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SOCIAL SCIENCE ASSOCIATION
OF
PHILADELPHIA.

PAPERS OF 1875.

SILK CULTURE AND HOME INDUSTRY.

READ BEFORE THE ASSOCIATION APRIL 8th, 1875.

By DR. SAML. CHAMBERLAINE.

The following is a list of the Papers read before the Association :

1871. *Compulsory Education.* By Lorin Blodget.
Arbitration as a Remedy for Strikes. By Eckley B. Coxe.
The Revised Statutes of Pennsylvania. By R. C. McMurtrie.
Local Taxation. By Thomas Cochran.
Infant Mortality. By Dr. J. S. Parry.
1872. *Statute Law and Common Law, and the Proposed Revision in Pennsylvania.* By E. Spencer Miller.
Apprenticeship. By James S. Whitney.
The Proposed Amendments to the Constitution of Pennsylvania. By Francis Jordan.
Vaccination. By Dr J. S. Parry.
The Census. By Lorin Blodget.
1873. *The Tax System of Pennsylvania.* By Cyrus Elder.
The Work of the Constitutional Convention. By A. Sydney Biddle.
What shall Philadelphia do with its Paupers? By Dr. Ray.
Proportional Representation. By S. Dana Horton.
- ✓ *Statistics Relating to the Births, Deaths, Marriages, etc., in Philadelphia.*
By John Stockton-Hough, M. D.
On the Value of Original Scientific Research. By Dr. Ruschenberger.
✓ *On the Relative Influence of City and Country Life, on Morality, Health, Fecundity, Longevity and Mortality.* By John Stockton-Hough, M. D.
1874. ✓ *The Public School System of Philadelphia.* By James S. Whitney.
✓ *The Utility of Government Geological Surveys.* By Prof. J. P. Lesley.
The Law of Partnership. By J. G. Rosengarten.
Methods of Valuation of Real Estate for Taxation. By Thomas Cochran.
✓ *The Merits of Cremation.* By Persifor Frazer, Jr.
✓ *Outlines of Penology.* By Joseph R. Chandler.
1875. ✓ *Brain Disease, and Modern Living.* Dr. Ray.
✓ *Hygiene of the Eye, Considered with Reference to the Children in our Schools.* By Dr. F. D. Castle.
✓ *The Relative Morals of City and Country.* By Wm. S. Peirce.
✓ *Silk Culture and Home Industry.* Dr. Saml. Chamberlaine.

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10-14-1905. R.M.W.

SILK CULTURE AND HOME INDUSTRY.

THE domestic industry that belonged to the last century and to the early part of this nineteenth century has no longer any existence amongst us. In those days the cotton, flax and wool was raised by the father and his sons, and carded, spun and woven by the wife and daughters. The father boasted of the quantity he could raise; the wife prided herself upon the excellence and beauty of her *home* manufacture. She supplied, with her own hand and her daughters' help, all the needs of her household, and prepared, beforehand, for the anticipated wants of sons and daughters, when it should be their turn to enter upon the cares and duties of a family. In those days the *spinning wheel* was at hand in every household. Now it is only to be seen as a gilded sign over Milliken's linen store. Then it told of the home, of the American home, and of the English family traits that came to us from our Anglo-Saxon fathers; it told of careful housewifery, of motherly supervision over the daughters, and of domestic labor carefully apportioned to the strength and capacity of each. The steam engine, with its tyranny of labor, was not then known, and the constant tread-mill demand for ten hours steady work had not been heard. It is only now, after the experience of two generations, that we realize how the steam engine and the factory have destroyed home industry and our homes. In England this is in a measure perceived, and we find reports of an Anti-steam Association, amongst whom steam-power is abjured; all labor that is possible to human hands being committed to human hands, and no aid other than animal power is permitted, nor even this where man-power will suffice. Whether this is but the suggestion as yet of John Ruskin, or has been truly put into effect, the very suggestion proves that more work for human hands to do is the want of our times, and that an industry to occupy the time and attention of those who stay at home is the need for us. We need it to supplement the power of steam; to produce yet more work for

steam power to do; to provide "the small things" for "the day of small things," while steam provides the great.

There was, however, a time when the factory and the steam-power promised better things. Those were the days of the Lowell factory girl. We may not deny her the title of lady. She was refined, educated. She performed her daily work with skill and even elegance. She returned from her factory duties to read or to sing, or to play the harp or piano, and laid these aside to write for her Lowell journal. She maintained the character and refinement of a lady, while receiving her wages as a workwoman. She was not degraded by her work; she elevated the work itself by the skill that her literature and education enabled her to throw into it. But the Lowell factory girl was a product of silk culture. Sixty years ago she gathered the mulberry leaves, fed the worms, cured the cocoons and reeled the silk at home; and this she used herself or sold at the nearest store, often in the way of barter for family wants. The factory was erected. The wages were more than her home product; they were sure and steady; her worms might not be a success. Moreover it was money that she got, and this seemed better than bartering for goods. She ceased to raise silk, therefore; suffered her stock of worms to die out and failed to renew the trees that by this time began to die of very age. The factories got all their silk from China, and she became the Lowell factory girl, to be supplanted in time by the ruder and coarser hired girl, who now performs her factory work; for if we may believe a late report of the Massachusetts Labor Bureau, the Lowell factory girl, with her literature, and her music, and her journal, is a woman of a past age: she exists no more as such. The factory that withdrew her from her domestic industry at home has discarded her for the cheaper and ruder labor that does *not* "mingle the beautiful with the useful" [*"miscuit utile dulci"*]. But she no longer raises silk. The "ten, twenty, fifty or an hundred pounds" (Cobb, p. 128) that her mother or her grandmother produced, is no longer added to the comforts of the family, nor to the wealth of the State. The eight or nine thousand pounds that a single county of Connecticut produced in 1828 (Cobb) are brought from foreign countries (China or Japan) to the very mills in which she worked, and the labor of her father and her brothers is sent in the shape of hard-earned gold to pay for the

silk that she might have made and that her trees might have easily produced.

Times have changed, and with times' changes have come great changes of fortune to us all. Especially since the great upturning of our social condition by the war for slavery, have changes been wrought in the fortunes of many who had not thought to labor for a living. Still more, we are suffering from a stagnation of all trades and all business, so that even some who have property and possessions are yet suffering for want of income from these. We need, our country needs, we all need a new industry to set in motion the wheels of trade, to start anew the stagnant or sluggish circulation of money. We need, especially, a *home* industry; something to occupy profitably the *home* hours of those who feel the need of money, yet are not able to enter the lists of labor and to contend with hand and arm against the brawny hands and arms that have been early used to labor. The raising of silk would supply this need. The labor is light, the expenses small, the apparatus required, none. A few boxes of pasteboard, in her own room, comprised the laboratory of a lady in Camden, who raised the worms and reeled the silk she required for her own use, and some pound or two beside that she offered to the silk weavers of the city. A single chamber 12 x 20 feet, with a line of shelves along the walls, enabled a lady in Elkton to raise the worms and make silk with so little of actual work, that her niece spoke of it, and of her own aid in the care of them, as a most happy period of her life. In the days of the great silk excitement (1835 to 1842) boys of ten to fifteen years gathered the leaves, fed the worms, reeled off the silk. Many of them, now men of age, speak with evident pleasure of that which was not indeed a labor to them, but rather a sport and a play. Yet, from Mr. Cobb's account, it was possible for the Connecticut families to add from \$50 to \$500 to the family income from this light labor alone. As a remedy, therefore, for hard times; as a means of alleviating the distress from changes of fortune; as a mode of producing income that does not involve hard labor, nor contest with those who are inured to labor; and especially as a means of reviving the home industry that has departed with the advent of steam and of factory labor, silk culture recommends itself to our consideration, and that especially at this time of general depression and stagnation of business.

Of the riches that flow from silk-culture it would seem scarcely necessary to speak. We all know that it is "the great and inexhaustible source of wealth to China" [Kendrick]; that France "derives her power and resources mainly from this branch of her industry" [Cobb]; that to Italy, Austria, Turkey, it is an important product; and to Japan scarcely less so than to China; while to the United States, with soil, climate and population admirably suited to the culture, it is as yet unknown as a staple product, and is remembered only for the few spasmodic efforts that have been made to introduce it. A journal of 1870, [*The American Exchange and Review* for October, 1870,] gives the following list of silk-producing countries and their supposed annual revenue from raw silk:

1. The Chinese Empire, \$81,200,000	10. Syria.....	\$1,800,000
2. Italy,..... 39,200,000	11. Turkistan,.....	1,400,000
3. France,..... 25,000,000	12. Pontifical States,.....	1,300,000
4. India,..... 24,000,000	13. Austria,.....	1,280,000
5. Japan,..... 17,000,000	14. Greece,.....	840,000
6. Turkey,..... 7,000,000	15. Turkistan, (China,)...	400,000
7. Asia Minor,..... 5,200,000	16. Morocco,.....	300,000
8. Persia,..... 5,000,000	17. Corean Archipelago,..	100,000
9. Spain and Portugal,.. 3,200,000	18. America,.....	80,000

Here we see America, which probably means the United States only (and from the date we should suppose California alone), is credited with the production to the amount of \$80,000 only; while China yields a thousand times as much, and Italy five hundred times; France and India, each three hundred times; Japan, two hundred times; and even the little Morea of Greece, scarcely largely than our State of Delaware (the whole of it not larger than Vermont), has ten times our product attributed to her. Although statistics are somewhat tedious to read and difficult to carry in mind, it may not be amiss to sum these up in such manner as to show the regions of the world in which silk is now being raised, and the great value of the product to these regions and their peoples. The value to

(1.) China, is over.....\$81,000,000	(3.) India, etc.....\$44,000,000
(2.) Italy, and its near countries 46,000,000	(4.) France (alone)..... 25,000,000
	(5.) Japan (alone)..... 17,000,000

Compared with these, our \$80,000 seems but a very small drop in the great sea. But statistics do not give us so vivid ideas of the wealth produced as do some of the pictures presented to us by

the accounts from China ; as of the Venetian traveler, Marco Polo, who says that in his day "no fewer than 1,000 carriages and pack-horses, loaded with raw silk, made their daily entry into the city" —Cambalu, which he reports as the then name for the royal city. "Great, rich and crowded cities, filled with manufacturers of silk and merchandise, covered the whole extent of China." His report started Columbus on his voyage of discovery, and gave to Europe, not the silks of China, but the far greater wealth and the far greater capacities for silk, as well as for every other product, that our country is developing.

The late Emperor of China, of whose decease we have just heard, was married about three years ago ; and we find in the *Ledger* of July 12th, 1872, that "the preparations for the marriage (of the Emperor of China), are being conducted on a scale of truly Oriental magnificence. An imperial edict requires *one* of the silk producing provinces to furnish for the occasion 3,350 pieces of silk-goods, 400 cattiees of silk-thread and embroidered velvet, 1,800 pieces of fine cotton cloth, 4,800 pieces of brocaded cloth, 200 pieces of plain green silk, and 2,000 silk articles of attire for the household and guard of the Empress elect : also 8,000 silk dresses and 800 pieces of plain silk, for the reserve wardrobe of the Imperial body-guard ; and 5,000 silk dresses and 500 pieces of plain green silk for the Imperial chair-bearers and escort. These are all to be supplied free of cost. The merchants upon whom these overwhelming honors have fallen, respectfully petition the Court that the distinction may be shared by other provinces of the Empire."

Of the importance to France of her silk-product we form a better idea than statistics can give, from the effects produced a few years ago, when Louis Napoleon arranged a treaty of free-trade with England and removed the protective duties from silk. Bread-riots immediately ensued throughout the silk-producing provinces. It became necessary to send the military against the citizens, and to renew the duties, before quiet could be restored.

There is absolutely nothing to forbid the culture of silk in the United States. Only the will to do it, and the wisdom to prepare the way for it, is wanted. It has actually been produced at some time, during our century of existence, in nearly every State of the Union. The product has always been of the best ; not merely equal to, but

pronounced superior, to that produced elsewhere. It is even now being produced in several of our States, and far more extensively than the public seems to know; although for the most part it is being raised for amusement or for private use, or as a matter of curiosity, rather than for profit. The Germans in New Jersey are raising it; individuals in Pennsylvania; a silk manufacturer in Kansas; a company in Louisiana; others, in company or as individuals, in California, are raising it—some of these raise and export the eggs only, and find profit in them. Others have undertaken to prepare the cocoons so that they could be reduced to a compact mass and so exported. Others again have reeled and prepared the silk for the weavers. A gentleman from Beaufort, in South Carolina, brought a specimen of silk raised and reeled under his direction to this city two years ago: it was pronounced by the silk-weavers here to be of excellent quality: they told him that such silk would bring the highest price at which it could then be sold; that they would give him \$13.50 for all he could make of such silk, the average price of all qualities being then about \$6 per lb. We find from the several treatises on silk that every State on the Atlantic Coast from Maine to Florida, and those on the Gulf of Mexico, also (of the formerly called Western States,) Indiana, Illinois, Missouri, have all raised it at some period. Ohio went into the culture quite largely, and in 1860 reported 7,394 pounds, according to the Census Bureau. This is more than twice the quantity reported by California for the census of 1870, in which nine other States also report raw silk, from the one pound of Pennsylvania to the 153 pounds of the State of Tennessee. It is plain from these facts that neither climate nor soil forbids the culture. That which has actually been done, and done in the best manner, producing a marketable article equal or superior to the best foreign product, can be done again; and without doubt will be done again, when circumstances are such as to favor the doing it with profit to all concerned.

Why did the silk-culture fail in 1840? is the question invariably asked when this subject is introduced. The remembrance of the great *morus multicaulis* mania and the subsequent financial embarrassment, seems to be lasting beyond that of all other panics. Men do not refer to the oil-fever, nor to the Black-Friday in gold, with any thing like the same warmth with which they speak of *multicaulis* and silk culture. They do not refuse to deal in

oil, nor to buy and sell gold, because of those disasters. Perhaps if the trees remained to us, as the oil and the gold remain, for other operations, there would not be the same horror of multicaulis, as though it alone were to blame. But the madness of planting, as they were recklessly planted, was exceeded by the madness with which the trees were uprooted and destroyed. Our fathers seem to have wreaked their vengeance upon the innocent trees for the disappointments of fortune they endured. They tore them up, carted them out, burned them, and killed every root or sprout they could find. In regions where the multicaulis covered acre after acre for miles, there is not now a tree to be found; or if here and there one remains, it is but the decayed or decaying stump of the former tree. With all the extensive planting between 1835 and 1842, there was no provision made for permanence of the trees; and consequently none for permanent silk culture. When the failure came, the ground that had been devoted to growing young trees was needed for remunerative crops; and no one thought of preserving the now unsaleable switches by planting them in hedge-rows or in their gardens or their yards. But without the trees there can be no silk. For two hundred years the silk culture of Italy could not cross the Alps, because the trees were not in France, and there was no one to plant them. At the end of that time (in 1564), a gardener, Traucat by name, "laid the foundation of a most extensive nursery of white mulberry trees, from whence the whole Southern provinces of France became covered with plantations." [Kendrick.] It is so with us. The presence of the trees in great abundance and in easily accessible locations, is absolutely necessary to the production of silk.

The reply then to the question, "Why silk culture failed?" is that the trees were not preserved, and that they are not now to be found in any convenient locality. There was however a success, arising from the multicaulis fever, that redeems it from the charge of failure. Out of it arose the great silk-weaving industry that now employs more than \$15,000,000 of capital, produces annually \$25,000,000 of silk goods, pays nearly \$5,000,000 in wages, and gives work to about 12,000 persons [statistics from Am. Text. Manuf. for Oct. 1873]. Out of it arose the silk-weaving city of Paterson, New Jersey. Out of it have come the "147 silk weaving establishments in New York, New Jersey, Pennsylvania, Mary-

land, Connecticut, Massachusetts, New Hampshire and Vermont'' [as above]. If we are reconciled to the losses through the oil-fever by the fact that a large revenue is added to our State from the continued production of oil, we should be no less reconciled to the losses our fathers sustained when we contemplate this extensive and growing industry among us. But the presence of these silk-mills furnishes a reason for our return to silk-culture that did not exist in 1842—for they have all sprung into existence since that date. These furnish a ready market for all the silk that can be produced. We have seen that the Lowell daughter preferred the ready money from the mill to the uncertain barter of her silk for store-goods. But with ready money for her silk she would have preferred the safety and the comforts of home, with the control of her own time and work, to the advantages presented by the mills. Now we have the mills. The Lowell lady has returned to her home. Her need for ready money is no less than formerly; and if she had the trees at hand she would doubtless raise the worms, reel the silk and make her \$50 to \$500 as before. This domestic, home industry, may be renewed. Although the spinning wheel is a thing of the past, and will remain in its gilded splendour over the linen store (for it cannot be restored in the face of the steam-mill), yet the reel may take its place, and be once more found in the American home, as formerly in the New England home of the sturdy New England farmer.

The times are propitious for the restoration of this culture. Money is abundant and is seeking investment. No one seems to know what sort of investment is safe and at the same time profitable; for every kind of business disappoints the enterprise of the most careful and most far-seeing. A new industry that will employ hands that are not willingly idle, and will direct the attention of capitalists into a new channel, is the need of the hour. If set in motion, it will unlock the wheels of trade, open the channels of business and start anew the stagnant inter-societary circulation. But this new industry must not be suffered to run into the reckless speculation of 1840. At that time the raising of silk was but a pretext; the rapid accumulation of money by a fortunate sale of trees was the real object of the planter. We have learned much since that day with regard to the association of capital, so that small risks by many capitalists will not endanger the ruin of any,

if immediate success is not achieved. And capital so associated can effect what private enterprise cannot accomplish. It can regulate. It can distribute by rule. It can adopt a system that shall embrace the State. It, when incorporated, can arrange with the railroads to plant their station-villages with trees; or to line their embankments or their waste grounds with them; or to hedge in their roads with the mulberry. Such incorporated companies would buy village lots, and make the culture of silk the means of improving their purchase by the enhanced value of the land. They would increase the travel and the freights of the road by the increased population they would bring to every station-village so improved. The opportunities for legitimate business that would be opened by introducing this industry systematically and judiciously are too numerous for mention, and will occur to every one who reflects how entirely the value of property depends upon the amount and rapidity of the business that is being done.

An Industrial Silk-school is the form which such investment of capital should take. The capital should be large. It should be sufficient to purchase land more than enough for the wants of the school. It should derive its revenue and its increase from building and renting in the immediate vicinity of the school. It should build up the village around it; should buy lots and improve them—selling or renting them always with the stipulation that mulberry trees be grown and preserved upon the lots. “SILK” should be the aim; not ten, twenty or an hundred per cent. upon the capital. The revenue properly belonging to capital, the six per cent. that is its due, should be made the means of keeping money in this culture, and inducing more to enter it, and thus to extend the industry through the State. It would be unreasonable to expect that capital would aid this enterprise, unless its own legitimate revenue were produced.

An Industrial Silk-school established at one station-village, near the city, would be a beginning from which other like schools would branch out. It should foster these, not rival them. It should furnish trees, eggs, skilled employees and managers to them as they should arise, until from the one such school many schools, hundreds of silk schools, shall be found distributed over the State; and every third or fourth station-village should boast of the amount and excellence of the silk it could produce. Every

such school would be a focus of silk-culture. From it the neighbors would procure their trees or their eggs, or the cocoons to reel. To it they would bring their leaves for sale; or their eggs of choice size; or their silk, the reeling of which had employed their winter evenings. Each school would gather up the silk product of its neighborhood for sale to the mills that are now near at hand, as they were *not* in 1840—to the mills of Philadelphia, or of Paterson, of Baltimore, New York, or elsewhere within reach.

The picture of silk culture that it is purposed here to present is not that of 1840. Then whole fields were covered with the broad-leaved multicaulis plants. Wheat, corn, potatoes, fruits, and every other remunerative crop was displaced, that the inedible switches might be grown. It was not at the towns and villages, but over all the farming land that they were spread. The failure to sell them lost his whole year's crop to the farmer, and to some farmers the year's product of all their land. At that time individuals, putting all their capital into the experiment, sought to make not only a living, but a rapid and large fortune out of the profits of silk culture; and they failed from want of support outside of their own means, and from the absence of that routine in trade which only time and use can establish; from the absence also of ready cash sales at a home market—for all the silk was then exported.

The picture that we aim here to draw is that of a wide distribution of silk culture. We would picture the village whose streets are shaded by mulberry trees, whose yards have one or more at every dwelling, in whose suburbs the fences are supplied by the intertwined branches of the multicaulis, and whose neighboring farmers bring leaves and branches from the mulberry hedge to the daily market at the industrial school. We see in imagination many such villages over all the State—hundreds of them—wherever the railroad has extended, or shall hereafter extend its conveniences of travel and of freight. We fancy many families engaged in the culture; the trees near at hand, or the leaves being easily procured, many a young girl, or elderly lady, or feeble, sickly man, will turn to this culture for amusement or for profit. “The ten, twenty, fifty, or an hundred pounds,” that Mr. Cobb found “a family makes in a season,” in Connecticut in 1828, will yield its \$50 to \$500 to the Pennsylvania family of the future. We see in imagination these family products flowing to the industrial school;

and from the many industrial schools to the chief silk school; and from it sold to the city mills; while the return flow of ready money from the mills carries wealth and prosperity to every silk village in the State. Nor is this picture a vain one. It can be made a fact. There is abundant testimony to show that the silk produced in Pennsylvania, in the neighborhood of Lancaster and Carlisle, was silk of the best kind—the very best, making “a stronger thread than the foreign silk,” and “by many of the manufacturers it was altogether preferred” (census of 1861, p. c. 1). The number of villages around the railroad stations is increasing year by year, but they are already numerous enough to raise the one million sixty three thousand eight hundred (1,063,809) pounds of raw silk that was imported into the country in 1872, at a cost to the country of five million six hundred and twenty-five thousand six hundred and twenty (\$5,625,620) dollars! Five to six millions of the hard earnings of men sent to the Chinese or to Japan, for a material which the feeble hands of women and children could have as readily produced in our own State—Pennsylvania alone can raise all the silk that the present mills of the country require! Pennsylvania can add five millions of money to her effective annual resources, by utilizing the now useless mulberry tree!

The names that have been associated with silk culture are honored names—Colbert, Olivier de Serres, both ministers at the Court of France; Count Dandolo, whose careful labors trebled the product of the French silk provinces; Henry and Francis, kings of France, who both fostered and encouraged its growth; King James I., of England, who, fulminating his harmless thunders against tobacco, sought earnestly to introduce silk growth into all his dominions. Dr. Franklin exerted himself to introduce it into Pennsylvania, long before Mr. Du Ponceau gave a helping hand to Mons. D. Homergue, to whose example and writings the efforts in 1830-40 were due. Who now will claim the honor of adding this rich industry, this wealth-producing staple, this \$5,000,000 annual (gold dollar) product, to the revenues of Pennsylvania? Is there not one who will aid in setting this beautiful branch of skilled labor at work? Is it not the part of the Social Science Association to examine into and commend the effort to set so many Pennsylvania families at this highly remunerative culture?

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