel within their workshop from the category of large business. The fact that the criterion of large business was employment of 6 or more, however, means that the cooperative factor had not yet priority. *Die Ergebnisse der Gewerbezahlung vom 1. Dez. 1875 im Deutschen Reiche. Einleitung und erste Abtheilung der Uebersicht*, p. (63), (65), (75), (93), *Statistik des Deutschen Reichs*, Vol. 34, Part I. Berlin 1879.