

APPENDIX.

STATISTICS OF IRON AND COTTON 1830-1860.

THE PRODUCTION AND IMPORTS OF IRON IN THE UNITED STATES.

[Figures indicate gross tons.—000 omitted.]

Year.	Production.	Total Imports.	Imports of			
			Pig Iron.	Hammered Bar.	Rolled Bar.	Railroad Iron.
1830	165	48	1	31	7	
1831	191	55	7	23	15	
1832	200	84	10	38	21	
1833	218	89	9	36	28	
1834	236	87	11	32	29	
1835	254	87	12	31	28	
1836	272	108	8	33	47	
1837	290	113	14	31	48	
1838	308	84	12	21	36	
1839	326	131	12	36	60	
1840	347	83	6	29	33	29
1841	290	128	12	30	63	23
1842	230	120	19	19	62	25
1843	312	32*	4	6	16†	10
1844	394	177	15	12	40	16
1845	486	80	27	18	24	22
1846	765	81	24	21	24	6
1847	800	97	28	15	40	13
1848	800	179	52	20	82	29
1849	650	336	106	11	173	69
1850	563	408	75	15	248	142
1851	413	410 ‡	67	20	254	189
1852	540	502	92	44	291	246
1853	723	619	114	18	387	299
1854	662	589	160	14	329	283
1855	700	404	99		117	127
1856	788	399	59		108	155
1857	712	385	52		87	179
1858	629	219	42		65	76
1859	750	279	72		95	70
1860	821	395	110		106	122

*The fiscal year 1843 contained but nine months,—from October 1, 1842, to July 1, 1843.

†Grosvenor says this is "evidently a misprint." It is the figure given in the Treasury Report for 1843.

‡Increase chiefly in railroad iron, but also in pig iron.

The figures of the production of iron are those given by R. W. Raymond in the appendix to A. S. Hewitt's pamphlet, *A Century of Mining and Metallurgy in the United States*. But through almost the whole of the period under consideration the statistics are hopelessly uncertain. Mr. Raymond seems to have followed in part the figures of Henry C. Carey, whose statements on any subject connected with the tariff need careful watching. Carey (*Harmony of Interests*, pp. 11, 12) gives the same figures as Mr. Raymond for the years 1830-32, and for the subsequent years of that decade hints at a general development similar to that figured out by Mr. Raymond. See, among other places, his *Review of the Report of D. A. Wells* (1869), p. 9. All figures for the decade are nothing more than guesses, though they probably serve to show roughly what was the actual movement of production. The most discordant statements are made in regard to the decade 1840-50. We present in parallel columns the figures given by Raymond, by Carey (*Harmony of Interests*, as cited above), by Taylor (*Statistics of Coal*, Philadelphia, 1855, p. 46), and by Grosvenor (*Does Protection protect?* pp. 214-216). J. M. Swank (*American Iron and Steel Association Report*, 1876, p. 163) repeats Carey's and Raymond's figures, except in giving 215,000 tons as the production of 1842.

STATEMENTS OF THE PRODUCTION OF IRON, 1840-50.

[Gross tons.—000 omitted.]

Year.	Raymond.	Carey.	Taylor.	Grosvenor.
1840	347	315	287	347
1841	290			360
1842	230	230		376
1843	312			386
1844	394	380	486	427
1845	486	500	502	486
1846	765	765		551
1847	800	800	600	
1848	800	800		620
1849	650	650	650	
1850	565		400	

The figure 565,000 for 1850 is that of the census: it probably rests on guesswork as much as any of the other figures. Mr. Grosvenor's figures rest on a critical examination of Carey's statements, on ingenious use of contemporary data, and on the census figure of 1850. Carey wrote with a strong bias towards exaggerating the product, and Mr. Grosvenor, probably, with a bias the other way. One point seems clear: there could not have been an increase during the five

years between 1842 and 1847 from 230,000 to 800,000 tons, such as is indicated by Carey's figures, which Mr. Raymond follows. The total production of anthracite iron in 1847 was not 120,000 tons. Deducting this from the supposed total of 800,000, we have 680,000 as the production of charcoal iron in 1847 as against 230,000 (chiefly charcoal) in 1842. Considering the small scale on which charcoal iron was made, and the difficulty of increasing rapidly the supply of fuel, it is not possible that the product should have been tripled in five years. Either the figure for 1842 is too low or that for 1847 is too high. After 1850, the facts are clearer, though the figures are still far from exact. Beginning with 1854, we have the figures of the Iron and Steel Association, which are doubtless more or less in the nature of estimates for the earlier years, yet do not rest so much on guesswork as the figures for 1840-50. The following table gives statements for the years 1850-60. The first column gives Raymond's figures, the second those of the Iron and Steel Association, and the third those of Lesley's *Iron Manufacturers' Guide* (Philadelphia, 1859), p. 750:—

STATEMENTS OF THE PRODUCTION OF IRON, 1850-60.

[000 omitted.]

Year.	Raymond. Gross tons.	Iron and Steel Asso. Net tons.	Lesley. Gross tons ?
1850	563	563	
1851	413		
1852	540	500	
1853	723		
1854	662	736	725
1855	700	784	729
1856	788	883	813
1857	712	798	
1858	629	705	
1859	750	840	
1860	821	919	

If Raymond's figures are reduced to net tons, they will be found to agree fairly well, after 1854, with those of the Iron and Steel Association figures. The frequent omission to state whether the gross ton of 2,240 pounds or the net ton of 2,000 pounds is meant makes the figures uncertain. The gross ton was generally meant in former years; and Lesley's figures probably indicate gross tons, though this is not expressly stated.

The statements of imports have been taken, up to 1847, from the tables in Grosvenor's *Does Protection protect?* pp. 198, 221. For the years from 1847 to 1860, they have been compiled independently from

the Treasury Reports. Until 1854 (inclusive), the Treasury Reports divide bar iron into "rolled" and "hammered," giving separately the imports of each kind. Railroad iron, during this period, is included in the rolled bar. After 1854, however, bar iron includes both hammered and rolled bar, but does not include railroad iron, which is separately classed. In our table, therefore, the figures in column six for railroad iron state, up to 1854, a part of the previous figures in column five for rolled bar, while they indicate after 1854 an additional import.

The figures in column two profess to give the total imports in terms of pig iron. This has been done by assuming that it took $1\frac{1}{4}$ tons of pig iron to make a ton of rolled or hammered bar, or of railroad iron, and by adding this assumed equivalent of pig iron to the imports of pig. This conversion into pig rests on the authority of Lesley, who states (*Iron Manufacturers' Guide*, p. 761) that $1\frac{1}{4}$ tons of pig are consumed in making one ton of bar, and of French, who says (*History of the Iron Manufacture*, p. 156) that from $1\frac{1}{4}$ to $1\frac{1}{2}$ tons of pig are used in making one ton of iron rails. It should be mentioned that Swank, in the *Iron and Steel Association Report* for 1875, states that, on the average of sixteen years, but 1 1-20 tons of pig were consumed in making one ton of finished bar; but Lesley's and French's statements refer more particularly to the period here considered. No account has been taken of the imports of the various forms of manufactured iron,—anchors, anvils, tools, and machinery. The duties being usually ad valorem, the customs reports state mainly values, and not weights. The import in these forms has always been large; and if it were considered, as of course it should be, the proportion in which imported iron supplied the consumption of the country would appear still larger than the table indicates.

The tables on page 384 give the consumption of cotton as stated in three sources. The first figures, both for the United States and for Great Britain, were compiled by Mr. B. F. Nourse in 1868, for the National Association of Cotton Manufacturers and Planters. They are printed in the *Proceedings* of the convention for organizing that association (Boston, 1868), and are also printed in the *Reports of the United States Commissioners to the Paris Exposition of 1867*, vol. vi., *Report on Cotton*, pp. 30-34, 76-80. The column headed "Hunt" gives the figures for the United States, which are printed in *Hunt's Merchant's Magazine*, vol. xlv. p. 11. The columns headed "Bureau of Statistics" give the figures printed in the

Quarterly Report of the Bureau of Statistics, No. 3, 1885-86, p. 601, which are stated to have been compiled from Ellison's *Annual Reviews* of the cotton trade. Nourse's and Hunt's figures have been reduced to bales of 400 pounds. The Bureau of Statistics figures state simply the bales, without indicating their weight. The average weight of the cotton bale increased steadily throughout these years. It rose, for the cotton used in the United States, from about 340 pounds in 1830 to over 450 in 1860; while that used in Great Britain rose from about 300 pounds in 1830 to over 420 in 1860. Allowance must be made for this change in comparing the figures of the Bureau of Statistics with those from the other sources.

The figures of Nourse, which rest mainly on the annual statements in the New York *Shipping List*, are, doubtless, the most trustworthy. They agree exactly, for the years 1830-47, with those given by Ellison in the table at the end of his excellent *Handbook of the Cotton Trade* (London, 1858). For the years 1847-57 there is some discrepancy between the figures of the *Handbook* and those of Nourse, but it is not great. Nourse's figures for the United States, as reproduced, give for the years 1830-47 (inclusive) the total consumption in the United States, and for the years 1847-60 the consumption in the North only. Nourse makes no attempt at such a discrimination until 1848, when he begins to state separately the consumption in the South; *i.e.*, "south of the Potomac and west of Virginia." This Southern consumption, which has not been included in our table, is stated to have varied from a minimum of 92,000 bales in 1848 to a maximum of 185,000 bales in 1860. "The entire spinning *capacity* of the machinery in the South before the war was never equal to the consumption of 90,000 bales," says Nourse. The Southern consumption was largely for miscellaneous non-textile purposes. It has seemed best, on the whole, not to include it in the tabular statement.

The statistics do not agree as to details, and none can pretend to close accuracy; but they indicate clearly the steady and rapid growth of the cotton manufacture, both in the United States and in Great Britain. Some points of detail may be noted. All the figures indicate a great decrease in British consumption and an increase in the American consumption in 1847, the year after the passage of the act of 1846; while there is a sharp increase in Great Britain, with a decrease in the United States, in 1851. These fluctuations confirm the conclusion that the advance of the cotton manufacture in the United States was little affected by changes in duties, but depended mainly on the general state of business activity.

CONSUMPTION OF COTTON

IN THE UNITED STATES
as stated byIN GREAT BRITAIN
as stated by

Year ending Sept. 1.	Nourse, in bales of 400 lbs.	Hunt, in bales of 400 lbs.	Bureau of Statistics, in bales of unspecified weight.	Nourse, in bales of 400 lbs.	Bureau of Statistics, in bales of unspecified Weight.
1830	107.5			619.0	
1831	154.8			656.7	
1832	156.4			692.2	
1833	170.1			717.5	
1834	177.2			758.5	
1835	198.8			795.2	
1836	220.7			868.5	
1837	211.0	210.0		914.2	
1838	234.0	230.0		1,041.7	
1839	265.0	257.5		864.2	
1840	289.2	277.5		1,147.2	
1841	292.8	287.5		1,095.2	
1842	265.8	262.5		1,087.7	
1843	332.3	327.5	326	1,294.5	1,372
1844	357.1	357.5	417	1,360.0	1,364
1845	398.6	385.0	471	1,516.5	1,622
1846	445.2	437.5	491	1,535.7	1,561
1847	461.1	437.5	512	1,103.5	1,200
1848	545.0	522.5	609	1,441.5	1,315
1849	549.3	512.5	598	1,574.7	1,537
1850	510.8	470.0	570	1,470.5	1,538
1851	403.8	395.0	467	1,647.2	1,667
1852	629.5	592.5	684	1,849.0	1,877
1853	695.9	662.5	782	1,902.2	1,878
1854	636.7	607.5	716	1,940.2	1,874
1855	619.7	590.0	681	2,097.7	2,130
1856	664.6	662.5	770	2,253.3	2,170
1857	738.9	800.0	819	2,665.0	2,247
1858	499.7	595.0	595	2,264.0	1,981
1859	849.5		927	2,441.5	2,179
1860	913.3		972	2,709.0	2,560

The exports of manufactures of cotton from the United States during the period here considered were as follows:—

EXPORTS OF MANUFACTURES OF COTTON FROM THE UNITED STATES.

[000 omitted.]

Average of 1826-30.....	\$1,180.00	Year 1850.....	\$4,734.00
“ “ 1831-35.....	1,706.00	“ 1851.....	7,241.00
“ “ 1836-40.....	3,070.00	“ 1852.....	7,672.00
Year 1841.....	3,123.00	“ 1853.....	8,769.00
“ 1842.....	2,971.00	“ 1854.....	5,535.00
“ 1843.....	3,223.00	“ 1855.....	5,875.00
“ 1844.....	2,899.00	“ 1856.....	6,976.00
“ 1845.....	4,328.00	“ 1857.....	6,115.00
“ 1846.....	3,545.00	“ 1858.....	5,652.00
“ 1847.....	4,082.00	“ 1859.....	8,316.00
“ 1848.....	5,718.00	“ 1860.....	10,935.00
“ 1849.....	4,933.00		