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PARIS UNIVERSAL EXPOSITION, 1867.  
REPORTS OF THE UNITED STATES COMMISSIONERS.

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REPORT  
ON  
CLOTHING AND WOVEN FABRICS,  
BEING  
CLASSES TWENTY-SEVEN TO THIRTY-NINE  
OF  
GROUP FOUR.  
BY  
PARAN STEVENS,  
UNITED STATES COMMISSIONER.

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WASHINGTON:  
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THE UNIVERSITY OF THE STATE OF NEW YORK  
THE STATE EDUCATION DEPARTMENT

REPORT

OF THE

COMMISSIONERS OF THE STATE EDUCATION DEPARTMENT

GROUP TOUR

TO THE

WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1910

## INTRODUCTION.

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The United States Commissioners to the Paris Exposition of 1867 appointed a committee consisting of Professor J. Lawrence Smith, Doctor W. E. Johnston, and myself, to report on the Products of Chemistry, on the Preparation of Food, and upon Clothing.

It was not found convenient to pursue this labor jointly, and the report on chemicals was undertaken by Commissioner Smith, the report on food by Commissioner Johnston, and that upon clothing was left to the undersigned.

Without any special qualifications for this work derived from my habitual pursuits, or any opportunity for preparation, I occupied myself with the collection of materials and memoranda for the report. Among the more important of these materials I mention the valuable reports in French upon some of the classes by members of the International Jury, from which translations have been freely made. With these reports, and with the excellent assistance I was able to procure, I have completed the task which fell to me, and now submit the result to the Department with the hope that it may be found of some practical interest and value.

PARAN STEVENS,  
*United States Commissioner.*





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# CLOTHING.

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## CHAPTER I.

### CHANGES IN THE FASHION OF CLOTHING—COSTUMES.

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In the classification adopted by the Imperial Commission, "Clothing, including fabrics and other objects worn on the person," were assigned to Group IV, Classes 27 to 39.

It was obviously impossible to enter upon an exhaustive discussion of the wide range of subjects which were here grouped together. It was one of the most comprehensive groups in the whole Exposition, including not only made-up clothing for both sexes, but cotton, linen, woolen and silken fabrics; hats, bonnets, gloves, umbrellas, articles used in traveling, laces, and ornaments of all kinds. Special reports upon cotton, wool and silk, as raw materials, and partly upon the manufactures of each, having been made by others, the present report is confined more exclusively to clothing, and those objects which are accessory either for comfort or ornament, and the effort has been made to present some statistical data of general interest and application. The number of exhibitors in these classes was considerably over one thousand. France had two hundred and nineteen, Great Britain forty-two, and the United States nine.

### HISTORY OF CLOTHING.

The history of clothing, it may be said, is coeval and intimately associated with the social and political history of man; and when the task of setting forth intelligibly the subject of clothing, as one of the great prime necessities of the human family, and in its economic relations to other industries represented at the Universal Exposition, is entered upon, it will be proper that some historical outline of the changes which

have occurred in the attire of both sexes should at the same time be placed before the reader. In fact, as it was intended that the Exposition should be universal, not only showing the present stage of advancement in all useful productions of human industry or skill and the modes of production throughout the world, but all of the various preceding stages of progress, the articles, the manner of using, and the processes of fabrication, to omit such a retrospect as that referred to would be ignoring the spirit in which this comprehensive epitome of the productive energies, inventive resources, and progress of the world was conceived.

In the early ages of the world dress was simple as the manners of the people who inhabited it, being at first composed of leaves, feathers, and the skins of animals. Gradually the inventions of tanning, spinning, weaving and dyeing were adopted, and mankind yielded to the temptations of vanity. They abandoned the simple modes of their forefathers and gave themselves up to the most luxurious and costly adornment of their persons.

To such a height did this devotion to dress and finery attain, that decrees and ordinances have from time to time been adopted by many nations to lessen the growing evil. So great has been the passion for dress in some periods, that revolutions have resulted from the attempted enforcement of sumptuary laws and edicts intended for the prevention of extravagance.

When the Tartar conquerors of China ordered that the luxuriant tresses of the native inhabitants should be cut off, the victims regarded it as such an indignity that in many instances the native Chinese preferred losing their heads to submitting to the decree.

In Spain, also, violent disturbances were caused in the last century by an attempt to prohibit the use of the *capa* and *sombrero*.

In England many efforts have, at times, been made by the governing powers to check not only extravagance in dress, so far as richness and splendor of materials were concerned, but also to change the cut and style of various parts of the apparel of both sexes. Several of the earlier monarchs attempted to restrict the length of pointed shoes, and though fashion yielded to the sustained attacks, she revenged herself by the introduction of shoes of such extravagant width that another restraint was soon imposed by the royal authority.

Queen Elizabeth made many laws affecting the attire of her subjects, though she was proverbial for her fondness of dress and the singularity of the fashions she preferred. She compelled the peasantry to wear a cap of a certain shape, and, probably to encourage home industry, as well as to restrain the mania for foreign fashions which had long been prevalent among her subjects, she ordered that this head-dress should be of domestic wool and manufacture. She also limited the size of ruffs and swords to be worn by her courtiers to the proportions she regarded becoming in subjects to adopt, and appointed officers to watch for vio-

lations of the law, and to break all swords and clip all ruffles exceeding the prescribed limit. She also entered with much detail into the regulation of the costume worn at the inns of court, specifying forms, colors, and the quantity of embroidery to be used.

The Turks have also in times past set their faces against the use, on the part of Grecian ladies, of long skirts peculiar to their traditional and classic mode, and officers have been appointed to cut off any superfluous length. The Turks have established many other regulations concerning distinctive dress, such as a monopoly to themselves of yellow slippers, rich silk or muslin turbans, and shawls of the gayest designs and textures, while they required their Grecian vassals to wear dark cotton caps, the Armenians to adopt grotesque pumpkin-shaped capas, while brimless caps, shaped like inverted flower-pots, were prescribed for the Jews.

Of late years, however, the Turks themselves have yielded reluctant obedience to a decree of Sultan Mahmoud, ordering that a red cloth fez or military cap should be worn by Mussulmans in place of the calpac or turban. This ordinance was violently opposed and protested against, and those who favored it had their houses fired; and though the will of the Sultan prevailed, the Turks have never recovered from their disgust at the supplanting of the cherished turban so long worn by their ancestry.

Charles the Second, of England, prescribed a particular costume for the nobility to wear, dispensing with extravagant display of gold, silver, lace, and jewels, which had distinguished the preceding period of his reign.

Gustavus, one of the kings of Sweden, prescribed a court dress for each sex, to be worn when they were admitted to his presence.

Napoleon the First, against much opposition and criticism, exercised his imperial authority in the same direction; and in times of great political agitation, his proceedings on the subject were discussed with much vehemence and interest in the national convention of France.

It is difficult to realize that France, the dispenser of modes and of the most elaborate and beautiful materials and articles of dress, was in her infancy as primitive and rude as any of the other countries of Europe in matters of costume and toilet. Skins fashioned into a form which might be described as a tunic, with the addition in winter of a cloak which, fastened over one shoulder, descended nearly to the ground, and a skin cap of very simple form, constituted the dress of the men. The women wore almost the same attire, only the tunic was longer, and the cap triangular in shape. But even in that primitive period, tradition says, they exhibited a marked predilection for such personal decorations as necklaces, bracelets, rings, and chains. Ancient statuary has been exhumed in that country, in which the figures were dressed in tunics with long sleeves reaching to the hand, the over dress being similar to the Roman *sagum*, with the addition of sleeves. On the heads of the figures were caps resembling the Phrygian bonnet.

Some variety is exhibited in the minor details of their dress. For a long period the higher classes wore long robes trimmed with ermine or other valuable furs. The early kings of France, beginning with Clovis, wore a tunic and a mantle resembling the Grecian *chlamy*.

Changes are first to be noticed in the garments which are represented in two statues of Charlemagne. The first gives a moustache, but is without any indication of a beard, a tunic terminating above the knees, and a *chlamy* with a wide border; fillets bound crosswise cover the legs. The costume of the other figure consists of a garment similar to a modern surtout. It has large broad sleeves with deep cuffs turned back, and a square collar. It is quite remarkable that this dress is ornamented with large round buttons, an article generally supposed to have been unknown at so early a period.

In the manuscript illuminations of the reign of St. Louis, the princes are portrayed in variously shaped habits. This leads to the belief that fashion was then taking her place as an institution which was to exert a powerful and lasting influence upon mankind.

Prince John wears hanging sleeves over the close ones of his tunic, and he holds in his hand a glove. Another of the princes has upon his head a cap, and wears a garment like a surtout, which shows the vest underneath. Another sports a hat like some of modern form.

About the middle of the fourteenth century was a period of great extravagance in regard to everything pertaining to the toilette. Garments were made brilliant with gold and silver, and such was the demand for precious stones, that they became very scarce, and the price of them advanced materially. Embroidery usually adorned the *côté hardi*, the under-sleeves fitted very closely, while the upper ones were long and narrow. Feathers were now first worn on the caps of gentlemen. The ladies' bonnets assumed an almost endless variety of forms about this time, and for the first time since the introduction of variable fashions, the female head relied upon the hair, without cap, bonnet, or hood. A large curl or plait on either side of the face, and a small spray of flowers or jewels, constituted its only ornament. The trains of the gowns became very long, and they were held up by pages.

In England, during the reign of Edward the Third, many new devices were introduced, most of which were from foreign lands. The Monk of Glastonbury writes, that "the Englishmen haunted so much unto the folly of strangers, that every year they changed them in diverse shapes and disguisings of clothing, now long, now large, now wide, now strait, and every day clothingges new and destitute and divest from all honesty of old arraye or good usage; and another time to short clothes, and so strait-waisted with full sleeves, and tapetes of surcoats and hodes over-long and large, all so nagged and nib on every side, and all so shattered, and all so buttoned, that I with truth shall say, they seem more like to tormentors or devils in their clothing and also in their shoging [shoing] and other array, than they seem to be like men."

In the reign of Richard the Second, great extravagance in dress prevailed, and most of the novelties of the toilette were drawn from France, Italy, Bohemia, Poland, Spain, and Germany.

During the reign of Elizabeth, pins, ribbons, and knit silk and worsted stockings were manufactured in London for the first time. At the death of Elizabeth, it is stated that there were three thousand suits in her wardrobe. The reigns of James and William and Mary were distinguished from that of their predecessor chiefly in the difference in coiffures. Enormous hoop-skirts came into wear at this time and remained a favorite article of dress until the nineteenth century, when George the Fourth condemned them as cumbersome and inelegant.

From the early part of the nineteenth century, the fashions originating in France have generally been adopted with little or no change by the English, as well as by nearly all other civilized nations, and this seems likely to be the case so long as the French are able to command facilities superior to other nations in rapidity and excellence of designs, and to retain for a long time the lead in the manufacture of silks and many other delicate fabrics.

#### CAUSES OF CHANGES IN FASHIONS.

It is obvious that aside from love of ever-varying novelties on the part of the consumers, there must be the great commercial motive of gain, inspiring and impelling the producing classes to call for the acceptance of new changes with as short intervals as can be tolerated; and though among sensible people of moderate incomes the rule seems to have been adopted and followed of restricting purchases to such quantities as will last in good condition only until the usual season for the expected change, or such material as can be made by alteration to conform to the mode, there is a general tendency among the arbiters of fashion to make the transition as radical as possible, in order to force a more general demand for the new styles. One month we have coat skirts hanging near the heels, when suddenly the decree of fashion abridges them to such a degree that we seem like schoolboys in roundabouts. The same is true as to length of waists, fullness or scantiness in the legs of pantaloons, the forms of shoes or of hats; and so, also, in female attire, equally extreme and arbitrary changes occur.

It is natural that the very prosperous group of clothing industries should be subject to occasional periods of overgrowth, especially where they are centralized as in Paris, gathering into their service too large a force of artists, artisans, and operatives. It is natural, also, that all of these classes of producers should share in a desire to have as constant and profitable occupation as they can obtain. It is noticeable that since the general adoption of steam-power conveyance of travelers by land and sea, the facilities of intercommunication have vastly increased the currents of foreign travel; and thus has the spread of detailed intelligence been quickened and made more frequent, and designs of new modes and

descriptions, samples of new materials, emanating every month or two from the great centers of fashion, have been scattered like falling leaves in every land, and thus the danger of an overstocked labor market is lessened, and the hands trained to industry are kept supple and expert.

Matters of taste being among the highest worldly evidences of the degree of civilization of a nation, France is naturally ambitious to maintain the vantage-ground; and having got so far the advance in all the preparatory systems of study and training, it is probable that all efforts at competition with her in these specialties will prove futile, until the new young republic of the West, guided by the experience of the older nations, and having established systems of industrial and art education and training, combining the best features of all of their prototypes of the eastern continent, and having collected in her museums and schools reproductions of the art treasures of Europe, shall, in maturer age, develop, in connection with the material resources of silk, linen, cotton, and every useful fiber and fleece, the originality, invention, and enterprise which in other branches of endeavor have become national characteristics.

It is doubtless an experience common even to persons of taste and refinement, that the impression which the mind receives, whether of approval or disapproval, of some peculiar fashion, depends upon its origin, association, uniformity, and succession. A sudden transition, unheralded by the journals which lend sanction and authority to every mode, however inconsistent with all requirements of taste, or opposed to ideas of convenience or health, and if imitated by a lady unknown to what are considered leading fashionable circles, would only excite merriment on account of its singularity; while if the same change had originated among those upon whom the fashionable world had been accustomed to look as the legitimate inventors and dispensers of modes, and had been simultaneously ushered in and adopted by those who, being on the alert, and possessing wealth, are regarded as leaders of fashion, then, although some faint protests and incredulity may be at first expressed, the new style rapidly gains adherents, and suddenly the invasion is complete.

From this state of things arises the significance of the phrase in fashionable parlance of the "*air distingué*." All modes, however bizarre and absurd they may seem at first observation, having once passed through this ordeal, become, either suddenly or gradually, invested with the quality which that phrase is intended to describe. The gravity with which the fair wearers move about, involved in combinations and forms which distort or caricature nature's graceful proportions, unconscious, apparently, of any departure from her laws, leads us to the inquiry whether the implicit obedience yielded to the decrees of fashion, without appeal to reason and judgment, has not, even in modern times, been too much like an abject submission to a despotism which is not devoid of mischievous consequences; whether some code of principles cannot be established by which the canons of pure taste and the requirements of



symmetry in form and harmony of color shall be the first essentials of the *air distingué*, and that any behest of fashion which ignores these shall fall as a dead letter from the moment of its utterance.

Some of the whims of fashion have been so inopportune as even to affect injuriously the health of myriads of her followers, of both sexes.

A love of dress, if indulged by a cultivated intelligence without overtaxing the pecuniary resources of the individual, far from injuring or obscuring any mental qualities, may, by the constant appeal to the judgment and taste, especially in woman, tend to develop those qualities of the mind in the wearer, as well as in that of the producer, which exercise a refining influence upon character. In familiarizing the mind extensively with combinations the essentials of which are invention, grace, harmony of color and design, and elegance of material, texture, and workmanship, all of which are to enter into a harmonious combination with the most graceful and beautiful of objects, the female form, thus presenting an ensemble which shall fulfill the highest demands of taste, every kindred esthetic faculty is drawn into activity, and by the quickened and refined perceptions, what is discordant, bizarre, and grotesque in prevailing modes is eliminated and discarded.

#### PARIS THE GREAT CENTER OF MODERN FASHIONS.

The establishment of Paris as the central authority and oracle of fashion for the civilized world has been by no means the result of accident, nor has it been devoid of profound political significance and subtle design.

Owing to the superior means adopted for retaining the ascendancy early acquired in matters of design and taste, France has thus far successfully maintained that position, and her experience has proved that even much abused fashion is not without its healthful influence on the substantial utilitarian progress of mankind. This is easily realized when we consider what are the studies essential for qualifying the artisan and laborer to originate and carry out designs fulfilling the requirements of critical taste in all the branches of production which supply to the world articles for the adornment as well as the comfort and health of the person, articles for domestic use in dwellings, combining utility with the beauty and grace which artistic genius or cultivation can impart, articles of vertu and of decorative art, produced chiefly as luxuries for the wealthy, and, finally, works involving a mastery of the highest principles of art, such as design, painting, and sculpture. These studies, pursued in the best organized methods, with access to the galleries of paintings and sculpture, and to the best examples of every art which appeals to the esthetic sense, inevitably carry the intelligent student into wider and wider fields of information, enlarging the operation of his mental organization, and expanding his view far beyond the narrow limits of the special object of his pursuit.

The cumulative results of the application of a people to particular departments of productive industry, with the powerful co-operation of

science and art, is illustrated in the case of France, and she is confessedly the leading nation in the respects to which reference has just been made. She has elevated the standard of quality in those branches to which she has given her energies and her science, and has, by exemplifying the benefits of her system, excited a spirit of emulation among the leading nations which will greatly promote the progress of all.

But in another view the apparent frivolities and rapid mutations of fashion contribute something real and substantial to the well-being of society, if restrained within such reasonable limits that the benefits are not counterbalanced by the extravagance or wastefulness which too frequent changes involve: for they give constant employment to thousands of industrious hands, stimulate the inventive faculties and inspire the student and savant with new motives for penetrating more deeply into the mysteries of nature, and revealing latent properties and powers, which, when called into action, may surpass all preceding discoveries. A striking instance of this character may be mentioned here:

In the year 1856 one of the great chemical discoveries was made which from time to time have so signally vindicated the claims of science to the first rank as a guiding spirit to productive industry. It was the discovery of the aniline colors derived from coal tar, and generally classed under the heads of violets, reds, blues, greens, blacks, yellows, &c., and giving a variety of beautiful secondary combinations. Manufacturers of textile fabrics have thus been furnished with a series of colors of the most brilliant and varied hues.

From the very interesting and instructive report of Mr. John L. Hayes on wools, accompanying this series, I take the liberty of making the following extract, which sums up the merits of these discoveries in a most eloquent and appreciative manner:

“The use of these colors gives a marked character to the dyed tissues of the present age. The great change effected by them was remarkably illustrated at the Exposition by a display of parallel series of wools dyed by the ancient and the new aniline processes. The aniline hues were predominant in the richly colored fabrics of the Exposition, and, adopting the figure of Colbert, that ‘color is the soul of tissues, without which the body could hardly exist,’ we might say that these colors fix the psychological character of the fabrics of the present day. Among the wonders of modern science, what is stranger than this, that the gigantic plants buried in the coal measures of the ancient world are made to bloom with all the tints of the primeval flowers upon the tissues of modern industry?”

## EXHIBITION OF COSTUMES.

### SPECIMENS OF POPULAR COSTUMES.

Class 92 was devoted to specimens of popular costumes of different countries in methodical collections, showing the costumes of both sexes

of all ages and those most characteristic of each country. This plan was realized to a great extent, especially in the Russian, Swedish, and Norwegian sections, where, in promenading, the visitor was often startled by the life-like figures of peasants and of interior tribes. In the Chilian exhibition the costume of the miners of that country was shown in accurate detail, by the life-size figures standing by the side of the heaps of copper and silver ores sent from the mines of the Andes.

But perhaps the most striking feature of the occasion, disconnected with classifications of the Exposition, was the extensive display of costumes upon the persons of many of the visitors and some of the attendants at the various sections. Of the male delegation there were Orientals in bright colors and flowing draperies, and people from the Western countries in garments of more somber material and more formal cut. There were Greeks and barbarians of the European world, and natives of the Celestial Empire, and their more flowery Japanese neighbors; and here and there, as strangely picturesque as any, peasants in ante-revolutionary costume, still preserved, coming from remote side villages of Napoleon's home provinces.

Most noticeable on the female side were the waiting girls at the different national shops, restaurants, and beer-houses, sharp-eyed for business, and ornately decked in the highest style of their quaint local modes.

#### HISTORICAL AND FANCY COSTUMES.

A few choice specimens of historical and fancy costumes for both sexes were exhibited by Madame Delphine Baron, one of the eminent practitioners in the art of costuming, which is carried to so great perfection in Paris. Its successful practice in the higher grades requires no inconsiderable historical study, and calls in play really artistic qualities. Not unfrequently the dancer at a carnival ball carries on his back the work of a distinguished master.

The costumes in *Don Juan d'Autriche*, when that play was revived at the Theatre Français a few years ago, were said at the time to be composed or corrected by Meissonier; those for Ristori's *Medea*, when she first appeared in Paris, by Ary Scheffer; those of Sardori's *Don Quixote*, and of Offenbach's buffo opera *Ste. Geneviève de Brabant*, by Gustave Doré. The late excellent historian, Bouvière, himself a painter as well, in his *Faust* and *Hamlet*, followed in pose and apparel the masterly illustrations of Delacroix much more closely than the translators permitted him to follow the text of Göthe and Shakspeare.

#### POPULAR COSTUMES OF DIFFERENT COUNTRIES.

##### ABSTRACT OF A REVIEW OF CLASS 92.<sup>1</sup>

Costume is sometimes, in its material and form, directly regulated by climate, as in the hyperborean regions of Lapland, Siberia, and Finland,

<sup>1</sup>Translated and condensed from the report of M. Armand-Dumaresq in the *Rapport du Jury International*.

Alaska and Greenland, which are located far from the great commercial centers. A glance at the Ostiaks, Yakouts, and Aleutians will show that these peoples, dressed in reindeer or other skins, living among eternal snows, in grand solitudes, subsisting by hunting, having few wants, are satisfied with what we would hardly call the necessaries of life.

Though the varieties are very distinct, those which are peculiar to metropolitan centers are difficult to classify. The date of the origin of a costume is easy to ascertain from the form of a garment, but why the rustic of Batz has retained in the nineteenth century the dress of the time of Louis XIII, elsewhere regarded as a relic of antiquity, we cannot tell. It may, perhaps, be attributed to his particular calling. When the salt man entered a village his arrival was announced by the bells or rattles on his mules. Before his fanciful hat and elegant jacket were seen, the housekeepers ran out to get their supply of salt; thus that costume was preserved as a sign. But let us consider those consequences of these customs which are of most importance to us.

Manners, customs, and usages are still preserved, and they have a mysterious connection with costumes. A girl cannot often make up her mind to marry a man not of her village; gradually a distinct race forms, and the men remain at home, forming a self-governing colony. We find patriotism and love of home most developed in those countries where the rustic has preserved the costume of his ancestors, and this incessant and reciprocal supervision insures honesty and unity among the inhabitants. There is a touching harmony in the existence of those people that is sure to strike the eye of an observer.

Now let us state the distinction between costume and dress.

Costume is the same for all, for the man or boy, the woman or girl, and does not change. It is composed of solid and durable material, without regard to fitness; what was once a Sunday costume, soon becomes a working costume; hat, jacket, and pants are often repaired, but never undergo a change of form. That is what we call costume.

Dress belongs to cities. It changes with the whim of the fashion. Every part of it has a peculiar destination, that is, for show or for work. The laborer is not dressed if he is obliged to wear his week-day clothes on Sunday. He must have two suits at least. This expense is to make him look like his fellows, and to follow the fashion of the wealthy classes. Yet, what is fashion? Merely an invention for worldly people to know each other by. Ought sensible people who have something to do, to be compelled to follow the fashion? In France, as elsewhere, fashion is a tyrant that even city work-people consider themselves obliged to obey. Though expensive, they wish to get fashionable clothes as cheap as possible; no matter about the material, so long as the style is fashionable. In France the laboring man must have a new suit, no matter how poor the material; whereas in England he is satisfied with the cast-off fashionable clothing of the better classes. The gaudy garments of a fop in Hyde Park serve the dock laborer, and at last the unfortunate Irish resident of Saint Martin's Lane.

The rustic's choice of something strong, solid, and well made is the best. He wants the garment to be of good material, without regard to form, for it has to live on him for many years, till it becomes a part and parcel of himself. The old dress gives the history of the man.

If a comparison is made between the expenses of the rustic who pays dearly for his clothing, and the city laborer who seems to buy cheaper, the former will have the advantage in the durability of his material.

The morals of a people are favorably affected by a peculiar costume, and the artistic aspect of costume is evident to the least attentive observer. Wherever we find originality in men's or women's costumes, we like to represent it in pictures and albums, to be kept with care. The inhabitant of the country is more attached to his costume than the artist who studies it merely to find an attractive harmony of colors.

With six hundred costumes for exhibition, it is not surprising that there were so many ways of showing them. The lay-figure was, however, generally adopted with great success, as by Sweden and Norway. It consisted of an iron frame, stuffed with straw, so as to show all the curves of the figure, and vary the movements. The heads and hands, giving the type of the country and race, were moulded from nature in plaster; the heads were retouched and finished by an artist; the hands were nicely made to exhibit every indenture of the cuticle. This method was effective, but costly. If we look to the result alone, it was perfect.

The other lay-figures, such as are used in shops, were far inferior to the kind we have just mentioned, and the heads and hands were very imperfect. Pasteboard figures were used by the French commission, because of their cheapness, and they were generally rudely made in the department whence they came.

Ethnology, connected with the study of costume, is a science much cultivated in Europe. Russia has long had museums of costumes, and statuettes of the different people in the empire. Turkey has collected at Constantinople all the ancient costumes of that country; so has Sweden, Norway, and Hungary, in their respective centers. In many countries costumes are faithfully represented in statuettes made of colored clay, baked and dressed, as in Italy, Spain, Portugal, India, Malta, and America, where there are excellent specimens. There is no science more striking or easier learned; it is not a labor, but a diversion, a pleasure; hence the success of that part of the Exhibition. Crowds always filled the different halls of Class 92, and never failed to stop where the use of the articles was understood. The public felt that such an exhibition was a study where much could be learned, and the visitors sought instruction.

When costumes are preserved without modification in a country, classification is easy to make by cities or nationalities; but if the costume is becoming obsolete, and clothes no longer worn are brought to you, the classification becomes difficult; it is impossible to follow a single method; and this happened at the Exposition of 1867. In France,

particularly, it was necessary to collect costumes of the last century, still worn by very old men; rare, it is true, but still partially used. The classification adopted by the international jury was independent of these different systems; it was dictated by the importance of each lot; and such is the system followed in the succeeding review of the costumes on exhibition.

#### SWEDEN AND NORWAY.

The royal commissioners of Sweden and Norway furnished seventeen groups, of thirty-two figures, varying by groups. This lot was in the first class. All the principal Scandinavian costumes were there represented, and at the same time, the different ages, trades, and customs of the country, executed under the direction of Mr. Dardel, a distinguished artist and superintendent of the fine arts in Sweden, assisted by Mr. Soederman, a Swedish sculptor. The lot is artistic and natural in its composition; it forms a collection of *genre* pictures, representing "Harvest," "A girl dressing," "The rustic oracle," "The groom's visit," "Asking the mother," "The betrothed," "The Laplander in a sled drawn by a deer," "Two Lapland women and children," &c. The heads and hands, as has been already stated, are very true to nature. This lot may be considered as a model of its kind.

#### TURKEY.

The Ottoman government sent a very curious collection of popular costumes of different classes of society; the number was eighty; here are some of the most important: the Zerbek, from the province of Smyrna; the Arnaut, Bulgarian, Bosniak, Laz, province of Trebizond; Circassian of both sexes; a man and his wife of Mount Lebanon; Albanian, Kurd and his wife; a Jew of Jerusalem and one of Bethlehem; a man of Damascus and one of Salonica; a woman of Asia Minor; a weaver and a cook of Constantinople; a Turk citizen, laborer, and shepherd; a Bulgarian wife; a man of Djedda, another of Bagdad, and one from Mecca.

These costumes are very varied in form; many are covered with gold embroidery and gaudy braid of all colors. Cloth, velvet, muslin, gauze, fur, and morocco, are strangely mingled in their composition. Drawings would represent them better than any description. Their price is low, considering their richness and elegance. It is the Oriental taste in extreme sumptuousness.

#### GREECE.

Greece has furnished rich costumes, so covered with gold that the cloth is not seen from the profusion of ornaments. The white fustanelle, a small skirt of a thousand pleats, is the most original part, and the leggings as richly embroidered as the jacket. Their elegance is

renowned and their form has become popular—so much so, that we see them in pictures everywhere, and they are much used for masquerades. The most beautiful of the costumes were exhibited by Andreon and Tzenos, both for men and women. The costume of an Athenian rustic with his wife, of a new fashion, was sent by Magnissalis; that of a man of the Morea, sent by Zappas, and a costume of ancient Greece, that might be taken for that of Phedra, is perfect—tunic, peplum, and sandals, all of fine cashmere, embroidered with gold. It was said to be intended for wear, though one would not think so from its elegance. The same would not be said of the costume of the woman of Psara: the white silk turban, the waist of velvet, and the skirt of purple silk, were of the common form.

The Greek cases also contained parts of costumes of different provinces, varying according to locality, though with a general resemblance. They are dresses for daily use, their prices varying from twenty-five to two thousand francs.

#### RUSSIA.

Russia, with so many different people, might have sent more costumes to the Paris Exposition, but for an ethnographical exhibition at Moscow, where there were more than six hundred costumes. In the Exposition there were only twenty-seven from Russia, but they were choice, tasteful, and new to many. First among them was an Ostiak costume from Northern Siberia, near the mouth of the Obi, covered with furs. The man, woman, and children of the group are dressed alike. The fur of the skins is on the outside of the garments, as in all cold countries, to make them warmer. The bottom of the hood and the hem of the sleeves are ornamented with colored pearls from the north of China, making them really gorgeous.

The agricultural commission of Tiflis, Caucasia, sent a Touchine man and woman, a Kefsaur man, one Cossack, and two Kurd uniforms. They differ from those mentioned above, in ornaments, in brilliancy of colors, and solidity of the material, which is manufactured in the country. The woman's hair is carefully plaited; she has a necklace of coins; the men carry splendid arms and wear riding boots, thus indicating the tendencies of the Eastern people.

The Crimea sent but one Tartar man and woman; their dress, very tasteful, is loaded with gold embroidery; the stuff is variegated, of cloth, velvet, silk, and muslin.

It is only necessary to mention the fish-skin costumes of the Yakouts and Aleutians, exhibited by Mr. Pavloff, and similar costumes of Laplanders from the grand-duchy of Finland. Russia might give us many samples from its tributary lands. It is to be regretted that a Russian countryman with his family was not seen, but, as each province has its peculiar dress, arbitrarily embroidered, it would be hard to find what could be called a Russian rustic. To have an idea of their taste we

have but to glance at the towels in the Isba, or in the woolen and linen section. Why were not such costumes sent? Perhaps because common things are not appreciated.

#### SPAIN.

Lay figures play a great part in the presentation of costumes, particularly if the costumes are short and narrow, and for that reason those sent from Murcia must be praised. They were of carved wood, with jointed shoulders; real painted statuettes, with enameled eyes. They show the dress of the males and females of Murcia to a great advantage; and are so elegant that they are readily accepted abroad as the general type of the whole country.

The provincial deputation of Coruña and the institute of San Isidro also sent some interesting specimens; but much more was expected from a country like Spain.

#### EGYPT.

Egypt had an exhibition of popular costumes, organized by order of his highness the Viceroy. The first portion, Class 91, was in cases; the second was on lay figures. They represented the farmer, the laborer, the negro of Upper Egypt, the Sais Berber, the Arab peddler, the Copt woman, the Abyssinian woman and the negress. The mannikins used were made of hard pasteboard, modeled by the sculptor Cordier. They were very well made, very graceful in their movements, represented their types perfectly, and did honor to their author. But that was not all that Egypt had to show. Quitting the palace and going into the park, might be seen the workmen just as they are at Cairo: the barber, the goldsmith, the embroiderer, the rush-mat maker, whose bronzed faces and herculean forms made a deep and lasting impression on the spectator, and caused him to forget for a moment the costumes before him.

#### ROUMANIA.

Moldavia and Wallachia had many costumes; fifteen of the principal ones were on figures. They represented the surongio, the postilion of Argech, the royal postilion dressed in white cloth covered with red embroidery. The herdsman, the pea-gatherer, the reaper of Arto, the Danube fisherman, the mountain hunter, &c., were characteristic costumes of the country. Then there were graceful female costumes, embroidered by Madam Odobesco and Madam Zucasiewitz, filling two large glazed cases. The bride of Turno was also observed, and portions of costume of admirable workmanship, and of such taste that an innate thirst for elegance in those people is palpable.

#### PRUSSIA.

The government of Saxe-Altenburg and Mecklenburg-Schwerin had a curious collection. The vestments of the bride of Altenheim were pecu-



liar—quite black, the wreath and bouquet of variegated flowers, and the stockings red. It seems they avoid white as carefully as it is sought in Paris. The husband wears a small Louis XI hat. A protestant population was discovered in these austere fashions; but what particularly attracted attention was the narrow skirt of a woman from the neighborhood of Erfurth or Gotha; it only reached the knee, and was buttoned tight in front; though it impedes walking, the wind can get no hold under it. A large number of specimens might have been sent, for the costumes of the married women are very different from the girls' dresses. This distinction was first enforced by law; and afterward became a custom, which has lasted to the present time.

#### AUSTRIA.

Austria, justly celebrated for its elegant Croatian, Servian, Moravian, Hungarian, Sclavonian, and Tyrolian costumes, disappointed many at the Exposition. Only partial representations, such as cloaks, pants, caps, and belts, and a few specimens on dolls were given. However, the costumes were well known, and have long furnished patterns to dramatic artists and painters.

#### THE ARGENTINE REPUBLIC.

The Argentine Republic had three groups, and the *gaucho* was the hero in all of them; he was on horseback preparing to throw his lasso, or had his woman behind him, or was sucking his *mate* through a silver *bombilla*, held up to him by a girl. His costume and the caparison of his horse had many silver spangles on them, and the whip handle, stirrups, bridle bit, and saddle pommel, were covered with silver, in justification of the name of the country.

#### TUNIS.

The Bey of Tunis sent a rider and horse in festive caparison, like those of the old tournaments; three Moorish costumes, the more curious as they showed the home dress of the Arab woman; and three male dresses, all richly and elegantly embroidered.

#### JAPAN.

Japan exhibited two lots; one from the Tycoon, the other from Prince Satsuma. Though separate, they were very much alike, both representing warriors, horsemen, and footmen, loaded down with arms, helmet on the head and shield on the arm. Their faces were hid by masks of hideous appearance; their arms were singular and odd in form, so as to terrify the enemy. One would think the entire costume was intended to frighten, from the fierce aspect it gave to the wearer. All the articles were carefully and elaborately fashioned, showing the skill of Japanese workmen.

## DENMARK.

Denmark had four handsome country groups, men and women from the islands of Zealand, Amak, and Iceland, very like their neighbors the Swedes. One must belong to that country to discover differences that do not strike a stranger. There was, however, a singular detail of costume peculiar to them, which was initial letters of gold that the woman wears on her belt, her family name and her husband's combined, a symbol of fidelity placed near the heart.

## PORTUGAL.

Portugal had a male costume from Honras de Miranda, in the province of Tras-os-Montes; it was brown in color, and was covered with black ornaments, with a blue vest. The cloak, with a scooped collar, is generally worn at festivals and weddings. The contrast between the jacket and vest was odd, but attractive.

The province of Minho was well represented by a large collection of small figures sent from Porto: among them were the farm laborer, the fisher, the water carrier, the Valongo and Avintes baker women, the fish woman of Espinho, and the embroidress of Braya, the lace-maker of the country.

The costumes of the province of Aluntejo—brown dress, short breeches, broad brim hat—and those of the fine looking people of the Azores; those of Madeira, where we find the embroidress, the shirt-maker, the laborer, and the *vilon*, in his ruffle shirt and pointed cap of such a queer fashion—were wanting. But what can be said against this omission, when the Netherlands, the Pontifical States and Italy, all rich in varied costumes still worn, sent nothing? India sent nothing but a few small figures, very pretty indeed; Malta sent two life-size earthen statues, that looked as if intended for a garden; England, rich in all other classes at the Exposition, did not send her fine Scotch costumes. These omissions were much to be regretted.

## FRANCE.

France had forty-five exhibitors: sixteen had painted studies or designs well calculated to illustrate the type, fashion, and manner of dress in the provinces.

Raphael Jacquemin sent a beautiful work, a colored iconography of costumes from the fourth to the nineteenth century. Each plate was etched by himself and gave all the details most conscientiously. It is a work indispensable to libraries and very useful to artists.

The costumes on lay figures numbered seventy. It was hard work to make this collection, yet provincial varieties were far from being complete.

FINISTÈRE.—Jacob, of Quimper, exhibited country costumes of Brittany, as men and women of Scaer, a bridal pair from Plouaré; the

woman dressed in red, like the Roman *Campesine*, and a groom of Kerfuntun. These costumes, made on the spot, were richly garnished with gold and silver embroidery on silk and woolen; and what was most singular, the work was done by men. We can understand how proud the Breton is of this costume, and why he wears it yet: it is well made and showy, composed of various materials of excellent quality, and calculated to last long, a consideration highly estimated by an economical and industrious people.

Beside this lot, Mr. Jacob has inaugurated a new industry by appropriating Breton embroidery and trimmings to coats, vests and other garments used by men and women as traveling suits. It has been a benefit to the tailors of Quimper; and its success is proved by the extent of the business and the imitators of it that have suddenly sprung up.

The Loire Inferieure was well represented by a man and a bride from Clisse, and by a man and woman of Saily. These were all the costumes exhibited from Brittany.

PUY DE DOME.—Mr. Foulhouse was commissioned by his department to collect the costumes of Auvergne; this he did with the intelligence and skill of an artist and archæologist. There were ten types of the principal localities.

The woman of the Tour d'Auvergne, with her dark woolen head-gear, held on by a brass band, goes back to the Celtic period, if we may trust tradition, and might have been worn in the time of the Gauls when they conquered Alaric, near Latour. The brass fillet may have been taken from the head-dress of the conquered as the emblem of triumph, and the black stuff as the token of mourning, in commemoration of the death of their countrymen who died on the field of battle. A widow in that part of the country still wears the black veil, without the band, in token of sorrow.

A man and woman of Chapdes, Beaufort, finished the highland series of costumes. All these dresses are of blue woolen, and are made by the women of the country. They prepare the wool, spin it, weave it, and dye it at home. The importation of foreign articles at a cheap rate has tended to abolish this domestic manufacture.

The lower part of Puy-de-Dome, known as Limagne, sent a male and female costume of St. Bonnet, near Riom. The robe is of wool or cotton, and always of gayer colors than those worn in the highlands. It gives the elegant type of the women of Auvergne, whom all travelers in that province see dancing the *bourrée* on Sunday evenings. It is very similar to the dress in the district of Issoire, where the Sauxillange women still wear the tucked skirt, such as we see in Watteau's pictures. We also see the common dress of the people of Riom worn by the porters at the feast of St. Amble, the patron of the city, with the high-crown slouch hat, as worn by the *incroyables* in directory times. It was worn in Limagne only forty years ago.

In the valley of the Dare the vine dressers lived in common during

the last century, and were called the *Guitard Pinon*, from the chief who wore a red velvet belt with a silver buckle containing the emblems of agriculture, given to him by the king's intendant in the reign of Louis XVI.

The women employed to tend flocks and herds still wear a broad-rim straw hat worked with their own hands. This hat is tied over the head with a ribbon, and is a perfect protection from sun and rain. The pleats of their coarse woolen gowns are formed by the strokes of a mallet, which is one of the necessary instruments of the tailor.

The section of Puy-de-Dome was finished with a collection of archaeological objects connected with the history of costume. The first seen was a bundle of distaffs of carved wood, painted by the mountain shepherds. They came from villages near Clermont, and were fashioned like those used in the Pyrenees and in Algeria. The next object was a Celtic belt, very curious, from the village of Covent, once a walled town of Gaul. On the medals connecting the brass links were crosses carved by hand to consecrate the articles. They must go back to the time when Christianity was introduced into Auvergne by St. Austremonie. These chains were used up to the commencement of the present century to carry house and trunk-keys on. There were also clasps, buckles, and sleeve-buttons of Celtic origin, and these are now imitated in sleeve-buttons with Vereingitorix's horse stamped on them. The old jewelry of Auvergne, that will certainly come into fashion again, must also be mentioned.

**VENDÉE.**—La Vendée was portioned into three sections, the woods, plain, and sea-coast. The committee went to a great expense in the exhibition: it sent three genuine costumes, but all tended towards the same model except the winter cloak of the St. Gervais fish-women and the women's caps, much like those of Rochelle. The men's dress is more original; it is the true type of the old Vendean with his broad hat, short coat, and tight breeches; no socks, but straw in his hard, heavy, wooden shoes. The costume is not often seen now, but it is very characteristic.

The Lower Pyrenees had three specimens from the valley of Ossau; the women wore a flounced skirt, high gaiters, and a red hood; two herdsmen had red caps; one was knitting as if watching his flocks; the other had a lute and flageolet, and he played both at once.

**ARLÈGE.**—Baron Bardis sent a male costume from the valley of Oust, a man and woman from the valley of Massat, and a woman from the valley of Bethmale. These costumes are still worn in the contiguous valleys, and the cloth is made in the country. In the snow mountains the leg-gaiters leave the knee-joint free, so as not to hinder progress through the snow, while they protect the lower leg. Men wear the broad hat common to the country, or the cap called the *berette*. In winter the women add a hood to their cloaks to keep their heads warm.

**LOWER RHINE.**—The department committee sent a man and woman

from the neighborhood of Strasburg, and two costumes from the vicinity of Wissemburg; but Alsace might have sent many more. These came from a Protestant region, as might have been seen from the woman's deep green petticoat and the man's vest of the same color. Catholics always wear red.

CHER.—Berry had also many souvenirs, chiefly from Asnières-les-Bourges, a small village three miles from the capital, where the people are Protestants. The manners and customs of that part of the country have not altered since the edict of Nantes. The old men still wear the dress of the time of Louis XIV, and yet they all know how to read and write. It is singular they are so attached to the dress of the olden time.

LOWER CHARENTE.—Mr. Fournier sent a Rochelle and Marenne female costume, with magnificent head-dresses, made of tulle and lace, resembling those of La Manche, exhibited by Mr. LeMaillier. They had a domestic look to the eye of a stranger, and were very different from those of Normandy. The head-dress tells the province here and it becomes a science, but it is unfortunate that we see the Norman bonnet now only on the heads of old women, and on Sunday another obsolete head-dress, found chiefly in the departments of the Aube, was called the *tocca*. It might be called a large crown of lace, very pretty and graceful in form.

YONNE.—The departmental committee sent a country costume of Avallon, the general type in all the central departments of France, and well known in Paris through the Morvan nurses that have made it popular. This coquettish costume requires a good figure to show it.

The house of Babin furnished several well-made costumes for the Exposition; among the most notable were a girl of Guéméné, one of Bressanne, and a Corsican laborer.

We must give a few words to the cases containing the jewels. Most of them, as the Norman crosses of General Hecquet and Mr. Singer, are of Alençon silex; they are collars, brooches, and ear-rings of Provence and Dauphiné. These adornments of the last century have become rare, and are only found in the hands of amateurs. The articles of provincial gold jewelry, still sold in remote districts, are quite interesting as curiosities in Paris, and show the difference between what was formerly used and what is now made for fashionable people. We would recommend the adoption of these old fashions for the benefit of modern industry.



## CHAPTER II.

### MATERIALS FOR CLOTHING REPRESENTED AT THE EXPOSITION.

COTTON FABRICS FROM FRANCE, GREAT BRITAIN, AND OTHER COUNTRIES—COTTON MANUFACTURE IN THE UNITED STATES—LINEN AND LINEN FABRICS, ENORMOUS CONSUMPTION OF, IN FRANCE—VARIOUS STYLES OF LINEN GOODS SHOWN IN THE FRENCH SECTION—RELATIVE IMPORTANCE OF THE LINEN MANUFACTURE IN VARIOUS COUNTRIES—FLAX AND LINEN IN ITALY—MANUFACTURE OF WOOL AND WORSTED—THE BRITISH ARTISANS ON WORSTED AND MIXED TEXTILE FABRICS—SILK AS A MATERIAL FOR CLOTHING—THE SILK TRADE OF FRANCE—SERICULTURE IN FRANCE—GENERAL OBSERVATIONS UPON THE SILK INDUSTRY OF VARIOUS COUNTRIES—RIBBONS.

#### COTTON FABRICS.

In the present age, cotton fabrics being the cheapest and most universally used materials entering into the production of clothing, are naturally the most important to the largest mass of consumers.

France, being very properly ambitious to have every department of her wonderful industrial interests well represented in an exposition projected and carried out in her great metropolis, surpassed all other countries in completeness of exhibition in this department. For the same grade of goods made by other nations, the French, as a general rule, use a better quality of cotton, and twist their yarn more evenly and with a harder twist than other manufacturers.

In all grades of shirtings, fine cottons, calicoes, lawns, and muslins, the French maintain an acknowledged ascendancy. Their exports of these goods for the five years ending with 1865 were as follows: 1860, \$13,920,000; 1861, \$11,280,000; 1862, \$12,660,000; 1863, \$17,640,000; 1864, \$18,740,000; 1865, 18,700,000; and 6,250,000 spindles furnish the yarns from which these fabrics are woven.

It appears that, from some cause or other, many leading staples of the cotton manufacture of Great Britain were not represented. But the capacity of British manufacturers to meet the requirements of the world at large is attested by the facts that she exports of yarns over \$50,000,000 worth, of calicoes over \$115,000,000, other printed goods, \$80,000,000, and of sewing cotton upward of \$3,000,000—in all a value of \$248,000,000; yet none of these branches of the trade were represented to any extent in the Exposition.

Our own manufacturers in this department of industry declined to appear; a case of sewing-cotton from the Clark Thread Company being the only article exhibited in the class of manufactured cottons.

The Oriental nations, with the exception of Persia, were scarcely represented. Persia contributed, after the date at which they should have

been received, some very rich fabrics, among which were some printed goods in the traditional style of the country.

Italy, Russia, Sweden and Norway, Spain, Switzerland, Austria, Wurtemberg, Baden, Prussia, and North Germany, Belgium, and the Netherlands, were all more or less extensively present in the examples of this class, and generally with credit to themselves.

The manufacture of cotton goods is the most prominent feature of the textile industry in Wurtemberg. This branch has been developed mainly within the past fifteen years, and supports twenty-one establishments engaged in cotton-spinning, employing about 245,000 spindles, and 3,550 hands; consuming 5,600,000 kilogrammes of raw material, valued at \$3,222,613 84.

#### COTTON MANUFACTURE IN THE UNITED STATES.

The very comprehensive report of my colleague, Commissioner Nourse, renders the presentation in this place of statistics of the cotton supply and manufacture of the United States superfluous. It will be sufficient to direct attention to the fact that the country did not make that display of cotton manufactures which justice to this important industry required; and also to the fact that notwithstanding the great increase of production of all kinds of cotton goods, the demand is not supplied.

The average annual value of foreign cotton manufactures imported, from 1821 to 1839, inclusive, was \$10,624,687; and from 1840 to 1856, inclusive, \$16,795,418; the yearly exportation for the same period averaging only \$909,114. From 1854 to 1856, the average annual imports amounted to \$28,811,966. These values, during the later periods, consisted largely of piece goods from Great Britain. Of plain white British calicoes alone our importations increased from 10,000,000 of yards in 1846 to 85,000,000 in 1856, and of printed or dyed calicoes, from 13,500,000 yards in the former to 97,000,000 yards in the latter year; and in 1860 we received from that country altogether 226,776,939 yards of cottons; but in the first two years of the late civil war, 1861 and 1862, this importation creased to 74,680,537 and 97,375,709 yards, respectively.

This industry, so vast and important to this country, and which deserved so prominent a place at the Exposition of 1867, was practically unrepresented there. It is not, however, to be inferred from this omission to appear in the greatest of industrial competitions, that the American manufacturers lack confidence in their ability to compete in the quality of those classes of cotton goods which form the great staple fabrics demanded by the masses of mankind; but a vague impression that the relative cost of production was to be taken into account in deciding upon the question of comparative merit, seems to have influenced them in withholding their fabrics.

The very general and earnest efforts which have been and are being made by the government and manufacturers of the United States to ameliorate the condition of the laboring classes by the payment of



liberal wages, the reduction of the hours of labor, and the diffusion among them of all means tending to their elevation and moral, social, and intellectual improvement, render it impossible, and it is considered undesirable, for American manufacturers to compete with those of foreign countries in the cheapness of manual labor.

It is to be regretted, however, that they did not present a complete exhibition of this class of goods, had it only been for the benefit of such criticism as competent and faithful experts would have made, as well as for the *eclat* which they might have shared with some of our woolen manufacturers in bearing off golden rewards of success.

The number of gold medals awarded in this branch was twenty-six; of which, France received fifteen; Great Britain, five; Switzerland and Belgium, two each; Austria and Prussia, one each.

Of one hundred and thirty-seven silver medals, France took seventy-five; Switzerland, thirteen; Austria and Prussia, twelve each; Belgium, seven; Russia, six; Great Britain, five; Saxony, Holland, and the United States, two each; Spain, one. The bronze medals being distributed in about the same proportion.

The countries represented, and the number of exhibitors from each, in Class 27, Group VI, being cotton yarns and fabrics, are as follows:

| Country.         | Number of exhibitors. | Country.                               | Number of exhibitors. |
|------------------|-----------------------|--|-----------------------|
| France.....      | 228                   | Denmark.....                           | 1                     |
| Algeria.....     | 12                    | Sweden.....                            | 7                     |
| Holland.....     | 15                    | Norway.....                            | 2                     |
| Belgium.....     | 69                    | Italy.....                             | 47                    |
| Prussia.....     | 47                    | Turkey.....                            | 198                   |
| Hesse.....       | 1                     | Egypt.....                             | 1                     |
| Bavaria.....     | 2                     | Tunis.....                             | 1                     |
| Wurtemberg.....  | 11                    | China.....                             | 1                     |
| Austria.....     | 36                    | Loo Choo.....                          | 1                     |
| Switzerland..... | 55                    | Morocco.....                           | 1                     |
| Spain.....       | 14                    | United States.....                     | 4                     |
| Portugal.....    | 8                     | Great Britain.....                     | 31                    |
| Greece.....      | 8                     | British colonies and dependencies..... | 4                     |

### LINEN AND LINEN FABRICS.

Naturally succeeding cotton comes linen, the production of which was visibly stimulated during the civil war in the United States by the sudden and protracted interruption of the supply of cotton. The results of this stimulation were manifest in the linen exhibits of the Exposition. France devoted a larger space to this than to any other single industry, in her section of the building, as did also Belgium and Prussia. It was stated in a report to the Chamber of Commerce of Belfast, Ireland, by a deputation sent to the Paris Exhibition of 1855, that the annual consumption of linens in France then amounted to two hundred and fifty

million yards—a larger quantity than is used in any other country—and French statistics show that on the 1st of January, 1866, there were in that country two hundred and twenty-six linen mills, containing 705,350 spindles, and that in the Departement du Nord there were 4,305 power-looms; since which they have been increased, so that in all France there cannot be less than 8,000 power-looms engaged in weaving linen. Added to the supply from this source, an importation was reported for 1866 of 3,800,000 pounds of yarn, and 3,500,000 of linen. Among the principal styles of linen fabrics for clothing purposes exhibited in the French section are the various types used in the naval and military services, in which, as well as in hospitals and prisons, the French adopt the use of linen instead of cotton. Then come blouse linens, blue, drab, and slate-colored, and of various shades. These with French fancy drills, which are largely exported, light linens, and linen handkerchiefs, from the Cholet district, and damasks, were the most notable varieties exhibited. Belgium, Prussia, North Germany, and Austria were represented in a manner showing that this industry is well maintained among them; but Great Britain established a claim to undisputed pre-eminence. Her exports of manufactured linen for six years preceding 1867 were, for 1861, over \$17,960,000; for 1862, \$22,900,000; for 1863, \$29,330,000, and upward; 1864, over \$37,525,000; 1865, \$41,220,000, and upward; 1866, \$44,425,000.

EXTENT OF THE LINEN INDUSTRY IN VARIOUS COUNTRIES.

The following table, indicating the number of spindles in activity and in construction at the commencement of the year 1865, gives an idea of the relative importance of the linen manufacture of each of the principal countries engaged in that industry:

| Country.            | In activity. | In construction. | Total.    |
|---------------------|--------------|------------------|-----------|
| Great Britain ..... | 1,263,000    | 195,638          | 1,460,638 |
| France .....        | 563,025      | 60,000           | 623,025   |
| Belgium .....       | 135,000      | 60,000           | 195,000   |
| Russia .....        | 75,000       | 19,000           | 94,000    |
| North America ..... | 80,000       | 20,000           | 100,000   |
| Austria .....       | 210,000      | 116,500          | 327,300   |
| Prussia .....       | 151,000      | 24,500           | 175,500   |
| Saxony .....        | 15,000       | 6,000            | 21,000    |
| Bavaria .....       | 6,200        | 1,000            | 7,200     |
| Wurtemberg .....    | 4,000        | .....            | 4,000     |
| Total .....         | 2,505,025    | 502,638          | 3,007,663 |

Ireland produces very good qualities for the spinning of medium numbers. Russia exports considerable quantities, principally from Riga. Her linens are pliant and easily worked, but they never bleach to a perfect white. They serve for the coarser numbers only.

Algeria has entered successfully upon the culture of flax. The progress in this culture which she has made under the benign guidance of science as perpetuated in the mother country, is illustrated by the fact that the specimens which she exhibited in 1855 were not adapted to the production of finer yarns than English No. 25, (17 millimetres, French,) while those in the Exposition of 1867 were perfectly capable of producing threads of No. 100.

In France, linen fabrics are manufactured principally in the Departement du Nord, Picardie, the environs of Bernay, and in the Pays de Caux. The linens of this last district as those of Picardie are of inferior quality. Those of Bernay and du Nord, although superior, do not equal in quality the linen of the Lys, (Belgian,) that are gathered in the environs of Courtray, and which are all of highest grade. The environs of Gand, Lockeren, and Malines, furnish also linen fiber of a quality perfectly adapted to yarns or threads of fine numbers.

The annexed tabular statement shows the magnitude of the linen industry of Belgium from the years 1855 to 1864:

| Year.     | Importation.  |                | Exportation.  |                |
|-----------|---------------|----------------|---------------|----------------|
|           | Quantities.   | Value.         | Quantities.   | Value.         |
|           | <i>Kilos.</i> | <i>Francs.</i> | <i>Kilos.</i> | <i>Francs.</i> |
| 1855..... | 12,464        | 175,000        | 2,762,587     | 12,467,000     |
| 1856..... | 10,000        | 167,000        | 3,485,024     | 15,832,000     |
| 1857..... | 13,190        | 303,000        | 3,549,901     | 29,165,000     |
| 1858..... | 13,858        | 364,000        | 3,418,752     | 27,704,000     |
| 1859..... | 16,884        | 320,000        | 3,381,423     | 27,396,000     |
| 1860..... | 15,593        | 329,000        | 4,230,458     | 26,741,000     |
| 1861..... | 10,714        | 334,000        | 4,495,007     | 28,281,000     |
| 1862..... | 11,879        | 548,000        | 4,412,859     | 29,132,000     |
| 1863..... | 16,353        | 594,000        | 4,228,528     | 33,097,000     |
| 1864..... | 19,285        | 819,000        | 4,243,602     | 41,061,000     |

#### FLAX AND LINEN GOODS IN ITALY.

The production of flax in the kingdom of Italy is estimated to be about 135,000 metric quintals,<sup>1</sup> that of hemp about 500,000 metric quintals, in all 635,000 metric quintals. The principal varieties cultivated are the ordinary hemp, the Chinese hemp, and giant hemp; the stalks of this last variety sometimes attain a height of five metres, (sixteen feet.)

This product forms quite an important item in Italian commerce; the imports and exports for the years 1862, 1863, 1864, and 1865, averaged respectively 16,956 metric quintals, valued at 1,600,000 francs, and 157,033 metric quintals, valued at 15,324,000 francs. Three-quarters of the exports go to Austria, principally in a raw state. During the three years 1863, 1864, and 1865, the imports of hemp made into cordage averaged 11,130 metric quintals, valued at 878,000 francs, while the

<sup>1</sup> The quintal = 100 kilogrammes, or 220.46 pounds.

exports for the same period averaged 15,356 metric quintals, valued at 1,658 francs.

The spinning of flax and hemp is still generally done by hand, there being but few factories in which power is used. There are, however, three in Lombardy, having in all 14,120 spindles and giving employment to 980 persons, of whom 245 are men, and 735 women and children.

The wages for the women and children vary from twenty-five to forty-five centimes per day; that of the men from one franc thirty-two centimes to two francs per day.

The quantity of flax and hemp which is consumed in these establishments is 12,500 metric quintals, from which is produced 9,000 metric quintals of all qualities. To the work which is done in the factories must be added the work done with hand looms by 300,000 peasants, who are employed in spinning one hundred and fifty days during the year. Their average earnings are fifteen centimes a day, and the whole amount paid annually for this work is 6,330,000 francs.

The city of Bologna possesses two factories capable of producing 5,000 metric quintals of thread per annum.

The amount of hemp and flax spun in Italy is not sufficient to supply the home consumption. The greater part of this material is exported in a raw state, and returns in the form of thread, having been spun in the great factories of England and France. The average exports and imports of thread for the years 1862, 1863, 1864, and 1865 are as follows: Exports, 3,042 metric quintals, valued at 789,000 francs: Imports, 29,575 metric quintals, valued at 7,772,000 francs. In weaving linen there are employed 120,000 looms and 171,000 workmen. The entire production may be valued at 60,000,000 francs per annum. There are many factories established in Piedmont, in Lombardy, and in the southern provinces, but in the country there are local manufactures which supply the home consumption.

The fine linen used in Italy is almost all imported. The importations from France and England have increased of late years to a great extent, while the exports have fallen off proportionately; the average imports for three years, from 1863 to 1865, inclusive, being 14,924 metric quintals, valued at 8,287,000 francs, against 5,666 metric quintals, valued at 2,097,000 francs, exported during the same period.

#### MANUFACTURES OF WOOL AND WORSTED.

In an economic point of view, and as a branch in which the national taste, skill, and thoroughness of workmanship were brought to the test, this feature of the Exposition was not surpassed. France and England vied with each other in presenting to the admiration of the world series of tissues of great beauty and utility for female wear, such as double merinoes, poplins, beaded stuffs, figured and fancy goods, material made from the wool of the Angora goat, printed merinoes or cashmeres, and de laines, heavy Orleans cloth and alpaca, mixed goods made from fine

organzine with silk warp, and weft of mohair, the last named being exhibited only by the French. It is a gratifying fact that although the United States were not represented in these fabrics, her enterprising manufacturers are gradually entering the same field and that her stock-raisers are paying more and more attention to the growth and improvement of wools, so that we are in a fair way, at no distant day, to compete handsomely with Bradford and Rubeaux, the respective centers of these industries in England and France. The latest and most valuable information on the woollen industries may be found in the report of Mr. John L. Hayes already referred to.

Austria, Prussia, and Saxony displayed a more limited range of similar fabrics, so also did Russia and Belgium, all of which received high commendation.

As in the spinning of flax, France shows in the production of the fine yarns necessary for all-wool goods and wool and silk goods the qualities which give to her fabrics woven therefrom their undisputed superiority. England, however, excels in her mixed fabrics, from a similar superior practice in preparing the yarns from long wool, which requires processes of treatment differing radically from those for spinning carded wool.

Another quite distinct branch, namely, that of carded wool and woollen fabrics, upon which wearing apparel of both sexes is largely dependent, remains to be noticed, before we reach the more delicate and luxurious materials. Here again we are filled with admiration of the beauty and variety of the French representation. The complete system of industrial education will, no doubt, account for the thorough skillfulness of manipulation in spinning and weaving, as it does for the taste and fertility of design displayed in French fabrics. In figured coatings, Moscow beavers, sable furs, and Witneys, France verifies the importance of this system of education and her velvet piles and naps of wool and Astrakhans for ladies' mantles are unrivalled. France exhibits also the novel combinations of velvet cloth adorned with glass, steel, and gold beads, and brass shavings, and cloth made from felted yarns, which are beautifully soft and elastic and not dear in price; and makes a very excellent display of fine cloths and beautiful examples of fine fancy trouserings, worthy of the source of their production. Prussia, Austria, Holland and Belgium, Russia, Italy, and Turkey, all figure respectably in the same line, and in some qualities attain preeminence: for instance, Belgium for heavy overcoatings, such as ribbed cloths, reversible beavers, Moscows, deer and doe skins, and other ribbed cloths; Austria for the brightness and clearness of dyes, and original and tasteful patterns.

The strong point in British woollens is the superior quality of superfine broadcloths, cassimeres, doeskins, and beavers, which especially are unsurpassed.

Huddersfield, one of the greatest centers of production, exhibits coatings, trouserings, vestings, mohairs, imitation skin rugs, and velvet piles, of moderate cost, yet excellent in quality. Scotland sent a varied col-

lection of trouserings, shawls, and the soft, beautiful and durable fabrics for which she is celebrated; and Ireland some good tweeds, freezes, and trouserings.

#### WORSTED AND MIXED TEXTILE FABRICS.

The following is an extract from the report made by Daniel Illingworth, of Bradford, England, one of the British artisans, and published by the Society of Arts:

“After taking a general survey of the exhibition, we began looking at the Bradford goods. We found various makes, including lastings, camlets, cords, a few Coburges, Orleans, various stripes and mottled fabrics; nothing made for the special purpose of show, but goods taken from our present stocks. Similar goods can be seen in our market at any time. They are made from cotton, wool, and silk.

“In looking over the fabrics of continental manufacturers, the French, I must say, are superior to any other, both in quality and dye. No comparison can, however, be fairly instituted between goods made of all wool, wool and silk, and goods made of mixed wool and cotton.

“We were told in France that we could not dye merinoes; that when they sent them in the gray to England, they had to be sent back to Paris to dye and finish. Their merino weft and warps are carded and spun without oil, to which is attributed the deficiency of our shades; but if we cannot dye the French goods, which are without oil, our dyers must find some other excuse.

“In looking over the French goods in the all-wool, wool and silk, the merinoes are particularly good. The reps made of all-wool, wool and silk, are beautiful. They have also the plain poplin, all-wool, which is also good; of these they have an enormous and most varied display. No prices were affixed to the French goods in this class, but from the fineness of the quality they must be very costly. They are goods that will not be extensively made in England. The competition is so pressing that we are obliged to make a cheap article.

“The collective show of Roubaix was good. Upon inquiry we found that they had been made expressly for show, regardless of expense. This contains goods similar to the Bradford manufactures in mixtures of cotton, wool, and silk fabrics, but nothing new in design.

“Messrs. Delattre, sr. & Co. had a first-class show of merinoes, poplins, reps, and mottled fabrics, which had been made regardless of cost and of superior material to any that I saw afterwards in the working process.

“The goods shown from Roubaix are superior to ours in quality.

“On visiting Roubaix we encountered much difficulty in gaining admittance to the places of business; and where we were allowed to see the combing, drawing and spinning, we were not allowed to see the weaving; and only in one instance did we succeed in doing so, but in that we found nothing to learn. In Roubaix we found some of the lowest classes of wool in process, and spun into weft.

“We next went to the manufacturing town of Rheims, where we were well received. We visited several firms in the town and district. There are made poplins, reps, and cashmeres and merinoes, the last named being the principal manufacture. We visited the firm of Dauphinot and Brothers, who have a good show in the exhibition of reps, cashmeres, poplins, yarns, tops, wool, &c., but merinoes are their principal make at present. The woolen warp is spun in single threads, on caps; then it is taken and twisted two-fold on a roving bobbin, from which it is warped onto a beam to form one sixth of the warp; then it runs from the six beams onto one, and as it runs from the six beams it passes through a size of glue and water. When it comes out of the size every end is separated and dried with two fans before it reaches the beam, and all this is managed by one girl. There are no dressers, no warping mills, and very little labor attending the process. This method of sizing and beaming is nothing new; it is similar to the cotton process.

“There are both one and two-loom tenters; but as far as we could see and learn, quality is more sought after than quantity. We noticed a first-rate machine for finishing or cleaning knots from the face of merinoes and other fabrics. By this machine the superfluous ends, &c., are shaven off, and at the same time the ground is raised, by which process a richer appearance is given to the cloth. This machine is in the form of two going parts of a loom, and works the same way. The pieces pass over the surface of the going part, where a peculiar knife is fixed, which takes off all the fibers. A great number of women are also employed to clean the pieces, and every care is taken to make them as perfect as possible. In one piece room were fifty, and in another twenty-five, of those women employed. If an end was out it was sewn in, and all ends or fibers cut from the edges and superfluities of every kind cleared off.

“We visited the firm of Messrs. Seydoux, Sieber & Co., Le Catiau. This is the largest firm in France. We noticed their case in the exhibition. It consisted of reps, poplins, cashmeres, and merinoes; a really first-class show.

“We noticed a very good case from Prussia, of goods similar to our own.

“With regard to machinery, we found it very difficult to gain admittance to the French department. At last, however, we succeeded, and on examining the looms we did not find anything to learn. There was the plain and drop box loom, but nothing new, and none equal to the Yorkshire looms for the Yorkshire trade. We consider it unnecessary to dilate upon the excellence of our looms.

“In the Exhibition we were indebted to Messrs. Larsonnier Brothers & Company for the opportunity of examining several cases of French goods. They very kindly opened, not only their own case, but others for our inspection, and also gave us samples.

“There are few goods exhibited by the continental manufacturers for the use of the middle and working classes. The Bradford goods are

most suitable and substantial; and the surprising cheapness of these fabrics it is hoped will attract the attention of our foreign merchants in this class, and obtain from them a due appreciation, and stimulate a demand for our goods."

### SILK AS A MATERIAL FOR CLOTHING.

The opportunity presented at this Exposition for the study of the production and the products of silk, was probably the best ever offered to the world; for the competing exhibitors in the French section, relying on their ability to keep in advance of all rivals in a manufacture so entirely dependent upon individual skill, which may be regarded with them as an accumulated heritage descending from one generation to another, eagerly revealed, in compliance with the requirements of the Imperial Commission, all the methods and processes of their industry.

To no country, in its bearing on national industry, wealth, and taste, is the subject of more urgent moment than to the United States, and the opportunity has been well improved by my able colleague Elliot C. Cowdin, esq., of New York, who has so exhaustively discussed the subject of the production and treatment of the raw material, as to leave scarcely anything to be said on this branch of the subject.

The rich stores, in the French section, of silk materials are many of them marvels of beauty in color and design. Though the newly discovered colors now extracted from coal tar and oil, known as aniline colors, have done much in this direction, the artistic taste and feeling developed by the admirable system of technical or industrial art education, which, as before intimated, lies at the basis of French pre-eminence in the fabrication of articles of elegance or luxury admitting of the application of design, has done still more.

In silk, which has such a remarkable capacity for receiving colors, and at the same time retaining its sparkling freshness and power of reflecting light, the knowledge of design and of the proprieties of color is even more important than texture and quality of material.

Artistic designing is itself an important industry in Paris, and is liberally consulted by the manufacturers, who thereby maintain novelty and excellence in their tissues, shawls, brocades, ribbons, and embroideries.

Lyons and St. Étienne were shown, by their specimens at the Exposition, to be the seats of highest development in the silk manufacture. This was demonstrated by the collective exhibition of the Association des Tisseurs de Lyons, and the superb tapestry or damask silk contributed by Messrs. Pillet-Meauzé et Fils, (102,) as well as that of Messrs. Methévon and Bouvard, (148,) of regal richness; by the specimen of taffeta brocaded silk with lace patterns enriched by garlands of flowers, and also a taffeta silk with velvet representing birds, flowers, and feathers, imitating nature so cunningly as almost to deceive the eye.

Some impression of the beauty of design attained in the manufacture



of woven silk may be derived from illustrations, but they can give no idea of the crisp fresh gloss and play of light and shade, nor of any of the delicate qualities which make silk what it is when the highest workmanship, skill, and taste have been bestowed on its production.

The relative position of Great Britain to the other silk manufacturing nations, was not perhaps justly presented at the Exhibition, but the most favorable exposition of her products in that line would leave her far behind France. Moiré antiques, Irish poplins, black crape, and plain and glacé silks of good quality each in their grade, illustrate the general tendency of British manufacturers to supply the substantial fabrics of established quality generally demanded by the great mass of consumers, leaving the French to supply the more ornate and elaborate varieties called for by the classes who lavish wealth in keeping pace with the fleeting fancies of fashion. One very rich material of the kind known as *tissue de verre*, for furniture and curtains, reflected credit upon the exhibitors, Messrs. Grant and Gask, of London. It was brilliant with fine spun glass, which is getting to be much used in decorative tissues. The great London Exhibition of 1862, at which the English displayed marked progress over her former exhibitions in silk manufacture, as well in design as in other qualities, seems to have stimulated France to renewed vigor and originality, while the subsidence of the English would convey the idea that they had formerly made, by a spasmodic effort, exceptional specimens for the purpose of carrying off the prizes. Professor Leoni Levi, L.L.D., in his able and instructive report upon the silk manufactures at the Exposition to the British government, gives the following statistical information upon this subject:

“Within the last twenty-five years there has been a great oscillation in the imports of raw silk. In 1840 the imports amounted to 3,759,000 pounds; from that time they increased enormously, till in 1860 they reached 9,200,000 pounds. But afterwards there was a considerable decrease, and in 1867 they were not more than 5,800,000 pounds.” He then shows that the disease in silkworms caused a great competition in the purchase of China and India unmanufactured silk, causing a rise of from eighty to one hundred per cent., and that in an industry where the raw material enters so largely in the total value, such a rise left but little surplus either for labor or capital.”

He further observes:

“Following the unsatisfactory condition of the raw material, the exports of British silk have suffered greatly. In 1846, when Sir Robert Peel reduced the duty on silk manufactures from thirty per cent., as it was left by Mr. Huskisson, to fifteen per cent., the value of exports amounted to no more than £608,000. From that time it increased regularly, till in 1856 the value amounted to £1,758,000. Soon after, the disease in silkworms appeared, prices rose, and the cheaper descriptions of silk became dearer in proportion than similar articles in wool or other materials.

“Then, too, in 1860 America, our chief market, became the prey of a fearful civil war, and the exports fell in 1861 to £1,395,000, and from that time they further fell to £1,028,000 in 1867. Even the six months ending July, 1867, showed a considerable diminution as compared with the similar period in 1866. To a certain extent the check to the prosperity of the manufacturer has been as much felt in Lyons as in Spitalfields and Manchester; but while England did not get the better of it, France did. Of ribbons, for instance, in 1851 the export from France amounted to £1,200,000; in 1855 they rose to £4,700,000; and in 1861 fell to £1,800,000; but they have since recovered to £3,500,000 in 1866.

“The silk trade of France, as a whole, exhibits a very different progress from that of England as regards the exports of silk manufacture. When the two are placed side by side the comparison is very striking:

| Year.     | Exports from England. | Increase per cent. | Exports from France. | Increase per cent. |
|-----------|-----------------------|--------------------|----------------------|--------------------|
| 1851..... | £1,130,000            | .....              | £7,350,000           | .....              |
| 1855..... | 1,082,000             | 4                  | 9,650,000            | 31                 |
| 1861..... | 1,395,000             | 28                 | 11,560,000           | 20                 |
|           |                       | Decrease.          |                      |                    |
| 1866..... | 1,318,000             | 5                  | 1,850,000            | 63                 |

“The difference between France and England from 1851 to 1855, and from 1861 to 1866, is very-notable.

“What, however, alarms the British manufacturer is the fact, that while the exports of British manufacture decreased, the imports of French and other foreign manufactures have greatly increased. In 1855 the real value of foreign silk manufacture imported was only £1,800,000. In 1860 it was £2,800,000; and in 1867, £8,000,000. There is nothing surprising in the fact of such increase, the diminution or abolition of import duty being always followed by a larger trade, by which the community at large is benefited. Only in this case the natural result was more sudden, from the fact that just when we opened our ports, the American markets being closed, a large portion of French and German silk, which would otherwise have been sent thither, found its way to this country.

“From these accumulated evils the manufacturer in this country has been placed under no ordinary straits and difficulty, and there is no doubt that thereby the ability of England to compete with France in certain descriptions of silk manufacture has been greatly put to the test.”

#### SERICULTURE IN FRANCE.<sup>1</sup>

Sericulture is not so prosperous as it was in 1855, on account of the silk-worm disease. Although it has long been known, its disasters

<sup>1</sup> Extract (translation) from the report of Jules Raimbert, of the International Jury. *Rapports du Jury International*, tome quatrième, p. 162.

in France began after the Exposition of 1855 and spread over all silk-producing countries. For eighteen years, every remedy has been tried in vain to arrest its ravages.

The silk crop in France, previous to the epidemic of 1840-'48, was estimated at twenty millions of kilogrammes of cocoons, worth, at the average of five francs, one hundred millions of francs. At that time one ounce of eggs yielded thirty kilos of cocoons, and seven hundred thousand ounces of eggs were required for France.

Now more than a million ounces of eggs are put to hatch, to allow for losses, and they only yield an average of ten million kilos of cocoons, bringing fifty-eight millions of francs. This is a loss of forty-two millions; and it is more evident if we compare the quantity of raw silk formerly produced, and that produced now. Then, the quantity produced was nearly two million kilos, costing seventy-two francs the kilo; the yield now is not over six hundred thousand kilos, but the price has arisen to one hundred and twelve francs. Thus, silk is from sixty to one hundred per cent. dearer than formerly, and its production has diminished two-thirds. To supply this deficiency, silk is imported.

At the time of the Paris Exposition of 1855, domestic silk was used to the quantity of eighty per cent. Lyons and St. Étienne were the two centers of the flourishing manufactures.

At the time of the London Fair of 1862, the silk crisis was at its height, and silkworm eggs were brought from Caucasia and the lower Danube to supply the business in western Europe. In 1865, such was the scarcity in France, that seventy-five per cent. of silk was imported; and in 1867, when the Exposition opened, the silk industry was in a desperate condition.

Subsequent to 1862 another important event had occurred: the early cocoons of Europe had died out and fresh eggs had to be brought from the East, chiefly from Japan. The cocoons of that country are of an inferior quality, and are often double. They are yellow, white, green, gray, and generally smaller than ours, thus making their manipulation more difficult. A good spinner formerly made three hundred and forty grammes a day; now she hardly makes two hundred.

#### SPINNING AND MILLING.

The position of the silk spinners was becoming critical, from privations of sources of former prosperity, and contention with unknown rivals; and milling suffered from the same causes. The quality of the raw silk became inferior, and its winding difficult; its manufacture became more expensive, on account of the working classes of the country flocking into the towns. From 1862 to 1867, the cost of labor rose as much as twenty per cent.

But in spite of the bad material and against all difficulties, we are proud to say that France is still at the head of the silk-producing countries. The spinners and millers of Ardèche, Drome, and Vaucluse form

a phalanx unrivaled for the manufacture of organzines, plush, and satin. The number of these factories is about the same as in 1862; for we found the same houses exhibiting at the late Exposition that exhibited at the London Exhibition in 1862.

The spinneries of the Cevennes keep up their reputation for their silks. They have had to contend with Japan, that shows many elegant specimens in cases, such as green silk, which is now taking the place of white and yellow. What was injurious to the spinners of pure silk, proved beneficial to those that worked the tow and refuse of silk. Owing to the high price of silk, that industry has increased considerably in France, Switzerland, Italy, and England, particularly for three-ply cord.

Considerable improvements have been made in the preparation of this material, before combing and in the subsequent manipulation of it; and they have raised the price of tow, which is now used for many articles that used to be made of pure silk. Paris and Nimes furnish the best specimens of sewing silk, and silk used for embroidery and fringes. In spite of the obstacles that scarcity of the raw material has thrown in the way of this industry, it has prospered.

Winding has also improved by now furnishing skeins of regular size and quantity. Specimens were first exhibited in 1855, but now skeins are made very large for the use of sewing machines, that have come into use since that time.

The scarcity, and, as a natural consequence, the dearness of all sorts of silk, have given a real importance to that kind called *douppions*, once used in ordinary fabrics only, but now made up by many Paris houses, some of which make it a specialty.

The little business of winding, spooling, and balling silk, has reached an importance through machines that have cheapened the processes, once so tediously performed by hand.

Though outside of our line, we cannot refrain from mentioning the improvements made by the dyers of Paris and Lyons. The chemists and dyers of those cities have made discoveries of new coloring materials, called aniline, fuchsine, &c., that have produced wonderful effects. The exhibitors of those cities had purple, violet, blue, and green silks at the Paris Exposition, unequaled by any colors heretofore displayed at fairs. Twenty years ago, the French blue and black silks were the most admired as fixed colors.

The production of silk has not succeeded well in our African colony, Algeria; many cocoons and a few tissues were sent to the Exposition; there was but one specimen, however, that could compare with the silk of Lyons.

#### GENERAL OBSERVATIONS UPON THE SILK INDUSTRY OF VARIOUS COUNTRIES.

In glancing at the silks sent by different countries to the Exposition, we can study the character of the people that produce them without going to their homes to see them.

At the first Expositions the rival efforts seemed to try to show that all kinds of tissues could be produced, but such stuffs could not be generally looked on as articles of commerce. National pride was satisfied, but the manufacturers were not remunerated for their ingenuity and apparent disinterestedness, and they afterwards adopted more utilitarian views, in more precise accordance with their interests.

Recent commercial treaties between different European nations have established a sort of industrial equilibrium that regulates the nature and importance of the productions of each country; and now, instead of trying to carry on all industries in the same country, it is thought better to leave neighbors unmolested in the business in which they excel, and have no rivalry in trade.

In reference to silk, this new condition of affairs, not obstructing the production of certain articles for home consumption, seems to concentrate the fabrication of fancy silks in France; of velvet, in Prussia; of lighter stuffs, in Switzerland.

These results, which must have been foreseen by the commercial treaties, will injure those industries of each country that owed their prosperity to protection; but the surer consequence will be, to place the productions of each country within reach of all the others, and thus to create, by a sort of reciprocal dependence, a solidarity of interest, which will be a certain pledge of cordial relations and a continuation of prosperity.

### RIBBONS.<sup>1</sup>

According to recent statistics, the ribbon industry amounts to two hundred and fifty millions of francs in all Europe. Out of this sum, France manufactures one hundred and fifteen millions' worth of ribbons, and then come England, Switzerland, Prussia and Austria. During prosperous years, this amount has been exceeded; but it has not been the case in late years.

In France the manufacture of ribbons of pure silk, or mixed, began, about the eleventh century, at Saint Chamond, whence it extended to Saint Étienne, where it is now carried on most extensively. When the bar loom was imported, and later the Jacquard machine was adopted, the business took a rapid start.

Saint Étienne was once famous for its manufactories of wooden ware, fire-arms and hardware; and when workmen were wanted to make the new looms and silk machinery, they were found ready on the spot.

Ribbon-weaving was found so profitable, that the capital amassed in other business in that part of the country was soon invested in it, and the ribbon manufacture increased tenfold. This beginning explains why labor at Saint Étienne is distributed among families, instead of being confined in factories, or monopolized by rich houses. This state

<sup>1</sup>Extract, translated, from the report by M. Girodon, of the International Jury, vol. IV.

of things will certainly change in time; but it cannot change so much as other kinds of manufactures, because of the peculiarity of the ribbon business.

Two kinds of ribbon are made here, the fancy ribbon and the common ribbon. The latter employs three-fourths of the labor, and supports a large portion of the population. Since large factories have been established elsewhere, the manufacturers of Saint Étienne have been obliged to exert themselves to keep up their merited reputation.

The fancy ribbon manufacture requires an infinity of designs that must be made by hand; for, machinery, perfect as it may be, cannot bend itself to all the variety of hand-weaving in ribbons. The variations and changes in these looms are effected by the weavers themselves, who must be workmen of skill and taste.

As the workmen are interested in the success of their machinery and its product, the work is always of a superior kind. Stimulated by personal interest, they are constantly improving their business, and perfecting the mode of operation: they all want to become inventors.

It is singular that no invention or improvement has been discovered by a professional mechanic or engineer; all the discoveries are due to operatives or workingmen. Hence the success of emulation, which is the prosperity of Saint Étienne. The most intelligent operatives see the possibility of rising; they see that one-third of the manufactories of Saint Étienne belong to men who were former overseers; and they know that most of the rich men began in the same way. In fact, it is very easy to become a manufacturer at Saint Étienne; it does not require a big house nor much capital. The looms and tools belong to the operatives; it only requires two or three looms to entitle a person to a license to begin business. The success of the beginner depends on his invention of some fancy article that will take. Expectation is often deceived; but the places of those who are dissatisfied and leave are soon filled by newcomers, and the competition continues. This explains the reason why we see so many new names at every Exposition.

There are more than two hundred establishments at Saint Étienne engaged in the manufacture and sale of ribbons. For many years the business has reached near one hundred thousand francs per annum.

The saying of Colbert, that taste is the essence of trade, is particularly applicable to the ribbon business, and is especially exemplified at Saint Étienne. Division of labor is nowhere so well arranged as there.

Paris is the chief market for fancy ribbons; but they are sent to foreign countries from there, and get the name of French or Paris ribbons. But England and the United States buy their ribbons directly from Saint Étienne.

Previous to 1860 the ribbon manufacture took an unhealthy flight; but since that year it has subsided into reasonable limits. The American war and the silk-worm disease were the causes of depression in the business since 1860; and then the small hats for women and the substi-

tution of plain for fancy ribbons, and lace and fringes for both, did much harm to the ribbon industry.

Since 1862 the business has been stationary, and there seems to be a tendency to condense labor into large factories. By the invention of new machinery called *compensators*, Chinese silk is worked to advantage.

It is not only important for ribbons to be smooth, but they must be brilliant, and that brings dyers into important use. This branch of the business is reduced to a fine art at Saint Étienne. Besides furnishing coloring for material used at home, these artists dye for the Lyons manufacturers that used to send their silks to Saint Chamond. The twenty-nine steam-dyeing establishments at Saint Etienne give work to more than one thousand persons.

In 1812 a school of design was founded at Saint Étienne, and it has educated the skilled artists that have kept up the prosperity of the place. Independent of the different day-schools of design, decoration, and painting, there is now a night-school, where more than one hundred pupils assemble every night to learn arts that will be useful to them the next day.

In the department of the Loire, there are twenty-four thousand persons employed in the ribbon manufacture, not counting the operatives that work in large factories. The twenty-four exhibitors at the Exposition had every variety of ribbon; fancy, plain, fringed, velvet, laced, net, meshed for cravats, elastic, &c. Several houses make elastic tissues for drawers, garters, and other uses. The gum is brought from England, where it is prepared in large quantities, and its use is extending in France.

#### RIBBON MANUFACTURE IN COUNTRIES OTHER THAN FRANCE.

At the London Fair of 1862, Coventry, England, was represented by nine manufacturers of ribbons. Only three sent their samples from England to the exhibition of 1867. The specimens were ordinary, and seemed to be intended for commerce alone. There was no velvet ribbon among them. In 1862 there were elegant broad ribbons, with worked flowers, gothic letters, and other ornaments, neatly executed; but at the Exposition we have nothing of the kind. What became of them? The English seem to want initiative taste in artistic composition. They can copy French designs, but invent nothing; yet, the solidity of their fabrics commends them to certain buyers.

The factories at Coventry are increasing in importance, and the produce is all consumed at home.

The factories at Basle, Switzerland, are quite different from those of Saint Étienne. At the latter place, a small number of producers had democratized the business; at Basle, it is in the hands of wealthy manufacturers. There are only twenty-six manufacturers in that city, and sixteen exhibited at Paris. The collection was arranged with admirable taste, so as to catch the light in the most effective manner. The manufacturers there are more of merchants than artists, so they make plain

ribbons that find a ready sale anywhere. We are certain they made nothing expressly for the fair. There are between six and seven thousand looms at Basle, and they are all confined to well-made, low-priced, salable ribbons.

All varieties are collected in a single case. The principal style is the taffeta ribbon, of various breadths, and of every quality. There were plain and glazed ribbons, black and blue belts, and many other articles for which Basle is famed. The business at Basle is estimated at thirty or thirty-five millions. The city deserves credit for having kept up the business against such killing competition.

In 1834 Basle exported only ten millions in ribbons. The business has since increased three-fold, though the number of looms has not increased in the same proportion. The machinery has been greatly improved, and the work shows the advantage of perfect machinery in any business. With this increase of production, wages have remained stationary.

Basle ribbons find their way all over the world. The plainest and most substantial find a ready sale in England and America.

At former international fairs we were astonished at the sluggishness of the manufacturers on the banks of the Rhine in taking part in the industrial tournaments of the world; and we were still more astonished in 1867 to see only four Prussian exhibitors in the palace of the Champ de Mars. This seems the more strange, inasmuch as the prosperity of those ribbon factories is known to the whole world.

Besides five thousand looms for velvet ribbons, and many hundreds of hand looms for the same, there are more than ten thousand English looms used in Prussia for making colored velvet ribbons. Their sale is good at all times, and the business amounts to forty or forty-five millions.

In addition to these, there are about one thousand bar looms for plain ribbons, black and colored taffetas, and pure or mixed silk. Prussia also produces a large quantity of lacings, braids, and mixed gold cord. Since the last treaty of commerce, most of these articles are exported to the United States, England, and France.

Austria was represented at the Exposition by six ribbon manufacturers; but we are not to judge of Vienna by what we see at the Exposition; we must look into the past. It is plain that the work of the articles on exhibition is rude, and the designs are evidently from France.

The dress of Vienna ladies is remarkable for neatness and taste, and the men dress with elegance and care; these elegant habits certainly have an influence on the manufacture of ribbons in that country; but the manufacturers need boldness in design and innovating enterprise.

Austria does not export much in the way of ribbons; fancy ribbons are imported from France; taffetas and black velvet from Prussia; but these importations are diminishing daily, on account of improvement in the domestic manufacture.

There are supposed to be from one thousand eight hundred to two thousand ribbon looms at work in Vienna and in the neighborhood.



## CHAPTER III.

### THE INDUSTRY OF READY-MADE CLOTHING.

THE ARTISTIC EXCELLENCE OF WEARING APPAREL PRODUCED IN PARIS—STATISTICS OF THE MANUFACTURE IN FRANCE—READY-MADE CLOTHING FOR WOMEN—THE SEAMSTRESSES' ART IN PARIS—THE MANUFACTURE OF HATS FOR MEN AND WOMEN—CORK HATS—CENTERS OF THE HAT TRADE IN FRANCE, AND STATISTICS OF THE MANUFACTURE—BOOTS AND SHOES—MANUFACTURE OF CLOTHING IN THE UNITED STATES—HEAD-DRESSES FOR LADIES—ARTIFICIAL FLOWERS.

To no other general exhibition of industry could this feature of wearing apparel be so peculiarly suitable as to one held in the French metropolis, the fertile mother city of the world's fashions. The branches of trade centering in the general production of wearing apparel are among the most important specialties of Paris in an economical point of view. The aggregate value of their yearly products is estimated by the hundred of millions of francs; they furnish a large item of exportation for foreign commerce. As a general rule, her exhibitors easily surpassed all competitors from abroad; and where these last successfully sustained comparison, they oftenest only furnished a tribute to the taste and skill of French men and women who have emigrated to the workshops of foreign employers. This statement is especially applicable to all articles of female attire, from under-garments to the patent elegancies of skirt and corsage; from the neatest of foot-gear and gloves of proverbial fitness to the fanciful hat.

An attempt to explain the remote causes of this French superiority would be most instructive. It is of no modern date. It was practically admitted by our English ancestors, five centuries ago. King Edward, returning from French conquests, brought home conquering French fashions in his baggage train, which, subsequently, and more than once, stirred Chaucer's satiric humor. The subject is not an altogether trivial one, and justifies a passing indication of some of the more immediate and apparent causes of the admitted excellence of Parisian taste in the matter of dress; an excellence, it should be first observed, that is not confined to any one social class, and that is common to wearers and makers of apparel; who act and re-act on each other with mutual instruction, as do intelligent actors and audience. This taste seems innate, and innate it doubtless is, at least to the extent that any sense or faculty exercised from generation to generation becomes an hereditary aptitude. The numerous public galleries, the yearly exhibition of French painting and sculpture, the finer of the public monuments, and the shop windows in the streets, are so many free schools for the constant, unconscious education of the Parisian's sense of form and color. They are born appreciative, and become critical unawares. Besides these, and

more directly productive of practical results, there are special schools of design, with reference to its application to the useful arts, supported or encouraged by government aid and voluntary subscriptions, among which evening classes exert a conspicuous influence, gratuitous instruction being there given to artisans both in the theoretical principles of beauty and their practical application. The result is that the worker brings not only expert manipulation and a practiced eye, but some capacity of original design and independent judgment to the work in hand, and crowns its completion with that indescribable quality that gives the masterpiece its *cachet de distinction*. The French style of *artiste* applied to milliners and mantua-makers is hardly an abuse of language; their profession, if not strictly within the domain of fine art, borders close on its outskirts. Their chief and best encouragement, as must always be the case where art in any kind flourishes, is from an appreciating public; at the present epoch they have a high and generous patron in the person of the Empress. This gracious lady is not only a finished connoisseur and zealous amateur, ever ready to duly reward the ingenious devices of others, but on more than one occasion has contributed felicitous inventions of her own, originating modes whose imperial sway has ruled willing subjects in all the ball-rooms of the world.

Throughout the temperate zone the outbreak of new styles is a nearly simultaneous phenomenon. They are deliberated over and their publication is resolved on, in solemn secret conclave held by the heads of certain houses. To their correspondents in the principal foreign cities they forward drawings, illustrative colored plates, and specimen models, in advance of the season, so that they can be issued at the same opening day for example in New York and San Francisco. Besides its first value of rarity, which belongs to anything that requires so much power of invention, a bold and seasonable novelty promises very considerable pecuniary profit to its originator and first introducers.

#### READY-MADE CLOTHING.

Of wearing apparel for men the variety was not very remarkable. Each nation, for the most part, produces its own supply in this kind; and the competition is rather local than international. In the designs of stuffs, Paris held well its own, but for other qualities the London goods were preferable.

As the first of these cities maintains unquestioned the first rank for women's attire, so the second for men's, conscious of its right, would laugh at the falsity of a report denying its supremacy. Each, however, borrows something from the other—the French gaining rather the most by the exchange. For heavy garments especially, they of late years follow the English in shapes and names, omitting only a little of the original amplitude, adding only a little native grace of form. The two capitals supply the models, which are adopted in other countries, subject to the trifling modifications of local tastes and wants.

The principal exhibitors of ready-made clothing were French, Belgian, and Austrian. The contributions of the latter were noteworthy for their meritorious combination of form and finish with cheapness. Among the curiosities which, though not unknown in America, attracted much observation here, was a seamless coat. It was first molded while the material was in a pulpy state, and afterward pressed into a consistency that is said to be favorable to long wear. For army purposes, and where large quantities need to be furnished in the briefest time, the process may have its uses; but it is not sufficiently perfected as yet to be of any general advantage. Army clothing was mostly of a very indifferent quality. The defect was the more striking from contrast with snugly fitting brilliant uniforms, of which plentiful specimens were constantly to be seen at the Exhibition, worn by the military visitors of all nations and grades.

Under the head of costuming should be placed a good part of the childrens' dresses, multiform, many-colored, and "of most excellent fancy." Their bright tints and pretty quaintness of cut, not inappropriate to the fresh cheeks and mobile vivacity of youth, offered happy solutions of the grave problem how to distinguish the mother's attire from her daughter's.

In made-up clothing for both sexes, France, as in most other classes of the Exposition, was the principal exhibitor. The committee of admission in this class, for France, collected some very important statistics, a brief resumé of which may be interesting.

The trade in ready-made clothing, finding its central market in Paris, is quite extensive. The cheaper classes of articles are principally produced in the provinces. Several of the larger houses have their chief workshops in the departments of the north, Pas-de-Calais, Gironde, Gard, &c. Much of this work, which was formerly done by hand, is now done by sewing machines, to an extent which is truly astonishing, the greater part of the seams being sewed in this way. The cost of labor on clothing for men amounts to about one-fifth of the value of the goods. The workmen employed by the tailors are of two divisions, those who prepare and cut out work, and those who put it together. Five-sixths of the tailors work at home, the other sixth being employed in the tailors' work-rooms. There are about one-half as many women engaged in this trade in Paris as there are men. Working either by the day or the piece, the men earn from three to six francs<sup>1</sup> per day, though some expert hands gain from eight to ten francs per day. The women earn from two francs to three francs fifty centimes per day, and a few from five to six francs. The tailors generally do their own cutting out, but the dealers in ready-made goods employ cutters.

The exportation is generally done through the instrumentality of agents. There is great difficulty in estimating accurately the production of men's garments; but the tailors and clothiers of Paris do business to

<sup>1</sup> A franc is equal to nineteen and three-tenths cents in coin.

the amount of more than one hundred and fifty millions of francs per annum, the exports amounting to about one-tenth of the whole. Great progress has been made in the extent of the business since 1855. Many foreign governments look to French clothiers for the equipment of their troops, a branch of the business which has been very active.

### THE TAILORS IN PARIS.<sup>1</sup>

At the end of the seventeenth century the journeyman tailor, boarded by his master, earned about fifty cents a month, equivalent to ten francs of our present money. At the end of the eighteenth century the journeyman working on his own account earned one franc seventy-five centimes a day. In 1825, under the restoration, he earned from two to three francs a day; in 1850, under the empire, from three to three and a half francs a day; and in 1867, from four to seven francs daily.

Such was the progress of wages for labor.

Next the sewing machine came to the assistance of the working classes, and it was truly a Godsend to them.

Since the adoption of the sewing machine in 1854, wages have increased at least thirty per cent. As it lessens manual labor, thus economizing physical force, and makes more in less time, it is undoubtedly a benefit to the workman. A man who is able to buy a machine gains from twenty to thirty per cent., and a woman, from thirty to forty per cent. on their wages.

The tailor has marked advantages over the workmen of other trades: if he is intelligent, active, and industrious, he can soon become master; if orderly and economical, he can get work by the piece; and then gradually acquire a profitable custom. We have numberless examples of this in the many tailors that have made a name and a fortune from small beginnings.

We will now proceed to give the advancement in this industry during the last twenty years. In 1827 there were but three hundred and twenty-two tailors in Paris, and only one of them exported his manufactures; and they were made to peddle, and gave no credit to French-made goods. At that period exportation was restricted, and goods of this kind were not generally sent abroad. We have nothing definite about their exportation till 1849. In that year, the export amounted to forty millions; in 1866 it was sixty millions. We have already mentioned that the cutters, or tailors proper, were injured by their indifference toward the makers and wholesale manufacturers. The result of the latter business, in 1849, was twenty-five millions; in 1866 it was one hundred and nine millions.

Two incidents have happened to aid tailors—commercial treaties have opened foreign commerce to them, and railways have brought foreign customers to them in Paris. These visitors have carried fashionable

<sup>1</sup> Extracts translated from the report of M. Auguste Dusatoy, Vol. IV of the Rapport du Jury International.

clothes away with them, giving a fixed reputation to Paris fashions and a good and permanent custom to Paris tailors.

In the statistical reports of 1860 we find six houses doing business to the amount of one-million of francs; in 1866 we find six doing a business of twelve millions. In 1866 we find seventeen hundred licensed tailors doing a business of two hundred and five millions of francs. Their materials were wool, silk, linen, cotton, and fringe and buttons, at a cost of one hundred and seven millions. The labor cost 98 millions, making a total of two hundred and five millions, as stated.

We find in 1866 thirty-four thousand men and eight thousand women working at home or in shops. Dividing the earnings of their labor among them, we have four francs sixty-five centimes as the average for men, and two francs thirty centimes the average gains for women.

Thus we see a sensible increase of wages for working men and women in the last six years. But we must observe that out of this two hundred and five millions, nine millions were for military clothing.

The following is a substance of the observations made by Mr. R. Sinclair, tailor, published in the British Artisans' Reports.

"After my arrival at the Paris Exposition I saw a great display of cloths, with but little tailoring from any country exhibiting. \* \* \* with a total want of military work, which is much to be regretted, as it is the most difficult part of our trade. \* \* \* \* \*

"English tailoring was from two London houses, and consisted of a few uniform tunics wretchedly made and no way fit to cross the Channel, and a few garments, anything but well made for a West End firm, mostly for sporting purposes.

"In the French department, the tailoring was larger than in the English, without style or workmanship to recommend it, and cloth to match, supplied by slop and export houses.

"Both in France and England the slop-worker is in a wretched condition, who supplies this export work, and yet the profits accruing to these houses are enormous.

"The Austrian tailoring sent to the Exhibition was by far the best, and certainly was the best I ever saw (civilian work) for style, cut, and workmanship, and taste displayed to give effect; it could not be surpassed by any firm in Europe. This work was sent by J. Rothberger, Vienna.

"In the American department, there were a few garments badly made, army and navy clothing, chiefly made by machine, and I expect they were only sent to show the uniforms of the United States.

"The French tailors in Paris are more than outnumbered by foreign workmen, including Germans, who are very numerous; Alsations, whom the French class as foreigners; Italians; a few Spanish; Belgians, called Flamands in Paris; Dutch; Swiss; with a goodly sprinkling of Russians, Swedes, Danes, and Norwegians. But the French workman in Paris is a better workman than the larger bulk of this stock of foreigners,

most of the latter being young and residing in France for two objects, to learn the language and improve themselves in workmanship." \* \*

#### CLERICAL ROBES.

There was nothing in all this Exhibition more complicated, and rich, and gorgeous with embroidery and colors and barbaric gold, than the clerical raiment. The old Gaul of ten centuries ago had two principal articles of clothing. One of them, as it grew longer under Italian culture, took the longer and more mentionable name of pantaloon. The other was a species of shirt, and named *casula*, the diminutive of *casa*, a house; it was his cottage, cot, or coat. This same *casula* is, almost without change, the modern French workman's blouse; and from it came also the magnificent *chasubles*. The manufacture of official church garments is a special and considerable business; but beside the offerings of professional fabricants, some of the most elaborate, and, in their kind, beautiful specimens of ecclesiastical apparel on exhibition, were the painstaking works of love, wrought by the hands of devout women.

#### READY-MADE CLOTHING FOR WOMEN.

The trade in ready-made clothing in France is chiefly confined to the "*magasins de nouveautés*," or dry-goods shops, where ladies' ready-made clothing is a staple portion of the stock. This is, of course, generally somewhat cheaper than that made to order and less elaborate in workmanship, but often rivals the latter for quality of material and elegance of forms. The most striking display of ladies' goods in the Exhibition was of this second class, and formed an exception to the general rule, being remarkable for thoroughness and finish of make. We refer to the dresses exhibited by Enout & Co., who, in their most charming patterns, were honored with the co-operation of the Empress Eugenie. An embroidered trimming in pansies deserves particular mention for its beautiful effects of harmony or of brilliancy, according as it was applied to a taffetas silk of a color corresponding or contrasting with the leading tint of the flowers. The most noticeable characteristics of the singularly rich and varied show of ball-dresses were the beauty of the patterns, which were mainly floral, lightness of tissues, and fullness of drapery. Even in their stillness they suggested floating, mazy motion. The finest two in their kind, whose "loveliness" excited the ejaculatory enthusiasm of female spectators, came from the workshop, one might almost term it studio, of Opiger Gagelin. It is one of the most famous in Paris, and its graduates may be found in all quarters of the city. Its importance may be guessed from the fact that it turns out no fewer than four hundred model dresses annually that serve as the studies from which nearly all the periodical fashion-plates are prepared.

The Compagnie Lyonnaise and the vast Magasin du Louvre both made

large displays; the first remarkable for extremely luxurious articles and costly fabrics; the latter, for its complete assortment of ornamental articles of female attire. Three magnificently embroidered mantles in the cases of the last-named house drew great attention, rather, however, as curiosities of ingenious and painstaking labor, than for originality or beauty of design. Equally elaborate and more eccentric was a white-satin dress, exposed by M. Bouillett, embroidered *en chenille*, with immense peacock feathers, most exactly rendering the natural colors and form and texture to the eye; a grand spreading imperial robe worthy of a Juno for its wearer. An opera-cloak in the same case was composed of swan's down covered with butterfly wings.

The probabilities are that these eccentricities of manufacture, if they ever come to human wear, will be borne on foreign, or, at least, provincial shoulders. With the Parisian the toilette is a composition in which not only the material, shape, and tint of each item of apparel, but the figure, features, and complexion of the individual are to be combined in subordination to that admirable whole, a well-dressed woman. She gives her mind to it. She devoutly holds to that dogma laid down by a serious preceptive writer on the subject: "*Une toilette est toute une science*;" and to that other maxim pleasantly amended and pieced out from Buffon: "*Le style, c'est l'homme et surtout la femme*." Her apparel bespeaks herself; it is the "make-up" of her person. She dresses in character.

For the manufacture of ladies' clothing Paris is the greatest center, and in it is consumed an immense quantity of material of every grade of quality and price from the most ordinary printed cottons to velvet of the highest cost. For articles of summer wear the light fabrics of Roubaix, Elbeuf, Sedan, and Rheims, French merinoes and Scotch cashmeres, are principally used. For the trimming of ladies' clothing pillow and machine-made lace, also that of Paris and St. Étienne, and guipures and gimps from Lyons, are employed. The stuffs, cut or uncut, are given to dressmakers, or ladies' tailors, who employ from four to forty workwomen, besides those who work at home. The articles are generally sewn together by hand, the trimmings being added by the use of sewing machines. Outer clothing for the use of females is made almost entirely by women, and the sewing machines are generally operated by women. The average earnings of men at this trade are five francs a day; of women, about half that rate. A very considerable portion of female wearing apparel is exported, principally to England, Russia, Holland, Belgium, Spain, Italy, Turkey, North and South America, and Australia. The articles chiefly exported are paletots, talmas, pelisses, mantelets, embroidered shawls, scarfs, and jackets. Dresses, hoods, and children's clothing also enter into the export trade. These articles are furnished to the small provincial linen-drapers and commission merchants, while the principal linen-drapers in Paris and the provinces generally buy the patterns and have the articles made up

for themselves. The value of these articles produced annually in all France is estimated at one hundred millions of francs, or nearly twenty millions of dollars in our coin. Five-sixths of the whole are used in France, the exports being only one-sixth.

### THE SEAMSTRESSES' ART IN PARIS.<sup>1</sup>

In estimating the progress of the seamstresses' art by their number at different periods, it has not advanced like some other industries. Thus, in 1780, the independent seamstresses numbered two thousand; in 1849, they were two thousand five hundred; and in 1867, only four thousand. We do not think their number has sensibly increased since 1860, but the business, then estimated at nineteen millions of francs, has more than doubled. The fourteen thousand sewing girls employed by the four thousand mistresses, with a business of forty millions, earn from two and one-half to three francs a day.

The trade in ready-made clothing for women did not actually begin till 1845. Before that time a few houses made crispins, spencers, and mantelets; but as they were sold at retail by a few fancy stores, or were sent abroad or into the country as models, they did not constitute a branch of commerce. Since our commercial treaties have opened the world to us, the industry has continued to increase until it has become an important branch of our commerce.

Articles of women's dress were once excluded from exhibition; but, in 1867, the industry was elegantly represented at the Exposition. We judge of this by the number of distinguished persons that crowded round the show-cases, by the considerable business produced by the models exposed, and by the approbation of knowing persons, that declared no country would compete with France in the line of women's garments.

As no other nation exhibited samples of women's clothing, we must confine our judgment to the French articles, regretting, however, that we have no foreign samples for sake of comparison.

After 1846, many establishments for the special manufacture of women's clothing were instituted; one of them does business to the amount of three millions of francs annually, and several others manufacture more than one million's worth per annum. Besides these many fancy stores have special departments for the sale of women's garments, and do a very good business in that line.

Many ready-made dresses are sent abroad as *samples* to all parts of the world to avoid the prohibitory tariff on ready-made clothing, which exists in many countries; in Spain, for example. In Portugal our ready-made clothing has to pay a duty of eighty per cent.; and in many other countries a duty of fifty or seventy-five per cent.

If the government would revise our commercial treaties and open foreign countries to our fabrics, the business in Paris would take a new

<sup>1</sup> Extract translated from the report of M. Dusatoy, of the International Jury, Vol. IV of the Jury Reports.



flight upwards. The business of women's clothing amounted to fifty-five millions of francs in 1867; the pay was twenty-five or thirty per cent., and the number of seamstresses employed was about seventeen thousand.

In the general statistics of the Paris Chamber of Commerce for 1860 this business was estimated at twenty-seven millions seven hundred and sixty-five thousand, and we may justly reckon it at double for the year 1867; this, added to the forty millions done by seamstresses, will make the entire business amount to ninety-five millions of francs per year.

We cannot estimate the quantity of material used by dressmakers, its fineness and value; because the variety of stuffs is so great, and they change the fashion so often, certainly the quantity used cannot be reckoned with justness.

Every industry that is controlled by fashion is so changeable that the material used in it escapes all analysis, and cannot be correctly estimated.

We think we have shown that we were right in affirming that the clothing industry is the most extensive industry in the world. In fact, is there a single business that can compare with the figures we have given, and which employs seventy-five thousand working men and women, one-twentieth of the population of Paris, at salaries amounting to more than eighty millions in the aggregate? If the question be studied in a family point of view, with humanitarian and moral considerations, the consequences and benefits of the industry are incalculable. The married woman finds a remunerative labor in making clothes, a labor she can carry on at home, and which helps the housekeeping; the young girl can work at home, in the business, or in a shop with other girls, at good wages, and is not obliged to work in large manufactories, where crowds of men and women, old and young, often produce lamentable and immoral consequences.

If the question be examined in an economical light, from an industrial point of view, we are instantly struck with the immense quantity of material used in the business, which in Paris alone amounts to one hundred and fifty millions, forty millions of which are sent abroad.

But for this business, which makes the fashions of Paris known all over the world, our material, not better than that of other nations, would not have such extensive consumption. The clothes-making business, in fact, is the main support of our manufacture of tissues, and is certainly the principal cause of the prosperity of our grand industrial establishments.

These consequences are due to the causes we have enumerated, as well as to the men who have taken such a large part in the manufacture of articles of clothing for both sexes. If we take as a basis the forty millions of tissues exported by clothing establishments, and the labor required to work up the raw material, we must give credit to the clothing business for much of our prosperity.

## HATS FOR MEN AND WOMEN.

The word hat, according to etymology and the standard dictionaries, signifies "a covering for the head *made of various materials and worn by men or women*, for defending the head from rain or heat, or for ornament." We have italicised the only part—and in proportion to the subject it is a large one—of the definition applicable to the articles that were exposed under the title of hats for women. There was a large collection of them, marvellous for diversity of material and form and devices of littleness—capricious snips of things "pricked in with the humor of forty fancies." They had their fantastic charm withal, though nothing about them was so astonishing to a mere man's mind, seeing their diminutiveness and apparent frailty, as to learn what heavy prices they bore. Some were made of ivory and pearl, others of leather. There were some composed entirely of feathers, others of paper, yet other fragilities of glass.

In the manufacture of hats for men Paris excels London for lightness, but not durability. Cork enters largely into the composition of the finest qualities, securing both lightness and imperviousness to rain. Much ingenious machinery is used for preparing the cork and cutting it into the thinnest of leaves. In the Italian section was a cork hat made up of two thousand one hundred pieces. Felt hats, of which there is a large manufacture in France mainly for exportation, were exposed in profusion. They are made by molding and pressure in the same manner as the seamless coat spoken of above. The whole process was seen in operation in the machinery department, where the raw material was transformed in a few minutes to the finished hat. In the same department, boot and shoe making machinery from Alexandria was working rapidly and well. There were several varieties of straw hats from South America; very cheap and serviceable articles in like kind, such as are commonly worn by sailors and fishermen from Malta; others made of the fibre of a plant, very strong and impervious to sun, wind, and rain, from the Cape of Good Hope. Besides felts, Italy sent some exceedingly fine specimens of straw from Leghorn and other places; and England presented a handsome show of chip hats.

The most picturesque caps, embroidered with gold, were from the Eastern countries. Austria excelled in red cloth tasselled caps. The plainest came from England, the cheapest and most serviceable from Hungary.

## MANUFACTURE OF HATS FOR MEN.

The centers of the hat trade in France are Paris, Marseilles, Lyons, Aix, Toulouse, Bordeaux, and some other southern towns. The materials most used in the manufacture are the skins of the beaver and muskrat, imported from Canada, that of the Goudin rat, from South America, hare and rabbit fur, and various kinds of wool. There are two

distinct divisions of the manufacture, namely: that of the soft and firm felt hats, and that of silk hats. Workmen, whose special business it is to cut the hair from the skins, furnish the makers with their raw materials. The manufacture of French hats consists of several distinct processes. The fur is first beaten either by hand or machine. A felt bag twice the size of the hat is thus produced, which is then filled by hand or by a machine constructed specially for this purpose. The hat is now scraped with a knife, to take off the long hairs, rubbed with pumice stone, and stiffened, or not, as the case may require. Next come the processes of dyeing, blocking into form, binding, and the insertion of the head lining and leather.

A different system prevails for silk hats. First the form is made of the fabric preferred, stiffened with gum shellac. A kind of silk plush is made to adhere to the exterior of this form, and within is inserted material suited for a lining. Many silk hats are made with the adhesive linings, in which case the interior surface becomes part of the solid shell.

The skilled workmen command high wages, comparatively getting as high as ten francs per day. The average, however, is between forty and fifty francs a week. The work is done by the piece, under the supervision of foremen chosen from among the best workmen. The latter earn from two thousand to three thousand francs per year. Women in this trade are paid from eighteen to twenty francs per week. Most of the operatives work in the factories. French hats are exported to nearly all parts of the world, and sold from three or four francs to twenty-five or thirty. Opera hats, made with compressible spring sides, are exported in considerable quantities. The manufacture amounts to about five millions of dollars estimating on the gold basis, the exports being about twelve million francs. Great improvements in hat-making machinery are constantly coming into use. Pretty much the same materials continue to be used, but the wages of workmen have increased. The great manufacturers now make and finish completely their goods, and practically the latter whose name is in the crown is only an agent between the producer and consumer.

Twenty millions of francs' worth of caps are also made per year in France, the sewing and embroidery being in a great measure done by machinery; not many of these are exported. The *kepi*, which has since 1848 been introduced into the army, the public schools, and administrations, constitutes quite a proportion of the manufacture, and a considerable number of Greek or Fez caps are made, either knit or felted; the principal places for the manufacture of these being Paris, Orléans, Rueil, Condom, and Chalons, and many of them are exported.

### BOOTS AND SHOES.

Boots and shoes were exhibited in great abundance by many nations. Among them a case in the American section, from Burt & Co., of New

York, bore favorable comparison with the best of foreign make. The present style of French boots is, like Achilles, open to attack in the heel, which is too high and brought so far forward as to change the natural point of support, throw the weight of the body too heavily on the toes and unsteady the pose. It makes the foot look smaller from the front, and pitches the body slightly forward.

#### THE BOOT AND SHOE MANUFACTURE IN FRANCE.

Many ingenious improvements in machinery for this manufacture have been made. The business is divisible into three classes—sewed boots and shoes, those pegged or nailed, and those fastened by screws. Most of the French sewed boots and shoes are made in Paris, Nantes, Marseilles, Bordeaux, and Fougères; pegged ones in Paris, Liancourt, Romans, Blois, and Angers; those made with screws are only produced in Paris. Most of the findings and trimmings of boots and shoes of the French manufacture are made in France. The workmen are divided into three classes, the foremen, receivers, and cutters. Half of the operatives are women, who receive about half the rate of wages paid to the men, the men being paid about four francs per day. The ready-made trade is carried on by commercial travelers who sell to the provincial dealers. Commission merchants buy for exportation. The average price of good boots and shoes is sixteen francs for those worn by men, eight francs for women's, and six francs for children's. The more common sorts for men are sold on an average at eight francs, those for women at five francs, and those for children at three francs a pair. These productions of the French trade are exported principally to North and South America, East and West Indies, England, Italy, &c. Paris alone produces boots and shoes to an amount of one hundred million francs; the provinces also contribute largely to this trade, and about forty million francs worth are exported. Since 1855, the use of sewing machines for sewing together the upper leathers has become very general.

#### MANUFACTURE OF CLOTHING IN THE UNITED STATES.

In the earlier days of this republic most of the clothing used, except among persons of wealth, was of household or strictly domestic origin. Great simplicity of dress was a requirement of the austere ideas of propriety prevailing in those days, and the colonial codes, many of them, contain statutory restrictions on the subject, the violations of which were punished by penalties of various degrees of severity.

The first fulling mill in America was erected about the year 1643 at Rowley, in Massachusetts; yet, in the year 1713 it is recorded that there was but one clothier in Connecticut, who could do little more than full a portion of the homespun made, much of which was worn unshorn and undressed.

The wealthier classes in the colonial period imported much of their clothing material and all of the finer cloths from England. In the larger

cities and towns, however, tailoring establishments found ample patronage.

The tailors were sufficiently numerous and important in Philadelphia in 1718 to apply to the city government for an act of incorporation. A Master Tailors' Society was incorporated in that city in 1805.

The branch of ready-made clothing business commenced in 1825, and was started chiefly to supply a demand for ready-made clothing in the southern States and certain foreign countries. The production of clothing by the wholesale, with the aid of labor-saving processes, naturally made a great reduction in the prices of this class of wearing apparel, and its use has become very general among persons of moderate incomes. Our import duty on ready-made clothing has ranged as follows: from 1816 to 1828, (inclusive,) thirty per cent. ad valorem; from 1828 to 1846, fifty per cent.; 1846 to 1857, thirty per cent.; 1857 to 1862, twenty-four per cent.; since that time, thirty-five per cent.

The average annual value of ready-made clothing imported into the United States from Great Britain in 1827 and 1828 was about \$803,000. For the next six years it fell to an average of \$498,000; for the ten years ending 1844, the average was about \$808,000; for the years 1851 and 1852, \$97,032. Our exports of clothing for 1827 and 1828 averaged \$119,510; for the next five years \$75,576; and for the ten years from 1833 to 1843, the annual average was \$118,730. In 1851 and 1852 the average annual exports reached the value of \$250,102.

Four cities manufactured more than one-half of the whole quantity produced in the United States, namely: New York, \$17,011,370; Philadelphia, \$9,984,497; Cincinnati, \$6,381,190; and Boston, \$4,567,749.

An extensive and important change has taken place of late years in the dry-goods trade, through the extension of the ready-made clothing business, which has thrown the importation and sale of foreign and domestic cloths to a great degree into the hands of wholesale clothing merchants, and thus the jobbing business is united with that of manufacturers and dealers in clothing on a large scale. These branches, in consequence of the high cost of materials, the long credits given, and other circumstances, require heavy investments of capital and a high degree of discrimination and judgment in the selection of goods. Some of the establishments are so extensive as to require several thousand persons to perform the various duties pertaining to the manufacture and sale of clothing. The male hands have been principally German and Irish immigrants, the cutters being principally American, and they have uniformly received higher wages than the same classes could earn in Europe. The sewing machine has been extensively used in this business for several years, and has given a vast impetus to the trade. It has done this by cheapening the expense of production, as well as by enabling the manufacturer to turn out his work at the shortest notice, and thus keep pace with the changes of fashion in regard to the cut of the clothing and the style of material. In fact, it was mainly the result

of the introduction of the sewing machine that the many small shops have been to a great extent superseded by the large wholesale establishments. This change is most forcibly illustrated by the fact that, from 1850 to 1860, the number of establishments was reduced eleven per cent. and the number of hands increased two and four-tenths per cent. only, yet the capital invested in the business increased nearly one hundred per cent., and the aggregate value of the product five and one half per cent.

### HEAD-DRESSES FOR LADIES.

The head-dress is among the most conspicuous of the articles which determine the style or fashionable character of a lady's appearance; and it is in Paris, chiefly, that the novelties of this department are originated. The materials used in the manufacture of bonnets and caps, such as buckram, whalebone, wire, various stuffs, flowers and lace, are obtained from special manufacturers. There is no fixed method of preparing articles of millinery. It is altogether a matter of taste and ingenuity. The workmanship forms only a small item in the value. The average of wages of working milliners is two and a half francs per diem. Nearly all the milliners sell direct to the purchaser. Some firms, however, make up articles specially for exportation, and these alone employ under-milliners, who receive the necessary materials for a certain number of bonnets and head-dresses, and prepare the work by arranging and fastening the various stuffs upon the ready-made shapes which they furnish. The ribbons and flowers are always added by the milliner herself. It is difficult to estimate the exact value of millinery annually produced in France; but it must be considerable, as the Parisian milliners' returns amount to nearly twenty millions of francs, or nearly four million dollars in gold. About one-tenth of this is exported, chiefly to America, England, Spain, Belgium, Holland, Germany, Prussia, and to the French and English colonies.

### ARTIFICIAL FLOWERS.

The annual French—chiefly Parisian—production of artificial flowers, of which about three-fourths are exported, amounts in value to eighteen million francs. The display of them, in what may be styled the ladies' department of the Exhibition, was one of its most attractive features. The fidelity to nature of these counterfeit presentments—in leaf, and blossom, and pistil, in exquisite fineness of line, and tenderest shade in gradation of color, to the very dew glistening on the petals—is so deceptive that it is only by an appeal from the eye to the sense of smell that nature can sustain her prior claim. The counterfeit representatives of every clime in this international floral display vied in hue and form with their living originals in the park and horticultural annex. For certain purposes of ornamentation they are, indeed, superior to the growth of the garden. They do not droop and fade as the gaiety of the ball room

rises, nor by their perfume weigh the heated atmosphere with an additional sickly element.

The production of artificial flowers may be named among the artistic specialties of Paris, in which she stands without a rival. The materials which it consumes are various and delicate; for the leaves and blossoms, jaconet, nansook, cambric, muslin, velvet, crape, satin, silk, French cambric, feathers, paper, and wax are made use of; and for the stems, berries, and fruits, wire, silk, cotton, floss-silk, paper, starch, gum, gelatine, wax, paste, chenille, quills, whalebone, gauze, chopped wool, and glass balls. For mounting the flowers, silk, paper, gauze, and iron and brass are required. The workmen always use the same instruments, goffering irons, stamps, &c. The galvanoplastic process is sometimes employed. The cost of workmanship amounts to about four-tenths of the value of the productions, and the materials employed to about three-tenths. The remaining three-tenths represent the profit of the producer. This manufacture is divided into a great many different branches. For the preparation of the colors there are special workshops. The work is generally carried on at the homes of the work-people. This trade employs fifteen thousand persons, nine-tenths being women and girls. The men earn about four francs a day, the women two francs twenty-five centimes. The mounting and sale of flowers is carried on for the most part in handsome shops and show-rooms, where all kinds of flowers are generally sold as well as the different sorts of ornamental feathers. Three-fourths of the entire manufacture are exported through the medium of commission agents. The value of the trade is about fifteen million francs per annum. The flowers are exported to America, England, Belgium, Russia, and Germany.





## CHAPTER IV.

### LACES, FANS, GLOVES, ETC.

THE MANUFACTURE OF RARE AND COSTLY LACE BY HAND—NOTICES OF SPECIALLY INTERESTING EXHIBITIONS OF LACE—MACHINE-MADE LACES—WAGES, CONDITIONS, AND DIVISIONS OF LABOR—EDUCATION OF LACE-MAKERS—THE BRITISH ARTISANS UPON LACE—MANUFACTURE OF LACE IN VARIOUS COUNTRIES—EMBROIDERY—MANUFACTURE OF FANS—MANUFACTURE OF GLOVES IN FRANCE, ENGLAND, AND OTHER COUNTRIES—ELASTIC TISSUES, SUSPENDERS, BELTS, GARTERS, AND BRACELETS.

#### THE PRINCIPAL DISPLAYS OF LACE.

The manufacture of lace of the most rare and costly descriptions is performed by hand labor, the designs being furnished by artists who possess a high degree of skill—the result of long-continued studies and practice under circumstances most favorable to the attainment of proficiency in the specialty of producing designs adapted to this manufacture.

The point laces of Alençon and that of Brussels are so intricate and the manipulations so delicate and difficult that it is necessary to give a life-long training to the operators to secure excellency in each distinct characteristic of fabrication.

The art of lace-making has been carried to such perfection that a sufficient indication of light and shade can be introduced to give an approximation even in such transparent tissues as the Brussels and the Alençon point to the relief effects attained in engraving.

The specimens of Alençon point and other French lace at the Exposition were carefully selected and very beautiful in design and workmanship. The black lace of Bayeux and Calvados is the most important and extensively manufactured in France.

One of the leading firms in the production of this lace is Messrs. Lefébure, who exhibited a dress of point d'Alençon, combining the highest qualities of the art, the price of which was \$16,456 in gold. This dress, consisting of two flounces and trimmings, took the labor of forty women for two years to produce it. The same firm had also a superb point or half-shawl of black lace; the design consisted of a large central bouquet of roses perfectly shaded and standing out as it were from the ground. This central cluster was surrounded by a border of roses, upon which equal skill was displayed. The price was a trifle less than two thousand dollars in gold.

Another example by the same exhibitors was a bridal veil, the ground of which was needle point, the flowers application made at Ghent, and the border in the style of Venice point, while figures in point d'Alençon formed part of this rich and harmonious composite. The lace of Malines or Mechlin lace, as well as the ancient rose or Venice point in high relief, were shown by the same house.

Among the many admirable specimens of black Bayeux laces were the following, by Messrs. Verdé-Delisle: a point ornamented with beautifully shaded flower forms, a parasol of finest quality, and a flounce of ferns and flowers, and a dress pattern. They also displayed a flounce of point d'Alençon, style of Louis XV, the flowers in medallions; a dress of Brussels mixed points, and some specimens of Cluny guipure, and some altar cloths. Messrs. Lefébure and Messrs. Verdé-Delisle enjoy an enviable distinction for superiority in the design and quality of their fabrics.

Among the other notable specimens in the French section were a very elegant tunic of white lace made partly in Brussels and partly at Mirecourt; a black lace flounce of exquisite fineness of texture, a black lace parasol, a Bayeux flounce in roses, handkerchiefs bordered with Venice point and filet from the Convent of Notre Dame du Puy, black silk guipure shawls and laces printed in colors or embroidered with pearls, from Auvergne.

The Belgian section, too, presented an exhibition of laces hardly inferior to those of similar grades in the French; the Dromment varieties being Brussels, point à l'aiguille, plat, application, Grammont and Mechlin. A dress of "point gaze" exhibited by Hoorickx was valued at \$10,000.

The principal manufacture of lace in Belgium is that of the Valenciennes variety. It is made throughout East and West Flanders, the finest qualities being Ypres, West Flanders. Grammont, West Flanders, is the seat of an extensive manufacture of black lace in which considerable improvements have been made.

There was a creditable display of shawls of this lace by the collective exhibitors of Grammont. These are not so carefully worked, however, as the Bayeux laces of the same class.

Prussia and the German states exhibited only some needle point flounces of Berlin edgings from Nurlingen. Austria, a point imperial and the coarser laces of Bohemia. Spain, the lace of Barcelona. Sweden, the torchon lace of the peasantry. Russia, that of Helsingfors. Italy, the black and white pillow-made laces of Genoa and imitations of French laces. Rome, a remarkable specimen of old Venetian point. Turkey, white silk crochet lace from Smyrna and the Island of Rhodes. Malta, her traditional black and white guipures. England, Devonshire lace, Honiton, Cluny, and needle-made laces. Ireland, guipure. Central and South America are represented to a very limited extent in laces characteristic of Paraguay, Uruguay, Chili, Venezuela and Brazil.

#### NET AND MACHINE LACE.

Imitations of some of the standard laces have been successfully made by machinery of ingenious construction, chiefly at Calais and Amiens in France, and Nottingham in England. The French produce in this way imitations of Valenciennes, Cluny, colored laces, white and black blondes, especially excelling in white blondes, which are to a great degree taking the place of the hand-made lace of the same type.

Amiens produces the finest llama and yak shawls. Plain and embroidered silk tulles are made chiefly at Lyons.

Brussels net made by machinery now used as a ground for laces has superseded the pillow-made ground, at an immense saving of labor and expense and giving equally satisfactory and artistic results.

#### WAGES, CONDITIONS, AND DIVISIONS OF LABOR.

There are in Calais and St. Pierre seven hundred and eighty machines, the best of which were built in Nottingham and its vicinity. They are all in factories worked by steam-power, running all hours, commencing work from six to seven o'clock on Monday morning, continuing until ten o'clock on Saturday evening; in some establishments working up to ten and twelve o'clock on Sunday morning.

A great deal of liberty is allowed the workmen for social intercourse, and a large amount of affability and familiarity exists between employers and employed in the various workshops.

There are two men at each machine taking alternate shifts or turns in working, one commencing on Monday, from 6 to 7 a. m., continuing until 9 a. m., and the other coming on at 9 a. m., and working until 1 p. m., the first coming back at 1 p. m., remaining until 6 p. m. The one leaving off at 1 p. m. returns at 6 p. m. and works until 2 a. m., and so on through the week.

The law in France is that a week's notice shall be given and taken by the employed; the man, if these conditions have been fairly complied with, receiving what is termed his *livret*, in which is described his personal appearance, answering the purpose of a passport to any part of France. If the employer refuse to give the *livret* he is liable to a fine of fifty francs. If the workman leaves in debt it is inserted in his *livret*, and his next employer, according to law, can stop one-fourth of his earnings for the purpose of refunding the debt to his former master.

In the lace trade terms are used to denote the width of machines, such as "quarters;" any number of inches a machine is in width upon being divided by nine inches (a quarter of a yard,) gives the number of quarters. "Ganges" are counted by the number of points or combs contained in an inch. All ganges are calculated from the ten-point standard.

The workmen are paid by the "rack," consisting of one thousand nine hundred and twenty motions of the machine.

#### EDUCATION OF LACE-MAKERS.

As a means of artistic education, the perfect freedom of access to the picture galleries appears to be taken great advantage of, and fully appreciated by the people; as upon our visit to the Louvre, in one gallery alone, we witnessed fifteen persons, old and young of both sexes, copying the paintings of the great masters. The beautiful gardens are another source of attraction and instruction to the people. The intimate and

social freedom we noticed existing between the employer and employed, is another source of great improvement to the work-people.

#### THE BRITISH ARTISANS UPON LACE.

In the reports by the British artisans there is one upon lace by Edward Smith, Joseph Bird, and George Dexter, delegates recommended by the Nottingham Chamber of Commerce, from which the following is extracted:

“Believing in its importance,” (the lace manufacture,) “we have endeavored to the best of our ability to ascertain the quality of work turned out by different nations; influences affecting the character of the work and trade generally, such as cost of material, wages, conditions and divisions of labor, education, habits of life, amusement, and trade associations.

“The first class of goods we inspected was the French department, Group IV, Class 33.

“The hand-made laces are of surpassing beauty; the intricacy of and perfect following out of the leaves and flowers of various plants introduced into the designs are very delicate and truthful. We are of opinion that the carrying out of the design in the hand-made lace must have an abiding and elevating power upon the minds of the females engaged in this branch of industry, implanting a taste for the beautiful that no doubt descends to their children, widening and spreading in its character and influencing all who may come in contact with them.

“The total number of lace makers is estimated at two hundred thousand women and girls. They gain on an average one franc twenty-five centimes per day; some who are particularly skillful and industrious earn as much as three francs fifty centimes for ten hours' hard work. Lace-makers are for the most part peasant women, who all, without exception, work at their own homes, often quitting their lace pillows and babes to attend to household duties or to work in the fields; lace-making has the advantage of being carried on at home, and, therefore, of not depriving agriculture of too many able hands. French lace is sold in all markets—in the United States, the Brazils, Russia, Germany, Italy, Great Britain, the East and the West Indies. Paris is the principal center of consumption, the young females wearing a very tasteful description of head-dress composed of all kinds of lace.

“The machine-made laces are of a very high character both as regards quality of material and design. It is impossible to carry out the design to perfection unless a sufficient number of motions of the machine is gone through so as to give an opportunity for the figuring threads to lay in the work in that smooth and rounded form, successfully tracing the design upon the lace as upon paper. This is pre-eminently the feature of the French machine-made laces. All the articles from the broadest to the narrowest widths exhibit the same beauty of construction. The laces exhibited consist principally of blondes, black laces, edgings, guipures,

and Clunys. The blondes have a bright silvery appearance; the black laces, in the form of shawls, flounces, &c., display great beauty of design and brightness in the thick-thread silks, not only in the goods exhibited, but those we saw in the course of manufacture at Calais and St. Pierre near Calais.

“A first-class article would appear to be the ruling feature in the minds of the manufacturers, the design in no way being sacrificed for the sake of cheapness.”

### MANUFACTURE OF LACE IN VARIOUS COUNTRIES.<sup>1</sup>

The generic term lace comprises all those fine thread works made by spindle or needle.

Spindle lace is made in a simple portable frame, in the operative's lap, with spindles and thread, and pins to guide the thread or point out the design. There has been no recent change in this frame or loom, nor in the method of lace-making; the same process has been followed for four hundred years. Spindle lace is made of any textile fiber; flax, cotton, silk, wool, hair, and even gold and silver wire are used in its fabrication, producing the common *picot*, at five centimes a yard, or the sumptuous lace that sells like precious stones. Needle lace, generally termed point lace, is made with a common needle, after a pattern held in the hand; and white thread is the usual material for it.

The manufacture of lace is very varied; so much so that we might say there were as many varieties as factories. Lace is made in every part of the world, and no two kinds are alike, though the mode of making be similar; and for that reason laces generally take their names from the places where they are made. It is said the business of lace-making in Europe gives employment to more than half a million women and girls; they all work at home and earn ten or fifteen centimes an hour.

All the large lace manufactories were represented at the Exposition. We will only notice some of the principal ones in Europe. France and Belgium are the great lace-making countries, and give work to four-fifths of the females employed in that peculiarly feminine industry.

#### SPAIN AND PORTUGAL.

Spain was once renowned for its blonde silk lace; the prosperity of the business has been declining for many years, and now it is almost extinct. The lace made there now is for robes, mantillas, veils, and garments used at home or in the American colonies. Barcelona is the central lace market of Spain. The operatives of Catalonia are not wanting in skill; and they often excel in this delicate work. With proper encouragement they might supply the world, at a reasonable price.

The production of Portugal and Madeira is less important than that of

<sup>1</sup>Extracts translated from the report of M. Felix Aubry, Class 33, Vol. IV, Jury Reports.

Spain; and it is confined chiefly to narrow lace for trimming. The work of the Portuguese operatives is good, solid, and cheap; but the designs are old and are wanting in taste; with proper direction they could make as good lace as is found in Puy, and might rival that part of our country in its production.

#### GERMANY.

Spindle lace, which is made all over Germany, even in Denmark and Bohemia, is known in commerce as *Saxon* lace. The principal centers of its production are Annaberg, Dresden, Eibenstock, Carlsbad, and Tondern. The different kinds of German lace are generally common looking and of inferior quality; the designs are old and ugly, unless copied from French designs; and the workmanship is far inferior to any of ours, in fact, is not as good as that of Auvergne. But the Saxon lace has one advantage over ours, that of price; the cost of making it in the Erzgebirge and Vogtland is much less than in France. In this very important point of view, the Saxon lace beats us in the markets of America and Russia.

#### GREAT BRITAIN.

Three varieties of lace are made in the United Kingdom: Irish lace, Buckingham lace, and Honiton lace.

Irish lace is like nothing in France or anywhere else; it is cheap, and the great number of women who work it do not get so much for it as our operatives. The different kinds of Irish lace partake of the nature of embroidery, fringe, crochet work, spindle and needle lace; they are sold only in England and America; the use of them has decreased in late years.

The Buckingham lace of England is chiefly made in the counties of Northampton, Bedford, Oxford, and Buckingham. The English lace-makers are skillful, they work with silk or thread and produce an article of excellent quality. In 1862 the business prospered, but it is now undergoing a crisis that may prove fatal to it. It sent nothing to the Exposition this year; the reason of this decline is the competition of Caen in edging and insertion, and of Grammont for larger pieces.

Honiton lace has a peculiar and characteristic quality; it is made in Devonshire, resembles white spindle gimp, with fine embroidered relief; some large pieces excel all other lace in elegance, perfection, and value. The samples of Honiton, exhibited by Hayward of London, were particularly admired; they united beauty of workmanship, grace of design, fineness of material, and harmony of particulars. It is so much in vogue that it has become the court etiquette of England to wear it, being distinguished for finish, brilliancy, and freshness. The guipure and application of Belgium are so dark they could not be used if not bleached in a solution of powdered carbonate of lead. This process is very injurious to the health of the bleachers, and for that reason the

English have abandoned it, and give premiums to the lace-makers that will deliver their work in a clean and natural state. This Honiton lace is the best in England; it is even superior to the best that is made in France or Belgium. Lace is also made in some of the English colonies; the best known is the thread and silk guipure of Malta; it is well made, of excellent quality, and is reasonable in price.

#### BELGIUM.

Next to France, Belgium gives employment to the largest number of lace-makers; the number is said to be over one hundred thousand, dispersed over the provinces of Hainaut, Flanders, and Brabant. They produce five kinds of lace: Valenciennes, Mechlin, Grammont, Brussels, and Flanders guipure.

VALENCIENNES is the best; it is extensively known, much sought for, and appreciated for its strength, lightness, and elegance. The business done in this lace amounts to twenty millions of francs a year. It has been vainly attempted to produce this lace in other countries, but Belgium enjoys the monopoly for its manufacture, and furnishes it to the world.

The four principal centers of manufacture are Ypres, Ghent, Bruges, and Courtray. The Valenciennes of Ypres, called square point, is the most esteemed. The execution of this elegant tissue seemed to have reached perfection long ago, and no improvement could be made in it; yet the rich collection of Valenciennes from the town of Ypres, varied in design, and clear in meshes, demonstrated an incontestable superiority in the skill of the operatives and the cleverness of their employers.

MECHLIN LACE was much in vogue a few years ago, it is a fine, light, elegant lace, to be had for a reasonable price; but it is out of fashion now, and very little is made.

GRAMMONT LACE has undergone a change; twenty years ago it was made entirely of white thread; now black silk is used for it. Its manufacture has increased five-fold since 1855; this is due to its good quality and low price. The meshes are not so close as in France; the difficulties of making it are so utilized as to substitute choice designs and intelligent combinations of execution, and thus furnish showy pieces at a lower price than anywhere else. Much is sent to America, Germany, England, and Russia. It certainly cannot compare with our elegant productions of Bayeux, but it may offer a formidable competition.

BRUSSELS LACE.—The lace factories of Brussels rival all the others in Belgium. Two kind of laces are chiefly made there: Single flowers, made by pin or needle, and intended to be applied on tulle, and gauze point, called Venice point. Application on tulle improves every day, yet it is strange its production does not increase, and we can give no reason for it. Gauze point, however, made a splendid show at the Exposition, it was rich, regular, clear, and of tasteful design. We must mention the establishment of Lefébure & Son, of Paris, carried on at Destelberghe, where application flowers are worked, as well as gauze point. This model

establishment unites the excellencies of the spindle and needle lace work, it sends new designs to the Paris market, that are artistically got up and rendered with perfect taste.

**FLANDERS GUIPURE.**—Other kinds of lace are made in Belgium, but they belong to the preceding categories. However, we owe a special mention to white guipure, made with a shuttle, called Flanders guipure. This lace is made at Bruges and in the neighborhood; it is an excellent imitation of the seventeenth century guipure; rich and loaded with designs, it is very light and elegant. It is like Honiton; but it is not so fine; the meshes are not so small, yet it is furnished at a reasonable price. It is one of the prettiest productions of the lace industry.

#### LACE-MAKING IN FRANCE.

There are six varieties of lace made in France: Alençon point; Lille and Arras lace; Bailleul lace; Chantilly, Caen, and Bayeux lace; Mirecourt lace; and Puy lace.

**ALENÇON.**—The French point lace, called *point d'Alençon*, is made at Alençon and Bayeux; it is the only kind of French lace that is made entirely with a needle; it has reached an incomparable perfection, and certain pieces are real objects of art. This is the most sumptuous of all laces, it has a strength that defies time and the washer-women, for that reason it merits the surname of *queen of laces*. Ever since the time of Colbert, Alençon and Argentan have been the center of this manufacture; but in 1855, Auguste Lefébure, one of our best manufacturers, started a factory for it at Bayeux, where he modified and improved the style so as to give it a desirable peculiarity. We have never seen anything to equal the Alençon lace from Bayeux, exhibited at the late Exposition.

**LILLE AND ARRAS.**—The manufactories of Lille and Arras formerly produced many blonde laces, on a clear ground, greatly esteemed for their freshness, lightness and good quality. When fashion no longer favored that style of lace, the manufacture diminished sensibly.

**BAILLEUL.**—At Bailleul and in the neighborhood, they weave a kind of Valenciennes less fine and clear than that of Ypres, but which is greatly esteemed for its whiteness, its solidity and its cheapness.

**CHANTILLY, BAYEUX, AND CAEN.**—The dark-colored laces of these three places are identical; they are chiefly composed of large pieces, as shawls, robes, flounces, and veils, made of strips and patches admirably joined together by a peculiar stitch. The making of white silk blonde having been abandoned, on account of machine rivalry, attention has been turned to the manufacture of black laces, which has reached a great degree of perfection. The lace of Calvados and Chantilly cannot be surpassed.

Caen is celebrated for its varieties of black lace; it is in fact the commercial product of the place; much of it is exported. In 1855 Bayeux gained the first prize for lace, and it still retains its merited reputation



in that line. It produces the best large pieces of extra-fine meshes and rich designs, such as are sought after by the opulent classes.

Some years ago Mr. Schneider, president of the legislative body, wishing to give employment to the wives and daughters of his operatives, put up lace factories at Creusot, where elegant point lace is made, resembling that of Chantilly and Bayeux.

MIRECOURT.—The factory at Mirecourt has a reputation for the novelty, variety, and good quality of its laces; the operatives there are very skillful in their work; under an intelligent direction, they follow the freaks of fashion, and invent new patterns that are instantly accepted by customers and soon imitated by foreign manufacturers. It is certainly the most active and inventive lace-making place we know; being a kind of leader to all rivals. The articles exhibited were varied and of new style, and of course much admired, particularly a bed spread, a robe, and a chasuble in relief guipure.

Four or five years ago Madam Gandillot, a woman of taste, tried to get the operatives of Mirecourt to revive old abandoned fashions; she finally succeeded, and her *art guipures* were immediately accepted, and gave origin to a new and cheaper style, called *Cluny* lace, which had wonderful success greatly benefiting French manufactures.

PUY.—If the Mirecourt factory is more ready at invention, that of Puy is more important. Its work spreads over four departments of Auvergne, and employs near one hundred thousand women and girls of the mountains. The central market is Puy.

The Auvergne laces, very various in style, are celebrated for cheapness; the operatives of this manufacturing cluster, stimulated by a few energetic and enlightened persons, have progressed sensibly within the last ten years. They can yield to the whim of the moment and use any textile material, flax, silk, cotton, wool, and wire, and when the demand for one style ceases, they modify their labor, invent a new style and spread it rapidly.

The manufacture here is very active and it improves every day. It exhibited a specimen for the first time, and it was found to be of difficult imitation; the piece was a bournous of Cashmere wool, having all the gaudy colors of an India shawl; the combination of variegated flowers on a lace foundation created much admiration. It cannot become an article of commerce, but it denotes progress and exhibits the skill of the Auvergne operatives, and the inventive talent of its manufacturers. There is also made in a small quantity at Puy, needle point lace of extreme fineness and of an artistic character, almost equaling the Venice point, now obsolete. Of all the lace-manufacturing districts of France, Puy sends the most productions abroad.

#### SUMMARY.

The number of lace-makers in France is estimated at 200,000 women and girls; their average pay is from one franc to one franc and a half

per day of ten hours' work; yet some earn as much as three francs and a half. This pay is influenced much by fashion with its imperious and ephemeral exigencies. All these operatives, scattered over fourteen departments, work at home, combining the labor of the spindle and needle with field labor and the more urgent duty of housekeeping. Thus lace-making has the advantage of being done at home in the family, without disturbing agricultural labor; it provokes no emigration and does not crowd girls in factories, but keeps them from all contact that would endanger their morals. For such reasons the business deserves encouragement as beneficial to health, to morals, and to comfort.

This industry also has the sympathy of all practical and elevated minds. Her Majesty, the Empress, has opened a *concours* for lace-makers, and has spent much money for their benefit. Many manufacturers and directors of benevolent institutions are trying to introduce this industry into families. In almost all our northern departments of France, as well as in Belgium and Germany, persons favored by fortune are rivaling each other in the establishment of schools for instruction in lace-making.

At Alençon, Dieppe, and Caen, the authorities join private individuals in the establishment of such institutions; but it is chiefly in Auvergne that the most has been done in this way. The prefect, the agricultural society, and the board of commerce at Puy, and all enterprising men of wealth there, have done what they could to improve the moral and hygienic conditions of the lace industry. Schools for apprentices are founded in all the communes; feasts are given to the best manufacturers, and premiums are distributed to the most expert operatives as encouragement to their energy.

The relations between manufacturers and their operatives are very cordial. In fact the lace-maker does not yield her liberty while she sells her time and skill; she can vary her occupation, and her labor is restricted to no certain term. If she is not satisfied with her pay she is at liberty to quit the work when she pleases and try some other; she can even give up what she has begun, if she finds the task too hard, or the compensation not sufficient.

Lace-making requires so many and varied designs, that the industry has created the specialty of art-designers.

Machinery is fast taking the place of hand labor in the production of garments; plain sewing and even embroidery can be done by machines, but they cannot make lace. Lace-making has nothing to fear from machines, which are fast giving a democratic tendency and popular simplicity to dress: dress now-a-days hardly distinguishes the different social classes. Clothes are now bought to wear for the season, not to keep, for fashion militates against that. The useful is more looked to now than the brilliant in costume; dresses are no more handed down as heir-looms like jewelry. Without deciding whether this is good or bad in itself, we must say it benefits the working classes. In spite of this change in the consumption of fine and costly articles of dress, lace-making has flourished, though the more costly styles of lace are not so much

in demand as formerly. The art must suffer a crisis; but every crisis produces a contest, encourages work, and provokes a healthy energy.

This, our national industry, is more favored in France than in other countries; in fact, there is little similarity between French and foreign laces. Each of our manufacturing districts has a peculiarity in its lace that defies imitation, and of course competition. Though the black lace of Grammont and the white of Saxony may be sold cheaper than ours, they cannot compete with us in novelty of execution. We are the creators, the inventors; foreigners are the copiers, the imitators. Their lace can sell only when ours is out of fashion. In short, the superiority of France in this industrial specialty is indisputable; it does not merely belong to the initiative spirit, nor to the perfect taste found in all our home inventions; it is the manifest consequence of the concentration of two forces, found combined in no national industry so perfectly and so harmoniously; that is, man's genius of discovery and the commercial expansion of the product; the talent of woman in the execution of a labor essentially of her domain, and in its appropriateness to all the caprices of a mode essentially French.

#### EMBROIDERY.

France, Switzerland, Saxony, Scotland, and Ireland, monopolize the industry of white embroidery, which is performed by machinery as well as by hand, by the tambour frame, the crochet hook, and the needle.

Embroidery in colors is more characteristic of the Orient, and from the eastern nations we find the most gorgeous and varied examples of that style; some of which may be mentioned, namely: From Turkey, slippers, caps, purses, handles for hookahs, and housings for horses, all rich with silk, gold and silver, embroidered over velvet and other materials; Egypt, carpets for prayers, one of violet and one of lilac velvet with gold scroll, and borders of silver; Russia, gold embroideries from Tiflis, upon crimson velvet of excellent design and skillful preparation.

The ecclesiastical vestments produced at Lyons and Paris are among the most elaborate and costly specimens of the art. Prominent among them was a chape of silver tissue by Barban, of Lyons, embroidered with gold, and a chasuble of gold tissue upon which, in bold relief, were figures partly composed of jewels; and from Paris, by Biaï, a chasuble of cloth of gold, embroidered in gold, with vine, leaves, and wheat.

#### MANUFACTURE OF FANS.<sup>1</sup>

The making and sale of fans form one of the oldest branches of French industry, under the term of Paris articles. As early as the beginning of the sixteenth century, Italian perfumers introduced the use of fans at the court of France; later, when fashion assumed a Spanish tone, the fan was in great favor, and from that time to the end of the

<sup>1</sup> Extract, translated from the report of M. Duvelléroy, of the International Jury, Vol. IV, p. 322.

last century it became an essential part of a French lady's toilet. Thus we find that fan-makers were formerly among the guilds of art and trade in the city and suburbs of Paris. In 1673, an edict of Louis XIV constituted them into a legal body and approved their by-laws.

Fan-making has always given employment to a number of workmen of various trades, as joiners, gilders, glaziers, paperers, plumbers, painters, and embroiderers. All these had a hand in the manufacture of fans, which, however simple, require the aid of many trades. It was not unusual to see goldsmiths, jewelers, carvers, and painters at work in their various ways on this trifling object.

At that time fans were made at Paris of all values, from fifteen cents to forty pistoles. The commerce in fans, for exportation as well as home consumption, amounted to a considerable sum. Some manufacturers were said to make twenty thousand livres annually, by exporting fans, not counting profits from homesales of the same article. Spain, England, and Holland were the great customers of France for fans at that period. Spain was the only country that kept them; from the others they were sent to South America and the Baltic coast. France imported a few fans from China and Japan; but they were brought out because of their exquisite workmanship, and their value was exorbitant as objects of curiosity from a distance.

The part of the fan which forms the segment of a circle is called the *leaf*. This is sometimes plain, and of a single piece; but usually it is formed of two pieces of paper or other material, glued or pasted together; and often thin kid-skin is pasted on the paper. Satin, gauze, tulle, lace, crape, and other thin stuffs are used for the body or lining of the fan.

The leaf is fixed on a mounting called the *heft* or handle, without regard to other component parts; thus they say a heft or handle of pearl, ivory, steel, silver, &c. The strips that form the *neck* are of the same number as the pleats of the leaf; this is from twelve to twenty-four. Before the leaf is fixed on the handle, it is put into a stiff paper mold, with the number of pleats desired. On closing this mold of two pieces, and pressing it, the required pleats are made on the paper fan leaf. Between each pleat a copper plate called a *sound* is introduced. This process of pleating was once very complicated; the paper was first minutely marked; and in pleating, the lines had to be followed with great precision; the mold now does away with that tedious process. The strips are from ten to twelve centimetres in length, and it is on this surface that the carving, gilding, and painting are done. The outside strips are stouter than the others, to sustain the leaf. All the strips are united at the lower end by a rivet, the ends of which are sometimes ornamented with jewels or the precious metals.

The frames of fans are made in the villages of l'Oise, between Méru and Beauvais. The communes of Audeville, Coudray, Noailles, Boissière, and Ste. Geneviève are devoted to this work, which employs three hundred persons, men, women, and children. The principal materials used are

mother-of-pearl, ivory, horn, bone, tortoise shell, citron and sandal wood, ebony, cherry, locust, plum, pear, apple, and all sorts of exotic hard wood. The workmen carve, cut, gild, and chisel these woods with great skill; but unfortunately they are ignorant of the theoretical principles of design, which the younger generation is now introducing. They execute charming mosaics on the side pieces; they have long known the process of enameling, and some of the simple country people can rival the best artists of Paris in this kind of work. But it is in making open-work in ivory, pearl, and shell, that they have no rivals; and this solid lace is made by means of small saws, which they make themselves out of watch springs. They carve flowers and other ornaments exquisitely, and they are beginning to make figures in relief. If they will only study drawing, a prosperous future will open to them. In short, the fan frame goes through the hands of the woodman, the carver, the polisher, the dyer, the varnisher, the sawyer, the gilder, the burnisher, the sculptor, and the spangler.

The fan-leaf is all made in Paris. A painter furnishes the designs, which are lithographed, xylographed, or engraved on copper or steel; then the paper is printed, pasted, colored, or painted; made up, trimmed, spangled, riveted, and inspected. Thus a finished fan has to pass through twenty different hands, at least, though it may not sell for more than five centimes, or one cent.

The number of artists and workmen employed in this business in Paris and the Oise is over four thousand. The annual profits are ten millions of francs; three-fourths of the fans are sent abroad. Though this business has been carried on in Spain for thirty years, only common articles are produced. Italy makes a great use of fans, but manufactures none; we furnish fans to Italy. Portugal is the third European fan market in rank. The Spaniards and Portuguese carried with them to South America the habit of using the fan. Brazil, Mexico, Cuba, St. Thomas, Chili, Peru, and the Argentine Republic are famous markets for French fans. France also sends a few to the East Indies and Manila; but there China is a rival in the trade of the common article, but cannot compete with France in the production of fine fans. France also does a good business with the United States of America, where nothing but Paris fashions are acceptable. The late civil war that desolated that fine country injured the French trade considerably, but the business is again reviving.

There are no certain rules for the fan trade; it depends entirely on fancy. Tastes are infinite. The dealer must watch caprice, for there is no article of manufacture that requires less solidity; show is all that is necessary in a fan. All South American countries want gaudy articles, of brilliant colors, and odd designs; they require grace, beauty, and brilliancy even in a fan. The people there like subjects that depict the habits of their country, and have reference to their ideas of political independence. Experience and tact in this trade is the only guide for our manufacturers.

Some writers have attempted to prove that the fan is of Chinese origin, although it is found in every Indian country as well as in China. In support of this assertion the testimony of legends is invoked; hence the superiority that has long been attributed to China. Any one who will take the trouble to examine into the matter will find that France has nothing to fear from China, except in the production of ordinary fans; and that is not because we do not know how to make them, but because our workmen require and enjoy more material comfort than the Chinese can command in his country. Except in common fans we surpass the Chinese in the tastefulness and infinite variety of our designs, which are constantly changing. Paris and China monopolize the trade in fans, but all the fashionable people in Europe prefer French fans.

The flourishing condition of this commerce in the reigns of Louis XIV, Louis XV, and Louis XVI, was suddenly destroyed by the revolution; but when the peace of 1815 reopened the world to us, orders for fans came from all quarters, and they were manufactured hastily in great quantities, but of indifferent quality. It could not have been otherwise, for all the good old artists and workmen were dead, or had adopted some other business. Things continued thus till 1830, when the taste for antiquities having revived, objects of ancient art were much sought after. A few years before that period the Duchesse de Berry gave historical fancy festivals, and set everybody hunting over Spain, Holland, and Germany for the fine old fans the French refugees had carried with them into those countries. Many were found, but they were very costly, and that suggested the idea of reviving the industry as one of the fine arts.

With the assistance of eminent artists, like Gavarni, Diaz, Eugène, Lami, Camille Roqueplan, Glaize, Hamon, Cicéri, Eugène Isabey, Jacquemart, Feuchère, and the like, all painters and sculptors of the first order, the author of this notice, guided by the models he had on hand, attempted to imitate them and revive the manufacture of tasteful and costly fans without giving up the making of common fans, that gave constant work to country people, who tilled the ground in summer and made fans in winter.

It remains for us now to mention that France took the first rank for fans at the great French Exposition of 1867. Japan, India, and China sent to all our Expositions fans, screens ornamented with feathers, beetles, spangles of a thousand colors, pearls, and embroideries of silk, gold, and silver. All those articles are remarkable for the very brilliant colors, a secret in the land, and for the cheapness of the workmanship; but nothing was new, the same models had served them for centuries. Spain has made no progress in common articles, and France still furnishes fine fans to that country. Austria exhibited some fans of carved wood; they are called broken fans in trade. The article is a passing fancy, and can never form a special industry; moreover, France makes

the same articles at less price and in better taste than Austria. Mr. Schwartz, a Danish trade-sculptor of Copenhagen, exhibited an ivory fan with bas reliefs representing Thorwaldsen's seasons; it is a beautiful piece of work, but is the labor of an amateur and not of a mechanic. Belgium exhibited some splendid black and white lace fans in Class 33.

The collections of fans at the Exposition were of two kinds, fans for the rich, and fans for export. Three houses, Duvelleroy, Alexandre, and Aloys van de Voorde, furnished most of the costly fans; their articles were adorned by some of the first modern artists, as Gavarni, Colin, Hamon, Philippe Rousseau, Karl Müller, Diaz, Eugène Lami, Miss Meley, and Madame Girardin. Of the trade-sculptors and designers we must mention Jean Feuchères, Kagmann, Jacquemart, Fannièrè brothers, Lanoy, Vailland, and Norest. The most important house, in a commercial view, manufacturing export fans, is that of M. F. Meyer. Next to that comes the house of Fayet, Buissot, Brecheux, Toupiller & Co., Vanier, Taveaux, and Caumont. All these houses do their best to unite art and industry in the articles they manufacture for exportation, catering to the taste of the countries where the products are sent.

Among the principal inventors we must mention Edward Petit, who improved the closing fan, and Alphonse Baude's fan mold. The latter invented the machine for punching fan-frames, the best known at present.

We are convinced, from our attentive examination through the Exhibition, that France has no foreign competition to fear, and that France still holds the first rank among the tasteful industries combining art and manufacture.

### GLOVES AND SUSPENDERS.<sup>1</sup>

Gloves were better represented this year in the Champ de Mars palace, Class 34, than they were at any former Exposition. France had twenty-seven exhibitors; Belgium, Austria, Germany, Italy, Spain, Denmark, and Poland took part in the exhibition. We will examine the business in each one of those countries, beginning with France.

#### FRANCE.

France produces, annually, nearly two millions of dozens of kid gloves, of first, second, and third qualities, at the average price of forty francs a dozen, making a business of eighty millions of francs. Three-fourths of these gloves go abroad; for in no other country of the world are gloves made so elegantly, well fitting, and cheaply as in France. Seventy thousand persons are employed in the glove business in France.

The principal glove factories are at Annonay, Paris, and Milhau, for white leather; Paris, Grenoble, Chaumont, Saint Junien, Lunéville, Rennes, Nancy, and Blois, for gloves; Niort for buck, beaver, and chamois military gloves; Vendome, Niort, and Milhau, for chamois.

<sup>1</sup> Translated from the report of M. Carcenac, of the International Jury, Vol. IV, p. 330.

## ENGLAND.

Next to France, England is the country that produces the most and best articles; yet it is largely indebted to our industry, and imports from us every year quantities of raw material for its factories. Till recently England had the monopoly of dog-skin gloves, but after some trials France has succeeded in making them as well as our neighbors.

Our knowledge is confined to a single English house, that of Dent, Alcroft & Co., which does a business of thirty millions of francs a year, buying, at the same time, twelve millions in gloves from France.

England had no exhibitors at the Exposition.

## RUSSIA.

A few French manufacturers settled in Russia and opened their industry in that country; they continue to buy their white skins from France, and even have them dyed and cut here; and, as they make the best quality, their business rivals ours, and has absolutely closed Russia to our manufacturers.

## BELGIUM, GERMANY, AND AUSTRIA.

Glove-making has not remained stationary in those countries, and the trade was well represented at the Exposition of 1867. Cheap articles are in favor there. Lamb-skin gloves are extensively manufactured, except in Belgium, where kid is preferred, and they are generally sold at home, very few being sent abroad. Our manufacturers should notice this competition and prepare to contend with it, as it is likely to increase, and, perhaps, become formidable.

## ITALY.

Gloves are cheap in Italy, but the quality is not good. Most that are made there are consumed in the country, so our manufacturers have nothing to fear from that quarter.

## SPAIN, PORTUGAL, SWEDEN, NORWAY, DENMARK, AND POLAND.

The gloves made in all these countries are consumed at home; however, Spain is making improvement in the manufacture of gloves, and they are well made. We must mention that some handsome Swedish gloves were exhibited by a Frenchman living in Copenhagen.

Up to this time France has kept the lead in the glove market of the world; but our success excites emulation abroad, and many foreign manufacturers in other countries are now making gloves of such elegance as to attract the attention of distant customers and excite our own envy. Our exports to Russia, Germany, and Belgium have perceptibly diminished, and other markets of the world may soon be closed to us.

In consideration of future impediments to French glove-making, our manufacturers should hunt out and adopt the best methods of produc-



tion; we allude to the division of labor, a system that was opposed at first, but will finally succeed, as it will cause a better style of manufacture, and will become more profitable to the laborer. The prosperity of the large establishments that have adopted the system of division of labor shows its advantages.

It is impossible to see that machine-cutting is far preferable to hand-cutting, just as the adoption of the *ridelle* has produced regularity in cutting. The great advantage in the system of labor division consists in correctness and management of work, and customers have lately found this out. The system of the division of labor has already been adopted in Belgium and Austria. Since its adoption in France the pay of glove-makers has advanced from twenty to fifty per cent., and it furnishes constant work to women and girls, giving them an honest livelihood.

The introduction of tawing in France helped the Annonay factory, facilitated the treatment of hides, and utilized much raw material that was formerly useless; thus doe-skins that were only used for inferior gloves up to 1862, now serve for a glove equal to the English dog skin glove.

The production and consumption of skin gloves has greatly increased in ten years, and, of course, the raw material has increased in cost; thus hair-skins that sold for forty-five francs a dozen at Poitiers or Chalons, ten years ago, now bring sixty-three francs a dozen; and though this has raised the price of gloves to the consumer, the manufacture of gloves has in no way decreased.

Skins intended for gloves undergo many manipulations, according to the quality of gloves to be made out of them; thus they are tawed for glossy gloves and Swedish gloves, and furred or "*ramaillées*" for buck or beaver gloves. The tawing of skins is intended to deprive them of hair, and take out the fatty matter of the skins, as well as to give them the softness necessary for the factory. After maceration in a solution of lime and orpiment for some time, the skins are curried and beat, and subjected to various processes to take out the lime and grease, and give them the requisite softness. They are then fermented to soften the fibers, the fermentation being stopped by a mixture of flour, yolk of eggs, and alum; they are then dried and spread out.

Chamois skins undergo a similar process. To dress sheep and lamb skins properly, they must lie longer in lime, to remove the wool. The sheep-skins are then split by means of a fine saw. The hair side serves for morocco; the flesh side is used for coarse army gloves. Lamb skins are too thin to undergo this process, but they are shaved or ruffed, and serve thus for castor gloves. After passing over the trestle, all skins are pressed and fulled; then they are put into a tub of greasy water, to remain till used. After having been dried they are pumiced.

Beaver and deer skins are pumiced after they have been colored.

As we have already mentioned, sheep and lamb skins are chiefly used for castor gloves; ordinary doe-skin may be used for the same purpose; doe-skins from Servia have been tried on a small scale.

ELASTIC TISSUES.<sup>1</sup>

## SUSPENDERS, BELTS, GARTERS, AND BRACELETS.

France, Austria, and England represented this industry at our fair; France took the lead. The progress in this has been great and rapid, for it only dates from the time when India-rubber was first made into fiber, not many years ago; yet it has reached a great degree of perfection.

Judging from the articles exhibited, Austria has not succeeded in making suspenders. England is represented by one house, that sent enough articles to show the style of her manufacture. If the houses in Leicester and Birmingham, that manufacture this kind of goods exclusively, had sent some of their productions, we could have judged better of the importance of this business among our neighbors.

We make nine millions of francs' worth of suspenders, belts, and garters, per year, one-third of which sum is sold at home; the rest is sent to America, Holland, Italy, Germany, Switzerland, and Belgium.

Before the use of gum tissues came into fashion, the bodies of suspenders were made of cotton or leather, and the springs were of brass wire placed at each end, to give them elasticity. When Ratlier and Guibal introduced gum cloth into France, the old-style suspenders and garters disappeared. Rouen was the first city to take advantage of this novelty, and the two large houses of Lucien Fromage & Co., and Rivière & Co., make at least half the articles of this kind produced in France. Mr. Fromage has done most for the business. He was first a weaver, then overseer, designer, machinist, and inventor. When we are told that the house sells suspenders at ten centimes and six francs a pair, and garters at four centimes and three francs, we can judge what the business must be, knowing the amount done per year.

The gum-cloth business gives employment to fifteen hundred operatives at Rouen. The pay of men is from three to five francs a day; for women, one to three francs; and for children, from ninety centimes to one and a half franc. The other factories for such articles are at Paris and Saint Étienne.

The war in the United States forced manufacturers to use flax and jute instead of cotton, to keep their productions at a reasonable price; and competition now affects them. The use of cotton has been resumed in the tissues.

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<sup>1</sup> From the report of M. Carcenac of the International Jury, Vol. IV, p. 337.

## CHAPTER V.

### INFLUENCE OF CLOTHING UPON HEALTH.

INFLUENCE OF WOOLEN CLOTHING UPON HEALTH—EFFECTS OF WOOLENS UPON THE SKIN—SHAGGY WOOLEN GOODS—PROTECTION AFFORDED BY WOOLENS FROM THE EFFECTS OF SUDDEN CHANGES OF TEMPERATURE—WOOLENS SHOULD BE WORN AT NIGHT—EVIL EFFECTS OF CLOTHING IMPERVIOUS TO AIR.

Regarding it as not uninteresting and as of great practical value to add to this report some remarks upon the hygienic influences of woolen clothing, I have procured the following memorandum on the subject from Dr. A. P. Merrill of New York, formerly a surgeon in the United States Army, and latterly a medical practitioner and writer of distinction.

Notwithstanding the common use of woolen clothing in both ancient and modern times, and the favorable impression made upon the minds of men in regard to it in civilized and in barbarous communities everywhere, its virtues and excellences are as yet scarcely understood and appreciated among the mass of mankind. Woolen clothing is very generally adopted and worn without inquiry as to its effects, or the manner of producing them. The proper study of the subject implies a knowledge of physiology as connected with its hygienic influences, and more or less of pathology in reference to its remedial power. Without adverting to these in their details, which would occupy too much time and space, I venture to present some views briefly, upon the general subject.

The porosity of woolen goods is greater than that of silk, cotton, and linen fabrics, by which both absorption and evaporation of the perspirable fluids is facilitated, and thus are they dissipated from the body, keeping the surface comparatively dry and warm in cold weather, and reducing the temperature of the skin in hot by the cooling process of greater evaporation. By virtue of this porosity, also, air is retained in woolen textures, serving to increase their non-conduction of heat, and thus affording protection from the deleterious effects of sudden changes of temperature. This important feature of porosity in woolens is increased by the nap upon the surface, and they therefore become less efficient in shielding the body from cold when worn threadbare. Shaggy woolen goods, in the making of which the manufacturer attempts an imitation of the arrangements of nature in protecting animals from the influence of cold, are valuable as outer coverings, on account of the increase of this quality afforded by the nap. The sheep, of all animals, is best protected in this way; but the wild animals inhabiting hyperborean regions, and especially such as seek their food in the icy waters of the Arctic Ocean, are provided with a dense coating of fine fur next the skin, with a longer, coarser, and less compact hairy covering, both which are

imperfectly copied in woolen fabrics, with a shaggy surface. In the use of flannel next the skin, this non-conducting power is increased by wearing two thicknesses of thin woollens, which afford better protection in cold weather than can be derived from a single covering containing an equal quantity of wool. More air is retained between the folds, and non-conduction of heat is further facilitated by the threads of one of the textures covering the interstices of the other.

To this valuable quality of porosity and non-conduction of caloric in woollens is added the wholesome irritation of the skin produced by the friction of the woolly fiber, which, except in persons of undue cutaneous sensitiveness, is not a source of discomfort. The proportion of cases is small in which this difficulty may not be overcome by the habit of wearing flannel next the person, in both cold and warm weather. The fact of its being felt in some instances to an uncomfortable degree is evidence that the uniform excitation of the skin by woollens, even when unnoticed by the wearer, is one of the qualities to which its hygienic and remedial powers are due. This is not only useful to the skin itself, increasing and sustaining its functions as an important emunctory organ, but by reason of the sympathy existing between all the dermoid tissues, and especially the skin and the mucous tissues of the digestive organs, this cutaneous excitation caused by woolen garments exercises beneficial influences over the internal organs of the body in both health and disease. Hence the advantages derived from clothing debilitated persons, and especially children of slender organization and impaired digestion, in flannel. Children suffering from an abnormal irritability of the intestinal canal, causing either habitual constipation, or, more commonly, persistent diarrhoea, derive great benefit from the use of woolen clothing. Under the erroneous impression that the invalid may suffer discomfort or injury from the supposed heating influence of woolen goods, the use of them is sometimes restricted to the winter season; but besides the exceptional cases to which I have referred, it is found by experience that both comfort and health are subserved by the constant wearing of flannel next the skin. Changes of season and climate require no other modification than the substitution of thick flannels for thin in winter, or, what is generally better, the addition of another garment over the one worn in summer.

The agency of woollens in protecting the body from the evil effects of sudden changes of temperature is well illustrated by the use of loose garments of thick woolen goods in furnaces and smelting works, where the bodies of the operatives are much of the time exposed to a high temperature, inducing them to seek, as often as they may have it in their power, the comforting influences of cold air. All observation proves that the constant use of woollens under such circumstances is conducive to both comfort and health; and we have little need of other argument in favor of the proper use of flannel garments in warm weather.

Were it not that people are constantly exposed to the action of causes

of disease in these sudden transitions of temperature, in serious errors habitually practiced as regards the choice of both food and drink; in all the irregularities of exercise, rest and sleep; in malarial, epidemic, and contagious influences, and in all the uncertain and little understood agencies of bodily and mental disorder by which we are surrounded, it would be of little consequence about the choice of clothing for healthy subjects. But when we consider that some one or more of these disturbances of health is always acting, and that individuals are liable to the disorders produced pretty much in proportion to their predisposition to disease, it becomes important that we should be able to avail ourselves of every known preventive agency. In doing this it must be borne in mind, that this predisposition is generally greatest in the night and during sleep, at which time most attacks of disease are inaugurated. So common is this, indeed, that it has been and may well be doubted, whether any of the fatal epidemics prevailing in modern times ever make their onset upon an individual in the day-time. Certainly it has been sufficiently proved by long experience and observation, that persons residing in the neighborhood of places infected with yellow fever, cholera, or plague, may visit and administer to the sick during the day with safety to themselves; but if they venture to pass the night among them, especially should they have the temerity to sleep at night where the disease prevails, an attack is well-nigh inevitable.

The danger of night exposure to the causes of disease is illustrated by the experience of sailors on the coast of Africa; and also by the imprudent exposure of white men in the rice fields of the southern States. Such exposures during the night almost invariably invite a serious attack of endemic disease, even when such disease is not prevailing to an unusual extent in the locality visited. In numerous instances, also, children are attacked by disease in the night, in consequence of an exposure of the body to the atmosphere without proper covering. These deleterious influences of night in creating predisposition are apt to impress people with the idea of the constant unwholesomeness of night air, as differing in some respects from that respired during the day; but in most cases the effects are probably due to other causes. Were it not so, we could place little reliance upon preventive measures, for we have no means of dispensing with the use of night air. The principal if not the only injury resulting from its respiration, is probably from its chilling influence upon the lungs, which is instinctively guarded against by animals and savages by covering the nose. The birds place their beaks beneath their wings and feathers, other animals bury their noses in their furs or under their legs, and the negro instinctively hides his head beneath his bedding in the midst of his soundest sleep. Perhaps this practice, so universal, affords evidence, also, that in night respiration the animal system requires less oxygen.

We are thus admonished of the necessity of adopting precautionary measures against both predispositions to and attacks of disease during

the night; and of all the suggestions which have been made with these views, none are believed to be of greater value than that of wearing flannel next the skin. All the arguments in favor of such use during the day are of equal and even greater force at night, for the body requires the superficial irritation, the absorption and transmission of the perspirable fluids, and the non-conduction of heat, even more during the sleeping than during the waking hours; and then, there are said to be certain physiologic necessities for air to be brought into contact with the skin both in sleeping and waking. The garment worn next the person while sleeping, therefore, should always be of wool, and those worn during the day dispensed with. To make the arrangement complete, and to give the sleeper the full benefit of woolen stuffs at the time of his greatest need, the sheets should also be of wool, and all the covering above the sheets.

In cold weather complaint is sometimes made that woolen bedding does not afford sufficient warmth without an uncomfortable amount of weight. Every additional thickness, however, aids in the retention of air amid the textures, retarding evaporation and the radiation of heat from the body, and affords a medium, also, for the absorption of the fluids of perspiration, all which are facilitated by the selection of woolens well covered with nap. Additional warmth may readily be secured by placing over all the woolen coverings, or between the different textures, cotton or linen spreads, sheets, or even paper. But after a while, in this case, the body of the sleeper, for want of evaporation, becomes moistened with the fluids of perspiration, making him liable to cold, besides removing the oxidating quality of the air, subjecting the sleeper to more or less depression of nervous energy. It is not uncommon, therefore, for persons trying this experiment to rise in the morning with headache, and with a feeling of languor and exhaustion, disqualifying them for their performance of their daily duties. The use of quilts, bed-spreads of various kinds, comforts filled with cotton or feathers, oil-cloths, paper, and cotton and linen sheets, is to be deprecated as in some degree detrimental to health. Robust and vigorous subjects may not readily feel the injurious effects, but feeble constitutions, women of great nervous excitability, and children, cannot subject themselves to these evils habitually without becoming aware of declining health and energy. Next to flannel and woolen blankets the best covering is the comfort filled with carded wool, but this should be made of woolen textures of some kind. When impenetrable coverings are used they should be placed exterior to all the rest, that there may be a better chance for the absorption of the perspiration by the intervening woolens, and for the circulation of air in contact with the body. Sometimes it is sufficient to lay such coverings across the feet, leaving all the rest of the body to be covered by woolens alone.

In the selection of woolen clothing the same principles are applicable, and the same precautions advisable as in the arrangement of bedding.

Garments worn next the person are better made of flannel than of the hosiery now in common use. The better nap of the flannel gives it an advantage, and what is of greater importance, the flannel garment is not apt to embrace the person so closely. Tightly fitting garments impede the circulation of the blood in the skin, and retard the important functions of secretion and absorption, besides preventing in some degree the contact of air. There are objections to every kind of woolen hosiery, and also to the use of the corset, which probably does more injury to health by its pressure upon the skin, confined as it is between the corset and the ribs, and its imperviousness to air, than by the embarrassment given to the organs of respiration. Many women wear their corsets too loosely laced for the latter effect, without escaping the former. As this article of dress is not likely to be dispensed with, it would be improved by being made porous, so as to favor the transmission of vapor and air; and by being shaped and fitted to answer its purposes of compression, with a broad opening at the places of lacing upon the back and sides.

In the further application of the views and principles herein advocated, as applicable to personal clothing, it is desirable to avoid the use of cotton or linen fabrics over the woolens worn next the person. To these there are the same objections as to the sheet over the woolen night-gown. If such obstructions to evaporation and circulation of air be used during the day, it is better that they be worn more remote from the surface of the body, with a greater number of woolen tissues intervening. Perhaps the water-proof overcoat may be less objectionable in the day, than the counterpane and comfort at night, even, although it may be less porous, and a better conductor of heat, because it sets more loosely upon the person, and admits of a better circulation of air beneath it. In the manner of using coverings of the body for the preservation of health and comfort, as well as in the means of preserving a healthy skin by frictions, and even in the matter of selecting food in reference to quality and quantity and times of feeding, we may sometimes derive useful instruction from the practice of men skilled in the care and management of valuable horses. The skins of these animals are subjected to frictions, bathings, and protection from cold, requiring an amount of labor and skill, one-half of which might often secure the children of the family from attacks of painful and dangerous disease.

The feet are best protected by stockings made of common flannel, while boots and shoes should be sufficiently porous for the transmission and evaporation of the perspiration, to prevent the accumulation of moisture. Neither the stocking nor shoe should fit so closely as to impede the cutaneous circulation. Water-proof shoes secure warmth for a certain time, but when worn too long and the feet become moist from the accumulation of moisture this advantage is lost, and warmth and dryness can hardly be restored without exposing the bare feet to the

fire. Excessive and morbid secretions are often caused by confining the feet in close-fitting and impervious coverings, giving rise to habitual coldness, and operating injuriously upon the general health.

Silken fabrics are next to be preferred to woolen, and cotton stuffs are better than linen. Something might be said of electric influences in connection with all these, the greatest non-conducting-power being awarded to silk. But this is a branch of the subject less thoroughly understood, and the reports which have been made in regard to electric treatment of disease leave the question of these influences in much doubt. Indeed the action of electric currents, and the use of conductors and non-conductors of electricity in clothing, either as remedies for or preventions of disease, afford little encouragement to hope for or expect important results, until new discoveries are made in regard to these agencies.

Although the views given in this paper may be in the main correct, there are exceptions and anomalies in connection with them which deserve consideration. Sometimes there exists in individuals and in families a sensitiveness of the surface of the body which renders the irritation of woollens painful and even productive of cutaneous eruptions, and occasionally cases are met with in which colored flannels prove more troublesome than white. Used as a remedial agent also, woollens, so often useful, fail to produce the good effects expected from them, and rheumatic and neuralgic pains are relieved by wearing linen, cotton, or silk next the skin, woollens being continued as outer garments. It should be stated, also, that although woollens should in general be loosely worn, it is often the case that both adults and children, suffering with chronic diseases of the stomach and bowels, derive great advantage from wearing a broad woolen band drawn evenly and somewhat firmly round the body below the chest. For want of the firm resistance prevented by the ribs in the use of the corset, cutaneous circulation and secretion are not seriously impeded, while the pressure thus given appears to afford increased tone and vigor to the organs of digestion, and to all the abdominal viscera.



## STATISTICAL TABLES.

Statistics of wearing apparel, hats, boots and shoes, &c., produced in the United States in the year ending June 1, 1860.\*

| Class of article.           | Number of establishments. | Capital invested. | Cost of raw material. | Average number of hands employed. |         | Annual cost of labor. | Annual value of product. |             |
|-----------------------------|---------------------------|-------------------|-----------------------|-----------------------------------|---------|-----------------------|--------------------------|-------------|
|                             |                           |                   |                       | Male.                             | Female. |                       | In 1860.                 | In 1850.    |
| Hosiery.....                | 197                       | \$4,033,510       | \$3,302,317           | 2,750                             | 6,323   | \$1,661,972           | \$7,250,606              | \$1,028,102 |
| Shirts, collars, &c.....    | 219                       | 2,256,300         | 3,930,607             | 538                               | 15,068  | 1,634,992             | 7,218,790                |             |
| Clothing for men.....       | 4,014                     | 27,246,093        | 44,149,752            | 41,837                            | 72,963  | 19,856,426            | 80,830,555               |             |
| Boots and shoes.....        | 12,487                    | 23,357,627        | 42,728,174            | 94,512                            | 28,514  | 30,938,080            | 91,889,298               | 53,967,408  |
| Ladies' clothing.....       | 188                       | 1,421,650         | 3,323,335             | 889                               | 4,850   | 1,193,032             | 7,181,039                |             |
| Millinery goods.....        | 975                       | 1,357,300         | 2,940,604             | 1,012                             | 7,553   | 1,576,160             | 5,259,903                |             |
| Hats, caps, &c.....         | 667                       | 5,247,672         | 8,771,997             | 7,610                             | 4,258   | 3,857,104             | 17,603,482               |             |
| Gloves and mittens.....     | 126                       | 594,825           | 537,589               | 453                               | 976     | 330,409               | 1,176,795                |             |
| Embroidery.....             | 3                         | 11,000            | 13,400                | 3                                 | 78      | 14,244                | 56,216                   |             |
| Fringes, trimmings, &c..... | 95                        | 1,262,780         | 1,527,769             | 940                               | 1,841   | 647,996               | 2,992,922                |             |
| Straw goods.....            | 70                        | 1,357,300         | 2,940,604             | 1,012                             | 7,553   | 1,576,160             | 5,259,903                |             |
| Sewing silk and twist.....  | 42                        | 1,675,900         | 2,378,521             | 583                               | 1,996   | 387,312               | 3,596,249                |             |
| Totals.....                 | 19,083                    | 69,824,157        | 116,494,669           | 152,159                           | 151,973 | 63,673,897            | 320,345,758              | .....       |

\* Condensed from Eighth Census Report on Manufactures.

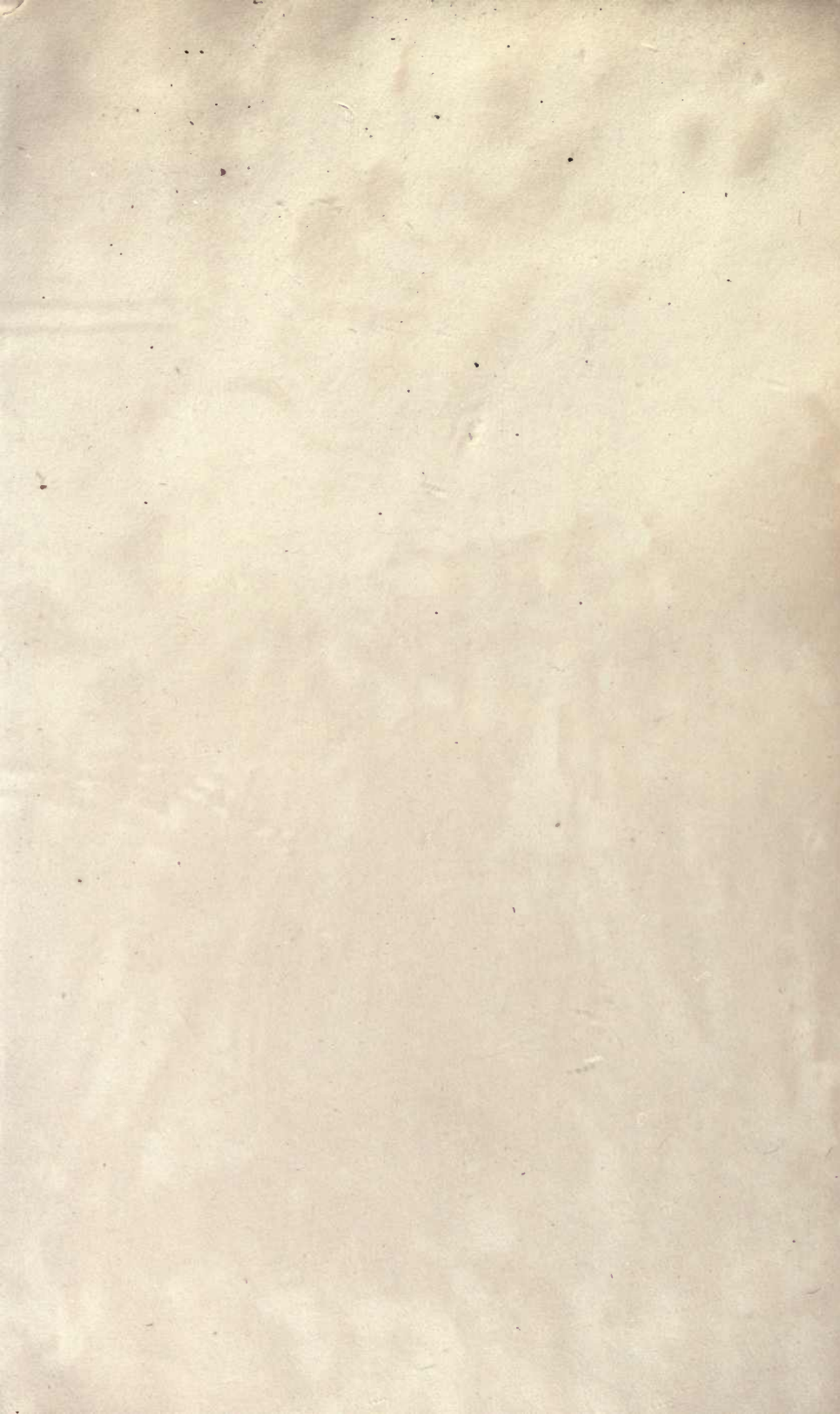
India-rubber goods are omitted from this table for want of information as to what proportion of them come under the description of wearing apparel or boots and shoes. The total production for 1860 amounted to \$5,768,450.

*Statistics of manufactures of such textile fabrics and articles worn on the person as were taxed under the internal revenue laws as the production of the United States, for the year ending June 30, 1868.\**

|  | Amount of tax. | Percentage on value. | Value of product. |
|--|----------------|----------------------|-------------------|
| Cloth and other fabrics of cotton .....  | \$6,322,000    | 5                    | \$126,000,000     |
| Raw cotton † .....   | 22,501,000     | .....                |                   |
| Cloth and all textile knit or felted fabrics other than flax or jute and not elsewhere enumerated..... | 123,200        | 5                    | 2,464,000         |
| Woolens .....  | 2,813,000      | 2½                   | 112,520,000       |
| Silk and manufactures of.....  | 133,000        | 5                    | 2,666,000         |
| Clothing:  |                |                      |                   |
| Articles of, not of wool, woven, felted, or knit, or from fur or fur skins.....                        | 121,000        | 5                    | 2,420,000         |
| Articles of, from fur.....   | 76,000         | 2                    | 3,800,000         |
| Articles of, from India-rubber.....  | 7,600          | 5                    | 152,000           |
| Boots and shoes, including those of India-rubber, and shoe strings.....                                | 2,000,000      | 2                    | 100,000,000       |
| Leather .....  | 1,600,000      | 2½                   | 64,000,000        |
| Hats, caps, bonnets, and hoods .....   | 425,000        | 2                    | 21,250,000        |
| Umbrellas and parasols.....  |                |                      |                   |
| Watches and chains.....  | 56,000         | 5                    | 1,120,000         |
| Hair .....   |                |                      |                   |
| Gloves, mittens, and moccasins made by sewing.....   | 52,400         | 2                    | 2,620,000         |
| Hoop skirts .....  | 94,000         | 2                    | 4,700,000         |
| Paper collars and all articles of dress made of paper .....  | 51,100         | 2                    | 2,555,000         |
| Pins.....  | 29,000         | 5                    | 580,000           |
| Thread.....  | 167,000        | 5                    | 3,340,000         |
| Total.....   |                |                      | 450,247,000       |
| Diamonds, emeralds, precious stones and imitations thereof..   | 337,600        | 5                    | \$6,752,000       |

\* Condensed from the Commissioner's report.

† 3 and 2½ cents per pound.



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