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PART I.

A

COLLECTION

OF

*Facts, evincing the benefactions of the arts and manufactures to agriculture, commerce, navigation and the fisheries, and their subserviency to the public defence, with an indication of certain existing modes of conducting them, peculiarly important to the United States, in a communication to Mr. Gallatin.*

PHILADELPHIA, DECEMBER 8, 1812.

SIR,

I have already had the honor to acknowledge the receipt of your letter of the 26th day of June last, committing to me the preparation of a statement of the arts and manufactures of the United States, in pursuance of the joint resolution of the Senate and House of Representatives, approved by the President, on the 19th day of March, 1812.

The resolution of Congress is formed with a view so comprehensive, as to include all pertinent information of an authentic character, while it allows the most convenient latitude, as to the form and manner; requiring only, that the statement shall so exhibit the matter, as to be most conducive to the interests of the United States. As the tables, which will comprise the whole mass of the returns of the marshals, will exhibit many genuine parts of the entire body of our manufactures, as they existed in the year 1810, it appeared expedient, that they should be preceded by certain fundamental and relative facts, which may contribute more fully to display the objects of investigation, in their bases, commencement, progress and actual situation, and to facilitate public and private measures in this branch of the national industry, and in the other branches, to which manufactures have a great and permanent relation.

As some of the facts are of a nature favorable to *the landed interest*; as some of them are beneficial to *foreign commerce*, and as some of them are advantageous to *the business of the fisheries*, it was deemed most convenient, in this part of the exposition, to class them under those three several heads and relations. It has also appeared proper, separately and distinctly to present, in this first part, another class of facts, which shew the connexion of manufactures with *the public defence*.

It is considered as a very interesting and fundamental truth, that *manufactures facilitate the first struggles of the American settlers, for decent comforts, thrifty profits and farming establishments*. For the purpose of effectually testing the correctness of this allegation, two measures have been adopted. The first of these measures is an examination into the state of manufactures, in four several sparsely settled districts of our country, which in 1810, had been recently laid out, according to the nature of the places, for future establishments as counties. The inconsiderable population, within these four intended counties, exhibits the infantine condition of their respective settlements in that year.

*A note of the persons of both sexes, within four of the districts of Pennsylvania, intended to be organized as counties, when sufficiently populated; and of the stock of animals, producing materials for manufactures, with the implements, &c. for the operations of manufactures, and the goods made in 1810, so far as they are returned by the marshals' assistants.*

In the Northwestern quarter of the state.	M'Kean county.	Jefferson county.	Clearfield county.	Warren county.
Men, women and children, . . . . .	142	161	875	827
Common sheep, . . . . .	7	164	590	495
Neat cattle, . . . . .	123	130	641	963
Looms, . . . . .	1	7	28	28
Spinning wheels, . . . . .	10	24	180	141
Hand cards, pairs, . . . . .	14	20	91	94
Woollen cloth, yards, . . . . .	52	200	.	160
Flaxen cloth, Do. . . . .	125	1,318	4,300	6,549
Cotton cloth, Do. . . . .	54	.	1,306	578
Mixed cloth and hempen, Do. . . . .	.	.	3,461	1,811

In these new and widely scattered settlements, where foreign consumers have no agents *the presence* of flax and of sheep and cattle, supplying wool, hides, skins, horns, and tallow, with other materials for manufactures; that is to say, *the presence of the raw materials* occasions the corresponding manufactures. In such places, profit, comfort and necessity appear to invite, or rather to compel the farmers and their families to that mode of industry. The returns of the assistant officers, necessarily every where defective in this first experiment, must be extremely imperfect in settlements so widely separated. Carriage makers, blacksmiths, hatters, shoemakers, tailors, domestic makers of garments and other manufacturers, known to exist among recent improvers, and in old establishments, are omitted, or did not appear to the officers. Boards, pot-ashes and maple-sugar are also omitted by the marshal or his assistants. It is observed, that the surplus industry of these new settlements is applied to the manufacture of cotton, from the Atlantic, Ohio, and Mississippi.\*

The second measure of examination to ascertain, that *manufactures commence with our first settlements, and aid their progress in its earliest stages*, relates to the interior state of *Ohio*, the youngest member of the union, in 1810. It will be remembered that a number of the revolutionary officers and soldiers commenced the settlement of that state, originally a part of the *north-western territory*, soon after the peace of 1783; that the French settlement at Sciota was made a few years later, and that these were followed by the settlements of emigrants from various states, and particularly of a great number, who improved the tract on lake Erie granted to Connecticut. The settlements in the state of *Ohio* were very much retarded and confined by the destruction of the western posts, and by the Indians, until the victory of the Miami, achieved by general Wayne, in the year 1794. Within the fourteen years, which preceded the taking of these accounts of manufactures in the autumn of 1810, the settlements in the state of *Ohio* were principally commenced. Its whole population, according to the census of that year, was 230,760 persons, whose comfortable condition and prosperous agriculture were occasioned, maintained and manifested by a number of manufactures, of which, and of the connected instruments and machinery for which, the following is the imperfect, official summary.

\*Cotton was transported from Pittsburgh even to Massachusetts, in the spring of 1814.

The whole number of looms in the state, actually returned, is 10,856	
1,943,433 yards of linen, woollen and cotton goods, worth, . . . . .	\$ 999,538
217 tanneries, making leather, worth, . . . . .	153,581
1,212,266 gallons of distilled spirits, and 35,140 gallons of beer, . . . . .	584,892
Cut nails, . . . . .	64,723
Iron made: machines for carding wool and spinning: cotton, fulling, paper, } gun powder and oil mills, . . . . . }	159,636
3,023,806 pounds of maple-sugar (which may be deemed questionable as to } its classification as a manufacture,)* . . . . . }	302,380
	\$ 2,264,760,

Considerable as this amount is, the important fact will not escape notice, that shoes, boots, saddles, bridles, harness, fur and wool hats, common smiths work, knit stockings, the making of garments in shops and families, manufactures of wool, soap, candles, potash, wares of metal (except iron) watches and clocks, and various other things actually made, are omitted. To subject the raw materials of *the state of Ohio*, wrought into these manufactures, to the expences of transportation to the Atlantic ports of Canada, or of the United States, and to import such substantial, large and heavy supplies, from the usual ports of Europe and Asia, and to transport them into those interior settlements, would discourage or deter all new migrators towards that young state, and involve its present population in much distress, if not in ruin. The domestic manufacture of cotton appears in the accounts of *Ohio*, which does not produce that raw material.

In further evidence of the favorable effects of manufactures upon our *interior* settlements, those of the county of Washington, on the western boundary of Pennsylvania, may be correctly adduced. Its whole population in 1810, was 36,289 persons. Its sheep, *more numerous than those returned by any other county in the state*, were 47,206. Its spinning wheels, 8,763. Its looms, much the greater part of which are supposed to be worked by *mule weavers regularly in the trade*, 1774. Its hand-cards, 4,115 pairs. Its carding machines 6. Fulling mills, 12 Distilleries, 301. Blacksmiths' shops, 146 Hatters, 20. Saddlers, 19. Shoes and boots, 37,000 pairs. Coopers, 62. The yards of goods made, 530,773. Bricks, 913,000. These, with the goods made in the oil mills, saw mills, powder mills, tanneries and other manufactories and works, exhibit a value exclusively of flour, of 1,630,000 dollars. As the boroughs, towns and villages of Washington, in Pennsylvania, do not contain more than a twentieth of its population, the benefits of manufactures, *where conveniently or closely adjacent to agriculture and the landed interest*, are clearly displayed. Tracing this case to a national result, it will be found, that the whole population of the United States in 1810, combining agriculture, the productions of nature and manufactures, with the same success, would have exhibited an aggregate value of manufactured goods, nearly amounting to \$325,000,000†. The quantity of meal manufactured in the county of Washington is greater than that of any other county of Pennsylvania. Its number of horses is greater than that of any other, one excepted. Its number of neat cattle is greater than that of any other county, except four. It has not one open or worked mine of any metal, nor a furnace, nor a forge, on the return of the marshal.

Pursuing the current of facts from this western scene to the adjacent banks of the Susquehanna and Schuylkill, it is found that the counties of Lancaster and Berks with a joint population of 97,073 persons, manufactured an aggregate value, including flour, of 5,055,000 dollars. Twelve other counties of the same state, from the head of the Ohio river to the banks and county of Delaware, respectively exhibit similar manufactures, exceeding, on a medium one million of dollars in each. The manufactures of the very limited but swarming county of Philadelphia, exclusively of the incorporated or city part of the entire town, and deducting all the flour and meal, amount to \$6,070,652. The manufactures of the city of Philadelphia (within the strict charter limits of less than two square miles, not including any of the suburbs or liberties) containing on about eleven hundred acres of land, 53,722 persons, amount to 9,347,767 dollars. The manufac-

\*The township of Aurora, in Ohio, is stated to have made 17 tons of maple-sugar in the spring of 1814. It contains about 15,600 Acres.

†Pinkerton, in one edition, states the total value of manufactures of England, at 63,200,000 pounds sterling, about 280 millions of dollars. In another edition, he states them at 67,200,000 pounds sterling. They exclude some things, which the United States include.

tures of Pennsylvania, on twenty millions of acres of her settled lands, including her flour and meal,\* and other doubtful articles, appear by the return of the marshal to amount to 44,292,093 dollars.† This return is considered, by that officer and his most intelligent assistants to be materially defective. It has been selected however for the preceding exhibition, because in combination with *the return of Ohio*, it displays the state of manufactures, through an extent of country exceeding 50,000,000 acres, commencing (at the distance of 530 miles west of Philadelphia) where its very recent settlements are interspersed with Indian cabins, and terminating in the southeast, with a great emporium of manufactures, navigation, domestic trade and foreign commerce. A vast redundancy of land exists in this middle district of the United States, for the total population of Ohio and Pennsylvania, in 1810, was 1,048,808 persons, upon one fifth of their joint soil. But this redundance of land is accompanied by abundance of mill seats, of fossil and wood fuel, of mineral and calcareous substances, of bark, dye woods, sugar trees, clay, marble, building timber, and other natural raw materials, ingredients and necessaries for manufactures. This redundance of land also furnishes, upon the cheapest terms, all that belongs to the sites for the establishments of the operators, and for the farms of the growers of the raw materials. Hence we find the sheep of Pennsylvania nearly, 619,000. Her neat cattle more than, 612,000. Her horses, 255,645. Her flour and meal and grain liquors, worth more than 15,000,000 dollars. Her manufactures of iron and leather nearly 4,000,000, in their joint amount. These facts, from the most considerable return, are respectfully adduced and rendered prominent, in order to evidence, by the relative truths, the actual and substantial benefits of manufactures, *adjacent to agriculture*, even in our half populated districts.

The state of Vermont, though its struggling settlements were commenced under numerous disadvantages, but a few years before the revolution, presents a body of manufactures, almost exclusively from its own productions, of 4,325,824 dollars, effected by a population on farms, in hamlets and in villages, of no more than 217,805 persons. Its spinning wheels, more than one half of which are for wool, and the most numerous in proportion to population on the return, are 67,756. Its looms, 14,801. Its carding machines, 139. Its woollen goods, 1,207,976 yards. Its flaxen goods, 1,859,931 yards. Its wool and mixed hats, 96,760. Its shoes and boots, 304,280 pairs. Its maple-sugar 1,200,000 pounds. Its saddlery is valued at 127,840 dollars. Its tanneries, at 386,500 dollars. Its iron founderies, tilt hammers and forges, are 104. Its oil mills, 26. Its paper mills, 11. Its fulling mills, 166, and its naileries 67. The goods made in its smiths' shops, printing offices and potash works and by its book binders, brushmakers, carriagemakers, tallow chandlers and soap boilers, coopers, clock and watchmakers, copper smiths, tin plate workers, silver smiths and other existing manufacturers, are omitted in the return. These homemade commodities are certainly very considerable in value.

The state of Kentucky, a recent establishment, much later than Vermont, and yet-redundant in vacant soil, exhibits on her return 4,120 683 dollars; and Maine, with nearly as much land as the rest of the eastern states and innumerable seaports, drawn of course from manufactures by agriculture and by commerce, navigation and the fisheries, returns homemade goods to the value of 2,157,781 dollars. In the reports from each of these states, numerous existing branches are entirely unnoticed. Similar omissions, great and evident, appear in many instances. But a very impressive fact, evincing the great and natural connexion, between the planting and farming citizens, and the manufacturing branch of the national industry, is the possession and employment of about 122,719 looms by Virginia, North Carolina, Kentucky and Tennessee, *which differ little from six sixteenths of the whole number of looms in the United States.* It appears, that even in the south, *the presence of the various raw materials, and still more, the great redundancy of cotton have excited innumerable and valuable manufactures.* It is believed, that it is to the excitement, produced by the presence of the finest marbles, more than to a peculiar eminence of genius, that the Greeks and Romans owe their possession of the beautiful and the grand fabrications from those materials.

\*The flour and meal are worth, by the marshals' report 10,800,290 dollars. † The unsettled lands of Pennsylvania are supposed to amount to nearly 8,000,000 of acres.

†It may be affirmed in the year 1814, that the value of the productions of the United States, which have composed the exports of goods not foreign, in any one year have not been more than 44,243,000 after deducting the additional value given to them by manufactures.

The invention of statuary occurred in Egypt, but it did not rise to any perfection, in a country destitute of fine marble.\*

It is a fact of great importance, in this statement, and on the subject of the relation of manufactures to the landed interest, that none of the productions of the earth, whether of *natural growth* or *the fruits of cultivation*, in the middle, northern and eastern states, which can be considered as "raw materials," are now exported in an *unmanufactured* condition to foreign markets. The manufacturers may be said to purchase and employ a quantity equal to the whole, for if small parcels of raw materials have been lately exported, much greater quantities of similar foreign articles have been introduced from abroad. The landed interest has no actual foreign purchasers for its wool, flax, hemp, hides and skins of domestic animals and various metals. The tables compiled from the marshals' returns will display a very great value and variety of goods, made of those materials, and the returns of imports and other documents, justify the allegation, that importations of similar foreign materials, to the amount of 40 or 50,000,000 of pounds weight, for the purpose of manufacture, were made in each of several years, preceding the season of the returns. The momentous fact is therefore satisfactorily established, that *the American manufacturers demand has greatly surpassed all the abilities of the planters, farmers, land holders and miners, to supply those five descriptions of raw materials*. In the same situation all our crude sugars and molasses, produced in Louisiana, if considered as materials for manufactures, are placed by our refineries and distilleries.

Until the late revolution in the cultivation of cotton, by which it was converted, through the strenuous excitements of the friends of manufactures, from a petty object in little fields and gardens, into an article of extensive cultivation among the planters and farmers, there was no redundant raw material for the manufacture of cloths and stuffs, for apparel and furniture, in the United States. There is at this time no other redundant raw material.

Cotton.

The green seed cotton was the best adapted to the general quality and situation, and to the climate of the southern states. But its cultivation, though perfectly pleasant and easy, was very much restrained by the extraordinary difficulty of separating it from the seeds. This operation required so much manual industry, as greatly to impede the manufacture, and of course, for the time, to prevent an extensive cultivation. In the year 1793 *the invaluable saw gin* was invented by a citizen of the United States,† and was so improved and perfected, as to render it easy, it is said, to separate the seeds from one hundred millions of pounds weight of cotton wool, by the employment of three or four hundred persons, although it is alleged that it would require three hundred thousand persons to effect the same by hand. The inventor† of this gin states the difference between its operation in common hands, and the ordinary manual operation, at one thousand to one. By the employment of this machinery, every vicinity can easily and expeditiously prepare its cotton for the manufacturing cards, and that, in the aggregate, to any extent, that the world could require, were it to clothe itself entirely in cotton manufactures. Thus has there been added, by our own invention, to the machinery *to facilitate the manufacture of a staple production of our soil*, a single improvement

\* A material error seems to have prevailed on the subject of manufactures, in southern soons. It has been supposed, that manufactures could not arise or exist in the southern states of America, and this, it is believed, has produced some local prejudice. Catalonia, Biscay, Valencia, Segovia and Guadalaxara in Spain, the district of Lyons, and Languedoc in France; Genoa, Venice, the principality of Tuscany, and Italy in general, the Peninsula of India in particular, and the southern moiety and warm districts of China, were more early distinguished in manufactures, than the districts in the latitude of the centre of Europe, and north of that centre. It was an exemption from the rigors and terrors of the inquisition and other ecclesiastical evils, in the south of Europe, which drew the objects of those fears and persecutions into Silesia, Saxony, Prussia, Westphalia, the Hanse Towns, Holland and England. In Asia, where ecclesiastical terrors and persecutions have not occasioned such a dispersion of the manufacturers, they remain in and near the district, which produces the cotton and silk, that employ them. The numerous holidays of the church of Rome, which prevails in Italy, Spain, Portugal, Austria and France, have been unfavorable to general and manufacturing industry in the southern parts of Europe, where the useful arts early appeared and flourished. Where industry is free, it is believed, that the manufacturers will gather at the sources of raw materials, food, forage, fuel and building materials. The British interruption of our coasting trade is forcing these principles into operation, in a manner peculiarly injurious to the eastern and northern manufacturers of southern cotton, tobacco, iron, wood, hemp, and wool. Southern produce, capable of manufacture, obstructed in its way to the European and northern United States' markets, will prove to be a southern manufacturing capital, forcing itself into employment upon the estates, and in the vicinities of the planters and farmers. The columns of "*Looms—Value of all kinds of cloths and stuffs.—Stockings.—Bagging for cotton.—Spinning wheels.—Hatteries.—Furnaces.—Forges.—Bloomeries.—Naileries.—Blacksmiths.—Tanneries.—Spirits.—Beer.—Cabinet wares.—Tobacco and snuff.—Cables and cordage.—Gunpowder and salt*" demand a careful inspection and consideration, in order to ascertain the extent and proportionate importance in A. D. 1810 of manufactures, in those states, which are inhabited, in part, by blacks, and which lie on the south side of the common line of Pennsylvania on the one part; and Delaware, Maryland, and Virginia on the other.

† Mr. Eli Whitney, of Connecticut.

moveable by water, steam, cattle or hand, which has set loose those immense powers of agriculture, to produce cotton wool, that were before declined.

In pursuing the statement of facts, which manifest the aids of manufactures to the landed interest, the next step from *the American saw gin*, is to the system of machinery to make cotton yarn.

The water spinners of cotton, in one of the states, have represented to its marshal, that they can make eighty-two pounds and one half of yarn by each spindle in every year. But the owners of other spinning mills deem it unsafe to calculate upon more than fifty-two pounds of yarn per annum for each spindle. The quality of the yarn under consideration is said to be suitable for cotton cloth, of twenty-seven inches in width, worth forty cents per yard. At the lowest of the rates, the United States, had they 1,160,000 spindles, could work up into yarn the sixty-four millions of pounds weight of cotton, which are the *maximum* of our exportation, in any one year. In a proportion, corresponding with the table, in page 10, of your report in part, on the subject of manufactures, this number of spindles, would require a capital of nearly 70,000,000 dollars. But this would be as well in real estate, as in cash and other personal property, and loans and purchases on credit. Sixty-four millions of pounds of cotton, in the proportion of the same table, page 10, would produce about 50,000,000 of pounds. Of cotton yarn, and with the labor, in the proportion of the same table, of about 58,000 persons of these cotton manufacturers, one eighth part ought to be adult males. The remaining seven eighths, might be women and children. This employment of less than *an hundredth part* of our white population of 1810 would be no inconvenience to agriculture or commerce. As the cotton spinning mills shall be increased in magnitude, a smaller proportion of capital will be required.\*

The yarn, thus manufactured at a price 12 1-2 per cent less than that in the table of your report, page 10, (which appears to be one dollar and one eighth per pound) would amount to fifty millions of dollars; a sum exceeding the aggregate value of all the exports of *American* articles, in the most favorable year. This great production is from the water and steam manufactory of the exportable supplies of a cotton crop, worth, at 12 1-2 cents per pound, the planters estates, 8,000,000 dollars. †

But if the weaving of this be executed, as may be done with perfect ease, by the employment of 100,000 women (less than one sixth of our adult females) with *the fly shuttle*, during *one half* of each working day in the year, the quantity of cloth by the Rhode Island rule of four yards for every pound, would amount to about 200,000,000 of yards. This quantity of cotton cloth, at one third of a dollar per yard, would be worth about 67,000,000 dollars.

There is yet another operation, which can be effected by labor-saving means, and by a process, superceding the labor of many hands. Machinery is now in actual operation in the United States, for printing cotton and linen cloths, by engraved rollers of copper, moved by water. Ten thousand yards have been printed, with ease in a single day, by one man and two boys, with these rollers. Fifty thousand childrens' handkerchiefs have been printed, in the same time, by the same number of persons. Similar means are in constant use for staining and dyeing cotton and linen cloths of one colour, in the same expeditious manner, so as to make them fit for a greater variety of apparel and furniture. Were these operations to be performed, upon the whole quantity of cotton goods estimated in this statement, they would add seven or eight millions to their value, and would require but 50 or 60,000 men and children. The aggregate value of our surplus cotton (64,000,000 pounds) even when thus simply manufactured by 210,000 persons, would be raised from 8 or 9,000,000 dollars to 75,000,000 dollars. The total addition to the original value of our cotton crop alone would be at a rate, far exceeding the value of our exports of American growth.

To manifest the importance of such operations to the landed interest, it may be safely affirmed, that 64,000,000 pounds of clean cotton wool, freed from the seeds, can be produced on a low average, by half a million of acres of unmanured land. A quantity of cotton wool equal to all that is

\*The accumulation of the capital employed in 1798 to 1810, has become very considerable in 1814, from the actual profits of the cotton manufacture.

†Cotton yarn of No. 73 was worth in England, in A. D. 1787 the price of 35s. 6d. sterling, or 8 dollars and 11 cents per pound. Such yarn was reduced, in 1792, to 9s. 8 1-2d. sterling, or 2 dollars and 16 cents per pound. In 1807 the same yarn was 4s. 4 1-2d. sterling, or 97 cents per pound. Cotton machinery was not generally extended in Great Britain till the year 1780, when it continued under a monopoly. We had not begun to raise cotton crops for exportation, nor invented the saw gin.

now produced by the civilized and uncivilized nations of the world, could be raised on a very small portion of our southern soil.

Such are the benefits, which agriculture and the country at large may derive from the manufacture of *our only redundant raw material*. The states of Rhode Island and Massachusetts have expelled all doubts about the practicability of the cotton operations. With the smallest territory in the United States, Rhode Island has already attained and introduced into her vicinity\* a cotton branch of our manufactures as valuable, as the cotton branch of any country in Europe was, at the time of the formation of our present constitution.†

The neighbouring states of Massachusetts and Connecticut quickly followed Rhode Island; and the tables, which are annexed, imperfect as they unavoidably are, manifest the universality and magnitude of the cotton manufacture, in 1810. If a very sober prudence shall estimate the value of the water spun and steam spun cotton yarn, at the prices at which they can be imported without profit from Europe, there will remain an opportunity for much lucrative business in extensive works; and very great accommodations and savings in private families, especially in the southern and western states and districts, and in the country to which cotton can be transferred by the Ohio and Chesapeake. This allegation will not be doubted, since the state of Georgia, with a white population of 145,414 persons, manufactured at the date of the last census, more yards of various cloths and stuffs than Rhode Island. The difference in favor of Georgia was 1,540,000 yards. By the evidence of this frontier, southern, agricultural‡ state, the white population of our country might be proved to have been capable of manufacturing, in 1810, assorted cloths and stuffs, of the various raw materials, to the amount of 172,000,000 yards. These facts illustrate the state of manufactures in one of *the most agricultural*, and in one of *the least agricultural states* before the recent increase of the port duties upon foreign manufactures, and the voluntary or unforced course, which these two dissimilar states have respectively taken, in manufacturing their cloths and stuffs for furniture and apparel, out of the various productions of our own lands.

The facts, which will be presented in evidence of the present influence of *the woollen manufac- Wool- ture* upon the landed interest, are numerous and important.

There does not occur to present recollection any raw material, in which the hand of providence has made, so great a diversity of quality and value, as exists with respect to sheep's wool. Each description has its proper uses and capacities. The climate, in which the sheep is brought forth, raised and maintained, is considered by many as a circumstance of the utmost importance. A standard, by which to determine the correspondence of places, in all those particulars, which constitute climate, appears therefore to be a very great *desideratum*, and is most likely to be found in natural objects. Some vegetable production of peculiar characteristics; indicating *the same degree of temperature*, wherever it is found, was presumed to exist. After considerable and repeated reflexion, it is believed, that until a more sure or more accurate standard object can be thought of or discovered, the *aurantia sinensis*, or the *China or sweet orange* may prove an useful natural instrument to ascertain the climatical correspondence of a line of places, on the European and North American continents, from which we may safely begin to count the *minutes and degrees of temperature*, at least for agricultural and manufacturing purposes. The vicinities of Lisbon, in the old world; and St. Augustine and New-Orleans, in the new, produce this delicate fruit in the highest perfection, and will be considered as justifying the temporary assumption, subject to correction, that *the climates of places, in the atlantic states, correspond in temperature with those of Europe, not insular; which are nine degrees of latitude more northern.*§ An application of this guide, to the production of wool in the United States, gives the following results:.

\*Massachusetts has also made *great* progress in the cotton branch, and constantly extends it.

†The quantity of cloths and stuffs for clothing and furniture, which could be made by the United States, in proportion to the population and manufactures of Rhode Island, in 1810, would be 243,000,000 of yards, according to the Marshals' returns, which he considers as materially defective.

‡In the year 1807, Georgia had only one eighty-fourth part, of the ships and vessels of the United States.

§The production of the sugar cane in Spain and America, may also be considered, in reference to climate. This plant is regularly produced in the district between Malaga and Gibraltar. It is cultivated in the United States from Savannah River to the Gulf of Mexico, A. D. 1814.

	N. lat. in Europe.		Equal in America.	
	Deg.	Min.	Deg.	Min.
The best wool in Great Britain is in the western islands of Scotland, and is very fine, }	58		= 49	
The next quality is the wool of Herefordshire, in England, and is very good, }	52	20	= 43	20
Saxon wool, the best German, very fine,	51	40	= 42	40
Roussillon, French wool, very fine,	42	50	= 33	50
Spanish Merino wool, the best in Europe, from	44 to 39		= 35 to 30	

From the fine quality of the Scottish western island wool (which is said to be from the Merino breed of sheep, obtained accidentally so long ago as A. D. 1588) from the excellency of the Scottish Shetland wool, and from similar qualities of the wools of Saxony and of the ancient wool of Berri and the modern wool of Roussillon in France, there is good reason to believe, that *the climates of Europe, capable of producing undegenerate Merino sheep, extend considerably beyond and to the north of Spain.* But the classification is given here with exactness, and certain fine wools of Sweden and Denmark might be added. If the political disconnexion of France occasioned her not to possess the breed and the pastoral regimen necessary to the production of the finest kind of wool, the perfect freedom of agriculture and the actual diffusion of all legitimate advantages, in every mode of business in the United States, will soon enable us to ascertain the extent, in which we possess the proper cisatlantic latitudes. *There appears no reason to doubt that the precise temperatures of the most favorable and most esteemed sheep walks of Spain are to be found within our territory.*

It is believed, that a dry air is very favorable to the health of sheep, and to the fineness and delicacy of the wool, and it is presumed, that the United States may entertain a just confidence in the success of their woollen manufacture, from their enjoying an atmosphere of this character. The most successful woollen manufacture in the world is found in an insular and humid situation. Our success may therefore become very great.

It is also believed, that no part of our territory is too far south for healthful sheep and fine wool. This fact is worthy of particular examination, because it has been suggested, that the tropical climates convert the fleeces of sheep into hair. Since St. Augustine is of the temperature of Lisbon, our territory on the gulf of Mexico must be more cool, than the south of Spain, Barbary, and the south of Italy, Greece, Egypt, the land of Canaan and the greater part of Persia and Thibet, in which countries the most ancient histories, and the most recent information concur to prove the abundance of sheep, and the excellence of the wool. Even in the ardent climate of Peru, there abound certain indigenous wool bearing animals,\* one race of which produce fleeces of the finest quality.

The breeds of sheep, which have prevailed in the United States, till within a few years, have not been of the heavy fleeced character, except in a very few valuable instances. But since the introduction of the Spanish Merinos and the attraction of the public attention to some of the breeds, whose fleeces were observed to be heavy, or which are adapted to the comb, *numerous* experiments afford the strongest reason to believe, that sheep, in this country will be great wool bearers, according to their respective breeds. The annual shearings and exhibitions display much detailed and satisfactory evidence on this point.

Of the productions of agriculture and husbandry, among the civilized nations, sheep employ the smallest number of persons according to their value. The raising and maintenance of sheep are so far *peculiarly* adapted to our circumstances, as to surplus of territory and moderate proportionate population. Sheep are then a most convenient object for the United States, as they employ more land, than any other production, and, we have more than we can yet cultivate or employ. Holland is forbidden by her very limited soil, to be extensive, though skillful, in the woollen manufactory, and imports, by her canals, most of the flax and yarn, of which she makes her linen. *The United States, on the contrary, are capacitated and invited by their extensive territory to rise, with ease and singular*

\*The Lama properly *Runa*, like a small camel; Guanaca; and Vicuna, of which the *Pacos* is a species. See the skin of this animal, with its wool, hair, teeth and hoofs in Peale's museum at Philadelphia. The best cloths of Spain or indeed of Europe, are made of the south American wool.

*rapidity into eminence in the woollen branch.* The sagacity and energy of Rhode Island has given her the first comparative importance in cotton mills and establishments; but in the young settlements of Maine and Vermont, the means of their more extensive territories, have enabled each of them far to exceed her in sheep, wool and woollen manufactures. England and Wales, with only thirty-four millions of acres of land and twenty-six to twenty-nine millions of sheep, have been said to produce one hundred and forty-five millions of pounds weight of wool in every year;\* and to sell to other nations more woollens than the rest of mankind export. The English and Welsh population is about ten millions. *But their progress in the production of wool seems to be arrested by the want of soil for grain, cattle, horses and plantations of trees.* Britain imports all the wool, she can purchase, and pays immense sums to Ireland and to other countries for bread and meat, wood and timber iron, flax, hemp and skins, for her European and foreign dominions, armies, navies, and manufactories. Scotland, with a very sagacious, economical and energetic population, is the least favored of the civilized nations as to the quality of her soil. She consequently exports very few woollens from her own agriculture. It may be affirmed then, in safe contradiction to ancient opinions of our own, and of Europe, that *the abundance of the soil of the United States, qualifies and irresistibly invites, or impels them to continue, improve and extend the woollen manufacture.*

The case of the western, Scottish islands, in which some stranded, captured and fugitive vessels of the Spanish Armada, are believed to have left, in the year 1588, a few Castilian sheep, establishes the truth, that *dry* lands will preserve, in a considerable degree, fine wool in a breed of sheep, even in a moist and rigorous climate, where the lightness of the soil has stunted the stock of the animals, and reduced the weight of the fleece: for these Scottish sheep are very small and bear little wool. The proper temperature, *dry* situations, the proper *lightness* of food, greater care of the fleeces, in the time of growth, and increasing skill in the important operations of the *wool sorter* ensure us a very rapid attainment of fine wool. The quantity must soon be greater than we can want at home. But exportation takes off the woollens of a single European nation, from their own raw materials, to the amount of twenty millions of dollars, with a considerable addition from foreign wool.

The examples of all the fenny or marshy districts of Great Britain establish the truth, that the unoccupied swamps of the United States, when they shall be properly drained, will support the heavy fleeced breeds of long woolled sheep; much of the fleeces of which is adapted to the comb, and is necessary for the "*worsted*" or "*stuff*" manufacture, for the ordinary hosiery, and for well coated blankets.

At this moment we possess, *unused*, a superabundant quantity of fenny, marshy, boggy or swampy land, capable of sustaining more of the long woolled and heavy fleeced sheep, than we can want for our own use, and *promising to our merchants an export trade.* The most notable quantities of these lands are in the maritime counties of North Carolina and Virginia.† These large heavy fleeced and long woolled sheep require to be *well fed.* Mixing the long woolled and other breeds and a right management produce great benefits to the farmer and to the Hosiery class of manufacturers.

It is believed, that there were at least 13 or 14,000,000 lbs. of wool sheared in the United States in the year 1810; and that the growth of wool in the year 1812, has been 20, to 22,000,000 of pounds. There are some, who believe the quantity to be rather greater, because the increase is in a large and compound ratio. One half of the young are females, and the males are wool bearers, till they are exported or consumed. Much more care of sheep, than was formerly bestowed upon them, is generally observable at this time. The fleece, while growing is better kept. There is much more care and opportunity for choice, as to breeders. The Merino fleece is heavier, as well as finer, than that of the country breeds. The embargoes, foreign restrictions, spoliations, war, and high freights have diminished exportation; and rendering other meat and fish more difficult to sell, and, combining with other causes, have undoubtedly decreased the consumption of mutton, in propor-

\* *Luccock* of Leeds states the wool of England and Wales to have been, in the year 1805, about 94,500,000 lbs. It is difficult for us to decide upon the disagreeing opinions of sensible foreigners concerning their own countries. 1814.

† Romney marsh, in England, maintains above four sheep for each acre, on a medium.—*Luccock.*

tion to the whole stock of sheep. There has been, at the same time a considerable importation of wool and a great importation of fine woolled and heavy fleeced sheep. It is probable, that no country has ever effected so great a change in the value and extent of its stock of sheep, as the United States, within a very few years. There is the strongest encouragement to persevere in the preservation, multiplication and improvement of these animals.\*

The improvements in the manufacture of wool, and in the means of conducting it, have been very considerable. Carding machines have been introduced, to the number of 413, in the single state of New-York. The wool picking machine also saves labor. The manufacture of hats, *consuming more wool with fewer hands, than any other of the ancient modes*, is carried to the extent of our own wants. We begin to export hats. We can make as many, as our wool permits and vents induce. The European improvements to save labor in spinning wool, have been brought into extensive use. Fulling, by mills, a labor-saving process, has greatly increased. It was formerly in Europe, as in hatting, *a manual operation*. More than formerly, of our wool is used in those manufactures, which do not require regular fulling; such as flannels and goods made of combed wool. Dying is much improved by the modern aids of chemistry. The *fly shuttle, which saves labor*, is constantly multiplied.† The loom and the weaver are much improved. Female aid in manufactures, which prevents the diversion of men and boys from agriculture, has greatly increased. Children are employed, as well as the infirm and the crippled. The asylums of the poor and unfortunate, and the penitentiaries of indiscretion and immorality are improved and aided by the employment and profits of manufactures. *In the section of the union, occupied in part by coloured laborers, decent and comfortable hospitals have been established upon some of the planters estates, in which children, convalescents, aged persons, and married females, for a proper time before and after puerperal occasions, have been employed with humanity and advantage, in manufacturing cloths, for apparel and furniture.*

Modern improvements in the stocking loom, and in the shearing of woollen cloths have been introduced into the United States; and there can be no doubt that the current acquisition of the means of the woollen manufacture has fully equalled the great and manifest increase of the raw material. Indeed it may be safely affirmed, that *the manufacturers' demand has continued to exceed the farmers' ability to supply the various descriptions of wool*. Sheep were formerly a mere matter of domestic economy and convenience, but have at length become a great and universal object of agricultural profit and wealth. Besides the increase in the number of sheep, and in the goodness of wool, the prices of the three most established qualities have received additions of fifty per centum.

Iron  
In the iron branch, the consumption of that most useful natural production takes place in a manner yielding an accumulation of benefits to the landed interest. This is displayed in various labor-saving nail mills; the improvements in the easy operation of casting iron and steel; the very rapid progress in the wire manufactory; the sudden creation of private armories and of military founderies; the multiplication of the rolling and slitting mill; the boring mill; the grinding mill; the polishing and metal turning machinery; the tilt and triphammers; the wool-card making machinery; the nailed shoe; the manufactories of surgical instruments and of cannon ball and shells; the machinery for making screws; the saw, file, and edge-tool manufactories; the multiplication of steel and common furnaces, bloomeries and forges; and the innumerable black and white smiths' shops for every iron implement and necessary of farming, planting, manufacture and navigation. The benefits to the landed interest from the consumption of so great a quantity of iron, fuel, food, forage and building materials, and the employment of so many cattle and mill seats, as the iron manufacturers require, are great and evident; but the aid to agriculture, from the abundant, cheap, sure and adjacent supply of *iron work*, for every purpose of the garden, the field, the forest and the family, is incalculable and indispensable. Not a building for man, for cattle, nor for the safe keeping of produce or merchandize; not a plough, a mill, a loom, a wheel, a spindle, a carding machine, a firearm, a sword, a waggon or a ship can be provided, without the manufactures of the iron branch.

Leather. The manufactures of hides and skins are of great importance to agriculture. The coats of

\* All the facts, which occurred in the year 1814, upon the subject of sheep and wool in the United States, prove their advances to be great and steady.

† It would repay the expence in three months, if each state were to supply at cost and charges, every township with a score of the most approved fly shuttles, with the cords, &c. as models.

animals, nearly excluded, by the introduction and improvements of the cloth manufacture, from their original uses in making garments, would become a mere offal, but for their present employment in leathern goods. Bark, abundant every where in America, is redundant in new settlements, where the tanning business facilitates the destruction of the forests, which obstruct agriculture. This manufacture has an additional value in producing a market for lime. A method of splitting skins has been invented. An improvement in making shoes, which saves four fifths of the workmanship, has been discovered. The uses of leather are of the utmost importance to health, the facilitation of industry, the diffusion of knowledge, and the military operations of the United States by land and sea. The shoes, boots and slippers, manufactured in the United States, in 1812, undoubtedly exceeded the value of all the foreign manufactures imported in the first year of the present government, which by the actual return of November 30, 1791, were worth here only \$ 15, 295, 638. The shoemakers' wares of the entire state of Massachusetts, though the production of handicraft, are equal, in their total value, to its proportion, according to its population, of one moiety of the exports of goods of our own growth, produce and manufacture, in the most favorable year. Were shoes, boots and slippers manufactured in the same proportion to numbers in all the states, they would be equal in value to twenty-four millions and sixty-seven thousand dollars. The cordwainers' purchases are the greatest support of the leather branch. Upon an examination of the number of shoes, boots and slippers, saddles and bridles, harness, carriages (many of which have leather boots, tops, curtains and aprons) drums, gloves, leathern breeches, rigging and other hides for ships and vessels, bound books, manufacturing cards and carding machines, military equipments and other leather, goods, there will appear no reason to doubt, that a value of leathern goods is annually made in the United States, fully equal to that of half our exports of our own production and manufacture. These are generally real necessities or plain conveniencies. The Americans consuming more animal food than any other people in proportion to their numbers, being near to the greatest foreign sources of unmanufactured hides, and being invited to sheep, swine and cattle farming by a redundancy of soil; with cheaper water and land, proper oils, lime and bark for the leather making business. than any other country, the leathern branch must continue to be very considerable and rapidly to extend and improve. It is not doubted, that it is at present equal in value to the same branch in any other country, in proportion to the population, if the same qualities of goods be estimated at the same prices. These facts, in relation to the leathern branch, are of peculiar importance, as it is generally a manufacture *by hand*, and not by machinery. They unanswerably prove our capacity even in the *handicraft* branches; and render our capacity, for machine operations free from doubt or question.

The manufactures of flax, existing in every part of the United States, afford conclusive evidence <sup>Flax.</sup> of the universal ability to produce this raw material. Agriculture might therefore be more considerably supported by it, if there were or should be occasion. But the easier production and manufacture of cotton occasions the attention to flax, in the greater part of the southern section of this country to be very small. As flax requires but an inconsiderable quantity of land, especially where a great stock of sheep, horses, and cattle produces abundance of manure, its cultivation and manufacture are *particularly* convenient and important to the fully settled districts, which do not yield cotton. Our climate is highly favorable to bleaching. In Connecticut, though much advanced in cotton spinning, there is returned a diffused manufacture of various linen cloths (besides sewing thread, linen chain for mixed goods, tapes, bobbins, fringe, lace, webbing, &c.) equal to the yearly sum of \$ 3,05½ per head, which is at the rate of 2,081,704 dollars for the whole population of the United States. Yet Connecticut has many convenient sea ports. Her return too is considered to be materially short. Vermont makes linen at a nearly equal rate. Two hundred thousand spinning wheels (of which about two fifth parts are probably employed on flax) in the two flax raising states,\* whose returns of that very useful and general little machine are most complete, give an additional evidence of the present condition of this manufacture. But for the growth of cotton, the flax manufacture would have become very great. Many families in the United States derive their origin from countries, the most successful in the linen manufacture, during the two centuries, which

67,755 in Vermont and in Pennsylvania 133,007. North Carolina reports 128,484 spinning wheels; but does not extensively cultivate flax, though capable to produce it in all her districts.

have elapsed, since our first settlements. Such of the states as may not very greatly increase their sheep for want of land, or for other reasons, will be *particularly* accommodated by the cultivation and manufacture of flax. Oil mills, for crushing and pressing flaxseed, have been so multiplied within a few years, as to prove the extension of the linen branch, and materially to benefit the growers of flax, especially those whose distance from the seaports prevents recourse to foreign markets in disposing of their seed. The actual extension and improvements in all the arts and trades, which employ paints, are favorable to the sale of flax seed oil. The economy and beauty of painting all wooden and many other constructions, especially the preservation of those which are exposed to the weather, occasion the manufactory of this oil greatly to increase in quantity and value. The use of the once neglected oil cake yields a benefit to the country. Modern and particularly recent improvements in dressing, spinning, weaving and bleaching flax have greatly facilitated the manufacture of this raw material. The United States are perfectly prepared for such an extension of it, as to maintain a steady demand equal to our power conveniently to raise flax. Wherefore agriculture will certainly continue to be extensively and very considerably aided by it, in all places, which are without the region of the cotton cultivation. We have regularly imported flax, from the distant markets of Russia, *because the demands of the manufacturers could not be supplied by all the exertions of our farmers.* This was the case before the labor-saving machinery was introduced, which adds to the proofs of our capacity for even *handicraft* goods or proper manufactures.

Hemp. The ability to produce hemp is enjoyed by every state in the American Union. Soil, climate, industry, machinery, situation and the possession of capital in the shape of the raw materials, appear to have carried this branch to the greatest height in the state of Kentucky, even since the extension of the cotton culture in that quarter. The marshal reports a production in 1810 of 5,755 tons in the prepared state. But as there are made in Kentucky 453,750 yards of hempen bagging cloth, for packing cotton, and one thousand, nine hundred and ninety-one tons and one half of cordage, and much yarn; and moreover as the various hempen, flaxen, cotton and woollen cloths and stuffs of that state, in 1810, are reported to have amounted to 2,216,526 dollars, it is manifest, that the landed interest is much assisted by the hempen manufacture.\* Improvements in the process for separating the fibres of hemp from the woody part, labor-saving machinery to manufacture it, and skill in the cultivation, resulting from the introduction of experienced manufacturers, have enhanced the aggregate value of hempen goods, and increased their importance to agriculture. *So much greater has been the demand for hemp at home, than the practicability hitherto to supply it, that importation to a very considerable amount has regularly taken place, although there is an extraordinary duty on foreign hemp, and although the cultivation and manufacture of cotton have suddenly and greatly interfered with the manufacture of this raw material.* The manufacture of hemp being of the utmost importance to the supplies of the army and navy, and to public defence on the water and on the land, the United States can only be rendered perfectly *safe* and *independent* by early and effectual encouragements, to the growth preparation and manufacture of hemp. It is of no less importance than those of arms and gunpowder. To separate all the fibrous from the ligneous parts of this raw material, without converting too much of the strong and good staple into worthless tow by ill management, would occasion the quantity for manufacture to be much larger, and the profits to the cultivator to be more considerable, and would render the operations of the manufacturers more easy and successful. Improvements in all the machinery for hemp are worthy of peculiar attention and exertion.

Wood. The numerous and diversified manufactures of wood, and the consumption of wood, in the business and families of the manufacturers, occasion vast benefits to the landed interest in all situations, maritime and interior.

The coopers and carpenters' packages for exported goods alone, probably exceed 2,200,000 in

\* It appears, that, if the United States were to manufacture cloths and stuffs, in as great a degree, as is officially reported by Kentucky, (which has not one seaport) in proportion to the whole population of that state and of the Union, our manufactures of such goods might amount to more than 84,000,000 yards. The return is doubtless very short. Though hemp, freed from the woody part, and only prepared for spinning, is not set down among the manufactures, yet it is materially advanced from the raw state by that process. That the general return of Kentucky is very short, will appear certain, when it is observed that shoes and other manufactures of tanned leather, hats, all manufactures of iron [except hags, castings and cut nails] of copper, brass, silver and gold, of clocks and watches, of lead, of pewter, of tin, of meal, of carriages, of cabinet ware, of books and various other goods, are omitted.

number. To these may be added as many more for home use. The ships and boats of the United States, at their greatest amount on a medium of a period of three years, have been computed at 45,000,000 dollars. Staves, heading and boards may be deemed simple or imperfect manufactures of wood. Carriages for pleasure, business or war, cabinet wares, saddle-trees, turnery, with ploughs, harrows, cornfans, hand and wheel barrows, wooden measures, mill work and machinery, wooden instruments, implements and utensils, with the wooden handles of metallic instruments, potashes, maple-sugar, tar, pitch and turpentine from the various forest trees, ashes for the soap manufactory, bark and wood fuel, including charcoal, are examples of wooden goods, or of goods drawn from our forests. It may be safely alleged, that the natural and cultivated trees of the United States are rendered, *by manufactures*, a very great benefit to the landed interest. It is considered that potashes and pearlshes nearly compensate the settler, for the expence of clearing the portion of a new farm assigned for cultivation, in all situations convenient for boat navigation. The bark of the corktree is used in other countries as a material to manufacture, and might be added, by means of plantations, to the north American productions. It is an evergreen forest tree in Spain and Portugal, and is found in the southwestern angle of France, in temperatures corresponding with those of Georgia and the two Carolinas, and the southwestern states and territories. We have obtained the cork cutting business before the landed interest have procured the exotic tree or supplied the materials. It is an impressive fact, that manufactures in America outrun agriculture in most instances. This is a conclusive truth.

The oils of vegetables and animals, which are generally from the cultivated lands of the United States, form a very valuable class of simple manufactures, greatly beneficial to the agricultural interest. These are flaxseed oil, castor oil, soap, candles, lard, rendered tallow, wax, butter and cheese. We might add the olive oil, as we have the proper temperatures in the country, south of the Chesapeake bay. A labor-saving machine has been introduced by American ingenuity into the manufactories of common dipt candles. Rapeseed oil might be made in all the states. Fish oil being necessary to make good leather, the fisheries of the lakes and western rivers merit consideration, as to a possibility of improvement. The aggregate of the areas of the lakes is as great, as a considerable sea. The caviar and isinglass are objects of attention in Russia. The sturgeon, from which they are made is *Accipenser Ruth: et Stur: Linnœi*. It abounds in the fresh waters of the Don and the Wolga, and is suitable for our lakes. The olive oil might be added to our manufactures. We possess its climates and its soils, and ought to procure the means of propagating the trees.

Indigo, dye woods and plants, and pigments of various kinds, used in manufactures, are additional instances of the benefits of that branch of the national industry, to the owners and cultivators of the soil. Manufacturing all we produce of lead, we have been obliged to import a large balance of that useful metal for our workmen, after using all our own. Lead, which is convertible into various pigments, is a raw material of several useful manufactures in its separate state, or mixed with other metals. *The rapid advance of lead manufactures, on the purchase of Louisiana, proves that they not only steadily progress, but promptly extend on every new supply of the raw material.* Manufactures goad the whole landed interest to profitable exertion and production.

The manufacture of tobacco, snuff and cigars has become a very considerable benefit to the planter. Labor-saving machinery does much in this branch. Our manufactory has mitigated the shock given by the recent wars, and foreign commercial impediments to the tobacco cultivation. We are equal to the supply of any demand for the export trade, in snuff and tobacco, after an abundant reserve for home consumption. It only remains to ascertain the best kinds of the plant, the suitable soil, and the proper climate for each description of tobacco.

Manufactures from fruit are every where economical, and in many places highly profitable to the farmer, and admit of a vast and lucrative extension.\* These are cider, apple and peach brandies, the wine of the Corinth fruit,\* or currant wine, and vinegar in its ordinary state, and prepared with the juices of various fruits. It is believed, that the extent in which *the American currant wine*, has been already made, has not been observed or considered, nor are its pleasantness,

\**Ribes*, in horticulture. See Miller's Gardiner's dictionary (folio) enlarged.

Oils.

Dyes and  
paints.

Tobacco.

Fruit.

Corinthian  
wines.

utility, facility of manufacture, nor *our vast capacity for that manufacture*, sufficiently known or duly appreciated. The red, white and black currants grow and produce well in our most northern and eastern states, and in colder parts of Europe. The *proper Corinthian grape* was found in the climate of southern Greece and its island of Zante. The red white and black currant are indigenous, or domesticated here. They all yield wine. The quantity of two barrels, or sixty-three gallons, may be easily made in every farmers' family, without the use of more ground than he ought to appropriate for his common kitchen garden, and with as little trouble, as that necessary to make butter, cheese, cider or beer. Even the inhabitants of the cities and other towns, who have gardens or who purchase currants, may make the currant or Corinthian wine. Our million of white families, (by the census of 1810) at a medium of sixty-three gallons each, or two barrels, are capable of preparing sixty-three millions of gallons: a quantity nearly twelve times as great as that of all the wine received from abroad, or twenty-three times the quantity consumed in the United States.\* It is doubtless capable of distillation into brandy. The black currant is very saccharine. *It would be a profitable business to make Corinthian wine upon the great scale, and it is far more worthy of attention, in the country north of the bay of Chesapeake, than the cultivation of the wine grapes of Germany, France, Spain, Portugal, Italy and their islands.* No beverage is more pleasant; none it is believed, more wholesome, and it would afford *an universal opportunity to mitigate the ardor, or diminish the use of distilled spirits.* The *currant or Corinthian wine*, if made universally in the United States, would greatly increase the benefits of the manufactures of *fruit liquors* to the cultivators and land holders, which are already very considerable, convenient and profitable.

As in relation to the quality of wool, so in relation to the manufactures of the grape, the opinion is submitted, that *aurantia sinensis* or the *China orange* is an useful indicator of climaterial temperature:—Presuming upon the difference of nine degrees, which the steady productions of that delicate fruit appear to justify, the following table of corresponding temperatures, in relation to the finest wines and those of considerable production, on the continent of Europe, is respectfully offered, since wines or fermented spirits, brandies and cremor-tartar, or the salt of wine are *manufactures* from the grape.

		Degree of N. Lat. in Europe —		Equal, in North America, to					
		Deg.		Deg.	Deg.				
Moselle	} wines are produced in	49	to	50	=	40	to	41	
Rhenish									
AndHock									
Champagne wine in		49			=	40			
Burgundy wine (the most exquisite)		47		48	=	38		39	
Claret, Sauterne, and Grave wines, in		44	1-2	45	1-2	35	1-2	36	1-2
Oporto or Port wine, in		41		20	=	32		20	
Lisbon and Carcavella wines, in		38	1-2	39	1-2	29	1-2	30	1-2
Xeres, or sherry, St. Lucar	}	37		38	=	28		29	
And Malaga, or mountain wines									

Cider and perry } The manufactures of cider and perry are so highly perfected in Europe, that the former liquor, of the most excellent quality, has been sold for prices greater than the first cost of some of the wines of the European and African islands and of those continents. Much more might be safely asserted of the prime British cider. The American cider advances rapidly in quantity and quality. So far as either the fining, fermentation, or ripening of the liquor, or the quality of the fruit may be affected by the temperature of the climate, the same difference of nine degrees may be considered in relation to the cider countries of Europe and America. It is conceived, that in safe comparisons of places, the situations of both should be on *continents*. The climates of islands, of the same magnitude may also be compared in the same manner. The importance of olive oil demands a repetition of it, as a manufacture from fruit, which ought to receive very early consideration.

Grains. } The evidences of the immense advantages, which *the landed interest* derives from manufactures, will be concluded by the addition of some facts in relation to those from grain. The single state of

\* The wines, left for consumption in the United States in 1807, were only 2,692,737 gallons, by the returns of imports and exports. The Madeiras, Burgundy, Champagne and fine Clarets were only one tenth.

Pennsylvania returns the various descriptions of meal and flour to the amount of almost 11,000,000, dollars made at 2008 mills, besides more than 4,365,000, dollars, in value, of fermented malt liquors and distilled spirits, chiefly from grain. Cider is not included. The whole value of the distilled spirits from molasses, grain and fruit, made in the United States appears to have been above fifteen millions and one half of dollars in 1810. Much the greater part is made of grain. To these are to be added, wafers, starch, hairpowder, and all the varieties of the bakers goods. Considering flour and meal *bolted, sometimes kiln dried and packed in casks for exportation, and biscuits* so packed and prepared, as manufactures from grain, it appears, that our exports of those goods in one year, have amounted to 1,557,000 casks of various sizes. In fine, such is the vast importance of this branch, that were the grain mills, bakehouses, starch, hairpowder and wafer manufactories, breweries and distilleries of the United States suspended in their operations, the body of the farmers and the planters would be wounded and crippled in most places and paralysed in many of the states. It is an important fact, that manufactories of *grain* (such as the brewery and distillery) insure this country against a distressful famine, because we could consume, in a scarce year, in bread, that which is habitually raised to make liquors\*

Such are *the principal facts*, which occur to recollection, at this time, evincing the benefits to the cultivators and owners of the soil, from the manufactures which have arisen *unforced* in the United States.—Their principal protection, by duties, is incidental. Those duties were imposed to raise the necessary revenue, but greatly favored the manufacturers. I proceed to submit some of those facts, which evidence the aid afforded by our manufacturing industry to navigation and commerce.

The construction of ships and vessels, with their boats, may be considered as having produced an accumulation of that description of manufactured property in the year 1810, amounting to a million of tons, and worth the sum of forty-five millions of dollars, properly estimating the old, the new and the half worn. A great part of the cloth, of which the sails were made, and an inconsiderable sum in bunting or worsted stuff for colors, with a smaller sum in optical and other instruments, are all the foreign articles, in this great value of those indispensable requisites to commerce, navigation and commercial defence. Although the cannon, muskets, pistols, swords, pikes, shot, balls, shells and gunpowder for public and private armed ships are now made in the United States to an amount very far beyond the quantity demanded for our mercantile and military vessels, the cost of these articles is not included in the sum of forty-five millions above mentioned.

Navigation and  
Commerce.

The ships of the navy, private armed vessels and letter of marque ships are also constructed or manufactured in the United States, and being of the utmost importance to *the defence of commerce*, their manufacture appears to be a proper object of statement, under this head.

The working carriages, employed in the various operations of commerce, with many of the scales and weights, measures, rules, and other utensils and instruments of trade are made in our work shops.

The number of American articles, in the regular lists of the exports of the United States, is about one hundred and ten, of which about seventy are manufactures of the United States, subserving commerce, by affording new, various and more convenient articles of exportation. Among these are included flour, bread, boards and scantling; but, if we did not make boards, scantling, shingles, staves, heading, flour, meal and biscuit, the foreign sugar colonies would not take off much of our wheat and timber. The manufactures of wood and grain render the original productions or materials convenient to our general trade, and absolutely necessary to some of its branches. The value of our exported manufactures, as they are sometimes strictly considered (and excluding flour, boards, staves and the other doubtful articles) may not exceed 3,000,000† dollars, but these constitute an interesting assistance to foreign trade and are steadily increasing. If however we add 1,557,000 casks of flour, and meal, at an average price of 8 dollars, with 220,000 feet and pieces of sawed, split and dressed boards, plank, scantling, staves &c. and some other articles of a like nature, the manufacturing operation, though imperfect, becomes very influential on the convenience of stowage, the benefits of freight, the accommodation of purchasers, and, consequently, upon the *prosperity, extension and activity of commerce*.

Mr. Cloud, of the mint, has extracted molasses with profit from malted grain. † In the year 1810.

The manufacturers assist the merchants by their purchases of very large quantities of foreign raw materials generally imported in their vessels. These are wool, hemp, flax and cotton; iron and steel; saltpetre, sulphur, hides, skins, and leather; indigo, fustic, and other dye woods and dye stuffs; lead, copper and brass in pigs and sheets; tin in blocks and sheets, spelter, molasses raw sugars, cocoa, mahogany and other cabinet woods; wines and spirits for medical manufacturers; rags, and many other articles, with coal for the supply of their laboratories, furnaces, forges and work shops. The manufacturers also purchase for their domestic consumption, great quantities of imported goods, benefiting the merchants.

The transportation of American raw materials, fuel building materials and food for the workmen occasions a very great trade and business in boats, shallops and coasting vessels, highly favorable to the merchants, who own them, and the transportation of American manufactures, in like manner, to the markets on our rivers, bays, and coasts, is profitable to the owners of vessels. In Great Britain, the largest portion of the tonnage in any one branch, is that in the coasting trade. This branch of manufacturing commerce rapidly increases.

The most distinguished modern *commercial* countries in the world import great quantities of raw materials and export large quantities of manufactures. *These operations constitute, in fact, the greater part of their commerce.* In those countries, many of their most respectable merchants have become partners in their manufactories. The export trade in British manufactures, before the wars, which have grown out of the French revolutions, constituted much the largest part of their outward trade, and it seems likely to become equally considerable in proportion to their exports, on the return of a general peace. This export trade in the valuable manufactures of the British kingdom is now extensively conducted by persons, who combine the business of the manufacturer with that of the foreign merchant: in other words, who unite those two great branches of commerce in their respective houses. A similar and great field for capital and mercantile enterprise lies open before the American merchants; and some of them have entered upon it with capital, spirit and success. So far as labor saving-machinery has been employed in the operations, the persons, who have undertaken them have proved the benefits of manufactures to the mercantile capitalist, and in other considerable instances, the same advantageous employment of trading capital has occurred.

The banks established in the United States, which are the most wealthy and important of our institutions of property, are mercantile corporations. The deposits and discounts of the sugar refiners, millers, bakers, distillers, brewers, cotton spinners, woollen manufacturers, hatters, nail-makers, iron masters, various smiths, coopers, tanners, shoemakers, rope manufacturers, &c. &c. are highly profitable to them and are uncommonly safe. Since our exports of our own productions are known to be worth 48,000,000 of dollars, and the aggregate value of our manufactures may be safely estimated at three and a half or four times that sum, it is plain, that the custom of our manufacturers is highly important to our banking companies. Many of the manufacturers are proprietors of the stocks of the banks of the United States, and thus make loans to the merchants.

Insurances on manufactures, raw materials, vessels employed in transporting them coastwise, and from and to foreign countries, and upon the manufacturing establishments themselves, afford considerable benefits to the private under-writers and insurance companies. Many persons, concerned in these mercantile institutions, are engaged in manufacturing houses and associations.

*The greater prosperity of British commerce with great and various manufactures, and the lesser prosperity of Irish commerce with fewer and less various manufactures afford the most conclusive evidence of the benefits of manufactures to foreign trade.* This is the more clear and strong, because the soil of Ireland, in proportion to its extent, is much better than that of Great Britain. *The greater prosperity of British commerce in time of peace with superior manufactures, and the lesser prosperity of French commerce in the same season, with inferior manufactures, afford a further evidence of the benefits of the useful arts to foreign trade.* The prosperity of our American trade with manufactures, in the seven years, which preceded the year 1810, (the date of the following tables) was superior to that of the seven years preceding the adoption of the federal constitution, with less manufactures, and to that of the seven years, which preceded the revolutionary war, almost without manufactures.

The richest object of commercial enterprize for the merchants of the United States is the trade of those countries, which do not manufacture. Of this the trade of our American brethren, from Texas and Mexico to the streights of Magellan is, a very interesting instance. We can import their raw materials and export our manufactures to an immense amount, with substantial benefit. Their rich products will not often be received in the ports of Europe in our vessels, foreign to them. Their copper, crude sugar, peculiar cottons and woods, their various dying materials, drugs and medicines, their wool, hides and tallow, and their gold and silver will be exchanged for cabinet wares, carriages, paper, sugar, beer, distilled spirits, candles, hats, boots, shoes, gold and silver wares, plate and jewellery, pottery, iron manufactures, mill work, coopers manufactures, machinery, types, gun powder, arms, ships and other vessels, boats and various other manufactures of the United States. They do not want our provisions, tobacco, cotton, lumber, indigo and other articles of unmanufactured produce. If we had only such raw productions, commerce between the United States and foreign America would be very limited and unprofitable: As our manufactures progress, the trade with that new and interesting country, and with St. Domingo and all the countries similarly circumstanced cannot fail to increase. Even the manufacturing nations will be induced to purchase our goods, *which can be made with the vast advantage of labor-saving machinery, operating upon raw materials exempted from the duties and other charges of importation.* If we have constantly reshipped to other countries the foreign manufactures of Great Britain, Ireland, Russia, Germany, France and the East Indies, to a great amount, we may ship to the same places, the surplus products of our own manufacturing industry. If Great Britain, the East Indies, Germany, France and Russia find, in foreign countries, purchasers for their manufactures, we may be able to do the same. Since the government is impartial and friendly to our merchants and manufacturers, those two descriptions of our citizens may liberally and profitably aid each other, as those do, who live, as fellow citizens, in foreign countries.

The establishment of many new manufactures in the United States from foreign materials, occasions new demands for those foreign materials, to be so employed. The merchants alone can import those materials and they must be generally imported in their ships. This facilitates remittances, which in many trades, are difficult and unprofitable.

The greatest drain of their coin and bullion, which the United States sustain, is in the remittances for manufactures to foreign countries. By our own manufactures, we diminish this drain in part, and they already furnish us with substitutes for remittances in the precious metals, and in a further part, by enabling us to send abroad wrought goods to the amount of 3,000,000 dollars. Every thing, that facilitates the retention of our coin and bullion, is considered as favorable to the merchants, and to our commercial, and banking institutions and operations. A balance of trade in favor of the country is an advantage to the mercantile body; and by our manufactures we shall bring more nations in debt to us, than we formerly did. So far as we export manufactures, we now contribute to that end.

Manufactures to a considerable amount, such as malt and distilled liquors, loaf sugar, cheese, candles and soap, are consumed among the stores of seamen and passengers. Manufacturers, who come to the United States, pay to our merchants passage money for themselves and their families, and freight money for their furniture and other personal property, imported in our vessels.

The commerce among the several states, in the American Union, in the raw materials, manufactures and provisions of our country, is a branch of trade more certain, than any other. It does not depend upon foreign laws. Remote foreign markets are less accessible in war. The commerce among the states, always interesting, derives the utmost additional importance from the recent department of too many of the naval powers. It is an evident and important fact, that this material and increasing exchange of raw productions, fuel and provisions, for finished manufactures, between the producing and manufacturing states, has become *a decisive consideration, for the continuance of the federal union—a connexion vital to the general commerce of the American people. The manifest difficulty of securing justice in commercial affairs, even by the whole of the United States, affords conclusive evidence, that each of any two possible sections, into which they might be severed, would fail to maintain the standing of a trading nation.*

The benefits of the fisheries of the United States, resulting from manufactures, are considerable, stable and increasing.

Our manufacturers, near the sea coast, consume very large quantities of dried and pickled fish. They employ in their manufactures, the head matter of the whale to make the superior oil. This will not coagulate, and is fit for use in light houses and lamps, in cold and wet situations. From its purity, it is adapted to the consumption of good and well furnished houses. The residuum of the same material is used for making spermaceti candles.

The umbrella-makers, manufacturers of whips, fishing tackle, staymakers &c. employ the whale fins or whale bones, the little cuttings or chips of which have been applied to making *patent brushes*, composed of splitbone in lieu of strong hair, by American ingenuity and economy.

The coarser oils are used in lamps in many of the work shops, and in the dressing of leather; and in short, as the manufacturers of the world in general use nearly all the piscatory articles in some one form or another; so those of the United States have long used some, and have increased in the use of others: and since foreign laws burthen those articles with ruinous duties, it is certain, that our manufacturers may be hereafter relied on, as great and sure supporters to the fisheries of the United States.

In all those particulars, in which manufactures support and assist navigation, they benefit the fisheries; for ships and other vessels and boats of every size and description are employed in the fisheries, armed and unarmed, and as manufactures have strong and beneficial effects upon *the coasting trade*, and all our fishing vessels, except the large whalers, are adapted to, and actually partake in that great and sure branch of domestic trade; it is a very important fact, that the manufactures of the United States, in that respect greatly benefit the numerous owners of fishing vessels, too small for most voyages to other countries, and excluded by foreign navigation laws from many adjacent ports. The transportation for our manufacturers of raw materials, provisions, fuel, building materials, and manufactured goods, become to them a very necessary support, whenever they are disappointed in taking fish. And as the fishing season is but a portion of the year, out of that season, this coasting trade affords very convenient employment for the fishing vessels.

The manufacture of salt is a very considerable aid to the fisheries. If the temperature of the climates, in which lie the best salt ponds of Europe, be proved (by the growth of the sweet orange tree) to be the same as those of the Floridas and Louisiana; and if it be recollected, that the best French European salt is made without fire, and by the natural evaporation by the sun, in a temperature corresponding with that of the Accomack coast of Virginia, the beneficial effects of this manufacture, may be deemed permanent and increasing. The fairest and purest marine salt of France is that of the Isle of Rhe, in north latitude 46 degrees and 15 minutes. It is made by the sun as far north as Bourneuf, Croisac and Guesrande, in ancient Britanny, and in the north latitude of 47 degrees, considered to correspond with our 38th degree.

All the peculiar tackle and instruments of the fisheries are well manufactured in the United States, and the fishermen themselves, at leisure times, make a number of them, by which many of the benefits of domestic or household manufactures are realized. This remark also applies to the manufacture of a great part of the oil. The packing of a cask of fish and the making of the cask and of the pickle add as much per centum to the value of the fish, as the corresponding operations add to the value of several raw materials. Some of the European economical writers therefore class salted and pickled meats and fish among their manufactures.

From a review of these facts, not only the peculiar benefits rendered by the manufacturers to the fisheries are evinced, but it is apparent, that since the operations of the fishermen partake strongly of the manufacturing character, their occupation is in part, comprehended in the manufacturing branch of the national industry.

Defence. It has been considered as proper to submit under a separate and distinct head, another class of facts, relative to such manufactures, as are useful or necessary to *the defence of the United States*.

It has been occasionally deemed expedient to restrain the exportation of those manufactures, which are requisite for war. From this consideration and from obvious policy, the federal and state governments are conceived to have wisely partaken in the manufactories of such *warlike goods*, and to have encouraged them even by high duties, and by advances in specie, or in the principal raw materials. Difficulties arising from a want of capital are thus surmounted, in cases wherein the public purchases are often the principal, and always very considerable.

The important modern operations of casting cannon without a calibre, and boring them out of the solid mass of cast iron, for the reception of the ball, by water machinery, was first performed at the public expence in the United States. Several armouries for small fire arms and swords have been established by the states and by the union. Contracts, with advances of money, not only for making arms and other military manufactures, but for importations of the proper raw materials, have been repeatedly made and to a large amount, upon security. Adversary belligerents have forbidden or prevented the exportation of warlike manufactures to other countries and of course to the United States, during our late neutrality. Indian wars, occasions of apparent danger from abroad, and the commercial demands on this country for military supplies for various foreign places, within the last twenty years, have caused very considerable attention to the repair and manufacture of arms; and to making establishments for these and other instruments and munitions of war in the United States. It may be safely affirmed, that there is no irremovable obstacle to the manufacture of every species of arms, and almost every supply of war, of good qualities and in sufficient quantities. *A well devised system of inspection exists in some branches of manufactures under several of the state governments; and such a system, as to military supplies, has been proved to be indispensibly necessary, by the experience of the union and of the states, on many occasions, during the greater part of the last twenty years.* But whatever has been the amelioration of this important operation, within two or three years, the ordinary, sale and exportation of arms, without inspection, is yet practicable; while the trade in flour, wet provisions, lumber, potashes and other staple goods, in several of the states, has been wisely placed under a *very strict and salutary regimen of inspection.*

Since various foreign nations have obstructed military supplies, which we have endeavoured to procure from their ports, and since the present war has imparted the contraband character to all such things, the importance of the manufactures of that description to the defence of the country, particularly at this time, is very great and manifest.

The possession of iron, lead, salt petre, charcoal, wood for ships and vessels, for military carpentry, and for every description of wooden implements and instruments of war, and the constant supplies of foreign raw materials for warlike manufactures, enable the United States to make the necessary establishments. Accordingly it appears, that common founderies and all other military works and shops, are as practicable as they are indispensable to the peace, union and safety of the country. *The difference in the situation of the United States, at the respective commencements of hostilities in the year 1775, and in the year 1812, is greater, in respect to the various manufactures necessary to defence, than it is in respect to any other matter, in the whole circle of its national industry.* In the times of the provinces, the public defence was under the care and controul of an external and distant national government, which preferred to draw the public supplies from the manufacturers of the metropolitan state, adjacent to the court and offices. But now, *the all important principle of internal resource, well understood, and the present state of American industry occasion a course diametrically opposite, to be maintained by the union, the states, many associations, and numerous individuals.\**

It is a fact in the history of the manufactures of the United States, that in some very important instances, *the knowledge or the acquisition of the means of manufacturing has occasioned excitements and exertions of the cultivators to produce the raw materials.* In this complex business, success, in one portion of the means, has quickened the exertions to procure the remainder. In the year 1786, I became well acquainted with the fact, that *labor-saving spinning machinery was considerable in Great Britain.* It was understood, that it was applicable, at that time, only to *the carding and spinning of cotton, which we constantly imported from foreign countries, apparently to the amount of our whole consumption.* In the course of the following of autumn and winter, repeated examinations and considerations of this subject occasioned very high expectations from a few well authenticated facts, in relation to the production of the cotton raw material, in gardens and other small pieces of land, *as far north as the latitude of thirty-eight degrees and forty-five minutes,† and*

Labour-saving  
Machinery  
and Cotton

\* So universal, so efficient and so important is the simple and common blacksmiths branch of our manufactures, that it would be practicable in one month to possess every ablebodied male white man in the United States, now unarmed, of a plain thrusting sword and pike of our own manufacture, for a million of dollars.

† A vicinity in the county of Talbot, in Maryland.

in some other places on the rivers of the Chesapeake bay. It was inferred, that as the shrub or the tree grew in that central degree of our country, all the extensive region, south of thirty-nine, was capable of producing cotton, which is found in climates not only hotter than those of North America, but in the torrid Zone. It was therefore confidently presumed, that *the cotton spinning mill* might be brought into very beneficial use in the United States. The production of cotton in the old settlements of Virginia was carefully examined, as a test of this opinion, and opportunities offered to make it, in a manner, commanding entire confidence. After the more exact information of the existence and operations of the labor-saving cotton machinery in Europe had led to due reflexion on the incalculable importance of the vast capacity of this country to produce the proper raw material, the most effectual measures were actively pursued to excite the attention of the whole community and particularly of the *planters of the five original southern states*. But though our capacity to produce the cotton was so great, as at this time we know it to have always been, though labor-saving machinery was effecting a gainful revolution in manufactures in Great Britain, though cotton was then worth in the United States, forty-four cents per pound owing to foreign trade laws, and though it was at high prices in many parts of Europe, several years had elapsed before sufficient attention to the culture could be excited, even by the numerous publications, which were incessantly made. At length however, *the proper consideration of the great natural capacity of the southern states*, and of *the peculiar value of the labor-saving machinery to a nation of moderate numbers dwelling in a country of redundant soil*, with the all important discovery of the *saw-gin*, has occasioned our cultivators to produce the requisite cotton. These two machines for cleaning cotton in America and for spinning it abroad and at home, with the ordinary modes of household manufacture, have drawn the planters into a very enriching revolution in the southern agriculture.

*The inestimable principle of the labor-saving means of manufacture* being thus brought into consideration and practice, in the case of *machinery*; and labor-saving processes, such as the brewery, distillery and tannery, being drawn into similar notice, *a new and most highly beneficial career in the national industry has been commenced by the United States*. Carded and combed wool, flax and hemp have been subsequently subjected to manufacturing machinery, adapted to their respective forms and natures. We have been taught that 30,000 pieces of metal have been coined and counted, in England, in a single hour, by a steam engine, adapted to mechanism, capable of application to the button manufactory and to other branches susceptible of such operations. Several nail making machines, of curious facility and great utility, have been invented *in the United States*. Certain skins, formerly half expended in offal parings or remaining of an useless thickness, have been split, by an American invention, into equal and useful parts. The simple, but tedious operations of the dip manufactory of tallow candles, have been abridged or accelerated by a labor-saving wheel. The mechanism for steam has undergone a variety of new and most curious modifications in this country, greatly extending the uses of that vast and omnipresent power, in modes, directly or indirectly subservient to manufactures. An improvement in the construction of draught casks has been invented, to obviate the great expence of bottling malt and other fermented liquors. A simple, cheap and rapid chemical process has been discovered to extract the ill flavored, empyreumatic oil from distilled spirits. Since the confirmation of the settlements in this country, Hydraulics, chemistry, geometry and all the arts and sciences have been rendered very extensively subservient to manufactures and the useful arts. *Deeply impressed with the peculiar value to them of these modern aids and means*, the people of the United States seek the establishment of manufactures by every variety of ingenious mechanism, process and device, which, while they save time and labor, manifestly exempt them from the deleterious modes of the old manufacturing system. If, in other countries and in former times, various classes of morbid and decrepit persons have been produced by the ancient method of making goods, *only by human hands*, and the citizens of America shall continue to pursue, to the utmost of their power, *the use of water steam, horses, cattle, machinery, dexterity and various modern processes and devices*, to effect the same beneficial ends, they will prevent the creation and existence of those sickly and deformed classes of people in this country. Women, relieved in a very considerable degree from their former employments, as carders, spinners and fullers by hand, occasionally turn to the operations of the weaver with improved machinery and instruments, which abridge and soften the labor, while the male weavers employ themselves in superintendance, instruction, superior or other operations, and promote their health by occasional attention to

gardening, agriculture and the clearing and improvement of the farm. The lapse of a few years will release from the restraint of the patent, *the iron bound shoe* (the rights to make which are much diffused) when the sedentary labors of the journeymen will be greatly relieved. The dangerous services of the writers desk have been incalculably lessened by the printing, copper plate and copying presses, and several pentagraphic and other graphic inventions. Many of the uses of the labors of the statuary and the painter have been attained by the multiplied portraits and scenic representations of the various classes of engravers. The auxiliary part of the making of men's apparel, is extensively performed by the aid of females, formed by nature and habit for sedentary occupations. Some branches of manufacture, unfavorable to health, are unsuitable to us, and will be long unknown to our country, and other branches formerly of the same ill tendency have been exempted from their pernicious effects by the employment of mills, and the improvements in the operations and in the construction of laboratories. It is a manifest truth to which we ought most seriously to advert, that, besides the proper or corporal powers, industry and skill of the people of the United States, we have attained, by water, steam, cattle, labor-saving machinery and chemistry, the means to effect, with an exactness and promptitude beyond the reach of manual power and skill, *a great variety and number of manufacturing operations.* These wonderful machines, working as if they were *animated beings, endowed with all the talents of their inventors, laboring with organs that never tire,* and subject to no expence of food, or bed, or raiment, or dwelling, *may be justly considered, as equivalent to an immense body of manufacturing recruits, suddenly enlisted in the service of the country.\**

In order to display the present form and nature, and in some degree the extent of the arts and manufactures of the United States, the substance of the returns of the marshals and their assistants, are presented, in the shape of two series of official tables in the third and fourth parts of this work. In submitting this body of new evidence, it is necessary to state, that the information it contains is of various dates, in the last five months of 1810; and, that it relates to the whole national population of that time, being 7,239,903 persons of both sexes, and of all colours, ages and conditions. Though many of the officers and assistants have performed this new and difficult service with much zeal and intelligence, yet various causes have concurred, to, occasion, *numerous and very considerable* imperfections and omissions, in returns from cities, towns, villages, townships, hundreds, counties, and, as to valuable articles and branches, from states, to be observable. In these first sets of tables, it has not been thought best to supply those defects by detailed and diversified estimates, which must be erroneous and might be sanguine. It was observed, that there were some instances of goods of a doubtful nature, or which could not be considered as manufactured in so material a degree, as strictly to entitle them to be placed in the class of "*manufactures.*" These have been separately exhibited, but are considered as sufficiently relative to the subject, to render these imperfect returns of them useful, both to the various departments of the government, and to those persons, who are engaged in, or propose to enter into the manufacturing business.

\* The diminution of *manual* labor in Great Britain, by means of *machinery* in the cotton business was estimated in the year 1808, at .200 to 1. An able writer and artist [Mr. Jno. Duncan of Glasgow] considers it to be much more. It has appeared to be a most important object to attain certainly on this point, and it is hoped, that the people of the United States will duly consider it. Indeed Great Britain may be considered to have lately forced the most unobserving to perceive the vast importance of labor-saving machinery and processes. It is rendered universally visible by her orders in council, blockades, and other obstructions of the supplies we used to receive from her and from the continent of Europe. Our observation of it is quickened by these obstructions to the sales of our provisions and raw materials, in our own and foreign seaports. The merchants and others have been led, by the same causes, to employ in such manufacturing, the very capital with which they would rather have traded, though to less advantage.

## ERRATUM.

Page 17, line 29, for Accipenser, read Acipenser.

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