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WAGE WORTH OF SCHOOL TRAINING

AN ANALYTICAL STUDY OF SIX HUNDRED WOMEN-WORKERS IN TEXTILE FACTORIES

BY

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Mental Dexterity is readiness in the ordering of thought and words.

Manual Dexterity is expertness in the manipulation of materials and tools.

Skill is expertness specially applied with speed and accuracy.

PREFACE

This inquiry involved seeing twenty thousand girls at work, conferring in detail with foremen, forewomen, and managers, questioning several hundred girls themselves, and making an exhaustive study of 617 questionnaires.

The resultant conclusions may be summarized as follows:

1. Schools instruct girls without reference to discovering and training progressive wage-earning ability.

2. Training in specific process operations can be given best and most adequately by the management itself in the factory.

3. Work will be most remunerative to the girl who enters the industrial world from the school, able-bodied, industrious, right-minded, trained in dexterity and in the correct meaning and use of the English language.

4. Coöperation is necessary between the two great factors in the general education of all wage-earners, i. e., the School and Industry. By coöperation, the school can continue the training of the girl whose economic needs unfortunately have shortened her school life, and aid in this continued training of the wage-earner should be afforded by releasing her from work during the day for part time at full pay.

5. Public interest is required to promote this coöperation between Industry and the School. Interest can be aroused mainly through demonstrating the economic worth of school training by adopting school methods freed from scholastic symbolism and rich in experience of problems involving tools, materials and processes.

6. The School System should include among its definite and expressed aims the training of every child without exception in ability to earn by producing.

7. As a practical means of effecting coöperation, day-time school work conducted by the Public School in the Factory may properly be introduced for unschooled wage earners: In the factory because thus factory wage earning is given just recognition by the Public School and as an aid in counteracting sweat-shop employment; by the Public School because as a public and

hence non-partisan institution, confidence is inspired in those who thus gain training necessary to citizenship in a democracy.

8. This schooling should be planned, first, to remove illiteracy, the prevalence of which in an English-speaking land, largely and constantly recruited by foreign-speaking people, is a menace to industrial peace; second, to instruct in the essential laws and practices of hygiene; third, to use instruction in English as a means to bring about adequate understanding of business ethics and individual responsibilities.

The author wishes to acknowledge the uniform courtesy of the management of the thirty plants visited; the able, helpful criticism of Frederick G. Bonser, Ph.D., professor of Industrial Arts Teachers College, Columbia University, in whose department this work was written; the many introductions to manufacturers, which opened the door to the Inquiry, given by Mr. and Mrs. Nathaniel Myers of New York City; the scholarly editing of the text and constructive criticism relating to industrial matters by Winthrop Talbot, M.D., Editor of *Human Engineering*.

The original data, from which the calculations in this Inquiry were made, are on reference and obtainable by any interested person at the Industrial Arts Department of Teachers College, Columbia University, New York City.

A. C. H.

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FOREWORD

A Foreword may or may not have value. As a note of introduction the bearer of it may receive attention because thus endorsed. After the bow, the bearer must make her own way. This, I believe, the author of this book will do admirably.

One may have been through the public schools, college and university, obtaining certificates, diplomas and advanced degrees, without having obtained much proficiency apart from academic recognition. I recall the remark of a prominent educator in seeking someone to administer an important educational movement in his state—"I am looking for an educated man for this work; all the fellows I have seen have had plenty of schooling but not enough education." Miss Hedges has had an education, and in recalling her record as a student and teacher I am reminded of the feelings of that old salt and man-of-war's man "Old Rogers" as related in George MacDonald's "Annals of a Quiet Neighborhood," who, in talking to the new vicar of Marshmellows, indulges in this homely philosophy: "I ain't a bit afraid of a parson. No, I love a parson, sir. And I'll tell you why, sir. He's got a good telescope and he gets into the masthead, and he looks out. And he sings out Land ahead! or Breakers ahead! and gives directions accordin'. Only I can't always make out what he says. But when he shuts up his spyglass and comes down the riggin' and talks to us like one man to another, then I don't know what I should do without the parson."

Now Miss Hedges "comes down the riggin'" and gives us her viewpoint. It is here that her work counts. The background of experience speaks—her years as a teacher of girls, both before they entered industry and after they had worked for a number of years; her knowledge gained through direct contact with industry; her thought upon those larger questions of the relation of the work of women to the social, economic and political development of womanhood.

Miss Hedges holds the degree of Doctor of Philosophy from Columbia University; since the age of seventeen has been a wholly self-supporting wage-earner through her own highly disciplined

skill in fine arts and handicrafts; has had many years of public school experience as a teacher; was Director of Household Arts at Pratt Institute, Brooklyn; long was the Director of the Hebrew Technical School for Girls in New York City; possesses practical experience as a factory investigator in eastern industries employing girls and mature women workers, and wrote this book while serving in an advisory capacity in the organization of the Coöperative Class for Adult Workers in New York City about which we read so much in the metropolitan press during the spring of 1913.

I have no fear that I am over-emphasizing the necessity for rich backgrounds and fine perspectives for those who are giving thought to educational movements. At no time have they been more needed than at present. We are placing tremendous emphasis on the teacher's technique. We are too much concerned with the mere tools which we use in our work. We discuss, with infinite detail, courses of study, programs, equipments and textbooks. We ought to take it for granted that educators have ability to handle the tools, that they can devise fearfully and wonderfully made tables of statistics, and make up charts and curves.

But to what may it all amount? What does the person bring to the work out of her own personal and professional life; how does she line up this experience with that of the race; how does she adjust the traditional to the forward movement so necessary; what is the road and where are its turnings? A candidate for an advanced degree who brings a rich background on which to paint her educational study has an advantage over the immature student who passes from grade school to high school, to college, to university, without a break.

But what of perspective or vision? Miss Hedges brings this, it seems to me, to this study. She sees, as you and I must see, the picture of these girl workers and mature workers who need schooling, nourishing food, strong heritages—a picture oftentimes of the waste of human wealth; yet oftentimes the bright glow of life from individual cases will almost blind one's eyes to the darker spots; a picture which, taken altogether, makes us feel that there are no bounds to the moral, mental and spiritual capabilities which unfold under the best civic, industrial and educational conditions. Truly a vision worthy of any canvas!

I know that the author has such a vision. And I trust in the painting of it that she fares better than the artist who painted a great picture which many came to see.

"Wonderful!" they exclaimed. "So clever! So original! What perfect drawing! And the coloring—so strong and yet so full of atmosphere!"

A friend, meeting the artist, congratulated him on winning such appreciation.

"Appreciation!" repeated the artist, bitterly. "I painted a vision, a message. And they praise—my technique."

Her technique has my respect and will win that of most educators. Some may condemn it. She may have failed to develop the right "median," or neglected to analyze a sufficient "number of cases," or forgotten to consider all the "factors." To such I would suggest that the message is more important than details involved in its discovery; that the need and the remedy are greater than the clinical record.

Let us hold to the fact that women are working; bearing the rightful responsibility of self-support; doing their daily tasks hopefully or hopelessly as the case may be; obeying cheerfully or unwillingly the mandates of industry; meeting successfully or unsuccessfully the requirements of trade and industry in proportion as they are fitted physically, mentally and spiritually for the task at hand.

Let us look squarely at the issues involved. Miss Hedges has treated but one industry and that only partially. There are economic, social and educational problems with which she has not concerned herself. But we—you and I, are concerned with the whole question of woman's work and her fitness for it, physically, socially and educationally. Yet Miss Hedges has made an important contribution to the whole question. Undoubtedly our schools are instructing girls without reference to discovering and training adequately for progressive wage-earning ability. Undoubtedly, many specific manufacturing processes proposed as being proper for the public school to teach belong absolutely to private enterprise to conduct. Undoubtedly the school and the industry must coöperate. They can best serve themselves and each other by developing helpful relationships. Undoubtedly many women and girl workers need instruction in the essentials of personal hygiene more than they need greater hand skill; more

need instruction in reading than in mill arithmetic; more need general intelligence rather than specific technical training. There is still room for other opinions based upon other studies in other industries.

The main point being, in my opinion, to keep constantly before us the fact that we are only at the beginning of a new conception of woman and her work. She has been a long time in coming into her own. And we want her educated. We want these factory girl-workers educated. We want all to be masters of themselves and masters of their jobs; each to be master. Master of herself in the sense that she must know of her possibilities as a woman of splendid health, personal power, and genuine poise; master of her job only as she is fitted for a God-given motherhood, a community-given vocation, and a state-given citizenship.

ARTHUR D. DEAN.

Albany, N. Y.,
September, 1914.

WAGE WORTH OF SCHOOL TRAINING

I

TRAINING GIRLS FOR WAGE-EARNING

Training girls for wage-earning has always been secondary to training boys for wage-earning. The brief wage career of the majority of women and the more generally unskilled work open to them are much used arguments which largely explain lack of interest on the part of educators and business managers in the training of girls.

Necessitated wage-earning before and often after marriage has become as vital to most women as to most men, and is becoming increasingly so to managers, because women wage-earners have distinctive contributing power in the world of production. This has been demonstrated and acknowledged in every field entered by them. Each census[1] shows the encouragement given to women workers by increasing numbers in new lines of employment opened to them. This contribution of working power is of vast economic importance if developed and rightly applied by the worker herself and utilized justly by Industry.

Men are aided by preparatory and additional schooling in industrial classes, by the urge of family responsibility, and by the general public sentiment that men must and shall be the best possible wage-earners. Women are hindered by lack of preparatory training in school and industry, by public sentiment

[1] Females, 10 Years of Age and Older, Engaged in Gainful Occupations Compared with Total Female Population, 10 Years of Age and Older

Census Year	Total Female Population 10 Years and Older	Females in Gainful Occupations	% of Total
1910	34,552,712	8,075,772	23.4
1900	28,246,384	5,319,197	18.8
1890	23,060,900	4,005,532	17.4
1880	18,025,627	2,647,157	14.7

unfavorable to their entering the wage-earning sphere, by non-recognition of the fact of dependence of others upon them. The urge of economic pressure has been almost if not quite as great on women as on men.

But the light of fairness is beginning to shine on women as wage-earners; interest is growing in their needs as industrial producers; and leaders among women themselves are giving earnest thought to the educational preparation of women workers, and to work conditions requisite to maintain the highest level of wage-earning power among women.

In the educational field, this thought found expression in the advocating and establishment of trade schools for girls and in introducing practical work in conjunction with general school studies. This movement followed the example set by a similar one for boys. Training boys to become carpenters, pattern-makers, machinists, printers, electricians, is paralleled by training girls to become dressmakers, seamstresses, milliners, designers, and housekeepers.

The function of such trade preparatory schools, both for boys and for girls, is expressed in the very name "Trade Preparatory Schools." They prepare for the few trades as such which have survived from a period when trades were the prevailing mode of industrial organization. The present mode of organization in industrial centers increasingly requires operatives with skill—meaning speed and accuracy with ability to transfer readily to a closely related line. Trades as such, in which the worker's chance to progress in industry is increased by knowledge of accepted practice in all the steps of the trade, are rapidly disappearing. Operative work is everywhere on the increase. Industries are becoming highly specialized, and operations by which the product is made are simplified by subdivision of work to obtain the maximum of speed and thus of output. Operative work is the means for wage-earning of the majority of boys and girls alike who leave our grammar schools. Trade schools plan to take care only of the favored few who are still able to find work at trades. With these special trade lines, this inquiry is not concerned.

The interest of this inquiry centers in the large numbers of girls who are forced early into the factory wage-earning world by economic pressure, mental simplicity, ignorance as to the advan-

tages of longer schooling, or lack of desire to continue in school. This inquiry aimed to learn the amount of schooling of women wage-earners who drift into textile factories; to discover, if possible, how this schooling is related to their present wage and experience at their present work; to trace the factor of nationality in wage worth; and to study the work requirements made of women workers by the textile industry.

The data presented in the following pages were obtained from the workers themselves in the factories, supplemented by foremen, forewomen, and factory managers. The inquiry was conducted with the frankly expressed desire, to gain first-hand and authoritative information for intelligent promotion of industrial training of girls for higher and more progressive wage earning.

A result of the inquiry has been to turn the inquirer from her prior position as an advocate of *Trade Training for girls whose schooling must be limited to the grammar school,* to the viewpoint of *More and Better General Education for all grammar school girls, irrespective of their career beyond the elementary school.* By more and better *general* education is meant acquaintance with the meaning and use of English words; knowledge of how to keep well; ability to control thought and action; dexterity in the use of tools and materials, in the preparation of foods and the making of clothes, and familiarity with processes required in the care of garden and house.

Before the days of excessive concentration in cities and the factory demand for hands, such training was given by school and home combined. Schools are now called upon to counteract the effect on the individual of the subdivision of work by an emphatic generalizing in education. School training for specific operations is not necessary, for these operations are simple and can be learned in a few days or weeks at most in the factory itself. But the applicant for work must have a foundation in good health, in comprehension of English, in dexterity, and in sound work ideals, all of which will mean adaptability, industrious habits and the desire and ability to coöperate. On this basis, productive, progressive, and wage-earning work depends, whether it be in the factory, office, college, on the farm or in the home. Training of boys and girls alike in these essentials devolves on the elementary school.

II

REQUIREMENTS OF WORK ON THE WORKER

Health

The element seemingly essential to employment in the needle trades as in all wage earning is Health. Only an able-bodied woman can be regular in her employment and maintain a degree of output which will secure her a permanent place in the body of workers. Those whose record for attendance is irregular are among the first to be laid off in slack seasons, and the evils of such unemployment are too well known to be recounted here.

With health, there should be also information on the essentials of maintaining health which will result in a control of the body, and a permanent foundation for health. Many of the workers are endowed with splendid physique, but if their home education and the school, combined or singly, have not taught them how to treat themselves as human mechanisms, this physical endowment will not long endure under the strain which industrial life brings upon its women workers.

The argument that this strain should be relaxed, in order not to injure the health of the workers, is substantial, but is one-sided if the worker likewise is not prepared to so manage her life and its activities outside of working hours, as well as during them, that she can do her share toward meeting the responsibilities which life has brought upon her as a wage-earner. Conditions in a factory may be all that can be desired as to light, ventilation, physical comforts and other necessary requirements for good work conditions; but, if the worker, through ignorance or indifference, abuses her natural physical endowment by late hours, insufficient sleep, excessive dancing, poorly selected food, and bad ventilation at home and in the bedroom, the manager alone cannot be held responsible for decline in the health of this worker. Indeed it is a common argument with managers that it is not work which injures the workers' health, so much as what is done outside of work hours.

All work conditions are not what they should be; neither are all workers in good physical condition when applying for positions.

Neither party to employment can be made wholly responsible for an imperfect result of contract, unless each is prepared to meet his obligations.

Mental Poise

A function which the school can meet and should meet is that of training the girl to take care of herself in and out of work hours and to know why she should. When the health of the worker is consciously maintained, there will result a mental poise which she needs in her work. The routine of the work day may most unexpectedly be interrupted by requirements for this mental poise which, when exercised by the worker, will give her an increased earning power, and secure her notice and regard for all her working life. Emergencies are sure to occur where so many are gathered together, not only in social contact among the workers, but on the mechanical side.

Rising to emergencies may mean safety not only for the individual, but perhaps for the whole group concerned. Aside from emergencies, the maintaining of a steady pace upon which wage-earning ability is gauged, is a matter of poise. From poise or nerve control grow the mental attitude and habits of the worker. Trouble-makers and complainers are apt to be such because of poor health, either physically or mentally. The worker with abundant health and a contented mind has the requisites essential for making an industrious, healthful, kindly worker, characterized by habits of coöperation, and coöperation in work is the essential in modern industry.

Individualism and Coöperation

Women have the individual outlook on life. They look forward to their own home and a life of their own apart from community life. Among women workers in factories, the social idea of life has not penetrated; their idea of mutual responsibility is deficient; in school there has been little effort to relate them to a co-working life: that of the wage-earner. The idea of the possession of things apart from others attracts them. The one fortunate influence counteracting this tendency to self-appreciation and isolation among women is the large families from which most girls come. Brothers and sisters induce coöperation

and sharing of responsibilities. Schools in general, our public schools in particular, fail to build upon this home basis of coöperative work and common responsibility; but, in the home, though the coöperative ideal exists, it exists unconsciously and the lessons to be learned from it have not been learned. School is the place for this consciousness to be emphasized and confirmed for girls, as it is now for boys, by the work and play it offers in special application of this ideal. From the schools where individual work prevails, girls come into factory life, which is far removed from individualism. In the factory, no one has time or inclination to tell them about the completed articles on which they are working, perhaps, the operation of running a single seam. They do their work in an unthinking way, being untrained to find meaning in doing parts of work. Meaning may be put into work, and frequently is, by an understanding forewoman interested in her girls as human beings, and interest on the part of a woman head of a department is helpful to individual productivity.

Where foremen are in charge of departments of women workers, individual interest as affecting the workers is rarely seen; if interest is shown in individuals sex difference is likely to arouse feelings of partiality and jealousy detrimental to the whole department. There may be favoritism on the part of forewomen, but it does not lead to like disaster. Where a woman has been advanced to the position of forewoman, she is likely to be a woman superior in many respects and can be trusted to treat the members of her department as human beings as well as workers. She can make suggestions and changes of position among them which will result in harmonious feeling and the largest output, and she can represent to the management conditions which need attention because the workers are women. Her recommendations are of more value than a foreman's because she is a woman among women.

Technical Information

Technical information which would make a wage-earner more valuable to her employer is such as would make her more deeply interested in her work. If she knows about power-machines before she begins her work on them; if she knows

about materials which she is handling; if she knows enough to make useful suggestions about combinations of design or materials, she will come to the notice of the management and, if her ideas are good and well founded they will lead to better positions, to greater amount and higher quality of product and thus better sale for the product. Anything helpful about a worker which will distinguish her favorably from the mass of workers is apt to be noticed by progressive managers and may lead more readily to permanence, advancement and progressive wage. In the first few years of her wage-earning career, ability thus expressed may advance her rapidly.

Statistics cited show that increase for the first four years of a wage-earner's career is rapid, out of proportion to the latter half of her wage-earning career. So that it is to her profit to go to work well prepared to rise rapidly and make her mark and position while she is still young.

Mechanical Skill

Mechanical or operative skill is requisite in the factory field. Speed and accuracy are the great requirements, for they mean product. On piecework basis, they determine the contents of her pay-envelope. Deftness, quickness of movement, alertness of eye, all lead to speed. At the present day this mechanical skill is easily obtained. To the young schoolgirl whose muscles are all responsive and trained, a little practice on power-machines in the schools would prepare her to be employed in the factory at once at the wage of an experienced worker. She could sit down at a power-machine and become a pieceworker without delay because she knows how to control her machine. If, in addition, she knew something about the construction of garments, so as to connect intelligently the operation upon which she is set to work with the operations preceding and following it, she could rapidly adapt herself to the particular requirements of the special article on which she is placed and her advance as a skilled worker would be rapid, providing she is physically and mentally poised and has the right attitude toward her work, with such habits of body and mind as will lead her to work well with others.

Dexterity is not required in the slightly skilled work of operating power-machines. Dexterity applies to high-grade operations

and arts not represented to any material extent by women in the factory. Such dexterity which the school affords some girls who have artistic talent will find its use in the outside life of the factory girl and contribute variety which will relieve the routine of the day's work at a machine. "Cultural" information, likewise, is the safeguard of the girl whose wage-earning career is in the factory. If she has interests of an intellectual or artistic nature, she will fill her outside time to her own advancement. This will react on her attitude of mind while at work during the day, make it possible for her to do the repetitive work at the machine sustained by the feeling that, when the day is over and the product of her labor piled up in the basket beside her or credited in her account book, she can get the variety which her tastes and ideals in life demand. The worker whose mentality does not require this variety, who thrives on the fact that her responsibility is slight, who resists being changed from one operation to another—not liking change when her mind and fingers have once become adjusted to the repetition of the operation—this girl finds recreation in the popular amusement features of the day.

The school, however, is an agent in turning the interest of the mediocre mind into channels of wider usefulness, so that it may not saturate itself to its deterioration in the unwholesome extravagance of popular amusements. The arts and fancies which adorn a woman's life are so numerous and varied that, under the school's direction, the mediocre mentality may be supplied readily with permanent interest and helpful direction while still in school.

There are several ways in which factories train their workers who come to them untrained mechanically from school or from some unallied occupation. First, girls who come through the recommendation of a friend are generally put in the same department with that friend and either this friend may start the girl on the work, sitting beside her, or the forewoman pays more or less attention to her the first few days of her employment. It is a "hit or miss," haphazard method, but is usual, and while crude and unsatisfactory, aids the majority of workers to attain a reasonable wage in a brief period of time.

Whether trade training for a year before she enter employment in the needle trades is worth that year to the girl, in an

increased wage in the beginning and a more rapid increase thereafter, it is still impossible to say with certainty because of insufficient statistics available at present. Inquiry would develop many interesting features, such as permanence at employment through seasonal depressions, rate of increase of the wage from week to week, health of the worker and coöperative value of such workers to the management. But operations on which the majority of workers begin and end their career as wage-earners are so simple in nature that special training is not required, other than what could be given in the public schools as a part of their regular work. The best of trade schools cannot approach factory conditions sufficiently to adjust the worker profitably to them, considering how much an extra year of general schooling means to the wage-earner. If that year of her life could be given to a regular school which would recognize in its courses the need of the girls for dexterity, it would extend her horizon in many lines of vital consequence to the girl's life while yet giving her the ability to acquire skill in the factory and to become a wage-earner.

Another mode of training in the factory, only found in the highest grade factories, is to have a special room for beginners. Here they are trained during the necessary period at a fixed wage, for each department in the work which needs workers at the moment. This isolation in a special room is to give them time to gain confidence at their new work before going among the others, where the spin of the machinery and the multitude of workers are confusing to a beginner. In these practice-rooms in the high-class factories, there is a special woman in charge, whose only work is to teach the beginners. She is well qualified for this work—has generally been picked from among the high-class operators—and her introduction of the beginner to work is valuable.

Still another method of training beginners is by a few special teachers giving their entire time to them. The learner is sent to any available machine, is started, watched and corrected, and encouraged by the teacher. She earns an apprentice wage of about two dollars a week for two weeks and then is expected to earn the minimum wage of the department on piecework. If unable to attain this speed but in other ways is a desirable worker, she is shifted to another department in need of workers,

and tried out until by transferring she finds an operation suited to her. The wisdom of the teacher has every chance for exercise in this instruction and placement.

In most factories, the applicant for work is placed, without selection as to fitness, at the machine that happens to be empty. She is helped by the one next to whom she sits when the forewoman of the department is too busy with other responsibilities to attend to the newcomer. The discouragements of this method are great, and frequently, after the first day, the girl leaves, not to return. Where the forewoman is successful with her help, she attains it by paying special attention to the newcomer, encouraging her in every possible way, until she gets a secure grip on the situation.

Limitations to school-training for factory wage-earning are mainly that the school cannot reproduce work conditions which later will surround the wage-earner. Properly the school considers the girl first and foremost. It is the school's business to develop the pupil at any cost to the school; the time of the teacher and all her attention are supposed to be given to the development of her pupils, but in the wage-earning world personal attention is unusual. Every consideration in the factory is given to the product. Manufacture is production. Whatever increases production is of greatest concern to the management. The value of the individual as such is not yet recognized as an economic advantage.

Work conditions have improved progressively from the inception of the industrial revolution to the present and there is still much room for further improvement of work conditions. Attention is being given more and more now to the human being, recognizing that the human mechanism must be in good condition and have the right surroundings in which to work if the product is to be of good quality and amount. The difference between the school attitude toward the human being and the business attitude is that the school considers the development of the human being as the end in view, while in business the human being is the agent of production. Hence there is a jar to the sensibilities of the school-trained worker when she leaves the highly protected atmosphere which has surrounded her in the school and enters the one of indifference to the individual which characterizes manufacture. If teachers in schools recognized

professionally the business attitude toward workers, they could better prepare pupils for this transition. It would not require a trade school atmosphere to do this. Managers state that girls fresh from school are highly sensitive and critical of the management, that they lack industry, cannot concentrate on the work in hand, expect all kinds of exceptions to be made in their favor, in a word, are not "one of the crowd," nor are they with the crowd in the endeavor to increase production.

Teachers should have upper classes in the grammar schools prepare themselves with information about industries of the locality. This can be obtained easily and would add vitality to their thought by getting them out of the routine of school life. The industries of the community maintain the life of the community and make all else possible. Most of the pupils are children of parents working in local industries and there is always neighborhood talk about work which, if encouraged, could vitalize the school life. Such industrial information can be gained by visiting factories. Most factories would be open to teachers, especially if managers felt the schools were interested in what they were doing. Visits to factories and talks with managers would inform them about modern processes and modern organization; teachers would gain respect for leaders of industry when they learned the quality and degree of responsibility placed on industrial managers and of their range of power for good.

Each of us is responsible as a consumer, as well as a producer. We are all consumers; not all of us are producers. We make demands for the product; we should know the conditions surrounding the making of this product. This knowledge perhaps would enable us to make even greater demands, or, on the other hand, to temper our demands by knowledge of the existence of limitations on manufacture. Women would then consider it a social crime to purchase sweatshop products.

If teachers were saturated with first-hand knowledge of the conditions surrounding and governing modern production, they would be much safer guides, and could exercise powerful direction on the wage-earning career of their pupils by the dissemination of this knowledge during the school period. Through discussions and calling for contributions from pupils, they could arouse interests in these pupils that would develop avenues for employing their energies and suggest wage-earning possibilities that otherwise might lie dormant.

Boys and girls from school are most likely to drop into the occupation of another member of the family, of some neighbor, or of a kindly friend, or to use haphazard selection from the newspaper "want" columns; such chance selection may forestall growth along other lines which might be more remunerative and advantageous. Teachers, by having information about work conditions and requirements, would not be called upon necessarily to direct and thus become responsible for the wage-earning career of the pupil, but, by knowing the requirements of many industrial processes they would be able to point out the individual handicap in each employment; thus, by elimination, the best possible avenues for productive wage-earning would be revealed, leaving to the choice of the individual worker the responsibility of placing herself in the line of work best adapted to her. What is needed is the vocational guidance which prevents getting into the wrong channel, by helping the individual to avoid mistakes, the responsibility then resting properly on the individual who thus makes his own choice.

III

SCHOOL REQUIREMENTS

School training which culminates in wage-earning has a worth, of course, but compared to easily attainable possibilities, present school training which girls in textile factories get is admittedly inadequate as demonstrated by the results of this inquiry. An average weekly wage for 515 workers of $7.30 after an average of three and three-fourth years at present work, expresses unprogressive wage-earning, to say the least.

Increased length of attendance at school shows in a quicker earning power as also does the consequently greater maturity at entering upon factory wage-earning, and the selection of girls with better standards of living. Graduates of grammar schools attain the average wage with one-half the experience of those leaving in the eighth grade.

This should be significant to factory managers upon whom competition forces every economy and to whom overhead expense is as great for slow learners as for rapid producers. But the amount of schooling of applicants is a question rarely asked.

To educators it should point to the urgent need of inducing girls into the high school atmosphere by providing such useful courses as will convince both girls and parents of the undeniable *wage-worth* benefit of continued school training.

It is requisite for the school to meet the new specialized industrial and home conditions by supplying adequate training in dexterity. This can be done only by lengthening the school day and year, and by making the school the social center for all arts and manual practice which lead to dexterity, exact nerve response, and the cultivation of easy and habitual self-control in thought, speech, and action.

The function of the school still should be to supply fundamental book knowledge, but in addition it should inculcate habits of coöperation through making the teacher a leader, not a master; better ethics and basic industrial habits through habitual self-analysis by the pupil; and the acquisition of health, loyalty, industry, honesty and dexterity by daily example on the part of the teacher and practice on the part of the pupil.

Another fact revealed by these figures is that the slow, overage schoolgirl is not behind the normal schoolgirl at wage-earning nor does she require more experience. She is slow at school because of less complexity of neurone correlation as evidenced in slow response to the demand for rapid and exact judgment. This does not affect the easy muscular control required in manufacturing operations. A greater variety of fundamental technique would equip the slow girl with a dexterity and industrial understanding which would place her on a mental and social par with high ranking academic students, and make her wage more rapidly progressive.

SCHOOL TRAINING IN HAND AND MACHINE WORK

	Training	Per Cent	*No Training*	Per Cent
Number	246	47.8	269	52.2
Total Weekly Earnings	$1,659.65	44.1	$2,101.10	55.9
Total No. Years' Experience	664	34.3	1,270	65.7
Wage Index	.92		1.07	
Experience Index	.72		1.28	
Wage-Experience Ratio	1.28		.83	
Average Wage	$6.75		$7.81	
Average Experience	2¾ yrs.		4¾ yrs.	

From the comparison, there seems to be a quicker earning-power among those girls who have had previous training at school, but average weekly wage is greater among those who have reported no training in school, due to nearly twice the experience.

According to the results of this inquiry, school-training in hand and machine work seems to effect a quicker wage-earning power. Nearly one-half of the school group had prior handwork training and this beneficial fact was emphasized by analysis of statistics. The practical handwork courses which have edged their way into upper grammar and high schools have as yet inadequate bearing on wage-earning either in preparatory technique or in information about work conditions or requirements.

Operative work requires skill which comes readily and quickly on a foundation of dexterity, but where does the girl of to-day have the chance to gain nimbleness and expertness with her hands which made her mother and her grandmother makers of home and community life? The city girl in tenement, flat, or apartment has minimum practice in handwork and the school offers little satisfactory equivalent in training for dexterity.

These statistics show the superior earning power of the foreign born which, considered apart from her greater length of service,

would make her appear to be the more profitable worker. But analysis of the factor of experience, or years at present work, is indicative of a trend which should be followed in outlining advances in educational procedure, namely, toward habits of exactness and speed and ready applications of dexterity. School authorities should exercise their function of inducing among employers and managers increased appreciation of the worth of continued school training among wage-earners. The natural lag of a cautious, traditionalised scholastic institution in responding to new industrial needs has made many business men and employers of labor skeptical even as to the possible value of schooling for wage-workers.

This study of women workers in textile factories was restricted to the congested eastern part of the country. Urban workers and urban work conditions have not the wholesomeness of rural factory life where women workers come from country homes by means of electric cars to the factory situated advantageously as to light, air and space. The noon hour in many such places allows the workers to go home. Many factory hardships to workers would be remedied if not wiped out by removal of manufacturing plants to rural districts.

IV

NEEDS OF THE FACTORY WAGE-EARNER

The factory field which to-day receives the schoolgirl as a wage-earner makes definite demands upon her if she is to become a progressive earner. These demands are inherent in the nature of present-day factory organization, which has departed from trade methods and now requires accuracy, speed, and specialized machine-operating. Trade schools for the majority belong to the past, when preparation for trades was needed. Operations can be learned in from a few hours to a few weeks and are best taught in the factory, whose special methods and machines are not adapted to school conditions. Factory work must be the wage-earning field for the majority of grammar school girls, because of the numbers and medium ability required. Hence, school authorities and teachers should acquaint themselves thoroughly with present changed factory work requirements and conditions, to enable them rightly to prepare and advise pupils who may enter the field.

Dressmaking, millinery, and housekeeping which have retained from the last generation of wage-earning the name of "Trades" and are still taught in schools as such have each, in fact, yielded to specialization methods. Dressmaking and millinery establishments, both for custom and manufacturing trade, demand workers able to do one or two specialties well and with rapidity.

Millinery is markedly seasonal work and so specialized in the ability required that transfer of workers from the simple processes of wholesale manufacture to the more varied procedures of retail work, is unprofitable, hence impracticable. The wholesale millinery season alternates with the retail, but workers in one are not necessarily able to meet the requirements of the other.

Housekeeping is the last work to yield to economy of specialization in method of organization. Even this trade stronghold is rapidly giving way though the general worker is still in demand. But another factor of more disintegrating influence renders this

general trade work, as well as its specialized lines, undesired by women wage-earners of American birth. It is stigmatized by lack of standardization and by the isolated nature of the worker's life in a nonprogressive, unsocial atmosphere. The household worker is not and, as homes are now arranged, cannot be an integral partaker of the life of the home in which she serves. Yet her wage includes "board and home" and she is expected to be there the largest part of her time. Gregarious human instincts run counter to finding satisfaction in wage-earning isolation. School training in methods of working alone has not altered the natural desire to be in the crowd when at work.

Wage-earning necessity, for the great majority of grammar school girls, is an economic fact. Service of all in home and community life is a social fact. Both should be prepared for by adequate school-training. What are the fundamentals in preparation for these functions for which the school can and should assume responsibility and direction?

In response to this vital and social school query, the endeavor has been made in this study to show by statements from factory managers and statistics of apprenticeship days that the factory can best train its own workers for specialized operations with which wage-earning begins and ends to-day and will so remain as far ahead as our limited vision extends. The successful worker and progressive wage-earner, as testified to by managers, is the industrious, healthy, alert-minded girl, who comes to the factory directly from school, ready to adapt herself to the coöperative requirements of organized industry. Skill in operating can and is quickly acquired in the factory, if the newcomer has health, habits of industry, and mental understanding of the demands of industrial organization. The function of the school in preparing girls for factory wage-earning is to instruct them in why and how to be healthy women; to establish habits of concentration and speedy, accurate and coöperative work; and to give understanding of and training in the use of the English language.

School procedure which will accomplish these results would not thereby side-track its attention for the benefit of any one class of pupils and thus depart from democratic ideals. Neither would it select those among its pupils who are to be factory workers and thus stratify its pupils by means of special class

training or special schools. The only limitation to the factory worker's education in the American public school would be shorter time at school on account of expense. This should be remedied by opportunity for ambitious workers to continue their schooling in day-time classes in the factory conducted under public school and employer's coöperation.

Instruction in hygiene and arrangement of work, study and exercise, in order to maintain health by correct habits of living, is a justifiable demand to be made by everyone of all schools for all alike. Habits of industry are an acquisition necessary for all, irrespective of economic conditions in life. School years are the most valuable portion of the habit-forming period, and playing or dawdling at study or work makes a harmful and indelible impress on the minds of children.

The seriousness of German educational method has marked its human product as universally industrious workers. We have much to learn in inducing habits of concentration and persistent application in school work and by school methods. But industrious habits must have in them the element of speed, for quantity as well as quality determines the amount of the wage.

In this enduring, persistent application to work lies the foreigner's excellence. The foreign-born earn the highest wage, as was shown in these records, even though taking more years than the American-born to attain that wage. The illiterate foreigner excels all workers in concentration and wage-earning in operative lines; on the other hand, the American girl, who goes through the grammar school and has had the benefit of application to systematic work, shows a quicker wage-earning power than the foreigner who has had fewer years at school training.

Revision of School Methods

Industrial workers would benefit from a revision of methods along the lines of interest, application, industry and dexterity. There is pressing need for more and better applied training in application and rapidity in doing work. That the majority of girls leaving the sixth and seventh grammar grades earn only six, seven, or eight dollars after one or two years in the factory is an indictment against the training in habits of thought and action given them during their school period. An operator should

earn at least ten dollars per week by steady application, so simple is the specialized factory work. Frivolity, lack of interest, physical disability, lack of energy, indifference to work, or work unsuited to individual needs, are the handicaps to good wage-earning.

Accuracy is another vital qualification of wage-earning toward which every day of school life should contribute its training. But managers, without exception, who employ grammar school girls report endless waste of material and loss of time by work spoiled through inaccuracy. The piecework basis for wage estimation has been adopted generally because based on accuracy and quickness and therefore effective in making workers ambitious and holding them to standard requirements of workmanship. It is fruitless in this special study to present the admitted objections to this method of wage payment.

Inaccuracy due to eye defects unknown to workers themselves or to supervisors often causes poor work. These defects should have been discovered in school and either remedied or made the condition of rejection for work requiring keen vision.

Dexterity and Skill

Accuracy as a work requirement naturally leads to a discussion of hand and eye training in school. In this connection, it is wise to define terms often confused. Dexterity is a generic word meaning expertness in manipulation of materials and tools and is gained by handling both while muscles are still actively responsive to training. Dexterity[1] is the larger term embracing skill. Skill is specially applied speed and accuracy. Mechanical skill is speed and accuracy applied to the operation of machines. The operation of machines is but one type of application of dexterity, and skill at it can be more quickly gained at the factory or place of work if the applicant has gained dexterity by handling all sorts of materials and tools.

Dexterity is needed by the worker outside of her wage-earning field; in fact, is fundamental to her life-success as a woman. When wage-earning used to be trade work and the beginner was advanced along the whole line of production according to her ability and length of service, her training in dexterity was an accompaniment of her wage-earning period. But this varied

[1]In this discussion dexterity is used in the sense of manual dexterity.

training has ceased with specialization. Even in dressmaking, millinery, and housework, which retain their former trade features more than other lines of production, workers are expected to be fitted to specialize on portions of the article or in single or closely allied operations.

Preparatory training on making complete articles or on general work, will give a dexterity which readily adapts itself to doing a special kind of work, and becomes skill (meaning speed and accuracy). Since wage-earning occupation no longer gives training in all-round work leading to dexterity, and as most homes have long ago departed from employing children usefully, it is absolutely necessary for the grammar school to supply the deficiency by affording many types of training in sense perception and muscular control. Boys and girls alike should be trained in handling the materials and tools of the household, the garden, carpenter's bench, and textiles. Such training should not be given to boys only or girls only.

This training in tools, materials and processes is sense training in sight and touch chiefly. In addition, training of the sense of hearing by instruction in music is needed. Singing is the form of expression which will extend popular appreciation of music. As a coöperating medium and stimulant for united action, chorus work has large practical value. Practice on musical instruments is desirable as training in dexterity, but the art required is long and expensive; hence, prohibitive to the general student.

Drawing, both free and mechanical, should be an accompaniment to other lines of school work suggested and will be a more easily acquired means of expression, as dexterity increases through training in using all kinds of tools and materials. Free and ready use of pencil illustrations as an invaluable aid to expression is often conclusive when words are ineffectual in giving directions. Drawing attracts the attention to objects as they are and helps to correct faulty observation.

Training in English

Most fundamental to acquiring habits of concentration, accuracy and dexterity is clear understanding of the meanings of words and the correct use of symbols of language. Ignorance

or partial understanding of the English language is characteristic of industrial unrest and unfitness for work. A school child who does not understand the text is uninterested in study; the teachers' explanations given in words much like the text fail to grip the child; likewise in the factory instructions about work pass over the pupil's mind due to limited vocabulary; because of lack of word comprehension, manual work must be demonstrated by teachers for the pupil to copy and this *per se* tends to limit acquisition and use of words and therefore ability to understand plans and instructions, thus in turn restricting intelligence and forming a true vicious circle.

Introduction of varied tools, materials, and processes, and coöperative work among pupils would bring about an extended vocabulary of needed and useful words, would insure their immediate use, and arrangements for working together would accomplish instruction of pupils by each other, the most effective kind of teaching.

Coöperative Play

The playground for boys under a directing teacher is the place where the best lessons are learned, and learned by boys mostly from each other. Girls have not had enough of this playground atmosphere to put them on equal terms with boys in the lessons which play gives.

In all indoor school work, teachers are apt to be too much in evidence, do too much talking, gaining for themselves experience in this art, but failing to impart to pupils the power of expression. Children sit continually at their desks, studying, pretending or attempting to study, occasionally reciting what they have memorized. Many words are mere sounds to them, are not understood, but accepted in their association as probably having some meaning. Answers to the matter in hand may come readily, but it is only with context association. Individual words are not grasped, as is shown by the different and restricted language used in spontaneous conversation among school children, as compared with the language of the recitation. This constant and almost exclusive use of words alone as means of instruction, together with the failure of many pupils to understand the meaning of many words, decreases interest, increases the mortality of school attendance as soon as working papers are obtainable.

Then these immature, untrained boys and girls, lacking in understanding of how or what to do, stream to low-skilled or unskilled work, equipped with slight power of muscular control, sense keenness, or understanding of means of communication, and the natural consequence is that they remain always near their starting point. The so-called "blind-alley" occupations are such only to those who are too blind to see their way out. In this sense any occupation may be a blind alley to the narrowly equipped worker. There must be individual resource in ability to do, to understand and to communicate, if advance in industry and wage-worth is expected.

Opportunity of the Public School

The public school in this democracy has the opportunity and responsibility of preparing each and every student for progressive wage-earning through:

(1) Knowledge and practice of the laws of hygiene to establish health.

(2) Training in habits of industry, accuracy, speed, and the attainment of muscular control and dexterity.

(3) Understanding the meanings of words and the correct use of language symbols in order to gain readiness and ease in communication.

With health, industrious habits, muscular control, and correct knowledge and use of a liberal vocabulary, a foundation is laid for desiring and obtaining further information about the interesting things which are everywhere at hand. The hand-lacking person is likewise deficient in judgment and dexterity, and judgment commands wages in industry. For operative work, skill is necessary and is quickly gained because simple in type; inhibition of diverting interests sustained by physical endurance gives the human condition for a skilled operator. Progressive wage-earning requires childhood training in schools in the fundamentals of health, industrious habits, muscular control and dexterity, and usable knowledge of the English language.

This study of wage-earning women in the textile field recognizes fully that the preparation of women for their life is twofold, viz., in Dexterity and in Social Relationships, but not, as commonly accepted, to make ready on the one hand for the home,

and on the other, for wage-earning. The latter partial and incomplete classification is but a smaller grouping within the larger:

I. Dexterity, through training in manual and technical arts, is applicable equally to wage-earning and home requirements. Information about materials, tools, processes, industrial organization and conditions should be the running accompaniment of all technical training.

II. Social Relationships mean life in the home and in the community. The woman's success in wage-earning is dependent largely upon her understanding of conduct in maintaining proper appreciation of others and just and kindly relationships with fellow-workers.

The opportunity of the school is to prepare the girl whose home advantages are limited in social relationships, for her life in the home and in the community, so that she may render the largest service in both, a function which should demand increasing attention from directors of education. This study, though limited to consideration of factors bearing upon school training in technical arts, would err in failing to stress the vital need of school training in social relationships.

Illiterates

The foreigner who comes to this country and in a few weeks has mastered the power-machine, and yet because of constant association with her own friends in the factory, can barely understand directions for the work given to her, is the one that the manufacturer, who looks only to immediate output, wishes to have among his workers. Her attention is concentrated upon her work; she is under urgent necessity of earning as much as she can; she has no distracting interests; her one thought is to increase the contents of her weekly pay-envelope, and her output in a highly specialized manufacturing line is what increases the profits to her employer.

This policy of management is short-sighted, because the illiterate foreign worker is swayed by people of her own nationality, whose own margin of knowledge is barely sufficient to meet the insistent demands of daily living. Her friends are poor advisers, because of their little knowledge, yet they control the illiterate newcomer; not rarely inciting her with feelings of bitterness

against restrictions due chiefly to her own limitations. They accept the catchwords which agitators use to disturb labor conditions—perhaps with more ample justification than we realize. As a rule, no counteracting influence brought to bear by the factory management reaches illiterate foreigners, good producers though they are; they are suspicious of attempts on the part of the management to approach them; they bring to their own friends incorrect reports, through misunderstandings and misapprehension of what is being done and of what is going on in the factory; and, though producing more than their neighbors at the machines, they breed discontent and, in time of stress, are the first to walk out and to use brute-force measures to make their non-striking sisters uncomfortable; their productiveness of goods is not productiveness of good feeling. Only recently has this problem pressed upon the manufacturer. Manufacturing industries heretofore have depended mainly upon native-born workers for their product, but the foreigner has seized wage-earning opportunities, and specialized machine work has become adapted to limited ability so that aliens now occupy many places at machines where five years ago no illiterate foreigners were employed.

Thus the problem of handling illiterate foreign workers is brought for solution directly both to the industrial manager and to the public school. Private agencies may be able, in the beginning, to handle illiterate foreign men, whose continuous wage-earning necessity makes them seek to become conversant with the language and ways of their adopted country; but the woman's uncertain tenure of place in the wage-earning world lessens her desire to seek education that will make her more fit to be a wage-earner. Classes are now being conducted in New York City in the factory during the first hours in the morning, when the worker is freshest; the employer giving the hour at the regulation wage for that hour, and the public school supplying the teacher and books. This initiative move in coöperative education has been described elsewhere.[1] It is suggestive of ways and means and results that should bear fruit to all parties concerned: the employer, the worker, and the country.

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[1] Report on Adult Illiteracy and Worker's Classes by Winthrop Talbot, M. D., published by U. S. Bureau of Education.

V

METHOD OF THE INQUIRY

This study of girls at work in the textile industry was begun during the winter of 1912–13 with the purpose of learning what factory requirements should influence the education of girls for industrial life.

Industrial education has been directed largely in this country by school men and women whose contact with the industrial world has not been immediate, and plans formulated by them for industrial and technical training have been dominated more by what it seemed theoretically that boys and girls should have as preparation for wage-earning than by analytical study of workers, work and work conditions. Such needs can best be ascertained by tracing the history of the workers themselves; connoting their needs, successes and failures with the chief factors influencing them and interpreting the findings by the aid of managers' experience with and knowledge of workers.

Chief Apparent Factors

The chief apparent factors in the needs of women workers seemed to be Nationality and School Education, the measure of success being Wage and Length of Service in attaining the wage. Minor factors affecting success as registered by the wage are Age, Experience, and Permanence at one process. Other factors are to be learned only by first-hand contact with the worker, the work, and the management. These comprise amount and effect of preparatory Technical Training in home or school, amount of Special Training given in the factory, Steadiness of Employment, effect of Change of Employment, and interference of Marriage.

This inquiry has refrained from questions as to the social life of the worker apart from her work. It has dealt with her nationality, education and wage-earning career as a specific and legitimate line of inquiry which industrial managers would recognize as having possibility of helpfulness and because of which they would more readily aid schools in their specific directive endeavors.

For industrial managers can aid materially the cause of industrial education and, by their coöperation, additional light can be thrown on the much debated issues which affect policies in technical schools for girls.

Textile work in the schools now is an acknowledged field for training girls because of its close connection with home needs and occupations. Trade schools for girls have taken up textile operations as training for both home needs and for wage-earning. Such trade schools are few in number as yet, and expensive to equip and run, while their commensurate usefulness to the rapid advancement of the wage-earning girl on operative work is still an open question. This inquiry aimed to get light on this special phase of the education of girls by first-hand observation of the technique of textile operations and by discussion with many managers as to the most desirable preparation for success and wage advancement of operators.

The best factories were chosen to be visited under the conviction that constructive ideas are gained chiefly from first-class conditions.

Field of Inquiry

The textile field was chosen for this inquiry, as one into which the majority of girls and women drift because of steady and regular demand for workers; because of variety of processes and range of work from the most simple to the most complex and high speed operations; and because of the ancient, honorable, and ever continuous interest and appeal to womankind of textile work and its needle extensions and completion.

The factories visited were located in New York and Brooklyn; Newark, Camden, Raritan, Paterson, Passaic, and New Bedford. In these factories were manufactured the raw fibres of silk, wool, and cotton; silk knitted goods, silk gloves, underwear and hosiery, lace curtains, white and colored embroideries, cotton cloth, cotton duck, aprons, undermuslins, shirt waists, children's dresses, silk ribbons, millinery, and corsets. They also included dress and coat making, men's clothing, and laundry work.

Working Plan

The working plan of this inquiry was based on the idea of obtaining the interest of managers in better school training for

wage-earners through a more intimate knowledge of work requirements on the part of school directors. This could be done only by seeing workers at work and by getting frank expression about workers' qualifications from those employing them and directing their work. Personal introductions were obtained by the inquirer to the one in highest authority in each of the thirty factories visited and appointments were made for conference and inquiry.

In this educational survey, three factors were directive and dominant on the observations made:

1. Type of girl who succeeds: her preparation, remuneration, endurance and opportunities.
2. Technique of operations by which she earns her living.
3. Conditions, human and physical, under which she works.

It was the purpose of this analysis to obtain a glimpse of the necessary fundamentals of industrial education for women as a basis for determining:

1. How to prepare girls to select intelligently and follow skillfully a gainful occupation with due regard to their mental and physical limitations.
2. To define the successful attitude of the worker toward her work and the management.
3. To find ways of coöperating between school, management, and worker which would have educational and, hence, progressive results to all concerned.

Questions Put to Managers

The questions asked of managers were:

Is the demand for your product growing or diminishing?

Is your industry over- or undersupplied with skilled or unskilled workers?

Is there much or gradual change in operations?

Is it seasonal?

What qualities are necessary for success in the worker as judged by you?

Is the untrained worker desired?

What is the preferable age of beginners?

The object of the request to visit the factory was stated briefly. As one practically interested and actively engaged for ten years in training girls to become wage-earners, the inquirer felt the need of seeing the girls at their work and of talking with managers about the girls' successes and failures, and thus gaining more direct light on the question of industrial education for girls by learning what to emphasize and what to avoid. The management invariably gave a cordial welcome, a hearty concurrence in the need for more knowledge of the subject, and extended every courtesy and assistance to obtain all the information factory and office could afford. The factory manager or superintendent generally was the escort through the works with instructions to answer all questions and to permit the workers to be freely questioned *alone* if any information could thus better be obtained. Any facts which the payroll might give were put at the disposal of the inquirer. Thus time, information, and not only an unhampered but an assisted right-of-way into the workrooms and among the workers were given freely. Requisite data could not have been obtained without active and intelligent interest of such responsible industrial leaders, the majority of whom had themselves worked up from the ranks.

The Questionnaire for Women Workers

The following questionnaire was prepared by the writer for the purpose of recording specific facts about the workers themselves. These papers on letter-size sheets were given out by the superintendent in four of the factories under the condition that no worker need feel obliged to answer the questions. The smaller slip explained the reasons for the questions, and the worker was free to reply or not.

Owing to illiteracy, ignorance, and other vital reasons, many girls could not answer the questions. Returns such as could be used for statistical purposes were as follows:

201 from a total of 364 employees, or 55.2 per cent.
76 from a total of 228 employees, or 34.2 per cent.
80 from a total of 1462 employees, or 5.5 per cent.
275 from a total of 1357 employees, or 18.8 per cent.

The form of the questionnaire was as follows:

INQUIRY FOR INDUSTRIAL EDUCATION

Name.....
Address.....
City and county where you were born.....Year of your birth.....
Parents' nationality.....
Number of years you spent in public school.....In private school.....
At what age did you leave school.....In what grade were you.....
If you are married, how many years.....
What kind of hand or machine work did you learn at home.....
Kind learned at school.....
Present employment: Name of firm.....
How did you get this work.....
What work are you on now.....
How long were you learning this.....
How much per week did you get while learning.....
How long have you worked at this operation.....
What are your average earnings per week now.....
Other work with this firm: What other operation.....
How long learning it.....How long on it as piece worker.....
Average earnings per week.....
Reason for change to next operation.....
What did you do before coming to this factory.....
How long were you there.....Average earnings per week.....
How many other firms have you worked for and how long with each.....

The purpose of these questions is to find out from women workers such facts as will help grammar schools to train girls more directly to be self-supporting.

Your name is desired merely to give ownership to the answers which follow.
Your address—to locate you with reference to your work.
Your nationality—to learn if there is a connection between nationality and certain types of work.
Your age—to learn at what rate wages increase with life experience.
Length of schooling—to learn what effect education has on working ability.
Single or married—to learn how much marriage interferes with continuing as a wage-earner.
Early technical training—to learn about your preparation for earning your living.
Your present work—to learn what part chance played in directing you to your work.
Time learning it—to find out how much training you required.
Wages while learning—to find out the cost of your special training.
Time at your present work—to find out how steady it is.
Earnings per week—to rate the operation as compared with other operations.
Remaining questions—to find out what effect changing work has on the worker.

Many conditions militated against a fuller return of answered questionnaires and it was impossible to place any in most factories.

The general understanding among employes being that they owe their employer only the equivalent of their wages in work, all else which they give is gratuitous. Their friends tell them they need answer no questions about themselves, and none are asked as a general thing. They are employed as the need arises, put to work and remain if able to do the work. A friend or relative recommends them and the overseer of their department through daily contact learns about them. Where there is an organization in the factory among the workers, and particularly if a woman is their superior officer, a feeling of solidarity is created which is evident to an outside observer. In places so organized and where the employer or superintendent was sympathetically related to his employes it was possible to place the questionnaires either with the foremen, forewomen, or with the factory manager. As it was a matter solely of courtesy to the inquirer, the conditions for placing the blanks among the workers and getting the questions answered had to be left entirely to the convenience of the factory. They were given to the girls with the understanding that there was no compulsion about returning them and only under that agreement would they ever have been considered. In factories where foreign help predominates, much suspicion would be aroused by presenting such a blank only to the English-speaking workers, so there it was thought best that the matter should not even be suggested. Even among many of the English-speaking women a casual survey revealed such a low order of intelligence that it would have required a personal interview with each worker, putting the questions most simply and directly, to have obtained answers. Such procedure, while really the best way with all types of workers, would have made this inquiry, individually undertaken, impracticable. The entrance into the factory world to learn the educational status of the woman worker as bearing on her wage-earning ability has to be surrounded and thus limited by every precaution, so as not to endanger the progress of the inquiry itself, nor become a disorganizing feature and thus prejudice the fate of succeeding inquirers.

Replies

The questionnaires upon which the statistics of this inquiry are based were filled out through the courtesy of an undermuslin

factory, a silk glove factory, a silk ribbon factory, and a lace curtain and embroidery factory.

In the undermuslin factory the factory manager gave out the blanks to all the girls, the answers were written at the factory and then collected. The papers were looked over in the office and any blanks on the wage inquiry were filled out from the payroll. This brought a 55.2 per cent response.

At the silk glove factory the inquirer was given an opportunity of speaking to the girls assembled in the lunch room. It was here made plain to them that these questions were asked of them for the purpose of getting information to help in training girls for earning their living, but that there was no compulsion put on them about answering. Responses were obtained from 18.8 per cent.

In the silk ribbon factory the foremen of the various departments were told to get answers from about a dozen girls in each department representing all grades of workers, the foreman himself asking the girls up to his desk, and writing down the replies for them. These blanks were the only set completely filled out. A selection thus resulted of 34.2 per cent of the working force.

In the lace curtain and embroidery factory, the superintendent gave out the blanks at his own discretion. He had been thirty years among his workers, was popular because just and kindly; he asked that these papers be filled out by those he picked out. They asked no questions about it and did as requested. This resulted in 5.4 per cent return.

Bulking these various returns gives a varied assortment of women workers engaged in the processes of silk thread and ribbon manufacture and the varied operations of silk glove, undermuslin, lace curtain and embroidery making. It is proper to emphasize the fact that we find in various processes in the separate manufactures which compose the needle industry, operations of similar type and kind in all, so that a girl may be employed in similar work in making such dissimilar products as gloves, ribbons, undermuslins, and embroidery.

The perfection of statistical results would be attained if a full record could be secured on a similar questionnaire from every girl and woman at work in the textile and needle industries. Such a survey would have no element of selection to affect its results, but it would require the endorsement of the national

government to put it through with an ample force of investigators, interpreters, and statisticians.

An educator's qualifications for constructive investigation are inherent in education itself. These are the possession of the melioristic view of life, belief in the long range remedy, interest and faith in human development, appreciation of standards and requirements to be met, genuine sympathy with all sorts and conditions of people, knowledge of the technique of the field investigated and of the mental and physical requirements of the various extensions of work. In the human aspects of the situation in which an inquirer finds herself, the psychology which an educator should possess is put into constant practice.

Besides the helpfulness of the impression made by the actual vision of twenty thousand girls and women at work which no amount of reading about could ever make real, it is worth while to know the conditions under which girls work, the kind of men and women under whom they work, and their opinion of the workers' qualifications for success or failure. The factory field is not known by educators even though a large proportion of the girls who leave the elementary school to earn their living go into it. Home occupations are experienced by us all, have been well analyzed and established as school subjects and recognized as every woman's field of activity, but it is equally vital to the individual, the home and the community, that the factory field of wage-earning activity be known to educators as a check on prevailing school theories. Girls on their way to womanhood need training in self-reliance, wage-earning and co-working to offset the home tendency toward individual isolation, and for the sake of community serviceableness. Through industrially- and socially-minded teachers the schools can be wisely connected with actual occupations and social organizations which will make the world's work interesting and real to the schoolgirl.

VI

STATISTICAL PROCEDURE

The records are in two divisions: 1. General Group, 2. School History Group.

Statistical treatment of each group has been similar. Most of the records in the School History Group are included in the General Group. The statistics of the General Group comprise nativity, parents' nationality, length of service, age of workers, wage, and apprentice period but is incomplete as to school history. The School History Group gives number of years at school, age at leaving, grade at leaving, and has furnished material for more extended statistical groupings and combinations.

All data have been referred to the Wage, the wage being used to gauge value of school training in its industrial bearing. The age and grade of leaving school and number of years in school were used separately as statistical media for calculation of group values. By group value is meant varying wage of workers influenced by similarity of school background.

Coefficient of Correlation

Schooling has been the basis of grouping to show variation in wage results.

The relation which exists between the wage and age, and wage and experience was estimated by the Pearson coefficient of correlation[1] on the *median* basis to be almost identical:

Wage and age being .43, and wage and experience .432.

Medians for 605 reporting wage, age and experience are:

Median weekly wage—$6.99.

Median age—18½ years.

Median experience—2 years.

This closeness of correlation between age and experience as wage factors eliminated the need of working with age and experience as separate factors. The age factor was dropped

[1] The Pearson coefficient of correlation is much used in school statistics for estimating relationship between mental abilities based on accuracy required by school studies on the basis of 100 per cent. In this inquiry, the Pearson

therefore, and the experience factor was used in calculating wage relationship. Otherwise, it would have been necessary to work with both factors, age and wage, in making wage group calculations.

Since the *average* of wage, age and experience was used as basis for comparison in the tables, the Pearson coefficient of correlation was calculated for the School History Group on the average basis:

Average wage—$7.30.
Average age 21 years.
Average experience $3\frac{3}{4}$ years.

This resulted in a wage and age coefficient .34; for wage and experience .38.

Deviation of each worker's wage, age and experience from the *average* made a larger difference in the age and experience figure for correlation than their deviation from the *median*. Both age and experience correlations with wage on the average basis are less than on the median basis. Averages of wage, age, and experience are higher than medians, thus accounting for the smaller correlation figure, the majority of the workers furnishing data for this inquiry being on a small wage, and young in age and experience.

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coefficient of correlation is applied to estimate relationship between wage-earning abilities, based on age and experience.

The procedure in the use of the Pearson coefficient in this statistical study was as follows:

The Wage amounts were arranged in serial order. In columns were noted the wage and age and experience of each worker.

The median for wage, age and experience was then calculated. The deviation from this median of the wage, age and experience of each individual was recorded in parallel columns; each deviation was squared and recorded in a separate column. Each wage deviation was multiplied by the experience deviation and each wage deviation was multiplied by the age deviation for each worker. The results were added algebraically, registering plus and minus signs in the multiplication. These sums were worked out according to the Pearson formula for the Coefficient of Correlation.

$$r = \frac{\Sigma x \cdot y}{n \cdot \sqrt{\frac{\Sigma x^2}{n}} \cdot \sqrt{\frac{\Sigma y^2}{n}}}$$

Σ = algebraic sum.
$\cdot$ = multiplied.
x = wage deviation from median wage.
y = experience deviation from median experience.
n = number of records, 605.
r = coefficient of correlation.

Nativity

Another important element in this work of analysis is the worker's nativity and parents' nationality. In the General Group this is treated under two divisions: American-born and Foreign-born. In the School History Group, where the analysis could be more closely worked out than in the General Group, it was found advisable to adopt three groupings: American parentage, American of Foreign Parentage, and Foreign-born. Each of these groupings was further subdivided into Number of Workers, Earnings, Years at Present Work.

Length of Service

In estimating length of service, if the prior position had been in a similar line of work, the length of time in the prior position was added to the length of time in the present position. This was justified by its effect on the individual, for any one coming to a new position in a similar line of work customarily receives a wage equivalent to what she has been earning; if from an unrelated work, she is taken on as a learner in the new work at a learner's wage.

Percentage Calculations

The percentage calculations of all groups considered are based on:

(a) the total number of workers;
(b) the total earnings;
(c) total years' experience of the entire group.

Wage Index: Experience Index: Age Index

Resolution of these figures into some unit form became necessary, in order to work with expedition, exactness and clarity. A wage and experience index was evolved from the percentage calculations of the number of workers in each group dealt with in relation to the earnings of this group and its years of experience. The ratio of the percentage number in each group to the percentage earnings of that group, or the percentage earnings divided by the percentage of workers, gives one figure, called the Wage Index. The ratio of group percentage of workers to the percentage of their years at present work gives the Experience

Index, and the ratio of number of workers to their age gives the Age Index.

Age Index divided by *Experience Index* gives *Age-Experience Ratio.*

Wage Index divided by *Experience Index* gives a *Wage-Experience Ratio,* a figure which expresses the value of groups in their wage-earning power compared with the length of service required to acquire skill sufficient to attain and hold that wage. It is a *measure of the relative worth of any given unit, whether group or individual, to the average of the whole group.*

The ratio of the whole group to its earnings is, of course, 1, as is the ratio of the group to its experience, 1, and to its age, 1. This figure 1 is the unit of measure from which each group considered deviates in its Earning Value, Experience Period, and Age. The unit 1 is equivalent to the group average in earnings, years at present work, and age; this average is obtained by dividing the total earning, total experience, and total age, each by the total number of workers.

The advantage of the Wage and Experience Index is its immediate comparative expression in *one figure* of the earning power of any group of workers on the basis of the average for the entire group, and, likewise, the comparative expression of the length of service of the group to attain and hold that earning power.

When the age of the workers is of interest, an Age Index is equally usable in statistical calculations. The convenience of a one-figure valuation for the correlation of abilities or qualities of students has led educators to devise methods of obtaining such coefficients, thereby enabling statistical comparisons to be made. This method of obtaining wage, experience and age indices was employed to estimate readily and at a glance the comparative wage and experience worth of groups of wage-earners. Its value as a method to business management would depend on a desire to know, with greater reliance on facts and in greater detail than is now shown by the payroll, just what economic value is represented by groups of workers, whether by nationality, department, age, or length of service, or by any other grouping of specific interest. Indices or ratios express in terse form group valuations on any line of inquiry that can be reduced to figures. The most reliable figure in all these calculations results from the estimates based on large groups. At the extremes of all these

lists of groupings, the numbers dwindle so as to twist the resulting figures from their natural course.

Terms of Comparative Value: Medians, Modes, Averages, etc.

Comparative values, expressed in terms of medians, modes, averages, middle fifty per cents, and range of wage period, are presented in tables.

The modal wage figure seems to be the most accurate summation or estimate of a wage situation since it is the figure at which are grouped the largest number of wage-earners. It represents what usually is termed average wage-earning ability, but which is, in fact, modal wage-earning ability. What the largest group can earn is the best estimate of earning ability for what we think of as the average individual worker. This modal figure is obtained at a glance; it does not comprise the lowest or the highest, which are representative only of exceptional effort and ability, or lack of either, or both.

The basis of calculation in this inquiry is the average of the whole as to earnings and experience. From this average, each group deviates according to the average of its earnings and the average of its experience. This whole inquiry is an *extended calculation in averages.*

Statistical workers of recent years have inclined to the use of medians and modes in preference to the traditional and time-honored average. The statistician may justify his preference with ample proof that the choice of medians and modes insures a more accurate estimate of a statistical situation. Nevertheless, the business man and general reader know the meaning of an "average" and use it in its accepted sense, while "medians" and "modes" are terms unknown to them. The "average" has the value of expressing part ownership in the whole borne by each element. It may be a figure which represents no one particular wage or other classification under analysis. This fact implies a quality of fictitiousness which the exact statistician abhors, but has the value of individual contribution to the whole, as a part is borne by each unit in the final figure. By virtue of the vitality of this coöperativeness and general comprehension of the term "average," it follows that averages are still of dominant usefulness in statistical studies.

VII

NEED FOR DATA

Educators know that the largest number of pupils leave school at the fourteenth year of age and at the seventh grade in school. The aggregation of figures in this inquiry bears out this general fact—an indication that these replies as to school history have been practically correct.

School authorities have not been in the habit of following their human product into the wage-earning world. At various times, we read and hear that the majority of women-workers are earning but six and seven dollars a week and that this is not a living wage; but no one in particular knows how much or how little schooling or experience these girls have had to bring its influence to bear on their wage-earning capacity.

This inquiry sought the relationship between wage-earning and school training. It presents the results from 515 women-workers in textile factories. It does not generalize for other groups or for women-workers at large in the factory field. It is not a typical group of workers, since it is not dealing with any one field in its entirety. It has taken the replies from workers where they were obtainable in the textile factory field, and has merged the results from workers in silk manufacturing and white goods workers. To have given results separately of the four factories which allowed the questionnaires to be distributed would have been to divide the numbers beyond the figure where they would have had usefulness for statistical data. The merging of the results was justified by the comparability of the status of the workers from whom they were obtained. The quality of the women-workers in the silk manufacturing field, so far as the inquirer could make out from observation and questioning, was on a par with that of the muslin needle workers; the nationalities were evenly distributed; a careful examination of the written replies showed no features that were more prominent in one factory than in another; the same kind of worker showed a willingness to reply to the inquiry blank in one factory as in another. Illiterates, among whom there is greater human variety than

among grammar school prepared students, naturally are not represented at all in this written inquiry. The procedure of this inquiry resulted in a natural selection of the worker who was sufficiently interested in the explanation accompanying the inquiry blank to lend the assistance of her replies to the inquiry. It selected the girl who had had some schooling and who was in coöperative relation with her employer. Yet it may be presumed that much of the same educational preparation is back of the other literate workers who were not willing to reply. These returns—617 in all and 515 with school training—are representative of many times their number.

Shortcomings and Deficiencies

The most serious handicap to an extensive and even to a slight inquiry touching wages and personal facts about workers is long-standing and natural suspicion on their part of any investigation concerning them. Employers have seldom justified claims to further information from their workers than mere reference to prior employment. Hence, difficulty had to be overcome at the outset in putting the questionnaire to the workers. No requirements about making replies could be insisted upon. In some cases, the spirit of unrest among workers made even the suggestion of an inquiry inadvisable. Again, the illiteracy of many workers reduced the possibilities of obtaining written answers. On the close margin of time and wage existing in many factories, the extra work and time required to put through an inquiry blank made it too great a personal favor to ask of the management.

The policy of this inquiry was to approach all phases of the situation through the management. Outside sources of labor or social organizations were disregarded in eliciting information, inasmuch as this was obtained from the girl herself and there was no reason in any case for misstatement of fact either as to wage, schooling or prior employment. The only item subject to even slight misrepresentation was age and that only in sporadic cases.

On the wage basis of this inquiry, authenticity of figures given in the replies could be guaranteed only by obtaining them with the cordial assent, approval, and aid of the manager. The selection was fortuitous, being made without predetermination.

The selected group which is represented by these returns has the virtue of wide distribution within the textile industry, representing fibres, garments and embroidered goods, including as processes every important operation from weaving to high-power speed manufacturing. It is not so much typical as representative of women-workers in the textile industry.

An ideal inquiry would be an authorization by school authorities, managers, and workers to get statistics which would throw light on possible and needed coöperation between employment and school-training. In this way the preparatory period for the wage-earner could be made more directly helpful and suggestive.

This avowed purpose would secure complete answers from all workers in the industry and locality to be analyzed. Through a combined organization of industry and school, ways and means could be provided to analyze the facts obtained, and on the results of which could be based necessary educational, industrial and legislative procedures requisite to enlightened progress in scientific and national wage-setting standards. Without the coöperation and initiative of industry itself, as represented by industrial managers, it is difficult to see how results otherwise obtained could be regarded except with a certain degree of well-founded suspicion.

The procedure of getting individual responses to questions is impossible where workers are paid on piecework basis, unless their noon-hour and after-work hour periods are taken. To do this in factories where all kinds of women-workers are together is impracticable.

Replies are made by those who are the best in understanding and education. Those of less understanding were not sufficiently interested to make an effort to reply even indifferently.

It is freely recognized that this inquiry may not fairly represent the foreign-born workers owing to their hesitancy in replying to questions about schooling and to the inherent difficulty of obtaining true and comprehending answers. Whatever error may be conveyed by replies is probably not so much in fact as in understatement of fact.

A detrimental feature was the optional character of the replies. On an optional basis, selecting those caring even enough to make a reply, a considerable amount of indifference is bound to be present. This indifference did not tend to lead to mis-

statements of salary and length of time at their present work, because the workers knew these replies were to go through the hands of their forewoman or factory manager. The facts which the management of the factory knew about these girls, such as their wage and the length of time they had worked for them, thus had the necessary corroboration to make them correct.

As these replies had to be written as well as understood by the worker, only those reading and writing the English language could reply. So many illiterate foreign women-workers are employed in factories that replies written by the workers, however numerous, could never be typical of the working force of to-day.

Limitation in numbers affects results. Only where the numbers in groups are large can there be the greatest degree of accuracy. The upper and lower end of any series of figures, where numbers are small, must be taken merely as extremes.

GENERAL GROUP

I

TRAINING FOR HAND AND MACHINE WORK

The order of questions on the inquiry blank has been followed in presenting the tabulation of the replies of the entire group of 617. Statistical treatment is given then on selected phases which seemed vital to the inquiry and which permitted mathematical calculation.

Wherever the tabulation of results readily expresses all the facts, no further explanation of the tables is given. Only such points are commented upon as might escape the attention of the reader.

TABLE I

GIRLS' NATIVITY AND PARENTS' NATIONALITY

617 Records

No. of Girls	*Place of Birth*	*No. of Girls*	*Father's Nationality*	*No. of Girls*	*Mother's Nationality*
439	America	178	German	173	German
62	Russia	110	American	121	American
27	Germany	81	Russian	80	Russian
22	Hungary	70	Irish	65	Irish
15	Austria	27	Italian	28	Italian
9	England	25	English	25	English
8	Italy	21	Hungarian	22	Hungarian
7	Belgium	18	Hollander	16	Hollander
6	Switzerland	15	Swiss	14	Swiss
5	Ireland	14	Polish	14	Polish
5	Poland	10	Austrian	11	Austrian
5	Roumania	9	French	8	French
3	Holland	8	No answer	8	No answer
2	France	8	Scotch	8	Scotch
1	Sweden	8	Austrian	8	Austrian
1	Canada	4	Swedish	4	Swedish
		4	Jewish	4	Jewish
617		4	Roumanian	4	Roumanian
		3	Belgian	3	Belgian
				1	Canadian
		617		617	

The inquiry on this subject was for the purpose of finding influences of the early training of the girl on her later wage-earning career. Table II shows the replies received; 62.2 per cent of the total number had no training at home; 12.3 per cent

made no reply to the home-training question; 25.5 per cent reported that they had received some kind of technical hand-training at home. To the school-training question 58.3 per cent had no training at school; 41.7 per cent of the total number had received school-training in some kind of technical work. If all these workers had been educated in our various public schools of to-day, the record would have been more nearly 100 per cent as having had hand or machine-training in the schools. What the effect of such mechanical training, as is now being given, will be on the next generation of wage-earners, remains for later surveys

TABLE II

PREVIOUS HAND AND MACHINE TRAINING OF WORKERS AT HOME OR SCHOOL

Total % reporting home training	*No. of Replies*	*Per Cent*	617 Records *Kind of Training* *Home*	*School*	*No. of Replies*	*Per Cent*	*Total % reporting school training*
	384	62.2	None	None	360	58.3	
	76	12.3	Machine Sewing	Handwork	184	29.9	
	27	4.4	Housework	Cooking and Sewing	12	1.9	
	21	3.4	Embroidery	Embroidery	19	3.1	
	15	2.4	Dressmaking	Millinery	1	.2	
25.5%	8	1.3	All Kinds	All Kinds	14	2.2	41.7%
	5	.8	Cooking	Cooking	12	1.9	
	4	.7	Knitting	Knitting	4	.7	
	1	.2	Lace Making	Lace Making	4	.7	
				Stenography	4	.7	
	76	12.3	No reply	Bookkeeping	3	.4	
	617	100%			617	100%	

to determine. Certainly standards of work can be established in school-training which will increase earning power. Training can be arranged for the girl studying in public schools in cultivating dexterity and industrial-mindedness as will assure to American girls the high quality of French and Italian needle women and hand-workers.

The trend of needle industries to-day seems to be for a specialized and machine product. Custom trade is diminishing before the excellence of ready-made manufactured garments. We are so governed by present-day modes of fashion as to be unable to predict the requirements for factory work of to-morrow. At all times, standards of appreciation determine value of product, and value of time spent in making product. A study of industries,

which now fill the producing world with the hum of machinery and keep workers of all grades of ability at work, would be enlightening by the understanding it would give of materials and time required to make them, and of work conditions under which they are made. Such study would result in knowledge of the relationship of workers to each other, to the article produced, and to its place in the social economy. Studies of this nature are now being conducted in a few progressive private schools and are a substantial informational preparation of pupils for entrance into the world of production.

Industry is so specialized to-day, and promises to be much more so in the future, that preparation for any operative line seems time and money wasted. Directors of education should endeavor to find out fundamental methods which are basic to the specialized operations and should classify and arrange them for general instruction, rather than establish trade classes in lines where the trade is fast disappearing. Industry now is characterized by machines and operations, not by trades. It is informative to the school-pupil to know the progress of raw material to finished product, but knowledge does not better a girl's chances for employment in the subdivided industrial process of to-day, unless she has been trained in self-mastery, dexterity, and application. Thus when she becomes a wage-earner she can undertake with profit to herself and her employer the specialized operation which will be her industrial work, and by this broader training be enabled to transfer without wage loss from one operation to another.

II
AGE OF WORKERS

TABLE III

AGE OF WORKERS

Workers	*Per cent*	*Age*
3	.5	14
16	2.5	15
53	8.6	16
116	18.8	17
94	15.2	18
62	10.0	19
54	18.7	20
36	5.8	21
26	4.2	22
18	2.9	23
14	2.3	24
23	3.7	25
3	.5	26
10	1.6	27
4	.6	28
6	.9	29
7	1.1	30
3	.5	31
4	.6	32
7	1.1	33
1	.2	34
5	.8	35
3	.5	36
4	.6	37
6	.9	38
5	.8	39
6	.9	40
4	.6	41
5	.8	42
2	.3	43
6	.9	45
1	.2	47
1	.2	49
5	.8	50
1	.2	53
2	.3	55
1	.2	59
Total 617	100 per cent	

Median Age.....18 years, 5 months.
Average Age.....21 years, 8 months.
Modal Age.....17 years.
Middle 50 per cent of workers between 17 years, 4 months and 23 years.

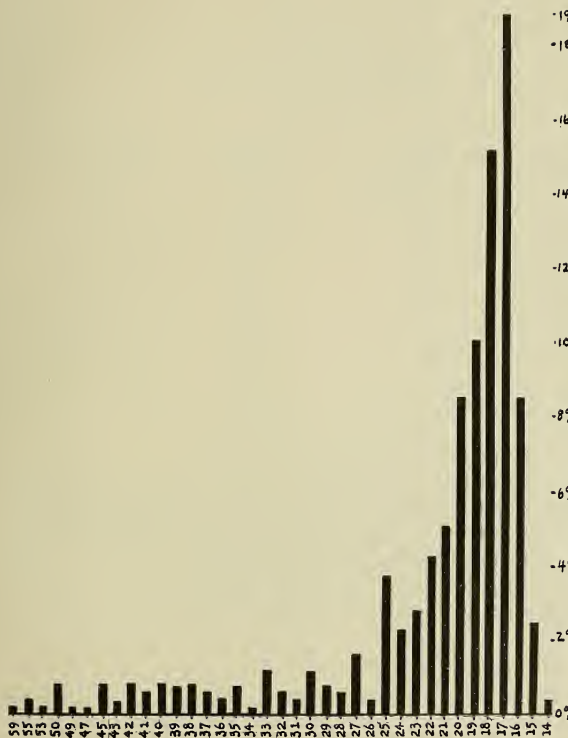

CHART 1.—PERCENTAGE OF WORKERS AT EACH AGE. 617 RECORDS

III
NUMBER OF YEARS IN SCHOOL

TABLE IV

NUMBER OF YEARS IN SCHOOL

560 Records

Workers	*Public School*	*Workers*	*Private School*
57	No answer	57	No answer
62	0 years	457	0 years
8	1 "	13	1 "
11	2 "	14	2 "
8	3 "	7	3 "
15	4 "	9	4 "
28	5 "	6	5 "
64	6 "	11	6 "
118	7 "	18	7 "
172	8 "	15	8 "
71	9 "	7	9 "
3	11 "	1	11 "
		2	12 "
Total 617		617	

498 reported Public School attendance.
14.2 per cent left after spending 9 years in Grammar School.
34.5 per cent left after spending 8 years in Grammar School.
14.2 per cent left after spending 7 years in Grammar School.
90 reported Private School attendance.
16.6 per cent left after spending 8 years.
20.0 per cent left after spending 7 years.

IV
GRADE AT LEAVING SCHOOL

TABLE V

GRADE AT LEAVING SCHOOL

515 Records

Number of Girls	*Per Cent*	*Grade*
102		No answer
1	.2	2 A
5	.9	3 A
1	.2	3 B
11	2.1	4 A
2	.4	4 B
24	4.7	5 A
14	2.7	5 B
57	11.0	6 A
32	6.0	6 B
103	20.0	7 A
79	15.3	7 B
81	15.7	8 A
33	6.4	8 B
60	11.6	Graduate
11	2.1	1st Yr. High School
1	.2	2nd " " "
617		

Median grade at leaving school is the grade above which and below which fifty per cent of the workers are placed. Modal grade is the grade at which the largest number leave.

Median Grade at leaving school.....7B.
Average Grade at leaving school.....7A.
Modal Grade at leaving school.....7A.
Middle 50 per cent leave school between 6B and 8A.

V

AGE AT LEAVING SCHOOL

TABLE VI

AGE AT LEAVING SCHOOL

563 Records

Workers	*Per cent*	*Years Old*
54		No answer
1	.2	9
4	.7	10
5	.9	11
35	6.2	12
52	9.2	13
308	54.7	14
102	18.0	15
43	7.6	16
9	1.6	17
4	.7	18
617		

Median Age at leaving school.....14 years and 7 months.
Average Age at leaving.....14 years and 3 months.
Modal Age at leaving.....14 years.
Middle fifty per cent between.....13 years 2 months and 15 years 2 months.

Combined with the records of Table V, the middle fifty per cent leave in the 6B grade at 13 years and 2 months and the 8A grade at 15 years and 2 months.

The largest group leave school in 7A grade, and are 14 years of age.

This record bears out the general statement that the majority of children leave school in the seventh grade at fourteen years of age, showing that these records are representative in their replies of the general facts attained by other inquiries.

TABLE VII

RANGE OF AGE OF WORKERS BY PRESENT WAGE, MEDIANS, MODES, AVERAGES, MIDDLE 50 PER CENT—617 RECORDS. COEFFICIENT OF CORRELATION BETWEEN WAGE AND AGE—.439

Wage	*No. of Workers*	*Pearson Coefficient of Total*	*Medians*		*Modes*		*Averages*		*Middle 50 Per cent*				*Range of Age*
			Yr.	*Mo.*	*Yr.*	*Mo.*	*Yr.*	*Mo.*	*Yr.*	*Mo.*	*Yr.*	*Mo.*	*Years*
$17.00	1	.16											45
16.00	1	.16											42
15.00	4	.64	24				24		28	6	19	6	30–18
14.00	8	1.3	25		25		28		33	6	22		43–20
13.00	6	.97	20	6	18		22	6	25		19		33–18
12.00	24	3.9	20		18		22	7	24	4	18	3	45–17
11.00	25	4.05	25		24,21,20,18		26	5	36	6	19	3	45–17
10.50	1	.16											24
10.00	65	10.53	21		27		25	4	29	6	19		50–16
9.50	1	.16											23
9.00	55	8.91	22	6	18		25	6	29		19	5	50–16
8.50	2	.32			19		20						21–19
8.00	92	14.91	19	4	18		24		26	8	19	4	55–16
7.50	5	.81	23				21	5	24		18		25–17
7.00	92	14.91	18	4	18		20	10	24	3	17	½	41–16
6.50	21	3.4	18	7	18, 17		18	5	19	½	17	5	22–16
6.00	80	12.96	18		17		18	6⅖	19	9	16	3	59–15
5.50	13	2.11	18		19, 18		18	5¾	18	6	17	9	21–17
5.00	64	10.4	16	6½	17		17	3¾	17	5	15	10	22–15
4.50 to 1.50	57	9.23	16	2	17		17	11½	16	10	15	3	55–14
	617	100%											

VI

MARRIAGE AMONG WORKERS

TABLE VIII

MARRIAGE AMONG WORKERS

Workers	*Years Married*	*Workers*	*Years Married*
563	No reply	1	15 years
9	1 year	2	16 "
3	2 years	3	17 "
2	3 "	1	18 "
5	5 "	1	19 "
1	6 "	1	20 "
2	7 "	1	22 "
1	8 "	2	23 "
3	9 "	1	24 "
4	10 "	1	25 "
2	11 "	1	26 "
2	12 "	2	27 "
2	14 "	1	35 "
		Total 617	

In answer to the question "If married, how many years?" of the 563 who failed to respond, there may have been many who did not care to answer this question. This was such a personal question, at least so considered by workers, that the replies can only be taken for what they are worth under these conditions. The 54 who said they were married and gave the number of years are sufficiently accurate to be worth noting. The largest group, 9, had been married one year; the median number falls on 10 years. That is, there were 27 who had been married from 1 to 10 years and 27 who had been married from 10 to 35 years. The average number of years married among 54 is 7 years.

These three different figures, falling at three different numbers of years married in this group of 54 reporting the married state, show the difference in the results of these estimates made of a group of figures.

The modal figure, which, in this case, falls at one year of married life, represents the majority number of years married among these workers, because 9 fall on that year; the next largest groups being 5 at 5 years; 4 at 10 years; 3 each at 2 years, 9 years and 17 years of married life. But the 9 group, married 1 year, shows the prevalent length of married life among the whole group of 54, while the average number of years married is 7. According to these records, 7 years, with its neighboring 6 years and 8 years, has only one and two actual records.

VII

THE WORKERS AND THEIR WORK

TABLE IX: How Work Was Obtained

250	applied in person
114	were recommended
104	through a friend
66	no answer
44	advertisement
38	sister or relative
1	convent
617	

This question was asked, in order to find out the prevailing modes of obtaining present work. The numbers have been collated and are given exactly as on the inquiry blanks.

TABLE X: Present Occupation—542 Records

Workers	*Operation*	*Workers*	*Operation*
49	Glove tipping	4	Chemise operating
44	Operating	4	Tucking
41	Examining	4	Closing
25	Trimming	4	Brosser pointing
25	Drawer operating	3	Tacking
24	Pressing	3	Finishing
24	Warping	3	Making up
23	Scalloping	3	Picking
21	Embroidering	3	Sewing
20	Plaiting	3	Doubling
19	Winding	3	Clasping
17	Seaming	3	Printing gloves
17	Princess slips	3	Knitting
16	Skirt operating	3	Scroll work
16	Gegaufing	3	Packing-boxing
15	Corset cover operating	3	Sleeve setting
14	Forchetting	3	Scallop cutting
12	Pointing	2	Zigzag fancy work
11	Hemming and felling	2	Finishing
10	Gown operating	2	Lace running
10	Marking	2	Thumb examining
10	Ribboning	1	Steaming
9	Fore lady	1	Thread finishing
9	Inserting	1	Stock girl
8	Quilling	1	Handwork
8	Hosiery tipping	1	Kiling
8	Blocking	1	Handkerchief hemming
7	Lacing	1	Night clerical work
7	Ruffle-setting	1	Sample trimming
6	Night operator instructor	1	Turning yokes
6	Hemstitching	1	Folding
6	Fancy work	1	Floor lady
5	Button sewing	1	Stamping
		617	

These 617 girls were working on 66 operations.

The largest group reporting on any one operation comprised 49. This was at glove tipping, the operation of putting on the extra layer of material on the finger tips.

Next in number was 44 at operating, which means running a single needle power machine. This was a general reply as to the present operation made by many who did not care to further specify their work.

The next group is 41 at examining, the work of looking over the article at a certain stage of its manufacture to make sure of its preparedness for the next operation. This occurs all along the line of manufacture to insure the stoppage of the article if it is imperfect or does not meet the standard set by the factory.

The next group is 25 at trimming, which, in some places, means cutting off raw material from an edge; in others, it means preparing trimming, by sewing together strips of lace, embroidery, etc., to be used on the body of the article made elsewhere in the factory.

The next group is 24 at pressing, which means ironing, folding, and inserting tissue paper in the finished article preparatory to boxing.

Another group of 24 is at warping. This process is carried on in the manufacture of the thread into fabric; and so on down the list in decreasing numbers to 1 each at handwork, stamping, steaming and a few other simple operations. All of these are highly specialized operations. This specialization enables the most inexperienced worker, the most narrowly equipped young woman to go into a factory, take her place at a machine, and, with a minimum of instruction either by the forewoman or, more likely, by the girl next to whom she is placed, as stated in the records, learn how to do her work in anywhere from fifteen minutes to six days.

TABLE XI

APPRENTICE WAGE

478 Records

Workers	*Apprentice Wage Per Week*
139	No answer.
54	Piecework.
36	Nothing.
2	Paid to learn.
10	$1.00
2	1.20
8	1.50
1	1.95
43	2.00
1	2.15
1	2.25
40	2.50
2	2.75
1	2.85
83	3.00
37	3.50
1	3.70
1	3.80
58	4.00
1	4.40
3	4.50
42	5.00
3	5.50
1	5.60
22	6.00
3	6.50
16	7.00
1	7.20
4	8.00
1	9.00
617	

478 records were made on this topic, 386 received wages. Of that number:

Median apprentice wage is $3.00.

Average apprentice wage is $4.19.

Modal apprentice wage is $3.00.

139 did not answer this question.

54 replied that they were paid by piecework, meaning that they were put on the work at the regular rate per dozen, and were credited for the number of pieces turned out up to the standard.

Speed of the workers shows in their record at the end of the week. In many places, the apprentice girls, or learners, as they

are called, would make so little while learning that they have to be given a minimum wage, which minimum wage varies with the factory and with the department in the factory. In some factories, it is customary to give a uniform minimum wage while learning. High-class places in non-textile lines give a minimum wage of $6.00 in some departments, $7.00 in others, and $8.00 in others, until that wage is earned on the piecework basis. In the high pressure textile factories, where the margin for all concerned is very small, where the employer is still on a precarious margin with regard to reputation and profits, this minimum wage or learner's wage may be anywhere from no pay at all, as is reported by 36 of the records, to $1.50, $2.00, and so on up. Abroad, learners often pay to learn the needle arts. Two of these records give that report, but that practice has not obtained in this country except in some technical schools.

When a worker said she learned in one day the process at which she became a regular wage-earner, it meant that, after one day of practising, she was put on the regular piecework rate. She was not put on this regular rate unless her output of articles up to the standard was sufficient to return to her the standard rate of that department. In some of the needle industries the minimum piecework wage is $5.00. The giving of work to learners is the excuse of managers for wages less than $5.00, a fact of importance to minimum wage legislation.

TABLE XII

DAYS LEARNING PRESENT OPERATION

516 Records

Workers	*Days*
101	No answer
79	1 day
26	2 days
31	3 "
3	4 "
178	6 "
4	8 "
1	9 "
123	12 "
1	15 "
13	18 "
1	20 "
34	24 "
2	30 "
4	36 "
1	44 "
6	48 "
1	50 "
3	72 "
1	120 "
3	144 "
1	300 "
617	

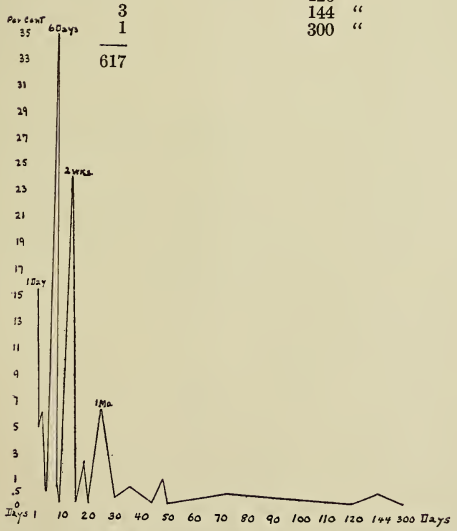

CHART 2.—CURVE OF APPRENTICE DAYS AT PRESENT OPERATION
516 Records

Of the 516 answers the order of grouping is:

178..... 6 days.
123.....12 days.
97..... 1 day.
34.....24 days.
31..... 3 days.

This will show the general trend of the apprenticeship period, which is brief because of specialization in operation.

There are several interpretations of the social and economic bearing of high specialization in the manufacturing line of production. Economical to the employer and the public, it means the assembling of quantities of one kind of work under one roof; the simplifying of administration to control this specialized line of business; and minute acquaintance with every detail of this specialty, which means better control of output and the greater possibility of employing a good grade of help to turn out product. The manager knows exactly what to require of his workers. The matter of teaching them how to do the work is simple; in fact, in the majority of cases, the newcomer's next-door neighbor is practically her only teacher.

In the case of the non-English-speaking foreigner, the ties of nationality are so strong in this strange country that the Americanized foreigner will offer to take charge of her newly arrived friend, show her how to do the work she herself has been doing for some time. She will do this at the expense of her own pay-envelope, as most of the work is done on piecework basis; thus the factory manager is relieved of the necessity of teaching these new employes. This work arrangement which has simplified the work of teaching to the maximum is economical and profitable to the employing firm.

Any operation which may net $10.00 a week to the diligent operator within the course of a year or a year and a half when this operator may not know one word of the English language, is certainly a highly simplified operation; but it requires much physical endurance to concentrate upon quantities of output, oftentimes in a devitalized air, for at least 9 hours a day, 6 days in a week, or 10 hours for 5 days and 4 hours on Saturday.

Many foreign women, whose possibility of interests outside of their work is extremely limited, increase the number of dozens

for their days' work by taking only fifteen minutes for lunch seated at the machine, thus saving the noon hour margin of time, which the others use in ways beneficial to their interests and their health. This kind of concentration requires physical strength and endurance which the illiterate foreigner brings from outdoor life in her native country, and is the economic advantage which the simplified power-machine gives to the foreigner. Shortening of the lunch period is forbidden by recent legislation in New York but not work during the lunch hour.

Our American girl, with her education and contact with the enlightenment that American life affords her, cannot and will not apply herself to this degree. She has her own interests, physical and social, more at heart; her range of view is a little longer than the foreigner's, and this impels her to work less intensely—less industriously, many managers will say—than the illiterate foreigner. But, again, this very mental alertness of the American worker to her own interests reacts to her individual benefit and likewise to the benefit of the firm. She does not stay at her work as long as the foreigner, but she is alert enough to shorten her ways of work. She puts into her work, when she does work, an amount of mentality which tells in the output, for the figures show that proportionately to the time she spends at her work, her output is greater than the literate foreigner's. It does not compare in bulk to the illiterate foreigner's output. No statistics, however, are as yet available on the length of the illiterate foreigner's endurance at machine-operating work. It would be a valuable inquiry to learn the length of service of the illiterate and the amount of her wage, month by month, throughout the course of the first few years of her economic life in this country.

Suffice it to say that the majority of far-seeing manufacturers, while recognizing the earning capacity of the illiterate foreigner through her unremitting industry, also admit the limitations of her illiteracy in the difficulty of giving directions to her; of her subjection to undesirable influences brought to bear upon her outside of the factory; of the different standards of personal habits, which frequently interfere greatly with the comfort of better educated and better informed neighbors in the factory.

These considerations impel progressive manufacturers expressly to prefer the American worker, even though she be less permanent at her work and does not take away, as the result of her piece-

work labor, as much money at the end of the week. Her standards of work are higher; her standards of personal care are better; her ethical relations with her companions and employers are better understood and can be dealt with in the language of the country and on the basis of the traditions of this country. If it is immediate output the employer is looking for, he gets that from the illiterate foreigner; but if it is a progressive business policy which he is pursuing, the American or American-born worker is the one he desires.

Household Workers

The claim of those who have been inconvenienced in securing household help is that the factory has taken workers away from the home. This is an easier and more plausible explanation of the dearth of help in the household than is sustained by fact, for the worker who has been drawn into the factory is, in the majority of cases, the kind of worker from whose services the home would not benefit. Factory work and housework are as widely different as the poles, which means all the difference in the world. Housework is called "monotonous"—a misapplied term. There is similarity in its routine from day to day, but the work is subject to so much variation that, for the high standard of accomplishment, such as our American homes demand, a quality of understanding and appreciation is required almost executive in type on the part of the domestic. Such ability turned into factory work could only find full expression in leadership positions, managing work-rooms, lunch-rooms, cleaning problems, etc.

Monotony

The disparagement of factory work as "monotonous" has come from misplaced workers who have been able to do a variety of work, to lead others by laying out work for them and by seeing that it is done, but who have been put at one operation in the factory and felt the iron chains of it; they have judged its effect on all others by its cramping effect upon themselves, and hence have called it "the dreaded monotony of factory work."

With this slashing, wholesale criticism in mind, this inquiry made a point of finding out from numbers of diverse workers in

the factory field their feeling on the subject of monotony in their work. Almost without exception, the replies were to the effect that they objected to being changed to another department which had even a slightly different work; when they were used to a certain operation, they wanted to remain at that all of their wage-earning life. Only in a few cases did any of the replies express desire for change of work. Frequently, the fluctuation in the size of orders in the different departments necessitates on the part of the management a change of workers, and there is often dissatisfaction at such changes.

A complex mentality wants and needs variety of work; the simplification of the work in factories has been a godsend to thousands of workers who, if it were withdrawn from them by a change back to the old order of master-mechanic work, would be wholly unable to find a place in the wage-earning world, and would perish prematurely from starvation and disease as they used to when work-demands were more exacting than in modern manufacture. Fortunately, though the old order changeth, we evolve along newer and, to the most of us, unforeseen, unpredictable lines. Therein is a problem for the educator who has

TABLE XIII

MEDIANS, AVERAGES, MODES OF APPRENTICE DAYS

513 Records

Wage	*Number*	*Per cent*	*Median* Days	*Average* Days	*Mode* Days	*Middle 50 per cent* Days	*Range of Period* Days
$17.00	1	.2					12
15.00	3	.5	12	56			144–12
14.00	3	.6	12	12⅔			24–2
13.00	5	1.0	6	8			12–2
12.00	19	3.7	6	9½	6	12–4½	24–⅓
11.00	18	3.5	12	12	12	18–6	24–1
10.00	49	9.6	12	23	12	24–6	300–1
9.00	36	7.0	6	37	6	12–3	600–⅛
8.00	71	13.8	10	17	18	22–4	300–⅛
7.00	88	17.2	5	6½	6	7–2	48–½
6.00	95	18.5	5	6	6	12–2	30–¼
5.00	71	13.8	6	9	6	16–3	72–5 min.
$4.50–1.50	54	10.5	5½	8⅓	6	9–2	36–1

to prepare the next generation of workers for he knows not what. Under such uncertainties is there any safer, wiser plan than to gain from a study of present work processes the fundamental methods and manipulations from which to so instruct the present generation of pupils in the school as to make it possible for them to adapt themselves to whatever may be the prevalent mode of work when their wage-earning time comes?

Table XIII of medians, averages, and modes of Apprentice Days has been arranged to show the variation of the apprentice period with reference to the present wage. One hundred and four did not reply to the question as to number of days learning present operation. The largest number of replies, 95 or 18.5 per cent, occurs at the $6.00 wage. The longest learning period for one of these 95 was 6 weeks, while the shortest was $\frac{1}{4}$ of a day. Only an individual interview with these two workers could

TABLE XIV

YEARS AT PRESENT WORK

605 Records

Workers	*Years*	*Workers*	*Years*
12	No answer	5	1 year 10 months
1	1 week	2	1 " 11 "
1	2 weeks	56	2 years
2	3 "	52	3 "
14	1 month	48	4 "
40	2 months	22	5 "
19	3 "	29	6 "
16	4 "	11	7 "
16	5 "	10	8 "
9	6 "	3	9 "
25	7 "	10	10 "
15	8 "	5	11 "
17	9 "	5	12 "
12	10 "	2	13 "
8	11 "	6	14 "
44	1 year	5	15 "
4	1 " 1 month	2	16 "
10	1 " 2 months	1	17 "
3	1 " 3 "	5	18 "
11	1 " 4 "	4	20 "
7	1 " 5 "	1	22 "
7	1 " 6 "	1	24 "
24	1 " 7 "	2	25 "
5	1 " 8 "	1	26 "
2	1 " 9 "	2	27 "
		1	28 "
		1	31 "
		1	32 "
		617	

determine the cause for this difference. The slow learner may be unfit for the kind of work at which she now earns $6.00. If the operation netting a $6.00 wage can be learned in less than a day, all learners requiring much in excess of that are expensive to the factory. Intelligent supervision of learners which would weed out and direct the effort of the applicants according to their responses to the work would be time and money saved alike to manager and worker.

A period of 2 weeks is recorded by those now earning $10.00 per week, the highest wage given by those replying in any considerable number to this question. This is a week longer than those earning $6.00 required, which would seem to indicate a greater general difficulty in mastering the operation which nets the higher wage to the worker.

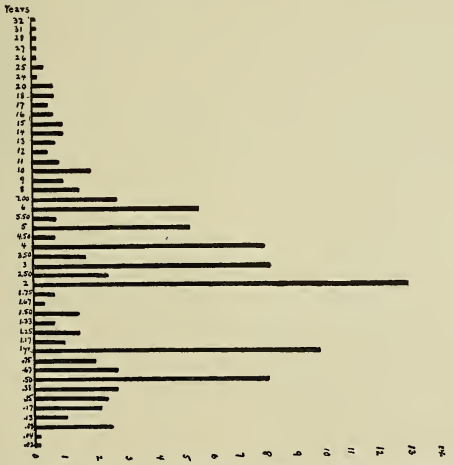

CHART 3.—PERCENTAGE OF WORKERS AT EACH YEAR AT PRESENT WORK
605 Records

The General Group, comprising 605 who replied, is complete as to wage, age, and years at present work.

Tables and graphs are based on length of service or experience calculated on time at present work plus time at closely allied work.

Chart 3 represents the figures in Table XIV.
Median years at present work.....$1\frac{2}{3}$ years.
Modal years at present work.....2 years.
Average years at present work.....$3\frac{2}{5}$ years.
Middle 50 per cent.....between $\frac{2}{3}$ and $4\frac{1}{2}$ years.

TABLE XV

MEDIANS, MODES, AVERAGES, MIDDLE FIFTY PER CENT, RANGE OF YEARS AT PRESENT WORK BY WAGE

605 Records

Wage	*No. of Workers*	*Percentage of Total*	*Medians*	*Modes*	*Averages*	*Middle 50 Per Cent*		*Range of Service*	
			Yr. Mo.	*Yr.*	*Yr. Mo.*	*Yr.Mo.*	*Yr.Mo.*	*Yr.Mo.*	*Yr.Mo.*
$17.00	1	.17						18	
16.00	1	.17						27	
15.00	4	.66	6 6		6 6			10 3	10
14.00	8	1.32	6 9	11	6 $4\frac{1}{2}$	9 6	3 6	11	6
13.00	6	.99	5 6	7	6 4			17 6	6
12.00	24	3.99	4	2–1	6	7	2	26	6
11.00	25	4.13	4 6	3	6 4	6	3	14 6	6
10.50	1	.17						7	
10.00	60	9.92	3 7	2	5 6	7	2	25	3
9.50	1	.17						1	
9.00	54	8.92	3 8	4	6 7	9	1 6	32	2
8.50	2	.33			3 6			4	3
8.00	91	15.04	3 8	4	4 4	6	1 6	25	2
7.50	5	.83		2	2 10			6	8
7.00	90	14.88	2 9	3	4 $2\frac{2}{5}$	4 8	1 6	28	$1\frac{3}{4}$
6.50	21	3.47	1 7	2	2 4	3 6	1 3	6	6
6.00	78	12.9	1 6	2	2 1	2 1	10	15	6
5.50	13	2.15	$10\frac{1}{2}$	1	2 3	1 1	9	2	$1\frac{1}{4}$
5.00	63	10.41	8	6	1 1	1 1	3	5	1
4.50 to 1.50	57	9.42	$3\frac{1}{2}$	6	$6\frac{1}{2}$	6	$1\frac{1}{2}$	3	$\frac{1}{4}$
	605	100%							

Table XV of modes, medians, and averages of years at present work according to wage, 605 records replying, shows a $17.00 wage earned by 18 years of service, while a $1.50 wage is earned by the girl at work but a week, yet a $9.00 wage is given to the woman who has been at work 32 years, as well as to the woman who has been at work 2 years.

Only knowledge of the social and economic background of these cases would explain the actual relations between wage and length of service. The largest percentage of replies to this question was 15 per cent at the $8.00 wage; for this one woman worked for 25 years and another for 2 years; the median length of service for these 91 workers was 3 years and 8 months, the modal 4 years and the average 4 years and 4 months. Fourteen per cent was the next largest group of replies at $7.00 per week, ranging in length of service from 28 years to 1 year and 9 months.

Among these 90, the median was 9 months, the modal 3 years, and the average 4 years and 3 months.

The median length of service decreased from 6 years of those earning $15.00 per week to 3½ months of the group earning between $1.50 and $4.50 per week.

The decrease in the modal length of service is from 11 years at $14.00 per week to 6 months in the $1.50 to $4.50 group.

The modal year seems to express more correctly the wage-earning and experience figure than either the median or the average. It is the figure at which the largest group occurs and the largest grouping of workers would seem to characterize these various stages of the worker's progress. It seems a more correct

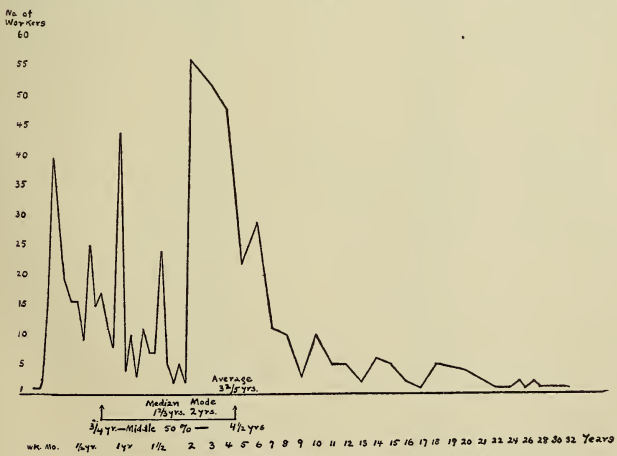

CHART 4.—YEARS AT PRESENT WORK. 605 Records

estimate of the economic situation to give the figure on which the largest grouping falls as typical of that situation than to give the figure above and below which the same number falls, such as the median represents, or to give the average. The modal figure therefore is a more likely figure for the situation now being considered. In frequency curves, the peaks are the points that strike the observer first. The highest peak is at the modal figure so that the modal figure is in harmony with the impression which the frequency curve makes on the observer and reader.

The length of service of workers according to the wage in Chart IV shows the modal points to occur at the years in round numbers, 1, 2, 3, 4 and 5 years. This is explained by the tendency

TABLE XVI

PRESENT AVERAGE WAGE PER WEEK

617 Records

Workers	*Wage*
1	$1.50
1	1.95
1	2.00
1	2.25
4	2.50
1	2.80
3	3.00
7	3.50
1	3.60
24	4.00
3	4.25
1	4.40
9	4.50
64	5.00
13	5.50
80	6.00
21	6.50
92	7.00
5	7.50
92	8.00
2	8.50
55	9.00
1	9.50
65	10.00
1	10.50
25	11.00
24	12.00
6	13.00
8	14.00
4	15.00
1	16.00
1	17.00
617	

of replies to fall on the round or even number, rather than on the more correct intermediate number which may be troublesome to calculate. At $8.00 the modal experience is prominently at 4 years; at $7.00 it is 3 years; at $6.00, 2 years; at $5.00, ½ year. This corresponding decrease of wage and experience obtains only below the $8.00 wage. The most reliable statistics are obtained from the greatest number of replies, hence, no deductions are made from the few numbers at the top of the wage list.

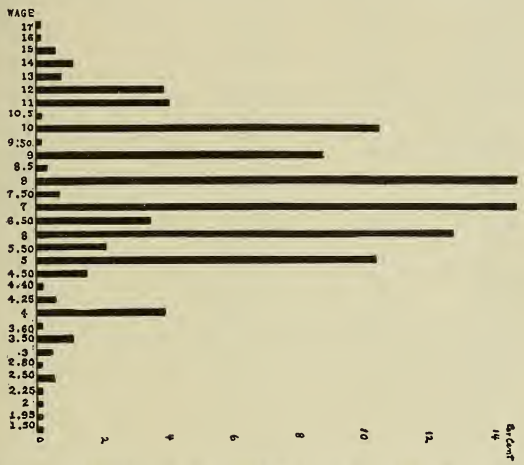

Chart 5.—Percentage of Workers at Each Wage. 617 Records

The 617 complete answers as to Average Wage per week at present work give:

Median wage	$6.90.
Average wage	7.56.
Modal wage	7.00 and $8.00.
Middle 50 per cent of workers fall between	5.63 and 9.33.

TABLE XVII

NUMBER AND PERCENTAGE OF WORKERS AT EACH WAGE

617 Records

Wage	*No.*	*Per Cent*	*No.*	*Per Cent*
$17.00	1	.16		
16.00	1	.16		
15.00	4	.64		
14.00	8	1.30		
13.00	6	.97		
12.00	24	3.89		
11.00	25	4.05		
10.50	1	.16	66	10.70
10.00	65	10.53		
9.50	1	.16	56	9.08
9.00	55	8.91		
8.50	2	.32	94	15.23
8.00	92	14.91		
7.50	5	.81	97	15.72
7.00	92	14.92		
6.50	21	3.40	101	16.37
6.00	80	12.96		
5.50	13	2.10	77	12.48
5.00	64	10.40		
4.50	9	1.45	37	6.00
4.00	28	4.53		
3.50	8	1.30	11	1.78
3.00	3	.48		
2.50	5	.81	7	1.13
2.00	2	.32		
1.50	2	.32	2	.32
4.00 to 1.50	57	9.24	57	9.24

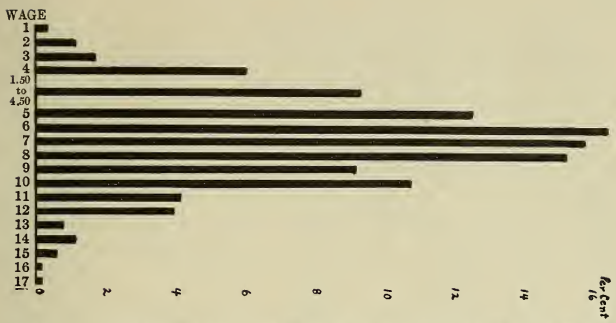

CHART 6.—PERCENTAGE OF WORKERS AT EACH DOLLAR WAGE. 617 Records

Median wage	$6.90.
Average wage	7.56.
Modal	6.00.
Middle 50 per cent	6.13 to $9.16.

TABLE XVIII

NUMBER OF WORKERS, THEIR EARNINGS. PER CENT OF TOTAL, AND RESULTANT WAGE INDEX

By Three Wage Groups, 605 Records

UPPER WAGE GROUP $17.00–$10.00			MIDDLE WAGE GROUP $9.50–$5.00			LOWER WAGE GROUP $4.50–$1.50		
Wage	*No. of Workers*	*Earnings*	*Wage*	*No. of Workers*	*Earnings*	*Wage*	*No. of Workers*	*Earnings*
$17.00	1	$17.	$9.50	1	$9.50	$4.50	9	$40.50
16.00	1	16.	9.00	54	486.00	4.40	1	4.50
15.00	4	60.	8.50	2	17.00	4.25	3	12.75
14.00	8	112.	8.00	91	728.00	4.00	24	96.00
13.00	6	78.	7.50	5	37.50	3.60	1	3.60
12.00	24	288.	7.00	90	630.00	3.50	7	24.50
11.00	25	275.	6.50	21	136.50	3.00	3	9.00
10.50	1	10.50	6.00	78	468.00	2.80	1	2.80
10.00	60	600.	5.50	13	71.50	2.50	4	10.00
			5.00	63	315.00	2.25	1	2.25
						2.00	1	2.00
						1.95	1	1.95
						1.50	1	1.50
Total	130	1,456.50		418	2,899.00		57	211.25
%	21.5	31.9		69.1	63.5		9.4	4.6
Wage Index		1.48	Wage Index		.92	Wage Index		.50

TABLE XIX

NUMBER OF WORKERS, AGGREGATE YEARS AT PRESENT WORK AND EXPERIENCE INDEX BY THREE WAGE GROUPS

605 Records

Years at Work	*$17.00–10.00*		*$9.50–5.00*		*$4.50–1.50*		*Total No. of Workers*	*Per Cent*	*Total Years at Work*
	No. of Workers	*Total Yrs.*	*No. of Workers*	*Total Yrs.*	*No. of Workers*	*Total Yrs.*			
32			1	32			1	.16	32
31			1	31			1	.16	31
28			1	28			1	.16	28
27	1	27					1	.16	27
26	1	26					1	.16	26
25	1	25	1	25			2	.33	50
24	1	24					1	.16	24
20	2	40	2	40			4	.66	80
18	2	36	2	36			4	.66	72
17	2	34	1	17			3	.49	51
16	1	16	3	48			4	.66	64
15	2	30	4	60			6	.99	90
14	4	56	2	28			6	.99	84
13			4	52			4	.66	52
12	1	12	2	24			3	.49	36
11	2	22	3	33			5	.82	55
10	6	60	5	50			11	1.82	110
9	2	18	4	36			6	.99	54
8	3	24	6	48			9	1.49	72
7	10	70	6	42			16	2.63	112
6	12	72	20	120			32	5.29	192
5½	2	11	2	11			4	.66	22
5	5	25	25	125			30	4.95	150
4½	3	13½	3	13½			6	.99	27
4	11	44	39	156			50	8.26	200
3½	2	7	8	28			10	1.65	35
3	16	48	27	81	2	6	45	7.44	135
2½	2	5	11	27½	1	2½	14	2.31	35
2	14	28	55	110	3	6	72	11.90	144
1¾			4	7			4	.66	7
1⅔			2	3⅓			2	.33	3⅓
1½	3	4½	30	45			33	5.45	49½
1⅓	1	1⅓	3	4			4	.66	5⅓
1¼	3	3¾	6	7½			9	1.49	11¼
1⅙			6	7			6	.99	7
1	5	5	46	46	4	4	55	9.09	55
¾	3	2¼	9	6¾			12	1.98	9
⅔			13	8⅔	3	2	16	2.63	10⅔
½	4	2	28	14	13	6½	45	7.44	22½
⅓	2	⅔	11	3⅔	3	1	16	2.63	5⅓
¼	1	¼	7	1¾	6	1½	14	2.31	3½
⅙			6	1	7	1⅙	13	2.15	2⅙
⅛			3	⅜	4	½	7	1.16	⅞
1/12			6	½	9	¾	15	2.48	1¼
1/15					1	1/15	1	.16	1/15
1/30					1	1/30	1	.16	1/30
Total	130	793¼	418	1458.54	57	31.98	605		2283.77
Per cent	21.50	34.70	69.10	63.90	9.40	1.40	100.00		100.00
Exp. Index		1.61		.92		.15			

TABLE XX

NUMBER OF WORKERS, AGGREGATE AGE, PERCENTAGE OF TOTALS AND RESULTANT AGE INDEX BY THREE WAGE GROUPS

605 Records

Age of Workers	*$17.00–10.00*		*$9.50–5.00*		*$4.50–1.50*		*Total No. of Workers*	*Total Years Age*
	No. of Workers	*Total Age*	*No. of Workers*	*Total Age*	*No. of Workers*	*Total Age*		
59			1	59			1	59
55			1	55	1	55	2	110
53			1	53			1	53
50	2	100	2	100	1	50	5	250
49			1	49			1	49
47			1	47			1	47
45	3	135	3	135			6	270
43	1	43	1	43			2	86
42	2	84	3	126			5	210
41	2	82	2	82			4	164
40	3	120	3	120			6	240
39	2	78	3	117			5	195
38	3	114	3	114			6	228
37	1	37	3	111			4	148
36	1	36	2	72			3	108
35	2	70	2	70			4	140
34			1	34			1	34
33	2	66	4	132			6	198
32			4	128			4	128
31			2	62			2	62
30	4	120	3	90			7	210
29	4	116	2	58			6	174
28			3	84			3	84
27	3	81	6	162			9	243
26			3	78			3	78
25	10	250	12	300			22	550
24	7	168	7	168			14	236
23	6	138	12	276			18	414
22	3	66	21	462	1	22	25	550
21	19	399	15	315			34	714
20	17	340	34	680	3	60	54	1080
19	12	228	45	855	3	57	60	1140
18	14	252	75	1350	4	72	93	1674
17	6	102	91	1547	19	323	116	1972
16	1	16	39	624	13	208	53	848
15			7	105	9	135	16	240
14					3	42	3	42
Total...	130	3241	418	8863	57	1024	605	13,128
Per cent	21.5	24.7	69.1	67.5	9.4	7.8	100%	100%
Age Index		1.15		.98		.83		

TABLE XXI a

COMPARISON IN PERCENTAGES OF NUMBER OF WORKERS, EARNINGS, EXPERIENCE AND AGE BY THREE WAGE GROUPS WITH RESULTANT WAGE-EXPERIENCE AND WAGE-AGE RATIOS

605 Records

	$17.00–10.00		*$9.50–5.00*		*$4.50–1.50*		*Total Group*	
	Per cent	*Index*	*Per cent*	*Index*	*Per cent*	*Index*	*Average*	*Index*
No. of Workers	21.5		69.1		9.4		605	1
Wage.....	31.9	1.48	63.5	.92	4.6	.50	$7.55	1
Experience.....	34.7	1.61	63.9	.92	1.40	.15	3 yr. 9 mo.	1
Age.....	24.7	1.15	67.5	.98	7.8	.83	21 yr. 8 mo.	1
Wage-Experience Ratio.....	.92		1.00		3.33			
Wage-Age Ratio ...	1.29		.94		.60			

TABLE XXI b

AVERAGES OF WAGE, EXPERIENCE, AGE

Number of Workers.	130	418	57	605
Average wage.....	11.20	6.93	3.70	7.55
Average experience .	6 yr.–1 mo.	3 yr.–6 mo.	6⅔ mo.	3 yr.–9 mo.
Average age.....24 yr.–11 mo.		21 yr.–2 mo.	18 yr.	21 yr.–8 mo.

TABLE XXII

COMPARISON OF MODES, AVERAGES, MEDIANS, MIDDLE 50 PER CENT OF WEEKLY WAGE, EXPERIENCE, AGE OF WORKERS BY WAGE GROUPS

605 Records

	$17.00 to $10.00 130 Workers			*$9.50 to $5.00 418 Workers*			*$4.50 to $1.50 57 Workers*			*Total Groups 605 Workers*		
	Wage	Exper.	Age	Wage	Exper.	Age	Wage	Exper.	Age	Wage	Exper.	Age.
Mode	$10.00	3 yr.	21 yr.	$8.00	2 yr.	17 yr.	$4.00	6½ mo.	17 yr.	$8.00	2 yr.	17
Aver.	11.20	6 yr. 1 mo.	24 yr. 11 mo.	6.93	3 yr. 6 mo.	21 yr. 2 mo.	3.70	6⅔ mo.	18 yr.	7.55	3 yr. 9 mo.	21 yr. 8 mo.
Median	10.58	3 yr. 11 mo.	20 yr. 9 mo.	7.19	1 yr. 11 mo.	17 yr. 11 mo.	4.09	3⅓ mo.	16 yr. 2 mo.	6.90	2 yr. 4 mo.	18 yr. 4 mo.
Middle 50%	11.46 to 10.28	6 yr. 10 mo. to 2 yr.	27 yr. to 19 yr.	8.25 to 5.68	3 yr. 11 mo. to 11 mo.	22 yr. 4 mo. to 16 yr. 7 mo.	4.23 to 3.50	6 mo. to 6 wks.	17 yr. 1 mo. to 15 yr. 3 mo.	8.81 to 6.12	5 yr. 1 mo. to 1 yr. 2 mo.	23 yr. to 17 yr. 8 mo.
Range	17.00 to 10.00	27 yr. to 3 mo.	50 yr. to 16 yr.	9.50 to 5.00	32 yr. to 1 mo.	59 yr. to 15 yr.	4.50 to 1.50	3 yr. to 1 wk.	55 yr. to 14 yr.	17.00 to 1.50	32 yr. to 1 wk.	59 yr. to 14 yr.

Summary of Wage, Age and Experience Replies

There are 605 complete records in the General Group. Wage ranges from $1.50 to $17.00 per week and, to estimate periods of progress, may conveniently be grouped in sections from $17.00 to $10.00, from $9.50 to $5.00 and from $4.50 to $1.50. Tables XVIII, XIX, XX show the summary in these three groups at each wage, at each year of experience, and at each year of age. The percentages of these totals in amounts of earnings, numbers and experience have been summarized in Table XXIa.

Looking at Tables XXIa and XXIb it is seen that the average wage for the $17.00 to $10.00 group is $11.20, the average for the entire group is $7.55; the wage-index for the upper group is 1.48, showing that $11.20 is 48 per cent greater than $7.55; so, too, with the experience for the upper group, the average experience for the whole group being 3 years and 9 months, the average experience for this group is 6 years and 1 month, this group experience having the relation of 1.61 per cent to the experience of the average group. The average age for the upper group is 24 years and 11 months, the average age for the whole group is 21 years and 8 months, which gives the 1.15 age index for the upper group. The wage index at 1.48 related to the experience index at 1.61, gives a wage-experience ratio of .92. The wage index at 1.48 related to the age index at 1.15 gives a wage-age ratio of 1.29.

Following out this same procedure for the other wage groups, we find the middle group having a wage experience ratio of 1, and a wage-age ratio of .94, while the lower wage group has the wage-experience ratio of 3.33 and a wage-age ratio of .60. The middle wage group is the average group. The $4.50 to $1.50 group has a high wage-experience ratio, showing that the workers begin with a higher valuation upon their early experience than is maintained later by their increasing experience.

The grouping shown in Chart 6 is the percentage of workers at each dollar wage, broken dollar wage being bulked with the corresponding dollar wage. The modal wage is $6.00, the median wage $6.90, the average $7.56. The middle 50 per cent of workers falls between $6.13 and $9.16, the upper quarter earns between $9.16 and $17.00, the lower quarter earns between $6.13 and $1.50. Chart 5 of percentage of workers at each wage shows a bi-modal wage, an equal number of workers occurring at $7.00 and $8.00.

TABLE XXIII

OTHER WORK WITH THE SAME FIRM

617 Records

Workers	*Operation*
509	No other
2	Fancy work
6	Examiner
1	Tucking
1	Ruffle-setting
3	Marking
3	Embroidery
1	Sleeve-setting
1	Packing boxes
1	Lace-runner
16	Trimmer
7	Hemstitch
1	Gegauf
1	Scallop
1	Night operator instructor
5	Several kinds of work
1	Needle girl
1	Cutting corners
10	Pinner
2	Winding
1	Boxing
1	Seaming
4	Hosiery tipping
6	Glove tipping
11	Plaiting
1	Tip examiner
1	Tagging garments
1	General work
10	Clasping
1	Stock girl
1	Doubler
1	Sewer
2	Picker
1	Finishing point
2	Errand girl
617	

This question was asked in order to find out how much shifting of girls was customary. Evidently very little is the general rule, as 509 of the 617 replied that they had had no other work with the same firm. Of the other 108 replies, the largest group was 16; the next group was 11; then two groups at 10.

Answers to the question as to how many days they were learning this other operation with the same firm are given in Table XXIV.

TABLE XXIV

DAYS LEARNING OTHER OCCUPATION

Workers	*Number of days*
514	No answer.
26	1 day.
18	2 days.
6	3 "
1	4 "
27	6 "
1	7 "
15	12 "
4	18 "
2	24 "
2	36 "
1	72 "
617	

TABLE XXV

AVERAGE WAGE WHILE LEARNING OTHER OPERATION

Workers	*Wage Per Week*
506	No answer.
16	$3.00
2	3.50
10	4.00
4	4.50
25	5.00
2	5.50
17	6.00
2	6.50
12	7.00
1	7.50
12	8.00
1	8.50
3	9.00
3	10.00
1	11.00
617	

Of the 111 replies, 25 earned $5.00, the modal apprentice wage for the other operation with the same firm. Five dollars is also the median apprentice wage, $5.65 the average apprentice wage. These figures, compared with the record of the Apprentice Wage at present operation, show $5.00 as against $3.00 for median and modal apprentice wages and $5.65 as against $4.19 average apprentice wage. This higher median, modal and average apprentice wage of the worker in the present position as compared with the apprentice wage in previous work would seem to indicate a shifting of the higher grade worker to retain her in the factory.

TABLE XXVI

WORK PREVIOUS TO THAT WITH THE PRESENT EMPLOYER

268 made no reply.
61 considered school as their previous work.
46 stayed at home.
19 did housework, showing how few either were workers in the household or cared to say they were.
18 said nothing: indicating an indifference to answering the question, or perhaps interpreting staying at home as doing nothing.
11 came from department stores to their present work.
9 warping.
9 from manufacture of ladies' waists.
8 from office work—probably they were failures in this clerical work and had to seek more simple repetitive employment, in order to make a living.
6 had a number of answers: sugar factories, artificial flowers, embroidery, novelties, candy factory, boxing departments, worsted mill.
5 box factory.
4 feathers, book-binding, shoe factory.
In numerous smaller groups, other entirely unrelated kinds of work.

This promiscuous transfer from one work to another shows lack of direction, mere haphazardness of a chance vacancy heard of through a friend and an immediate transfer made without reference to the fitness of the work to the worker, or any other consideration excepting work near a friend, or the only work easily obtainable at the time.

The ease with which a new work or any operation may be learned may to a large extent be responsible for this shifting in work. If work needed preparation, when once learned, the worker would probably remain at it, because the cost of learning other work, in time of preparation and perhaps in paying to learn, would tend to fix the worker in the position once obtained.

Machine operating is general and easily obtainable work for wage earners, but is often seasonal and thus requires ability to transfer readily to other lines of operating in order to maintain steady wage earning. Machine operating can be learned quickly and this is an argument in its favor because work which requires long preparatory training and an extended apprenticeship has within it sufficient content and, hence, enough continuous interest and satisfaction to make it worth while to pursue exclusively. Yet this type of work may also be seasonal and also necessitate alternate work to enable wage earning to be continuous. The mere fact that a job requires a short apprenticeship period may not be disadvantageous. Ease of acquisition does not necessarily imply a low wage or brief term of employment.

TABLE XXVII

Reason for Changing Position

92 Records

525	No answer.
52	Advancement.
28	Slack work.
4	Did not like the work.
2	For change of work.
2	Need of girls elsewhere.
1	Return to school.
1	Sickness.
1	Removal.
1	No reason.
617	

The prevailing reason, as seen in the above table, is advancement in their work. The next natural reason is slack work. Of the 525 who gave no answer to this question, a considerable number may be counted on as not knowing why they were changed, as well as lack of desire on their part to tell why they were changed.

TABLE XXVIII

LENGTH OF SERVICE IN PREVIOUS POSITION

225 Records

Workers	*Years*
392	No answer
7	1 month
14	2 months
19	3 "
10	4 "
7	5 "
5	6 "
13	7 "
7	8 "
2	9 "
3	10 "
38	1 year
17	1½ "
30	2 years
21	2½ "
15	3 "
7	3½ "
3	4 "
2	4½ "
2	5 "
1	5½ "
1	6 "
1	7½ "
617	

The largest group, 38, served one year in the previous position. This one-year period of service seems to be a convenient time to make a change; it also may be a convenient round number to put down in answer to the question. Nineteen shifting after 3 months' service may be due to inefficiency; or it may be a seasonal work which necessitated moving on. The fact that 1 and 2 years are the times of departure for the larger number of wage-earning women from steady employment accounts for the large number of replies at those periods.

TABLE XXIX

AVERAGE WAGE IN PREVIOUS POSITION

191 Records

Workers	*Wage Per Week*
426	No answer.
1	$1.50
6	2.50
10	3.00
16	3.50
18	4.00
9	4.50
1	4.75
20	5.00
5	5.50
1	5.75
22	6.00
1	6.25
6	6.50
1	6.60
13	7.00
3	7.50
17	8.00
1	8.50
12	9.00
10	10.00
1	11.00
12	12.00
1	13.00
3	14.00
1	15.00
617	

In cases of those whose wage falls below $5.00, they were probably learners who called their apprentice period their previous position.

A personal inquiry made of each individual would reveal many interesting facts about the reason for change from previous work to present position, and the bearing of previous wage upon present wage; but all such facts have had to be omitted in this special inquiry, dealing, as it does, chiefly with the bearing of school training upon present wage-earning power.

TABLE XXX

LENGTH OF SERVICE WITH OTHER FIRMS

584 Records

Workers	*Length of Service*
485	None.
33	No answer.
5	1 month.
4	2 months.
6	3 "
8	4 "
1	5 "
4	6 "
3	7 "
3	8 "
5	9 "
20	1 year.
4	1½ "
13	2 years.
8	3 "
6	4 "
3	5 "
1	6½ "
2	7 "
1	8 "
1	9½ "
1	10 "
617	

OTHER POSITIONS

To the question as to the other positions held by the worker apart from the present position, out of 617 answers:

485, or 78.6 per cent had no other position.
87, or 14.1 per cent, had one other position.
47, or 7 per cent, had two other positions.

That 78.6 per cent of the 617 workers were in their first position is an astonishing record, but is probably trustworthy from the fact that 30 per cent of workers are under 18 years of age.

TABLE XXXI

NUMBER OF WORKERS, EARNINGS AND YEARS AT PRESENT WORK BY NATIVITY OF WORKERS AND PARENTS' NATIONALITY

557 Records

AMERICAN-BORN WORKER				FOREIGN-BORN WORKER			
Parents' Nationality	*Number of Workers*	*Earnings*	*Years at Present Work*	*Parents' Nationality*	*Number of Workers*	*Earnings*	*Years at Present Work*
German	134	**$906.30**	*406.55*	German	23	**$196.00**	*167.75*
Irish	58	**410.40**	*286.07*	Irish	5	**46.50**	*23.33*
English	13	**104.00**	*52.49*	English	7	**45.00**	*27.66*
Scotch	7	**48.50**	*20.00*				
Total English-Speaking Parentage	78	**562.90**	*358.56*	Total English-Speaking	12	**91.50**	*50.99*
Russian	22	**203.50**	*80.00*	Russian	41	**366.50**	*123.58*
Austrian	1	**13.00**	*3.00*	Austrian	18	**143.50**	*70.58*
Hungarian	2	**9.00**	*1.16*	Hungarian	18	**174.00**	*53.50*
Polish	7	**48.00**	*19.67*	Polish	4	**29.00**	*10.83*
				Roumanian	3	**26.00**	*12.00*
Total Jewish	32	**273.50**	*103.83*	Total Jewish	84	**739.00**	*270.49*
Italian	18	**130.80**	*41.08*	Italian	7	**58.00**	*23.00*
Dutch	15	**108.00**	*85.50*	Dutch	3	**15.00**	*6.75*
Swiss	7	**67.50**	*37.25*	Swiss	7	**66.00**	*122.50*
French	7	**42.00**	*19.25*	French	3	**23.00**	*17.50*
Swedish	3	**14.00**	*1.75*	Swedish	1	**7.00**	*5.00*
American	123	**866.30**	*425.50*				
Total American of Foreign Parents	294	**2105.00**	*1053.77*	Total Foreign-Born	140	**1195.50**	*663.98*
Total American-Born	417	**2971.30**	*1479.27*	Total of all Nationalities	557	**4166.80**	*2143.25*

TABLE XXXII

AVERAGE WAGE AND YEARS AT PRESENT WORK AND RESULTANT WAGE-EXPERIENCE INDEX BY NATIVITY AND PARENTS' NATIONALITY

557 Records

AMERICAN-BORN WORKER				FOREIGN-BORN WORKER			
Parents' Nationality	*Average Weekly Wage*	*Average Years at Present Work*	*Wage-Experience Index*	*Wage-Experience Index*	*Average Years at Present Work*	*Average Weekly Wage*	*Parents' Nationality*
German	**$6.76**	*3 yrs.*	1.14	.60	*7 yrs. 3 mo.*	**$8.52**	German.
Irish	**7.07**	*4 yrs. 11 mo.*	.73	1.02	*4 yrs. 7 mo.*	**9.30**	Irish.
English	**8.00**	*4 yrs.*	1.02	.83	*3 yrs. 11 mo.*	**6.43**	English.
Scotch	**6.93**	*2 yrs. 10 mo.*	1.24				
Total Eng.-Speaking Parentage	**7.21**	*4 yrs. 7 mo.*	.81	.92	*4 yrs. 3 mo.*	**7.62**	Total Eng.-Speaking Foreigner.
Russian	**9.25**	*3 yrs. 7 mo.*	1.31	1.51	*3 yrs. 2 mo.*	**8.94**	Russian.
Austrian	**13.00**	*3 yrs.*	2.20	1.04	*3 yrs. 11 mo.*	**7.97**	Austrian.
Hungarian	**4.50**	*7 mo.*	4.28	1.67	*2 yrs. 11 mo.*	**9.66**	Hungarian.
Polish	**6.85**	*2 yrs. 9 mo.*	1.24	1.35	*2 yrs. 8 mo.*	**7.25**	Polish.
				1.10	*4 yrs.*	**8.67**	Roumanian.
Total Jewish	**8.54**	*3 yrs. 1 mo.*	1.35	1.46	*3 yrs. 2 mo.*	**8.80**	Total Jewish.
Italian	**7.25**	*2 yrs. 3 mo.*	1.61	1.48	*3 yrs. 3 mo.*	**8.28**	Italian.
Dutch	**7.20**	*5 yrs. 8 mo.*	.65	1.15	*2 yrs. 3 mo.*	**5.00**	Dutch.
Swiss	**9.64**	*5 yrs. 3 mo.*	.93	.28	*17 yrs. 6 mo.*	**9.42**	Swiss.
French	**6.00**	*2 yrs. 9 mo.*	1.11	.66	*5 yrs. 10 mo.*	**7.67**	French.
Swedish	**4.66**	*7 mo.*	4.06	.70	*5 yrs.*	**7.00**	Swedish.
American	**7.04**	*3 yrs. 5½ mo.*	1.06				
Total Amer. of Foreign Parents	**7.16**	*3 yrs. 7 mo.*	1.03	.93	*4 yrs. 9 mo.*	**8.54**	Total Foreign-Born Worker.
Total Amer.-Born Worker	**7.12**	*3 yrs. 6 mo.*	1.03	1.00	*3 yrs. 10 mo.*	**7.48**	Total of all Nationalities.

Nationality

Another use of the inquiry blank was to find the proportion of native-born Americans and foreign-born and to sub-divide still further these groups into American born of American parents, and American-born of foreign parents. Table XXXI shows that of records giving complete answers on these points, the American-born of German parentage is the largest American-born group; then follows American-born of American parentage, total English-speaking from foreign countries, and finally total Jewish.

The total number of foreign-born workers is naturally less than the entire group of American nativity. Accuracy or finality is not claimed for these figures, but in this group of 617 women workers in textile factories, among whom there was no basis of selection except readiness to respond to this inquiry, certain relationships have been found to exist among the replies, which fairly represent women workers in textile factories.

Table XXXIII giving the per cent of these same workers to their earnings and their years at present work throws more light on the subject of relative numbers, amount of earnings, and length of service at present work. It is seen from the totals that the American-born of American parentage furnish 22 per cent of the entire group of workers, 20 per cent of the total earnings, and 19 per cent of the total time, while the total American of foreign parentage form 52 per cent of the whole group, get 50 per cent of the total earnings, and serve 49 per cent of the total number of years at present work. Combining these two figures into the total American-born worker, both of American and foreign parentage, we get almost 75 per cent of the total group in number earning 71 per cent of the total earnings and working 69 per cent of the total years. In the other column in Table XXXIII the total foreign-born workers of all nationalities aggregate 25 per cent of the total number, earning 28 per cent of the total earnings, and working almost 31 per cent of the total number of years. To indicate the bearing of these figures on each other, the ratios of all groups have been worked out by Wage-Indices as a ratio of total, and number in the special group, and by Experience-Indices as a ratio between total years at work of the

whole number and total years of the special group. The relation of these two indices to each other has been called the Wage-Experience Ratio. Table XXXIV of indices of Wage, Experience, and Wage-Experience Ratio indicates significantly the difference in earning power and length of service required to attain and hold that power between the American-born and the foreign-born.

German

The German of American birth has a wage index of .90 as compared to the German of German birth who has a wage index of 1.14, showing that the foreign-born German in this group earns considerably more than the average wage for the entire group, while the German of American birth earns a little less than the average. In figures, the average weekly wage for the American-born German is $6.70, while the average for the German-born is $8.52. These figures alone would indicate that the German earns more than the American-born German, but these figures are offset by the *length of time* it takes the German-born worker to attain and hold that standard of wage, which is 1.90 of the average time for the whole group or 7 years and 3 months as compared with the German worker of American birth whose experience index is .79 or 3 years as compared with the average for the group of 3 years and 10 months. This relationship reduced to figures gives the wage-experience ratio of the foreign-born German as .60 as compared with the wage-experience ratio of the American-born, 1.14; in other words, the foreign-born German has an economic value of .60 as compared to the German of American birth whose economic value is 1.14, where the unit 1 represents the average earning of $7.48, after spending 3 years and 10 months at her present work.

The average has been used in this calculation instead of the median or mode, because all office methods employ the average figure. Hence, in dealing with calculations which handle wage matters, the popular use of the average has been adopted.

TABLE XXXIII

PERCENTAGES OF WORKERS, EARNINGS, AND YEARS AT PRESENT WORK BY NATIVITY OF WORKERS AND PARENTS' NATIONALITY

557 Records

AMERICAN-BORN WORKER				FOREIGN-BORN WORKER			
Parents' Nationality	% *No. of Workers*	% *Earnings*	% *Yrs. at Work*	*Parents' Nationality*	% *No. of Workers*	% *Earnings*	% *Yrs. at Work*
German	24.06	21.75	18.97	German	4.12	4.70	7.83
Irish	10.41	9.85	13.35	Irish	.90	1.11	1.09
English	2.34	2.49	2.44	English	1.25	1.08	1.29
Scotch	1.25	1.15	.93				
Total Eng.-Speaking Parentage	14.00	13.50	16.72	Foreigner Total Eng.-Speaking	2.15	2.19	2.38
Russian	3.95	4.88	3.73	Russian	7.36	8.79	5.77
Austrian	.18	.31	.14	Austrian	3.23	3.44	3.29
Hungarian	.36	.21	.05	Hungarian	3.23	4.17	2.49
Polish	1.25	1.15	.92	Polish	.72	.69	.51
				Roumanian	.53	.62	.56
Total Jewish	5.74	6.56	4.84	Total Jewish	15.07	17.71	12.62
Italian	3.23	3.13	1.92	Italian	1.25	1.59	1.07
Dutch	.69	2.59	3.99	Dutch	.53	.39	.32
Swiss	1.25	1.62	1.74	Swiss	1.25	1.60	5.72
French	1.25	1.00	.90	French	.53	.55	.82
Swedish	.54	.33	.08	Swedish	.18	.16	.23
American	22.08	20.79	19.86				
Total Amer. of Foreign Parents	52.78	50.51	49.16	Total Foreign-Born	25.13	28.69	30.98
Total American-Born Worker	74.86	71.30	69.02	Total of all Nationalities	100	100	100

TABLE XXXIV

INDICES OF WAGE, EXPERIENCE, AND WAGE-EXPERIENCE RATIO BY NATIVITY OF WORKERS AND PARENTS' NATIONALITY

557 Records

AMERICAN-BORN				FOREIGN-BORN			
Parents' Nationality	*Wage Index*	*Exper. Index*	*Wage Exper. Ratio*	*Wage Exper. Ratio*	*Exper. Index*	*Wage Index*	*Parents' Nationality*
German	.90	.79	1.14	.60	1.90	1.14	German.
Irish	.94	1.29	.73	1.02	1.21	1.23	Irish.
English	1.06	1.04	1.02	.83	1.03	.86	English.
Scotch	.92	.74	1.24				
Total Eng.-Speaking Parentage	.96	1.19	.81	.92	1.11	1.02	Total-Eng.-Speaking Foreigner.
Russian	1.23	.94	1.31	1.51	.78	1.19	Russian.
Austrian	1.72	.78	2.20	1.04	1.02	1.06	Austrian.
Hungarian	.60	.14	4.28	1.67	.77	1.29	Hungarian.
Polish	.92	.74	1.24	1.35	.71	.96	Polish.
				1.10	1.06	1.17	Roumanian.
Total Jewish	1.14	.84	1.35	1.46	.80	1.17	Total Jewish.
Italian	.97	.60	1.61	1.48	.86	1.27	Italian.
Dutch	.96	1.48	.65	1.15	.64	.74	Dutch.
Swiss	1.29	1.39	.93	.28	4.57	1.28	Swiss.
French	.80	.72	1.11	.66	1.55	1.04	French.
Swedish	.61	.15	4.06	.70	1.28	.89	Swedish.
American	.94	.89	1.06				
Total Amer. of Foreign Parents	.96	.93	1.03	.93	1.23	1.14	Total Foreign-born Worker.
Total American-born Worker	.95	.92	1.03	1.00	1.00	1.00	Total of all Nationalities.

Jewish

The Jewish groups are largely in the majority. In the needle industries represented by this inquiry the Russian of foreign birth earns less than the Russian of American birth, but requires much less time to attain that wage than does the American-born Russian. Hence, the wage experience ratio is considerably higher for the foreign-born Russian than for the American-born Russian. The explanation of this may be found in the fact that the American-born Russian has had the advantage of our American schools and being alert-minded and accustomed to American ways, sees a greater opportunity for earning a rapidly progressive wage in commercial lines. This opportunity selects the brightest among the American-born Russians for office workers, leaving the slow-minded and less ambitious American-born Russian to go into the factory field, so that, even though the parentage of this group of Russians may be of the same grade, factory work makes a selection of a more simple mentality among American-born Russians; hence, we are not comparing Russians of like mental complexity when we put side by side the American-born Russian and the foreign-born Russian.

The numbers of workers for the American-Hungarian and foreign Hungarian are too few to give significance to the ratios obtained. They are added to the total number of Jewish workers because they are all Jewish and thus increase the reliability by a larger number of group replies.

The total Jewish group of foreign birth has a wage-experience ratio of 1.46 as compared to the American-born Jewish ratio of 1.35. The total foreign-born Jewish earn more than the American-born and take a little less time to attain that wage.

Italian

The Italian shows the increased earning power of the American-born over the foreign-born and forms the best wage-earning national group among the classifications in this inquiry. The American-born Italian earns, as a group, almost the average wage for the entire group, but attains this average in the shortest time of any of the groups. They are known among managers to be most desirable workers. They come from an environment of

needlework; their mothers are expert needle-women and the young girls are seldom without some needlework in their hands. They learn rapidly when employed at a new work, concentrate upon their work, and are an asset to the textile industry.

American

Returning to the consideration of the comparative wage-experience ratio between the American-born and the foreign-born, Table XXXIV shows a decline of this ratio for the foreign-born Irish as compared to the American-born Irish, while the foreign-born English has an increased earning capacity over the American-born English. Aggregating the total English-speaking groups, it is found that the total English-speaking foreigner has a higher ratio than the total English-speaking American of foreign parentage, but, that neither of these groups comes up to the average wage and experience for the entire group.

The total American-born of American parentage earns a little less than the average wage for the entire group in about a year less than the average time for the group, which brings their wage-experience ratio slightly above the average for the group. The total American-born worker of foreign parents earns about 12 cents per week more than the average wage. The average time to earn this increase is about two months more than American parentage, which reduces the economic value a few points below the American of American birth.

Totaling the American-born worker of American parentage and the American-born of foreign parentage we get a wage index of .95 and an experience index of .92 which gives a wage-experience ratio of 1.03; that is, the total American worker earns $7.12 in 3 years and 6 months as compared to the total foreign-born worker who earns $8.54 in 4 years and 9 months, reducing the foreign-born worker's economic value to .93, while the total American-born worker is reckoned at the value of 1.03. Thus, without having combined on the per cent basis the earning value of a group with their experience value, it would have seemed that the foreign-born worker was more to be desired as a producer in the textile manufacturing field, for the foreign-born group earn more than did the American-born group. Their average weekly wage is $8.54, while the average of the American-born

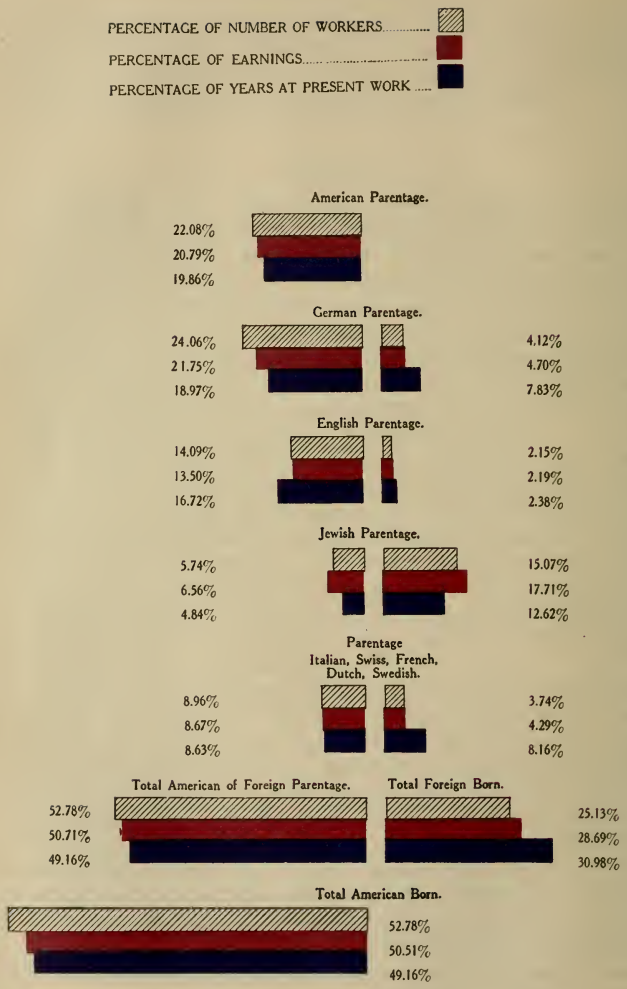

CHART 7. Percentages of Number of Workers, Earnings, and Years at Present Work compared according to Nativity of Workers and Parents' Nationality—557 Records.

group is $7.92, the average for the group being $7.48. But the time required to reach and hold this average weekly wage is over a year more than the American requires. This greater length of time spent at the machine means that she is occupying the space during that year which several Americans might occupy in successfully turning their aggregate product into the total amount. This agrees with the general statement among factory managers that the American-born is preferred to the foreigner, even though the foreigner, they say, has the larger wage at the end of each week. The American being on home soil and having had the advantages this country affords in education and general mental stimulation is a quicker producer than the foreigner.

Wage Comparison

As seen in Table XXXV the modal wage for the foreigner is $10.00 as compared with $7.00 of the American-born, the modal time at work is 3 years as compared to the American 2 years; the median wage of the foreigner is $8.50 as compared with $7.00 of the American-born worker and the time 3 years as compared to 2. The middle 50 per cent of the foreign earn from $10.00 to $7.00 while the middle 50 per cent of the American-born earn from $8.00 to $5.50. The middle 50 per cent of the time spent at the work among foreigners falls between 6 years and $\frac{3}{4}$ of a year, while the middle 50 per cent among the American falls between 4 years and 1 year. The entire range of wage among foreigners is between $15.00 and $3.50; among American-born between $17.00 and $1.50. The range of experience of the foreigner is between 31 years and 2 years; of the American-born, 28 years and 1 week.

Summary of Nationality

The summary of results, according to nationality, gives us the following information:

Five hundred and fifty-seven records were taken, from which comparisons could be made of the nativity of workers' and parents' nationality by the number of workers, earnings and years at present work. This classification falls into two columns: the American-born and the foreign-born. Chart 7 presents graphically, percentage number of workers, percentage earnings, and percentage years at present work.

TABLE

AVERAGES, MODES, MEDIANS, MIDDLE 50 PER CENT AND RANGE OF PARENTS'

557

AMERICAN-BORN WORKER

Parents' Nationality	*No. of Workers*	*Average*	*Mode*	*Median*	*Middle 50%*	*Range*
German	134	**$6.70** *3 yrs.*	**7.00** *1 yr.½*	**7.00** *1¾ yr.*	**8.00—6.60** *4 yr.—¾ yr.*	**14.00—1.95** *13 yr.—1 wk.*
Irish	58	**7.07** *4 yr.—11*	**8.00** *½:1:2*	**6.50** *2 yr.*	**8.00—5.50** *6 yr.—1 yr.*	**15.00—1.50** *20 yr.—⅜ yr.*
English	13	**8.00** *4 yr.*	**8.00** *2½ yr.*	**8.00** *2½ yr.*	**9.50—6.50** *4 yr.—2 yr.*	**12.00—5.00** *16 yr.—1½ yr.*
Scotch	7	**0.93** *2 yr.—10*	**7.00** *3 yr.*	**7.00** *3 yr.*		**9.00—5.00** *5 yr.—1 yr.*
Total English-Speaking Parentage	78	**7.21** *4 yr.—7*	**8.00** *2 yr.*	**7.00** *2½ yr.*	**8.00—5.50** *5 yr.—1¼ yr.*	**15.00—1.50** *20 yr.—2 wk.*
Russian	22	**9.25** *3 yr.—7*	**5.00** *2 yr.*	**7.00** *2 yr.*	**9.00—5.00** *5 yr.—1 yr.*	**17.00—3.50** *18 yr.—½ yr.*
Austrian	1	**13.00** *3 yr.*				
Hungarian	2	**4.50** *7 mo.*				**500—400** *½ yr.—¾ yr.*
Polish	7	**6.85** *2 yr.—9*	**6.50** *4 yr.*	**0.50** *2½ yr.*		**12.00—4.00** *5 yr.—½ yr.*
Roumanian						
Total Jewish	32	**8.54** *3 yr.—1*	**5.00** *2:½*	**0.50** *2 yr.*	**8.00—5.00** *4 yr.—¾ yr.*	**17.00—3.50** *18 yr.—½ yr.*
Italian	18	**7.25** *2 yr.—3*	**0.00** *2:1½:1*	**0.50** *1¾ yr.*	**9.00—0.00** *3 yr.—1½ yr.*	**12.00—4.50** *6 yr.—½ yr.*
Dutch	15	**7.20** *5 yr.—8*	**7.00**	**7.00** *5 yr.*	**8.00—7.00** *8 yr.—2 yr.*	**8.00—5.00** *15 yr.—½ yr.*
Swiss	7	**9.64** *5 yr.—3*	*3 yr.*	**10.00** *4 yr.*		**12.00—7.00** *18 yr.—2¼ yr.*
French	7	**6.00** *2 yr.—9*	**5.50**	**5.50**		**6.50—4.50** *7 yr.—½ yr.*
Swedish	3	**4.66** *7 mo.*		**5.00**		**5.50—3.50** *¾ yr.—½ yr.*
American	123	**7.04** *3 yr.—5½*	**6.00** *2 yr.*	**7.00** *2 yr.*	**8.00—5.50** *4 yr.—1¾ yr.*	**13.00—2.00** *20 yr.—1 mo.*
Total Amer. of Foreign Parents	294	**7.10** *3 yr.—7*	**8.00** *2 yr.*	**7.00** *3 yr.*	**8.00—6.00** *5 yr.—1 yr.*	**17.00—1.50** *28 yr.—1 wk.*
Total Amer. Born	417	**7.12** *3 yr.—6*	**7.00** *2 yr.*	**7.00** *2 yr.*	**8.00—5.50** *4 yr.—1 yr.*	**17.00—1.50** *28 yr.—⅒ yr.*

XXXV

WAGE AND YEARS AT PRESENT WORK BY NATIVITY AND NATIONALITY

Records

FOREIGN-BORN WORKER

No. of Workers	*Average*	*Mode*	*Median*	*Middle 50%*	*Range*
23	**8.52** *7 yr.—3*	**10;9;8** *¾ yr.*	**9.00** *3 yr.*	**10.00—7.00** *11 yr.—¾ yr.*	**14.00—4.00** *32 yr.—⅓ yr.*
5	**9.30** *4 yr.—7*	**14.00** *⅙ yr.*	**8.00** *2⅔ yr.*		**14.00—3.50** *10 yr.—⅙ yr.*
7	**6.43** *3 yr.—11*		**5.50** *1⅙ yr.*		**10.00—3.50** *20 yr.—¼ yr.*
12	**7.62** *4 yr.—3*	**14;8** *½ yr.;⅙ yr.*	**7.00** *1½ yr.*	**10.00—4.00** *1¼ yr.—¼ yr.*	**14.00—3.50** *20 yr.—⅙ yr.*
41	**8.94** *3 yr.*	**10.00** *¾ yr.*	**9.00** *1½ yr.*	**10.00—8.00** *5 yr.—¾ yr*	**12.00—5.00** *16 yr.—¼ yr.*
18	**7.97** *3 yr.—11*	**6.00** *4:1½ yr.*	**8.00** *3 yr.*	**10.00—6.00** *4½ yr.—1½ yr.*	**12.00—5.00** *13 yr.—⅓ yr.*
18	**9.66** *2 yr.—11*	**10.00** *½:¾ yr.*	**10.00** *2 yr.*	**11.00—8.00** *5 yr.—¾ yr.*	**15.00—5.00** *8 yr.—¼ yr.*
4	**7.25** *2 yr.—8*	**8.00**			**8.00—6.00** *7 yr.—⅙ yr.*
3	**8.67** *4 yr.*		**9.00** *4 yr.*		**10.00—7.00** *5 yr.—3 yr.*
84	**8.80** *3 yr.—2*	**10.00** *3 yr.*	**9.00** *2 yr.*	**10.00—7.00** *5 yr.—¾ yr.*	**15.00—5.00** *16 yr.—¼ yr.*
7	**8.28** *3 yr.—3*	**7.00** *3:1 yr.*	**7.00** *3 yr.*		**13.00—6.00** *7 yr.—1 yr.*
3	**5.00** *2 yr.—3*	**4.00**	 *½ yr.*		**7.00—4.00** *6 yr.—¼ yr.*
7	**9.42** *17 yr.—6*	**11;8** *1:3 yr.*	**9.00** *18 yr.*		**12.00—7.00** *31 yr.—1 yr.*
3	**7.67** *5 yr.—10*	**8.00**	 *8 yr.*		**8.00—7.00** *6 yr.—½ yr.*
1	**7.00** *5 yr.*				
140	**8.54** *4 yr.—9*	**10.00** *3 yr.*	**8.50** *3 yr.*	**10.00—7.00** *6 yr.—¾ yr.*	**15.00—3.50** *31 yr.—⅙ yr.*
557	**7.48** *3 yr.—10*	**8.00** *2 yr.*	**7.00** *2 yr.*	**9.00—6.00** *5 yr.—1 yr.*	**17.00—1.50** *31 yr.—1 wk.*

The largest group among the American-born is of German parentage, which forms about one-quarter of the total number.

Comparing the relationship of the three blocks in the German Parentage Group, we find, on the American side, the worker becoming more alert, as shown by the fact that she takes less time to earn the average wage. The foreign-born German requires more experience in proportion to the wage earned than does the German-American, although the German-born earns more in proportion to numbers. The German-American is not such an extensive wage-earner, but is quicker to earn this wage.

Comparing this German-American Group with the American-American Group, we find, however, the same number among the American-American Group earning about the same wage as the German-American Group and in very little more time.

The case is different with those of English parentage born on American soil and the foreign-born English worker. Here the alertness for wage-earning in a short time is on the side of the foreign-born English. There seems to be a deterioration in wage-earning alertness when the English worker becomes Americanized, which may have the same explanation as was given for the foreign Jewish worker. Office work selects the better educated and progressive wage-earners, particularly among English who have not the foreign language difficulty.

Among the Jewish, the preponderance of numbers is on the foreign-born side. This has been elsewhere explained as probably due to the attraction for the higher grade of Americanized Jewish girl into clerical lines of work. The less mentally equipped Jewish worker drifts into the factory field. The proportion of wage earned by the foreign-born Jewish worker is greater than the Americanized Jewish worker, that is, the foreign-born Jewish woman is a steadier and better factory wage-earner than the Americanized Jewish woman.

The other foreign nationalities have been grouped together: the Italian, Dutch, Swiss, French, and Swedish. In this grouping, it is seen that, among foreign workers, much more time is required to earn and hold their proportion of wage than on the American side, where number, wage and experience blocks have almost the same length.

Coming now to the totals on each side, we find the total American-born of foreign parents as compared with the total

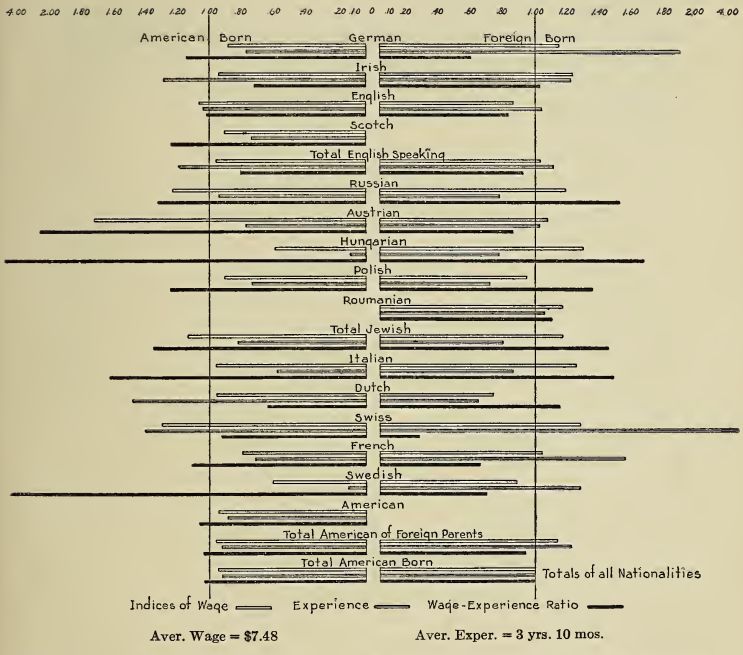

CHART 8. Indices of Wage, Experience, Wage-Experience Ratio, Comparing Nativity and Parents' Nationality — 557 Records.

foreign-born requiring less experience to the wage and less wage to the number; still further totaling the results of the American-born by adding those of American parentage, the relationship between the blocks is changed only in the number block. The adding in of American parentage increases the number proportion to the wage and experience.

In another graphic form, Chart 8, giving indices, is shown the relationship between the American-born and the foreign-born. It resolves itself to the greater time required by the foreigner to earn her proportion of the wages than is required by the American-born.

SCHOOL HISTORY GROUP

I

SCHOOL HISTORY GROUP

For clearness and brevity, it has been found desirable to devise a condensed form of giving specific valuation to each group for easy and ready comparison with other groups.

Indices Defined

Tables state NUMBERS OF WORKERS AND PERCENTAGE OF THE WHOLE, EARNINGS AND PERCENTAGE, and YEARS AT WORK AND PERCENTAGE. These percentages have then been related to each other, as was done in the General Group, in ratios: the wage ratio being called the "Wage Index"; the experience ratio being called the "Experience Index."

The Wage Index is arrived at by dividing the percentage which each group's earnings is of the whole by the percentage number of workers in that group.

The Experience Index is arrived at by dividing the percentage of the group's years at present work by the percentage number of workers in that group.

A further resolution of these two indices, Wage and Experience, into a Wage-Experience Ratio is obtained by division of the Wage Index by the Experience Index. These indices in a unit figure either 1 or 1 plus the decimal, or 1 less the decimal, express the relation of the figures for the group under consideration to the Average for the entire group. The Average expressed by index is 1.; in wage it is $7.30 for the 515 with complete school histories.

The average time spent by these 515 to attain and hold the $7.30 wage is 3 years and 9 months. This average wage and experience for the entire group is the pivot about which turn the indices of all other similar groups.

Coefficients of Correlation

These were calculated on the average basis by Pearson's formula, and were applied to the School History Group of 515 workers as between wage and experience and between wage and age. Coefficient for wage and experience was .38; for wage and

TABLE XXXVI

Number of Workers, Wage, Years at Present Work by Nativity, Years in School, Grade at Leaving School

515 Records

Grade	III			IV			V			VI			VII			VIII			Graduates			High			Totals for each Year at School			Total	
Yrs. in School	Am.	A.-F.	For.	Am.	A.-F.	F.	Am.	A.-F.	F.	Am.	A.-F.	F.	Am.	A.-F.	F.	Am.	A.-F.	F.	Am.	A.-F.	F.	Am.	A.-F.	F.	Amer.	Am.-For.	Foreign		
1			2 10 8						1 11 1			1 11 1.25														4 38 10.25	4 08 10.25	No of Workers Wage Yrs. at Pres. Work
2			1 7 2.87			1 7 3			3 22.50 18			1 9 1.6			2 19 5.75		1 6 1.75									1 6 1.75	8 64.50 28.9	9 70.50 30.85	No. Wage Yrs. at Work
3									1 6 3			1 9 1.6		1 7 4				1 11 18								1 7 4	3 26 22.5	4 80 28.5	No. Wage Exper.
4			1 13 4.5		1 7 5	3 01 80		1 5 2.5			1 11 2			1 10.50 7												4 38.50 16.5	4 41 64.5	8 74.50 81	No. Wage Exper.
5	1 4 1				1 5 .5		1 5 1.5	1 4.50 .5	1 13 7	1 11 4	1 8 4.5	5 45 10.2	1 12 12.13	3 28 9.33	1 10 3	2 10.50 4.25		1 10 2	1 11 4	1 8.25 .25					6 49.50 25.9	8 52.75 18.8	8 78 22.2	22 180.25 64.7	No. Wage Exper.
6		1 8 7		1 8 11	1 8 4	1 10 .5	3 23 8.5	2 12.50 7	1 5 .75	6 42.50 27.3	7 55 13.41	10 80 8	8 58 13.8	8 67.50 81	2 10 .85		6 40 50.25	2 17 18		1 7 5.33	2 18 .33				18 131.50 60.4	25 199 110.99	19 151 95.4	62 481.50 288.8	No. Wage Exper.
7			1 17 18				1 9 5.5	8 52 35	3 23 7.25	6 37 22.9	17 116 37.9	4 05.50 7.85	13 80.50 25	39 278.25 148.5	8 05.50 76.8	5 00 8.1	17 118.75 107.5	5 08 39.2	4 25.50 12	5 44 3	1 10 3.5				29 188 73.5	87 627.10 349.9	23 170 134.5	137 988.10 557.9	No. Wage Exper.
8			1 8 7	1 3 .50			3 20 9.5	6 42.50 15		5 31 26.2	12 80 33.5	3 20 7.75	18 141.50 68.5	37 209.50 108	7 55 52.	10 81 22.8	34 220.85 113	9 80 61.8	5 49.50 11.75	19 122 51.9	4 37 12	1 5.50 1	4 25 1.83	1 5 .25	42 028.50 137.7	113 743.85 330.2	25 202 124.1	180 1247.35 592.	No. Wage Exper.
9			1 5 .5				1 3 3	1 3.50 1		3 11.50 2.3	3 28 9.5	1 5 .33	7 02.80 30.85	23 143.50 47.4	2 9 1.2	5 35.50 21.4	9 75.50 79.8	6 54.50 32.9	2 10 3	11 53.75 13.25	3 30 17.5	3 22 11.5	2 16.50 4.75		21 147.80 72.0	50 320.75 158.2	12 107.50 51.9	83 579.05 280.1	No. Wage Exper.
10																	1 7.50 4						1 10 4		2 17.50 8		2 17.50 8	No. Wage Exper.
11																1 6 1	2 14 13					1 4 3			2 10 4	2 14 13	4 24 17	No. Wage Exper.
Normal ..					1 7 5	3 31 80	1 5 1.5	1 4.50 .5	1 13 7	6 42.50 27.3	7 55 13.4	10 80 8	13 80.50 25	39 278.05 148.5	8 65.50 78.8	10 81 22.8	34 220.05 113	9 88 61.8	5 49.50 11.75	19 122 51.9	4 27 12	3 22 11.5	3 20.50 8.7		38 380.50 99.8	104 714.30 341	35 302.50 275.5	177 1397.20 718.3	No. Wage Exper.
Slow.....	1 4 1	2 18 11.5		1 8 11	5 43 30	2 16 1	8 58 28.5	17 119.50 68	4 08 8	14 79 51.4	32 225 80.9	8 68.50 15.9	25 204.00 97.25	60 388 166.4	9 64 53.2	6 41.50 22.4	12 97 38.8	6 54.50 32.9	2 10 3	11 58.75 13.25	3 09 17.63	1 4 3			57 404.80 214.8	138 820.25 436.38	34 289 140.13	229 1014.05 790.08	No. Wage Exper.
Rapid		3 33 10.7			1 7 3		1 5 2.5	5 09.50 20		1 11.50 4	2 10 8.5	8 74 14.4	9 70 25.73	13 108 51.83	5 42 9.58	7 40.50 12.4	24 178.75 159.5	9 71 77.2	5 38.50 18	7 59.25 8.58	3 28 3.88	1 5.50 1	4 25 1.83	1 5 .25	23 170 69.	51 990 230.8	35 289.50 138.93	109 849.50 428.53	No. Wage Exper.
Totals by Nativity	1 4 1	5 41 22.2		1 8 11	6 50 35	6 54 84	9 03 28	19 134 81	10 89.50 55	21 130 82.7	41 290 100.8	26 217.50 98.3	47 054.80 147.9	112 769.05 366.1	22 171.50 139.9	23 109 67.61	70 491.60 389.33	24 211.50 181.7	12 30 30.75	37 205 73.7	10 04 33.35	5 01.50 15.5	7 51.50 10.8	1 5 .25	118 855.00 373.4	293 2024.45 1006.9	104 881 654.8	515 3760.75 1934.9	No. Wage Exper.
Totals by Grades	6 45 23.2			13 112 110			38 270.50 124			88 649.50 281.8			181 1295.65 842.9			117 872.10 688.7			59 425 137.8			13 88 26.4			515 3760.75 1934.9			No. Wage Exper.

age was .34. This relationship is so close that it was not deemed necessary to carry the age figures in relationship to the wage, since what would hold good of the wage-experience relation would apply, according to this Pearson coefficient, to the wage-age relation. The figure .38—less than one-half correlation between wage and experience—means that there is a parallel increase of the wage with the experience, but at a slower rate, and not the perfect correlation or equal increase of wage and experience which the figure 1. would represent. This figure of correlation, .38, is borne out by Chart 14 which shows the small experience needed to gain $1.50 to $4.50 wage in the beginning of the wage-earning career. Experience and wage increase progressively but not equally. If there were a perfect correlation, then as the wage doubled the experience would double; but, as it is less than one-half, the number of years spent at present work increases almost twice as fast as the wage.

Methods of Grouping

The statistical possibilities dealt with in this inquiry centered on the subject, the Wage Worth of School Training. Because of incompleteness of answers concerning school training in some of the papers, they have been treated in two groups:

1. The "General Group," in which nationality, age of worker, present wage and number of years at present work have been the controlling statistical headings.

2. The "School History Group," further classified and analyzed in detail according to the number of years spent at school, the age and grade on leaving school, and the grouping on each dollar of wage.

Three parentage divisions have been made in the School History Group:

American birth and parentage.
American-born of foreign parentage.
Foreign-born.

Another classification has been made from these tables into

(*a*) "School Progress Group," giving the normal, rapid, and slow progress workers during their school career, and

(*b*) "Age Grade Group," giving the normal, over-age, and under-age workers during their school career.

School Progress Group

1. Normal Progress Groups are those who were in the grade corresponding to the number of years they had been at school: the first grade being one year at school; second grade, two years, third grade, three years, etc.

2. Rapid Progress Groups are those who were less years in school than the number of the grade at leaving.

3. Slow Progress Groups are those who were more years in school than the number of the grade at leaving.

Age Grade Group

The Age Grade Group is made by the combination of the age at which the pupils left school and the grade at which they left, in classifications corresponding to those of the School Progress Group:

1. Normal Groups are those who left school at the age corresponding to the normal age for the grade, 6 and 7 years of age belonging to the first grade; 7 and 8 belonging to the second grade; 8 and 9 belonging to the third grade, etc.

2. Under-age Groups are those who were younger than the regulation age for the grade.

3. Over-age Groups are those who were older than the regulation age for the grade.

The summary of the figures falling into the various grade groupings gives the classification by grade at leaving school.

Charts have been arranged from the tables, in order to present graphically the fluctuations of the figures of the various groups. These charts take the form of wage and experience curves and also of blocks so arranged as to compare readily quantitative differences.

As Nativity is a factor in wage-earning determination and also in the amount of time required to attain a wage, nativity representation, in lines and blocks, has been made in Charts 20, 21, 22, 23.

The School Progress and Age Grade Groups are the 515 complete records of the workers, arranged, first, according to the number of years spent in school and, second, according to age and grade at leaving school.

TABLE XXXVII

Number of Workers, Weekly Earnings, Years at Present Work by Nativity and Age and Grade at Leaving School

515 Records

Grade	III			IV			V			VI			VII			VIII			Graduates			High			Totals for Each Leaving Age			Total	
Age at Leaving School	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.	Am.	A.-F.	For.		
10					1 7 *5*	1 10 *3*				1 0 *4*															1 0 *4*	1 7 *5*	1 10 *3*	3 26 *12*	No. of Workers Wage Exper.
11									1 7 *8*				1 7 *13*					1 0 *18*								1 7 *13*	2 15 *22*	3 23 *35*	No. of Workers Wage Exper.
12				1 8 *11*	1 17 *18*	1 9 *31*	1 5 *1.5*	3 22 *14*	1 13 *7*	1 7 *4*		5 48 *9.6*		5 34 *27.5*	3 27 *14.25*	2 11 *4.75*	2 18 *25*	1 8 *20*			1 8 *.33*				5 31 *21.25*	11 80 *84.5*	12 113 *82.08*	28 233 *187.83*	No. Wage Exper.
13		1 3 *4*				3 25 *29.5*	2 18.50 *9*	2 15.50 *18*		1 7 *4*	3 10.50 *7.25*	5 42 *19.16*	4 00 *8.67*	6 45.50 *41*	2 15 *25.18*	3 10.50 *7*	6 41.50 *27.4*		3 23.50 *7*	5 33.25 *7.08*	1 10 *3*				13 98.50 *36.87*	22 155.25 *98.73*	12 08 *80.82*	47 351.75 *215.22*	No. Wage Exper.
14	1 4 *1*	3 25 *14.18*			4 26 *12*	1 10 *.5*	6 30.50 *17.5*	10 55 *17.5*	6 50.50 *20.25*	13 85 *42.8*	28 213.50 *69.87*	10 77 *58.25*	30 228.30 *93.75*	72 480.25 *224.*	11 79.50 *82.9*	9 87 *33*	37 287.65 *202.5*	12 109.50 *73.83*	6 51 *20.25*	22 147.25 *51.87*	3 26 *5*	1 6 *4*	3 21 *1.87*		65 474.80 *211.05*	177 1221.25 *580.21*	46 377.50 *254.50*	288 2073.55 *1043.15*	No. Wage Exper.
15								4 31.50 *13.5*	1 11 *1*	2 13 *12.2*	7 30 *11.8*	5 42 *11.08*	10 88.50 *23.08*	20 143 *38.25*	3 22 *7.83*	7 65 *12.87*	18 108.45 *75.93*	4 30 *8.67*	3 21.50 *3.5*	4 14.50 *3.9*	4 38 *19*	1 5.50 *1*	1 6.50 *4*	1 5 *.25*	23 174.50 *52.4*	54 340.05 *145.18*	18 148 *46.83*	95 663.45 *243.41*	No. Wage Exper.
16									1 5 *.75*	3 12 *15.9*	3 27 *13*	1 8.50 *.33*	3 20 *22.5*	7 47 *12*	2 10 *6.75*	2 8.50 *.25*	6 52.50 *34.5*	4 33.50 *38*		4 28 *9.5*	1 12 *8*	2 10 *4.5*	3 24 *4.91*		10 57.50 *43.15*	23 181 *73.91*	9 73 *50.33*	42 314.50 *187.89*	No. Wage Exper.
17													1 8 *1*	1 0 *4*						2 11 *1.33*		1 10 *8*			1 10 *6*	3 17 *2.33*	1 0 *4*	5 36 *12.33*	No. Wage Exper.
18		1 10 *4*															1 7.50 *4*	2 22 *7.16*								1 7.50 *4*	3 82 *11.18*	4 89.50 *15.18*	No. Wage Exper.
Normal...					1 7 *5*	1 10 *3*			1 7 *8*	1 7 *4*		5 48 *9.6*	4 30 *8.88*	11 70.50 *88.5*	5 42 *39.4*	12 88.50 *40*	43 308.15 *229.9*	12 100.50 *73.8*	9 72.50 *23.75*	26 181.75 *55.7*	7 84 *24*	4 21.50 *9.5*	7 51.50 *10.8*	1 5 *.25*	30 217.50 *86.9*	88 808.80 *369.1*	32 285.50 *155.94*	150 1111.00 *810.94*	No. Wage Exper.
Over age..	1 4 *1*	5 41 *22.2*		1 8 *11*	5 43 *30*	5 44 *31*	9 63 *28*	19 134 *81*	9 70.50 *29*	19 117 *74.7*	41 290 *100.83*	21 180.50 *88.83*	43 324.80 *139.3*	100 682.75 *273.5*	17 120.50 *100.5*	9 71.50 *12.92*	25 168.45 *114.4*	18 85 *51.84*		6 40 *10.8*	1 12 *8*	1 10 *6*			82 584.30 *271.92*	197 1350.80 *592.53*	68 560.50 *359.37*	347 2514.10 *1223.8*	No. Wage Exper.
Under age.....										1 0 *4*				1 7 *13*		2 11 *4.75*	2 18 *25*	2 17 *38*	3 23.50 *7*	5 33.25 *7.08*	2 18 *3.33*				6 43.50 *16.75*	8 56.25 *45.08*	4 35 *39.33*	18 134.75 *100.16*	No. Wage Exper.
Totals by Nativity	1 4 *1*	5 41 *22.2*		1 8 *11*	6 50 *35*	6 54 *34*	9 63 *28*	19 134 *81*	10 83.50 *35*	21 133 *82.7*	41 290 *100.8*	26 217.50 *98.3*	47 354.80 *147.9*	112 760.35 *356.1*	22 171.50 *139.9*	23 188 *57.87*	70 481.80 *369.3*	24 211.50 *161.7*	12 96 *30.75*	37 235 *73.7*	10 94 *33.3*	5 31.50 *15.5*	7 51.50 *10.8*	1 5 *.25*	118 855.30 *373.4*	293 2024.45 *1006.9*	104 881 *654.8*	515 3760.75 *1934.9*	No. Wage Exper.
Totals by Grades..	6 45 *23.2*			13 112 *110*			38 273.50 *124*			88 640.50 *281.8*			181 1205.65 *842.9*			117 872.10 *588.7*			59 425 *137.8*			13 88 *26.4*			515 3760.75 *1934.9*				No. Wage Exper.

TABLE XXXIX

WAGE AND SCHOOL HISTORY OF WORKERS 17 YEARS OF AGE AND 2 YEARS AT PRESENT WORK

Series According to Grade at Leaving School				Series According to Present Wage			
Grade	*Yrs. at School*	*Age at Leaving*	*Present Wage*	*Present Wage*	*Grade*	*Yrs. at School*	*Age at Leaving*
III	2	14	$7.00	$12.00	Grad.	8	14
V	6	14	6.00	10.00	VII	9	14
V	9	14	6.50	8.00	Grad.	8	14
V	7	14	7.00	8.00	VIII	8	13
V	8	14	8.00	8.00	V	8	14
VI	7	14	7.00	7.00	VII	8	15
VI	6	14	5.00	7.00	VII	9	15
VI	8	14	6.00	7.00	VI	7	14
VI	9	14	5.50	7.00	V	7	14
VI	8	14	5.00	7.00	III	2	14
VII	9	14	10.00	6.50	V	8	14
VII	8	14	6.00	6.00	Grad.	9	14
VII	8	14	6.00	6.00	Grad.	8	13
VII	7	14	6.00	6.00	VIII	2	15
VII	6	14	5.00	6.00	VII	7	14
VII	7	14	4.00	6.00	VII	8	14
VII	9	15	7.00	6.00	VII	8	14
VII	8	15	7.00	6.00	VI	8	14
VIII	2	15	6.00	6.00	V	6	14
VIII	8	13	8.00	5.50	VI	8	14
Grad.	8	13	6.00	5.00	Grad.	9	15
Grad.	8	14	12.00	5.00	VII	6	14
Grad.	8	14	8.00	5.00	VI	8	14
Grad.	8	14	6.00	5.00	VI	6	14
Grad.	9	15	5.00	4.00	Grad.	5	13
Grad.	5	13	4.00	4.00	VII	7	14
			19 YEARS OF AGE—4 YEARS AT PRESENT WORK				
VII	1	13	6.00	10.00	III	1	18
III	1	18	10.00	9.00	VI	7	14
VI	9	14	8.00	8.00	VII	8	14
VI	8	14	7.00	8.00	VII	8	14
VI	7	14	9.00	8.00	VII	8	14
VII	8	14	8.00	8.00	VI	9	14
VII	8	14	8.00	7.00	VI	8	14
VII	8	14	8.00	6.00	High	9	14
VII	8	14	5.00	6.00	III	1	13
High	9	14	6.00	5.00	VII	8	14

These different lines of procedure in arranging the records were for the definite purpose of checking answers on school records with records as to wage and experience requisite to attain and hold that wage. The specific kind of training which the school afforded could not be gone into, because dependent on the indi-

vidual history of each worker. Such individual histories would be based on memory and therefore unreliable.

Four hundred fifty-seven replies are from girls who have been educated in public schools in and around New York; 62 are the product of parochial, Lutheran and foreign schools. To deal with this differentiation among so small a number would lead us nowhere; hence, the public and private school records are merged in the statistical handling of school training, making a group of 519. Four of these gave no record of years at present work. This left 515 complete records for the School History Group.

An advisable way to handle the influences bearing upon wage-worth would be to group those of the same age and of the same length of experience and note the varying wage. This method was pursued in two instances, taking for a group those having the same school history according to the largest number leaving school at any one age, i.e., 14 years; the largest number leaving school at any one grade, which was at the seventh grade, spending 8 years in school; the greatest number at any one year of age of the worker, 17 years of age; and the greatest number at number of years at present work, 2 years. These cases were so arranged as to follow up the record of each worker throughout.

The findings speak for themselves. The largest group is 7, having 4 years' experience; 2 at 18 years of age earn $8.00 per week; 3 at 19 years of age earn $8.00 and 1 earns $5.00; 1 at 24 years of age earns $11.00.

Similar analysis with the other groups would have been to divide the numbers to such fineness that the returns would have lost significance. This method, from these instances, merely corroborates the coefficient of correlation between wage and experience .38, and between wage and age .34.

Hence, with the limitation of numbers, the method followed was to group those falling on single classifications; to add the results of the wage they reported and find its percentage to the total wage of the entire group; to add the number of years at present work of the small group under consideration and find the percentage of the sum to the entire years at present work of the whole group; and, finally, to add the age of the workers in the small group and find its percentage to the total age of the whole group.

This is dealing in averages, the significance of the average of each group under consideration being entirely with reference to the average of the entire group with which it is compared.

TABLE XL

NUMBER AND PER CENT OF WORKERS AT EACH YEAR OF AGE, WAGE, AND YEARS AT PRESENT WORK

515 School History Records

Age of Workers	*No. of Workers*	*Per Cent of Total Workers*	*Ave. Wage per Week*	*No. of Workers*	*Per Cent*	*Years at Present Work*	*No. of Workers*	*Per Cent*	*Years of Present Work*	*No. of Workers*	*Per Cent*
59	1	.19	$17.00	1	.19	32	1	.19	$3\frac{2}{3}$	2	.38
55	2	.38	15.00	2	.38	31	1	.19	$3\frac{1}{2}$	7	1.36
53	1	.19	14.00	5	.97	28	1	.19	$3\frac{1}{3}$	1	.19
49	1	.19	13.00	6	1.16	26	2	.38	3	34	6.60
47	1	.19	12.00	19	3.69	24	2	.38	$2\frac{2}{4}$	4	.78
45	5	.97	11.00	20	3.90	$20\frac{1}{2}$	1	.19	$2\frac{2}{3}$	2	.38
42	2	.38	10.50	1	.19	20	3	.58	$2\frac{1}{2}$	10	1.94
41	4	.78	10.00	41	7.94	18	3	.58	$2\frac{1}{3}$	2	.38
40	3	.58	9.50	1	.19	$17\frac{1}{2}$	1	.19	$2\frac{1}{4}$	4	.78
39	1	.19	9.00	39	7.58	17	2	.38	$2\frac{1}{5}$	1	.19
38	5	.97	8.50	2	.38	16	4	.78	2	61	11.84
37	3	.58	8.00	72	14.00	15	4	.78	$1\frac{3}{4}$	4	.78
36	3	.58	7.50	4	.78	14	4	.78	$1\frac{2}{3}$	3	.58
35	4	.78	7.00	80	15.50	13	4	.78	$1\frac{1}{2}$	29	5.63
34	1	.19	6.50	21	4.08	12	4	.78	$1\frac{1}{3}$	4	.78
33	4	.78	6.00	72	14.00	11	4	.78	$1\frac{1}{4}$	5	.97
32	3	.58	5.50	13	2.52	$10\frac{1}{2}$	1	.19	$1\frac{1}{6}$	5	.97
31	2	.38	5.00	61	11.84	10	8	1.55	1	44	8.55
30	4	.78	4.50	9	1.75	$9\frac{1}{2}$	1	.19	$\frac{2}{4}$	6	1.16
29	6	1.16	4.40	1	.19	9	5	.97	$\frac{2}{3}$	11	2.13
28	4	.78	4.25	3	.58	8	6	1.16	$\frac{1}{2}$	37	7.18
27	6	1.16	4.00	22	4.27	7	14	2.71	$\frac{1}{3}$	16	3.10
26	3	.58	3.60	1	.19	$6\frac{1}{2}$	4	.78	$\frac{1}{4}$	8	1.55
25	15	2.91	3.50	7	1.36	$6\frac{1}{4}$	1	.19	$\frac{1}{6}$	13	2.52
24	12	2.33	3.00	3	.58	6	22	4.27	$\frac{1}{8}$	3	.58
23	14	2.71	2.80	1	.19	$5\frac{1}{2}$	3	.58	$\frac{1}{9}$	1	.19
22	24	4.66	2.50	4	.78	5	26	5.05	$\frac{1}{10}$	2	.38
21	27	5.24	2.25	1	.19	$4\frac{1}{2}$	8	1.55	$\frac{1}{12}$	10	1.94
20	48	9.33	2.00	1	.19	4	43	8.35	$\frac{1}{25}$	1	.19
19	54	10.48	1.95	1	.19	$3\frac{3}{4}$	1	.19	$\frac{1}{50}$	1	.19
18	80	15.52	1.50	1	.19						
17	103	20.00									
16	50	9.70									
15	16	3.10									
14	3	.58									
	515	100%		515	100%					515	100%

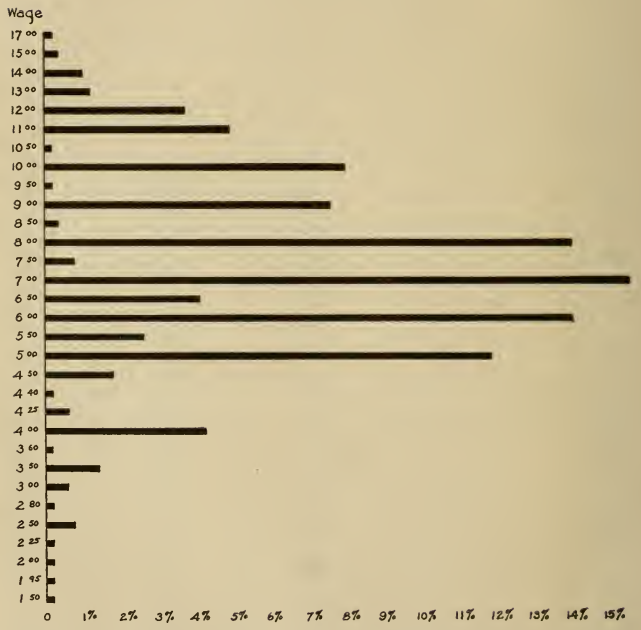

CHART 9. Percentage of Workers at Each Wage—515 School History Records.

Wage, Age and Years at Present Work

Table XL giving together with the number and per cent of workers at each age, the wage and years at present work of those with school history records, is rendered in graphic form in Charts 9, 10 and 11.

Looking at Chart 9, representing the wage scale, most noticeable is the long line at $7.00: 15.5 per cent of all these workers are working for $7.00 a week; $8.00 and $6.00 hold an equal place at 14 per cent of the total number. Then comes the $5.00 wage, with almost 12 per cent of the total. $10.00 is next in order with nearly 8 per cent of the total. These facts are significant when one considers the living expense in such a city as New York for those women-workers who are entirely dependent upon their own earnings. Yet, the minimum wage does not solve this difficulty of the mediocre wage, because it merely throws out of employment those who cannot earn the minimum wage. It is hard to determine whether or not these girls really earn more than $7.00 per week because the basis is arbitrary upon which the wage is fixed. Piecework is rated at 20 cents an hour: that is, a medium worker is selected to time a new operation or a new machine or a new line of goods at the rate of 20 cents an hour. This medium worker is set to work on the new article or operation and the rate per dozen is estimated on the basis of her output. Whether this rating is fair, whether the employer takes the modal girl, is a question which cannot be settled by theory. The discussion of the merits and social justice of present wage-setting methods is apart from this inquiry.

It is the responsibility of educators to train their students in work such as will make them alert, open-minded, progressively skilled workers and to direct those who are handicapped, toward work other than is offered in the factories. It may not require much brain power to operate a machine, but there are certain pupils leaving our grammar schools who have not brain reaction suited even for simple machine work.

Number of Years at Present Work

Chart 10 represents the experience of 515 workers as expressed by the length of time they have been at their present operation or a similar one. The long line in this chart is at 2 years, which

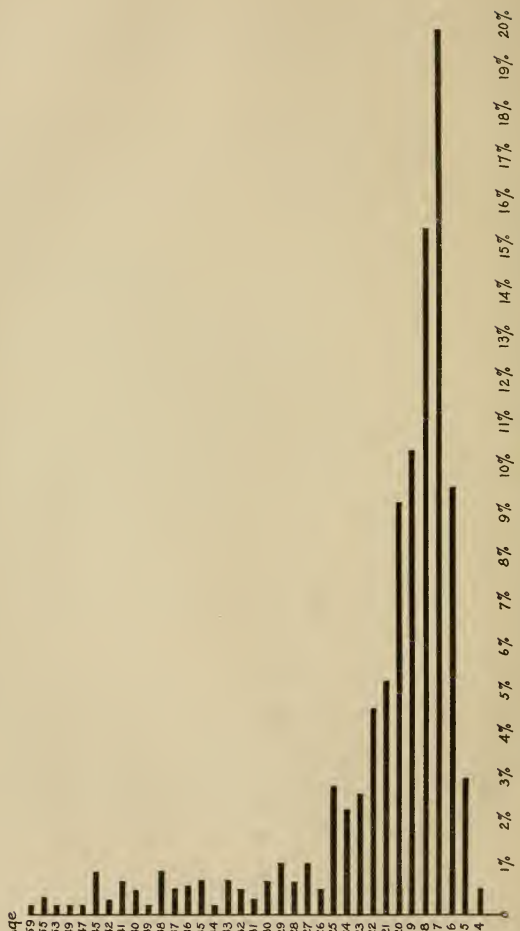

Chart 10. Percentage of Workers at Each Year of Age—515 Records.

is the prevailing length of time for almost 12 per cent of these workers at present work. The next in length of tenure of place, 8.5 per cent, is 1 year, and an almost equal per cent at 4 years. It would seem that most of these who serve 1 year, remain 4 years.

The next greatest number staying for any length of time is 6 months. This does not mean that they are no longer industrial workers: merely that they have not remained longer at their present position.

The generally credited number of years that a girl remains at work is 5 years, but this is true of only 5 per cent of the total number of these 515 workers, and the discussion of change of position showed that 78 per cent of this number of workers did not change positions: the present position was the only one they had held.

In reality, from this inquiry, it would seem that 2 years is the general length of time for staying at one position. At the extreme, we have 32 years in the same place.

There is little inducement in industry for a woman to remain in one position.

Rate of Wage Increase

The rate of wage increase does not justify the length of service required to attain the maximum. The wage-earning usefulness of the factory worker seems to be at its height at about 4 years, as seen in Table XV where the largest group, 91, earn $8.00 with medium experience $3\frac{2}{3}$ years, modal and average experience 4 years. After that, the increase is very slow, entirely out of proportion to length of service; hence the movement for mutual benefit associations among workers and, in foreign countries, for old age pensions.

The woman worker in the factory at no time is paid sufficient beyond everyday needs to enable her to save to any extent. Laying by for old age is rare among factory workers, unless enabled to do so by the generosity or kindness of their firm or by special organizations in establishing savings funds or by benefit associations. So meagre is the wage that irregularity of employment is disastrous to women.

TABLE XLI

Amounts and Percentages of Workers, Earnings, Years at Present Work by Nativity and Years at School

515 Records

No. of Years at School	American Parentage			American-Born Foreign Parentage			Foreign-Born			Totals		
	No. of Workers	*Earnings*	*Yrs. at Pres. Work*	*Workers*	*Earnings*	*Experience*	*Workers*	*Earnings*	*Experience*	*Workers*	*Earnings*	*Exper.*
1							4 .78	**38.00** **1.01**	*10.25* *.52*	4 .78	**38** **1.01**	*10.25* *.52*
2				1 .19	**6.00** **.16**	*1.75* *.09*	8 1.55	**64.50** **1.71**	*28.90* *1.49*	9 1.75	**70.50** **1.87**	*30.65* *1.58*
3				1 .19	**7.00** **.18**	*4* *.20*	3 .58	**26.00** **.69**	*22.50* *1.16*	4 .78	**33.00** **.88**	*26.50* *1.37*
4				4 .78	**33.50** **.89**	*16.50* *.85*	4 .78	**41.00** **1.09**	*64.50* *3.33*	8 1.55	**74.50** **1.98**	*81.00* *4.18*
5	6 1.16	**49.50** **1.32**	*25.90* *1.34*	8 1.55	**52.75** **1.40**	*16.58* *.85*	8 1.55	**78.00** **2.07**	*22.20* *1.15*	22 4.27	**180.25** **4.79**	*64.50* *3.34*
6	18 3.50	**131.50** **3.49**	*60.40* *3.12*	25 4.85	**199.00** **5.29**	*110.99* *5.73*	19 3.69	**151.00** **4.01**	*95.40* *4.93*	62 12.04	**481.50** **12.80**	*266.80* *13.80*
7	29 5.63	**188** **5.00**	*73.50* *3.81*	87 16.70	**627.10** **16.67**	*349.90* *18.08*	21 4.08	**173.00** **4.60**	*134.25* *6.93*	137 26.60	**988.10** **26.27**	*557.90* *28.83*
8	42 8.15	**328.50** **8.73**	*137.70* *7.10*	113 21.94	**743.85** **19.78**	*330.20* *17.05*	25 4.85	**202.00** **5.37**	*124.10* *6.45*	180 34.95	**1274.35** **33.88**	*592.00* *30.59*
9	21 4.07	**147.80** **3.93**	*72* *3.72*	50 9.70	**323.75** **8.61**	*156.20* *8.23*	12 2.33	**107.50** **2.86**	*51.90* *2.68*	83 16.11	**579.05** **15.39**	*280.10* *14.60*
10				2 .38	**17.50** **.46**	*8* *.41*				2 .38	**17.50** **.46**	*8.00* *.41*
11	2 .38	**10** **.26**	*4* *.20*	2 .38	**14.00** **.37**	*13* *.67*				4 .78	**24.00** **.63**	*17.00* *.88*
Normal....	38 7.38	**280.50** **7.45**	*99.80* *5.12*	104 20.19	**714.20** **18.99**	*341.00* *17.6*	35 6.80	**302.50** **8.04**	*275.50* *14.22*	177 34.37	**1297.20** **34.49**	*716.30* *37.00*
Slow	57 11.07	**404.80** **10.76**	*214.60* *11.07*	138 26.79	**920.25** **24.47**	*435.35* *22.52*	34 6.60	**289.00** **7.68**	*140.13* *7.28*	229 44.47	**1614.05** **42.92**	*790.08* *40.86*
Rapid	23 4.46	**170** **4.52**	*59.00* *3.06*	51 9.90	**390.00** **10.37**	*230.60* *11.89*	35 6.80	**289.50** **7.69**	*138.90* *7.16*	109 21.16	**849.50** **22.59**	*428.50* *22.15*

10	1 .19	**9.00** **.24**	*4* *.20*	1 .19	**7.00** **.18**	*5* *.26*	1 .19	**10.00** **.26**	*3.00* *.15*	3 .58	**26.00** **.69**	*12.00* *.62*
11				1 .19	**7.00** **.18**	*13* *.67*	2 .38	**16.00** **.42**	*22* *1.14*	3 .58	**23.00** **.61**	*35.00* *1.81*
12	5 .97	**31.00** **.82**	*21.25* *1.09*	11 2.13	**89.00** **2.37**	*84.50* *4.36*	12 2.33	**113.00** **3.00**	*82.08* *4.24*	28 5.44	**233.00** **6.19**	*197.83* *8.71*
13	13 2.52	**98.50** **2.62**	*36.66* *1.84*	22 4.27	**155.25** **4.13**	*98.73* *5.10*	12 2.33	**98.00** **2.61**	*80.82* *4.16*	47 9.12	**351.75** **9.35**	*215.22* *11.12*
14	65 12.60	**474.80** **12.62**	*211.05* *10.91*	177 34.37	**1221.25** **32.47**	*580.21* *29.99*	46 8.93	**377.50** **10.04**	*254.89* *13.17*	288 55.92	**2073.55** **55.14**	*1046.15* *54.08*
15	23 4.46	**174.50** **4.64**	*52.40* *2.69*	54 10.48	**340.95** **9.06**	*145.18* *7.51*	18 3.50	**148.00** **3.93**	*45.83* *2.37*	95 18.45	**663.45** **17.64**	*243.41* *12.58*
16	10 1.94	**57.50** **1.53**	*43.15* *2.23*	23 4.46	**181.00** **4.81**	*73.90* *3.79*	9 1.75	**76.00** **2.02**	*50.83* *2.63*	42 8.15	**314.50** **8.36**	*167.89* *8.65*
17	1 .19	**10.00** **.26**	*6* *.31*	3 .58	**17.00** **.45**	*2.33* *.12*	1 .19	**9.00** **.24**	*4* *.20*	5 .97	**36.00** **.96**	*12.33* *.64*
18				1 .19	**7.50** **.20**	*4* *.20*	3 .58	**32.00** **.85**	*11.16* *.58*	4 .78	**39.50** **1.05**	*15.16* *.78*
Normal....	30 5.82	**217.50** **5.78**	*35.91* *4.44*	88 17.09	**608.90** **16.19**	*369.04* *19.07*	32 6.21	**285.50** **7.59**	*155.99* *8.06*	150 29.12	**1111.90** **29.56**	*610.94* *31.57*
Over-age...	82 15.92	**594.30** **15.80**	*271.75* *14.04*	197 38.25	**1359.30** **36.14**	*592.72* *30.63*	68 13.20	**560.50** **14.90**	*359.33* *18.57*	347 67.38	**2514.10** **66.85**	*1223.80* *63.25*
Under-age..	6 1.16	**43.50** **1.16**	*15.95* *.82*	8 1.55	**56.25** **1.49**	*45.08* *2.33*	4 .78	**35.00** **.93**	*39.33* *2.03*	18 3.50	**134.75** **3.58**	*100.16* *5.18*

TABLE XLI (*Continued*)

AMOUNTS AND PERCENTAGES OF WORKERS, EARNINGS, YEARS AT PRESENT WORK BY NATIVITY AND YEARS AT SCHOOL

515 Records

BY NATIVITY AND GRADE AT LEAVING SCHOOL

III				1 .19	**4.00** **.11**	*1* *.05*	5 .97	**41.00** **1.09**	*22.20* *1.14*	6 1.16	**45.00** **1.19**	*23.20* *1.19*
IV	1 .19	**8.00** **.21**	*11* *.57*	6 1.16	**50.00** **1.33**	*35* *1.81*	6 1.16	**54.00** **1.44**	*64* *3.31*	13 2.52	**112.00** **2.98**	*110* *5.68*
V	9 1.75	**63.00** **1.67**	*28* *1.45*	19 3.70	**124.00** **3.29**	*61.00* *3.20*	10 1.94	**86.50** **2.30**	*35* *1.81*	38 7.38	**273.50** **7.27**	*124* *6.41*
VI	21 4.07	**133.00** **3.54**	*82.70* *4.29*	41 7.90	**299.00** **7.95**	*100.58* *5.14*	26 5.05	**217.50** **5.78**	*93.33* *5.08*	88 17.09	**649.50** **17.27**	*281.80* *14.67*
VII	47 9.13	**354.80** **9.43**	*147.90* *7.65*	112 21.74	**769.35** **20.46**	*355.1* *18.40*	22 4.27	**171.50** **4.56**	*139.9* *7.23*	181 35.15	**1295.65** **34.45**	*642.9* *33.29*
VIII	23 4.46	**169.00** **4.49**	*57.67* *2.98*	70 13.60	**491.60** **13.07**	*369.30* *19.10*	24 4.66	**211.50** **5.62**	*161.70* *8.35*	117 22.72	**872.10** **23.19**	*588.70* *30.42*
Graduate...	12 2.33	**96.00** **2.55**	*30.75* *1.59*	37 7.18	**235.00** **6.25**	*73.7* *3.81*	10 1.94	**94.00** **2.49**	*33.33* *1.72*	59 11.46	**425.00** **11.30**	*137.80* *7.12*
High	5 .97	**31.50** **.84**	*15.50* *.80*	7 1.36	**51.50** **1.47**	*10.60* *.52*	1 .19	**5.00** **.13**	*.25* *.02*	13 2.52	**88.00** **2.34**	*26.40* *1.56*

BY NATIVITY AND EACH DOLLAR WAGE

1.50 to 4.50	11 2.13	**40.30** **1.07**	*7.33* *.40*	37 7.28	**135.95** **3.61**	*20.52* *1.06*	7 1.36	**27.50** **.73**	*12.83* *.66*	55 10.68	**203.75** **5.42**	*41.40* *2.14*
5.00	22 4.27	**118.50** **3.15**	*30.15* *1.56*	43 8.35	**213.00** **5.66**	*42.29* *2.19*	8 1.55	**35.50** **.95**	*4.16* *.22*	73 14.17	**367.00** **9.76**	*76.60* *3.95*
6.00	29 5.63	**174.00** **4.63**	*73.50* *3.80*	57 11.07	**343.50** **9.13**	*114.25* *5.90*	8 1.55	**57.50** **1.53**	*14.50* *.75*	94 18.25	**575.00** **15.29**	*202.25* *10.45*
7.00	19 3.70	**126.50** **3.36**	*77.33* *4.00*	55 10.68	**386.50** **10.28**	*249.77* *12.91*	10 1.94	**70.00** **1.86**	*37.16* *1.92*	84 16.31	**583.00** **15.50**	*364.27* *18.34*
8.00	13 2.52	**120.00** **3.19**	*52.33* *2.70*	42 8.15	**328.50** **8.73**	*244.50* *12.64*	19 3.70	**152.50** **4.05**	*88.58* *4.58*	74 14.36	**601.00** **15.98**	*385.41* *19.91*
9.00	7 1.36	**72.00** **1.91**	*26.25* *1.36*	18 3.50	**162.50** **4.32**	*109.91* *5.68*	17 3.30	**144.00** **3.83**	*143.83* *7.43*	42 8.15	**378.50** **10.06**	*280.00* *14.47*
10.00	9 1.75	**110.00** **2.92**	*46.58* *2.41*	15 2.91	**130.50** **3.47**	*85.66* *4.43*	17 3.30	**180.00** **4.79**	*77.50* *4.00*	41 7.94	**420.50** **11.18**	*209.75* *10.84*
11.00	3 .58	**33** **.88**	*11* *.60*	8 1.55	**88.00** **2.34**	*43.83* *2.26*	8 1.55	**88.00** **2.34**	*80.75* *4.17*	19 3.70	**209.00** **5.56**	*135.58* *7.00*
12.00	4 .78	**48** **1.28**	*31* *1.60*	9 1.75	**108.00** **2.87**	*35.16* *1.82*	6 1.16	**72.00** **1.91**	*68* *3.51*	19 3.70	**228.00** **6.06**	*134.16* *6.93*
13.00	1 .19	**13** **.35**	*17.50* *.90*	3 .58	**39.00** **1.04**	*7.50* *.38*	2 .38	**26.00** **.69**	*14* *.73*	6 1.16	**78.00** **2.07**	*39* *2.03*
14.00				3 .58	**42.00** **1.12**	*19.50* *1.00*	2 .38	**28.00** **.74**	*13* *.67*	5 .97	**70.00** **1.86**	*32.50* *1.68*
15.00 and 17.00....				3 .58	**47.00** **1.25**	*34* *1.75*				3 .58	**47.00** **1.25**	*34.00* *1.75*
Totals Nativity Groups	118 22.91	**855.30** **22.74**	*373.40* *19.33*	293 56.90	**2024.45** **53.83**	*1006.90* *52.04*	104 20.19	**881** **23.43**	*554.60* *28.65*	515 100	**3760.75** **100**	*1934.90* *100*

CHART 11. Percentage of Workers at Each Year at Present Work—515 Records.

Seasonal Occupations

Seasonal occupations in the factory wage-earning world are so numerous, the inducements of manufacturers with but short seasons of large output are so alluring, that many workers, uninformed as to the duration of the work, enter a line of occupation which after a few months is shut down. Perhaps the higher wage has induced them to leave a lower paid place in a smaller factory, and, unless somebody takes an interest and informs them of the uncertainty of the higher wage offered, these uninformed women will join the army of unemployed when the busy season is at an end. It should be a manufacturer's problem of most serious import to extend his business uniformly throughout the year. Not only is this necessary for the workers, but it is profitable for the manufacturer to retain his good workers and their loyalty and support in times of labor stress. He will feel the deterioration of work and a certain unwillingness, perhaps resistance, of his factory force, if he has to deal with a constantly shifting body of workers. So that the benefit to the worker of all-year-round employment is of equal benefit to the management.

The suggestion of dovetailing occupations, by which to fill out a complete year of work, would be helpful, did any one understand the varieties of operations, closely allied, which would similarly occupy the workers, calling upon the same kind of operative skill transferred from one article to another; a generally informed person would be required to make necessary readjustments of the workers in these seasonal occupations. Such readjustments would call for an employment bureau in every industry to interest itself in the technique of the operations, as well as in the ability of the workers, so as to make adjustments profitable to workers and employers alike. This problem of adjusting seasonal occupations to afford continuous work for the workers is as difficult as it is to extend a present seasonal occupation throughout the year. Both are problems worthy of the best thought, and require persons trained in economics, of large experience and sound judgment.

Chart 11, representing the number of workers at the different ages, shows the long line at 17 years of age; 20 per cent of these 515 workers being 17 years of age; the next grouping is at 18 years of age, 15.5 per cent; then follows 19 years at 10.5 per cent of the total number; then 16 years at 9.75 per cent of the total.

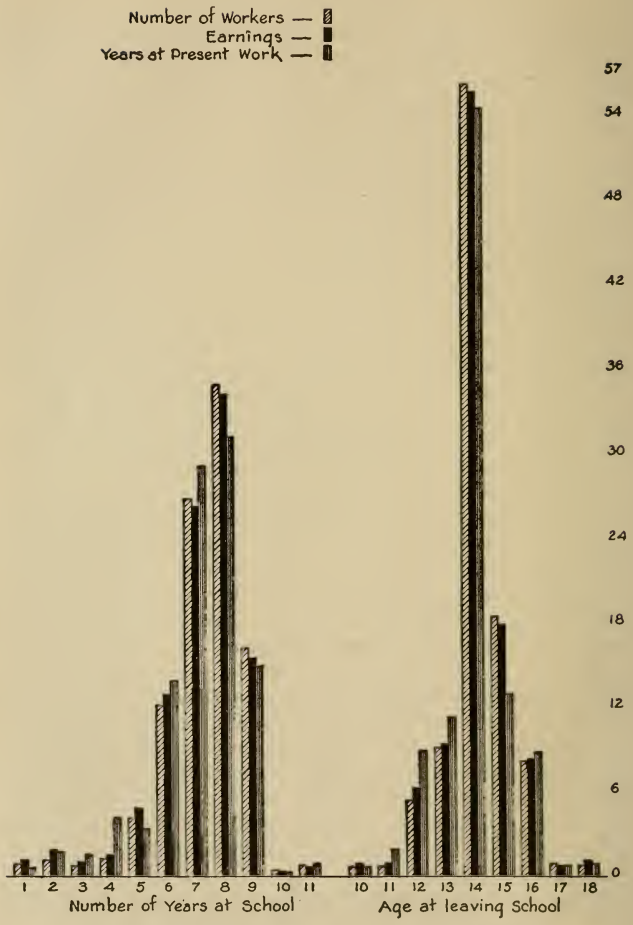

CHART 12. Years in School; Age at Leaving School.
Groups of Workers Compared by Percentages — 515 Records.

Above 25 years of age, the number of workers at any one age is insignificant. The premium on the young girl in the factory wage-earning field is shown by this chart.

Factors Influencing Length of Service

There is little to induce women to remain at factory employment as a life-work. Some women become forewomen, but likewise the places are few as compared to the rank and file. The nimbleness and speed possible with the young worker is what is desired in this factory field. Even where women are employed almost exclusively, men are placed over them in executive positions as foremen. This is regrettable, because women can manage their own kind as well as men can, and often better: they certainly understand the requirements of the articles made in textile manufacturing lines; they have a feeling for the form of the article, the design, the decoration; they have equal administrative capacity, and, if given the opportunity to reach a forewoman's place, as men are led to advance to foremen's positions, more women would be retained, to the benefit of industry, beyond the age of 25 years in this line of work. Where women are acting as forewomen, their work is most profitable to the firm, and, with so many young girls unaccustomed to the rigorous demands of industry, a woman is better qualified to be her overseer than is a man. Moreover, for social protection, no workroom where women are employed should be without one responsible forewoman in entire charge of the women.

School Groups of Workers by Percentages Comparing Number, Earnings, Experience

School groups of workers are shown in Charts 12 and 13 and in Table XLI by percentages of number of workers, percentages of earnings, and percentages of years at present work, and at the average wage per week, without reference to nationality. The largest number of records is seen to be between the 6th and 9th year in school; between the 12th and 16th year of age at leaving school; between the 6th and 8th grade at leaving school and between the $6.00 and $9.00 wage per week.

In the school group under the number of years at school, the column in the 6th year is nearly evenly divided between percentage of number of workers, earnings and experience.

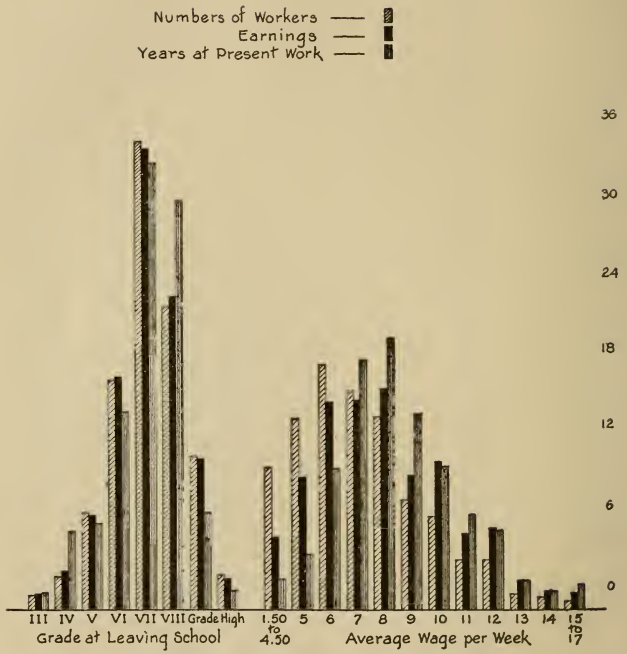

CHART 13. Grade at Leaving; Average Wage.
Groups of Workers Compared by Percentages—515 Records.

In the 7th year at school, the wage is the shortest column and experience the longest. This is the legal year for leaving school. Many pupils have been held in school by law, not by desire to get what the school gives or by what they hope to get; so that latent wage-earning power is not apt to be the possession of those who are held in school by compulsion.

In the 8th year at school, the number of workers portion of the column is larger than their earnings, which in turn, is larger than the experience required to earn that wage. It would seem that 8 years in school enable the earning of a fair wage in less time than among workers who have spent only 7 years in school.

The relationship between these three divisions of the column of the 9th year at school is about the same as for the 8th year.

The 10th year in school, which brings the pupils into the high school, has only two records, hence does not carry weight.

Graphic representation of Age at Leaving School shows the preponderance of the 14th year of age as the leaving age, corresponding to 8 years spent in school. It is fair to suppose that both groups are composed of nearly the same records. The relationship between percentages of number of workers, earnings, and experience is closely comparable in the 14-year-old group and the 8-years-at-school group.

The 15-years-of-age group at once shows decrease in average experience needed to earn its average wage.

Evenness of division between number, earnings, and experience is shown in the 16-years-of-age group, indicating normality or average quality of the pupil who goes through the grammar school in regular time and grade with her normality as a wage-earner.

In the 17-years-of-age group, of which we have only five records, the percentage of experience is considerably lower than the number of workers and the amount of their earnings. This tallies with the other graphs which show the benefit of high-school training on the girl as a wage-earner, or which show that the selection of the high-school girl is on a basis similar to her selection as a wage-earner.

In Chart 13, showing the grade at leaving school, the 7th grade column corresponds in height to the 8th year column in the number of years at school. There is a similar correspondence in earnings and experience. Thus 8 years in school, 14

years of age at leaving, and 7th grade, correspond in prominence and have similar relative proportion of number of workers, earnings and experience.

In the 6th grade, the experience portion of the column is considerably less than the wage, which, in its turn, is a little less than the percentage of number of workers. This lesser experience to attain the wage in this group is hard to explain because of the meagerness of information conveyed by figures alone. Why the 6th grade girl should take less time than does the 7th grade girl to earn her wage cannot be answered from these figures. There must be something in the individual records of these girls which, aggregating the results, cumulates into the figures shown. The markedly less time at work required by the graduate and the high-school girl is easily interpreted from her selection in the school for this high grade of school work, classing her as the most complex mentality among factory wage-earners.

In Chart 13, which represents the number of workers, earnings, and years at present work according to the wage, we see in the group of $1.50 to $4.50 the small portion of time given to earning that wage. Experience increase is more rapid than wage increase. This is shown more plainly in Chart 14, which gives the percentage earnings, experience and ages of those whose wage is in the several quartiles. The proportion of the experience block to wage block is striking, and also clearly indicates that the textile employment is not a dead end occupation.

Wage and Experience in Normal Progress Groups Compared with Age-Grade Groups

[Tables XLII and XLIII. Charts 15 to 18]

Median, Modal, and Average Curves are juxtaposed for the purpose of showing the difference in results from these three methods of calculating statistics. The general movement of the curves is naturally similar, since they all deal with the same figures. In most cases, the Average is the highest estimation, except at the extremes of the list of figures where numbers are few. This means that popular use of Averages results in a higher estimation of the generality when there are widely varying extremes than results from either Median or Modal estimates.

The basis of graphic comparison in these charts is the *median* line at $7.24 and 2 years' experience. This median line of experience is the same as the *modal* line of experience and in wage is

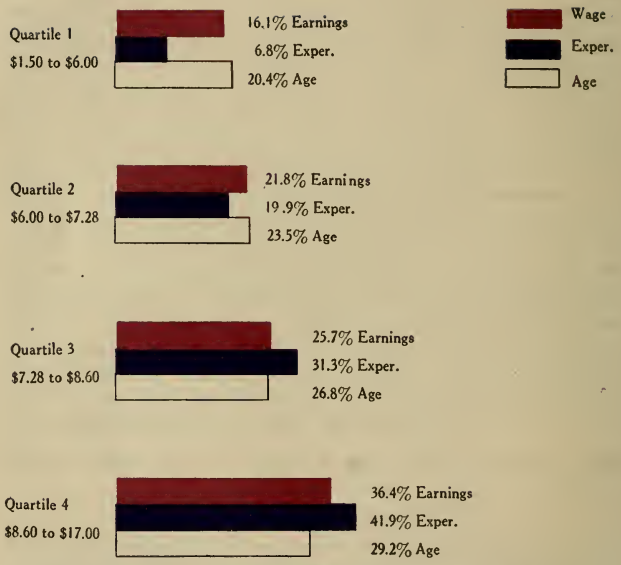

CHART 14. Quartiles of Earnings, Experience, and Age of Workers Compared—515 Records.

four cents greater. Hence, it will serve as a line of comparison for both median and modal wage and experience. The average wage for the School History Group is $7.30; experience, $3\frac{3}{4}$ years. Nationality is not shown separately in these charts. The calculations are made by Grades at Leaving School.

In the lower school grades, these figures are affected by the foreign-born workers who have dropped into our school system for a year or two at whatever age they have come to this country. They are not the 4th year pupils, as we generally think of them, but the older girl who is eager to get all she can in the very short time she has to give to schooling in this country. This may explain her wage-earning power with only 4th grade schooling.

The line drops in the 5th grade considerably below the median line. It is a record of only three workers, which explains its being so much out of line.

In the 6th grade, the line rises almost to the median; in the 7th grade, drops a little below the 6th grade; is on about the same level in the 8th grade. The majority of pupils whose wage-earning is to be in the factory field leave in these grades. They leave school as soon as the law allows and, having little liking for studies or for academic thinking, and having equally limited training, show the result in limitation of wage-earning. Of course, among this number, are many who are forced to leave because of economic pressure.

Among the graduates who are workers in the factory, the curve record drops to its next-to-lowest point. This may be explained by the predominance among them of ambitionless, unfocused girls, easily influenced by stray advice, who drift from place to place accumulating little experience that helps to increase wage-earning power.

The high-school column at once pulls the line up to the $10.00 wage. As has been said before, the high school selects from the many who leave the grammar school those who are ambitious to study and know how to apply themselves. This industry and ambition shows in the wage record of the girl.

In comparing the Normal School Progress Group with the Normal School Age Group, one fact of difference must be borne in mind: that is, that two years are allowed to a grade in the Age-Grade Group as being normal; while only one year is allowed to each grade for the School Progress Group. This gives less margin

TABLE

MEDIANS, MODES, AVERAGES, MIDDLE 50 PER CENT OF WEEKLY WAGE AND

515

GRADE	*Under-age Group*						*Normal Age*			
III										
IV							2			**8.50** *4*
V							1			
VI	1					**9.00** *4½*	6	**9.25** *¾*	**9.00** *¾*	**9.17** *2*
VII	1					**7.00** *13*	20	**7.56** *4½*	**8.00** *6*	**7.58** *6¾*
VIII	6	**8.33** *12½*	**8.00**	**7.50** *11*		**9—5** *20—1*	67	**7.55** *3*	**8—7** *2*	**7.54** *5½*
Grad.....	10	**6.50** *1¼*	**8.00** *2—1½*	**7.48** *1¾*	**10—5** *2½—½*	**12—4** *4—¼*	42	**6.50** *1¼*	**6.00** *½*	**7.05** *2¾*
High.....							12	**6.00** *1*	**10.00** *4*	**6.91** *2*
Total for Groups	18	**7.20** *5*	**8.00**	**7.43** *5½*	**8.50—6.25** *15—1½*	**12—4** *18—¼*	150	**6.94** *2¾*	**8.00** *½*	**7.41** *4*
						Rapid.....	109	**7.55** *2½*	**8.50** *2*	**7.76** *3½*
						Normal....	177	**6.94** *2*	**7.00** *2*	**7.38** *4*
						Slow	229	**6.59** *2*	**7.00** *2*	**7.05** *3⅝*
						Under-age..	18	**7.20** *3*	**8.00**	**7.43** *5½*
						Normal....	150	**6.94** *2¾*	**8.00** *½*	**7.41** *4*
						Over-age...	347	**6.64** *2*	**6.00** *2*	**7.24** *3½*
						Total.....	515	**7.24** *2*	**7.00** *2*	**7.30** *3¼*

XLII

YEARS AT PRESENT WORK ACCORDING TO AGE AND GRADE AT LEAVING SCHOOL

Records

Group		*Over-age Group*							
		6	7.50 *4*	10.00 *4*	7.50 *3¾*		10—4 *7—1*	III	Wage Exper.
	10—7 *5—3*	11	8.35 *4*	8 *½*	8.64 *9¼*	10—6 *18—½*	17—5 *31—⅓*	IV	Wage Exper.
	7.00 *6*	37	6.34 *3*	5—6.50 *2*	7.20 *3⅓*	8.50—6 *5—1½*	15—4 *13—¼*	V	Wage Exper.
9—7 *4—⅜*	13—8 *7—½*	81	6.67 *2*	7 *2*	7.21 *3⅛*	8.50—5.57 *4—1*	14—2.50 *32—1/12*	VI	Wage Exper.
7.87—5.63 *13—1½*	10—5.50 *26—1/12*	160	6.58 *2*	6—7 *2*	7.12 *3 5/12*	8—5.14 *4—1*	14—2.50 *24—1/12*	VII	Wage Exper.
8.50—4.40 *7—1*	12—2.25 *24—1/12*	44	7.30 *2*	8.00 *2*	7.34 *5⅓*	9—4.75 *5—½*	15—1.95 *23—1/12*	VIII	Wage Exper.
8.66—4.90 *3—⅜*	14—1.50 *14—⅛*	7	6.00 *1½*	6.00 *5—1*	7.43 *2¼*	10—5.66 *2—1*	12—5 *5—½*	Grad.	Wage Exper.
5.00—10 *4—½*	10—4 *6—⅜*	1					5.00 *¼*	High	Wage Exper.
8.67—6.66 *6—1*	14—1.50 *26—1/12*	347	6.64 *2*	6.00 *2*	7.24 *3⅓*	8.55—5.31 *5—1*	17—1.95 *32—1 wk.*		Wage Exper.

8.07—5.86 *5—1*	14—4 *26½—1/12*	Wage Exper.
9.00—5.56 *5—1*	13—1.95 *32—1/12*	Wage Exper.
7.85—5.36 *4½—1*	17—1.50 *23—1*	Wage Exper.
8.50—6.25 *15—1½*	12—4.00 *18—¼*	Wage Exper.
8.67—6.66 *6—1*	14—1.50 *26—1/12*	Wage Exper.
8.55—5.31 *5—1*	17—1.95 *32—1/60*	Wage Exper.
9.10—5.52 *5—1*	17—1.50 *32—1/60*	Wage Exper.

TABLE

MEDIANS, MODES, AVERAGES, MIDDLE 50 PER CENT OF WEEKLY

515

GRADE	RAPID GROUP						NORMAL		
	No. of Workers	*Median*	*Mode*	*Aver.*	*Middle 50%*	*Range*	*No.*	*Median*	*Mode*
III	3	**7.00** *4*	*4*	**7.67** *3½*		**10.00—6.00** *4—2*			
IV	1					**7.00** *3*	4	**9.50** *15½*	
V	6	**6.75** *2¾*	*1*	**7.42** *3¼*	**9.00—6.00** *1¾—4½*	**11.00—5.00** *9—1*	3	**5.00** *1½*	
VI	11	**9.00** *3*	**11.00—9.00** *4½*	**9.45** *2¼*	**11.00—8.00** *4—1½*	**12.00—6.00** *6—¾*	23	**7.00** *2½*	**5.00** *4*
VII	27	**7.60** *2*	**8.00** *2*	**8.15** *2⅜*	**9.33—6.00** *4—½*	**13.00—5.00** *10—1/12*	60	**6.66** *2*	**7.00** *2*
VIII	40	**7.05** *3½*	**8.00** *2—20½*	**7.28** *6½*	**8—5.70** *10—1⅛*	**14.00—2.25** *20½—1/12*	53	**6.84** *1¾*	**8—7** *1*
Grad.....	15	**7.35** *2½*	**12—8** *1½*	**8.05** *2¼*	**10.50—6.25** *4—½*	**12.00—4.00** *6—¼*	28	**6.50** *1½*	**6—5** *1½*
High.....	6	**5.25** *⅝*	**5.00** *1*	**5.92** *⅝*	**7.00—5.00** *1—⅜*	**9.00—4.00** *1—¼*	6	**7.75** *3¾*	**10.00** *4*
Total for Groups..	109	**7.55** *2½*	**8.00** *2*	**7.76** *3 1/12*	**8.87—5.86** *5—1*	**14—4** *20½—1/12*	177	**6.94** *2*	**7.00** *2*
					Total School Group		515	**7.24** *2*	**7.00** *2*

XLIII

WAGE AND YEARS AT PRESENT WORK ACCORDING TO SCHOOL PROGRESS

Records

GROUP			SLOW GROUP						GRADE	
Aver.	*Middle 50%*	*Range*	*No.*	*Median*	*Mode*	*Aver.*	*Middle 50%*	*Range*		
			3	**8.00** *4½*		**7.33** *4⅓*		**10—4** *7—1*	III	Wage Exper.
9.50 *16¼*		**12—7** *31—3*	8	**8.00** *2½*	**8.00** *½*	**8.38** *5½*	**8—5.50**	**17—5** *18—½*	IV	Wage Exper.
7.50 *3¼*		**13—4.50** *7—1*	29	**6.80** *2*	**6.50** *2*	**7.12** *3¼*	**7.75—5.25** *5—1½*	**15—4** *13—$\frac{1}{50}$*	V	Wage Exper.
7.72 *5⅝*	**9.50—5.10** *5—½*	**13—4** *22—$\frac{1}{12}$*	54	**6.59** *2*	**7.00** *2*	**6.80** *3*	**7.50—5.09** *4—¾*	**14—2.50** *15—$\frac{1}{12}$*	VI	Wage Exper.
7.09 *4½*	**8.13—5.25** *5—1*	**13—3.50** *25—$\frac{1}{12}$*	94	**6.56** *2*	**6.00** *1*	**6.93** *3½*	**7.56—5.50** *4½—1*	**14—2.50** *24—$\frac{1}{12}$*	VII	Wage Exper.
7.32 *2½*	**8.25—5.60** *5—¾*	**12—1.95** *18—$\frac{1}{10}$*	24	**7.84** *5*	**10—9—8** *10—4—½*	**8.04** *6$\frac{1}{12}$*	**9.67—5.50** *10—¾*	**15—2** *28—½*	VIII	Wage Exper.
7.09 *2½*	**8.87—5.25** *2½—1*	**12—4.50** *14—⅛*	16	**5.37** *1½*	**6.00** *½*	**6.42** *2*	**9.25—4.00** *4—½*	**14—1.50** *6—$\frac{1}{25}$*	Grad.	Wage Exper.
8.08 *3½*	**9.35—6.25** *4—1½*	**10—6** *6—¾*	1					**4** *3*	High	Wage Exper.
7.38 *4*	**9.50—5.66** *5—1*	**13—1.95** *32—$\frac{1}{12}$*	229	**6.59** *2*	**7.09** *2*	**7.05** *3$\frac{5}{12}$*	**7.85—5.36** *4½—1*	**17—1.50** *28—1wk.*		Wage Exper.
7.30 *3¾*	**9.10—5.52** *5—1*	**17—1.50** *32—1*	Wage Exper.							

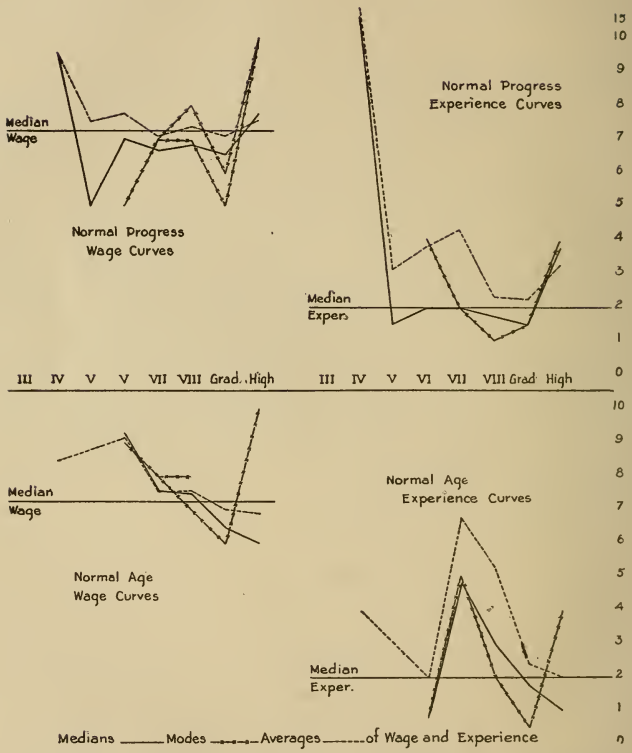

CHART 15. Medians —— Modes -.-.-.- Averages ------ of Wage and Experience, according to School Progress and Age-Grade Groups—515 Records.

for individual differences in School Progress grouping than in Age-Grade grouping. To spend two years in a grade would not be normal progress, but the calculation of two years for the normal school-age in a grade means that the child may enter the school at 6 or 7 years and be entirely normal.

In handling statistical groups, this difference in calculation makes a difference in the curves, as does also the advanced age of the foreigner who enters the school in the lower grades. She may spend one year in a grade and be perfectly normal as to progress, but belong to another group in considering school age grouping.

With this difference explained, we notice the general drop of these curves in the graduates' column as was the case in the Normal School Progress Group. The record of these graduates shows a wage of $6.00, while the median for the entire group is $7.24. We also notice the rise in the high-school column to $10.00, which is largely due to the few records.

Turning to a consideration of the experience curves in the Normal Progress Group, we find that those who left in the 4th grade of the grammar school have spent most time at their present work; then comes the drop in the 5th grade to below the median experience of 2 years; the rise to the normal line of 2 years' experience in the 6th grade, adhering to the median experience in the 7th grade, and falling a little below to the median line in the 8th and graduates' columns; then the rise in the high-school column to 4 years' experience.

The experience curve in the 4th grammar grade, which touches the 12-year mark, is the record of the workers who are earinng $9.00, which is the apex of the wage curve in the 4th grammar grade. At the other end of the curve, the 4 years' experience in the high-school column is the $10.00 wage in the corresponding column of the wage curves. A like tendency of wage and experience curves to correspond is shown in the normal age groups.

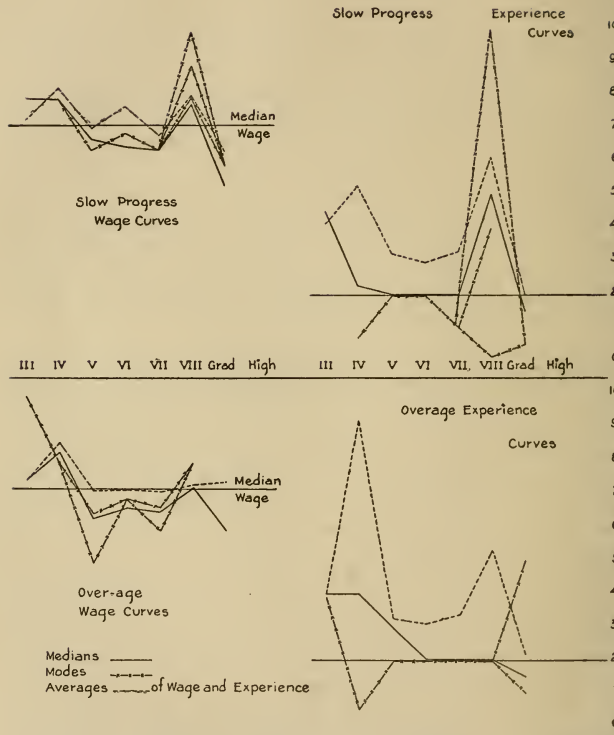

CHART 16. Medians —— Modes –.–.–.–.– Averages - - - - - - of Wage and Experience according to School Progress and Age-Grade Groups—515 Records.

Slow and Over-age Groups

In comparing the Slow School Progress Group with the Over-age Group, slow scholars who have taken more than the one year to the grade are compared with over-age scholars who were older than the stipulated age allotted to each grade.

Slow Progress Group Wage Curve

With the median wage at $7.24 per week, workers who have been slow in their progress through school and who have left school in the 3rd grade earn $8.00 per week; in the 4th grade, they still earn $8.00; in the 5th grade, the curve falls to $6.50. Those leaving in the 6th grade and progressing slowly through school earn the median wage, $7.00. In the 7th grade, the curves drop to $6.00. This is the grade in which many pupils leave because the law then allows them to get their working-papers. In the 8th grade, we find the rise of all the curves to $8.00, $9.00 and $10.00. The 8th grade often makes its selection from those whom the law permits to leave and those who remain in school. This one year of ambition greater than that shown by the majority of school pupils is registered in the increased wage.

The curves drop in the graduates' column, as do also the number of records which are being considered. This decrease in number of records may be a determining factor in this curve-drop. But many pupils are held through the 8th grade by the fact that it is the last year in school. Many, too, regard their education as complete at this point of departure, and the quality of their wage-earning power is impaired by this self-satisfaction. There is only one record of a slow progress scholar going to the High School.

The Over-age Group wage curves follow quite closely the Slow Progress Group curves, with a little more emphasis at one point than at another, but the same general explanations will apply to both.

Slow Progress Group Experience Curve

The experience curve of the Slow Progress Group shows that those who have left school in the 3rd grade give $4\frac{1}{2}$ years at their present work to earn a wage of $8.00; in the 4th grade, they give $2\frac{1}{4}$ years to earn this same $8.00 wage—the records at the small wage end of the line are too few to be trustworthy. In

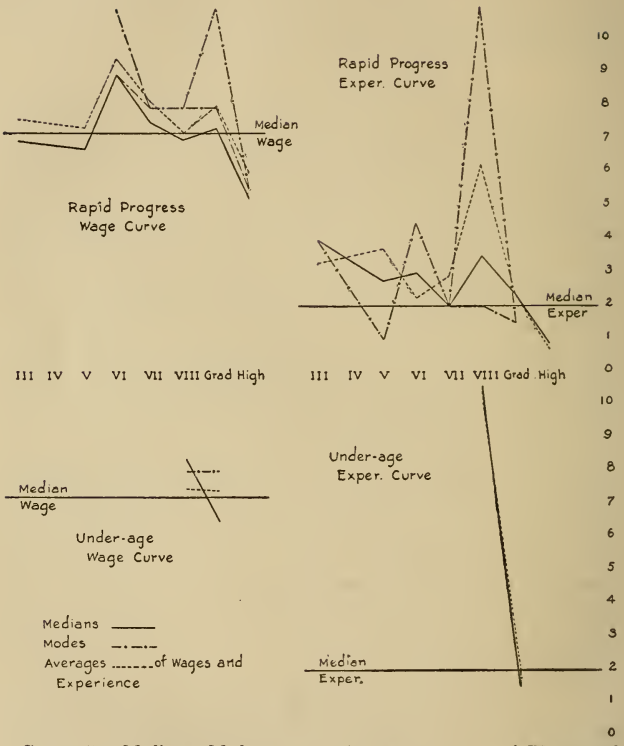

CHART 17. Medians—Modes -·-·-·- Averages ------- of Wages and Experience according to School Progress and Age Grade Groups—515 Records.

the 5th grade, where the numbers are larger, 2 years' experience gains a wage of $6.80 per week. In the 6th grade, a median experience of 2 years earns a median wage of $6.59 per week. At this point, the medians and the modes closely approach.

In the 7th grade, the median remains at 2 years in experience; also, the wage is stationary at $6.56. The 7th grade girl earns her small wage in the median time, 2 years.

The 8th grade girl earns a wage, $7.84, considerably increased over that of the 7th grade girl, but she also takes longer to earn that wage, 5 years as compared with 2 years. Then comes the drop in the graduates' column of all lines.

Over-age Group Experience Curve

The experience curve in the Over-age Group shows considerable variation over the experience curve in the Slow Progress Group. Beginning in the 3rd grade with 4 years' experience to gain a $7.50 wage per week, the median curve remains at the same level in the 4th grade; while the median wage in this 4th grade of the Over-age Group rises to $8.35 per week.

The records are few in these lower grades, as has been stated before, so that the curves are not certain, but, in the 5th, 6th and 7th grades, the numerous records carry more indicative interpretations.

These grades show 2 years as median and modal experience. The wage also is close to the group median line. The average curve shows a $3\frac{1}{2}$ year experience to gain the median wage of $7.24. The modal experience of 2 years in these grades is accompanied by considerably less than the modal wage, ranging from $5.00 in the 5th grade to $8.00 in the 8th grade. Thus the over-age girl in the 8th grade makes a good wage-earner, requiring but 2 years' experience to earn an $8.00 wage; while the slow progress girl in the 8th grade takes between 4 and 10 years of experience to earn a wage between $8.00 and $10.00. The over-age girl in school is not the backward girl at wage-earning.

The same drop in the graduate year is noticed in the experience of the Over-age Group and, likewise, the drop in the wage of the Over-age Group as in the Slow Group. A few cases carry one arm of the modal experience up to 5 years, but the other lines incline toward the 2 and 1 year experience mark.

Rapid Progress Group—Wage and Experience Curve

The Rapid School Progress Group—meaning that the girl has been a less number of years in school than is required by the grade at which she left—shows in Chart 17 in the wage curve good wage-earning power on the part of these bright school pupils. All of these lines are above the median line for the group until the drop in the high-school column. The corresponding experience curves for this same Rapid School Progress Group also show that these particular school pupils require more than the 2 years' median experience for the group, as almost all of the curves are above the 2-year line. The bright pupils in school seem to be able to earn above the median wage, with the exception of those having high school records, but it takes them more than the median time in which to earn that wage. They are ambitious, evidently, in wage-earning, but they require time to mature into average wage-earners.

The drop in the high school column in wage is accompanied by the drop in experience, showing that this same bright schoolgirl, when she leaves the high school to go to work, starts in at a wage which, in half a year, becomes $5.00.

Under-age Group

In the Under-age Group, the numbers are so few that the curves are insignificant.

General Results

Totaling the results of the School Progress Group, Chart 18, the median, modal, and average wage curves are close together, the rapid group aggregating at $8.00 weekly wage, the normal group at $7.00 and $7.50 wage, and the slow group at $6.50 to $7.00. In the grammar grades this means that bright pupils may be looked upon as good prospective wage-earners; normal pupils as probable median wage-earners, and slow pupils as likely to be slightly below median.

Summary for the experience record of the School Progress Group shows rapid pupils require from $2\frac{1}{2}$ to 4 years' experience or $\frac{1}{2}$ to 2 years above median experience to earn this $8.00 wage, or 75 cents above median wage; normal pupils require a median

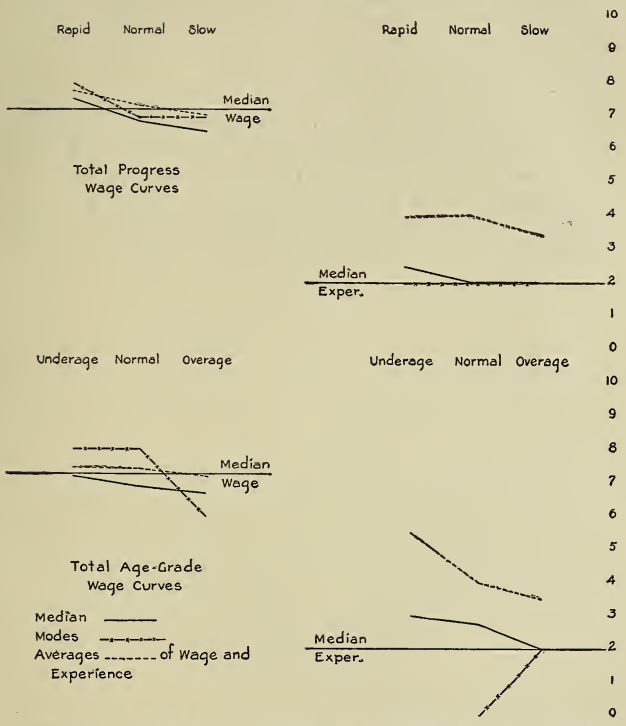

CHART 18. Medians —— Modes –.–.–.– Averages ----- of Wage and Experience according to School Progress and Age-Grade Groups—515 Records.

experience of 2 years to earn the $7.00 wage, 24 cents below median wage; slow pupils keep pace with normal pupils in wage-earning.

Summary of results for Age Grade Group is similar to School Progress Group. Under-age pupils earn from $7.00 to $8.00, while their experience to earn this wage is 3 years. Normal pupils, likewise, earn from $7.00 to $8.00, but their experience for this wage-earning is less than 1 year. Over-age pupils take the median number of years to earn between $6.00 and $7.00 in wage. The Under-age pupils take longer, as did Rapid pupils, to earn the same wage as Normal pupils, but Normal Age pupils' experience is less to earn the same wage as Normal Progress pupils. It is thus seen that the over-age schoolgirl and the slow schoolgirl are not at a disadvantage in factory wage-earning.

II

WAGE AND EXPERIENCE INDICES COMPARED ACCORDING TO NATIVITY AND NUMBER OF YEARS AT SCHOOL

In the curves following, the light solid line indicates the workers of American parentage, which, of course, means American nativity. The dotted line represents the American-born of foreign parents, and the heavy, solid line represents the foreign-born.

The line at Figure "1" in the graphic curve representation in Charts 19, 20, 21, 22 shows the average wage and the average experience for the School History Group.

Everything above "1" means more than the average wage of $7.30 per week and more than the average experience of 3 years and 9 months to attain this $7.30 wage.

The curves of the total workers, irrespective of nationality—in fact, including all nationalities—are represented in the third grouping on this horizontal average line by the beaded lines.

Years at School

In the first plotted curve, Chart 19, the fluctuation of the wage index is represented, comparing the wage earned by the groups of workers leaving school after attending the same number of years. All those leaving school after attending one year are represented in column 1; those leaving school after attending two years have been bulked in column 2; and so on to the eleventh column, which represents eleven years at school.

Foreign-Born

The wage curve rises in the Foreign-born Workers' Group to the highest point after having been four years at school. Among the foreigners, those attending school four years earn a higher wage per week at present than do those who have attended school nine years. The whole present-wage-curve for foreigners is above the average line. This may mean several things: foreigners have probably dropped into the American school system at the point convenient to them; may have been mature when they began their schooling here; some have stayed

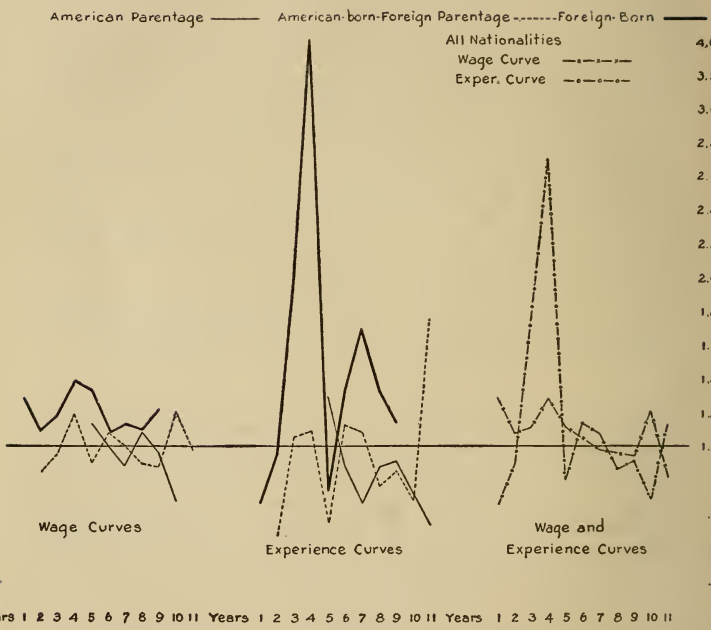

CHART 19. Nativity and Number of Years in School compared by means of Wage and Experience Indices.

one year, and others have stayed nine years. They have gained what they could, according to the varying degree in which they were mentally prepared for receiving what our American schools had to give them. The result of what they have obtained in school seems to have no consistent and progressive result upon their wage-earning ability.

It would need a knowledge of the life history and social conditions of each worker to interpret with any approach to correctness and adequacy the variations in the results of this irregular number of years at school and the corresponding variation in present wage. From the bare fact which the figures give, the four-year term at school for these foreign-born workers is more adequate than is a nine-year term at school in its effect on present wage-earning.

The one undeniable and significant fact is, that foreigners, without reference to their school preparation, can earn more than Americans and more than the average, $7.30, of all the workers in this School History Group.

Of 104 workers, 72 earn $8.00 or over; 11 earn $7.00; 21 earn less than $7.00; but 13 of these were beginners.

Excluding beginners					*Including beginners*				
7	with 1 year's schooling		earn	$9.14	4	with 1 year's schooling		earn	$9.50
7	" 2 years'	"	"	7.85	8	" 2 years'	"	"	8.06
2	" 3 "	"	"	7.50	3	" 3 "	"	"	8.67
3	" 4 "	"	"	10.33	4	" 4 "	"	"	10.25
6	" 5 "	"	"	10.83	8	" 5 "	"	"	9.75
16	" 6 "	"	"	9.25	19	" 6 "	"	"	7.95
17	" 7 "	"	"	8.50	21	" 7 "	"	"	8.24
23	" 8 "	"	"	9.00	25	" 8 "	"	"	8.08
9	" 9 "	"	"	10.00	12	" 9 "	"	"	8.96

Excluding beginners, 18 of 90 had less than 4 years school but earned an average of $8.33. Of 18 who earned $11.00 or over only 4 had reached the 8th grade. Nine had not advanced beyond the 6th grade; of these 2 received $13.00; and the only one earning the largest wage, $15.00, left in the 5A. In contrast, of 18 receiving $8.00, one half only were in the 8th grade and 6 were in the 6th grade.

It would seem that for foreign-born, after learning the elements of reading, writing and arithmetic in the first five years at school when the highest average wage, $10.83, follows, under *present school methods* not only is longer schooling undesirable but even prejudicial to wage-earning.

TABLE XLIV

Wage, Experience Indices and Wage–Experience Ratio, 515 Records By Nativity and Number of Years in School

No. of Years at School	American Parentage			American Born—Foreign Parentage			Foreign Born			Total for Each Year		
	Wage Index	*Exper. Index*	*Wage-Ex. Ratio*	*Wage Index*	*Exper. Index*	*Wage-Ex. Ratio*	*Wage Index*	*Exper. Index*	*Wage-Ex. Ratio*	*Wage Index*	*Exper. Index*	*Wage-Ex. Ratio*
1							**1.29**	*.66*	1.95	**1.29**	*.66*	1.95
2				**.84**	*.47*	1.79	**1.10**	*.96*	1.14	**1.07**	*.90*	1.19
3				**.95**	*1.05*	.90	**1.19**	*2.00*	.59	**1.11**	*1.75*	.63
4				**1.14**	*1.09*	1.04	**1.39**	*4.27*	.32	**1.28**	*2.70*	.47
5	**1.14**	*1.15*	.99	**.90**	*.55*	1.63	**1.33**	*.74*	1.79	**1.12**	*.80*	1.40
6	**1.00**	*.89*	1.12	**1.09**	*1.13*	.96	**1.08**	*1.33*	.81	**1.06**	*1.14*	.93
7	**.89**	*.68*	1.30	**.99**	*1.08*	.92	**1.13**	*1.70*	.66	**.99**	*1.08*	.92
8	**1.08**	*.88*	1.23	**.90**	*.77*	1.17	**1.11**	*1.33*	.83	**.97**	*.87*	1.11
9	**.96**	*.91*	1.07	**.89**	*.85*	1.05	**1.22**	*1.15*	1.06	**.95**	*.91*	1.04
10				**1.21**	*.68*	1.79				**1.21**	*.68*	1.79
11	**.68**	*.53*	1.28	**.97**	*1.76*	.55				**.81**	*1.13*	.72
Normal	**1.00**	*.70*	1.43	**.94**	*.81*	1.16	**1.18**	*2.09*	.56	**1.00**	*1.07*	.93
Slow	**.98**	*1.00*	.98	**.91**	*.84*	1.08	**1.16**	*1.10*	1.05	**.96**	*.92*	1.04
Rapid	**.93**	*.68*	1.36	**1.04**	*1.20*	.87	**1.13**	*1.06*	1.06	**1.06**	*1.04*	1.02

By Nativity and Age at Leaving School

10	**1.26**	*1.05*	1.20	**.96**	*1.37*	.70	**1.37**	*.79*	1.73	**1.19**	*1.07*	1.11
11				**.96**	*3.52*	.27	**1.12**	*3.00*	.37	**1.05**	*3.12*	.34
12	**.84**	*1.12*	.75	**1.11**	*2.04*	.54	**1.29**	*1.82*	.71	**1.14**	*1.78*	.64
13	**1.04**	*.73*	1.42	**.97**	*1.19*	.80	**1.11**	*1.78*	.62	**1.02**	*1.21*	.84
14	**1.00**	*.86*	1.16	**.94**	*.87*	1.08	**1.12**	*1.47*	.76	**.98**	*.97*	1.01
15	**1.04**	*.60*	1.73	**.86**	*.71*	1.21	**1.12**	*.68*	1.65	**.95**	*.68*	1.40
16	**.79**	*1.15*	.69	**1.08**	*.85*	1.27	**1.15**	*1.51*	.76	**1.02**	*1.06*	.96
17	**1.37**	*1.63*	.84	**.76**	*.21*	3.62	**1.26**	*1.05*	1.20	**.99**	*.66*	1.50
18				**1.05**	*1.05*	1.00	**1.46**	*1.00*	1.46	**1.34**	*1.00*	1.34
Normal	**.99**	*.80*	1.24	**.95**	*1.11*	.85	**1.22**	*1.29*	.94	**1.02**	*1.08*	.94
Over age	**.99**	*.83*	1.13	**.90**	*.80*	1.13	**1.13**	*1.41*	.80	**.99**	*.94*	1.05
Under age	**1.00**	*.71*	1.41	**.96**	*1.50*	.64	**1.19**	*2.60*	.46	**1.02**	*1.48*	.69

By Nativity and Grade at Leaving School

III				**.58**	*.26*	2.23	**1.12**	*1.17*	.96	**1.00**	*1.02*	.98
IV	**1.10**	*3.00*	.37	**1.15**	*1.56*	.74	**1.24**	*2.36*	.43	**1.18**	*2.25*	.52
V	**.95**	*.83*	1.14	**.89**	*.86*	1.03	**1.18**	*.93*	1.27	**.97**	*.87*	1.11
VI	**.87**	*1.05*	.83	**1.00**	*.65*	1.54	**1.14**	*1.01*	1.12	**1.00**	*.85*	1.17
VII	**1.03**	*.83*	1.24	**.94**	*.84*	1.12	**1.06**	*1.69*	.63	**.98**	*1.00*	.98
VIII	**1.00**	*.67*	1.49	**.96**	*1.40*	.69	**1.21**	*1.79*	.67	**1.02**	*1.34*	.76
Grade	**1.09**	*.68*	1.60	**.87**	*.53*	1.64	**1.28**	*.88*	1.45	**.98**	*.62*	1.58
High	**.86**	*.82*	1.05	**1.08**	*.37*	2.65	**.68**	*.66*	1.03	**.93**	*.52*	1.78

By Each Dollar Wage

$1.50 to 4.50	**.50**	*.19*	2.63	**.50**	*.15*	3.33	**.52**	*.48*	1.08	**.51**	*.20*	2.55
5.00	**.74**	*.37*	2.00	**.68**	*.26*	2.61	**.61**	*.14*	4.37	**.69**	*.28*	2.46
6	**.83**	*.67*	1.22	**.82**	*.53*	1.55	**.99**	*.48*	2.06	**.84**	*.57*	1.47
7	**.91**	*1.08*	.84	**.96**	*1.21*	.80	**.96**	*.99*	.97	**.95**	*1.12*	.85
8	**1.23**	*1.07*	1.06	**1.07**	*1.55*	.70	**1.09**	*1.24*	.87	**1.11**	*1.38*	.80
9	**1.40**	*1.00*	1.40	**1.23**	*1.62*	.76	**1.16**	*2.25*	.51	**1.23**	*1.77*	.70
10	**1.45**	*1.37*	1.06	**1.19**	*1.52*	.78	**1.45**	*1.21*	1.20	**1.41**	*1.36*	1.04
11	**1.50**	*1.03*	1.45	**1.51**	*1.46*	1.03	**1.51**	*2.69*	.56	**1.50**	*1.89*	.79
12	**1.76**	*2.05*	.86	**1.64**	*1.04*	1.57	**1.65**	*3.02*	.55	**1.64**	*1.87*	.87
13	**1.84**	*4.73*	.39	**1.80**	*.65*	2.77	**1.81**	*1.92*	.94	**1.89**	*1.75*	1.03
14				**1.93**	*1.72*	1.12	**1.95**	*1.79*	1.09	**1.92**	*1.73*	1.11
15 to 17				**2.15**	*3.00*	.72				**2.15**	*3.00*	.72
Totals Nativity Groups	**.99**	*.84*	1.18	**.94**	*.91*	1.03	**1.11**	*1.42*	.78	**1.00**	*1.00*	1.00

This fact, if substantiated by other inquirers, suggests that important improvements are essential in school methods. It implies that eventual wage-earning capacity is impaired by laxity in school discipline and by wasting time and effort in the schoolroom.

The brain complex of the school-trained child tends, it is true, toward quicker comprehension of operative mechanism and methods; this ability to attain the average wage quickly is offset by lack of continued interest, application, attention, concentration and effort and does not result in continued wage-earning power. These figures indicate that this is possessed in larger degree by foreigners whose powers have not been impaired or enervated by the shut-in classroom and by learning impractical methods which later, in practical life, must be eradicated.

The foreign-born girl in the factory seems to have a slower power of grasping information, due perhaps to conflict of language, a certain rigidity of mind, and a general slower mental pace among her people. Slowness in learning may well have its corollary in not quickly forgetting; and bad methods slowly learned in school are slowly lost.

In contrast, the American girl, alert and quick-minded, learns quickly and, likewise forgetting quickly, loses rapidly the slow school methods and soon adopts the speedy factory ways.

Number of Years at Present Work

Another factor bears upon the wage-earning situation, i.e., the number of years spent at present work. On the original records turned in by workers themselves, experience in any other position which was not closely related in character of work to the present work was not added to their years at present work. For instance: if a worker reported that she had been a stove-setter for two years before going into the textile manufacturing line, these two years were not added to her years at present work; but, if she had been two years in a similar line of occupation, i.e., in the textile industry, the time she reported at that work was added to her years at present work; so that the figure for experience of each worker was the cumulative figure representing experience which definitely counted toward her present wage.

Foreign-Born

Foreign-born workers, whose wage-curve has just been analyzed, show an experience curve .25 below the average in years of experience, 58 having less than 4 years. These are perhaps the foreign girls who could afford only one year of American schooling. The foreign-born who earns nearly one-half more than the average wage after four years spent at school has spent over 2.5 the average time in attaining and holding that wage; so that, while four years at school seem to be sufficient to make the foreign-born wage-earner a better money-earner than nine years at school, the time which the four-year school worker required to gain and hold that wage was 2.5 times more than the average time required for the entire group. The girl who spent 4 years at school was a good wage-earner, as factory wages go, but she had spent many more years attaining and holding that wage than the girl who had been nine years at school, who, in order to earn and hold her smaller wage (only 25 per cent above the average), required 25 per cent more than the average time.

American Workers of Foreign Parentage

The curve in Chart 19 begins in the second year column, a little below the average wage for the group. It likewise rises in the 4th year of schooling to a few points above the average line, drops in the 5th year slightly below the average and gradually rises to a greater height in the 10th year than it had attained in the 4th year. This point represents the High School Group, who are few in number among factory workers and correspondingly few in the returns to this inquiry, so that the figures are affected, doubtless, by this small number in comparison to the bulk numbers in the lower grades in the grammar school; but there is an encouraging indication that ten years in school for the American-born girl of foreign parentage is worth more than four years in school to a girl of the same nativity and parentage. Eleven years in school brings the record to just about the average wage. Were the number of replies greater, this drop from the point reached by the ten years' schooling might not have occurred. Of course, girls who have been in school ten and eleven years are naturally selected from a different economic and social condi-

tion in life than are the girls who leave in the early grades of the grammar school. Here, too, home background has much to do with the quality of the worker; has much to do also with maintaining her standards of health, which enable her to be a good or a poor wage-earner. Many other factors enter into the determination of a girl's wage-earning power, justifying a life history of each individual worker to get at all the influences affecting her as a wage-earner; but this inquiry has confined itself to such facts as the wage-earner would give.

Turning to the corresponding experience of the American-born of foreign parents, we find that the dotted line begins in the second year more than .50 below the average experience for that second year. It rises in the third year, following the wage curve to a little above the average, and, in the 4th year, is almost on a par with the wage point on the curve. In the 5th year, it drops below the wage curve; then rises with the wage curve above the average in the 6th year; in the 9th year drops to about the same level that the wage curve reaches; then, in the 10th year, drops to the .80 point in the experience curve, while the wage curve rises to its highest point in this tenth year of schooling. This means that the American girl of foreign parentage who has had ten years of schooling requires .80 less than the average time to attain .20 more than the average wage.

In the 11th year, the experience curve rises to .75 more than the average, while the wage curve falls to about the average. This is an eccentricity of the figures explained by the fact that the record is of one worker. This isolated case distorts the averaging.

American Parentage

Finally, we turn to the record of the American worker. Born in this country of American parents, she has no records of less schooling than five years. Beginning at this point with a wage above the average, in the 7th year it drops to a little below the average, then rises in the 8th year somewhat above the average, and drops in the 9th, 10th and 11th years steadily to .80 below the average. This drop in the wage curve, with the increasing years at school, is due largely to the smaller numbers, as well as to the fact that the American-born girl of American parentage who has been to the high school and yet finds her work

in the factory is the poorest equipped girl mentally of the high school group.

High-school preparation turns the attention of most girls to lines of work other than those found in the factory. Those who drift into the factory have perhaps been failures elsewhere; are, perhaps, not strong enough physically to stand the competition of high-class work in other industrial lines; or, as the experience curve shows a point still further below the average line, these workers are just starting their wage-earning career and have not yet found themselves nor their work. A few years at work may find them, if they persist in the factory, as head of their work tables and earning creditable wages. But the fact that so few replies have been received to this inquiry from high-school girls in factories indicates that there may not be many with high-school education in textile factory work.

The experience curve closely follows the wage curve of the American-born worker, with the exception that at 8 years, the wage curve is above the average line, while the experience curve is below the average.

The summary of results in the third figure on the average line, in which nationalities are blended and do not play their significant individual role, shows the averaging of the figures represented in the other two curves. It shows the peak in the 4th year of experience and drop in the 5th year prominent in the foreign-born workers' experience curve. It also shows the rise in the wage curve in the 10th year due to the American worker of foreign parentage, with the corresponding drop in experience in the 10th year due to the American-born worker.

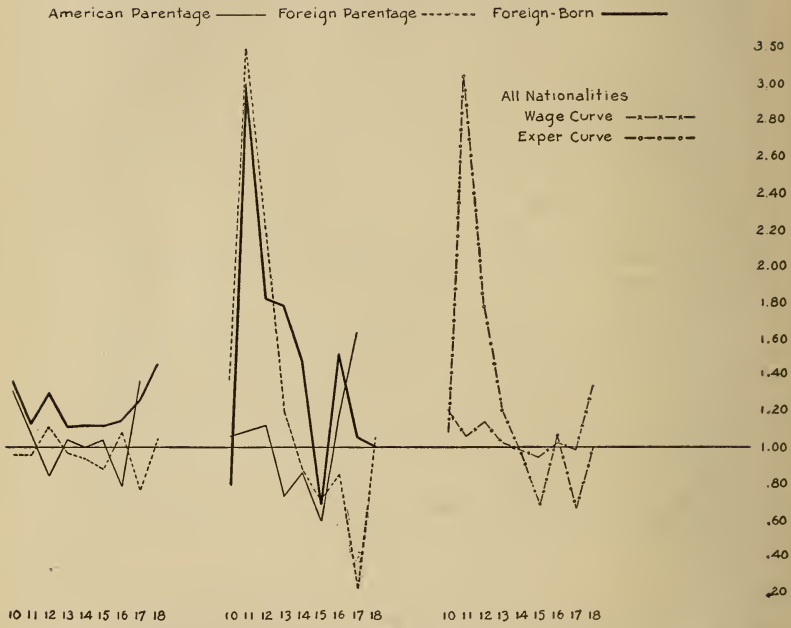

CHART 20. Nativity and Age at Leaving School compared by means of Wage and Experience Indices.

III

WAGE AND EXPERIENCE INDICES COMPARED BY NATIVITY AND AGE AT LEAVING SCHOOL

Foreign-Born

Chart 20 shows a naturally close resemblance to the charts just described representing the number of years in school. The foreign-born workers have the same wage record above the average throughout, excepting that the rise in the 18th year of age at leaving school is above any other point on the curve. Relating this curve to the experience curve, we find the foreign worker who has left school at 15 years of age dropping about .25 below the average for experience at that age, while earning about .15 more than the average wage at that age of leaving school. Fifteen years of age at leaving school means about the 8th grade, or a grammar school education. This has evidently prepared these foreign-born workers to get a little more than the average wage in considerably less than the average time. It is the point at which the majority of workers leave school who are destined for a factory wage-earning career, and the majority ability is shown in the records.

Sixteen years of age at leaving school brings the experience curve .50 above the average point, while the wage curve is maintained at about the same level, a little above the average wage. This would seem to show that the 16-year-old girl who leaves school to go to work is the mentally slow girl, since it takes her so much longer to earn a wage equal to that earned by the girl who leaves school at 15 years of age.

There is a decided drop almost to the average line in the wage and experience records of the girls at 17 years of age at leaving school. They probably entered high school and had that extension of mental horizon which high school work brings to the grammar school student and, barring the fact that only a few records are represented in this graph at this point, it would seem to show the important reaction of more extended school work upon wage-earning ability. This is still more emphasized at the 18th year column, where the experience curve touches the average line for the foreign-born worker, while the wage curve is at its highest point.

American Workers of Foreign Parentage

The records of this worker differ somewhat from the foreigner's. At 10 years of age, on leaving school, her wage starts a little below the average, while her experience is .40 above the average. The wage hovers closely along the average line in the 11th year, rising a little in the 12th year of age at leaving school. The experience curve, however, rises in the 11th year to a point 3.50 above the average. This drops in the 12th, 13th and 14th years to a point a little below the average line. The eccentricity of this curve in its 11th year cannot be explained adequately by the facts represented by these figures. The experience of the American worker of foreign parentage finds its lowest point at 17 years of age at leaving school; also the lowest wage point is at this same age.

In the 18th year, the rise of both curves—wage and experience—to the average line shows the averaging effect on the production of the normal worker through the extension of the schooling to 18 years of age.

American Parentage

The American-born worker of American parentage who leaves school at 10 years of age earns a wage .25 above the average, with an experience record a point above the average. At the 12th year, the American-born drops the wage-earning figure below the average, while the experience curve rises a little above the average, showing either a lack of mental grasp or of ambition. The American girl who leaves school at 12 years of age and earns less than the average wage with more than the average time put on such work, is a girl probably, whose school record would show a similar rating. She remains mentally 12 years old. The wage at 13, 14 and 15 years of age at leaving school is almost on the average line. This is the normal girl who goes to school up to the working-paper age and then, perhaps because of economic pressure of the home upon her, begins her wage-earning career. She is the normal-minded girl, and the experience record shows that she gets this average wage in somewhat less than the average time.

The 16-year-old American girl at leaving school who earns, after an average experience of 4 years, only $5.75 per week, shows her mental slowness in her work.

The highest point in the wage curve of the American worker is reached at 17 years of age at leaving school. The experience curve follows this upward direction of the wage curve, which shows that the girl at 17 years of age who leaves the public school is not the bright girl of 17 years of age. It takes her longer to earn this wage, although it is above the average wage, than it does the girl at 14 and 15 years of age who earns only the average wage, but in much less than the average time.

Summary of Indices Curves According to Age at Leaving School

The summary of these results of the workers, irrespective of nationality, shows the wage curve beginning a little above the average of 10 years leaving age, keeping closely to the average point up to 17 years of age and then rising at 18 years of age to the highest point on the wage curve. The experience curve begins near the average line; at 10 years leaving age rises abruptly to its exaggerated high point in the 11th year; drops steadily to its lowest point at the 15th year; rises to the average at the 16th; drops again at the 17th; rises to the average at 18 years leaving age.

These abrupt risings and fallings cannot be explained from the restricted individual history which this inquiry gives and which figures alone are used to represent.

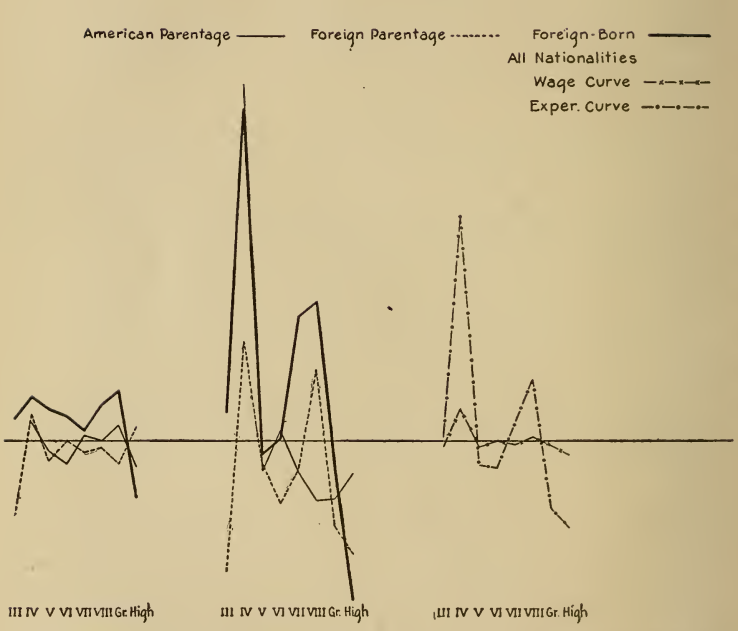

CHART 21. Nativity and Grade at Leaving School compared by means of Wage and Experience Indices.

IV

WAGE AND EXPERIENCE INDICES COMPARED BY NATIVITY AND GRADE AT LEAVING SCHOOL

Chart 21, expressing results as summarized in the grades at leaving school, shows the same general tendencies that the two previous charts have shown, because the grouping according to the number of years of school and the grouping according to the age at leaving school have both fallen into their respective school grade columns.

Wage Indices—Foreign-Born

The striking feature is the wage curve of the foreign-born, which rises in the 4th grade to .25 above the average wage, steadily falls to nearly the average in the 7th grade, then rises in the 8th and among the graduates attains its greatest height, dropping to its lowest point .80 below the average in the high school. This drop may be explained by the single case which it registers. The rise among the graduates is due, no doubt, to the quality of the girls that go through grammar school to the graduating point. The foreigner who is beyond economic pressure to such a point that she can complete her grammar school education is generally of such inherited background as to make her a high-grade wage-earner. It is the natural dropping-off place in the school career of the majority of this type of wage-earners.

Were this an inquiry into the wage scale and educational preparation of office workers, the selection thus made for such work would be from the class of girls that pursues its education to high school; in which case, from the indications of the curves of the grammar school education, we have every reason to believe that the high school worker would bring the curve in an ascending line from the average line; but that is a field apart from this inquiry, which aims to deal with the factory type of girl comprising a majority of wage-earning women. Her problems are pressing problems for educators, who share with the parents the large responsibility of preparing the girl for a profitable wage-earning career. The responsibility of the school is greater, because of the limited time her financial circumstances allow for preparation.

Wage Indices—Foreign Parentage

The wage curve for the American-born worker of foreign parentage begins in the 3rd grade almost .50 below the average wage; rising in the 4th grade to a little above the average; dropping in the 5th grade to below the average, and meeting the average line in the 6th grade, remaining close to it in the 7th grade; on the line again in the 8th grade and dropping below the average line among the graduates; rising above the average line for the high school. This line keeps very close to the average line, with no deviation marked enough to be of special significance. Here, too, the rise among the high school pupils is encouraging.

Wage Indices—American Parentage

The wage curve for the American-born worker remains close to the average line throughout its course. It is the average American girl of this inquiry who goes into the factory wage-earning world, and she has there an average career.

Experience Indices

The experience curve for these same three nativities has a devious course. There is much less similarity in the record of years spent at present work among workers than there is in the wage.

Experience Indices—Foreign-Born

The experience curve for the foreign-born follows quite closely the experience curve for the number of years spent in school, with the exception that it begins in the 3rd grade above the average line, showing that the girl leaving in the 3rd grade is not the same girl whose record is plotted in the previous experience curve as leaving after one year at school.

The peak in the 4th grade corresponds in abruptness to the peak recording four years of school, which probably means the same group of girls. The course of this curve is about the same as the previous curve until the graduate and high school year, where the line takes a rapid descent to its lowest point. This records the case of the foreign girl, whose experience is only a quarter of a year in length and who earns $5.00 and is at the same

time second-year high school girl; but again this isolated case twists the line from what might be its course, were the record from many workers.

Foreign Parentage

This worker has both wage and experience considerably below the average with a 3rd grade school record; the 4th grade group earn $1.50 more than the average wage but record 2 years more than the average experience; the 5th grade group fall below the average wage but have less than average experience, the 6th grade group earn slightly more than average wage with only $2\frac{1}{2}$ years' experience; the 7th grade group are not equal to the 6th grade as wage-earners; 8th grade group make a still poorer showing, recording 2 years more than the average experience to earn $7.02 per week. The graduates earn $6.35 with 2 years' experience, the High School Group $7.36 in $1\frac{1}{2}$ years, a fine comparative record from these seven workers of foreign parentage.

American Parentage

There are no records from 3rd grade, only one record from 4th grade; groups from 5th, 6th, 7th and 8th grade record a wage near the average with decreasing experience, graduates earning $8.00 in $2\frac{1}{2}$ years. This speaks well for the effect of longer schooling on the American wage-earner.

Summary of Indices Curves According to Grade at Leaving School

The summary curves again show that the high school girl requires less experience than the girl leaving the lower grades in the grammar school to reach the same wage. This fact is the more encouraging, because, by referring back to the figures for technical training in the schools, we find only about one-half of the girls record such training. With an increased prevalence of technical training in the schools, the next generation of workers, if they can be kept in the schools an increasing length of time, may hope to find their wage increasing, while their experience to attain this wage should decrease.

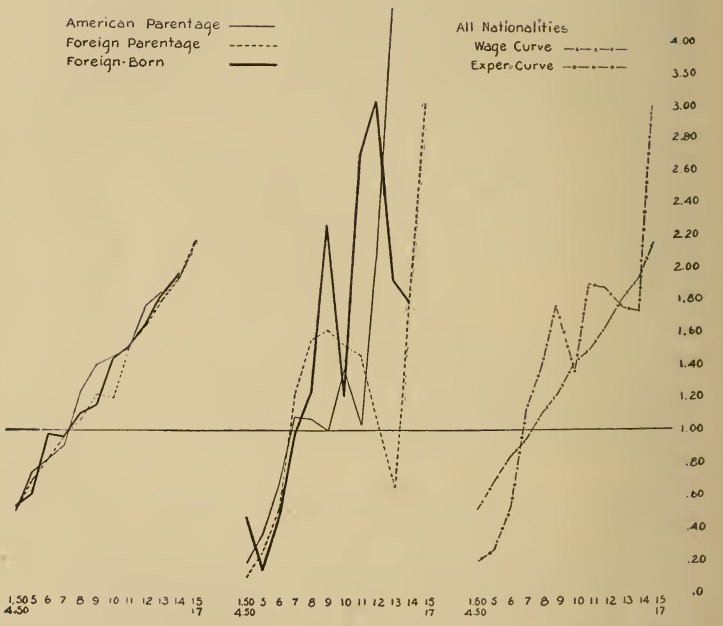

CHART 22. Nativity and Wage in Dollars compared by means of Wage and Experience Indices.

V

WAGE AND EXPERIENCE INDICES COMPARED BY NATIVITY AND WAGE

One further grouping of facts may be of interest. The figures have been assembled according to the experience required by the girls grouped by the ascending dollar wage and presented in Chart 22. Those from $1.50 to $4.50 have been grouped under one column, and, from there on each increasing dollar of wage has a column.

The wage curve for these different dollar wages naturally rises from $1.50 to $17.00. The somewhat irregular line is caused by the smaller number at the different points within the dollars. Naturally, too, the experience curve of those earning from $1.50 to $4.50 is much below the average line, because they are the beginners. The drop from the $4.50 column to the $5.00 column is due to the fact that, in a number of places, the minimum wage is $5.00, earned by the girls with the least experience. In other places, the record shows girls earning as little as $1.50.

The rise of the experience curve is steady from its lowest point at $5.00 to the first peak at 2.25 above the average line among the $9.00 workers.

The number of records from $10.00 up is too few to give the upward curve in experience the significance which its rapid rise would indicate; but the rise naturally expresses the greater length of time at the present work required of those earning above $10.00 per week.

Foreign Born

Comparing the lines for the different nativities, the foreign-born worker gives more time to get the wage above $10.00 than does the American worker; her record carries her line high above the other two nativities.

Foreign Parentage

The American-born girl of foreign parentage, for the record above $10.00 per week, earns this in the least time at the present

work; so that the girl born in America of foreign parents seems able to attain the higher wage in less time than does the foreign-born girl or the girl of American parentage.

American Parentage

It is between $10.00 and the lowest wage that the American girl has the advantage over the other two groups. It is also the American girl who remains at this work in the factory less time in the long run than the other workers.

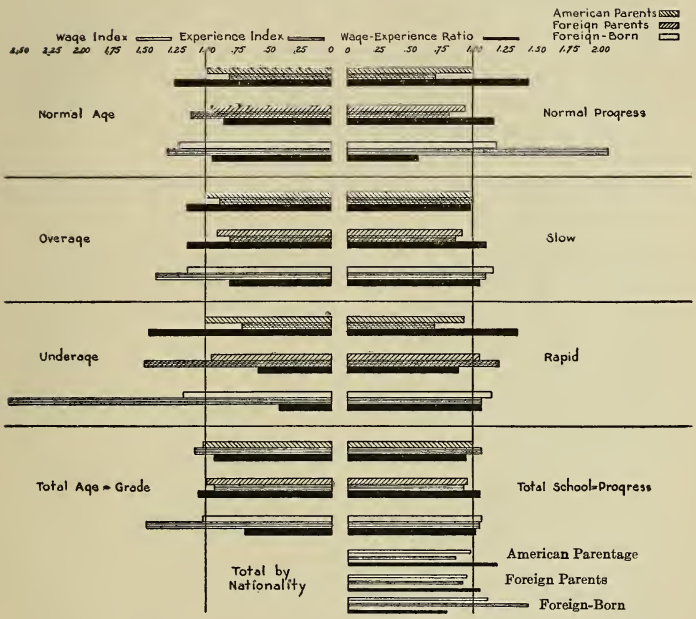

CHART 23. Age-Grade and School Progress Groups according to Nativity and Indices.

VI

AGE-GRADE AND SCHOOL PROGRESS GROUPS ACCORDING TO NATIVITY AND INDICES

A comparison in graphic form in Chart 23 is possible with the two school groups, Age-Grade and School Progress, dealing this time with the ratios of numbers to wage, numbers to experience and wage-experience ratio, which is a resultant of the wage ratio to the experience ratio.

The Normal Group is evenly balanced in both groups, with the exception of the jutting out of the foreign workers' experience column in the School Progress Group. This, of course, reduces the length of the wage-experience-ratio column in the school progress division. In other words, the foreign-born worker whose progress through school has been normal has not an economic value equal to either the American-foreign worker or the entirely American worker of same rate of school progress. The largest wage-experience ratio is that of the American worker of normal progress through school, closely followed by the American girl of normal school age.

In the Over-age and Slow Groups, there is a close balance between the right and left-hand columns. Economic value as expressed in wage-experience ratio column is greatest in the over-age American-foreign worker. The experience column extends a little beyond all others in this group among the over-age foreign girls, but the excess of experience required for wage-earning in the Over-age Group is not as great as in the Normal Group among the foreign-born workers, so that, although the foreign-born worker who was an over-age pupil has less economic value than American workers of like school record, she is of greater economic value than the foreign-born worker of normal progress.

In the Under-age and Rapid Group, we again find the noticeable extension of the experience column among the foreign-born workers with an under-age school record; also a longer experience column among the American-foreign worker of rapid school progress than shown by the previous groupings. This graphic

indication that the Under-age School Group requires longer time in industry to bring their wage up to the standard corroborates other chartings. This Under-age Group requires the longest experience of all the workers to gain the same wage that the Normal Group attains. In the Under-age Group among the workers of American parentage the economic value or wage-experience ratio rises to its next to highest point, followed closely by the Rapid Progress Group.

Wage rises to its highest point in the Normal Age Group among the foreign-born. Experience reaches its highest record in the Under-age Group, also of foreign birth.

This ratio of wage to experience brings the economic value of the foreign-born worker below either of the other two groups: the American of foreign parentage and the American of American parentage.

In economic value, as measured by ratio of wage to experience, the highest point is reached in the Normal Progress Group among the American parentage workers.

Wage Earning Capacity

The coefficients of correlation estimated on the median basis are for:

General Group of 605
- Wage and age ..... .43
- Wage and experience ..... .432

School History Group of 515
- Wage and age ..... .34
- Wage and experience ..... .38

Two deductions may be drawn:

First: That correlation between wage and length of service and between wage and age of the worker is less than one-half of perfect correlation, "perfect" meaning equal and parallel increase of wage to the correlated item.

Second: That wage holds much the same mathematical relationship to length of service as it does to age of the worker; naturally so, because the length of service and the age of the worker increase concurrently; but it also means that general statistics of an entire group are little affected by merging into the whole the workers who remain at their work many years beyond the median, average, or modal age. That is, the number above the average in age, wage and experience received a wage too small to counterbalance in a general group average the low

wage of the many who are in the same line of work less than two years.

In other words, in the type of women's work which the factory affords, length of service does not mean increased wage-earning; in fact, it does mean decreased earnings as years increase. A few of these protracted workers did attain to positions of prominence with wages that have possibilities of profitable living in them, but such positions are few, because they are those of leadership.

There are not many women who go into this factory field of wage-earning who have the quality to make leaders. Competition is so great and so selective that it is probable that good material such as makes leaders is rarely overlooked. Leaders rise out of the mass of workers by their own initiative. The quality of leadership is needed by managers of factories and encouraged to find its more extended sphere of work.

Home-Making Requirements

Potential leaders are lost in the throng of factory workers, but probably find their place in other lines of their own selection or in the home of their own making, to which they adapt themselves with greater satisfaction because of their experience of the routine of factory work. This cannot be said so generally of workers in the household, or domestics. If their household work period is in the homes of the rich where leisure and ease prevail in the daily life of their employers, the domestic whose whole life is spent in that atmosphere is in danger of being swerved from any desire to share the humble life and surroundings of the man with opportunities corresponding to hers, and is unfitted to be his helpful companion. When such household workers marry mechanics or clerks, they are apt to be discontented with the kind of life they enter and find little happiness in making the incomes of their mates meet all the necessities of their life. They draw comparisons with the life they led in the wealthy homes in which they served. In contrast to this, the factory girl who has had money-making pressure brought to bear upon her ten hours daily and who helps make the necessarily humble home her husband can provide finds enough variety and contentment in the routine duties of the home of her own making and comfort in the release from pressure for increasing production.

If, through unwise selection of her mate, ignorance or misfortune, this woman is not successful in her married life and so

brings about a necessity for returning to wage-earning, she may readily rejoin the throng of factory workers; in many instances, she does return to her place in the factory and picks up her life where she left it, if the interim is brief. The housekeeper is apt to lose her speed in the home; the process of manufacture has changed during her absence. This all means a period of adjustment; hence, her wage, as measured by her production, is correspondingly small. In exceptional cases, she is a woman of executive ability and then is likely to work up into a forewoman's place. By this kind of experience, some of the strongest factory women are made.

A frivolous factory girl who marries does not carry from her work to her home-making the discipline of regular work and definite responsibility, but rather all the unfavorable features of the constant excitement or stimulant of being in a crowd, the possibilities of extravagance from the independent wage and its personal expenditure, and the ease of doing one kind of work continuously under definite direction.

To this factory worker, housekeeping, with its variety of work, about which she knows little, is full of failures, disappointments, discouragements. Her daily work in her home is beset with difficulties: she cannot direct herself; she has no one to steer her through failure to success; her mechanical skill which brought her a weekly wage in the factory is not applicable to the varied manipulative operations of the household and her weekly allowance for expenses is necessarily smaller than she earned alone. Her changed basis of calculations finds her unequal to the work of successful adjustment and she returns to her factory job and adopts a boarding-house life or a makeshift home largely supplied from the nearby delicatessen store.

Correction of this tendency is a home and school responsibility. A good home during childhood tends to impress its methods and ideals and establish habits so firmly on the young mind that homes made later by them will be on the childhood model. School training along mechanical and technical lines and in social relations would reinforce and secure these home lessons. Such training would help to establish them if the home background is lacking; then homes of each succeeding generation would be reasonably sure of workers equipped to maintain them, whatever may be their previous wage-earning experience.

APPENDIX

FACTORY VISITS

Notes from Silk Fibre, Underwear, and Silk Glove Factories

Spool-winding merely requires skill enough to tie a knot and to keep the reels at work. When the silk thread breaks, it is tied in a weaver's knot, cut with the scissors and the reel restarted. A good worker keeps all her reels going. The mediocre skill required attracts the mediocre workers, who drift from one operation to another. There is little ambition among these workers: some are too stupid to learn; others are affected by the noise of the machinery, and many develop flat-foot while wearing high-heel and other improperly fitted shoes.

The reeling of spool silk can be learned in a week, employs young girls and some boys and men. It requires only ordinary ability but demands attention to the work. Reeling silk prepares it for being twisted in hanks for dyeing.

Bobbin winders learn in a week and must simply watch their machines, tying the knots in the threads, removing roughnesses and starting the machine anew. One girl may tend several winding machines. It is all week work. The grade and defects of the work are determined later by the machine on which the thread is used in further processes. As in all process work, coöperation between operations is requisite.

Webbing-machine tenders or feeders have to stand all day, but vary their work of feeding the machine by cleaning it and by winding up and taking care of the webbing. They brush the lint from the needles and machinery, oil the machine frequently, cut off the bundles of webbing when it is of the right size or when defects occur. They start the machines and get the machinist to repair the breakage. Girls show great differences in caring for this work. The machines of some break down much oftener than those of others.

The mending of cotton and silk webbing is an important process. It requires about three weeks to learn and is handwork carefully done by means of a hooked needle. The repair process renders

the injured material as good as new. This is a superior way to renew defective material and should be taught in school to supplement darning as a repair process.

Mending of silk hosiery material is a most painstaking process and is well paid. The girls are seated comfortably in the best light, and work by the week, as no piece work basis is possible. It requires good eyes, steady and painstaking application, besides ability to be a good hand sewer. Women in this department become forewomen in other departments, such is the quality required of the worker. The mending is done with a fine-pointed needle and when on black material is a considerable strain on the eyes.

Girl cutters are used in cutting knitted underwear, because the suits are cut singly and with scissors. The process is varied. A 60-yard piece of webbing is first put onto a cylinder which requires muscular arm work. This machine winds the webbing ready for cutting. Requirements for this work are sufficient height to reach over the table and the quick use of the scissors. The experienced girl cutter takes the beginner onthe opposite side of the table to help spread the material, lay the patterns, mark with a pencil and cut along the line.

Stitching, seaming, and hemming are closely related processes, requiring good machine sewing, a light touch and good eye, and when applied to silk goods, these operations require more control of the material and machine and a lighter touch than with cotton material.

Seaming requires steady sewing and a delicate, quick touch in handling material so as not to stretch it, yet give it sufficient fullness. The seams are generally of good length, are sewed flat and covered in one process.

Hand crochet on the edge of knitted underwear is done on the special high-class garments. Workers must know how to crochet when they apply. Only a few stitches are needed, but the work must be done rapidly. Many of these girls come from convents. They sit in a group by themselves and chat sociably.

Machine crochet, which finishes the edge of knitted underwear, can be learned in a few weeks; it requires an eye for straight edges and strength in the hands to control the work and the machine.

The neck finishers are young girls who are rapid and patiently

exact handworkers. It is a particular work, being the finishing of the edges of the knitted wear.

Ironing of Italian silk underwear requires quick light motion and attention to the work. Electric irons are used and must be kept at uniform heat. The ironing boards are placed so that the workers can talk to each other. They have freedom to move around and are in a light, clean place.

Packers of finished articles require accuracy and attention to numbers on tickets. A knowledge of the stock is necessary to see that the material agrees with the tickets. This work is paid by the week, as it is dependent upon supply from the other departments. Good workers from other departments are often shifted to the packing department.

Boxing and labeling of underwear can be learned in a week; requires standing, sitting and moving about, and only ordinary ability, sufficient to make correct comparisons.

When a new machine comes into a factory, a teacher comes with it, who instructs the forewoman and one or two others in the department; these pass the instructions along to the group. Thus little loss of the worker's time is necessitated by instruction on a new machine, so gradually does it make its way among the workers.

When girls are transferred from similar action machines in other departments or other factories, they learn quickly.

Learners waste much time and material by wrong positions at the machine and often by undue strength until they acquire a knack of holding the material and in adjusting themselves to the machines.

The various processes in the making of gloves have each their own interest to the worker. The inserting of thumbs is a particular operation. One of the best workers at this learned dressmaking at the Girls' High School. The closing of seams of the gloves, beginning at the forefinger and sewing continuously to the opposite end of the glove, requires great control and a straight eye to keep the seams straight and the sewing near the edge. In all high-grade hosiery and glove making, very fine eye measurement is needed to turn the sharp corners, to handle the bias edges so as not to distort them, to make perfect adjustment between the double pieces, and to turn the corners of the short seams accurately.

Speed work is most essential on cheap gloves, on which the quick workers are placed. The high tension of this speed work is felt by some workers, who ask to be changed to the higher grade work. Others are not affected by the speed and are contented to remain indefinitely at this lower grade work.

Steaming of gloves is done on a wooden frame moved over a jet of live steam. This work does not call for any special ability but quick movement to keep from overheating the material. Fitting the article on the frame and removing it takes much nimbleness of fingers.

Stock clerks are experienced workers who give out all the bundles to the operators and earn about $16.00 per week. These girls are valuable because of their acquaintance with the work and the materials, so their wages advance with their length of service.

In the glove-making factory teachers in each branch of the work know the making of the whole glove. The slow learners generally prove to be the best workers—probably due to their thoroughness. Slovenly girls seldom make good workers. Where fine material is being handled constantly the hands of the workers must be kept in good condition.

In some factories the forewoman does the sample work; she teaches the new girls and puts them next to the good workers, who introduce them to the ways of the factory as well as to the work.

Girls may do well the first day, run down the second and third day, followed by a fourth day of great discouragement, which makes a situation for the forewoman to handle skillfully, if the worker is to be retained or is worth while retaining. If, at this juncture, the girls were allowed to go home without the special attention of the forewoman, they probably would not return to the factory.

Training in dressmaking seems to be the best preparation for this work. Regular life in the factory improves the health of the worker. When a factory is well managed and properly considers its help, the workers testify to this by bringing their friends and relatives to work. Piecework seems to be the only way to make girls progress. The girls want to stay with the one process on which they are expert. With it is some variety, such as clipping ends of threads, which allows them to sit back in their chairs, and

the getting and returning of bundles of work, counting their work and labeling tickets. In slack seasons, in one department, girls are shifted to busy departments and often find they like the new work better, but there is a tendency to resist change of work which has to be made skillfully by the manager of the workroom.

In a well-managed factory, where the feeling is good among the workers, frequently the quick workers will do extra work to help the slow workers or those who are sick.

Frequently, when girls marry and have time to spare at home, they return to the factory to get such work as they can do at home. This keeps them in touch with their former work and pulls them through frequent financial emergencies.

Notes from Curtain and Embroidery Factory

Many married women who have a few spare hours during the day get work from the factory to do at home, such as cutting out applique work in curtains, and trimming out scalloping. School children help at this work after school hours in the home, thus increasing the earnings of the family. The best means to remove the exploiting of child labor in the home is to pay the men of the family higher wages, and prohibit home labor on factory products.

The curtain and embroidery field is a growing one, and, for steadiness of employment, is one to be recommended to women workers—being undersupplied with trained operators. Processes and operations change gradually, so that the superintendent of the factory can train the best workers on any improved machine.

A successful and well-meaning manager of a factory, in order to maintain his working force throughout the year, does not, in times of financial stress, reduce the pay of his workers. The majority of workers will return in good service this feeling of reliance on the management which assures them steady work throughout the year and throughout all emergencies.

One factory manager said he preferred to take girls fresh from school between 14 and 16 years of age rather than those who had been in other factories. He said that no woman had ever given him original ideas about work in the factory; that they know nothing about machine mechanism and are helpless when anything unusual occurs with the working of a machine. Yet he believed, if girls were trained to know about machinery as

boys are, they would make as good mechanics as men. One girl was made an adjuster of machines in this factory and gets $12.00 per week for lighter repair work. The superintendent discovered her ability, not to do just as she was told and no more, but to think and act for herself.

If mechanical direction were given to girls in school, a great deal of latent mechanical ability might be developed which would make them useful workers on the machine processes of to-day. There is always a chance for advancement wherever ability or attention to work and to the interest of the employer is displayed by the worker. One girl who started as a folder of material by the yard worked up to the head of a department in nine years.

Advertising for help, in the estimation of this superintendent, brought only drones and outcasts. He has men on the outside constantly looking for good workers, and all of these workers he trains himself. He would be delighted to have the schools do some of this training and send the prepared worker to him. She would then be taken on in the experienced group rather than as a learner. The payment basis for those who come with experience and those without is an immediate difference of several dollars in the weekly wage.

Out of about 150 girls who have married within 10 years in this factory, 85 have made failures of the venture and returned to work. These failures open the eyes of the young girls still at work and cause them to stay at their $10.00 or $12.00 per week job rather than marry so young or at all with the likelihood of having to return to work to help support the family.

Machinery has so lightened the nature of much of the work that girls can accomplish the work better than young men, being more steady and more careful.

Boys should be trained for work which only men can do—heavy work, shipping, etc. Girls will eventually do the rest.

When $15.00 a week is the average wage of a working man, it is not enough on which to support a family and makes marriage impossible.

Roumanian and other Southern European women make splendid workers. They come at 6 a. m., if allowed in the factory at that hour, work all day at the machine, have great powers of endurance, are independent of their fellow-workers, and make good wages; all with the one idea of accumulating their

pile to take back to their native country, where they can then take life easily. American women have no like purpose to "keep their noses to the grindstone."

The Roumanian workers learn quickly and work well on artistic work, where there is some freedom for the movement of their embroidering machines, but they cannot follow a straight line well. It is essential to know these characteristics of work and workers, particularly in the embroidery line. The choice of workers according to what they can best do and the direct placing of them at the work fitting their ability saves much time and expense for the factory. A certain factory manager found this characteristic of the Roumanians so striking that, whenever a Roumanian applies for work, she is first put on the free embroidery machine. On the other hand, the dark Italians do the straight line embroidery work well, but fail on the freer artistic work. The light Italians are good on any kind of work, was the verdict of this experienced factory manager. It would be valuable to know whether the experience of other managers accords at large with this observation.

Lace mending is a process which employs the best workers and pays almost any necessary wage to get such workers. It is hand work done in the lightest and cleanest spot in the factory, for much depends upon the perfect renewal of the torn mesh. Although exacting work for the eyes, it should not be detrimental to young eyes or those adjusted to close work by proper glasses. A few fundamental lace stitches taught in the schools until facility is gained in making them—a matter of but a few weeks to those who are good sewers—would enable a girl to become a lace-mender at $10.00 a week with an all-year-round position. If she knew about the different kinds of laces, something of their historic interest, the national characteristics of the different laces, her interest in her work would be enhanced and she herself could extend her interest by study of the lace departments of museums.

Stencilling designs and transferring patterns is a large department in a lace factory, chiefly in charge of men. There is no reason why women should not do this work as well as men were they prepared by the school with a sufficient degree of expertness to give them confidence to apply for such positions.

Training for accuracy and habits of industry, with the feeling of responsibility for the work and position undertaken, seem

to be the desired essentials in all factory work. Facility in handling pieces of material which must be joined without the necessity of basting is also an essential requirement of workers. For instance, a pantograph operator, who gets $10.00 a week to guide a lever which traces a pattern for duplication many times over on repeating machines, needs this absolute accuracy to make her work worth while. The following of the pattern on a curtain is a difficult matter, because of the maze in which the lines of the pattern arrange themselves, out of which the worker must successfully find her way with her tracer. The attention of the worker must be unfalteringly on the work.

The sample makers of embroideries and other white goods articles are the picked workers and are paid by the week. At this select work, the German women seem to be best, because "they seem to be more for work" than most other nationalities. They get about $12.00 per week throughout the year and make samples which the salesmen use in bringing in orders for supplying the factory with work. This sample work has the advantage of being constantly different, but requires special ability to turn out representative work.

Machine embroidering pays from $9.00 to $15.00 per week piecework, requiring from three weeks to three months to learn how to handle the embroidery machines. Foreigners seem to take to this work better than Americans, are more steady at the work, and acquire it more quickly. The pattern is stitched on the cloth over stiff paper to keep the linen flat and the machine is simply guided to follow this pattern.

Ironers of embroidered work get from $9.00 to $10.00 per week piecework. Ironing can be learned in about three months; requires great physical strength to stand long hours and endurance of heat and steam, as well as strength to press the iron. Only foreign women are able to endure this work. In summer, the heat and steam are great, but this is due to faulty methods of ventilation. The irons commonly have gas in them with a blow-pipe arrangement to intensify the heat. Embroidering puckers the material and needs careful ironing to smooth it out and prevent scorching.

Folding embroideries and winding them on cards gets about $9.00 per week and requires about a week to learn it. Americans are employed. The ability needed is speed, straight eye, and

a light touch. The girls start at $5.00 per week and in about seven weeks earn $9.00, which is the limit. The embroidery is folded over a card, slipped into a groove, fastened on an axis, the treadle is pressed and the card, revolving, winds up the material. It is then passed on to the ironers, who press the outside surface. These finishing ironers get $12.00 per week.

The packers are young girls, who learn the work in a few days. It requires speed and strength to stand all day but is quiet work. The girls stand beside each other, so that talking is possible. Packing pays from $7.00 to $9.00 per week.

Examining in some factories is a more important work than in others. In the embroidery line, there is less precision demanded and the article is examined only just before it is packed. Where there are many machine processes on one article, each stage has its examiner to prevent defects from occurring and spoiling an expensive article.

Cutting is men's work. It requires strength and straight eye and steady muscle direction. The pay is from $12.00 to $15.00 per week. It can be learned in about a month. The old process of cutting with a knife made heavy callous spots on the hands. The earnings used to be $18.00 per week. Now the revolving electric circular and the guillotine knives, which run on a broad base, have simplified the work. Boys used to be hired to lay out the material on tables in folds preparatory to the cutting. Now one man and a folding machine can do the work of four boys. The folding-machine operator gets $8.00 a week, the boys got $6.00 per week. The old knife process of cutting by hand is now used on small, odd jobs.

Bandmakers on aprons get about $10.00 per week; require accuracy, deftness and a light touch. The work is the hand-turning of folds, sewing in the apron and apron strings.

Another operation is now being tried out, of fitting the band material into a funnel, which folds it and puts the apron into the band with one process. One girl can make from 200 to 250 dozen daily.

Notes from a Cotton Factory

The raw cotton goes through a cleansing machine, is then sucked under ground into a picking-room where, after a series of combings, it is made into slivers. Only men are employed in

this room. They have to tend to the machinery, and there is some lint in the air in spite of hoods.

The inspectors of skeins are mostly American girls. They can be well dressed at their work and work apart from others. There is a strong class feeling among girls. Men mix better. They have politics in common.

American women do chiefly the high-class work in the mills, inspecting, and office work. They have risen from grade to grade as foreigners have come in to take the less complex work. Irish, English, French and Portuguese in turn have supplanted Americans.

At the warping operation, girls are seated on stools to watch the thread's thick parts which they cut out, retying the cut ends with a weaver's knot. This work depends on the quality of work done by the spool tenders and in its turn determines the grade of yarn sent out by the mill. These workers get paid by the week, according to their length of service and quality of their work. They like the alternation of sitting, standing and moving about, while all the heavy work is done by men, such as lifting out the warping beam when full. There is plenty of room between warping machines for aisles, but workers can talk to each other; each keeps her own place clean while men keep the aisles clean.

One of the workers interviewed had been a milliner, but her work was not steady, and so she came to the mill and became examiner of skeins. This being too sedentary, the work did not agree with her, and she was put on the warping machine which gave her the needed change of position. Her former millinery art is used in making hats for her family and her associates at the mill. Most of her friends are teachers. Another warper was an English woman who had always worked in a mill before she married. Her husband, likewise a mill employe, did not have work as steady as hers so she returned to her place in the mill and now banks her money with her husband's. English men rather want their wives to work. They rely on them and spend many of their evenings in the "grog shop." French men let their wives work only until they have made together a comfortable home.

Some women, who apparently move slowly at their work, accomplish most because every move counts. The quick-

motioned girl often averages low. Many of the French are of the latter type. One of the best qualities in these workers is obedience, following instructions from one who has experience, not questioning or trying some other way. While learning, no pay is given. The work done by the learner goes to the credit of the one doing the teaching. When the learner is able to be independent of the teacher, the pay is then regulated not according to the output but by the week. The amount of acccomplishment is known by the overseer.

One manager thought that the cadet practice and military discipline he got in the high school did more good for him as a business man than anything else. It taught him to obey orders and, knowing how to obey, he later knew how to command—an observation more applicable to older methods of management than those accepted to-day as progressive.

One superintendent thought the mill was no place for women. The stretch over the looms to tie threads is injurious. Handling the shuttles which men have handled may give them contagion, which they in turn carry home to their families. According to this superintendent, girls who work in factories before they are married, return after marriage for the money and for companionship; their homes are uninteresting to them.

Operatives have cause to suspect managers' acts and motives because of the long line of impositions practiced, such as setting back clocks, and taking advantage of help in small, mean ways, as well as exploiting their labor. More humane treatment now prevails but the tradition of the imposition remains in the minds of the workers, and will remain until much more evidence of managers' wisdom is manifested.

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