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THE "FLAT-IRON"
NEARING COMPLETION.

AMERICA
AT WORK.

BY

JOHN FOSTER FRASER

Author of
"The Real Siberia," etc.

WITH THIRTY-EIGHT FULL-PAGE
PLATES FROM PHOTOGRAPHS

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CONTENTS.



	PAGE
FOREWORD	1
CHAPTER I.	
THE NEWEST NEW YORK	6
CHAPTER II.	
THE WORK IN DEPARTMENT STORES	17
CHAPTER III.	
RAPID TRANSIT IN NEW YORK	29
CHAPTER IV.	
HOW RAILWAY ENGINES ARE BUILT	39
CHAPTER V.	
SCENES IN PITTSBURG	50
CHAPTER VI.	
SOME WAYS THEY HAVE IN WASHINGTON	64
CHAPTER VII.	
COMMERCIAL TRAINING IN NEW YORK	76
CHAPTER VIII.	
SOME PHASES OF COMMERCIAL LIFE	88
CHAPTER IX.	
THE AMERICAN FARMER	98
CHAPTER X.	
AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS	111

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	PAGE
CHAPTER XI.	
RAILWAYS AND RAILWAY TRAVELLING	124
CHAPTER XII.	
CHICAGO	138
CHAPTER XIII.	
HOG KILLING AND PACKING IN CHICAGO	152
CHAPTER XIV.	
METHODS OF BUSINESS IN CHICAGO	164
CHAPTER XV.	
NIAGARA IN HARNESS	177
CHAPTER XVI.	
THE AMERICAN WORKING MAN	189
CHAPTER XVII.	
MANUFACTURE OF BOOTS AND SHOES	199
CHAPTER XVIII.	
COAL MINING	212
CHAPTER XIX.	
ELECTRICAL WORK	223
CHAPTER XX.	
THE WOOLLEN INDUSTRY	233
CHAPTER XXI.	
THE COTTON INDUSTRY	245
CHAPTER XXII.	
SOME GENERAL CONCLUSIONS	257

LIST OF ILLUSTRATIONS.



	<i>Facing page</i>
THE "FLAT-IRON" NEARING COMPLETION	<i>Frontispiece</i>
THE BEGINNING OF THE "FLAT-IRON"	6
A NEAR VIEW OF THE "FLAT-IRON"	10
THE "FLAT-IRON" IN CONSTRUCTION	14
ASSEMBLING OF PARTS IN ERECTING SHOP AT BALDWIN'S.	40
HYDRAULIC RIVETING MACHINES AT BALDWIN'S	42
THE LATEST AMERICAN FREIGHT ENGINE	48
THE HOMESTEAD WORKS, NEAR PITTSBURG	56
THE HOOVER AND MASON GRAB	62
UNIVERSITY OF PENNSYLVANIA AT PHILADELPHIA	76
A PHILADELPHIAN TEXTILE SCHOOL	78
TECHNICAL INSTRUCTION IN PHILADELPHIA	80
SCIENTIFIC CLASS	82
DESIGNING CLASS AT AN ART SCHOOL	84
JUDGING A SHORTHORN AT IOWA AGRICULTURAL COLLEGE	112
INSTRUCTION IN JUDGING COTSWOLD SHEEP AT THE WIS- CONSIN COLLEGE	114
STUDENTS STOCK-JUDGING AT AN AGRICULTURAL COLLEGE	116
CROSSING WHEAT AT AN AGRICULTURAL COLLEGE	120
A TYPICAL PULLMAN CAR	124

	<i>Facing page</i>
OBSERVATION CAR ON THE PENNSYLVANIA LINE	128
AN AMERICAN PRIVATE RAILROAD CAR	132
THE "PENNSYLVANIA SPECIAL" (1902)	136
THE GENERATORS WHICH DRIVE THE ELEVATED RAILWAY IN CHICAGO	140
A CORNER OF CHICAGO'S SLUMS	144
PERPETUAL LADDER DELIVERING GOODS IN CHICAGO.	148
FASTENING PIGS TO THE WHEEL	152
SCALDING THE PIGS. THROAT CUTTING	154
FELLING CATTLE. STUNNED CATTLE	156
REMOVING HIDES	158
PREPARING PORK FOR THE MARKET	160
DIVISION OF LABOUR IN PLUCKING FOWLS	162
IN THE LASTING ROOM OF AN AMERICAN SHOE FACTORY	204
IN THE STITCHING ROOM OF AN AMERICAN BOOT FACTORY	208
BUILDING TRANSFORMERS AT THE WESTINGHOUSE WORKS.	224
WINDING DEPARTMENT AT THE WESTINGHOUSE WORKS	226
HUGE GENERATOR FIELD AT THE WESTINGHOUSE WORKS	228
DRAUGHTING DEPARTMENT, WESTINGHOUSE WORKS	230
A COLOSSAL WESTINGHOUSE ROTARY FIELD GENERATOR	232

AMERICA AT WORK.

FOREWORD.

I HAVE written this book, not because I wish to laud the United States at the expense of Great Britain, but because, having travelled much in many lands and having often had my patriotism stung by the contemptuous way in which foreigners speak of British industries, I desire British workers to get level with the industrial times. I believe that while British manufacturers have much to teach the world, there is much for them to learn, particularly from America.

For many years I have taken interest in methods of work in the two countries. In 1902 I visited the United States as the representative of "The Yorkshire Post" for the purpose of investigating, at first hand, into the way great industrial concerns are managed. It was not as an expert in any business that I went, except that of a trained journalist, who, throwing aside details, endeavours to get a quick, ready, and, I daresay, rough idea of essentials. It was towards the essentials of industrial success, the mainsprings, as it were, that have lifted America to its present position, that I, therefore, directed my eyes.

One thing I can say—to meet the criticisms which I anticipate will be levelled against this book—I was absolutely unbiassed. It was a difficult condition of mind to maintain. It was difficult, because it is impossible to generalise about America: it is too vast, its population is too complex, the conditions of labour are so varied in different States. There was the temptation to take up one side or another, to see some things which filled me with enthusiasm and promptly declare: “It is in the United States you find all that is best,” or to see something vulgar and barbarous, and cry out: “Heaven save England from copying the Yankees in that direction!”

To have written in praise of all things I saw would have been to gain the plaudits of Americans—who are ever willing to recognise appreciation—but to have been regarded scoffingly by my own countrymen as one who mistook bluster for business capacity. To have written in wholesale condemnation would have brought upon me, a gor-darned Britisher, the abuse of Americans—who are ever eager to resent criticism—though a considerable section of my own countrymen would have patted me on the shoulder for doing a good service in showing up the bumptious, unscrupulous ways of the land where they make the wooden nutmegs. In this volume, however, I try to do neither one thing nor the other: what I saw to admire I admired unstintedly; what I saw to condemn I condemned unequivocally.

That, I thought, was the fairest way, especially

as I was writing for the British public, and anxious they should imitate what was good in American industrial life, but avoid what was bad.

But there is a lot of human nature in both the British and American people. Praise is accepted as simple justice; criticism is looked upon as an impertinence. In subsequent pages there will be found chapters dealing with American boot-making, and with the state of Chicago. When the chapter on boot-making appeared in "The Yorkshire Post," the American newspapers said: "Here is a sensible man with his wits awake, and who knows what he is writing about." The English boot manufacturers were indignant at my having said they were toddling at the tail of American manufacturers, and they sneered at American foot-wear as rather less durable than brown paper. I wrote on Chicago. "Oh!" exclaimed the Briton, "I liked that article, showing what a sink of iniquity the place is." Men, indeed, who knew Chicago better than I pretend to do wrote me saying my pen was far too mild. The Chicago newspapers, however, poured verbal vitriol over me as one more of those hide-bound Britishers who could see no good in any country but their own!

Personally I would not care to live in America, because there is such a lack of repose, because—and I am not forgetting charming exceptions—the general conversation among men is always on one subject—money-making, and because there is a rush and a scurry, living merely to work, instead of working to get some of the beauty out of life, that often

suggested the hard race was not really worth the prize.

But in this book I have carefully avoided considering America at work from personal proclivities. I treat it as a nation in business, a rival in commerce, and with no sentiment in the rivalry.

The day has gone by when the British manufacturer can dismiss the competition of the American manufacturer with a sneer. If, however, he concludes that the stress, the relentless strain, the unceasing grind, which is a characteristic of American industry, is not repaid by the material prosperity it brings, he acknowledges that America is to be allowed to give Great Britain the go-by. It avails nothing to talk about the heartlessness of employers, to give strings of instances of how the sap of life is drained from a man before he has reached forty years of age, to repudiate the American tendency of making the workers not artisans, but machines. All this may be perfectly true. The real issue is this: Here is America, never mind by what means, but certainly, equipping herself to oust Great Britain from its place as a manufacturing nation; and what do the manufacturers of Great Britain propose in order that their own country may retain her position?

We have taught the United States many things. Indeed, the best of all they have has been learnt from us. But whilst we have been resting on our oars they have been swirling ahead.

I gathered many things in the course of my investigations. One of the principal facts was that,

man for man, the British workman is the superior of the American. The weak link was the capability of the employers, the administration of great concerns. In adaptiveness, in resource, in ingenuity, in whole-souled keenness to succeed, the average American manufacturer is by far the superior of his British compeer.

If he would but rouse himself, the British manufacturer could soon alter this state of affairs; and it is for this reason I respectfully invite him to learn something from "America at Work."

JOHN FOSTER FRASER.

The Authors' Club, London, S.W.

March, 1903.

CHAPTER I.

THE NEWEST NEW YORK.

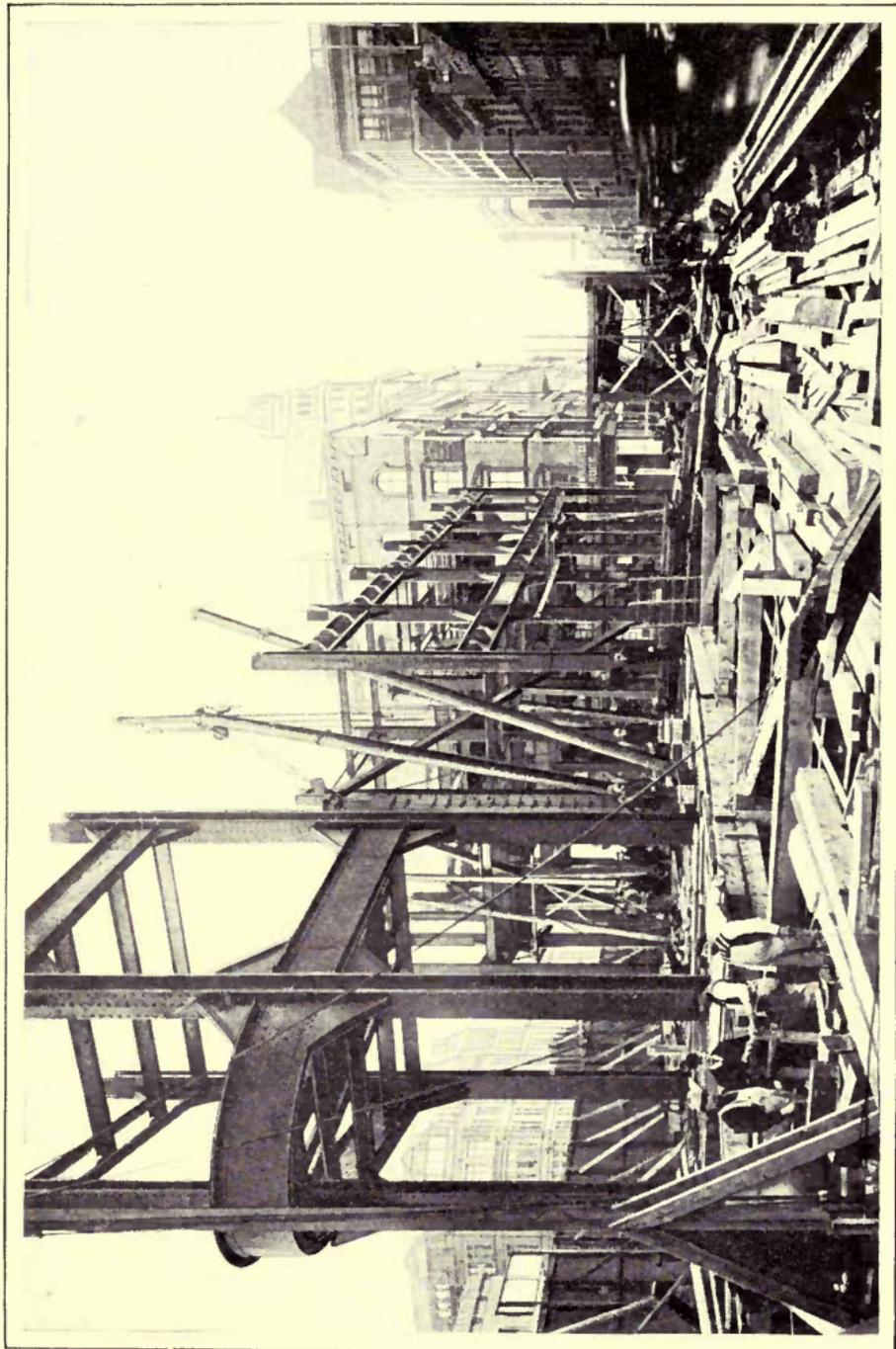
TWICE a day, for seven days in the summer of 1902, I stood where Broadway and Fifth Avenue make a St. Andrew's cross of themselves, and got a kink in the back of my neck looking towards the top of "the most wonderful building I guess there is on this earth, sir."

The scaffolding had just been taken down, and the people of New York, who are apt at similes, dubbed it the Flatiron. That is its shape. The ship's prow of a front is no width at all. The length, however, is 190 feet; the breadth at the back, in Twenty-second Street, is just 86 feet 8 inches, and the height soars cloudwards for 307 feet.

It is the latest thing in sky-scrappers.

New York is proud of it. The illustrated papers give two-page illustrations of it—for, however reduced, it would be impossible to get it all on one page—and an enterprising stationer has produced a three-folded photograph picture post-card of it, so that not one of the twenty storeys be left out. It is the first thing a New Yorker takes you to see.

It is not the tallest building in New York; but it is the most slender, the most aquiline. "It is the sharpest thing any architect ever perpetrated," writes an American.



THE BEGINNING OF THE

You stand in front of it and look up at it, so high and so fragile, with walls so thin and legs so spindle-like, and you say it only needs the puff of a blizzard to bring the thing down like a pack of cards.

But then you are a European with antiquated notions, and the Flatiron is the latest fad in steel skeleton buildings.

Now it does a Londoner good to go to New York, if only to stop his grumbling because Whitehall is up and half the Strand is down, and London generally looks as though it had been bombarded.

New York is always being pulled down and ripped up. Londoners hope the day will soon come when the building of hotels and pavement laying will be finished. If New York were not half sky-scrapers and half scrap-heap of old sky-scrapers, New Yorkers would feel their business enterprise had been paralysed. An Englishman builds for eternity. An American builds for ten years. He smiles at a man who thinks he knows what will be wanted twelve years hence.

New York is the greatest mining camp on earth. Twenty-four miles of its busiest streets are being blasted into subways for an electric railway. You can take a five cent. trolley ride, and above the harsh clang of the bells and the roar of the overhead railroads you hear the teeth of the drill biting into the rock on which New York is built. A thunder clap of dynamite blows loose a boulder, and looking over the side of the car, which tears without nervousness over a ramshackle, propped and wedged temporary

way, you see the mining in full work. It is not a pretty sight, but the men toil strenuously. Many of them get killed. That does not signify. The rest work on as though they had shares in the company.

In England thoroughfares would be closed to traffic if there was one quarter the delving. But I saw no street closed in New York. The electric cars tore along with the fury of torpedoes, just as usual. In places were heaps of *débris*. Half a street was screened with ugly boards. You felt you were in chaos. Yet there was no chaos, and through dust and noise, shrieking of trains, and clanging of gongs, chattering of drills, and blasting of rock, you bounded on your way unhalting.

New York is a vortex of rebuilding. A contractor told me ten years is the life of a building in New York. In ten years, of course, it has not crumbled or bulged, nor does it look different from what it did when first built. But it has become antiquated. It is only twelve storeys, a mere barn in height, and the proper height now is anything from twenty to thirty storeys. Its lifts, elevators, only go three times as fast as they do in England. Besides, there are not enough of them, and they stop at every floor. What is wanted is a system of many elevators to provide for local traffic, and express elevators that do not stop lower than the eighteenth floor.

I had pointed out to me a good hotel, built only eight years before, with what are called all the most modern improvements. It was being pulled down so that a building twice as high might be erected.

"You British," said a man to me, "use a thing till it becomes useless. We Americans use a thing only till we get something better. It doesn't matter how good it is or how much it cost, we just scrap it when it is out of date."

Building in New York has ceased to be a thing for architects and masons; it has become a thing for engineers and rivetters. The stone used is only a clothing to the skeleton of steel.

The rage for steel frame sky-scrapers has struck New York as the measles strikes a school of youngsters. Not so long ago American architects agreed that to put up a building higher than sixteen storeys was to step into the region of danger. But that is ancient history. Seven years later I smoked a cigar by a window on the twenty-ninth storey of the Park Row building, absolutely the tallest block of offices in the world. Broadway, far below, was but a strip of ribbon, and people were like ants. The vast statue of Liberty guarding New York harbour was reduced to the proportions of an ordinary-sized woman. The fine Cunard liner *Campania*, on which I crossed the Atlantic less than a week before, was the size of a sixpenny toy boat.

The offices on the top storeys of the Park Row Building never have any of the city dust; and flies—a plague in summer—never reach as high.

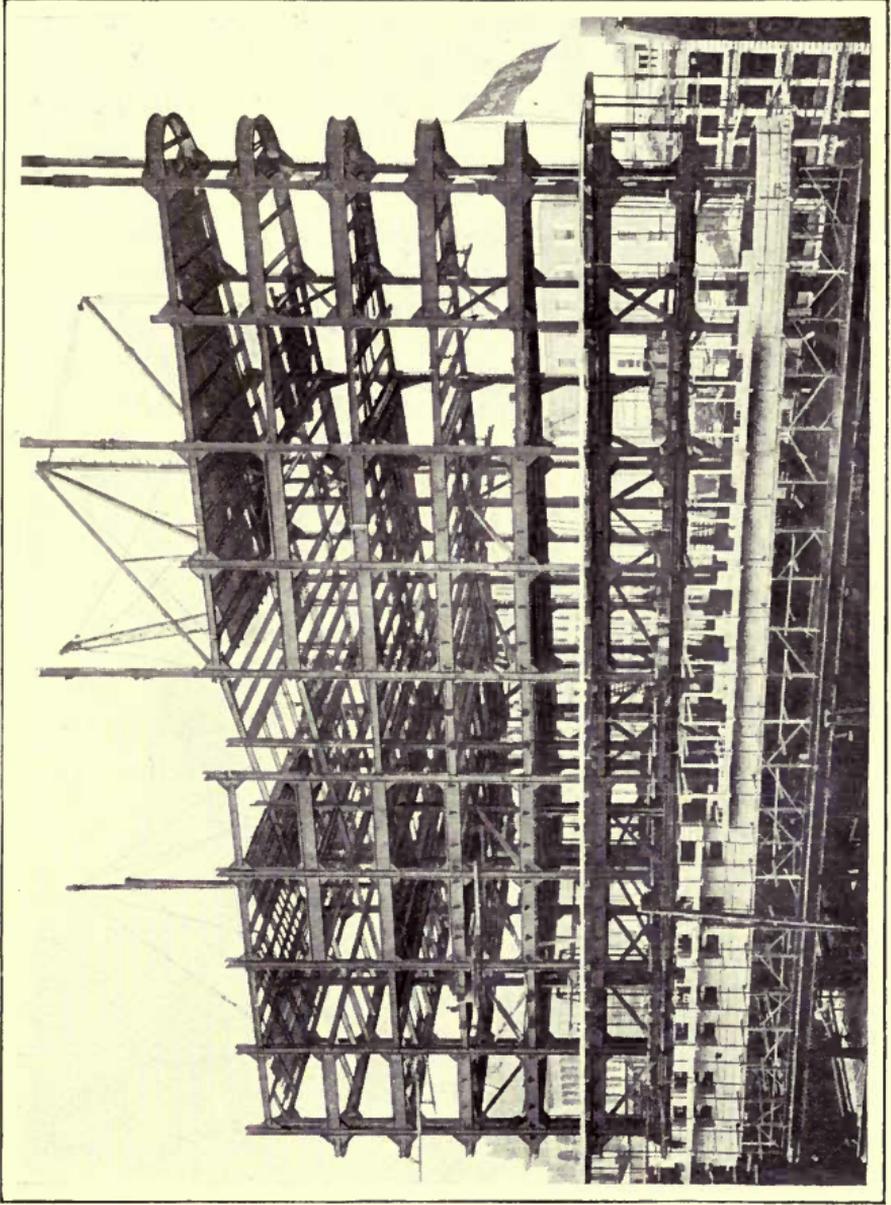
It is not alone eagerness to go half-a-dozen better than anybody else that has produced the present rivalry in erecting mammoth sky-scrapers. New York is on a long island of rock. As the

busiest part of the town is the lower and narrower end, as every inch is occupied, as New York is wresting from London to itself the centre of the world's money market, and as it cannot expand outwards, it has to grow upwards. The concentration of vast commercial interests has caused an enormous appreciation of land values. In the Wall Street neighbourhood ground costs about £60 (\$300) a square foot.

To build on the English plan, with huge foundations, stout masonry, and only some five storeys high would mean enormous rents, and the pushing of smaller firms "up town" out of the business area.

Americans must be "right there," within five minutes of everywhere. Accordingly house builders are now engineers, running up structures of little foundation, no width, no waste of space, but enormously high, and providing a town of offices under one roof. Take the Flatiron. On each of its twenty storeys are seventeen offices. Allowing an average of five persons to an office you get a population of 1,700 business people.

The rebuilding of New York is not individual enterprise. There are companies that have taken the work in hand. The Standard Oil Trust have several fingers in, and they propose joining blocks of buildings worth £11,000,000 by an arcade six hundred feet long. The principal building firms are the Edgar-Thompson Company and the Fuller Construction Company, with capitals of multi-millions. The way a company works is on this plan: It fixes



A NEAR VIEW OF THE "FLAT-IRON."

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ANNEX 10

its eyes on a building of eight, or ten, or twelve storeys in a good business district. The owners are approached, and where they have been reaping 3 or 4 per cent from their property they are promised 6 or 7 if they hand it over to the construction company, with the option of buying the new building at a certain price. They agree. Down comes the ten-storey building, and up goes one of twenty or more storeys. Then a company is started to buy the building from the construction company, and the construction company, having "made a good thing," plunges into fresh operations.

I went over four or five of these typical American buildings, with no style of architecture about them except the sky-scraper style.

They are not beautiful. You need not tell the American that. If you do he will retort: "They were not put up to look pretty. They were put up to make money. They are doing what they were put up for. Guess you've got no fault to find with that!"

"Push!" is the motto of all engaged in building sky-scrapers.

I never saw a man dawdle. There seemed honest zest in everyone. I stood by the hour watching and noting the haste. Most of the workers were men of about thirty years. They were spry and elastic, and their wits were on the dance. If there was a check, a man would halt, squirt tobacco juice between his teeth at the adjoining wall, and say: "Guess we'd better do it the other way." In an instant a fresh start was made.

The rock on which New York stands has a billowy surface. In places the rock is on top, and in others it lies under a cap of quicksand and hard pan. First, caisson foundations are put in, huge steel tuns, to get a flat-footed bottom in which the steel columns that will bear the strain of the framework can be fixed in concrete. When the rock is near the surface work begins right away. If, however, there is quicksand to be got through, there is delay. The excavating is done in air-tight chambers, and when bottom is reached concrete is laid. It hardens in twenty-four hours, and then the caisson can be fixed. Forty feet of quicksand and twelve feet of hard pan have been cut through in seven days.

To put up a ten storey building in a year was thought not long ago excellent progress. Not to be able to put up a twenty storey building in six months is now thought evidence of slackness. To climb two storeys a week is the usual progress.

There is no waiting until the skeleton is complete before covering it with stone or brick. As soon as the engineers are a storey ahead the masons and bricklayers come along.

In the finest buildings the bottom storey has often a shell of granite or marble, and the upper storeys local white stone. Should there be a delay with the granite or marble, that does not mean delay with the encasing higher up. Each storey bears its own weight of stone and brickwork. So you frequently see stone encasing the fifteenth and sixteenth storeys, the building complete, and the windows in, while the twelfth, thirteenth, and four-

teenth storeys are nothing more than open iron work. To look at a mighty building half completed, and that half the top-half, brings rather a jerk into the breath.

Only at first do you think flimsiness must mean weakness. The scheme of distribution of weight is scientific and mathematical. Each column is designed to bear a specific load, sometimes as much as three million pounds, and these columns have box-shaped flanges at each storey to bear the weight of the masonry. All through are steel braces to get lateral stiffness. The steel work is protected by fire-proof bricks, so that, in the event of a conflagration, the steel may not warp. The floors are usually terracotta arches, laid in cement, and covered with cinder concrete. The idea is to keep a fire confined to the storey in which it originates.

In several of the buildings I visited the lower floors were ready for occupancy, except for some plastering, long before even the steel skeleton was completed. Bricklayers trod on the heels of engineers; carpenters and plumbers followed bricklayers, and by the time the last bolt was being driven on the twentieth storey the office furniture was being moved into the first. The rent is calculated by the square foot of office room. In the Wall Street district you will pay £1 per month per square foot on the ground floor. The average cost, however, for an ordinary three-roomed office of medium size about the centre of the building is £15 a month.

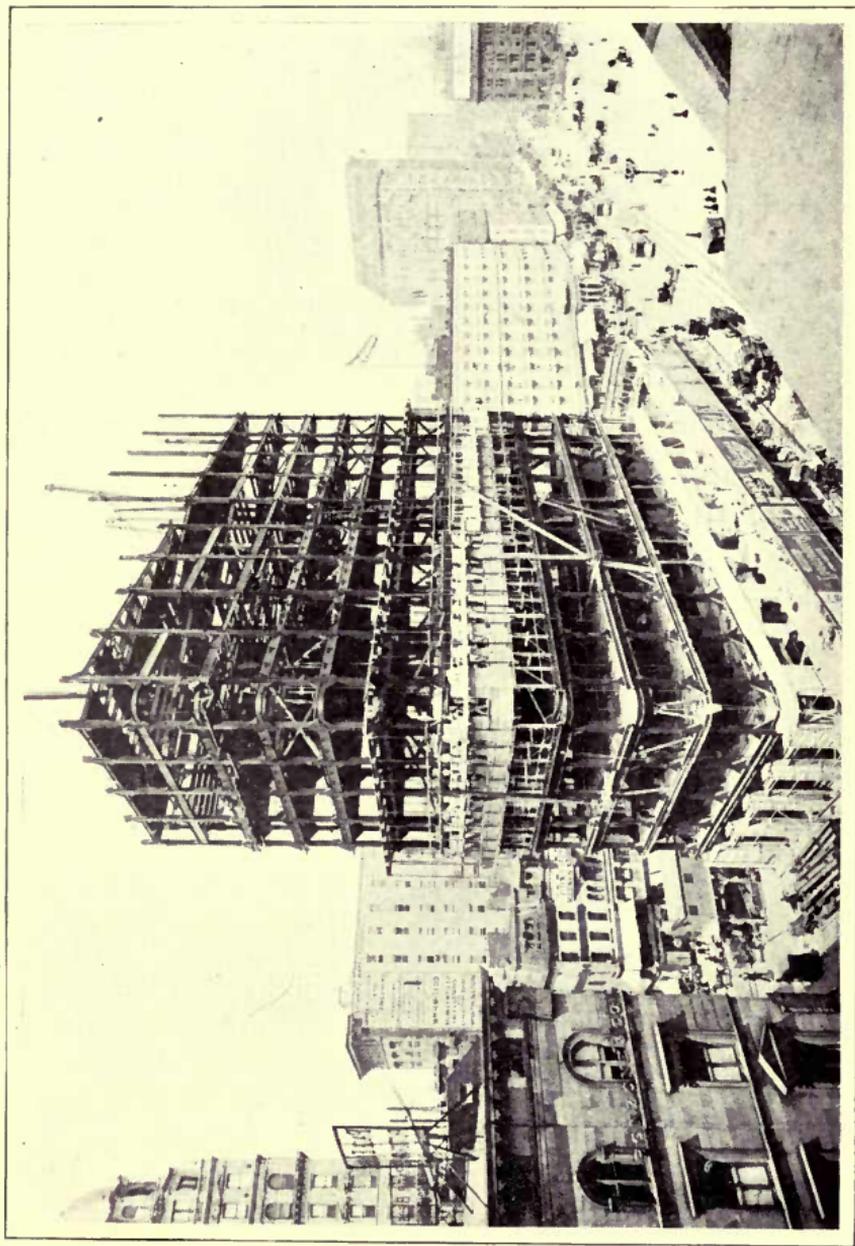
The objection that springs into the mind of the Briton is that, as British towns are often built on

clay, the steel frame could have no certain hold as when on rock.

The answer is, that in Chicago some of the loftiest blocks "float," as it is called, on clay. There is delving for twenty or thirty feet, and by compressed air the water is kept back. Then a concrete bed is laid. On this the caissons are put as though it were rock, and they are embedded in concrete. The weight of a twenty storey building will only sink the concrete into the bed of clay a couple of inches.

The highest block in the world, the Park Row Building, 382 feet, has thirty storeys, and thirty-two if the couple of rooms in the cupola are counted. It has a frontage of 103 feet, so that it is nearly four times as high as it is wide. The skeleton alone contains 9,000 tons of steel. Yet it does not stand on rock. It rests on 3,500 spruce trees with their bark on, twenty-five feet long and twelve inches in diameter, driven twenty-four feet into sand, and the remaining one foot flushed level with concrete.

It is in buildings like these that New York commerce throbs. Here men, coatless and vestless, and with their sleeves rolled up—men are kept cool in blistering summer with a moving electric fan—smoke green cigars. There is a movable telephone at their left elbow, and a typewriter on their right hand. They are mostly young men, tall, well built, and with nervous eagerness in every line of their clear-skinned faces. They drink iced water. Of course they drink other things, but the American business man is really a water-drinking person: and he hustles.



THE "FLAT-IRON" IN CONSTRUCTION.

(Showing erection of walls in the centre of the building.)

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Still, there is often more hustle than haste. I have seen a man stand cursing for thirty seconds at the non-coming of an elevator to take him to the floor below, when he could run down in fifteen seconds.

There are seven thousand elevators in New York, and they carry more than a million passengers a day. They are fast—six times as fast as English lifts. When I inspected the Park Row Building an apology was made to me that they were not the swiftest in New York.

But picture this. You go into a heavily marbled hall, full of men in lounge suits and straw hats stuck on the back of their heads. In the centre is a half moon of caged doors. Over them you see notices—"Local," "Express to thirteenth," and the like. There are two electric lamps above each door, and they alternately light up, showing the words "Up," or "Down." Over these again is a dial, and the dial is curving to and fro. You give one glance, and you understand that number eight elevator is at the seventeenth storey, and that it is coming down. In case you are too busy to look you can hear a man, with a twang like a broken piano string, shouting "Local car on the right just coming down; express in the centre, no stop till the thirteenth floor; express to the twentieth floor on the left, then stop all floors; local between the thirteenth and twentieth floor; right there, sir!"

And all the time those eight cage doors are alternately clattering open, and they throw out crowds of men, and other men jump in and are shot as from a cannon skywards.

On each floor are the twin electric lamps, "Up," and "Down," and over each elevator swings the hand on the dial. You know there, just as well as on the ground floor, where all the cars are, and you signal the nearest approaching car by pressing a button. An elevator will drop from the twenty-eighth storey to the floor with no halt unless there is a signal to stop. The descent makes you feel the bottom has fallen out of the world.

The constant rising and dropping affects the elevator men. They generally have to cease the work because of shattered nerves; that is, if they do not die suddenly from heart disease.

CHAPTER II.

THE WORK IN DEPARTMENT STORES.

BEING the husband of an American wife, it is my duty, when in my London suburban home, to listen about twice a week to little disquisitions on the slowness of English shopkeepers.

What always strikes an American woman as curious is that she cannot walk into a big drapery establishment in London with the intention of looking round without somebody coming up and wanting to know her desires in the purchasing line. In America a woman goes into a shop, saunters round, comes out again without buying, and though there be a hundred sales-people, nobody offers to sell her anything.

Another thing that irritates an American woman when shopping in England is to be kept waiting while all the packages unfolded for the preceding customer are re-wrapped, tied, and put on their respective shelves. Also, if she is looking at silk and does not fancy the first or the second sample shown her, that she must wait till the shop girl has put away the first two samples before bringing out more. Further, when a shop has not the article the American woman wants, that the shop girl persists in showing her things she does not want, and not infrequently shows testiness if the visitor walks out without getting any-

thing. In America the shop girl says she hasn't got the thing, and the matter ends.

America is the home of great department stores, or dry goods stores, as they are called, and the management of them reaches to the level of a science. The first was created in Philadelphia in 1876. In that year an exhibition was held, and all sorts of articles were sold. It struck a young man that a shop run on the same lines might be profitable. He tried it, and that was the start of the great department stores of John Wanamaker of Philadelphia and New York.

Fortunes of millions have been made out of those stores. But there came rivals. There is the great firm of Siegel Cooper Company, which is "slap bang up to date." In Chicago is the colossal business of Marshall Field. There are others, prepared to sell you anything from a rhinoceros to a ribbon. The whole establishment of our own "Universal Provider" of Westbourne Grove could be put in the corner of one department.

I spent several days investigating the methods of work at the two most representative stores: Wanamaker's, which holds the better-class business, and Siegel Cooper's, which may be said to cater for the million. In regard to prices they were just about a third dearer than in England, and although there was more catering to the fancy of the moment, more daintiness in design, more endeavour to make all articles smart, neat, and inviting, the quality was decidedly below the British standard.

There seems to be little to choose between the

shopman of New York and London. The American shop girl, however, is far ahead of her English cousin. She is possibly not so ladylike and polite; but she is a bundle of intelligent vivacity. She is neither anæmic nor languid. She treats customers with a familiarity that would be met with rebuke in an English shop; but she means no impertinence nor cheekiness. You want to buy, she wants to sell; and you are equal.

There are 3,500 employees at Wanamaker's place in Broadway. In summer the hours are from eight till five, with a half-holiday on Saturday. In winter the hours are from eight to six, with no half-holiday at all. The lowest wage for a girl at the "notions" counter—needles, hairpins, studs, odds and ends—is 29s. (\$7) a week. A good saleswoman of experience will get £3 (\$15). The men, the "counter-jumpers," average 50s. or £3 a week. This is above the English standard, but after working out calculations based on the increased cost of living, I am convinced the American shop worker is, in the end, no better off financially than the English.

Where the American is better off is that he and she have more wholesome food and plenty of it. The compeer of the girl whom you see in a London A.B.C. place making a lunch of a cup of tea and a piece of cake for fourpence you will see in one of Child's many restaurants in New York having a "quick lunch" of melon, soup, roast beef, and an ice cream for two shillings. That "quick lunch" is a side-light on American desires. But it never is quick. I have much experience of hotels and

restaurants in different parts of the world, but—strange contrast to most things—the waiting in American hotels and restaurants is slow to positive weariness.

When a schoolgirl goes into a New York department store she has not to blunder her way into a knowledge of her duties. She soon fits herself to her work, for she has the faculty of the French girl in adaptability. New-comers go to the department school, where experienced hands show them how to make out bills, give them hints how to talk to a customer, how, in an agreeable way, to call attention to the special advantages of an article—how, in a word, to make selling an art.

Though there are fifty businesses carried on beneath one roof at Wanamaker's, and all under one supreme control, each department is managed separately by a man called the buyer. He is in command. He decides what shall be bought, at what price it shall be sold, and what is the proper time to make big reductions to clear off stock. A certain proportion of the rent, of the lighting and heating expenses, and up-keep is debited to his department, and he must make his department profitable, as though it were a private business on the other side of Broadway.

There is a special department of "contingent girls," numbering about sixty. They are the brightest, keenest, cute-est girls in the place. They are prepared to sell anything, from window-soiled gloves to grand pianos. The business in various departments fluctuates. Let a hot wave strike New

York, and ladies pant for muslin gowns. Let there be damp and wretched weather, and there is a demand for mackintoshes. The managers of American department stores calculate that for some reason or another, often unexplainable, there is a rush of some sort each day in one particular department. Instead, however, of keeping a big staff to deal with the rush in one department whenever it comes, while another department is comparatively slack, the idea is to keep a minimum staff, and to use the contingent girls wherever the rush happens to be.

One girl I talked to was selling pictures. The previous day she sold washable ties: the day before that she was at the magazine stall: the day before that in the underwear department. Experience has taught Wanamaker that his staff of sixty expert contingent girls, who can be called upon at any moment, is the best plan to avoid customers being kept waiting. The cost of the contingent girls is divided between the various departments.

The arrangement of buying and paying is different from the English plan. Suppose a lady buys four yards of silk. A man measures it, cuts it, makes out a bill, receives the money. At a desk sits a girl. That girl sees that the length is as stated on the bill. She wraps the money in the bill, sticks them both into a pneumatic carrier, and fires the carrier down a tube. There are dozens of these tubes all over the building, but they are all emptied into one fair-sized room in the basement. It is not unlike a telephone connecting room. Before every seven or eight pneumatic instruments sits a girl, who receives

the carriers as they come thumping upon the counter. She opens the carrier, tears the duplicate check number from the bottom of the bill, and files it, wraps the change in the bill, returns it to the carrier, and fires the carrier back through the tube. Meanwhile the man who sold the silk is attending to another customer, and the girl at the desk is wrapping the silk. Thus there is a minimum of delay.

When I was in the receiver room there often came down a bill with no money at all. This would be in regard to goods bought by some one who said she had an account with Wanamaker's. The girl threw the bill on a long table behind her, where were rows of ledgers. A dark, sallow man was patrolling this table, lifting the bills, glancing at them, muttering "all right," and throwing them back. He knew the names of those who had accounts; if there was a doubtful name he had the books to refer to. But though he looked at a hundred bills during the quarter of an hour I was there, he never once referred to a ledger. The girl tore off the duplicate, stamped the bill, and sent it back.

Suppose a lady has a number of purchases to make in various departments, and does not wish to pay a lot of small bills or carry parcels about with her. She states at the first counter that she intends to visit other departments. She is supplied with a little numbered coupon book, red-leaved, such as you receive from tourist agencies. At each counter her purchases are written on a coupon, which is torn out, and the amount is written on the back of the book, so that she herself keeps a check. This is done at

every counter. At the end of her tour she goes by the elevator to the ground floor, and there finds all her purchases neatly wrapped up ready for her to take away when she has paid.

Great haste is made in packing goods accompanied by a red slip, for that means the purchaser may be coming at any moment. If a purchaser declares, however, she does not intend to carry the things, but will pay on delivery, she is given a book with green coupons, and those are a signal to the packers that there is no immediate hurry. The C.O.D. plan (collect on delivery) is much more in vogue in America than in England. This is particularly so in departments for ladies' wear.

An American woman, remember, stands no nonsense from a shopkeeper. She is not going to be bamboozled into having what she does not want, and when she has ordered a thing she is not going to have it if, on second thoughts, she does not fancy it.

So when the messenger turns up with a parcel—never leaving it without being paid, and even taking it away again if proper change cannot be procured—there is a frequent delay while the lady tries on. When all is satisfactory and the money paid, the lady may change her mind. This has led to an enormous transfer business—people getting tired of what they have bought, bringing things back and wanting something else, or even their money returned. The American woman being more nervously variable in her moods than her English cousin, is inclined to be hoity-toity, and if the manager of a store does not let her do as she likes—well, there

are other stores in New York! So rather than lose a customer by refusing to take back something purchased a fortnight before, he smilingly lets her have her own way.

Knowing her power, the American woman goes through the stores its master. She has to be conciliated. Managers know there is nothing to be gained by trying to force a sale, which, done injudiciously, will put her in an ungracious temper, and she will buy nothing. Let her roam at her free will, and it is a poorly-arranged store that does not display many a thing she is likely to be envious to possess.

The New York woman has just as great a craze for spending dollars as her husband has for making them. If she has no dollars, that does not deprive her of the pleasure of shopping. She will walk into a big store, look over a dozen gowns, and try on several before deciding. Then she will get a C.O.D. card, and visiting other departments will buy a hat, rich underwear, and a parasol. She will give a fine order. When the goods are delivered at the address she mentioned, it is found there is no such person as Mrs. Walker. 'True, she has put the store to a lot of trouble. Yet think of the morning of womanly delight she has had in her shopping!

But the "greatest store on earth, sir," is the caravanserie of Siegel Cooper Company, on Sixth Avenue. It is an enormous place, with a front as gay as the Alhambra in Leicester Square, and the noise inside is that of the Crystal Palace on a Bank Holiday afternoon.

Compared with it Wanamaker's is "a back number." On the lower floor, crowded with perspiring women all fanning themselves—there is a "help yourself" stack of fans at the door—is a fountain, and in the middle is a statue of a liberty goddess, all gilt.

"Yes, sir; there is \$18,000 worth of gilt leaf on that statue," said my guide.

That guide was a young American, long and wiry, with a hatchet face and eyes like a ferret's, and his hair was parted in the middle. He chewed, he was in his shirt sleeves, and he kept his hands in his pockets. The management did well in selecting him to show round an undemonstrative, mild-eyed British person like myself. He was breezy and talkative, thought there was no other country on the earth besides America, and said so. He was certain there was no store on earth bigger'n Siegel Cooper's, and said that.

When he had been talking at me for two hours, and we at last got to the iced-soda counter, where two hundred white-flounced girls were drinking chilled concoctions, from lemon phosphates to ping-pong punch, I said to him, "That is the seventeenth thing you have told me is the finest in the world."

He smiled and answered, "Well, sir, we talk like that in this country; but I guess it is the finest, anyway!"

There are many elevators at Siegel Cooper's. But elevators are a little out of date at this biggest-in-the-world dry goods store. From floor to floor there are wide moving staircases. You step on a little

platform, and in a couple of yards, when the ascent commences, stairs automatically form, and you stand there until you are landed on the floor above. The moving staircase at Earl's Court Exhibition is a puny toy in comparison.

"Now tell me something wonderful—but accurate," I casually observed to my young American.

"There is no need to blow, sir. This is the biggest concern there ever was. Why, sir, do you know that nearly 125,000,000 feet of twine is needed every year to wrap up goods? If all the wrapping paper were spread out on a flat surface it would cover more than 40,000,000 square feet! We use up 400 gallons of ink a year, and 45,000 steel pens. Over 300,000 sales books are required each year, and in our grocery department more than 90,000 bags are used a week!"

He talked in a sharp, staccato fashion for nearly three hours. He scintillated statistics. He knew that 150,000 people visited the store daily—except when there were 250,000.

He called the place "a temple of commerce" and "a city in itself."

He directed my attention to the searchlight on the tower with seven million candle-power. He showed me the U.S. Post Office right on the premises, and the Siegel Cooper Bank that pays 4 per cent. He showed me the telegraph and telephone stations where messages "may be flashed to all parts of the earth."

We went from floor to floor, and every part was clamorous with buying and selling. My friend

assured me that every throb, every pulsation of this great business was swiftly responsive to the needs of the season and the personal wants of the multitudes of shoppers! There was a lot of tall talk like this.

And yet, winnowing the chatter about "master minds" and "modern wonders," there was behind it all the great fact that here was a throng of many thousands of people shopping on an August afternoon, and here was the embodiment of an up-to-date American shop.

Picture in your mind's eye the most bustling, largely advertised go-ahead place you know within the British Isles, and see how it stands in comparison with the Siegel Cooper Company. Down in the basement are fourteen engines, nine dynamos, and thirty-two electrical motors. Besides the wide, ever-moving staircase are ten passenger and thirteen freight elevators, and on an ordinary day they journey ninety-five miles. There are over 1,000 miles of electric wire. There is a ladies' waiting-room fitted up in Empire style. For purchasers of men and women's clothing there are private fitting rooms in abundance. On the floor where the furniture is, are half-a-dozen rooms carpeted and papered. When a young couple, for instance, fancy a suite, the suite is arranged in a room so that they may get an idea of how the furniture will look—much more attractive than when it is standing higgledy-piggledy among a mass of other furniture. The fourth floor is devoted to groceries. Here are crowds to buy meat and fish, and behind the salesmen are 300 feet of double glass-faced refrigerators. In a corner

is a dairy, and butter is made while you wait. At several places men give lectures on how to prepare special dishes.

Every floor had its speciality. On one is a wine business. On another a menagerie, and you can purchase a canary or a monkey. Then another floor is devoted to mail-orders, preparing and despatching goods ordered by letter. On the roof is a conservatory and photographic gallery. There is an art gallery with scores of oil paintings, purchased, according to my friend, in the "Rue de Shamps!" There is a restaurant like the grill room of the Trocadero. A doctor is kept on the premises.

There are seventy-two departments. In the busy season between five and six thousand persons are employed. The approximate value of the stock is £400,000.

The goods were not of English quality, and the prices were dear. But there was dash and enthusiasm; there was that large optimism which makes Americans the greatest business plungers in the world. The men I talked with and who direct these concerns by no means impressed me with superior business qualities. Their secret of success seemed to be supreme confidence that they each, individually, could not do anything but succeed.

CHAPTER III.

RAPID TRANSIT IN NEW YORK.

YOU pay a nickel—which is five cents, or two-pence-halfpenny—when you want to go by car in New York from one street corner to the next. If you want to go as far as a car will take you, about eight miles, you still only pay a nickel.

Time is too short to get a ticket and have it punched and lose it, and then rummage through all your pockets to find it again so that the inspector may see you are not a friend of the conductor and riding free. There is no conductor coming round every five minutes with a penny-in-the-slot brass box to make you constantly fumble for and then dribble your pennies. There are no halfpenny rides. Also there are no sixpenny or eightpenny rides.

You jump upon one of the electric cars, open or closed, that with the clang of fire bells clear a path up Broadway—ruthlessly, brutally, dividing even a funeral procession in two. The conductor swings himself along the footboard, and you, drowsy foreigner, and your neighbour—a shop girl possibly, trim and neat, but who is chewing contortively, worse even than the conductor, though he chews tobacco and she chews gum—push your nickels into his hand. He gives a tug at a cord, and a clock-

face signals that you are the seventy-first and seventy-second passengers that have mounted since he started that trip "up town."

That is all, except that when you wish to "cross town" you shout "Transfer." The conductor gives you a red slip, and you jump into a "cross town" car and there present the slip instead of the nickel.

The plan is excellent. You pay a lot for a short ride; but you get a long ride for a little money. It suits a hustling community.

There is the Manhattan Elevated Railway, which enshrouds streets with ugly gridirons. Overhead come rattling and roaring the trains. The air is choked with grime. The frame ironwork and the whirling dust make the shops abutting the pavement dingy and sordid. From a Manhattan Elevated Railway, too, you can at times get a good view into the bedrooms of houses.

You must remember that Manhattan Island is Euclidian—it has length without breadth. The bottom end, the business end, is more valuable than Cheapside, and, as the City cannot expand, the solution of getting all the offices within biscuit-shot is to let them shoot upwards and rub their heads against the clouds. When you get from twenty to thirty layers of offices in one building you have a throng of humanity that would not find toe room if they had all to stand on level earth.

There are two interesting sights of business crowds in the world.

The first is the black, surging throng that crosses London Bridge going City-wards every morning

between nine and ten; the second is the struggling, fighting, furious mob that wants to cross Brooklyn Bridge every evening between five and six.

New York settles down to work between seven and nine o'clock in the morning, but it stops work at the stroke of five on summer afternoons. Then the bottom doors of the sky-scrappers pour humanity into the streets as from a hopper.

The average New Yorker, like the average American, is a good-natured fellow, but he has had little time to be courteous. If he wants to get on a car, and it is necessary to knock you down, it is your look-out. He is rude, but he laughs, and expects you to laugh also. He does not want to be discourteous; he merely wants to get home.

So he crowds, and stands, and clings to the cars going "up town." It is an uncomfortable way, but it is quick, and quickness is the apple of his eye.

Women on the cars take their chances. They stand and cling with the rest. It is the rarest thing for a man to offer his seat. A woman does not mind standing with five men sitting behind her. She does not talk at them, as an Englishwoman might, about there being no gentlemen present. It is no sign of inferiority that she stands while they sit. It is evidence of equality. She would not be expected to give her seat to a man.

The great ferry boats, the size of small islands, that surge across the Hudson River to Jersey City, are wedged with returning workers after five o'clock.

But it is at Brooklyn Bridge that the thousands gather and do their best to kill one another.

Brooklyn is the Brixton of New York. It is the place of residence of men who get the wages of colliers, but who like to dress like coal-owners! There is only one bridge across the East River—another is being completed higher up—and towards this the men clerks and the women typewriters of New York dash with the haste of pest-stung cattle. It is a sand-glass of a way, and the human sands press from the working bulb to the sleeping bulb.

There are cars over the bridge. They come from Brooklyn with a harsh noise like the grinding of teeth. They make a swinging loop, and start back. It is then that the fighting takes place. I have seen people quieter in a fire panic. Folks in delicate health must forego the ride and walk. The healthy, the lusty, the determined, get in one great *mêlée*. It is not unusual for somebody to be killed.

All of which shows that New York, like some European cities, has trouble in bringing its commercial population into the middle of things, and then greater trouble getting them to their homes again.

While London is chiefly talking about how it is going to bring its million business men into "the square mile" from suburban districts, and send them back again in the evening, and while rival schemes are debated and rival promoters trip one another up before Parliamentary Committees, and the Londoner—most phlegmatic of creatures—travels from dirty stations in dirty carriages in dawdling trains, New York has taken hold of the great question of speedy and cheap transit, and is going to settle it.

A "cut and cover" line is being laid of nearly twenty-one miles in length. The contractor is getting £7,000,000 (\$35,000,000) for doing the work, and as there are the customary "extras," the entire cost will be about £10,000,000. The money is being provided out of the city purse.

For seven and a quarter miles, through the busiest part of New York, there will be four tracks. On the two outside tracks will travel slow trains at a speed of fourteen miles an hour, stopping about every quarter of a mile. On the other two tracks will travel express trains, at thirty miles an hour, stopping every mile-and-a-half or two miles. Everything will be driven by electric power, and the fare from any point will be twopence-halfpenny (five cents).

When the four lines of tracks have gone seven miles they branch off in pairs country-wards, seven and three-quarter miles continuing by subway, and five and three-quarters by viaduct.

That rapid transit line is now being made. It is going to relieve New York of its fearsome congestion. But it has turned many of the leading streets into trenches, the blasting of the rock is killing almost as many men as the Manchester Ship Canal, the pools of sluggish water are special breeding places for mosquitoes in the summer months. Of all the cities on earth which it was well not to live in, New York of 1902 took premier place.

It is a big scheme, is this laying of rapid transit routes. And its development is one of the best stories I know of how Americans take hold of big

things with both hands, slapping or pushing, or kicking on one side all those things we British folk call obstacles, and get where they want, if I may change the simile and adopt Wall Street vernacular, "on both feet."

The origin of the movement was in the pre-historic times of over eleven long years ago. The germ was a speech given before the New York Chamber of Commerce, and it grew into something tangible in 1894, when a Board of Rapid Transit Railroad Commissioners was appointed; the Mayor of New York and the President of the Chamber of Commerce for the time being were ex-officio members. Other men, leading townsmen, were named, and when any of them fell out through sickness or death, the rest were to nominate a successor. Thus a perpetual Board was created.

First they decided a railway or railways should be built, and then that it should be at the public expense. To be certain they were stepping in the right path, the question of municipal construction was put to the popular vote, and carried by 132,647 to 42,916. A route was decided upon; but opponents got the Supreme Court to refuse sanction to the plan unless it could be shown the cost would be less than £10,000,000.

That set the Board to prepare another scheme, and they soon had plans ready for a rapid transit route, to cost £7,000,000. That seemed all right. New York is a rich municipality, and thirty-five million dollars are but as the expenses of a millionaire's wedding trip.

New York was ambitious: it wanted to become Greater New York. It did this by taking under its management Brooklyn and Jersey City. Then it seemed not to be so easy after all to raise that £7,000,000. It looked as though the scheme might drop through, or have to be given to a private corporation, till the Commissioners took off their coats, thought hard, and devised another scheme.

This is the scheme, the outcome of hard thinking: For £7,000,000 Mr. John McDonald constructs and equips the Rapid Transit Railroad within four and a half years. He undertakes to operate it under a lease of fifty years. For this right he is to pay as rental a sum equal to the interest upon the money borrowed by the city and 1 per cent. more.

Thus New York is getting its rapid transit for nothing. The 1 per cent. sinking fund in fifty years will have considerably reduced the principal, and when, half a century hence, the lease is to be renewed, the city will expect good terms.

It is also good for Mr. John McDonald. He has no financing expenses; his capital is the city's credit; he is relieved from all the vexations of a private capitalist coming into conflict with city bye-laws.

The "cut and cover," or shallow excavation type subway, has been adopted on the advice of Mr. Barclay Parsons, chief engineer to the Commissioners. He was against the "twopenny tube" scheme, for, while under this plan there is no interference with street traffic during construction, the elevators or lifts necessary are not satisfactory when there is

a tremendous congestion. Further, the cost of tunnelling is apt to be greater than open constructions. He was against the underground arched tunnel system, such as we have on the Metropolitan and District Railways in London, because it has all the disadvantages of a compromise. Property is disturbed; the cost is substantially as great as tunnelling, and, though there are no elevators, the distance from street to platform is too far to walk in these days of haste.

After talking with men in Boston (Massachusetts), in Buda-Pesth (Hungary), and in Glasgow (Scotland), he advised, and the Commissioners adopted, the "cut and cover" plan, which means the trenching of the streets and the interference with traffic while excavations are progressing, causing inconvenience to property-owners, and necessitating the readjustment of all mains and sewers; but, on the other hand, bringing the railroad platform within fourteen feet of the pavement, and lighting it with daylight, and even sunshine, through a thick glass roof which pedestrians above will use as a side-walk.

The formation of Manhattan Island, heaving and dipping—the heave solid rock, and the dip shingle and sand—is such that the shallow construction has not been by any means absolutely adhered to. There are ten and a half miles of "cut and cover," four and a half miles of tunnel, and just over five miles of viaduct. The minimum of depth, however, is the rule, and for the ten and a half miles of "cut and cover" the roof is the street level, is only thirty

inches thick, and rests on steel ribs five feet apart. I talked with Mr. Barclay Parsons, a quiet but decisive man, and he told me the railway ought to be working in about two years. Also, he explained one or two points. The first seven miles will be covered by express trains in fourteen minutes, and the local trains in half an hour. The motive power will be electricity or compressed air, and if any better generating or transmitting power be discovered for railway working, the Commissioners can demand, on two months' notice, that Mr. McDonald adopt it.

Though there is to be one charge of twopence-halfpenny, Mr. McDonald will have liberty to attach not more than one superior fitted car to each train, and to make an extra charge. Passengers may travel on the express to a station, get into a train on the other side of the platform, and so stop at a local station between the express stoppages. The platforms are to be arranged so that this skipping from train to train may be easy and rapid. To save more time there will be loop-tracks at the terminals, to avoid reversals of the trains, and to ensure continuous running. There will be no "cellar air" smell; there will be no smoke. Everything is to be clean, clear, and quick—above all, quick.

I have said that New York has solved the rapid transit difficulty. Yet, after all, I feel inclined to recall my words.

New York solves nothing. Its passion is discontent, change. To the scrap-heap with most things—and let us have something different! And twenty

years hence New Yorkers will be smiling at the "cut and cover" subway as an anachronism, and inviting the admiration of the world for another scheme to relieve the congestion caused by seventy-nine-storey buildings!

CHAPTER IV.

HOW RAILWAY ENGINES ARE BUILT.

IT was in the erecting shop of Baldwin's locomotive works at Philadelphia.

The air was hot and black, and tasted of steel filings. One thousand seven hundred and sixty-five men were working as though there was a competition and the prize was worth having. Most of them were slim, sinewy, gritty fellows, and their open shirts showed chests glossy with sweat and dust. There was the clatter of hammers that rang like musketry fire. There were great thuds to remind one of the story of Thor swinging his mallet.

Overhead were huge travelling cranes. As in the car of a balloon sat a man beneath the biggest of these. He pulled a lever, and with the powerful ease of a warship slipping from dock the great crane, that could carry several ordinary English railway engines without a grunt, ran to the other end of the shop. The pulling of another bolt swung the car to one side, and down came stout cables of chain, and these were thrown round a great boiler. The boiler swung into the air, swung into the centre, swung down to where I stood, and was left on a steel frame.

From the time when the crane started on its

journey till it came back, having deposited its load, was one minute thirty-five seconds.

All over the shop were mammoth American locomotives—compared in size with our home engines they are as Atlantic liners to English Channel boats—in all stages from the skeleton to the completed. There were seventy-five in all, from the boiler I had seen swung upon a frame, to the big, brutal, finished locomotive, with stunt chimney and a face as grim and death-dealing as a torpedo-catcher, that was heaved up on winches, and had steam up and was snorting and whirling its wheels to show that it was all right before it was lifted by that mighty crane, deposited on one of the two railway tracks, and rolled out into the open—the finished article.

From Baldwin's there pass from thirty-six to forty engines a week, say six a day.

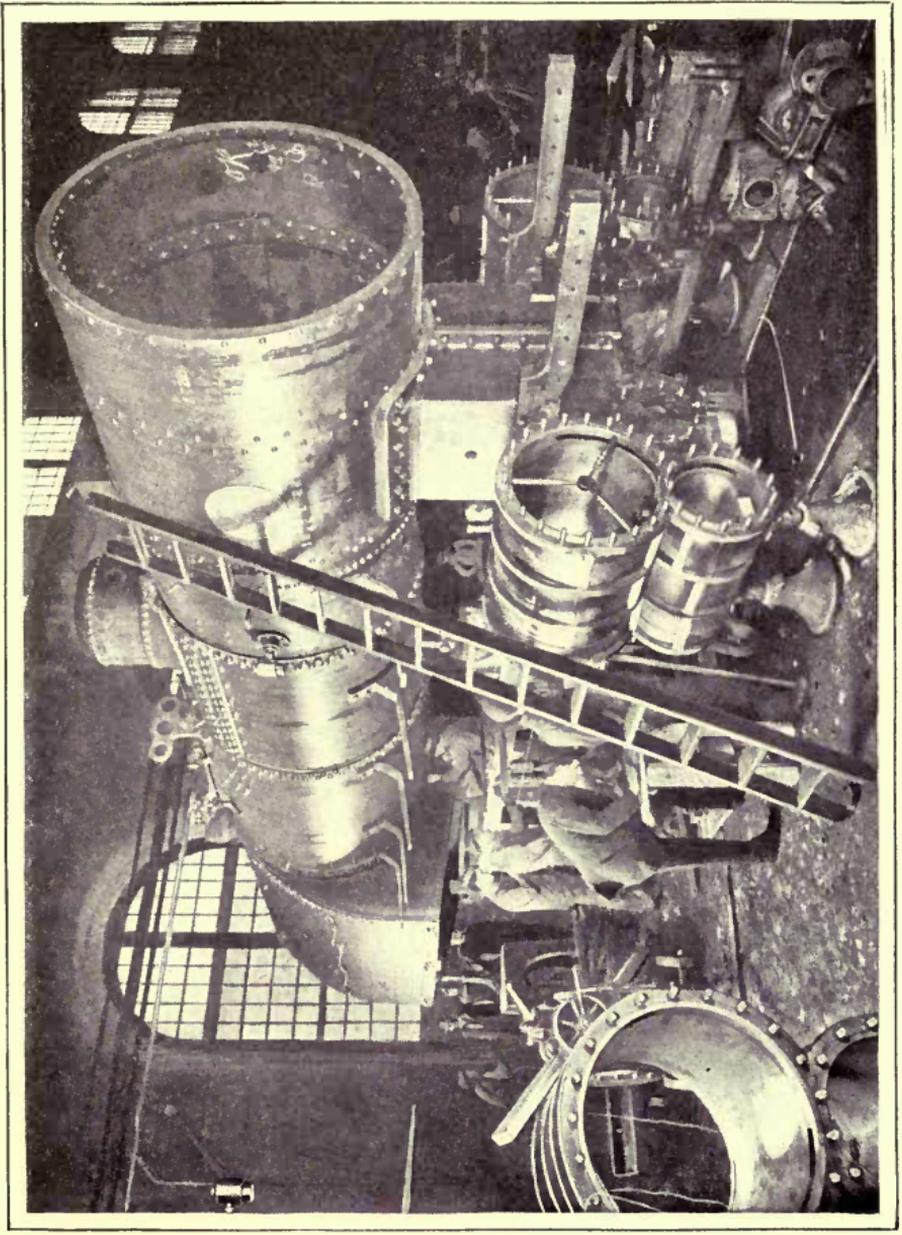
"What is the number of that locomotive just going out?" bawled the manager, with upraised hands, into the ear of a foreman.

"No. 20,842, sir; but we're sending out nearly twenty more to-day."

The obvious question came into my mind, and I put it. "Suppose I gave you the specifications for a locomotive I wanted built, what is the quickest time in which you could supply it?"

"Eight clear days," came the answer like a shot.

The manager saw something in my eye, for he added quickly: "Oh, but I tell you we've done it. It was a test case, but it was done. When? On Saturday, June 22nd, 1886, Mr. Robert B. Coleman ordered an American type passenger locomotive and



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tender, and we agreed it should be ready for service on his railroad in Lebanon County, Pennsylvania, on July 4th. The boiler material was ordered by telegraph, and we got it on Tuesday, the 25th. The boiler was made by Friday, the 28th. On Monday, July 1st, the machinery, frame, wheels, and so forth, were attached. The tender was completed and the locomotive tried under steam on Tuesday, July 2nd. That was the record construction of a complete locomotive from raw material, and the time was eight days. That shows what we can do when we are pushed."

A young fellow came along, and in the ear-cracking din we were introduced. "Glad to see you, sir," he said, with bright welcome in his eyes. "When I get a bit of spare time I'm going over to see how you do things in your country."

When he had gone I asked who he was. "Oh, that's our superintendent. He has the control of the fourteen thousand men in Baldwin's."

"Is he a member of the firm?" I inquired.

"Oh, dear no. Ten years ago he was a mechanic like any of these men. He brought out some inventions which perfected oil-burning engines. That gave him a start in rising."

"But he is only a lad," I persisted.

"Oh, not such a lad. Why, by now he must be thirty-two at least."

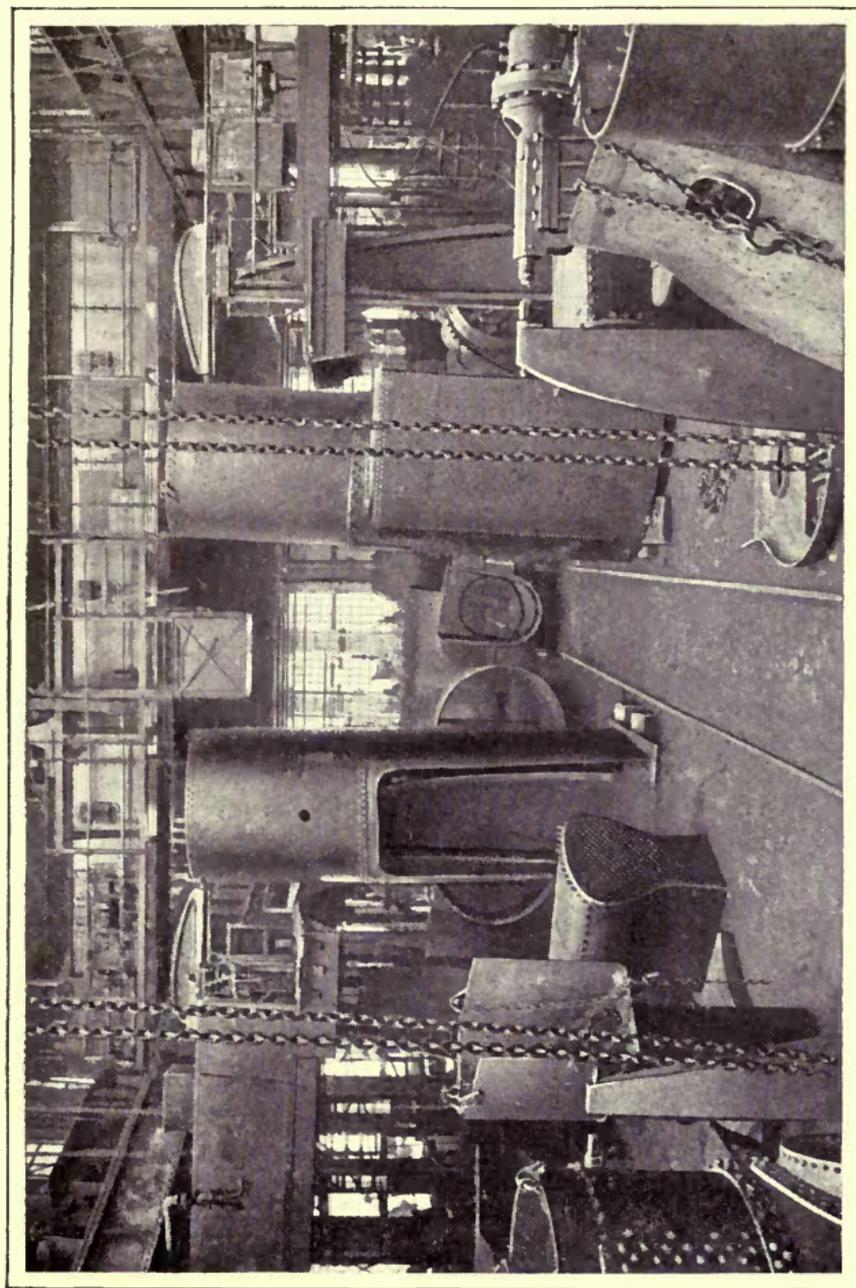
There was a black monster of a locomotive making much steam and fuss on its way out. On the tender was painted "Southern Pacific." Another was for South Africa, another for New Zealand,

another for Japan. I recalled having seen Baldwin's engines the previous year on the Trans-Siberian line.

In England? Yes! The Midland run forty of Baldwin's engines, the Great Northern twenty, and the Great Central twenty. How Baldwin's got the order? Well, it was just after the great engineering strike in England, when the English builders were so full of work they couldn't promise to supply under eighteen months, and Baldwin's stepped in with an offer to supply as many as were wanted in six months.

I put it bluntly that these American engines had not come up to expectations; that they consumed far more coal than English built locomotives, and that they passed too much of their time in the repair shops.

"Well," was the reply of the manager, "I'm not going to deny anything I don't know. If our locomotives break down in England, all I say is that it's very strange. They don't break down in America, and Baldwin's has been in existence since 1832, and we have turned out over 20,000 engines. I guess there is a little prejudice among builders in your country. As to burning more coal, that is true enough. I'll tell you the reason. The weight of your average English locomotive is forty-five to fifty tons. Those we built were to the specifications supplied by the English companies, and were about 120 tons. Greater weight means greater haulage power. If, of course, you give an engine of 120 tons the same amount to haul as you give a 45-ton engine it will use more coal. Because a man is asked to



HYDRAULIC RIVETING MACHINES

pull a child's cart you mustn't grumble at him eating more than a child. But give an American engine twice, nearly three times as much to haul as your English engine can haul, and then you will find that in the cost of getting goods over your roads from point to point there is a considerable saving in the coal bill by using an American locomotive."

I went all over Baldwin's works. For the better part of two days I was within their walls, watching, listening, comparing, trying to get a grip of how this great firm hustled in the building of locomotives.

There is more than a touch of the heroic in the calm masterfulness of huge machinery. If you get the right mental focus there is a dignity rising to the sublime in a man with sweat on his chest and the kneading muscles telling of his strength.

I saw those fourteen thousand men at work. I saw many grey hairs, but I saw no old men. Baldwin's, to me, was the apotheosis of young American vigour.

You may know the clang of a boiler shop, when the ruddy bolts fresh from the furnace are pushed through the drill holes, and men swing their hammers and punch the red nose into a slate-blue knob. But have you seen a mighty cylinder of a boiler, its parts only casually bolted, heaved into the air by a travelling crane and swung before a hydraulic hammer, and when the red bolt has been pushed through, one little tap from the hammer beating down the bolt as though it were red putty?

Have you been in a tank riveting shop where

the noise is like a scream of hammers, and yet not a single hammer is swung; where there are furnaces from which young fellows with long tongs pick red-hot bolts, and send them flying through the air as though a game of tip-cat were on, the flying bolt caught in a wire ladle, gripped with tongs, pushed through the drill holes, and then a man trailing about with him something like a garden hose, pressing the nozzle on the bolt; and have you heard the air rip like the teeth of a steam saw in a beam, but a hundred thousand times intensified, as the pneumatic riveter punches the bolt? At Baldwin's you see men riveting a locomotive tank with the speed of a joiner driving a nail into a fence—that is, if he is an expert joiner.

There are neither shafts nor belts. All machinery is driven by electric motors. Some of the shops seem just stock rooms of axles and wheels. But there are machines for turning them close by. And the silent demon of a travelling crane comes along, picks up a couple of wheels, carries them off, and brings back another pair to be turned.

As in modern houses the kitchen is often near the roof so that the smell of cooking food shall not offend the nostrils of folks in the drawing-room, Baldwin's have their forge on the second floor of one building and the brass foundry on the top of another, with the brass machine-shop below.

Though there be a town of men in Baldwin's, it seems a scanty town. That is because the works are so large, and instead of crowds of men working together you get one or two here, another two there,

a third couple elsewhere, and so on, controlling the machinery that is doing the work.

Yet every man is on scratch, as it were; all his nerves are on tension; all his wits are at play. He has to give all his energy to get the maximum of work out of a machine. If he is a laggard he doesn't stay with the Baldwin Locomotive Company.

That is why young men are favoured at Baldwin's, and in all business concerns in America. The American manufacturer doesn't care a red cent for what is a special object of reverence to the British manufacturer—experience. What he wants is the man who can do the work quickly and just as he wants it. The American manufacturer knows the young man will make mistakes which the elder man will avoid. But the young man has no conservative ideas. He wants to get on, and he wants to get rich. In his own language, "he wants to get right there," and he gets there—somehow!

The American manufacturer pays his men well, not always because he is obliged, but because he finds that by paying a man an extra penny an hour over regular wages he puts such an impetus into that man that he gets threepence more of work out of him.

No sentimentalist in his business relations is the American manufacturer. He is bed-rock at money-making, and he has young men because he finds they are more resourceful than their fathers. He pays them, not at the lowest market rate, which means poor food, discontent, and sloth, but at a rate that will feed them well, put spice into their veins,

and soul into their work. There are no half-holidays at Baldwin's. The men work from seven to six, with one hour off at mid-day, six days in the week, except for the summer months, and then work stops at four on Saturday afternoons.

That spirit of hustling on which the American prides himself is a product of environment and atmosphere. There is something that braces in the American climate, that makes a man hustle even if he doesn't want to. He does a thing at a scamper unconsciously, and because everybody else does things at a scamper. In a boiler-shop I saw a man run to get a hammer, and run back again. I've racked my brains, but I cannot remember ever seeing a British working man run for a tool.

One of the most interesting things in the United States is the metamorphosis of a British working man into an American working man. It takes about a year—no longer. At first he is slow; he seems to crawl; he likes to rest and look about; if there is anything to be brought, it is brought saunteringly. But the inevitable change comes. He gets the yellow out of his eye, and he "gets a move on"; elasticity comes into his muscles, and in twelve months he is a hustler.

"We have many hundreds of Englishmen working at Baldwin's," I was told, "and after their first year they are just as smart workmen as any native born American we have."

The system of work is such that if a man wants to make a first-rate wage, in the American sense, he must work hard, and very hard. The minimum

wage of all workmen at Baldwin's is 6 $\frac{3}{4}$ d. an hour. If a man gets below that he gets his dismissal. Each shop has a foreman, and the foreman has a settled wage to walk round with his eyes open. Each section of work, from boiler-making down to brass nozzles, is in charge of a contractor.

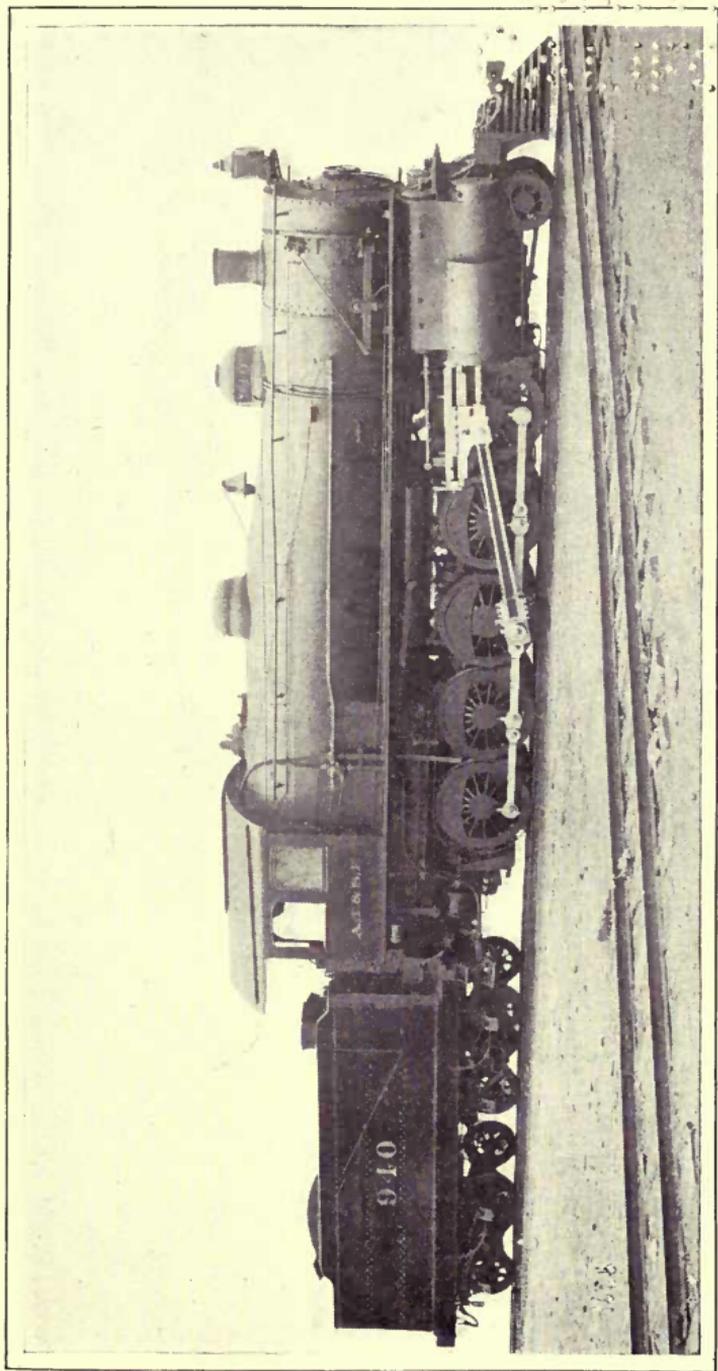
The firm receives a big order for locomotives. From the price they subtract what they consider their share. Then they divide the rest up in proportion; so much for the steel frame, so much for the boiler plates, so much for riveting, so much for this and the other, down to the finest detail. They call in the contractor of the riveting shop. They say, "We want the rivetting done for twenty engines at such a price." That price will not only pay the 6 $\frac{3}{4}$ d. an hour to first-rate workmen, but leave a good margin. It is then for the contractor to get the work as cheaply done—never less than the 13 $\frac{1}{2}$ cents an hour—and as quickly as possible to leave him a profit and be ready for another contract. The contractor picks his men, the best possible, and the second best are left to do labouring jobs at 13 $\frac{1}{2}$ cents, or they are dismissed. He says to the men—as he can do at Baldwin's, where there are nearly two years of orders scheduled—"I pay you each 9d. or 10d. an hour." The men agree, and the price is reported to the foreman. If the contractor thinks he can get more work still out of this or that man, he will get the foreman's permission to pay him 11d. or 1s. an hour.

It seems odd to the British mind that because you are paying a man well to work his hardest you

should pay him more to get out of him an extra hardest. But it is the American idea that the harder a man works the harder he can work. And, working under a stimulus like this, an American working man will often do double, and even treble the work of a British working man. But though it is at an increased wage, it is not a double or treble wage, and that is where the American manufacturer scores.

The contractor does not pay the men. He presents a sheet of their earnings, and the workers get paid every Friday night up to the previous Saturday, so that almost a week's wages are held in hand. All this is for various reasons. Baldwin's know how much the contractor pays the men, whether he is disposed to "sweat" them near the minimum wage, and also exactly what his profit is on the contract price after the payment of the men. It is a fair assumption that if he makes a very big profit he will not be given so high a price for the next contract. Baldwin's will want an extra bite. That the sanction of the lynx-eyed foreman, a sort of firm's detective, is required for every additional cent of incentive to a man, leads the contractor, if he sees a large profit in sight which would mean cutting down the price next time, to make an arrangement with the mechanics that they should have their wages put up so that Baldwin's may think he is not making so large a fortune after all. These things, however, adjust themselves, and contractors and men work to a general average of pay.

It is a hard system—not so hard at Baldwin's, for Baldwin's among American works is almost an



THE LATEST AMERICAN FREIGHT ENGINE.

(Built at Baldwin's Locomotive Works. The heaviest engine in the world for freight; will haul on level ground 200 waggons containing a load of 7,400 tons.)

THE UNIVERSITY OF CHICAGO
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ideal place—but nevertheless relentless in its effect. It means that the slow man, however good, only earns the minimum wage of 6 $\frac{3}{4}$ d. an hour, and is dismissed without notice with his week of pay the instant the demand for labour falls. There is no such thing as working for stock in dull seasons. It means also that the good man gets good pay—far more than he could possibly get in England. But he has to work at the highest pressure of all his powers.

It is a strenuous life. It is a life that appeals to the stalwart, work-loving, determined American young man. It is a life of strained nerves. It explained many of the grey hairs I saw on boyish heads. It explained also why I saw hardly any grey beards.

“Where are your elderly workmen?” I asked a Philadelphia manufacturer once, twice, three times.

At the third time he opened his cigar case. With a careless smile he said, “Have a smoke, and we’ll take a car ride along to the cemetery!”

CHAPTER V.

SCENES IN PITTSBURG.

IF you would see Pittsburg aright you should take a drive in the evening, when dusk has settled, to Highland Park, a loftily perched spot, and from there look on the city.

There will be a smell of sulphur in your nostrils, and there will be a wondrous sight before your eyes.

Illuminated with fierce nether lights there hangs before you a great brown sheet of smoke, black toward the heavens, ochreish toward the earth. Now and then you think the clouds are on fire, a curious eerie white fire with a suggestion of green in it, as though some volcano had lit up the world.

Far below, in patches, with splotches of blackness in between, are the lurid lights of great furnaces. The glow seems red and yellow mixed, and savage tongues curve up to and lick the clouds.

Suddenly, continuously, yet irregularly, here and there, then a break, then over yonder a fresh light as though an electric flame of million power had turned liquid and was flowing a river of lava, illumined the world as lightning does, only tenfold more vivid, intense, piercing, than ever lightning was. The molten metal was being released, poured into cauldrons the size of Thor's helmet, swung—a dish of blue-white, pale, but lucid light—to castings. For

a whole minute the earth would quiver in the brilliance of the outpouring.

It was too far off to see workmen. But the great machinery could be seen swinging, almost rhythmically, to its work; cars on railway tracks could be discerned shunting; there was a dull, far-off clanging roar. There was a clap of clattering steel, and then a long hissing, frothy sound.

The big buildings stood out sombre and gaunt. The steely whiteness waned, and once more, for a minute, half a minute, two minutes maybe, there was only the ruddiness of the giant furnaces—a softness to the eye after the keenness of that liquid steel.

That is how I saw Pittsburg on the night I left it. I had seen the city in the cruel, naked light of day. I had seen much that thrilled me with admiration, much that was unpleasant, and a great deal that was unlovely.

But the thing I shall longest recall was the sight of the steel capital of the world as I saw it that evening—a Brocken scene, weird, awesome, with the poetry of power in it, that only Turner would have painted in justice, and with the rustling of the leaves to suggest the shrieks of the Valkyrie.

They call Pittsburg the Sheffield of America. There are many points of resemblance.

There are few places more unbeautiful on a damp, dreary day than Sheffield—except Pittsburg. It was early one Saturday morning I arrived in Pittsburg after an all-night journey on a railroad car. My hotel lay some distance away, and as I drove up a

new boulevard that hugs the side of a hill, I was able to look down through a haze of brown smoke on a sweep of ugly ironworks, dingy and sordid, the air riven with clatter, like musketry fire far off.

We have dreary spots in England and Scotland, where manufacturing has bleached the grass off the face of the earth, and leafless trees stretch bare arms even in prime summer time. But I cannot remember having seen anything that depressed me quite so much as Pittsburg did that morning. The nearest parallel in drab dreariness is the Staffordshire pottery district in dirty weather.

The town is a business town and nothing else. The buildings are tall and grimy; the streets narrow compared with other American towns. I went into some of the poorer districts. I have seen our slums in English towns, foul and loathsome, but never quite so bad as those I saw in Pittsburg. I was told that in Chicago I would see slums equalling those of the East End of London. I, of course, saw many things that were unhappy, but her ghetto and "little Italy" are by no means horrible sinks. The Pittsburg slums are dreadful, the houses wheezy, unsteady, filthy, many of the women slatterns. Sewage often disgraces the roadway. In one street I saw a lake, that stretched half across the way, of little else but sewage.

The people are not stunted, pukeish, scraggy-made, as one often sees folks in our own bits of black country. But I did miss in Pittsburg that clearness of skin, that boyish, healthy fulness of face, that well-set carriage which is rather a distinguishing

feature of most Americans, of which they have reason to be proud, and which they should hold to as something infinitely more valuable than dollars.

The men were pale, worn, not well set up, and they were all anxious-faced. The crown of most American towns is the beauty of the women. To be candid, even at the risk of rousing displeasure, I cannot write that the women of Pittsburg were the peers of their sisters in other towns.

And having written that which strikes the visitor as unpleasant, let me describe some of the things that Pittsburg takes to its credit; Pittsburg, the hub of the steel industry, where, though the surroundings be ugly, where the people are sickly visaged, the air tastes sulphurous, brains are keen, machinery is the acme of invention, where, indeed, the outsider, like myself, may stand a little apart and admire unfeignedly what Man can do in the strenuous industry of steel production.

The young men! All the workmen seemed to be little more than lads. There were middle-aged men to be seen, but they were comparatively few, and it was almost necessary to look for them. I was in Pittsburg on Labour Day—the first Monday in September. There was a great parade of thousands of men, each section headed with band and banners, and they marched from the centre of the town to Schenley Park. I have seen plenty of labour demonstrations in England, and the contrast was marked. In England the demonstrators have their bands and banners also. But the men are usually

middle-aged, usually wear their best Sunday clothes, and with doggedness in their manner march stolidly along the streets. The Pittsburg demonstration was chiefly made up of young men. They marched in fours, but not on one another's heels and shoulder to shoulder. They spread themselves out, paces apart, and marched with the stately stride of a funeral procession.

The American dearly loves parades, gorgeous, and with plenty of colour. He has a vigorous contempt for orders conferred by European sovereigns on their subjects. But he has orders of his own, and every third man you meet in the streets has a little insignia in his buttonhole proclaiming he is a "knight," or something else with a high-falutin' name, in the Grand Order of Something or Other. A British soldier with the Victoria Cross is not half so proud as an American who has a medal. When Prince Henry of Prussia visited Chicago some of the leading merchants who had won medals at exhibitions wore those honours for high quality tinned beef upon their breasts.

Every one of these demonstrators on Labour Day was in uniform of sorts. They were in white duck trousers, blue shirts, and straw hats: often a hundred men dressed alike. Others wore uniforms of grey. Others had a particular style of cap and a particular patterned tie. Every trade or section of a trade was garbed uniformly. There were plenty of bands, and it was all very pretty and effective, despite the wet discomfort of the morning. But what a procession of boys it did seem. Yet

those boys were the sinew which has made Pittsburg famous.

To me every town has an individuality, a personality, almost as marked as any human being can have. And Pittsburg has an individuality of its own—not the pagan love for money which marks Chicago, not the excitement of commercial conquest which distinguishes New York, not the courteous dignity and refinement of Boston; but the individuality of strength, of the mastery of labour, of man who through grime and sweat has fire and iron under his control.

It was not a town I would like to live in. Indeed, it is a place I would avoid. There are the fumes of Gehenna about it. The work is hard, and there is not much of what we call the beauty of life to be got there. But there is labour triumphant over matter—and that is a noble sight for the eye of man to rest upon.

One day an acquaintance took me a drive to show me that, though Pittsburg itself was unlovely, the surrounding country had more than a touch of romantic grandeur. He was right. But hovering in the sky was a dun pall, and when I looked over the shoulder of a hill it would be as into a valley of desolation. That was why on the evening I left Pittsburg I stood on a hill to see it in the grandeur of flame illuminating the night.

It was on that drive that a well-set buggy, with a smart horse and an alert, youngish man holding the reins, dashed by.

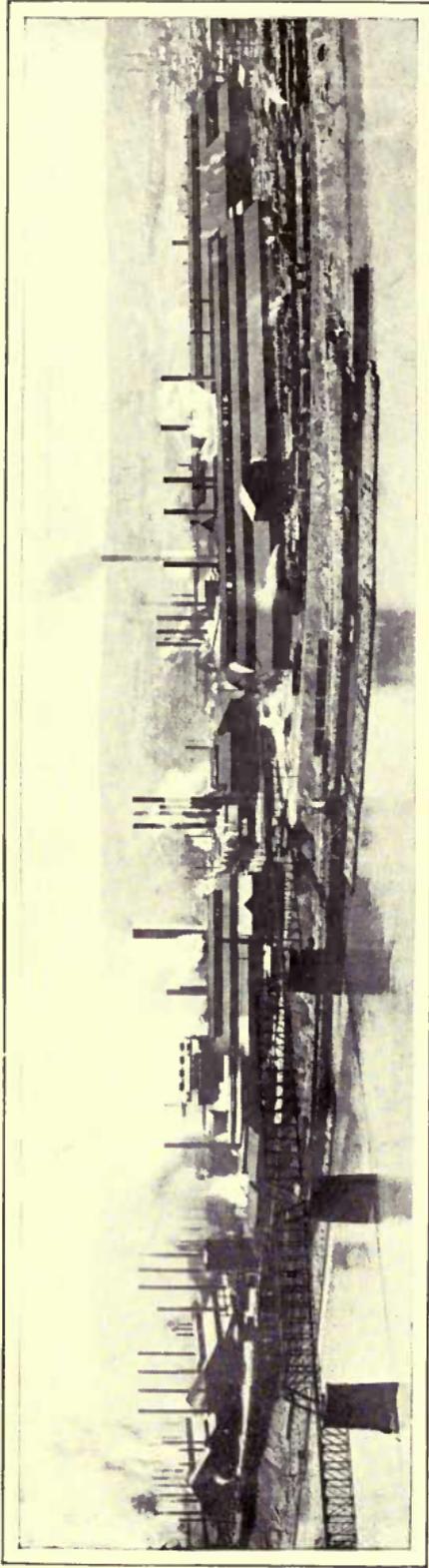
“That’s one of Andrew Carnegie’s millionaires,”

my companion said. "Yes," he went on, "we don't think so much of Carnegie as a brainy man over here as you folks do in the old country. It wasn't he who built up the business, but the men he got round him."

"Well," I commented, "that is the highest form of business genius; to spot good men and hold on to them."

"Gee-whish!" exclaimed my companion, "I guess you're right. And there ain't no one that can see the use of a man like Carnegie. Do you know that Carnegie has made thirty-one millionaires? 'Struth! You know he would go about the works, and he would see or hear of some young chap that was smart. If he thought there was anything in him he would give him something better to do, then something better still; then he would make him a foreman, and gee-whish, again, if a fellow had sand in him, up and up he went. Carnegie would push a chap of twenty-five or twenty-six into a place of responsibility that would make you giddy. When Carnegie had a good man he gave him full rope; he didn't hamper him; he had sense to understand there were times when he himself didn't know best.

"And he paid well. Because a fellow was young and unmarried he didn't think a small salary was enough. He flung big salaries about. What was \$10,000 or \$20,000 a year if he got \$200,000 worth of brains in return! Yes, I guess there are hard things said among the workpeople about Carnegie. They're the tools that work the machines. There's plenty of them to be had, and Carnegie hasn't



THE HOMESTEAD WORKS
NEAR PITTSBURG.

paid more in wages than he has been forced to. But for young fellows with brains, lots of brains, brains that can see through a ten-inch armour plate, that's the thing for Carnegie's money. And look here: every brainy young engineer in America wanted to get into Carnegie's works. They knew what the pay was like, and that, at any rate, they would get their chance. That, I guess, is the way Carnegie has become rich, knowing how to get the right men round him.

"You Britishers think there is something horrible in ripping the brains out of a man, so that in seven or eight years he has no brains left. The moment a man began to fag Carnegie had no more use for him. But he didn't chuck him out with his brains sucked dry and his health all in tatters. He gave him stock in one or other of the Carnegie companies so he needn't bother about working any more. And Andrew Carnegie has made millionaires of thirty-one of his workpeople. Say! guess you don't work on those lines in your old country?"

I was able to see something of the properties owned or controlled by the Carnegie Company. There was the Homestead steelworks, with two 12-gross ton Bessemer converters, four cupolas, forty-eight open hearth steel furnaces, fourteen rolling mills, ninety-one soaking pits, thirty heating furnaces, one beam fitting shop, a column shop, a steel foundry and armour plate manufacturing plant consisting of press shop with one 2,000-ton and one 10,000-ton press, ten heating furnaces, a carbonising shop with eight furnaces, and a machine shop for

finishing the armour plate. The annual capacity of these works is 450,000 gross tons of Bessemer steel ingots, and 1,500,000 gross tons of open hearth steel ingots. But there are the Edgar-Thompson furnaces, with a capacity to turn out Bessemer and basic iron to the extent of a million tons a year. There are the Duquesne furnaces, four miles away, with 800,000 tons a year. The Carrie furnaces can turn out the same amount. The Lucy furnaces can turn out only 250,000 tons. The total capacity of the nineteen blast furnaces is 2,850,000 tons a year. And three additional furnaces, with a total capacity of 320,000 tons a year, are being built.

The Edgar-Thompson Steel Works! Here are four 15-ton converters, four spiegel cupolas, twenty-one Siemens', and two reverberatory furnaces, one three-high 40-inch blooming mill; two three-high rail cranes, hot saws and finishing machines, an iron and brass foundry, a forge containing one 6-ton hammer and two heating furnaces. From these works there can be got out each year 850,000 tons of ingots, 650 tons of rails and billets, and 50,000 tons of castings. There are the Duquesne Steel Works, able to send out 600,000 tons of Bessemer ingots and 450,000 tons of open hearth ingots. There are the Upper Union Mills and the Lower Union Mills, one providing 240,000 tons of structural steel, and the other 130,000 tons of plates and car forgings and bridge work. At the Howard Axle works 1,500 axles can be turned out each day. The total capacity of the steel furnaces and converters is 3,850,000 gross tons a year, of which 1,900,000 are Bessemer steel

and 1,950,000 basic open hearth steel. All these mammoth works belong to what is known as the Carnegie Company.

But there are many other companies controlled by this company. There is the Frick Coke Company, which owns 40,000 acres of unmined coking coal in Pennsylvania, 20,000 acres of surface lands, 2,500 railroad cars, and 45 coke works, with an aggregate of 11,317 coke ovens. There is the Carnegie Natural Gas Company with 98,000 acres of gas territory, 300 miles of pipe lines, and 130 producing gas wells, supplying to the Carnegie works about thirteen billion cubic feet of natural gas a year, equivalent to about 684,000 tons of coal. There is the Pittsburg Bessemer and Lake Erie Railroad Company, which operates 204 miles of track, 65 locomotives, 4,742 freight, 37 passenger, and 124 service cars.

All the iron ore mined by the Carnegie interests in the Lake Superior region is transported to the furnaces over their own railroad. There is the Union Railroad Company, which operates 40 miles of track, connecting the various Carnegie works. There is the Oliver Iron Mining Company, which holds in fee or by lease various iron ore properties on the five ranges of the Lake Superior region, producing about a quarter of the iron ore yielded annually, or about 5,000,000 tons. There is the Pittsburg and Conneaut Dock Company on Lake Erie, at the terminus of the Carnegie railroad, with a capacity to berth nine ships at the same time, and handle ten million tons of iron ore a year. A 6,000-ton ship can be cleared in fourteen hours, and in

another fourteen hours her cargo can be delivered at the furnaces in Pittsburg. It is claimed that a train of thirty-five 40-ton ore cars can be loaded in two hours. Indeed, so expeditious is the machinery that a 40-ton car of coal can be loaded and partly trimmed in the ship in thirty-six seconds.

But why go on merely cataloguing how this octopus of a Carnegie Company throws its arms over fleets of steamships on the Great Lakes, controls waterworks, and generally plays king among industrial concerns? It is a big example of America at Work, of huge ideas, tremendous accomplishments. And yet this swallower up of big companies has been swallowed up itself. It and all its properties are now part of the United States Steel Corporation.

The figures I have quoted are official, and deal with capacity, and not output. There is no question that the capacity is far in excess of the output. The iron and steel works throughout America, indeed, are far bigger than necessary to supply American demands, great though those are. Twice as much pig iron could be produced; nearly one and a half times as much roll products could be manufactured; the capacity for producing steel ingots is 58 per cent. in excess of the actual output.

What does this mean? Does it mean the American steel manufacturer has been over-building?

I was talking to an English manufacturer not long ago about American steel having such a large market in Russia, and British having only a small market.

“My dear sir,” he said, “my firm could have had as much of the Russian steel trade as they wanted. But we’re full up; we’ve constant work; we cannot keep pace with our orders. Why should we bother ourselves with seeking fresh markets?”

It was a past president of the British Iron and Steel Institute who said that. There spoke the British manufacturer. His works were as busy as could be; he could not accept more orders; why should he bother?

The American manufacturer looks at things differently. He is deliberately building works of an enormous capacity, not out of necessity because of an increased volume of trade—gigantic though that has been—but because he is long-sighted, and intends not only to supply the people who now want his stuff, but to have all the machinery, all the appliances, to pit his magnificent resources against the resources of the rest of the world—and he is going to do that before long.

The raw material cannot at present be brought along fast enough to feed the furnaces; that is why English ore and Scotch pig iron are being imported into the States. People at home complacently smile and say, “That shows America has to come to Britain for ore.” It simply shows that the American steel industry is so prosperous that the manufacturers over there are glad to get ore from anywhere.

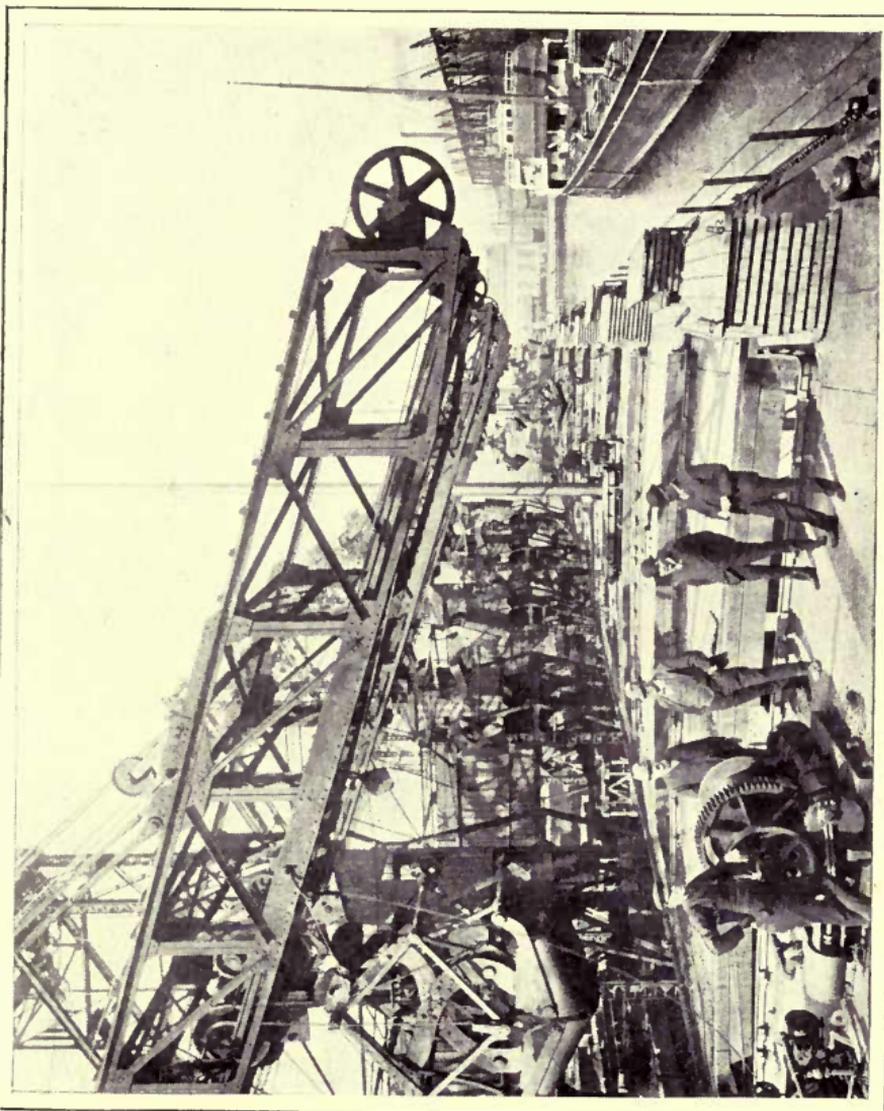
British manufacturers have little to fear just now. America is too busy supplying her home market. But when the slump comes in the States, when the manufacturers find they have a surplus to

get rid of, that will be the day when the British manufacturer will have a rude shaking.

The competition will be relentless, savage, and there will be little consideration of humanity in it. The country with the best brains, the best machinery, and the cheapest transit will win.

England has more natural advantages than America. Cleveland is nearer Norway, and Cardiff is nearer Spain than Pittsburg is to the Lake Superior ore. But the cost of shipping in America is only half as much, despite higher wages, though the distance is further, and the average railroad ton rate charged is not more than a third of what it is in England. It costs from 10s. to 12s. a ton to send ore by rail in England for less than 150 miles. To take ore from Lake Erie to Pittsburg (156 miles) the average cost is 1s. 9d. a ton.

I went through the Carnegie Works at Homestead, and wonderful was the sight of what machinery can do. The thing that struck me first was how few men there were about. Yet there were thousands. Men sat in little cabs near the roof with tiny levers, and electric power did the rest. To watch the way in which ingots were gripped from the furnaces, laid on rollers, carried along to be pressed, rolled out with steel fingers automatically putting them into position, you would have thought the machines were human. Then they were carried along and cut, and other machinery rolled the plate to a steel platform and laid it there to cool. In the making of steel rails, from the moment the ore is pitched into the furnace until the rail is finished, everything is done by



THE HOOVER AND MASON GRAB.

(Ore unloading machine. In the picture the "grabs" can be seen open and shut. One grab, handled by a single man, can unload 540 tons of iron ore in four hours, at a cost of eight shillings.)

machinery, and no man has a direct hand in the work.

Here again was another example of what I saw everywhere: splendid pay for brains, and the invention of labour-saving machinery, but few skilled workmen. It was unskilled labour in quantity that was required.

CHAPTER VI.

SOME WAYS THEY HAVE IN WASHINGTON.

IF an American climbed on the steps of the Board of Trade Office in Whitehall, and, without so much as a tap at the door or even throwing aside his half-smoked cigar, marched into a Government room with an "Oh, Mr. Board-of-Trade President, I wonder if you could let me have any official papers on wages," an Englishman would probably say he was bad mannered.

An Englishman in Washington, however, who wants to see Government officials, but fumbles with letters of introduction and requests the janitor to take up his card, and stands knocking at a door till some one shouts "Come in!" is regarded as a timid creature with time to waste.

"If you've come to talk business, in you go, have your talk, clear out when you've done, and let the next fellow have a chance," might be written over the portals of all Government Departments at Washington.

I have had experiences in various parts of the world of getting courtesies from Governments, from waiting fourteen days in a Chinese city for what might have been provided me in an hour, to running the gauntlet of a British department—the door-keeper who doesn't know whether Mr. Cabinet

Minister is to be seen or not, and leaves you for ten minutes in a draughty corridor, then ushers you into a waiting-room provided with two illustrated papers eighteen months old, where a clerk comes and wants to know what you want, and goes off and comes back in another ten minutes and takes you into another room, dull furnished, and with the "London Directory" as reading matter; and there you fume until at last, three-quarters of an hour after crossing the threshold, you get face to face with the great man himself, and find him very English—cold, formal, but courteous.

To Washington I took some of my British notions. I went to a Government office and told the functionary at the door whom I wanted to see. He discharged ^{of} quantity of brown fluid from his mouth into a spittoon—cuspador is the American name, being more refined—and without rising from his chair, said, "To the left; last door at the end of the passage!"

"Perhaps you will take my card along—and—and also I have a letter of introduction."

"I guess you'll find the old man in his room; last door at the end of the passage!" He did not even look up.

I went along the passage. The chattering of the steel teeth of typewriters came from many an open door, and I caught peeps of disorderly rooms, and men, minus coat and vest, leaning back in big chairs dictating to women typists. I saw that last door. It was closed, and I hesitated.

Noticing a young fellow like a clerk, I ap-

proached him. "How can I see the Secretary?" I asked.

He answered, "I don't know whether the old man is in. But go right in there; that's his room." I went to the door and tapped. No answer. I knocked loud.

"Go right in, didn't I tell you!" said the clerk with a snap.

I went right in. There was the Secretary of State for a great American Department, sitting at his table. He looked up, and I mumbled some sort of apology for trespassing.

"Sit down!"

I pushed forward my card, and also presented my letter of introduction. He took both, but looked at neither. I saw a huge interrogation in each of his eyes. Those eyes were saying, "What do you want?" I told him in three short sentences.

Within a minute and a half we were on a busy talk. I wanted some particular statistics. He touched an electric bell. "Jim, fetch me Bulletin 78." Then, before the man had gone, the Secretary turned to me and said, "I think there's something else that would be useful. Jim, bring 92 as well." I got the bulletins—and others before I left.

Mr. Secretary appreciated what I wanted. There was no coldness, no hesitation, no formality. There was no superfluity of words. He was a business man. He talked freely and openly.

Yet I don't think he knew my name till, at the end of an hour, after he had provided me with a bundle of Government publications, he looked at my card,

so that he might send them by messenger to the hotel.

"If you want to know anything more, come right in; I'm here most any day from ten till five," were his parting words.

Knowing something of the barriers in British Government offices, this almost open house in the American Government Departments surprised me.

Anybody can go in and see anybody. That is the American idea. To hang about a waiting-room, dependent on another man's convenience, would be to admit inequality.

The "Walk right in" habit has its drawbacks. but it is an acknowledgment of equality, a shouldering of useless Frenchy scraping—as I heard a man describe the agreeable little mutual courtesies of European life—and, what is important, it saves a lot of time.

"I would like to have a look round your department," I said to the chief of a State office. "All right; go just where you like; nobody will stop you."

To the head of another department I remarked, "Don't you sometimes find a lot of your time wasted by talkative cranks?"

He smiled. "No. These are Government offices, and every American who wants to know anything can come right in here. It doesn't take me a minute to find out whether a man is honestly seeking information. If he is, I'm glad to see him, and just help him as far as I can, and if I haven't the information, tell him where he can get it. As to

the dawdling, silly people—oh, yes, we've got those kind in the States—why, I guess it doesn't take long before they're out in the passage."

The scope of my investigations was confined to those departments which had to do with trade and work—to the Census Office, which prepares statistics about everything; to the Agricultural Department, with its wonderful experimental stations dotted over the land; to the Department of Labour, which watches everything affecting workmen; and to the Patent Office.

And the sum of my impressions came to this—that every man in the various departments was bubbling with enthusiasm about the work he had in hand.

I acquired the habit, which no man would think of in London, of dropping into a Government office and getting into chat with any of the officials. The moment it was seen I was not an idling tourist, the remark usually was, "Come right in and sit down." Never was there once any "Now you must excuse me, for I'm busy."

An interesting place was the Department of Labour. We have nothing like it in our own country. Our Board of Trade is not at all like it. The Board of Trade is administrative. The duty of the Department of Labour is to collect information about work, wages, and industrial conditions in all parts of the world, and at intervals—in a really bright and attractive way, so different from our own stodgy "Labour Gazette"—to issue publications.

It was only in 1885 that the Bureau of Labour, within the Department of the Interior, came into existence. In 1888, however, it was a fully fledged department, with independent functions, though the chief, the Commissioner of Labour, Mr. Carrol D. Wright, was given no place in the Cabinet.

And here, by way of an aside, let me state that Mr. Wright is the only high officer of the American Government who has maintained his position through varying and successive administrations, Republican and Democratic. He was a patent lawyer in Boston, and was a member of the Massachusetts State Legislature. When Massachusetts created a Bureau of Labour, in 1869, the first office of the kind in the world, he became Commissioner, and he stepped to the higher office when a Government department was opened. All America recognises Mr. Wright as the authority on labour questions, and though it is customary on the election of a new President to sweep out nearly all the old hands to make room for the friends of the President, no President has said "Go" to Carrol D. Wright. Besides the Government Department, thirty-one States have followed the example of Massachusetts in having Bureaus of Labour to themselves.

Congress gives instructions to the Department to issue annual reports on particular subjects. Staffs of men work for months, even years, gaining information. It is all sifted. Nothing of a hearsay character is used. The report only goes out when everything in it has been verified.

Here are some of the subjects that have been

dealt with in volume form:—Industrial depressions; the relations between convict and other labour, especially in regard to the cost of production; strikes and lock-outs; everything about working women in twenty-two of the larger cities of the United States, their wages, hours, health, their moral and sanitary surroundings; the railroad labour of the country; the cost of producing steel and iron products and textiles and glass in America and other countries (a report which took three and a half years to complete, as the cost of living in 16,000 families had to be inquired into); industrial education in other countries, dealing with the kindergarten in relation to manual training, manual training in conjunction with book work, trade instruction in reformatories, and the effect of training on the individual; building and loan societies; the occupations and earnings of women and children and men, and the relative efficiency of women and children and men engaged in the same occupation; comparison of earnings in regard to efficiency, hours, and the reasons for employing women and children; the economic aspect of the liquor problem; the relative cost of hand and machine labour; private and municipal ownership; the wages and hours of labour in all principal trades in all the principal countries of the world. And a great deal more of striking, useful, and well-sifted information.

In addition to these voluminous reports, containing facts acquired on the spot, there is the bi-monthly "Bulletin." This always contains two or three articles on topical subjects, the original investiga-

tions of the agents and experts of the Department; a digest of all the reports issued by State Bureaus throughout the country, a digest of foreign labour reports, and the reproduction of new laws affecting working people, and the decisions of Courts interpreting laws involving the relationship of employer and wage-earner.

At first the Department tried to gather its information through the post. This failed. Now it is obtained by special agents. Some employers decline to give information, but as the Department does not publish names, many firms willingly allow all their books to be inspected by the agents.

The great aim is to focus all things, to get their relationship, to state them clearly, and as far as possible avoid the attitude of arguing.

Let me mention haphazard a few of the subjects authoritatively dealt with in these bi-monthly Bulletins. There are a good many articles on negro labour on farms and in workshops. There are articles on co-operative distribution; on the public baths of Europe; on the municipal restaurant at Grenoble, France; on boarding homes for working women; on pawnbroking in Europe and the United States; on the labour laws of England; on the British Workmen's Compensation Act and its operation; on the trend of wages; on railway labour in all parts of the world.

I have never seen such admirable articles anywhere, except in the leading English monthly reviews, and the Labour Department publications have the advantage of never being theoretical, but

always practical. And there is no paying of half a dollar for the issue. Any American has the right to send a post-card: "I want Bulletin 23, which has an article on the production of paper and pulp in the United States," and it is sent to him without any charge.

Further, every American is entitled to write and ask the Department about any question on earth he is interested in—the payment of Scotch fisher girls; why it is poor people have more children than rich people; at the present increase of wages, how long will it be before everybody in America will have \$1,000 a year (these were questions actually put while I was in the office); what restrictions are there on Americans going to South Africa? and a whole stream of inquiries, arriving by the hundred every day from senators, and from ignorant, freshly arrived, illiterate Polish Jews; sometimes very suggestive questions, sometimes sheer stupidity, but all entitled to an answer.

Here then is a great educational department for every American who wants to know things about industry. Everything published in the civilised world on labour matters is docketed and pigeon-holed. By an elaborate system of indexing, a finger can be placed on everything that has been written on a particular subject for the last fifteen or sixteen years. The gist of articles in foreign tongues is translated. Every man in the department is a specialist. And if Silas K. Cornstalk, of Topeka, Kansas, wants to know how many more grains of corn sprout on an American ear of wheat than on

an English, there is somebody who will tell him, or find out, or at any rate refer him to the man who makes such information his speciality.

Once the Labour Department made an excursion from its obvious work. It prepared a report on marriage and divorce, which meant investigation in more than 2,600 courts in the United States having divorce jurisdiction. The propriety of this inquiry was sometimes condemned. But, says Mr. Carrol D. Wright, "if there is any subject in which labour should be actively interested, and which concerns the happiness of the working man, it is the sacredness and the permanency of home relations. To my mind the report on marriage and divorce is as thoroughly essential to labour in all its interests as any reports upon wages or cost of living."

The Department puts a wide and liberal interpretation on the duties assigned it by Congress. To inquire into the moral as well as the material prosperity of the nation it considers well within its functions.

Congress approves that attitude. At first it only gave £5,000 a year to the work; now it gives £15,000, and this is exclusive of printing and many other expenses. The Post Office carries free the bulletins and letters, whether it be a mechanics' club, or a trade union organisation, or a curious inquirer.

"We're here to provide information. Walk right in and get it!" is what the American Labour Department says to Americans.

The Department makes no recommendations to

Congress. Its work is to demonstrate, to elucidate, to strike comparisons, and leave others to draw conclusions.

Indeed, it would be useless to suggest. Congress does not make laws relating to conditions of labour. That is done by the many State Legislatures, and their laws are as varied as those of Great Britain and Germany. Besides, the United States is practically a Continent, with different conditions of labour, different workers, white in the north and negro in the south; and though once or twice there has been urging for consolidation of laws, this is not likely to be for many generations, because it is recognised that no rules can be made applicable to every corner of the States. The only consolidation there is likely to be within the near future is in regard to the laws on marriage and divorce.

I admit I was vastly impressed with the educational value of the Department of Labour. There is no barrier of officialism to restrain inquiry. There is the office, and you can walk in and get what you want, and if you don't live in Washington you can write.

Often, when I have gone rambling through a bulky British Blue Book, scissors in hand, getting weary of delving among dreariness, on the search for diamonds of interest, I have sighed "Oh that the British Government would appoint some one who understands the relative public value of things to prepare digests." That is what the Labour Department of America does, and that is what every Department of the United States Government does in

the hundreds of thousands of Bulletins issued every year.

In England a Department does not do a thing till there is a public demand, and then tardily. In America, the heads of Departments, bristling with enthusiasm, exclaim, "That's a good proposition, and we'll do it." Thereby popular interest is created, popular fancy is touched.

America has no insular prejudices. It drains the world for ideas, picks the best, and adapts them. All this adaptability, *plus* enthusiasm, is at the bottom of American prosperity to-day.

CHAPTER VII.

COMMERCIAL TRAINING IN PHILADELPHIA.

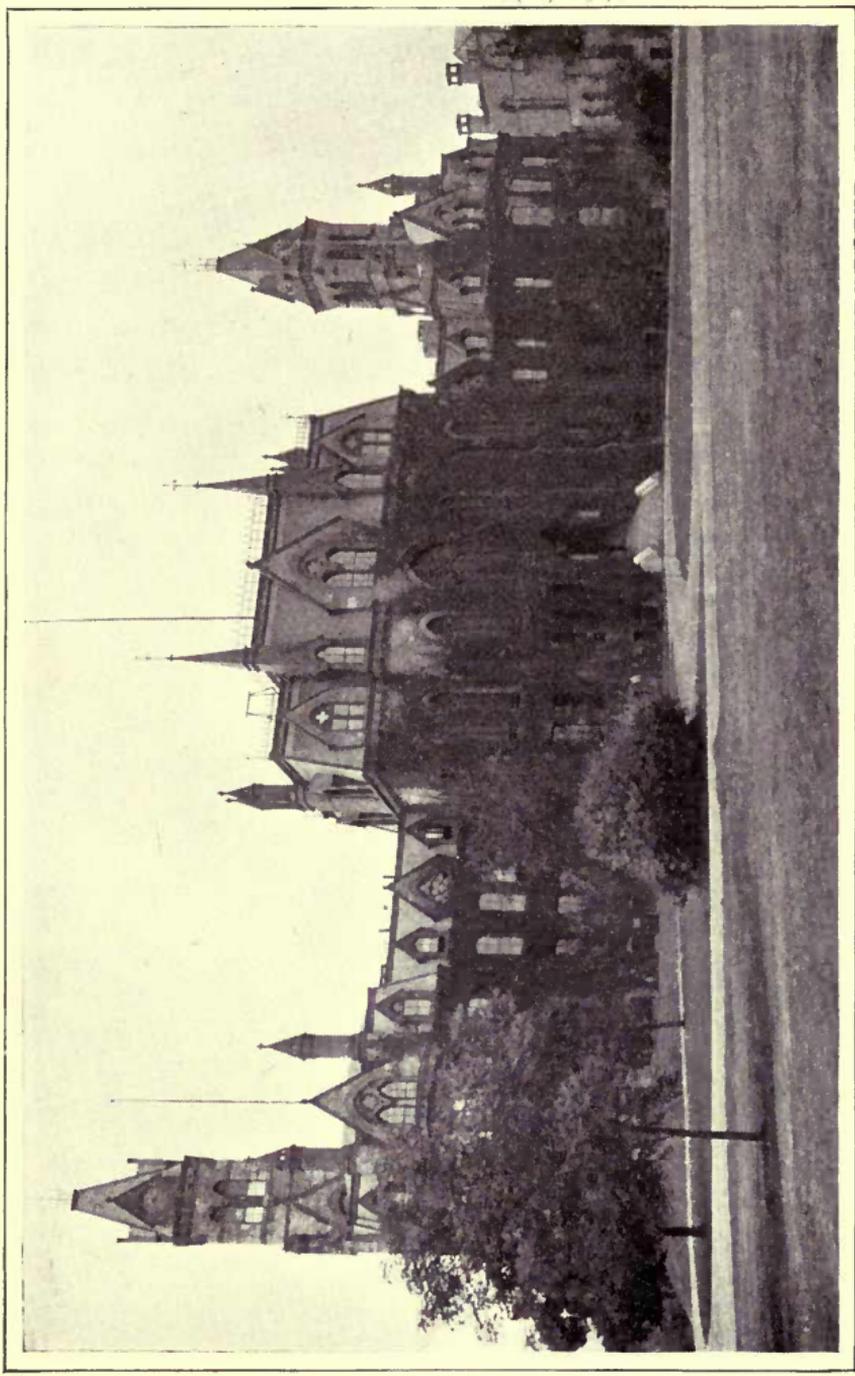
PHILADELPHIA is the joke-town of America.

If a New Yorker wants to touch the depth of dulness he says, "as slow as Philadelphia." It is currently reported in other cities that grass grows in the streets of Philadelphia. When a Philadelphian arrives in New York he is asked if he has come by the canal boat. They say that if a man falls off a six-storey building in the Quaker City he comes down so slowly he doesn't hurt himself.

Philadelphia, however, is the most English town in America. It is the only town where there are half a dozen cricket clubs.

The Chicago man will tell you how many pigs are killed in a minute at Armour's, and show you bonds worth a couple of millions. The Philadelphian will tell you of the English town from which his great-grandfather came; how there is more family life in his city than in any other American town. He will smile at the good things of life the dollar chasers of New York and Chicago miss, and he will tell you there is a refined society in Philadelphia which cannot be entered by the mere money-maker.

Philadelphia is truly the Quaker City. The memory of William Penn is fresh and effective. I



UNIVERSITY OF PENNSYLVANIA
AT PHILADELPHIA.

have taken an evening saunter through some of the streets, and the houses and surroundings have reminded me of the sweet quietude of an English cathedral town.

Great things are being done in the matter of instruction. Indeed, while we in England are nibbling at the cherry of technical instruction, America has gobbled it. The young American wants to know, not, as I have found by many conversations, for any love of learning, but because to him knowledge in these days means dollars and cents.

I select Philadelphia as an example of what is being done in technical and commercial education, not because it is a show place, but rather because it is a slow place, and more than any other town approximates to English conditions. Further, because it is the city in which America first realised that education can turn out dollars as well as dons. The Pennsylvanian Museum and School of Industrial Art were the outcome of the Centennial Exhibition at Philadelphia, in 1876. That exhibition opened American eyes to what Europe was doing. And when American eyes are opened it is to imitate, and not merely to admire.

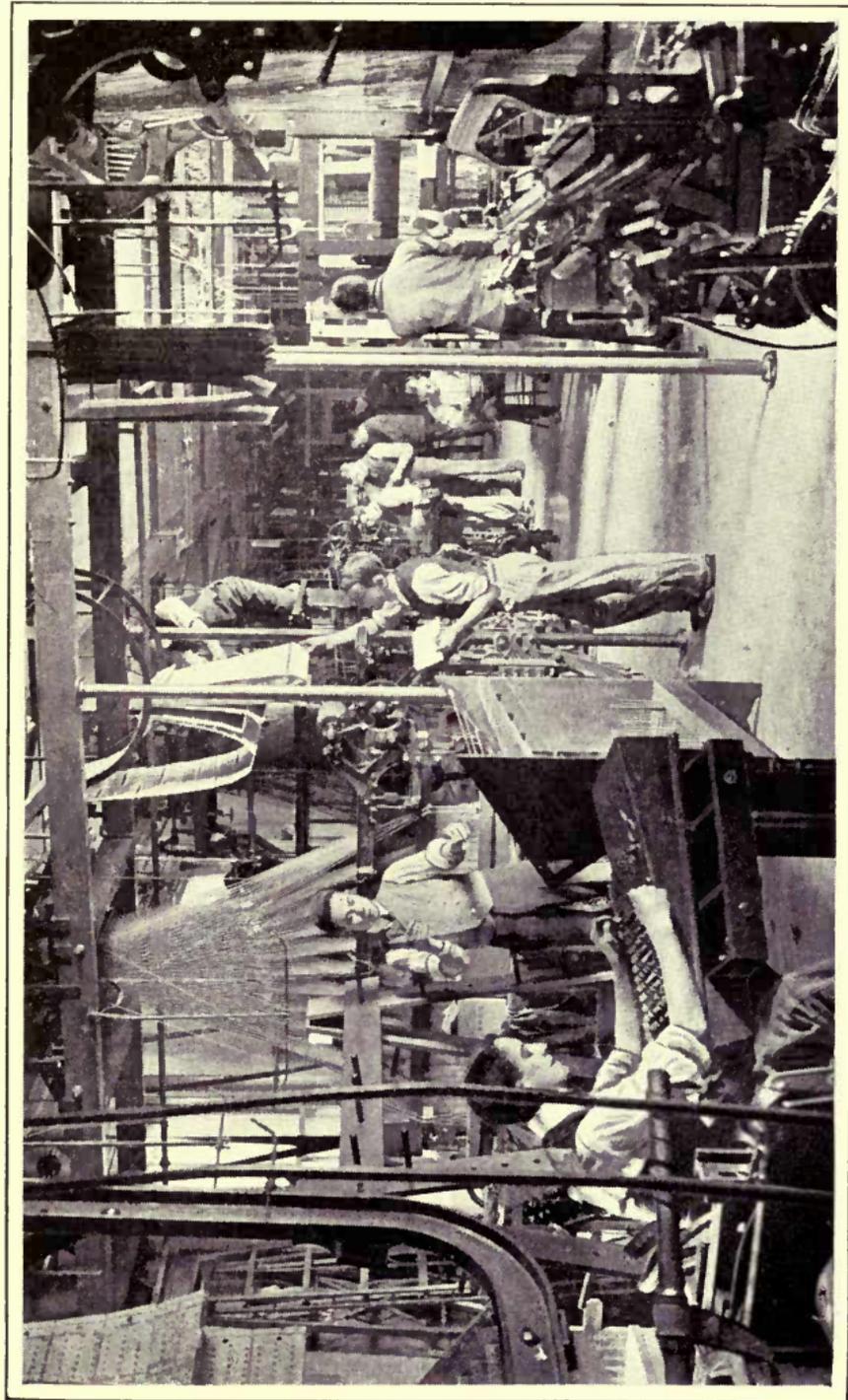
Within a couple of years there had also been established in Philadelphia a School of Design. Then came the foundation of the Textile School, and while the old weavers in the city suburbs are Englishmen, the new ones are Americans.

Philadelphia is the centre of the carpet industry in the States. Forty-five per cent. of American-made carpets are turned out from Philadelphian

mills. Old-World names are attached to them. Wiltons are made by men who don't know where Wilton is; Persian rugs are shown in colours and designs that would make that old bibulous blasphemer, Omar Khayyam, whirl in his grave. But the American likes "swagger" names. He prefers to call a barber's shop a tonsorial parlour. He sells you Mogul brand Egyptian cigarettes made of Turkish tobacco! He sees nothing whimsically incongruous in the description.

When once Philadelphia was touched with the fever of technical training, the desire soon became absorbing. There sprang up the Spring Garden Institute for the teaching of mechanics. As an outcome of the work done by the Spring Garden Institute, manual training has been adopted by nearly all the large States. There blossomed the Temple College and the Williamson Free School of Trades. The Girard College added manual training to its studies.

Other cities do bigger things. New York, St. Louis, Pittsburg, and Chicago have manual training classes, accomplishing a gigantic work. At Scranton, Pennsylvania, is a Correspondence School, which has an average of 10,000 pupils in all parts of America, but chiefly in the outlying, detached districts, who are being taught engineering by correspondence. Manual training schools flourish everywhere, not so much to teach trades as to give general instruction in the principles of various trades. The whole trend of instruction in the public schools, in what we call the secondary schools, and



A PHILADELPHIAN TEXTILE SCHOOL

in the universities, is not to give academic studies, but something practical, that will be useful in a commercial career.

There is a great man in the United States, and his name is Pierpont Morgan. He is the ideal ever in front of American youth. I never missed an opportunity of talking with college lads, most of them breezy, unconventional, witty. The reason why they were so keen was always—"I want to make money; I guess if all goes well I'll be as rich as Morgan some day." This materialism shows how the young American is getting ready to take his father's place in the mighty struggle to wrest the world's commerce from Great Britain.

"You have no conscience," I said half jokingly to an American who had been telling me of some of his achievements. "Maybe," he replied with a smile, "but I have two million dollars invested in railways."

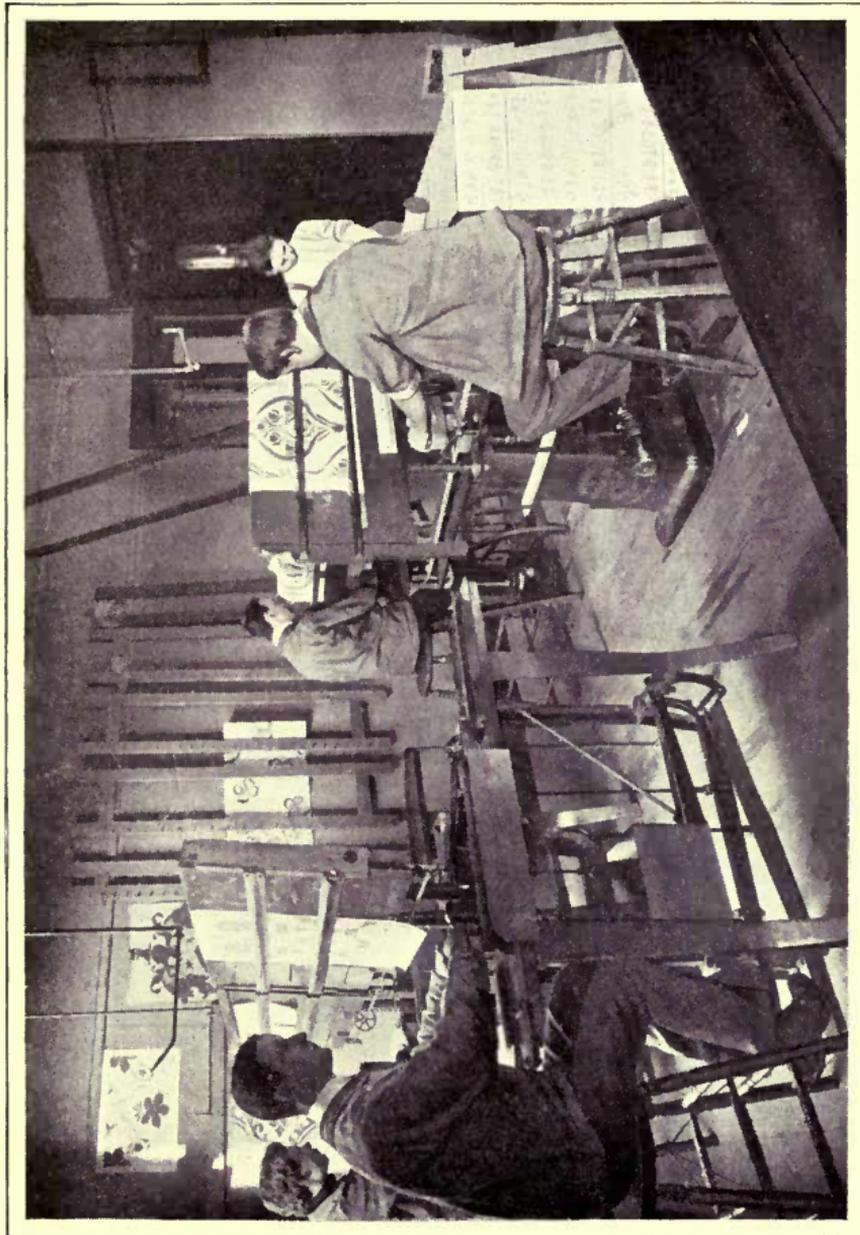
In Philadelphia I visited the Pennsylvania University and several of the training schools. I have seen as good, and better, in England, but never such a congregation of them. Where America has the advantage is in the tremendous enthusiasm and eagerness of the pupils. In English technical schools the attendance is usually scant, when you think of the numbers who might attend. In America the technical schools, day and evening classes, are always crowded, and boys and girls, men and women, clamour for admission.

Pennsylvania University may be compared with any of our universities outside Oxford and Cam-

bridge—Yorkshire, Owens, Durham, Birmingham, Edinburgh, St. Andrews, Glasgow. It is pleasantly situated, but some of the twenty-nine buildings are too new to suggest scholastic repose. There are dormitories for 500 students, and there are plenty of cheap lodgings in the neighbourhood. The average cost to a better-class student, including everything, is not more than £150 a year; often very much less.

There are the ordinary academic studies that a pupil must go through. But it is altogether against the American idea to send a youth from the university at the age of twenty-one with little beyond what is summed up in the phrase "book-learning." A young man or young woman—and at Pennsylvania University there is no limitation to one sex—is expected to undergo some sort of practical training. The student selects. He may take courses at the Wharton School, and there be taught modern business practices; he may turn to mechanical or electrical engineering; he may want to study law, or medicine, or hygiene; he may want to go into the department of veterinary medicine; he may think a fortune is to be found in dentistry, or in architecture, or in music; a girl may want to go into the training school for nurses.

A young fellow, therefore, when he leaves the University and goes to his father's business, is something different from a bundle of 'varsity affectations. There are no sons of county families, no landed class. Every lad's father is in business; he is going into business himself; he wants to be so equipped that he



TECHNICAL INSTRUCTION
IN PHILADELPHIA.

may show how things should be done the first day he walks through his father's shop.

As the machine, and not the man, is the great producer nowadays, Pennsylvania University is strong in its classes for mechanics. There are 150 students in the mechanical department, and three times as many names on the books waiting admission.

A student who intends to become an engineer cuts down the ordinary scholastic course to the minimum. But if he does go in for engineering he is obliged also to take mathematics, physics, and chemistry. The first year is for theory; the second year is for demonstration on the board; that is, every student stands before a blackboard and works out problems given by the instructor; the third year is spent in the workshops, where it is the rule not to give instruction, but to let the fellows smash the machinery, as often happens, in finding out things for themselves. In couples, rarely more, they are sent to visit big engineering works, such as Baldwin's. They are not shown round. They are put into a shop; they have to use their own wits, and they are expected to make reports on what they see. Before a student can get a degree he must work out a thesis, that is, he must, of his own selection, fix upon one of the unsolved problems in mechanics, make experiments, and provide a theory which will prove to the professors, whether he be right or wrong, that, at any rate, he has a good grasp of his subject.

There are lots of young men who have no well-

to-do parents to pay their fees at the university. Yet, if they have made up their minds to get a university training, they have it. They save enough to pay the fees, which are about £60 a year. At night they do odd clerical work. In the vacation months they get jobs with firms as labourers. I heard of a young fellow studying medicine who earned money in the vacation as a bath-chair man at Atlantic City. Another, hard pushed, went to some big building operations where several hundred men were employed, and obtained the right to go all over the place selling iced drinks to the workers.*

Special provision is made for mechanics who, feeling they have risen as high in their particular shop as their knowledge will carry them, want wider instruction. They make application to a special board of professors, who inquire into the circumstances, and possibly reduce the fees by half, and allow them to leave out the purely academic course.

Lads who have gone through a university training successfully are snapped up at once by employers. It is not an unusual thing for the chief of a great manufacturing firm to write to the head of

* The same takes place at all universities. At Harvard I was told that many students earn tuition fees by waiting on fellow students. It is common for students to be car conductors. I heard of one who was an undertaker's assistant. One of the most successful students last year entered Harvard with 45 cents. A monied youth who spent £4,000 the first year was cut by his fellows as a "cheap sport."



SCIENTIFIC CLASS.

TO THE
MEMBERS OF THE
COMMISSIONERS OF THE
LAND OFFICE

the mechanical department of a university, "I will take fifty of your students in mechanics who finish their course this year."

Most of the courses are for four years. A youth, however, who has had two years in the office of a practising architect may take up a two-year course in architecture. It is possible to have a three-years' course in interior decoration. If a lad is a graduate of a normal school he may come to Pennsylvania and study banking. The Wharton School of Finance and Economy is an endowment to provide (1) "an adequate education in the principles underlying successful civic government"; (2) "a training suitable for those who intend to engage in business or to undertake the management of property."

An important department of the university is the Dental School, to prepare young men to follow dentistry as a profession. I saw an array of the latest American dental equipment. The operating rooms are fitted up like private offices; the lecture amphitheatre seats 550.

The university is studded with special prizes, from a shelf of books for being a good athlete and good scholar combined, to £13 for the best speaker in a debate on recent development in railway consolidation, and £25 for the best essay on compulsory voting. Academic studies are made subsidiary to practical studies. Pennsylvania University, therefore, is an example—and I describe it not to give it undue prominence, but simply as an example—of how America is turning out its sons to take a part in commerce.

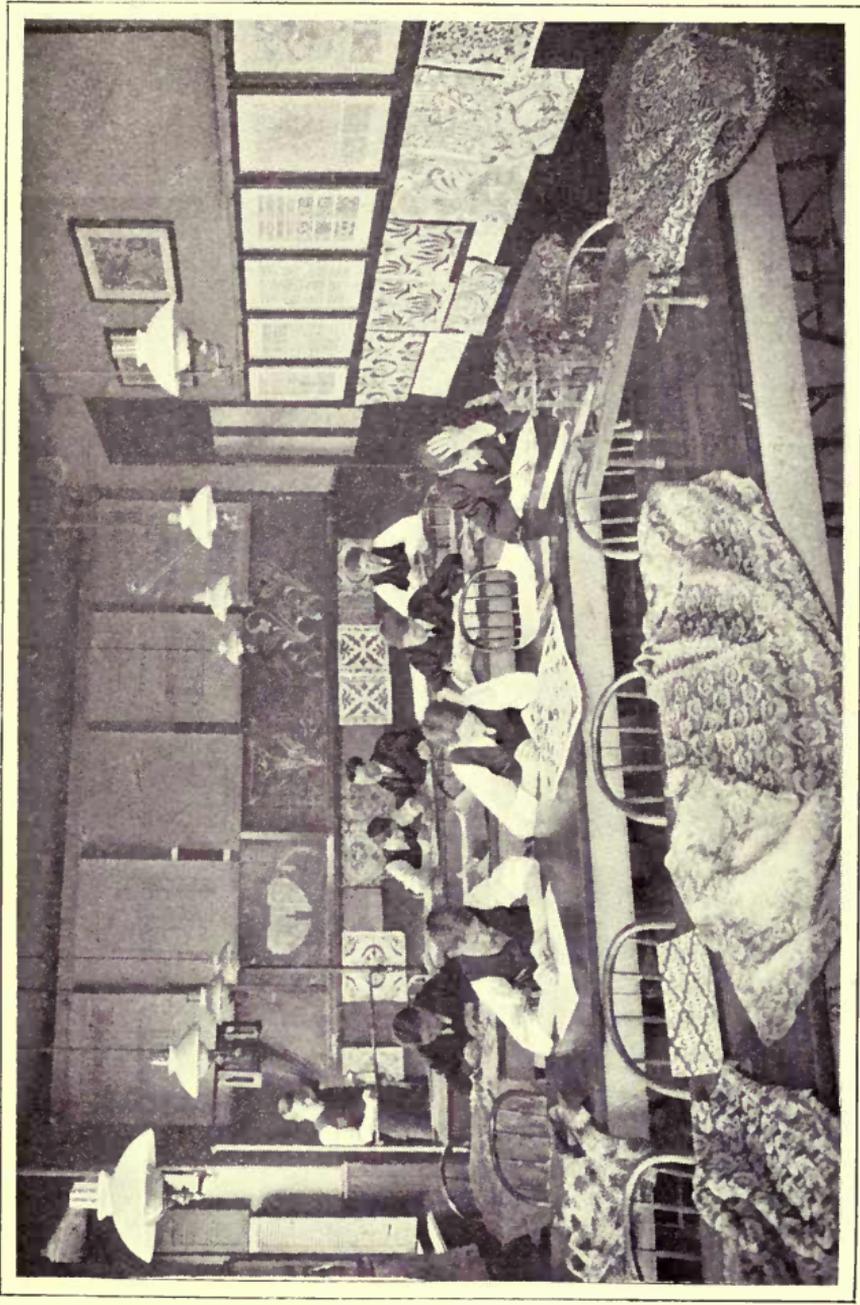
An institution, typical of thousands throughout America, is the Philadelphia Spring Garden Institute. It grew out of voluntary effort, but has an endowment fund of about £30,000. From a little drawing school it has become the pioneer of technical education schools in the United States. To-day close upon 6,000 pupils attend its classes.

The Institute maintains day schools in three distinct departments—art, mechanical, and electrical; and each department has night classes for apprentices, boys learning trades, and boys and girls still attending the public schools. The day schools are for people of some leisure of both sexes, and those who desire a thorough artistic or mechanical training before entering a trade or profession. In the night schools the fees of pupils are practically nominal.

Step into the mechanical school, and you will see crowds of young men and women spending eight hours a day at work; and the Spring Gardens management reckon that in nine months a pupil is as far advanced as at the end of three years in a manual training school. No trade is taught. What is provided is instruction in metal and wood work. The pupils start with chipping and filing, and they progress to tool-making and machine construction.

The night schools are packed. The electrical department is the more popular. Take the first year of instruction. A particular class meets two nights a week—one evening for a lecture and the other for a night in the laboratory. Each lecture,

THE
ARTS



DESIGNING CLASS AT
AN ART SCHOOL

illustrated by experiments, electrical apparatus, and lantern slides, is followed by an evening in the laboratory, where the student, individually, repeats for himself the experiments previously made. In the second year the principles learned in the first are applied practically to commercial electrical machinery, and systems of electrical power distribution. The third year is devoted to throwing the pupil largely on his own responsibility. The class work together as a whole, but pairs of students are put on a different test, and the pairs are changed from test to test, night after night, during the term.

What forcibly struck me in my investigations was not the teaching material or the equipment, but the sterling enthusiasm of the pupils.

There was no nervousness, no fear of doing the wrong thing. I don't believe the American lad is more intelligent than his British cousin; but he is certainly three times as alert. While the British lad stops to reason a thing out, the American lad, who has greater intuitive than reasoning faculties, makes a shot, hit or miss. Put something new before a British boy, and he will hesitate and say he has never attempted that before. Ask an American boy if he can do a thing, and he answers you with the question "Why not?" He has such confidence in himself that four times out of five he does it. His suave explanation why he missed the fifth time demonstrates also that he is not altogether unblessed with the inventive faculty.

These technical classes have made the apprenticeship system, such as we have in England, abso-

lutely impossible. There is apprenticeship, but it is elastic. For many years the managers of Baldwin's Locomotive Works have been trying to find a satisfactory apprenticeship scheme. They have three classes, and these, I think, are worthy of explanation.

In the first class, then, they will accept lads of seventeen years, and bind them for four years, on the distinct understanding the apprentices attend night schools during the first three years, learning algebra and geometry in the first, and mechanical drawing in the second and third years. These apprentices start with a wage of $2\frac{1}{2}$ d. an hour, and end with $5\frac{1}{2}$ d. an hour. Lads who can become apprenticed under the second class must have had an advanced grammar school or high school training, including a mathematical course. The indentures are for three years, and the apprentices must attend night schools for two years. In this class wages start at $3\frac{1}{2}$ d. an hour and rise to $7\frac{1}{2}$ d. The third-class indenture is in the form of an agreement made with persons twenty-one years of age or over, who are graduates of colleges, technical schools, or scientific colleges, and who, having taken courses covering the higher mathematics and the natural sciences, desire instruction in practical shop work. Usually the agreement is for two years. The wages start at $6\frac{3}{4}$ d. an hour, and rise each six months, until in the latter half of the second year they are 10d. an hour.

In England there is something of a mild contempt for the mechanic suckled in a technical school.

In America, on the other hand, he is believed in, sought after, encouraged, and if he proves his grit there is no prejudice, on the score of youth, against his having, at the age of twenty-four, the control of a thousand men.

CHAPTER VIII.

SOME PHASES OF COMMERCIAL LIFE.

YOU cannot generalise about America or its people. There is as much dissimilarity between a Chicago packer and a Virginia planter as between a Middlesbrough puddler and a don of Castile. To plunge into generalities is to kick up the dust of a hundred exceptions.

In America, however, as I roamed about from one industrial centre to another, I did not speak to half-a-dozen men who had not their arms up to the elbows in dollar-making. And I found the business man carried all his personal goods in his shop window. That is, within the first ten minutes you see all his best points, unlike the Englishman, whose ice of reserve you can only thaw by cautious, gradual warmth.

There is something of the good-natured big boy about the American money-maker. A man of fifty will talk to you on business in the bragging way a Yorkshire lad of twenty will talk about county cricket. He is first, and the rest nowhere.

“Jolly” him: stroke him and scratch his head, and he will purr with appreciation. “Josh” him: chaff him about his characteristics, and let him imagine you are giggling in your sleeve, and his fur rises. He is as sensitive as a school girl is about

her freckles. He has a soft heart, and is sentiment personified in breeches. At the theatre, in the maudlin parts of a play, the Englishman becomes cynical and grins; the American cries.

Of the sweetness of home life, such as Englishmen have, the American, I am convinced, knows comparatively little. Yet he loves his family. His womenfolk he places on a pedestal. And they are worthy of it. They are gentle, the sweetest women in the world—well read, cultured, good friends. He would rather have a family of girls than of boys. Girls give him a peep into the paradise of refinement.

His personal idea of comfort is too often a garish hotel, with a marble hall and an express elevator. That it is possible to be more comfortable in a small hotel than in a big one is beyond his range of comprehension. If he can load his wife and daughters with jewels, give them what is called "a cottage at Newport," let them outshine everybody else in burning dollars—to adopt the current phrase—by giving entertainments which cost most money, by having the price of his wines mentioned in the newspapers, he is not far from the acme of his ambition. Newport, to the American money-maker, is Eden. To the cultured American it is the most vulgar spot on earth.

Bigness is too often a synonym in America for excellence. Everything must be big, whether it is the number of locomotives manufactured or the number of dollars made.

Good-natured, easy-going, appreciative, hard-

working, the American business man is inclined to be distrustful. When I entered the United States I had to sign a declaration I was not going there under contract, that is, to work for an American firm. If that had been my object I would have been turned back. It is difficult for a German musician, hired possibly to play in some theatre orchestra, to enter the States. A short time ago some Nottingham lace-makers were taken over to start a lace-making industry near Chicago, and to instruct Americans in lace-making. They only entered after much bother.

We all know the sixpence-in-the-slot scheme whereby we can get a pair of opera-glasses at the theatre. They have the same arrangement in America. But the opera-glasses are chained. You can go into hotels and find "stolen from such-and-such an hotel" stamped on the spoons. It rather staggers a Briton when he sees the words inset in a cake of soap, "Stolen from the Thingamy Hotel." The distrust, the suspicion, is irritating at first. But you get used to it in time.

Disrobing him of various questionable qualities, the fact nevertheless remains that the American money-maker is the most assiduous business man on the face of the earth. You cannot shatter that mighty fact by six Hansard volumes of talk about his faults. Every ounce of him he puts into work. Precedents and usages he elbows on one side as he casts away an employée the instant that employée sinks below high level mark.

The breakfast hour in America is usually seven, and by eight an employer has dictated all his

answers to letters. If you have an appointment with him for ten o'clock, he is engaged with somebody else if you turn up at ten minutes past.

Go into an average English office with a proposition, and you will be told the firm will think about it, and you may get a definite answer in a week. Go into an average American office, get straight down to business, and in three minutes you get a "No" or a "Yes."

If a thing strikes an American as good, he will plunge at it for all it is worth. He will spend £10,000 on new machinery. Three months later, when the machinery has hardly got into working order, show him something better, that will do more work and at less money, and maybe cost £20,000! Then all the recent machinery is ripped down, and the still newer put up. It is reckless, but it pays. The American leans back in his chair and laughs at British manufacturers who only have new machinery when the old is worn out.

After business hours the money-maker will go to his club. There you never hear talk about anything but money-making; how much this business is worth; how much that makes in a year; how much somebody is spending in new plant; how much a new machine will turn out, and how much it will save in the cost of production. You don't hear books discussed; you don't hear talk about golf; you are not told anecdotes about shooting; you don't even hear smoking-room stories. Every man talks about money-making.

At first you are staggered; then you are dis-

gusted; then comes a great wonder at the energy, the vitality, the unwaning enthusiasm of it all.

The dry, bracing atmosphere of America, that keeps a man at the full stretch of his powers, as a half bottle of champagne will do for a time, accounts for much. The American business man drinks neither spirits, beer, nor wine. One of the things that impressed me most when I have lunched with business men at their clubs has been the absence of alcohol. I have lunched in a room where there have been a hundred of the leading business men of a city, and I have not seen a glass of ale anywhere. Water has been the only drink. A man who takes spirits in the middle of the day is as much looked upon askance as a bank manager in England would be if he were constantly fuddled.

"Yes," said a man to me, "there has been a wonderful change these last ten years. The strain of business is at times simply terrific. A man couldn't bear it if he drank. The head must be kept cool and clear, and that can't be if a man drinks. In such bitter, ruthless competition as exists to-day—not only America against the world, but among Americans against each other—we have to be water-drinkers in sheer self-protection."

The phenomenon of industry in the United States, marked and vastly impressive, is that progress is chiefly along the line of quantity. In quantity America beats the world. When you come to quality Great Britain takes first place.

Quantity is, of course, necessary to overcome the natural high rate of wages, indispensable in a

country of vast resources, and where anybody might become a landowner, and so work not for others, but for himself, which is not possible in the old countries.

An impetus is given to everyone employing labour to minimise the cost of labour, and that is done by labour-saving machinery. The ability to start as farmers with no rent to pay sends wages up, and the high wage is the prime cause of American inventiveness in machinery. Half-used machinery is thrown aside for improved machinery, because everybody must adopt every plan to keep abreast of the competition. There is no machinery in the world equal to that found in the steel works of America. That is because American steel has had to pay high wages and yet fight British steel.

But mark this. In those industries which are highly protected against foreign competition, such as the cotton and woollen trades, there is not the same wide-awakeness. It is protection that enables the high wages to be paid. Cotton and woollen manufacturers have the American trade to themselves, and, compared with the steel trade, there has been nothing like the same thirst for labour-saving machinery.

All the trend these last ten or twelve years has been simply and only in the direction of improving mechanical advantages whereby more yards length and more pounds weight can be produced than before.

In England our technical schools do something towards the development of handicraftsmen. In America the handicraftsman holds a minor position. You can get a good new pair of boots in America, but

to have them neatly repaired is almost more than money will procure. It is better to buy a new pair. Handicraftsmen are too dear a luxury. The manufactured article is the tendency.

Hardly anybody above the poorer classes wears ready-made clothes in England. Middle-class folk wear them in America. There are all sorts of sizes in America to suit all figures. Thus the tailoring craftsman is abolished.

Real art in manufactured goods hardly exists. Patterns and styles are appropriated from abroad, altered, even improved, to suit the American fancy, and then put out as purely American productions. In New York I was struck with the excellent silver work everywhere. Inquiry, however, revealed that nearly all the workmen were imported. When I pressed my inquiry further as to whether the rising generation would not produce silversmiths, I was told, "No, because boys won't learn craftsmanship."

I saw charming pottery made at Trenton, in New Jersey. But the makers were from Staffordshire. What the visitor to the English pottery district notices is that every pottery town has its art schools. Trenton has no art school.

It is not that Americans lack the taste to produce fine work. It is because manufacturers prefer to take English or French patterns, and produce articles by machinery in enormous quantities. Quantity, at a cut price, is the ideal.

In the arts no country is doing itself so great an injustice as America. The people do not yet appreciate, but will soon, that the wave of prosperity,

of which they are so proud, instead of enlightening them in the noblest sense, has a tendency to crush out of their souls love of the best things in life, and causes them to take pride only in materialistic success. It is this lack that makes America an impossible place for cultured Europeans. In Paris you will find young American artists, not only full of promise, but with rather more than a touch of genius in their work. They go home with apparently every prospect of a magnificent career. The career fails, not because the artistic instinct is gone, but because the materialism of America, the money-making atmosphere in which they are, willy-nilly, compelled to live, imperceptibly smothers the artistic sense that is in them. America's success, if you look below the surface, has a negative, a depressing, even an unwholesome side.

The travelled American manufacturer knows all this, and the spirit towards training men to get quality as well as quantity is evidence that before long—for the American is nothing if not adaptable—the reproach I have made will largely have disappeared.

What America suffers from, and what in many ways is holding her back, despite all the thumping of drums and blaring of trumpets that she is going forward, is that nine out of every ten American manufacturers have not travelled. They are men of native ability, shrewd to their eyebrows, but the majority lack culture, and they pooh-pooh culture as a thing that nowadays doesn't count.

The American money-maker does not read books.

He has only time to glance at newspapers, and, unfortunately, level-headedness is not the distinguishing quality of American newspapers. The British newspaper, like the British man, is prone to depreciate everything in its own country. The American newspaper, like the American man, is perpetually crowing and pluming.

This revelry of optimism which just now is rampant in the United States gives, I fully recognise, the confidence that is half the battle in business. The American business man is confident that there is no man on earth so good as himself. He will tell you confidently that America invented everything. If you tell him America invented neither the railway engine nor the steamship, and that a multitude of inventions, which he, to give him credit, has appreciated and is using—which is not the case in England—are from the brains of British-born men, you stagger him. He has an idea we British folk are simply gropers in the darkness.

See, then, the material that goes to build up the modern American money-maker. He has the good-natured arrogance of the self-made man with bulging pockets. To make money is the first, the middle, and the last move in his rule of life. He knows that money gives him a special car on the railroad; it puts his picture in the one cent. yellow press; it provides his wife and daughters with the means to give costlier entertainments than their neighbours; it gives him power to crush other men.

Now America has no traditions, in the broadest sense. There is no atmosphere of restraint. It is

the desire of the majority of young Americans, even though their fathers are rich, to get their shirt sleeves tucked up, plunge into business, and make their own pile. With their minds concentrated on this one object, and following it night and day, with nothing intervening, there is no wonder that many men under thirty have patches of grey hair over their temples.

I began this chapter by saying that you cannot generalise about Americans; I end with the same remark. There are lofty-souled, refined Americans, to whom nothing I have written can possibly apply. But I have taken the business man, the money-maker, the man who talks money, who judges everything by its money value, the man whom the British business man has to meet in the great struggle for the world's commerce. And, with all his shortcomings, he is no antagonist to disappear at a pooh-pooh! He is all strenuousness. Business is a battle, and he knows no mercy. He has a peck of faults. But he is scaling them, and he is never above learning—if knowledge means more money!

CHAPTER IX.

THE AMERICAN FARMER.

THE American farmer as I have met him in the States of Illinois, Iowa, and Nebraska, is a grand fellow.

He is usually of Scotch or Scandinavian stock. The transplanting has made him long and weedy, so that his legs suggest they originally belonged to a taller man.

He is elemental. He has no hesitation in telling you America is "God's own country," and that nobody ever grew so many bushels to the acre as he does himself. His knowledge of the world is rolled into the one sentence, that the United States is the boss nation of the earth, and that European countries are "back numbers."

His contempt for English farming ways is Homeric, but he thinks that good stuff in the way of men comes out of Scotland: he explains that his grandfather was Scotch. He brags in a way that is amusing.

There is nothing of the "country bumpkin" about him. He has a native shrewdness and wit that is delightful, and he looks at you out of the corner of his eye. He has no old-fashioned notions. If he reads of a new agricultural implement that does

wonders, "Gee-whish, I guess I'll have one," he says. He believes in advertisements.

He works hard, and he works late. He sends his daughter to college, and when that young lady comes home with manners acquired in Boston, Massachusetts, and an ability to read French novels, he guesses "there ain't no girl so eddicated as she is."

The corn crop of the United States in 1902 was a fifth greater than the corn crop for the entire world for the previous year. "Them's no second-hand facts," says the Nebraska farmer, who is raising twenty-two bushels of winter wheat to the acre, "but Goralmighty's truth. You ask Jimmy Wilson."

Mr. James Wilson is a fine old character, once an Ayrshire lad, and now United States Minister of Agriculture.

The American farmer believes in him because Mr. Wilson is a farmer himself. Just now he is putting his whole heart into a movement to get the public schools to embody a course of agriculture in their curriculum. If they will, he is prepared to provide them with packages of all kinds of seeds and small trees. He wants scholars to have little garden patches, so that they may see how things grow. In this way, he says, the first principles of agriculture can be taught, and the young man of the future will be able to realise there is a difference between beans and wheat other than that of prices as shown upon the blackboard of a broker's office, or in the market reports of the daily papers. Mr. Wilson believes that knowing how to raise cucumbers is quite as valuable as a knowledge of mathematics.

To sum up, he is practical, and is the head of a very practical Government Department.

It took a lot of talk a few years back to get the British Department of Agriculture established. Indeed, Great Britain had no Minister of Agriculture until it had ceased to need one. England had then ended her career as an agricultural country.

So I have never met a British farmer who has waxed enthusiastic about what the Department of Agriculture does for him. Neither, as a matter of fact, have I met an American enthusiastic over his Department of Agriculture. The reason is that the wonderful work the American Department has done since 1862 is accepted as a matter of course.

The Department at Washington costs the citizens of the United States £100,000 a year. But most of the individual States also have Agricultural Colleges, each of which gets a grant of £5,000 from the Government, a nice sum which the law says must be spent. The Government will not allow a State to hoard up money for fine buildings. If the State wants fine buildings it can raise them with its own money. If the \$25,000 are not all spent the amount is deducted from the next year's grant. Accordingly every red cent disappears.

These colleges are appreciated, especially in the middle States. At the Agricultural College of Minnesota, for instance, there are between three and four thousand pupils. Each college has a huge tract of farming country, and all the farming done is on scientific principles, and specially suited to the district.

In the more thickly populated, longer settled, eastern States agricultural colleges are least appreciated. The inclination among farmers' sons there is to forsake the soil and take to engineering, or surveying, or ordinary trade. Besides, the eastern farmer has some of the English farmer's contempt for scientific agriculture. It is the western man, the comparatively new settler, who has no prejudice in favour of what his grandfather did, but snaps at every new idea that will benefit him.

I had a long talk with a broad-shouldered young Swede farmer in Nebraska. Putting the question to him casually, I found he had learnt a great deal from the pamphlets sent by the agricultural colleges to anybody for the asking. He told me he was interested in the fattening of hogs, and the information given about the scientific feeding of animals had been invaluable.

The teaching of the colleges has practically revolutionised the use of fertilisers. As to the value of the experimental stations there is no question. For instance, in Minnesota Scotch Fife wheat has been so improved by hybridising that where the average yield some years ago was sixteen bushels to the acre, the average yield now is forty bushels to the acre.

To my mind the Agricultural Department of the United States is the most useful organisation in the world. It does not do all it sets out to accomplish; but the machinery is there, and the enthusiasm is there. Above all—and this is the point

—it is practical to the American. The results of experiments spell dollars. It is thorough.

Within the Department is the Weather Bureau. Every day weather maps are published in the great centres. Forecasting has risen to the dignity of a science. From 365 centres 42,000 farms are, by means of the co-operation of the Post Office, which gives free delivery, supplied with forecasts. It is only a matter of development for thousands of other farms to be sent the information.

There is the Bureau of Animal Industry. A tremendous work is in this section. All animals exported or imported are examined; all diseases are investigated; a strict watch is kept on interstate live-stock traffic.

The Bureau of Plant Industry was only created a year or so ago. It has now 200 workers finding out about disease in cotton, fruit, and timber, and breeding plants that are resistant to disease and better adapted to the changed conditions of agriculture.

We have had talk recently whether American or European clover seed is best. In 1901 experiments were started at Washington, and in 1902 experiments were being carried on in typical selected areas.

The Bureau of Soils finds out such things as how the alkali problem in the bleached west may be solved, and has solved it by a splendid system of under-drainage.

The Bureau of Chemistry investigates the composition, nutritive value, and adulteration of food products; a valuable work, much appreciated.

Also there are divisions to make biological surveys, to gather all publications on agriculture in America or elsewhere, to follow closely the foreign markets, to build "object lesson" or "sample" roads, to demonstrate the best way to make high-roads, to study forests, forest fires, forest grazing, forest products—indeed, everything that may be brought within the range of agriculture is systematically and thoroughly investigated.

Ordinary agricultural societies with a show once a year and an odd paper read in odd months after a "market ordinary" are not good enough for Silas Hayseed.

He is "away up" beyond that. He has institutes, and the moment the Agricultural Department sees the institute means business, then a useful thousand pounds or so is sent along. Last year two thousand institute gatherings were held in half a hundred States, and attended by half a million farmers. These institutes are variously managed, sometimes by officers of agricultural colleges, sometimes by State or county officials, sometimes by a fusion of the lot. Anyway, there is no "that-is-hardly-in-our-department" talk. Everything is in everybody's department if it spells success.

Yet some of these institutes are failures. Men get weary of hearing local men. They don't attend the meetings. But they turn up readily enough when a man of wide range experience comes along.

"I want £1,000 to see if improvement can be made by having itinerant instructors," said Mr.

Wilson to Congress last year. And Congress gave the money.

At Washington I went into a room and saw the work of distributing agricultural information. It was something difficult to realise. Last year nearly 300,000 letters were received asking for information. Exactly 606 publications were issued, and eight millions of these were distributed. The Year Book, giving, in a cloth-bound volume of 840 pages, all the latest information, together with illustrated popular articles by experts, was distributed last year to the number of half a million. Each senator and representative is given 15,000 to circulate among his constituents.

The appetite of the American farmer for information is prodigious.

Englishmen—I have met dozens of them—go out West to farm. Some of them are successful, but no inconsiderable proportion of them are hopeless failures. The reason is they take what is called their Englishism with them. They cannot get rid of their home ways; they won't adapt themselves. So they write home that America is no good. The sensible Briton who says, "I'm in Nebraska now, and not in Norfolk," is not only a good farmer, but he is often better than the American. The reason is that at the outstart he has a better education, and while the American does often get hungry for the society of his fellows, the Briton will work on his ranch twenty miles from anywhere, and only "return to civilisation" two or three times a year to buy stores.

It is said in England that no comparison can be made between British and American farms—that the latter are so huge. That is a mistake.

The average size of the five million farms in the United States is 146 acres. They are enormously bigger in the far West, but in the eastern States much smaller. I made inquiries what the American himself thought the most workable-sized farm. Everybody agreed that big farms were unmanageable, and by no means so profitable as smaller farms. Two hundred and fifty acres is regarded as the ideal size of a farm, for then a man can control it himself and get a good profit.

In harvesting time everybody works; even the daughter from college. Generally two gangs are employed, one by day and one by night, when lanterns are used.

You can go into a field and see three operations in full swing—the grain is cut; it is threshed and separated; ploughs are turning the stubble to next year's crop. Three thousand bushels are often threshed in a day at 3d. a bushel. On ordinary sized farms the latest machinery is to be found. Stand before an American machine, and you will see it receive the sheaf, break the band, take out the grain, load it in a waggon, weigh it, and send the straw to the stack top, and no hand has been near it.

Much could be written about the mammoth farms of the West. There, however, the tendency is for the capitalist to step in and farm a territory with managers. There is Joseph Miller, first a bank

clerk, then a cowboy, and now, thirty years of age, owning 500,000 acres, having a fence of 150 miles, and with 8,000 acres sown with wheat. He raises double crops. After reaping mid-July wheat he raises a crop of Kaffir corn before autumn. There is Mr. Sherman, of Kansas, who rears cattle on a ranch seventeen miles long. He has one field of sixty-two square miles, on which he raises wheat. He works his men from seven to seven, with two hours off at mid-day. The average farm hand wages, besides board, is £4 a month and an extra £1 at harvest time.

With no room for the wail of the English farmer, that bad times are always with him, the American farmer of the middle States nevertheless is not behind his cousin across the Atlantic in grumbling. If he is not an immigrant himself, he is the son of immigrants who were discontented with their lot in the old countries, or they would never have set out for America. Discontent is in the bones of the American, and that is one of the innumerable reasons why, if you journey from Sandy Hook to the Golden Gate, you will rarely come across a man who strikes you as perfectly happy. Men are not satisfied with their lot: and this dissatisfaction, which has its uses in stirring a man to effort, is accountable for much of the nervousness of the American.

The farmer accordingly has a full share of discontent. Good crops do not invariably mean high prices, and the Missouri farmer has recognised that as quantity increases prices have a tendency to

slump. Then he has a difficulty in getting his grain over the railways.

I had a talk in Chicago with a railway official on this very point. He scoffed at the suggestion that farmers had anything to grumble at. He told me airily that last year's corn crop made 2,333,000 car loads of 30 tons each; that with fifty cars in each train this loaded 46,600 trains, and that the railways were fully equipped to deal with this colossal traffic. It is, however, a notorious fact that often farmers have been obliged to burn their wheat because the railway companies have been quite unable to handle it, and because the market price was not worth the carriage.

Much depends on the ability to ship rapidly, when the demand comes, because in grain the American production is far in excess of home consumption. This has led to a marvellous development in grain elevators. Take a journey through Iowa and Nebraska, as I have done, and the elevators are always a distinguishing feature in the grain districts. The elevators have a capacity of anything from ten thousand to a hundred thousand bushels. By the side of some of the great lakes, where grain is transferred from railroad cars to vessels, elevators that will hold three million bushels of grain have been built.

A train, laden with wheat, crawls to the elevator, a long spout is swung to a car and pushed among the wheat, and instantly the grain begins heaving into the building. A spout will elevate ten thousand bushels in an hour, and if there are a number of

receiving spouts, a train load of between thirty and forty cars, representing 15,000 tons, can be stowed in the elevator within an hour. The distributing spouts through which the grain is passed to the ship are very large, and can discharge 25,000 bushels an hour. These elevators are the finest things imaginable for storing surplus grain and having it ready for speedy shipment the instant there is a demand.

But there are farmers who are not enthusiastically favourable to the great storage of grain. The farmer finds the elevators financially profitable more to the grain speculator than to himself. The trusts which are nobbling every industry in America are beginning to nobble agriculture. A few years ago grain buyers tumbled over one another to purchase from the farmer. Now competition is disappearing. An association of buyers decides what price shall be paid, and the farmer must take that price. The syndicates have brought pressure on the railroads for special terms. Whenever there is a private dealer, and he won't sell out his business to them, they force up the price of grain till he can buy none, and he is ruined.

All this has brought about a tide of emigration to the north-west and into Canada. Thousands of United States farmers are crossing the border into British territory because they find Canada is a magnificent grain-producing country, because they can get land comparatively cheap, and are not subjected to the squeezing by trusts and railway companies. A dread exists in the American mind that

the United States is going to lose much of its export wheat trade by the divergent trend towards Canada.

Thousands of farmers in the middle States are accordingly selling their farms for £15 an acre, and moving to the north-west, where they can get uncultivated land for 1s. 8d. an acre, or land under cultivation for £3 or £5 an acre, and most of the wheat raised is likely to be exported over Canadian lines. Close on 50,000 American farmers crossed into Canada last year.

The mighty flood of Europeans into the eastern States where manufactories abound and where land is increasing in value is driving the farmer further west towards the regions of Montana, and Nevada, and Idaho. There irrigation schemes are turning wildernesses into valleys of rustling corn.

The American farmer, 'cute and hustling and alert though he is, is, however, all things considered, not so well off as the better-class English farmer, despite the chronic melancholy of the latter gentleman. He has not the home comforts, nor the pleasant surroundings, nor does he get much real pleasure out of life. He is a good fellow, industrious, absolutely sober, but the cost of living and of everything else is very great.

Also it must be remembered the American farmer does not come from the same class as the English or Scotch farmer. He is the English or Scotch labourer once or twice removed. But comparing his lot—a big farm, big machinery, big crops—with what his condition would have been in the old countries,

he has on this point a mountain of things to count to his gain. Were I an English or a Scotch farm labourer, and had enough pluck to make the plunge, I would not hesitate a fortnight about going to America.

CHAPTER X.

AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

A BRITISH writer, dealing with American agriculture, finds himself in a topsy-turvy position. The United States has the finest scientific instruction in husbandry to be found anywhere. That point is willingly conceded. But if you want good beef it is English you must eat, and not tasteless, sinewy American. If in an American hotel your fancy runs to a nicely cooked chop, it will be mutton imported from England that will be placed before you.

Here is an interesting paradox: In the land where the methods of agriculture are rather rule-of-thumb the finest beef and mutton in the world are raised; in the land where the farmers are college men the beef is stringy and the mutton woollen.

Let a meat dealer go into the cold storage department of one of the huge packing firms at Chicago and want to buy the finest sides hanging there. He will probably find that impossible, for those sides are intended for the English market, where they will compete with home-grown English beef. Were I an American I should resent having the second best palmed upon me. The packer knows, however, that he can sell second quality to the American, but if he expects to get anything like a price he must

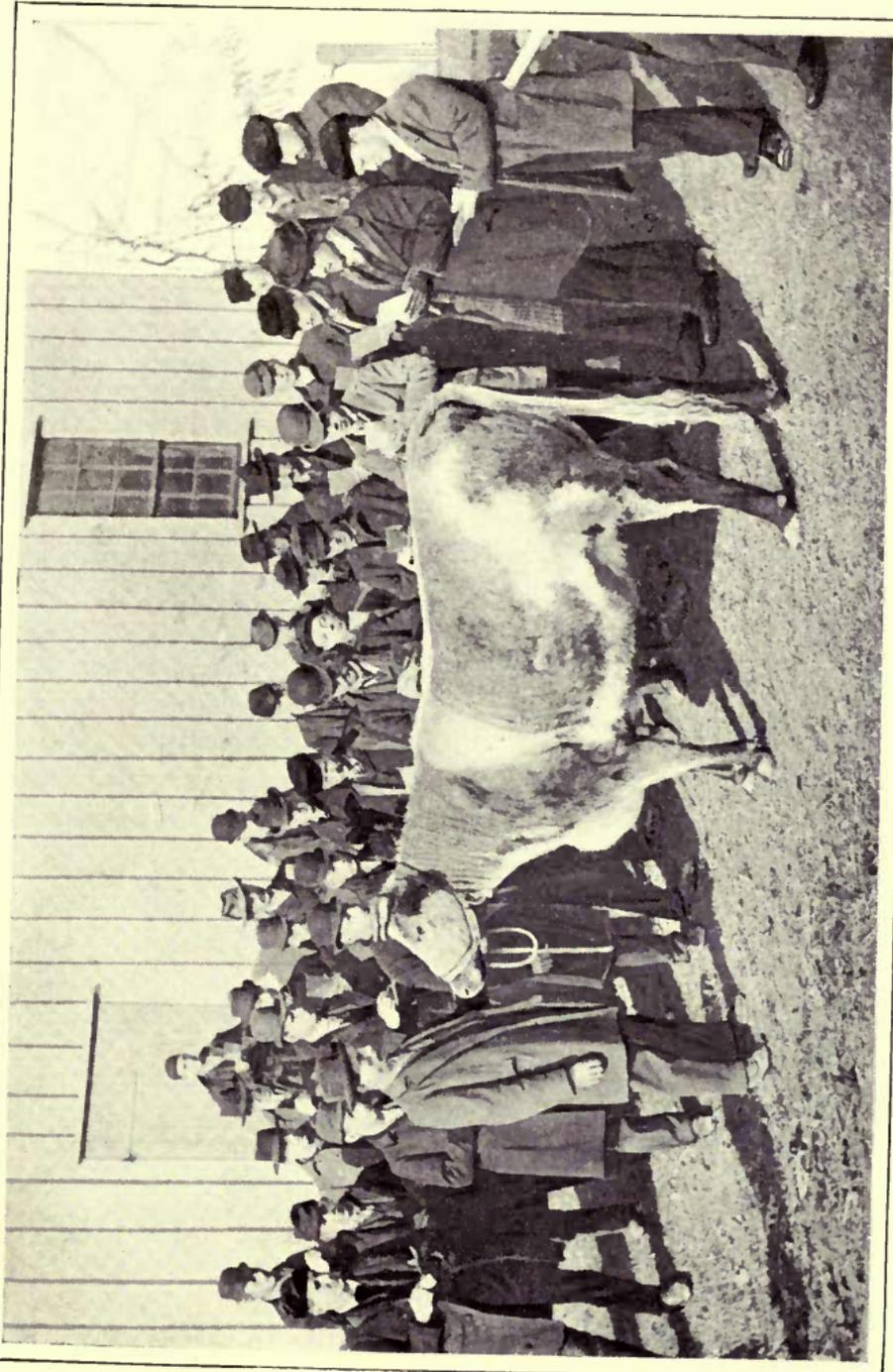
send the best he has to compete with the home-grown produce in the British market.

There are several reasons why American meat falls behind British in quality. In England and Scotland cattle are daintily fed on meadow grass. It is sweet grass, full of nutriment, and the beef benefits. The American cattle are generally reared on big ranches where the grass is coarse. The fare produces coarse meat. This is so well recognised now that the practice is to bring cattle from the far West and let them pasture in the Mississippi Valley for a few weeks before being sent to the slaughterhouse. This does something to remove the harshness, but it does not produce beef such as you get in Old England.

Therefore, on this subject of beef and mutton raising I begin by saying that the British result is the best, but that in scientific system the American holds first place.

Scientific agriculture is, I know, regarded somewhat contemptuously by the sturdy, broad-shouldered, bright-cheeked, bluff-mannered Briton. Scientific farmers are good-naturedly regarded as cranks who generally lose their money. In America the modern farmer is often a college man. At twenty-one he is little more than a theorist, and the young Briton can "chew him up" in rough-and-ready knowledge. Yet, admitting all this, I am convinced the American is on the right track, for in farming, as in engineering, the technically, scientifically trained man is certain to win.

We have one or two private agricultural colleges



JUDGING A SHORTHORN
AT IOWA AGRICULTURAL COLLEGE.

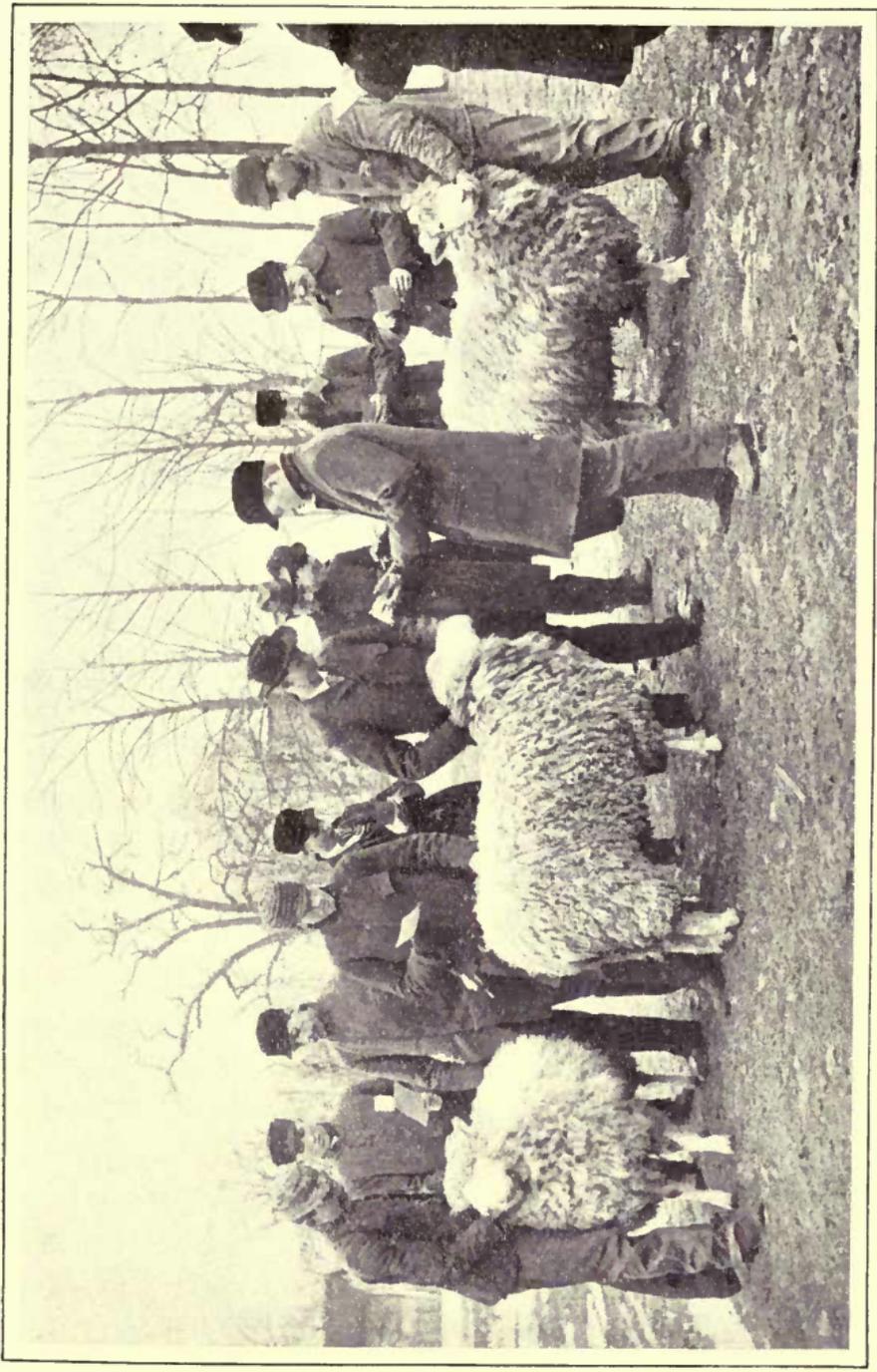
in Great Britain, but that they are so few demonstrates a disinclination on the part of the young British farmer to be scientific. Our County Councils are doing a good work with peripatetic lecturers. But the instruction, as a rule, arouses only lukewarm interest. In America there is quite a rage to have scientific training. That word "scientific" has a pleasant jangle in American ears, and the tendency, indeed, is to harp too much on the word. Yet it is a tendency in the right direction.

In writing this I do not lose sight of the fact that of recent years American manufacturing has taken a leading place in comparison with American agriculture. Again, in the United States, just as with us, young men set their eyes on the attractions of city life rather than following the calmer pursuits of the country. Further, the eastern farmer, with ideas handed down from his grandfather, who got them from England, is inclined to trot along in the old-fashioned, unscientific rut, and the Scot and the Swede and the Canadian met in the middle-west, full of energy and resource, ready to buy any and every new machine that is advertised, blessed with abundant harvests, and disposed to be optimists though railroad companies and "trusts" and "corners" do frequently squeeze them, are ready to hustle along, adopting any useful ideas that come their way, but not placing too much store on scientific training, though they will say, "I guess I'll let my boy have just as fine a farming education as money can buy."

So to-day every State in the Union has its agri-

cultural college, and despite the inclination toward town life, all are well-filled with bright, eager, adaptive lads, keen on learning. In 1901 the colleges were attended by 42,104 students. The average age was twenty-one years four months. Each State maintains its own college, but receives grants from the Government. Congress granted in 1901 close upon £140,000 to be spent in experiments alone. The experiment stations employ 688 persons in the work of administration and inquiry. The official statement shows that—

“The number of officers engaged in the different lines of work is as follows: Directors 52, assistant and vice-directors 17, chemists 146, agriculturists 62, animal husbandmen 14, horticulturists 78, farm foremen 21, dairymen 31, botanists 49, entomologists 48, zoologists 6, veterinarians 29, meteorologists 14, biologists 7, physicists 5, geologists 5, mycologists and bacteriologists 21, irrigation engineers 8, in charge of sub-stations 12, secretaries and treasurers 29, librarians 11, and clerks and stenographers 43. There are also 77 persons classified under the head of ‘miscellaneous,’ including superintendents of gardens, grounds, and building; apiarists; vegetable, plant, and animal pathologists; herdsmen, poultrymen, etc. The activity and success of the stations in bringing the result of their work before the public are continuous. During the year they published 445 annual reports and bulletins. These were



INSTRUCTION IN JUDGING COTSWOLD SHEEP
AT THE WISCONSIN COLLEGE.

supplied to over half a million addresses on the regular mailing lists. A larger number of stations than formerly supplemented their regular publications with more or less frequent issues of bulletins, bright and to the point, intended for newspaper publications, and most of the stations report a large and constantly increasing correspondence with farmers on a wide variety of topics."

This gives some sort of an idea how agricultural education is taken hold of in America.

It was my good fortune, when in the Western States, to have much talk with young fellows who were taking up farming as a trade, as in the East I have seen young fellow at home take up engineering with the same eagerness for knowledge, the same desire to be properly equipped, to be ready to do big things. I saw a wholesome anxiety to become adjusted to modern conditions, an acknowledgment that brains and machinery were the chief factors, and that the old-fashioned farmer must "go under," just as little workshops with antiquated machinery are "going under" by the hundred.

Let me describe what is being done at Ames, Iowa, which is the foremost agricultural college in the States, situate on wide prairie wavy with blue grass. Other States are doing an equally useful work, though not quite on such a large scale. An account of Ames, however, indicates what is also going on in other places.

Iowa, the Hawkeye State, has rich bottom lands;

it is a great feeding country, and the mission of the college is to experiment how most successfully the blue grass can be turned into beef and pork. There you see Herefords and Shorthorns and Aberdeen-Angus, all being fed experimentally. To turn out a bull, massive, with no patchy fat, but an ideal beef maker, is one of the ambitions of Ames. Over by a stream is a stretch of brome grass. Just now interest is taken in finding a good drought-resisting grass, for on these prairies at present there is nothing so good for dry weather as the orchard grass of the eastern States, or the salt grass of the Pacific seaboard.

To the young man of Iowa there is no charge for tuition, even if he enters on a full four years' course. Outsiders, however, pay £6 a year, unless they are poor and worthy, and then the trustees make a ready remission. For living in the college buildings students really pay less than the food costs the institution. The expenses for residence in the main college building need not exceed £30 a year, including books, clothing, board, and all other items, and there are opportunities for earning a portion of this amount.

Here, then—with the State Legislature and Congress pouring out money so long as it is profitably spent—the young men of Iowa have all opportunities of being educated in agriculture.

The college farm contains 840 acres, and the buildings, magnificently equipped, cost over £100,000. Of the 840 acres I should mention that about 125 of them are college grounds, shrubberies,



STUDENTS STOCK-JUDGING AT AN AGRICULTURAL COLLEGE

1870

plantations, botanical gardens, and the residences of instructors.

The Government, apart from the Iowa State Legislature contribution, gives Ames £7,000 a year. The barns are really laboratories. The characteristics of all kinds of soil are investigated. In the Agricultural Hall is a stock room, where animals are brought, and there the teacher gives instruction. An experimental barn is constantly fitted up with the latest methods of stalls and ventilation. Tests are made with various fodders, grasses, and grains. Complete trials, embodying various crops and systems of agriculture, are made each year, and elaborate reports are issued, so that farmers generally may benefit by the information.

Thus all crops grown by the college are for educational purposes. All the animals are fed by rule and system, and the preparation of different foods is studied so as to produce horses, cattle, sheep, and pigs to suit particular markets. A record is kept of the progress of every experiment, and this is free to the inspection of any student. The young fellows are given work that is educational and parallel with their studies. Poor students, by doing certain work in the morning and evening, can easily earn enough to pay for their board, and this without any loss of dignity.

The whole trend of the teaching is to combine theoretical, scientific training with the practical, and at the same time to keep a very wide open eye on the result of experiments, which everybody is invited to dabble in, as it were, and no cold water is

thrown upon the scheme of any youth who is legitimately probing for knowledge.

Early in 1902 the Iowa Agricultural College made a useful departure. Thinking it had something to teach the practical men of the State, it gave for a fortnight a special course in stock and grain judging. Four hundred people, from every county in Iowa, and all the adjoining States, took advantage of this opportunity. University graduates worked alongside men from the rural schools. Everybody was on the alert to learn. From six o'clock in the morning till nine-thirty at night they were busy. The following general programme was carried out during the entire two weeks: From 6 till 7 a.m., and from 8 to 10 a.m., grain judging; from 10 to 12 a.m., stock judging; from 1.30 to 4 p.m., stock judging; from 4 to 6 p.m., grain judging; from 7.30 to 9.30 p.m., meeting in the college chapel, where various topics of general interest were discussed each night.

Surely that was an interesting and suggestive sight: four hundred practical men, old grey-beard farmers and young graduates fresh from Yale going through a fortnight of scientific instruction on the judging of stock and grain!

At present there are a hundred young men, drawn from all parts of the State, at Ames, receiving instruction in dairying. Many of them are not the sons of agriculturists, but lads who take to dairying as their brothers might take to dentistry, or gold mining, or the real estate business. That the education is appreciated is shown by the readiness with

which nearly all the students get responsible and lucrative posts when their term of tuition is over.

Some men can only give themselves a few weeks' special instruction; others can afford a year. The college is elastic, adaptive—that useful characteristic of every institution in America—and so there is a choice of a four weeks' course, a sixteen weeks' course, and a one year course. The college creamery works all the year round. It has a practical and commercial side as well as a scientific and educational side. During the summer season from fifteen to twenty-five thousand pounds of milk are taken in daily and manufactured into butter and cheese. The milk is purchased from farmers in the district. The student has all opportunities for becoming familiar with everything connected with the management of a commercial creamery. The herd of thirty or forty cows belonging to the college is milked and cared for by the students. Towards the end of the course, the year students spend part of their time in the laboratory doing original work.

Here is a useful college providing a four-years' course for those who desire to run through the whole gamut of scientific agriculture, but adapting itself to the needs of all classes, even down to a fortnight of lecturing, and affording to young men who really want to learn, a chance of getting their tuition free and at the same time an opportunity to earn sufficient to board and clothe themselves. We have nothing like that in Great Britain.

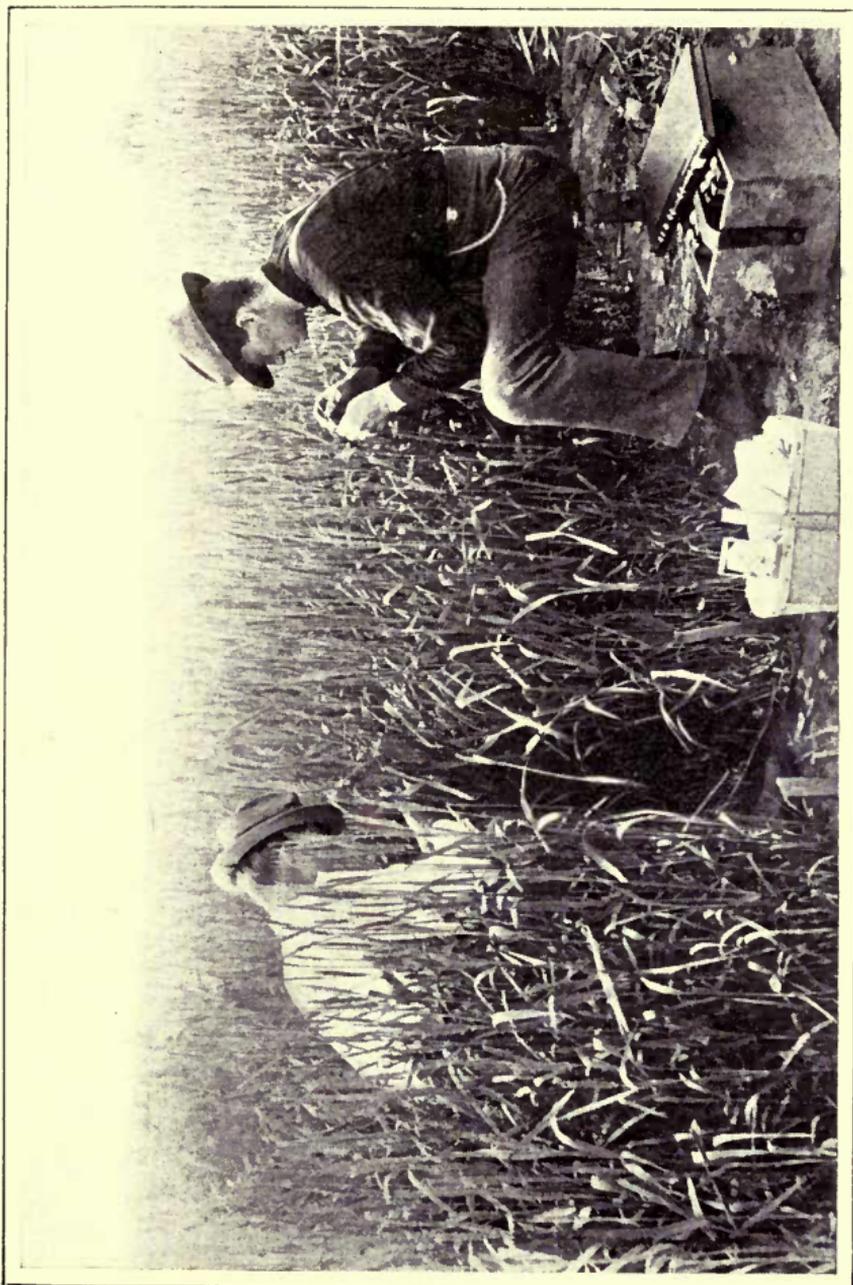
Recollect, this is only one State agricultural college. Scattered throughout the United States are

62, all giving more or less similar instruction, but with an eye on the particular needs of the particular State in which the college is situated.

When in California I was much interested in the growth of luscious fruit, and particularly in the vineyards, now carefully and scientifically cultivated, so that the Pacific slopes may become a great wine-growing country. Once more all growers have to give thanks to the experiment station at Berkeley, not far from San Francisco. It is not the most satisfactorily placed, because the sea fogs that come trailing daily through the Golden Gate check the full summer heat necessary to ripen the grape. But in the orchards experiments are constantly being made with 636 varieties of fruit, including no fewer than 145 varieties of pears, 137 varieties of apple, 96 varieties of peaches, and 75 varieties of plums and prunes.

When Berkeley College took grape culture in hand it was found that between three and four hundred varieties of grapes were in California State, planted indiscriminately, with little regard to climatic adaptation. Wine making was haphazard, and a great quantity of ill-made unclassifiable wine was pitched on the market, the result being to make the flesh of the European wine drinker creep at the mention of the word "Californian."

There were the possibilities of a great industry. Yet the wines were poor because the growers were mainly folks from Europe who applied the practices of Germany, France, and Italy to the Pacific coast, and produced beverages more peculiar than attrac-



CROSSING WHEAT AT AN
AGRICULTURAL COLLEGE

TO THE
MEMBERS OF THE
LEGISLATIVE COUNCIL

tive. The Berkeley experiment station set to work. The grapes and the soils were tested in the laboratory, the confused system of nomenclature was put straight, and bulletins of advice were issued which were of incalculable value to the grower, who till then was blindly stumbling along.

Already there has been a vast change. The wines sent to Britain from Sacramento lack the bouquet of those from the neighbourhood of Mayence, but they are a vast improvement upon those of a dozen years ago. The professors at the experiment station see generations of work ahead before wine will be produced to equal the best vintages of Europe.

But the point I am interested in is, that this branch of agriculture, like every other, is being considered, not haphazard, with improvement accidentally discovered, but methodically, and the State and the Government spend money freely for no immediate direct result, but because they appreciate to the full the advantages of scientific research, not limited to a staff of professors, but open to any young man who wants knowledge.

Let me refer to what is being done in another famous agricultural State, Ohio. Ten years ago the experiment station was removed from the vicinity of Columbus to the north-east quarter of the State in Wayne County. On one of the farms there has been instituted a series of experiments with fertilisers and manures. The land is first under-drained by tile drains laid three feet apart; it is then divided into plots of one-tenth or one-twentieth acre each, and every third plot is left continuously unfertilised as

a standard, in order to correct as far as possible the inequalities which are often found in the most uniform soils. About nine hundred plots are used in this work, which is bringing out the importance of phosphoric acid as the primary constituent of a fertiliser for the soils under test.

The principal of the Ohio experiment station gave me a photograph showing the appearance of a part of the ninth crop of wheat in a rotation of maize, oats, wheat, clover, and timothy, the rotation covering five years, and being so arranged that each crop is represented every season. In the foreground is a plot, continuously unfertilised, and yielding in 1902 at the rate of $10\frac{1}{3}$ bushels of wheat to the acre, and alongside is a plot—fertilised on each of the cereal crops of the rotation with nitrate of soda and muriate of potash, and receiving in each five-year period a total of 480 lb. of the former and 260 lb. of the latter—yielding last year $13\frac{5}{8}$ bushels per acre. In the left background is a plot fertilised with the same quantity of muriate of potash as the other plot, but receiving a total of 320 lb. of acid phosphate instead of nitrate of soda. Its yield last year was $24\frac{2}{3}$ bushels to the acre. Then in the right background is another plot similarly fertilised with nitrate of soda and muriate of potash as the first, but, in addition, 320 lb. of acid phosphate. Its yield last year was $37\frac{1}{3}$ bushels of wheat per acre.

The testing of varieties is another important line of the station work. From twenty to sixty varieties of each of the cereals, maize, oats, and wheat, and as many of potatoes, are grown each year in compara-

tive test. In this work certain varieties of wheat have yielded three or four bushels per acre more in a ten-year average than others which are in general cultivation.

All this, I fancy, will be rather dull reading to "the man in the street," but they are facts which we cannot afford in this country to overlook. I have been in correspondence with twenty-five principals of colleges in all parts of the United States, and have accumulated a cartload of reports, full of information directly useful to the agriculturist. There is a bundle of them on my table as I write. I glance at some of their titles: "Economical Production of Beef," "A Study of Pork Production," "Fattening Lambs in Comparison with Yearlings," "What Grains Lack as Poultry Foods," "Originating Varieties of Wheat," "The Digestibility of Potatoes," "The Care of Milk in the Home," and so on.

But semi-technical though this chapter is, it will show to some extent at least how America is at work in the stern endeavour, constant and unrelaxing, to produce in agriculture both quality and quantity. At present America lags in quality. But it would be shutting eyes to the facts not to see that, with her sixty odd agricultural colleges and experiment stations, State supported, she is on the right road. In twenty years the improvement has been marvellous, and it is not for us to assume there will now be no more improvement.

CHAPTER XI.

RAILWAYS AND RAILWAY TRAVELLING.

LET it be conceded that railway travelling in the United States is more luxurious than it is in Great Britain. The coaches are roomy, are built on the Pullman pattern, and you can walk from one end of the train to the other. The woodwork is polished walnut, and is ribbed with gold. The upholstery is often bright green plush. There are enough bevel-edged mirrors to make a plain woman vain and an ugly man angry.

If you pick your train you have the run of a library. You can be shaved by an attendant, and dictate your letters to a typewriter. In the smoking car you can lounge in saddle-bag chairs in the greatest comfort.

That is the kind of train an American tells you about when he is travelling in a dirty, wheezy, third-class carriage in the suburbs of London at one-eighth of the money he pays in America. A quaint kink in his mind leads him to compare what is best in America with what he finds worst in England. When, however, you describe what is worst in America with what is best in England, he complains you are not fair.

It is food for mirth to the American that we have first-, second-, and third-class carriages in England.

“ Why, in God's own country we're all equal, and we have just one class,” he says.

He doesn't, however, say you start by paying nearly the equivalent of third-class, and if you want to travel well and express you must pay extra, and then probably another extra.

Should you wish to travel first-class return, say from London to Aberdeen, you pay your money, get a ticket, deliver half, and stow the other half in your waistcoat pocket for coming back. If you want to travel what is practically first-class in America, say from New York to San Francisco and back again, you get a ticket a yard long, covered with rules and regulations, and it takes anything up to five minutes for the booking clerk to find it and scrawl hieroglyphics, and look something up in a book. When you arrive in San Francisco you hand your ticket over to the railway officials, and get it back again a certain number of hours before you leave.

But that ticket at two cents a mile will only take you by slow trains. If you want to travel by a fairly fast train, one that goes at forty miles an hour part of the way, and be content with twenty-five the rest, you must pay many dollars more. Indeed, there are no trains at all in America that will take you for the same price at the same speed as you can travel third-class from London to Edinburgh.

Having paid your fare and the extra money to travel express, you then go to the Pullman office, show your ticket, and pay a sovereign or more a day for a seat in the Pullman car, including sleeping accommodation. Should you want to sleep in a

compartment—such as you get on an English train by paying 5s. over the first-class fare—it means the expenditure of several sovereigns.

The system is confusing and dilatory. Nowhere, outside Russia, have I found the method of selling tickets so cumbersome as in America.

If you are wise you book your baggage from your hotel through to your destination. In this matter we might copy the Americans. The railway companies give you a numbered check for each piece of baggage, and the baggage is only handed over, at the end of the journey, to the holder of the check. Thus is avoided that unseemly scramble for baggage on the platform when a terminus is reached, such as you may see a dozen times a day at King's Cross or Euston.

The American plan is expensive, but it is worth it. You tell the porter at your New York hotel you are going to Chicago. Your baggage disappears, and the porter hands you numbered checks. On nearing Chicago a representative of one of the "express companies" bawls his way through the train. You give your checks to him, telling him what hotel you are going to, and he gives you a receipt. On arriving at Chicago you jump on a street car and go to your hotel. Within a couple of hours your baggage, which you have not seen since you left it at the hotel in New York, is delivered. (Sometimes it isn't delivered for several days, but that is due to bad luck, and not to the system.) Of course you can take it to the station yourself and bring it away yourself; but it is always checked, and there

is no premium on baggage-stealing such as there is under the British haphazard method.

As to speed. The American talks much about the enormous rate at which his trains travel. But striking an average they are far slower than the British. America has several really magnificent trains that maintain a speed of between fifty to sixty miles an hour. You have, however, to pay an extravagant price to journey on them.

I travelled thousands of miles by ordinary "express" trains, and the rate was about thirty-five miles an hour. Again, the trains were, as a rule, so unpunctual that I found myself removing some of the maledictions I had piled on several of our English railway systems. During the whole course of my tour only twice, when the distances were over a hundred miles, did the trains arrive in time. Twenty minutes, three-quarters of an hour, even an hour late was not unusual.

Though in the case of specially expensive trains the American railway companies beat ours in regard to speed, we beat them in ordinary general passenger traffic, and we would beat them hopelessly if there was less dilatoriness at English railway stations, and so much time were not lost examining, punching, and collecting tickets. In a phrase, travelling in England is cheaper and quicker than in America.

When I come to compare the comfort and convenience of travelling it must be admitted the American has by far the best of it. Our lauded corridor coaches are rabbit hutches alongside the American cars. Our seats are too narrow for comfort, and

travelling third-class—I exclude the splendid third-class dining cars from London to the north, which no American line gives you at the price—you are huddled in a way you never are in America.

Some things exasperate the Briton when travelling trans-Atlantic fashion. In winter time the cars are uncomfortably over-heated, so that, in desperation, you would prefer the cold toes which mark an English journey, or the make-shift, unsatisfactory expedient of warming-pans. But, it must be remembered, the cars are warmed for Americans, and not for stray Britons.

And here is a point to be considered when comparing the two countries. The American is not so hardy as his British relative. He has more splash, but less stamina. Where an Englishman takes a "cold tub" in the morning the American takes a hot bath. An atmosphere which the Englishman thinks pleasant sends the American into a shiver. An American gets furious if he cannot have his room warm to stuffiness with hot-air pipes.

Therefore, one reason why the Englishman puts up, without over-much protest, with cold railway carriages in the winter months, is because he is not the chilly mortal his friend across the Atlantic generally is.

The hawkers on many American trains are a trial to patience. A lanky youth, often chewing, nasally yells the sale of newspapers, and should unfortunately his eye catch yours he pushes a halfpenny "yellow journal" in front of you and expects two-pence-halfpenny for it. You beat him off. Five

minutes later he comes again selling candies. You tell him that you do not want sweetmeats. He knows better, and with dirty paws he will extract a couple of caramels and lay them on the seat. He tells you to taste, and he will come back and see what you think. Or he will put monkey-nuts (peanuts) by you without saying anything. He has eyes behind his head, for if you touch one nut he races back and is selling you five pennyworth before you can beat him off again. Within ten minutes he wants to sell you fruit. Next he comes along with a pile of paper-backed novels. If you happen to be reading you are safe. But if you are not reading he dumps a couple of novels by your side. In this way he distributes the lot throughout the cars. Then he comes back and jumps at anyone whose curiosity has led them to lift one of the novels. Out of shame a man cannot then say he will not buy.

Then the dining-car. It is switched on to trains and switched off trains, and you must eat when you can, and not when you want. I like sometimes to eat late; but frequently I had to feed at six o'clock because the car was taken off at seven. The "coloured gentlemen" who wait will wipe their perspiring foreheads with the cloth on which they wipe the plates. They insist on sugaring your tea and coffee, and eye you curiously if you prefer to do that yourself.

Probably the rudest railway officials in the world are the French. But the Americans make a good second. The American car attendant speaks with insolence, and plays the bully in a way that

would lead to his dismissal in England. He is just as good as you are, and he shows it by being rude.

If you are a millionaire you may afford a "state-room" to sleep in. But ordinarily you sleep in a made-up bed on the seats. The seat makes a lower berth, and part of the roof is let down for an upper berth. Heavy curtains are hung, so there is but a thin slice of a way down the centre of the car. Now and then your sleeping shelf is provided with an electric bulb light. Usually it is not. You disrobe as best you can in darkness behind the curtain, with an occasional backward bump into the gentleman undressing on the other side of the aisle. It is necessary to go through an acrobatic performance—the details of which cannot be revealed in print—to get your clothes off. If you are the occupant of an upper berth you do your undressing as best you can, lying down.

Ladies and gentlemen occupy the same sleeping cars. The men have often to perform their ablutions in the smoking room. Half clad you wriggle past the curtains, convulsive with folks on the inner side trying to dress; and some of the poetry slips out of life when you encounter a lady, who last night looked so sweet and captivating, sleepy-eyed, her hair in papers, and her clothing in what I think is called *en déshabillé* condition, attempting to scurry in the opposite direction.

An Englishman's first experience with an American Pullman sleeper makes him furious, unless it makes him laugh. The American sees nothing ob-

THE
PENNSYLVANIA



OBSERVATION CAR ON THE
PENNSYLVANIA LINE.

NOV 21 1914

jectionable or humorous about it. He—happy mortal!—is used to it.

But when Mr. Cornelius T. Slocum launches on one of his favourite topics, the inconveniences of travelling in “them little islands of yourn,” it is not difficult to retaliate.

In Philadelphia, in Chicago, in Boston, in New York, I had opportunities for inquiring into the management of several of the great lines.

I came to the conclusion that as to the handling of passenger traffic the American companies have, at present, nothing to teach the British lines. I say “at present,” because, knowing something of the conservatism of English lines, I was able to appreciate the untrammelled go-ahead-ness of the American, and could see how our trans-Atlantic friends are coming along hand over fist. Unless there is a tremendous change at home, I expect that in ten years the Americans will manage their passenger service as much better than we do as they are now ahead of us in the handling of merchandise.

Take the matter of the supreme command of the lines. English lines are composed of boards of directors, titled men, often good business men, the soul of honour. Many directors know a great deal about railway management. But they have learnt it after they have become directors.

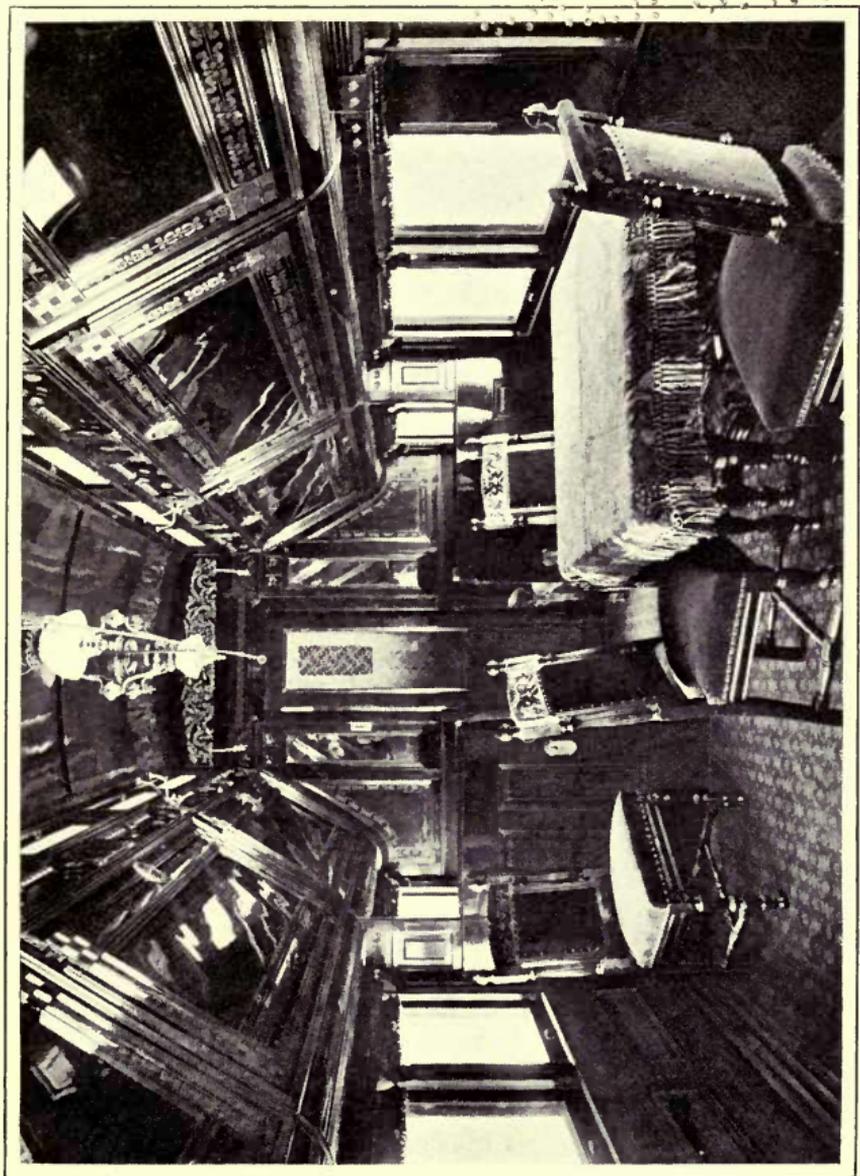
In America such a system of management would only raise a smile. The chief person on an American railroad is the president, and his position is rather more important than that of chairman of directors

in England. Beneath him is the first vice-president, the second vice-president, the third vice-president, and the fourth vice-president.

Take the Pennsylvania line—the most important and best managed railroad in the world—and inquire into the history of the president and vice-presidents. You will find that they all started as cleaners, as firemen, as drivers, as clerks in the employ of the company. They have risen from post to post because they have shown their worth. The board of management is made up of men of striking character, who have gone through all grades until the highest position is reached. Ability is the only thing that counts. Some of the railway directors I met were blunt, brusque, and used language that would make English directors squirm. But they knew all about the management of their line.

I was struck with the *esprit de corps* among American railwaymen. Though I had long talks with many employées, I never heard ill-natured things said about the employers merely because they were employers. Trade unions are strong among railway workers. Rarely, however, is there friction because of the employment of non-union men. The railway companies don't care a rap whether a man belongs to a trade union or doesn't. What they care about is whether he is a good workman, sober and steady.

The "moderate drinker" finds it hard to gain employment on the Pennsylvania Railway. That company prefers teetotallers. Several companies will not employ men if they smoke cigarettes. Practically



AN AMERICAN PRIVATE RAILROAD CAR.

TO THE
MEMBERS OF THE
LEGISLATIVE COUNCIL

every company in America refuses to engage a new man if he is over thirty-five years of age.

The British working man may think these conditions fearfully hard. So they are. If a man falls out of employment, say at the age of thirty-eight, his chances of getting similar work are practically gone. And yet every young fellow with spunk and energy in him knows that though he may be a cleaner to-day, he may, twenty-five years hence, be president of the line. It is like the feeling among Napoleon's warriors, when every soldier thought he was carrying a marshal's baton in his knapsack. If a lad does not get on in America, he knows there is only one person to blame.

The railway services of America present a splendid field for advancement. The well-educated man has, naturally, a better chance than the scantily educated; therefore—what I have never known in England—college graduates frequently join a railway company as firemen. They do not intend to remain firemen. They are ready to play their wits and strength against all other men, and the moment they prove their worth their advancement begins, and the promotion is often with startling rapidity. The majority of the companies will not promote a man to engine-driver over the age of twenty-seven. If by that age he has not proved his ability to drive an engine, he must stop as fireman, or something even lower.

In regard to wages, I found that though there is a slight tendency to decrease in clerical offices, the tendency is upwards in regard to direct workers.

An engine-driver gets about 15s. a day, and a fireman about 9s. Conductors get 13s. 6d. a day, and their assistants get about 7s.; telegraph operators 7s. 6d. As to hours, there are times when engine-men, owing to stress of circumstances, are kept on duty from twenty to thirty-six hours at a stretch. The normal day on various lines is ten hours, but for telegraphists and yardmen it is twelve hours.

It is difficult to strike averages. State laws regulate the hours of labour. In Ohio the maximum is fifteen hours' work and nine hours' rest; in Minnesota, Nebraska, and Colorado, it is eighteen hours' work.

Just now the American railway employées are interested in Sunday work and overtime. In the eastern States from 20 to 30 per cent. of the men work on Sunday; in the western States the percentage rises to 80. Some companies do not pay at all for overtime; others, the majority, pay a proportionate extra rate, whilst the Illinois Central stands out as a notable exception by paying for Sunday labour and all labour over ten hours a day at the rate of one-and-a-half time.

In England it is not infrequently the practice to bring in a man from another line to take a responsible position. That is hardly ever done in America. Promotion is the rule. To bring in outsiders would check enthusiasm and ambition. And American railway directors appreciate the sterling value of every employée knowing he will have a good job if he is deserving.

It is the pride of the Pennsylvania line that all

its high officers once worked in the lowest ranks. A fact like this makes every office boy feel that perhaps he will be president some day.

The system of discipline on the main lines is worth describing. Except for the very gravest offences, such as drunkenness whilst in charge of an engine, there is no instant dismissal. Everybody makes mistakes, and to discharge a man because he has made a slip is not good policy. For many years the rule was, in case of dereliction of duty, to suspend work and pay for a period of from ten to sixty days. That plan is now generally abandoned because it bred discontent. The favoured system is a reprimand and a record of deficiency. A special book is kept, and a page is devoted to the personal record of every employée. It is not for general inspection, but any man has a right to get a copy of his own record. If a man is guilty of an irregularity it is written down in the record book. The man continues to work, and nobody suffers but himself, and he only in reputation at headquarters. If he makes two or three slips he gets a quiet "talking to" from his superiors. He is told that if that sort of thing continues he will be dismissed. He therefore knows that when he is discharged it will not be entirely for the last offence. It will be because he is incompetent.

Another plan is to issue bulletins recording irregularities on the road, and post them where all employées can read. No names are mentioned, but the accident or irregularity is described, and there is a comment from the manager's point of view, together with a remark how injurious such occur-

rences are to the company, and a little statement how the accident might have been avoided. The men frequently know to whom it refers, and there is a free discussion, which has a beneficial effect.

On some roads a record of merits, as well as of demerits, is kept, and a period of clean record wipes out a period of bad record. So every man has a fair chance.

The man, however, who suffers most is the man who is "unlucky." Says Mr. A. D. Stickney, president of the Chicago and Great Western Railway: "The real incompetent is the man born tired and 'unlucky,' who rarely does anything in time or in a proper manner, who is usually sick on stormy days, and physically unable to take a hard run, who through no fault of his own, which can be proven, usually breaks his train in two, pulls out and breaks drawbars, corners cars, and gets off the track when switching, who never does anything for which he is to blame, but is just 'unlucky!'"

That is the kind of man American railway companies will not have. The chances for a good man on an American line are splendid. There is no chance even of earning bread for the man who falls below excellence.

Despite his little amiable weakness in the direction of "blowing," the American is the most discontented creature on the face of the earth. He always wants to go one better than anybody else. And this discontent, of a healthy kind, is absolutely rampant in the management departments of big railways. There is a positive panting for improvement, and

1000

the keenest of intelligences are brought to bear to effect economies.

To save the cost of labour is an ever-pressing problem. But it is grappled with and partly solved. The expenditure of half a million is not reckoned if the ultimate saving of a million can be sighted. English railways, for instance, employ five times as many men per mile as do American lines. Within my remembrance the rates for carrying goods on American and English lines were the same. Now the average cost per ton per mile in America is a third of a penny. In England it is a fraction over a penny.

The American railway manager always has both eyes wide open for improvements. And a thing which struck me as curious was that patents invented in England, but not used in England, are freely adopted in America. The American engines are huge and ugly, but they command respect. They are built big and heavy to get increased haulage power. They are, however, not to be compared with English-built locomotives for workmanship and finish.

“Yes,” said an American sarcastically, “English engines are fit to hang on a lady’s watch-chain if only they were a little smaller.”

CHAPTER XII.

CHICAGO.

CHICAGO, to the people who live in Chicago, is "the Queen City by the Lake," the hub of hustling, the place where, in the twentieth century, you see a go-ahead-ness which folks "back-east," in New York, will only achieve two hundred and fifty years hence.

To the people of the United States Chicago is an overgrown, ugly, dirty village, where pork is packed, and where there is a paucity of manners and a plentitude of money.

Chicago, however, regards itself as the boss city of America. It has a contempt for New York, "which ain't no American city, but a job lot of a place near England."

Say the Chicago folk, "Now, if you want to see a real American town, where things hum and are slap-bang up-to-date, where the people have no flies on them, you just study the way they do things in Chicago."

Say the folk of other parts of America, "For goodness' sake don't take Chicago as a typical American city. Take Denver, or Cincinnati, or even wicked St. Louis, but don't take that vulgar Chicago."

Thus paradoxical advice hems the unprejudiced

Briton anxious to learn and ready to generalise on the American people—and he finds the task impossible.

When I was shown a tall building—I forget the number of storeys, but it was somewhere in the region of the seventies, or perhaps only twenty-seven—and was assured it was fireproof throughout, I involuntarily muttered “What a pity!” I gave offence to the Chicagoan who was with me.

When in the presence of some journalists I spluttered that Chicago had an atmosphere as bracing as champagne, the newspapers came out next day with huge headings: “Chicago’s Champagne Atmosphere!”

“Jolly” the Chicago people—say nice things—and you are a sufficiently intelligent Britisher to be mistaken for an American. “Josh” them—be sarcastic at their expense—and then you’re a fossilised Englishman from a country that don’t count, and is a back number anyhow!

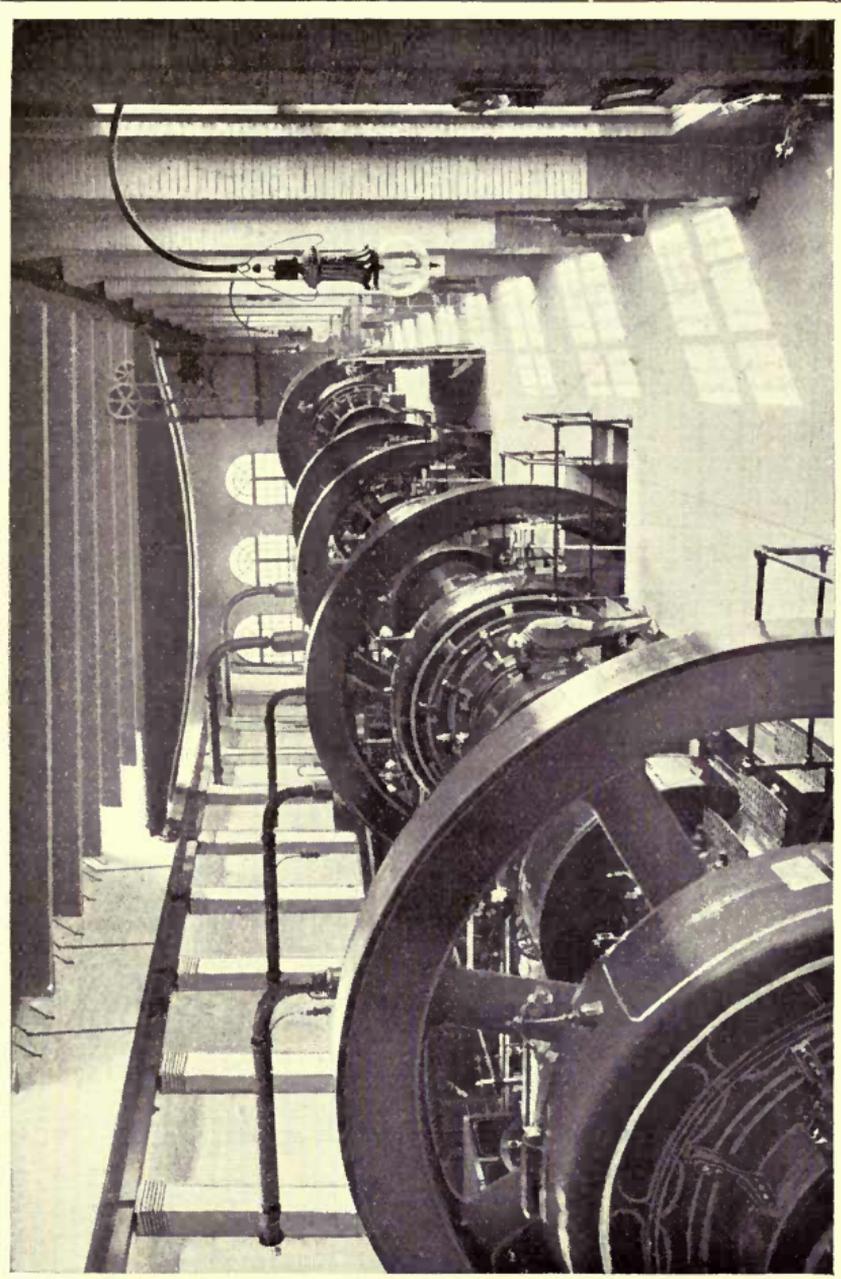
To see Chicago at work is to see the eighth wonder of the world. There is hardly a building to-day that was standing twenty-five years ago. Buildings reach away to the sky, and carry many men by elevators as near heaven as they have any reason to expect. If you get into Halstead Street, and march from one end to the other, you will have covered twenty-eight miles.

There is a time of the very early morning when you can walk through Cheapside in London and meet nothing but policemen and a postal van. There is never a time of the night when State Street

in Chicago is quiet. The trolley cars run for ever. The saloons or public houses never close.

The pace is furious. In the morning the streets are crammed with flabby-faced men—Teutons most of them—a great proportion corpulent to unhealthiness, and they hurry as though there remains but two minutes more before the banks are closed. You bump into a man. It is no good apologising, for he is nearly half a block away. A man bumps into you. He never apologises; time is too precious to waste over foolishness like that. The cars are packed. In the early business hours, when there are long processions of them clang-clang-clanging their way along the streets, men hang on to the sides and cling to the back of the cars. The elevated railroad, which darkens three parts of the street, is black and dingy, and the trains make a roar like thunder. In the skyscrapers are “express” elevators and “local” elevators. They are always packed, tossing men to the top storey, dropping like stones to the ground floor. The scamper along the mosaic-tiled passages suggests an outbreak of fire. I went into one building, all offices, where five thousand people were employed. In talking to a business man it is necessary to get close and shout, for the air shivers with the clatter of typewriters.

I never saw a street-sweeper in Chicago. When a brisk wind blows you cannot see across the roadway for gritty dust, which is hurled at you like a tornado. So you turn your back and close your eyes to receive it. The roads are bad; rough cobbles, skull-sized, in the main streets, and just mother earth in the



THE GENERATORS WHICH DRIVE
THE ELEVATED RAILWAY IN CHICAGO.

suburbs. When it rains the streets are masses of greasy filth. As the police know nothing about the control of traffic, the conviction comes that you have a specially preserved life in that you are not run over every five minutes. In the poorer parts of the town there is no sewage scheme; if there is it is ineffective, for I have seen streets half full of slime and stinking matter. Chicago, magnificent city in many ways, is too busy money-making to attend to civic improvements.

And here is where Chicago stands apart from other cities. The people of other cities hunt the dollar as hard as they know how. But they do not like to be regarded merely as money-makers; they like to think at any rate they have a passive admiration if not a keen affection for worthier things.

Chicago has a University. It has a fine public school system. It has established vacation schools, which are likely to revolutionise the public education. It has fine libraries. But these are all "on the side." Chicago people are really on the earth to make money. They make no secret of that. They are frankly pagan.

It is the most interesting of all dramas to watch Chicago at this money-making. Here is a town where it is no disgrace to be a swindler, no disgrace to have been in prison, provided you still have plenty of money. To start a bogus company and defraud the public is smart. The same sort of thing goes on in other cities—in London, for instance—but neither in London nor, indeed, anywhere except in Chicago have I seen among the great mass of the population

such a slackness of commercial morality, a passive acknowledgment it is well to get rich honestly, but that it doesn't so much matter so long as you get rich somehow.

Chicago has practically none of the leaven of the old American spirit such as is met with in the eastern States. Seventy-five per cent. of the population is foreign born, largely German, much Jew, some Italian, some Swedish, some Irish, and but the tiniest sprinkling of Anglo-Saxon. Most of the citizens are, therefore, immigrants, folks of determination and purpose, or they would not have left their home countries. But they come not from even the middle class of their home countries, but from a lower strata of society. From indigence they have, by their own tremendous ardent powers, jumped into wealth. And the tendency among the new rich, far more than in other countries, is towards ostentation. The only aristocracy is one of wealth. All the tendency is to social fireworks and display, and one-cent yellow press praise. The wife of the multimillionaire cuts dead the wife of the mono-millionaire. Everything and everybody is judged by money value.

The streak of the dollar obtrudes into religion. The churches are as gaudy as music-halls. Plain preaching is not sufficient. The attraction of the service, such as a whistling solo in the place of an anthem, is advertised in the papers. Chicago clergymen do not speak of the good work their brothers are doing. They say So-and-so has a \$4,000 church, or that young So-and-so is giving up a \$1,500 church

for a \$3,000 church. It is the stipend that is spoken about.

Comparatively few of the churches are open on Sunday night. All the theatres, and music-halls, and saloons, and low resorts certainly are. To wander along State Street on a Sunday evening is to witness sights the equal of which is to be seen in no other city in the world—and as to what may be seen in other cities of the world I have some little experience. I sauntered in State Street into an “anatomical museum,” really a quack-doctor’s establishment, and I saw waxen representations of things which made me feel sick.

There is no suggestion of Sunday evening. The shop doors are closed, but all the windows are a blaze of light, and before them are crowds of women looking at the bonnets on slowly revolving discs, or watching the electric appliances that dazzle the eye with sudden gleams of tinted globes.

Crowds surge about the lower class theatres. There is the beating of a drum and the shriek of a hurdy-gurdy to attract to a dime museum. At one street corner is a man yelling anarchy. He has a big crowd.

At another street corner is a sallow, curly-haired individual demonstrating that the earth is flat. He has two hundred listeners.

At another corner is a semi-circle of Salvationists, and a tall woman in a poke bonnet is crying in prayer “God will strike Chicago to hell.” There are not more than half a dozen onlookers.

Chicago has its poor, and plenty of them. Mr.

Davies, a keen, warm-hearted, enthusiastic fellow, the chief factory inspector for Illinois State, gave a day as guide, showing me round "Little Italy" and "the Ghetto."

"You Americans," I remarked, "are always making comparisons about the distress of Europe and the fine wages made in the United States."

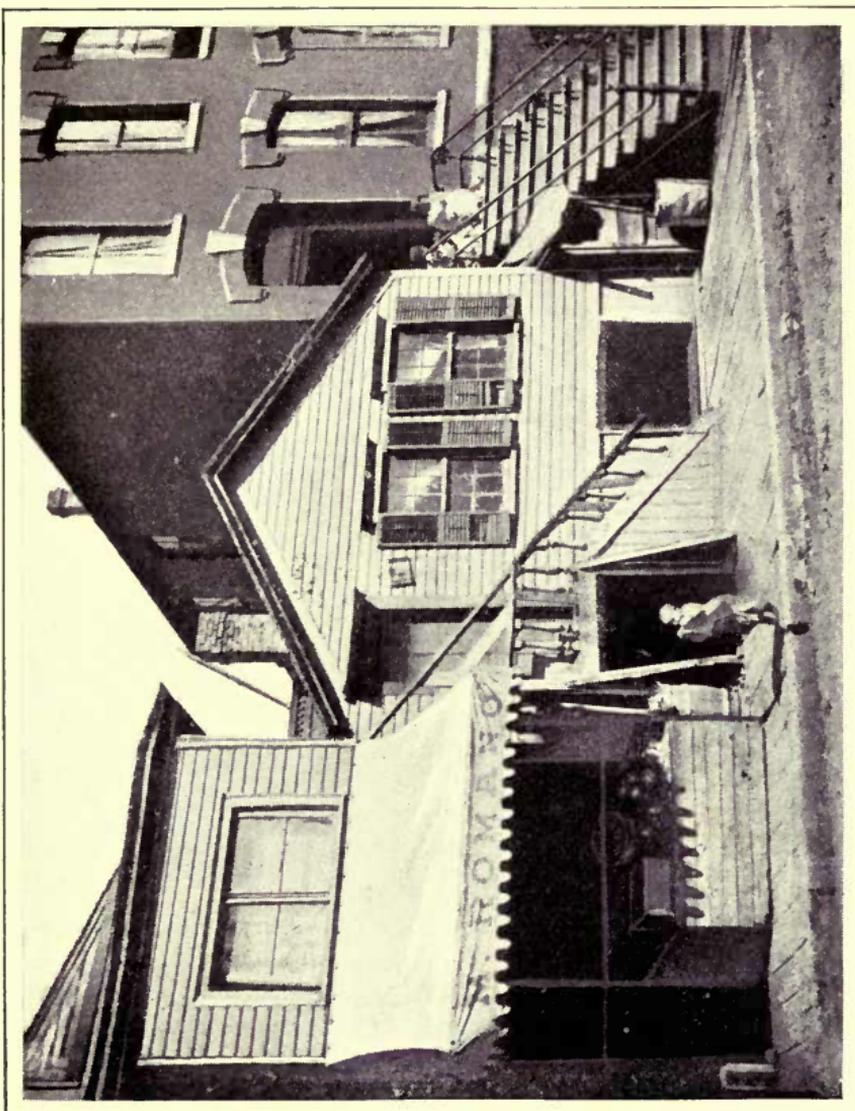
He smiled. "I can take you to places," he said, "where life is just a struggle; where, if you gave a one-cent banana to a family of five it would be the greatest treat they have had for weeks."

We went slumming. And having said some things that are severe about Chicago I must in all fairness say the surroundings were by no means so foul and evil-odoured as in the purlieus of Shore-ditch, where most of the London tailoring is done. In the "sweat shops" the places were wretched; furniture was lacking; the finger of poverty was there. But, comparatively speaking, the rooms were not unclean.

All the cheap tailoring is done by the Jews or Italians. In one house I saw an old woman who received two cents (one penny) for doing all the sewing to a pair of trousers. By working early and working late, and always working hard, she could sew sixteen pairs in a day, and thus earn 1s. 4d. The pay is better in the East End of London.

A wretched sight was the children running the streets—little Italians, Jews, Hungarians, Swedes, Poles, Russians, a motley of half-starved, bare-footed, ragged-clad little ones—quite happy, however, paddling in the overflow of sewage.

CHICAGO'S SLUMS



A CORNER OF
CHICAGO'S SLUMS.

I had a long talk with Mr. Davies about the employment of children. This was his subject, the one dearest to him, the one he is wrestling with, and it is his ambition to crush the evil in Chicago if the law will let him. Good luck to him!

He told me there were lots of children under the age of twelve working in Chicago. When I refused to believe him he took me to his office, and brought out report after report of inspectors who had found children of twelve earning their poor four shillings a week (one dollar) among the horrors of Chicago slaughter-houses. The law of Illinois State is that employers shall not knowingly engage children under fourteen. To safeguard themselves the employers make the parents sign a declaration that the lads are over fourteen. These parents are nearly all freshly arrived immigrants, the dregs of Europe. They lie, for they need the dollar. Some of the pork packing firms repudiate responsibility by flaunting the signed declaration in Mr. Davies' face. But Mr. Davies told me that of the cases of boys obviously under the age of fourteen that had been inquired into by the inspectors, quite 98 per cent. were found to be under age.

Chicago excels all other towns in the world in the hugeness of its department stores—mighty structures, granite faced, mahogany lined, luxuriously fitted, where everything may be purchased. Thousands of girls serve behind the counters—smart girls who go through their work with a zest and vim that is remarkable. It is kept up day after day, month after month. The heads of sections of departments,

good, level-headed business women, get well paid—sometimes as much as £3 a week. The ruck of the girls are paid badly, as low frequently as 10s. 6d. a week. And this in a city where living is twice as expensive as in London.

Where I went quietly gleaning knowledge, I deeply regret I heard long strings of stories of money-greed, irreligion, repudiation of family ties, degrading conduct by people bearing well-known Chicago names—the kind of things that the one-cent yellow press gloat over and illustrate with pictures.

Yet among all this is the business frenzy, the wide-eyed hunger for money, more money, sought for by intellects that are as keen as razors, that see as though by intuition swift paths to fortune, by men who, when a great obstacle threatens ruin, sit down and think and think, and find a way, or make one, to climb the obstacle.

Everything is done on a big, and to the English mind a reckless scale. Last year on the railway lines that run into Chicago 15,000 twenty-ton freight cars were thrown on the scrap-heap, not because they were used up, but to make way for freight cars of forty to fifty ton capacity.

Many a time I have gone into an English railway goods shed and seen the piled-up masses of merchandise, often a mountain of confusion, with goods being sent off by freight train perhaps to-day, perhaps next week, as soon as possible certainly, but not on a system. Often have I stood in a goods yard watching shunting operations, the shunter with his pole releasing the couplings, the engine puffing back-

wards and forwards, giving a kick to this car, being attached to another, hauling that, leaving it uncoupled, shunted again, and so, after delay, getting a train made up in proper shape.

A crowd of railway companies focus their lines on Chicago, though a great mass of the traffic is through freight to be transferred from one line to another, and taken west or brought east. Were all this to be brought into Chicago there would be congestion. But it isn't. Thirty odd miles away, making a loop about Chicago, is the little line known as the Elgin, Joliet, and Eastern. All the great lines must at various points cross this to reach the city. Freight, however, intended for beyond is not brought in. It is detached on reaching the belt, sent along to the line it next traverses, and so keeps outside the radius of congestion.

The engines and the freight cars are enormous. The aim of American lines is to increase the haulage power, and this can only be done with mammoth engines. They have not nice green bodies, and the drivers don't find entertainment, as English drivers sometimes do, in making shaded designs with greasy cloths. If there is paint it is black or dark grey. Often there are sections not painted at all. The heavy castings are not polished; they are rough. The brass work seems crude. But all this is where elegance is not needed. Where delicacy is wanted you sometimes find pieces of machinery nearly as exquisite as that turned out of an English locomotive works. The tendency is to have cars of from thirty- to fifty-ton capacity. To draw sixty of such cars requires an

engine of mighty power. Of course the initial cost is more, and the speed is not so great; but the great fact is that while rates in America have gone down train loads earn more.

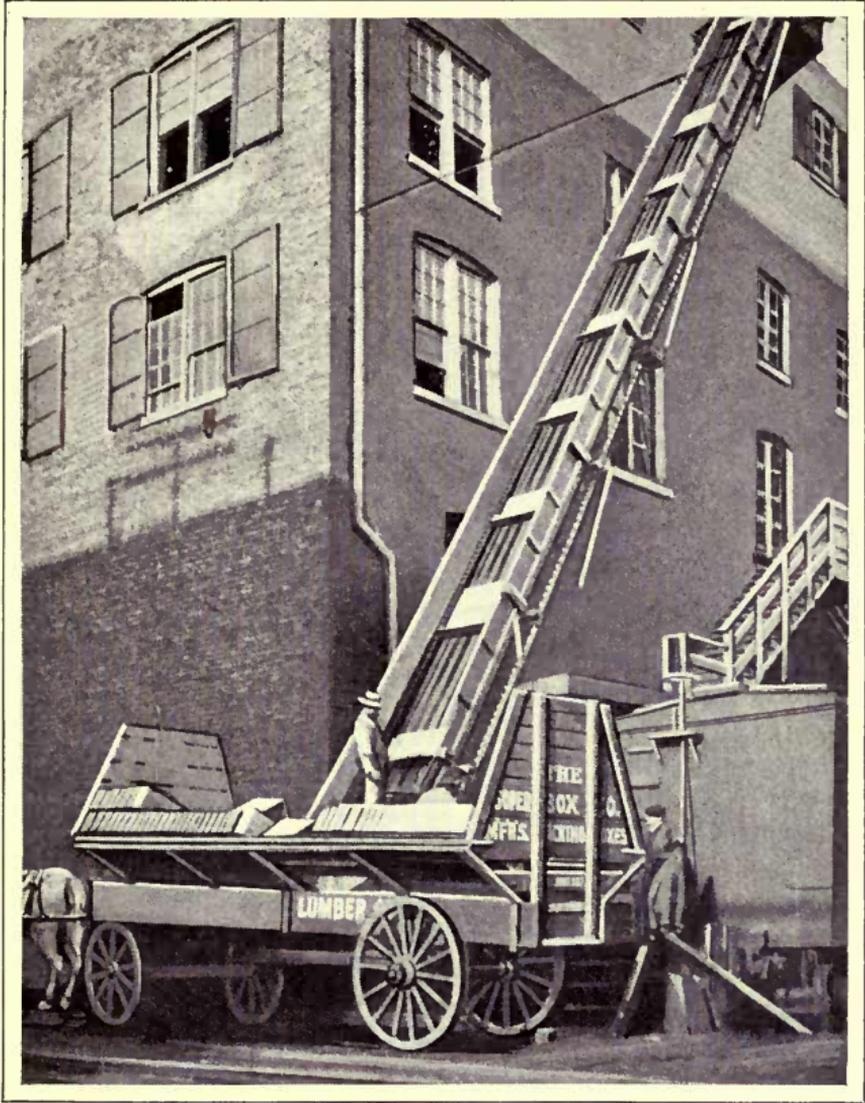
Most of the big lines have what is called a switch-yard, where goods trains are made up. The rails are arranged not unlike a herring bone, one line in the centre, and others curving off. All these curves are slightly graded so that a truck will keep running to its place until the brake is applied. When two trucks meet they automatically couple; indeed, the use of automatic couplings is obligatory by law.

In one of these gravity yards all the switches are worked by electricity. The engine gives a kick to a car and sends it rolling along the line; it kicks again, and sends a second; it kicks once more, and along goes a third. A yard man semaphores with his arms where each truck is destined. A man sitting in a little box of a tower presses buttons. He closes by electricity switches Nos. 1, 2, and 3, and sends the first car along No. 4. He lets the second car possibly run to No. 9; perhaps the third car goes along No. 1. The whole thing is neat.

I spent an interesting afternoon at the city freight depôt of the Chicago, Milwaukee, and St. Paul railroad. It was just an ordinary casual scene, when the cars were being loaded for despatch at six o'clock that evening. Therefore it was more practically interesting than any special rush.

Let me describe exactly. There was a very long shed, the floor raised some four feet six inches from the ground. On one side of the shed was the de-

PERPETUAL LADDER DELIVERING GOODS IN CHICAGO.



PERPETUAL LADDER DELIVERING
GOODS IN CHICAGO.

livery yard, into which all the waggons with their freight came. On the other side of the shed stood eight goods trains in a row, and each of nine cars. They were drawn up with military precision; all the centre doors were wide open; the cars were joined with steel platforms. So from the shed one could walk through to the eighth train. With all the doors open it was easy to get to any of the seventy-two cars that were standing there that day.

Opposite each of the doors facing the trucks are doors opening upon the yard. To these waggons back up. A special gang of labourers unload and weigh. A clerk checks the bill, and a foreman sticks a label, say "No. 16," on a package, whether it be a piano or a basket of peaches. Another lot of men take the loads to the cars. A loader picks up the card No. 16. He doesn't look at the address on the package. It is nothing to him whether the load is going to Minneapolis or Denver. His duty is to place that parcel in car No. 16. He does. He deposits his ticket in a little tin box hanging by the door, and off he goes with his barrow, drops it in the shed, and picks up another barrow loaded, that may be for "No. 32." Meanwhile a foreman is strolling through the cars taking out the cards, running his eye over them, and if he sees a "No. 18" in a "No. 16" box he knows instantly something has got into the wrong car, and it must be found and put in the right one.

The whole thing seemed to be simplicity itself. It was not so much a system, however, as an evolution—the outcome of long years of experience. As the time approached six o'clock the yard was full of drays,

and carts, and waggons. But they all took their turn to discharge at one of the many doors. There was no piling up on the goods shed floor. They were piled on barrows and taken on to the weighing machine, pulled off, and let stand there for half a minute or a minute, till an empty-handed man seized the barrow and ran it through the seventh door to the fourth car, or whatever might be the number it was marked for.

At six o'clock the loading was done, and at three minutes past the trains were being hauled out.

Of course, a car does not carry goods simply to one place. It may have freight for a dozen or more places. But those places will be contiguous, all within the stretch of what is called a division. Time would be wasted if there was a halt at every way-side station where a sewing machine or a box of soap had to be delivered. So the train setting off for a 400-mile run drops one or two cars at the beginning of a division, runs on to the next division, drops more, and so on, getting over the 400 miles at a not much less speed than a passenger train. At the beginning of each division another engine picks up the load, and peddles its way from little station to little station, discharging cargo.

After that I went to the "in house," where goods for Chicago are received. Here there was system. All freight for the city was on one side a fence; all to be transferred to some near locality was on the other side. The whole shed was divided into Sections 1, 2, 3, and the rest. A glance at the way bill shows what section goods asked for were in, and

whether they were city or out-of-city. Another plan is to move the newly-arrived freight near the doors, for experience has taught this is the more likely to be quickest collected. Goods are allowed to stand for thirty days. If not claimed they are put into an adjoining shed. If not claimed they are then carted to a shed outside the town, and if no owner turns up within a year they are sold by auction.

Chicago, as you see, is a complex city. Only to praise it would be to shut eyes on its many hideous characteristics. Only to condemn it would be to ignore a town where business—unsentimental, but far-seeing—is conducted with as clear an eye and as steady a purpose as at any town in the world.

CHAPTER XIII.

HOG KILLING AND PACKING IN CHICAGO.

YES, sir, we 'can' everything, and find a use for everything—except the squeak!”

The man who was showing me round the slaughtering and packing houses of Chicago gave a glance out of the corner of his eye. But I refused to laugh at his joke. I had heard it before, over four years ago, when I paid a similar visit. So I remarked, “How many times do you say that in the course of a day?”

“Sometimes not more than a dozen; but I once said it thirty-two times, and I've been saying it for seven years, and it makes everybody laugh—except those who have been here before. Walk gently, sir; blood is such a greasy thing to tread on.”

Four years previously, when hot and sick I escaped from Armour's slaughter-houses, where I had watched scientific pig-sticking and bullock-felling, and looked upon an old fat decoy sheep leading other sheep into the killing pen, I vowed that never again would I look upon such a sight.

Yet here I was, with my trousers turned up, sliding along planks mahogany-hued with what ran over them, and in my nostrils and mouth was the odour of hot blood.

I had seen pigs killed at the rate of 600 an hour,

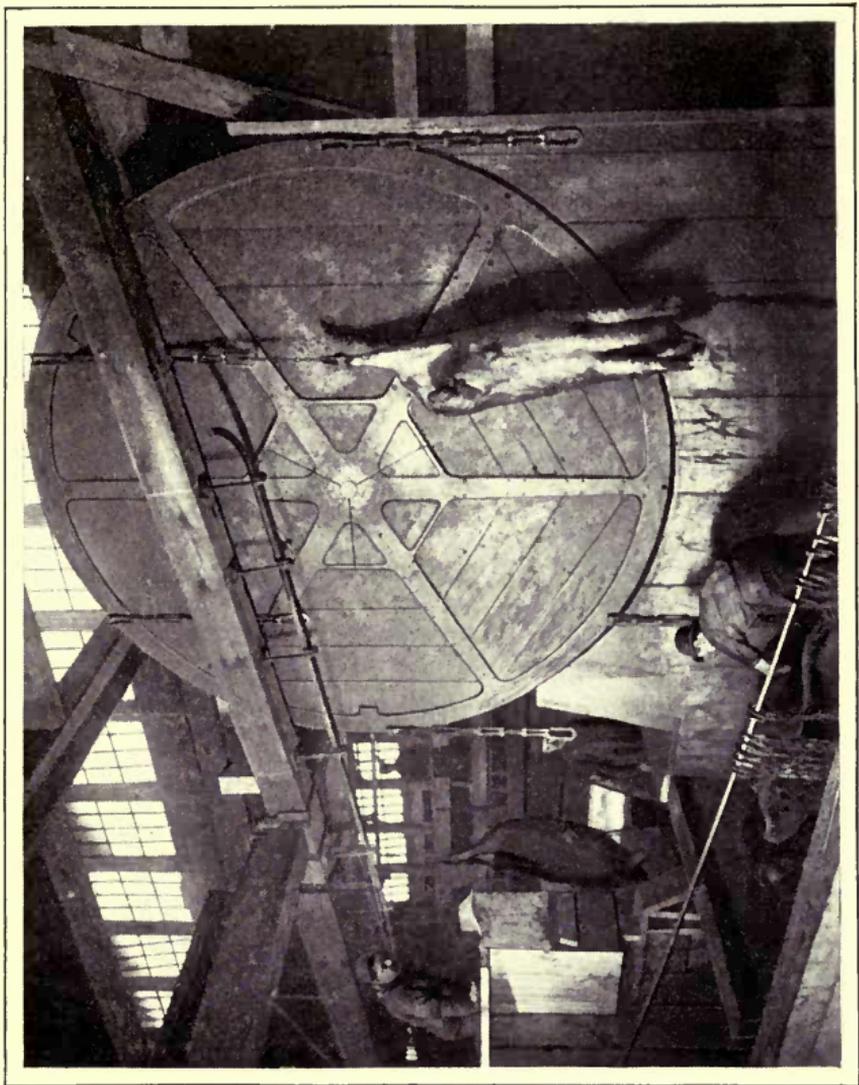


Photo : Thompson Photo Co., Ltd., Chicago.

FASTENING PIGS TO THE WHEEL

the throats of sheep cut at the rate of 620 an hour, and big, meek-eyed beasts utter their last moo of pain at the rate of 240 an hour. I had seen a cow, with wonder in its big eyes, hit over the head with a mallet, and thirty-nine minutes after seen the carcass, all dressed, on the way to the cooling-room. I had seen a pig gripped by the hind leg, sent circling up a wheel on the way to death, and thirty-two and a half minutes later it was all ready for consumption, save cooling. I had seen a sheep utter a shrill bleat as its throat was given to the knife, and thirty-four and a half minutes later it was mutton.

It was a sight that haunted me for the rest of the day.

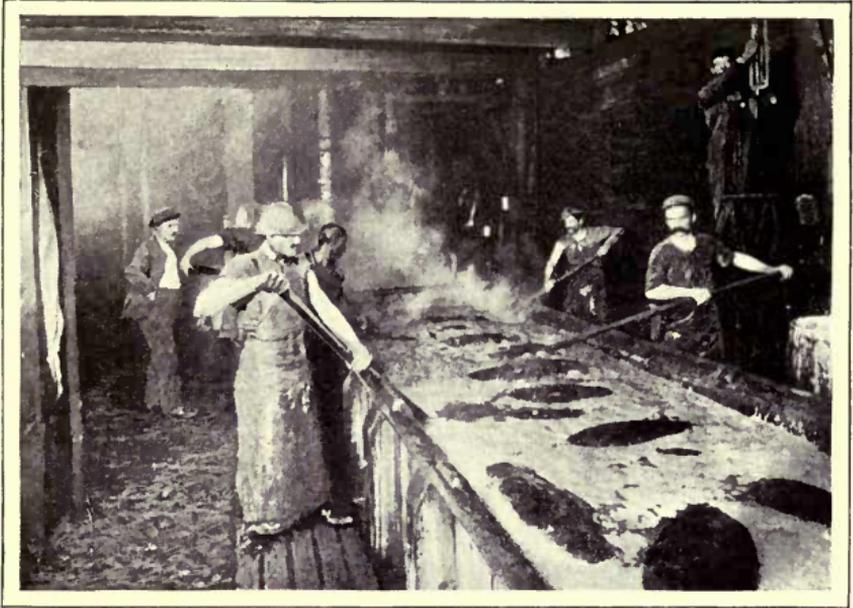
But it was dexterous; it was neat; it was as humanely done as such things can be humane; it was a splendid piece of machinery, for everything seemed to move by clockwork.

It was a hot day when I went to the stock-yards. They lie in the ugly suburbs of Chicago, a network of white-washed pens, where were cattle and sheep and hogs brought in from the West by the heavy train load. On a big board were the sale numbers for the day—a quiet day, for it was the middle of the week—Cattle 17,000, hogs 26,000, sheep 25,000. The air was thick with the smell of byres. About the adjoining saloons lounged long-legged drovers in broad-brimmed hats, and chewing tobacco or smoking cigars. In the background reared the works of Messrs. Armour, of Messrs. Swift, of Messrs. Libby McNeill and Co., of Nelson, Morris and Co., and other firms.

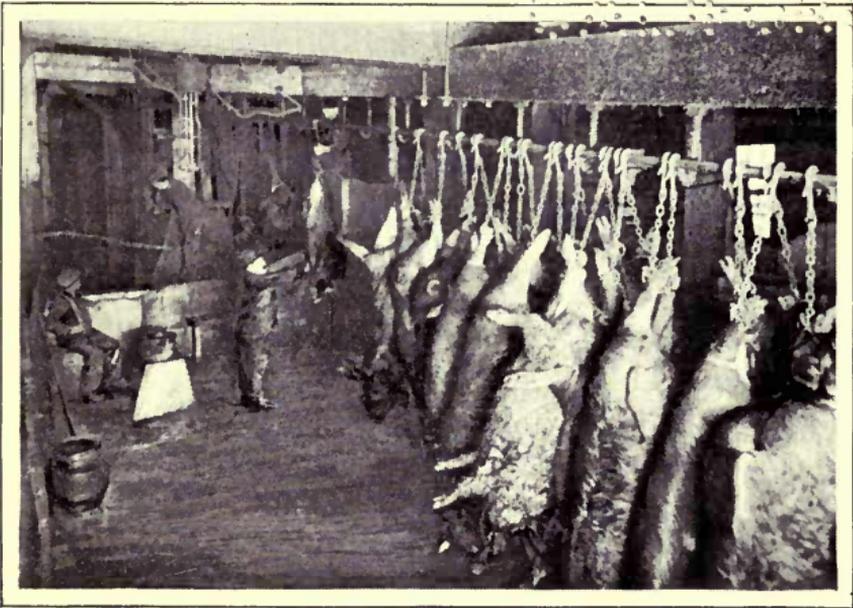
There were overhead galleries, and along them came the scurry of many feet. Animals were being driven to the slaughter-houses. The stench sickened. In crowded covered pens where the pigs were, men sprayed the animals to keep them cool. When the pigs were released from the pens they ran past two government inspectors watching for disease. A healthy pig ran with a swaying head. A sick pig ran straight. Like a dart any unhealthy pig was fixed upon, a tag stuck through his ear, and the brute turned on one side. It would afterwards be killed under the eye of the law. If then the pork was found healthy, it was passed. If not, it was turned into fertiliser, and what the sale produced was handed to the owner of the animal.

The works I visited were those of Messrs. Swift. It would be easy enough to let my pen run into dramatic description of the brandishing knife, the spurting blood, the crimson and soaked garments of the men. Let all that, however, be imagined, and let me deal with the business side, and show how these great Chicago houses get through their work.

The pigs, squealing with fright, are driven along a sort of gutter. Five or six at a time are let through a doorway into a pound, where there is a great wooden wheel always on the turn. A pig is seized, and in a trice a chain is round one of the hind legs, and the wheel, revolving, hauls the pig up in the air. Another and another is caught and fastened. There is a succession of wriggling, screaming swine being hoisted. As the wheel descends it slips each chain to a travelling pulley, which carries



SCALDING THE PIGS.



THROAT-CUTTING.

Photos : Thompson Photo Co., Chicago.

THE END
ADDITIONAL

the pigs past the killers, big burly men, and each man selects his animal, and with a plunge of the knife cuts a throat. The pit streams blood; men with brooms brush it into a channel, and it flows off to barrels. Each killer cuts the throats of about twenty pigs a minute.

Death soon comes. And now, until the cooling room is reached in thirty-two minutes, the carcass passes a procession of 150 men, each having something to do. It is very little for each. The brute is past in a few seconds; but it is something definite, which each man, according to his duty, attends to, and nothing else.

The carcass drops into a bath of scalding water. A cradle lifts it out, and another chain grips the legs, and the body is dragged through a tube filled with wire brushes. Heavy springs make a vigorous pressure, and nearly all the bristles are removed.

The body drops on a moving platform. One man scrapes the bristles from under one leg, a second the bristles from under another leg. Again there is the clamp of a chain, as the carcass goes on its way suspended. A man rips the stomach, and twenty men in turn extract certain parts of the entrails. A man gives a sweep of the neck with his knife, the next man gives another slash, the third man catches the head as it falls and pitches it on one side, the next slices a paw, the next finishes the operation and cuts it off. So past 150 men. Then the carcass reaches the cooler, a great chill chamber, which made me shiver when I entered it.

Not one pig, but dozens of pigs, are all going

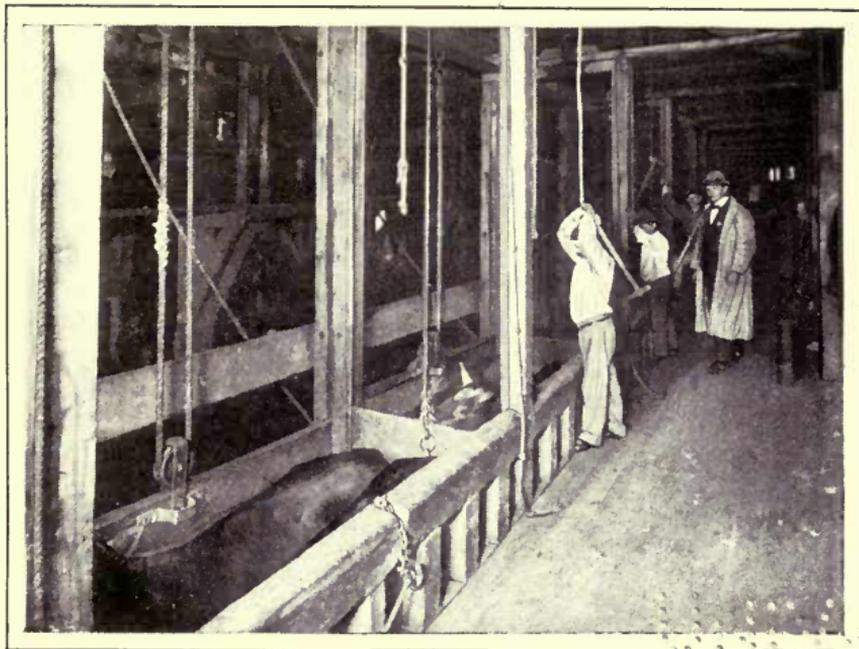
through the same operation at the same time. In their six plants Swift's have killed 27,386 hogs in a single day.

The cutting-up does not take place for two days. Men strike at the carcass with knives three parts as long as swords, and with a slash a ham is made, and the pieces over go flying into a tub close by. The finest hams are for the English market. An Englishman knows good ham and bacon. The American does not have the chance.

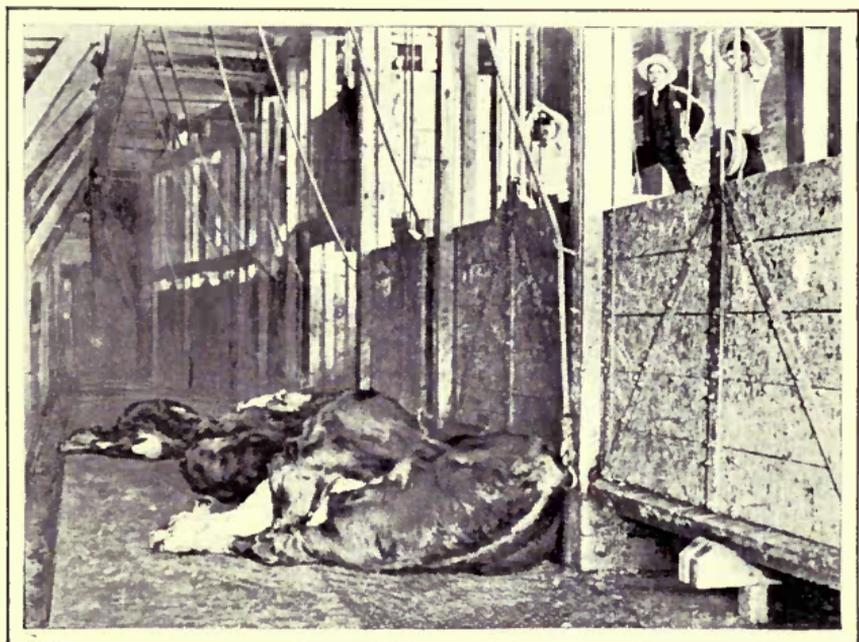
Waste! There is no waste. All those morsels cut off to trim the hams and bacon sides go for sausages. I went into the sausage room. In big saucers, with a rocking blade, were all the bits thrown and chopped fine. Men were moving about with wheelbarrow-loads of meat. It was pitched into machines. Men fixed rapidly the skins on the nozzles, and the sausage came out in apparently endless flow. Girls seized it, and with the adroitness of conjurers tied knots, which made the ordinary sized sausages. Frequently Swift's turn out 100,000 lb. of sausages in a day.

But the killing of cattle is equally quick. Two hundred and forty head are despatched in the hour. The beasts are driven along a narrow passage. Sliding doors divide off two into each compartment. Men walking on a platform by the side swing steel hammers and catch the brutes between the eyes. Instantly the side of the stall swings up, and the stunned creature rolls upon the floor. Four men fix a chain to a hind leg.

"Haul away!" and up swings the animal, and



FELLING CATTLE.



STUNNED CATTLE.

Photos : Thompson Photo Co., Chicago.

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its own weight carries it on a pulley down an inclined plane to where the "bleeder" stands. He cuts the veins. A man with a bucket steps forward, and moves, as the animal is slung along, catching the blood. The body runs past five men before the head is chopped off. Down goes the beast on its back. Six men attack the fore legs, skin them, and cut them off at the knee. Eight men attack the hind legs and cut them off at the hocks. Two men with axes level blows in swift succession, and divide the front of the carcass in two from head to tail. A boy seizes the gullet; another boy dives for the sweetbread.

Four men remove the caul fat. Fifteen men drop around the brute and get the skin loose. Three men saw the breast bone in as many places.

Grappling chains raise the body. A chopper divides the pelvis bone. Seven men skin the hind quarters. It takes two men to skin the tail, two men to cut it off, and a boy to throw it into a box. I never saw such division of labour. Yet everything was going without a hitch.

Again the animal is attacked. Six men finish the skinning on the flanks and six on the back; seven sawyers cut through the bone; six men clear out the intestines (taken possession of by a government inspector and tested for signs of disease), eight men split the back-bone; four trimmers mount step-ladders and trim off bruises from the flanks; four trim the inside; four spread the hide on the floor, and there is inspection for cuts, and the man loses his job if he is guilty of more than two cuts a day.

Four wheel away the hide; two, with their hands and a funnel, pump blood from the shoulders; six men run over the half carcase to trim again; eight with scrubbing brushes and hot water wash the two halves; five wash the inside, and the cloths used are replaced every five minutes; others wash the neck and shoulders; others saw the back-bone; others scrape the inside; four men wipe with a dry cloth; then off the half carcasses are pushed to the chilling room, which will hold 13,340 sides.

The temperature was 38 degrees when I was there. The floor was all sawdust, and passage after passage of meat I walked through. The best meat is exported to England for the reason I have already mentioned. The horns go for combs and handles, the hoofs for buttons, the hides for leather, the blood goes to a factory, where it becomes paint, or clarifies sugar; the intestines may be utilised for sausage casings or by putty makers or gold beaters. Nothing is ever thrown away.

It was but a stroll across a road to Libby McNeill's place, from where three-quarters of the canned meat in the world is despatched. More wonders!

It would have been interesting to have watched a pig run in at the end of a tube and come out as two dozen pork pies at the other. But that is not yet, though it will be, no doubt, before many years. But here again everything was being done at a pace which had the swiftness of a trick. All that was ingenious, that required skill, was done by machine. All the hundreds of men and thousands

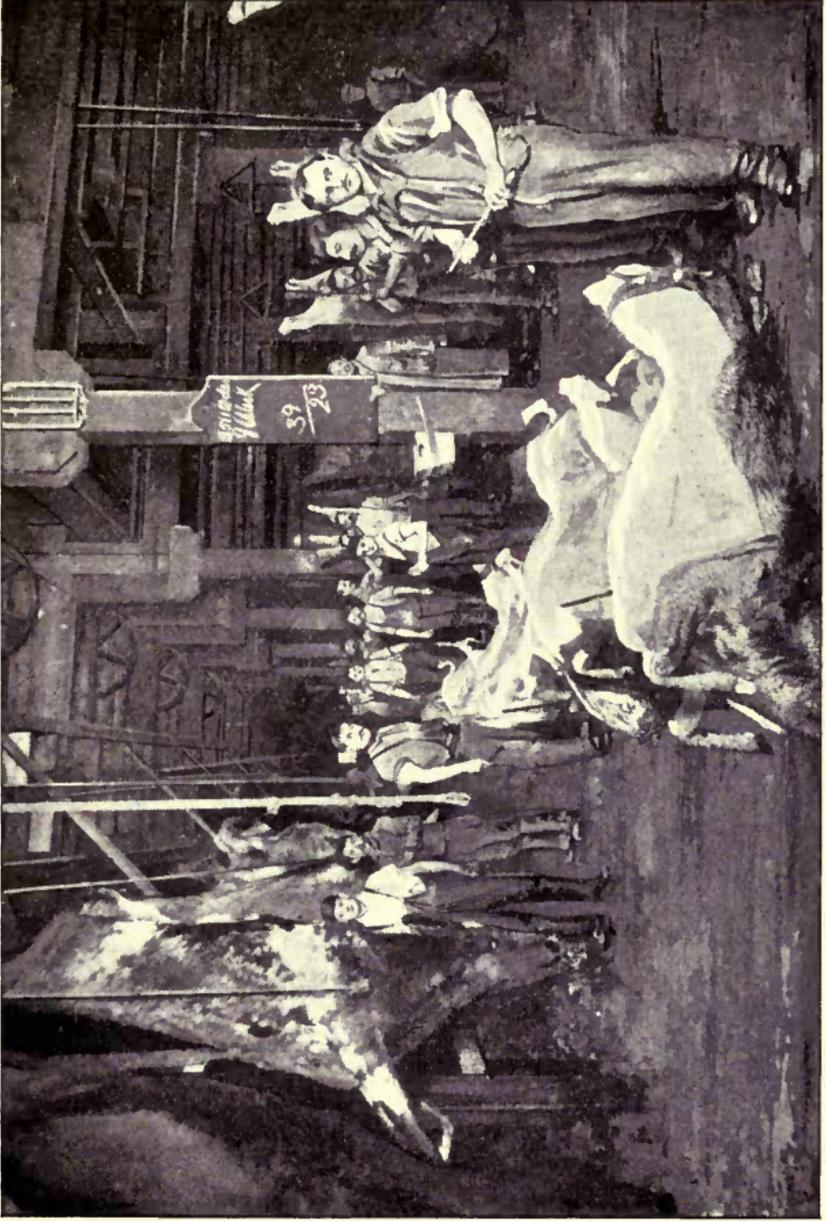


Photo : Thompson Photo Co., Ltd., Chicago.

REMOVING HIDES.

THE
MUSEUM
OF
THE
CITY OF
BOSTON
1850

of girls had to do was to play attendant to the machines.

Have you seen a cutter slice swedes in a farm-yard? At Libby's you can see hunks of dried beef subjected to a similar process by an electric-driven machine, and shaving slices of meat as thin as wafers. The meat is put on a travelling band, and slowly goes past a regiment of girls, who have stacks of glass jars by them. They seize one or two nice leaves of meat, and with deft fingers pack it neatly against the inside of the glass. That is for appearance sake, to make the jar look nice. Once that layer is arranged, a handful of meat is seized and jammed in with fingers and thumbs till the pot is filled. It travels on. Other girls affix a cover; others put on labels; others wipe the jars; others wrap them up.

We have all had beef tea—the old-fashioned honest beef tea that has simmered on the kitchen fire by the hour. At Libby's is to be seen the modern Chicago method: three tons of meat and blood at a time. In a huge boiler, and through little trap doors of glass, the dull fluid is shown on the bubble. The extract is run into little pots, takes on consistency as it cools, and is then “an ox in a tea cup,” or something equally interesting.

We have all had a stir at a Christmas pudding. That is an event of the year. I saw the stirring done at Libby's with iron arms, automatically, and girls with all sentiment squeezed out of them—for they were paid according to the amount of work they did—patting out cakes of the sad-looking mix-

ture, wrapping them up in delicious coloured paper, and tossing the parcels into boxes.

In the kitchen a string of tins crawled past a crowd of girls. They put a savoury-odoured fluid called soup into each, threw in a handful of collops, and let the tin pass on. Somebody placed lids loosely on each. The slap of a machine fastened the lid on. The can ran along, fell on its side, and the edge rolled through a little bath of solder. It passed into a glass chamber. A hole was punched; all the air in the tin was extracted; a drop of lead fell on the aperture and made it air-tight. As though possessed by a little demon each can ran up a fence, went gliding among a maze of machinery, and when it was seen again had been automatically painted. It rolled on again brightly blue, and the next sight of it was with a bright ribbon of a label round its waist.

A curious, but striking and apparently paradoxical fact, is that the prosperous pork and beef businesses of Chicago do not pay. Take the figures for 1901. The total expenses of the packing houses were £150,244,848, made up of such items as 136 millions for material, 5 millions for rent, 80 millions for wages, and so on, and the actual amount produced by sale of meat was just £124,263,998. Yet on the year there was a profit of £6,767,638. How was the big deficit turned into a big profit, and the £32,748,488 made up?

Simply by the utilisation of the by-products. As I have said, nothing is ever lost. There is not an ounce of a dead animal thrown away. As to the



Photo : Thompson Photo Co., Chicago.

PREPARING PORK FOR THE MARKET.

much-regretted uncaptured pig's squeak, I am sure Swift's would give a high royalty to anyone who could devise that it be used for political purposes, or be converted into a child's toy, or a motor-car horn.

Of the 32 millions, 12 millions were drawn from lard, 3 millions from oils, nearly 7 millions from hides, more than a million from fertilisers and wool, and the other millions are contributed by a hundred other products.

In the slaughtering of swine at Swift's was to be seen the working of the ingenious American mind. Save labour and get all you can done by machine; push men and machines to their top speed; waste little, and what is considered waste turn into something that will make dollars!

Huge businesses, "on the side," as they say in the States, are growing up as the result of using by-products. Swift's have an enormous soap factory. In one place I saw ten mighty tanks, each boiling 250,000 lb. of soap. When cold the soap was cut out in chunks the size of a lodging house wardrobe. It was pushed through machinery and cut into slabs. The slabs were sliced into bars. The bars were divided into 1 lb. blocks, the thump of a machine stamped the names on, and girls at the tables looked as though they each had four hands from the way, with a pull, a push, a twist, and a shove, they had the cakes wrapped and packed in boxes.

There were fancy toilet soaps, nicely curved and trimmed by machinery, and there was the wool soap,

of which Swift's are very proud, which floats, and on a hundred affidavits they are prepared to swear prevents wool from shrinking.

Then there was the dairy, where butterine or margarine is made from beef fats. This was another great business to itself. Men drove spades into the butterine—made actually of 40 per cent. oleo oil, some cotton-seed oil, and the rest milk—and sent it flying down a shoot, when men seized handfuls, threw it to a machine that turned out two-pound pats and dropped the pats before girls, who wrapped them neatly. All butterine sold in Illinois State must be labelled as such, and being in the main white, makers have to pay a 10 per cent. duty if they add colouring matter to make it look like real butter. Swift's I found very cock-a-hoop with themselves, for they had discovered a means by which, without using colouring matter, they could obtain a rich yellow tint, and so provide their customers with something that looked like butter. And the look of a thing counts far more in America than it does in any other civilised country.

These great packing houses have choked the ordinary butchering business. A butcher cannot utilise many by-products. A packer, however, can sell the meat of a steer for less than he paid for the animal and look to the by-products for his profit.

And these packers, who can stow hundreds of thousands of sides of beef in the huge ships fitted specially with refrigerators, have not only their eyes on the British meat markets, but their hands.

The control of one of these concerns is not busi-

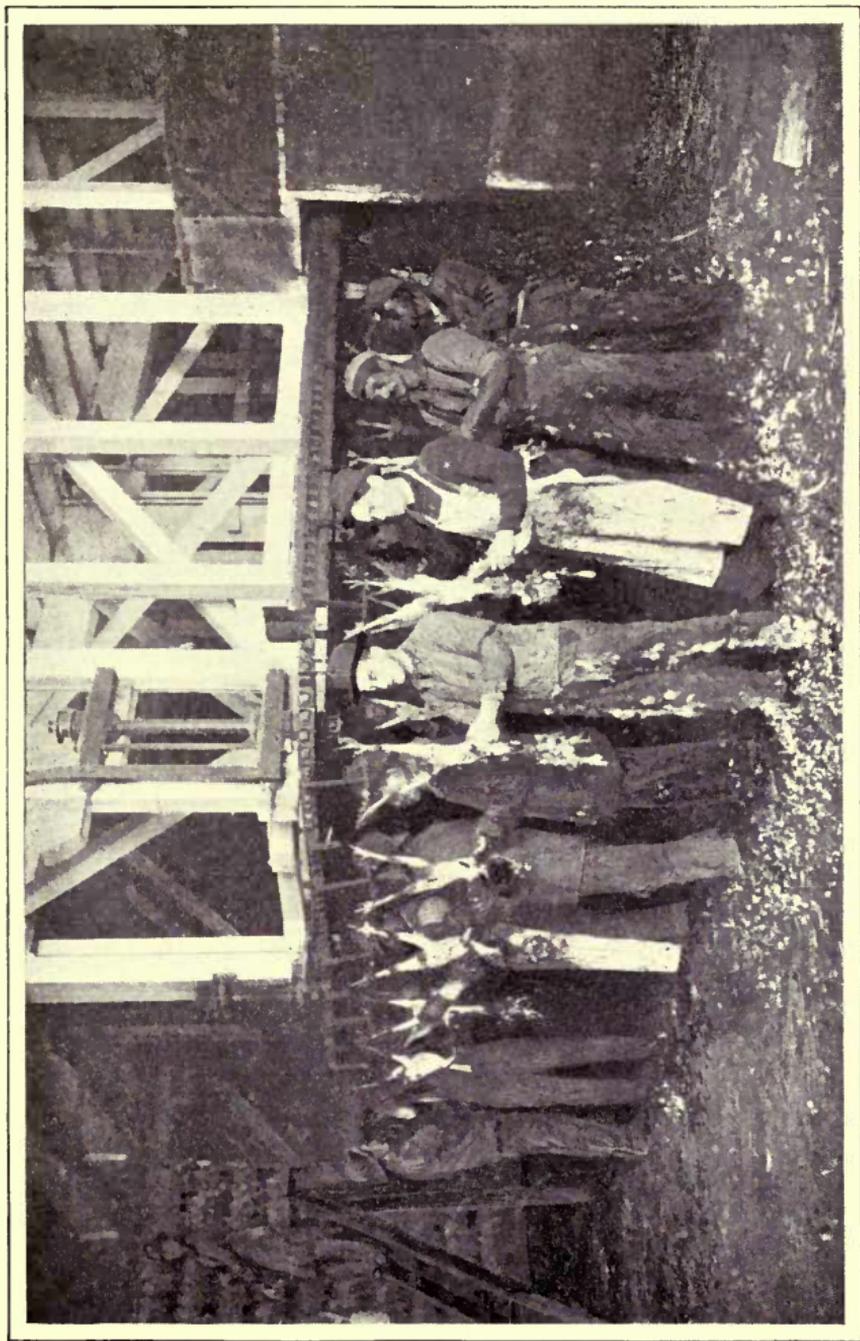


Photo: Thompson Photo Co., Chicago

DIVISION OF LABOUR IN
PLUCKING FOWLS

1875

ness; it is generalship. An eye must be kept on the cattle-breeding of Mexico, and another eye on the London market. The tariff question must ever be kept in view; the value of skins not lost sight of; railways are to be bullied or conciliated; economies are to be made, and prices cut.

The battle is fierce, relentless, and all the small traders are crushed out of existence.

CHAPTER XIV.

METHODS OF BUSINESS IN CHICAGO.

FOR months the hoardings of Chicago bore the legend, "Watch those footsteps!" Whose footsteps, what footsteps, and watch them where?" was the enigma.

"Who's Griffiths?" the conundrum that years ago puzzled the brains of Londoners, was not half so "catchy" as "Watch those footsteps!" It was a phrase that slipped into the public mind, and dropped easily from the tongue.

It was the satire of the street urchin upon podgy Teutonic gentlemen from Milwaukee who puffed along Dearborn Street, with toes pointing a quarter to three. It was the comment of the "men about town" who, standing by the hotel doors, saw pretty damsels pass. It was the "gag" of the "high-class Vaudevilles."

Everybody knew "Watch those footsteps!" was some dodge. But curiosity was piqued. Suddenly one morning, as Chicago was panting to business, it noticed that inset in the pavement of several streets were brass footprints. They led to the shop doors of a big firm of shoe dealers. Chicago chuckled, and the big firm got an advertisement. Then some wags took to decorating pavements with footsteps from offices of acquaintances to drinking saloons, from the saloon to another, from saloon to saloon, with an

increasingly tottering gait, and ultimately brought them to somebody else's doorsteps.

Advertisement by dodge is more prolific in Chicago than in any other American town, and that means a good deal. There is a school for advertisers, where business folk who want their imagination stimulated are instructed how to make announcements attractive and induce the readers to visit shops. The chief thing is to wheedle women. The women, however, go, not really to buy—just to look! Getting them to do that is the first essential—the rest is easy.

American shops, especially the huge dry goods stores, understand feminine nature "right down to the ground." There is no worrying the ladies to purchase. But the shopkeeper knows that if he has nothing that will send the customer into a rapture and readily part with her five-dollar bill under the impression she is securing a bargain, it is about time for him to give up business.

The advertising department or "publicity department" of a great American business, be it a big railroad or a shoe factory, is far more important than in England. The chief is usually a journalist who gets anything up to £2,000 a year to arrange the style of advertisements. Money is freely given to anybody with a happy, novel idea. Firms vie with each other in paying for advertising novelties. The advertising manager of one firm told me he always set Monday and Tuesday apart to see folks with ideas. His visitors on those two days were often as many as a hundred and fifty. Rarely, however,

were more than 2 per cent. of the suggestions any good.

“Standing advertisements”—the same, week in and week out—Americans will not look at. This remark does not apply, of course, to advertisements that consist of a catch word in regard to a biscuit, or a cigar, or a patent medicine. It does, however, apply to ordinary advertisements. These are altered every day. Too much is not put in: the practice of saying the same thing fifty or sixty times, which is not uncommon in English advertisements, is avoided. The custom is to boom something particular and distinct.

The method of dry goods stores is easiest as example. One day the whole advertisement will relate to jackets. There will not be huge chunk letters saying So-and-so is selling off at an enormous reduction: that is a crude way. The American advertisement calls attention to the chill weather and the comfort of having a warm coat. It draws comparisons between the cost of a coat and a doctor's bill. It points out how refined are this season's designs, how stylish and how comfortable. It probably says something about how the coat is made, where the wool comes from, how a special representative has been to Europe to report on the latest pattern. Easily, gradually, it plays on the mind of the reader until towards the end there comes the blunt, almost bluff, honest statement that Messrs. So-and-so have made a special study of ladies' coats, that quality and not cheapness is their aim, yet by a tremendous sale they are able successfully to

compete in price with every other firm. All this is written with skill and knowledge of human nature. To-morrow Messrs. So-and-so may be making a special line of hose, or "shirt-waists," or parasols. But always the advertisement is interesting to read, quite apart from the wares offered.

That is where the American advertiser is cleverer than his British cousin. The British trader prepares his advertisement for those who want his goods. The American trader prepares his so that a newspaper reader will find as much entertainment in the advertising columns as in those devoted to the recording of events. It is worded so as actually to *create* a demand for the article advertised.

The American spends more than the Englishman in advertising. One firm told me that when they had special sales on they spent as much as £800 on advertising in the Sunday papers.

If you want to witness the effect of an advertisement in a Sunday paper visit the great store of Marshall Field in Chicago on a Monday morning, and see women, crowded, squeezed, perspiring, hustled, ravenously eager to get to the "bargain counters." There are crushes at drapery sales in London. But, by comparison, they are processions of church-goers alongside the Rugby scrimmage I have watched in a Chicago dry goods store on a Monday.

There is a firm in Chicago, Montgomery Ward & Co., that has a unique business, trading with all parts of America, and not a few parts of the world by catalogue and post. They have no shop. They

have a catalogue. You pay 7½d. for that catalogue, which is as big as the "London Directory." Montgomery Ward & Co. spend 1s. 1d. in postage sending it to you.

There the American business genius peeps through.

"We're not going to give you a book which, with postage, costs us 4s.," they say practically, "but if you mean business and contribute 7½d. we will contribute the rest." From the catalogue you select anything you want, as from an Army and Navy Store list. You send the money, and Montgomery Ward send you the goods.

The curious part is that you cannot walk into the block owned by Montgomery Ward and buy a coal scuttle. They may have a dozen coal scuttles on the place; but they are not for sale. They are samples to show dealers from the country.

Such a firm would probably not succeed in Great Britain. The distances are too small. Distances in America, however, are enormous, and there are millions of people who live on isolated ranches, or in villages hundreds of miles from any town, where plush rocking chairs, and sewing machines, and gramophones, and canned meats, and a thousand other things cannot be obtained. These are the kind of people for whom Montgomery Ward cater.

Countryfolk get hold of a catalogue with its thousands of photographs of shoes, and saddles, and dinner sets, and ready-made clothing, and carpets, and books, and pianos, and select what they want. That explains why the firm often get as many as

30,000 letters a day. I was taken into the office where these letters were received. The clerks were girls. Their work was simple. It was to see that the orders were intelligible, to make out the several items for departments, and mark the instruction slips so that all the goods met and were forwarded in one consignment, and to see that the money was correct and sent to the cashier's office.

The question I naturally put to the manager was whether there was not grumbling sometimes at an article not being what was expected, and folks wanting their money back. This, of course, was so. But I was told that the firm made it a rule, if there was the least complaint, to ask for the goods to be sent back, the firm paying carriage both ways, and then the money returned in full without any deduction.

"This business," said the manager, "prosper on confidence. We cannot afford to lose a customer. If we lose him because he is discontented he is certain to make it his business to cause discontent in others. We are often imposed upon. Now and then we repudiate liability. But when something is wrong because the customer is ignorant, or careless, or disappointed, it isn't worth our while, for a dollar or two, to get his bad opinion. We try to be straightforward in our catalogue, and every customer knows that if there is an accident he won't suffer by it."

It was typical of Chicago—up to the elbows in business—the sight in the departments of this store, with about two thousand five hundred employees; hundred of typewriters clicking everywhere; twenty-two elevators shooting up, dropping

down; five endless conveyers carrying goods to the packing rooms; and sixty-five telephone instruments ringing all over the building. I was told the firm has two million customers. I was taken into a room stacked with index cabinets, so that it was easy to find out what dealings the firm had had with Farmer Hayseed, who was not quite pleased with the mower sent him.

The correspondence of such a business is colossal. Confusion, however, is avoided by system. Everything goes through particular hands. If there is any doubt, there are always men to provide decision. Should anything go wrong, responsibility can be directly traced.

Time is too short in Chicago for letters to be sealed in the old-fashioned way with a lick of a damp sponge. They are shot through an ingenious machine at a hundred a minute and come out sealed.

Time is also too short in Chicago for a ton of letters to be sent to the Post Office an hour or two before the closing of the mail so that the stamps may be cancelled. What Chicago firms do is to buy from the Government a few thousand pounds' worth of cancelled stamps. One firm recently bought £5,000 worth of pre-cancelled stamps. In July of 1902 the Chicago Post Office cancelled and sold 2,339,800 such stamps—and July is an "off" month. Behind the Chicago Central Post Office is a little building with a printing press that runs ten hours a day cancelling stamps. A sheet of a hundred is cancelled at a time.

This system of saving an hour or two a day by

selling cancelled stamps in Chicago has been in existence less than a couple of years. Yet at present over sixty big firms have received the permission of the United States Postmaster-General to purchase and use them. Last year £100,000 worth of cancelled stamps were sold in Chicago. In the busy season Montgomery Ward & Co. buy from £700 to £1,000 worth of stamps a day.*

“What do you do with all the stamps sent you in payment of orders?” I asked.

“Well, a good many are used for postage purposes. But the majority we sell to stamp jobbers, or anybody who comes to buy, at a discount of from 2 to 5 per cent., according to the number we have on hand.”

Time is also saved in not sending the letters or goods that go by post from these great stores through the Central Post Office. The mail bags are made up in the stores themselves. A post official is present, and all goods addressed and stamped (cancelled) pass under his eye. If he has a doubt about sufficient postage, he has the package weighed. Then the firm make up their bags to particular States, and deliver them sealed right to the mail train.

All this is a saving of time. And yet, strange though it may seem, the United States Post Office is as slow as that of Russia.

Again and again it struck me what a land of

* In Great Britain we have marking by the Post Office of a hundred thousand letters at a time without the use of stamps at all. But we have no such plan as America has for packages.

contrast America is. With much that impresses the foreigner because of alertness and ingenuity, there is also much that surprises him because of inefficiency. I have had experience of postal systems in full two dozen countries, and those of America and Russia I place on a par.

To the Briton, with a postal system that is wonderful in excellence, with letters hardly ever missed, it is irritating to go to the United States, where even in New York and Chicago the collections are not half so frequent as in Leeds, or Birmingham, or Glasgow, or any other big provincial town. Besides, you can never count on a particular delivery, and letters are constantly lost. There are no little post offices attached to other businesses, which we find so convenient. If you want a stamp you must go to the central office, or to a stationer, who "obliges" you. The post boxes are insignificant and cheap, usually fastened crookedly to a drunken pole. There is no parcel post.

The British Post Office department invited the United States department to join in our excellent and cheap parcel post system. But America wouldn't. The British Post Office, however, was not going to be restrained by American antiquarian methods. An Englishman can send a parcel to America at a small cost, and the British Post Office pays an American express company to deliver it. The American has no such advantage if he wants to send a parcel to England.

But the thing beneath contempt is the telegraphic system of the United States. The lines do not belong

to the Government, but are private corporations. I have had better experience with Chinamen in far western Yunnan province than I have had with Americans in New York State.

Slovenliness is a mild word to apply to the average telegraph operator in America. Slowness does not express how very slow the United States telegraph companies really are. The charges are absurdly high. We British folk have often reason to grumble at our Post Office and telegraphic system, but we are fifty years ahead of the United States. On the other hand, in regard to the adaptability of telephones, the United States is a generation ahead of us. The Chicago man sits in his office and does business over the 'phone lying on his desk. He gets switched on the long-distance telephone, and he talks to a firm at Cleveland. His wife rings up the butcher and the baker each morning and orders the daily supplies. So much is done over the 'phone that the writing of a business letter is almost a lost art.

The Chicago man—and, indeed, the remark applies generally to Americans—is in so mighty a hurry that when dictating he is thinking of something else. So he is diffuse, roundabout with his explanations, and frequently incoherent. I know men whose dictated letters are clear, concise, and wholly relevant; but they are the exceptions.

Business, however, is good; money is everywhere; there is nothing in the day-time for the loungee to do; everybody seems young and enthusiastic and determined. There is the exhilaration of rush.

When a man is forty and has not made his pile it is time he moved out of Chicago. A man is middle-aged at thirty. At thirty-eight he may ooze dollars or be slouching beneath the pines at Los Angeles, with a nervous system all wreckage.

There are hundreds of things disgusting about Chicago. The "brag" is enough to make an ordinary man ill, did he not possess a touch of humour and take himself into a corner now and then to laugh. The ostentation which slaps you in the face, makes the blood hot, and then sends a shiver down your back, suggestive of somebody walking over your grave.

Manners, however, are things the true Chicagoan openly admits he has a contempt for. Courtesy and refinement are things that do not count. What does count with him is energy, long-headed business foresight, getting the better in every business deal, being able to make money and plenty of it.

It is right to judge people from their own standpoint. And considering Chicago men from that one standpoint of money-making, there is no doubt they are the keenest from the Atlantic to the Pacific.

Men go crash to bankruptcy. But there are no long faces. They are up again more eager than before. Men's brains are strained till they snap. Like a rocket men soar to fortune; like a squib they splutter to the dregs of society, and clean out saloons. But Chicago is so buoyant, so optimistic, so thrilled with virility, that only success counts. Failure is something that happens to other people.

I admit the fascination of life in Chicago. It

brushes the stranger as it has impregnated the resident. Look, however, in the eye of the young Chicagoan of twenty-four who is "plunging" in real estate, and you see the glint of the gambler's desire. Men work hard—too hard! Employers do not sit in their offices grumbling at the evils of trade unions. Partners don't play cricket; they do not hunt; they have no week-ends in the country. They have their shirt sleeves up from seven in the morning till six at night. If trade unions are in their way they set about to smash them. They give better wages and wider opportunities to non-union men. They talk to the men straight. There is no sentiment on either side. "Duty" is not a word in the American business dictionary: "Dollars" is. They don't talk to men about what is right and fair. They talk to them on how they can make more dollars. They don't whine about losing trade. If there is trade to be got they've to get it, and never mind who goes smash.

Chicago is the city where, if you are a dullard and have no ambition above being a clerk or a salesman, the wages are less than in England. But Chicago is the city of the strenuous life. There are no bounds to accomplishment save a man's own ability. It is the clever man who wins.

In ten years the number of factories in Chicago has almost doubled. The increase in business in the same time is from 135 million pounds to over 160 millions. Wages have increased 10 per cent.; cost of food has increased 40 per cent. The average wage for all Chicago—poor women who get a penny a pair for sewing trousers, and managers of firms who

get £20,000 a year—is about 38s. a week. House rent in Chicago is three times as much as in a large British provincial town.

Chicago is the best city in the world to achieve success in. It is the worst city in the world if the fates are against you.

And why is it that a man in Chicago, if he has energy, brains, and good constitution, can make a fortune in ten years? Atmosphere has much to do with it—the air is so stimulating. The mixture of races, which spells alacrity of mind, and the fact that the mixture is among those who have had the courage to do and dare, and make the plunge, whether from Germany or Ireland, counts for much.

Environment is a factor. No man can crawl if everybody else is running. If he is not to be trampled to death he must run also. More than all, necessity must be reckoned. All the Chicago millionaires went to Chicago as poor boys. They became prosperous because they had to.

“Had to!” “Have to!”—put the phrase as you will—is the real secret of success.

One day I was chatting with a millionaire, a man who landed in Philadelphia from Hamburg on an emigrant ship, and I said, “Have you ever thought what was the cause of your becoming successful?”

“Often,” he replied.

“And what was it?” I pursued.

“Poverty,” was the laconic answer. “Poverty is the greatest blessing a young fellow can have. It makes a man of him.”

CHAPTER XV.

NIAGARA IN HARNESS.

FIVE years ago I sat for four days looking at the Falls; disappointed at first, then curious; then wide-eyed; then filled with a great wonder that grew into an awful dread as the terrible majesty of that avalanche of water laid hold of me while I stood drenched in mist, with thunder in my ears, and a hundred rainbows curving like frisky dolphins before my eyes as the breeze threw the spray into the sunshine.

On a beautiful September day I sat again on the same spot. It was still the fairyland of wonder with a giant geni as king. I had no desire to climb into oilskins and brave the Cave of the Winds. The adventurous little vessel "Maid of the Mist," that goes dipping prettily and impudently into the froth of the tumult, touched no lingering chord of daring in me.

The blandishments of photographers who wanted to photograph me with Niagara as a background—the finite posing before the infinite—were unsuccessful.

For I was filled with a big regret. I wanted to be certain of being alive in a hundred years. I wanted to see Niagara in 2002.

There is the sweep of water, green at the lips,

white and misty at the beard. There is the boom, the tumble of a mountain, there is the swirl of foam, and then the placidity of death as the Niagara River, buffeted with its fall, sore and winded, must rest awhile before it gathers strength again, and throwing dishevelled hair of waves to the black rocks of the gorges, and shrieking like the Valkyrie, tears in spume of anger till Nirvana is reached in the bosom of Lake Ontario.

But all this is not the really wonderful thing to-day. Much less will it be the wonderful thing a hundred years to come.

Man has grasped Niagara by the beard—only a few hairs, but tight, and Niagara is doing what man directs. A few years more—ten, twenty, fifty—and the Geni of Waters will be the humble slave. I would like to see that day. I would like to see the power of Niagara moving this way, that way, just as man may direct by the touch of an electric button. That is why, as I sat there—having seen but a thread thrown about Niagara's strength, a tiny 50,000 horse-power—I regretted that the picture of a century to come will not be for eyes of mine to see.

In the City of Buffalo, nigh thirty miles away, I had sat in my hotel reading and writing beneath the glow of an electric lamp. The power that furnished that light was Niagara. I went to the theatre, radiant with electric light—from Niagara. All the streets, the houses, the hotels, the churches, get the power that furnishes light—from Niagara. Hundreds of miles of electric cars screech and dance through towns and along highways. Niagara drives them.

By the edge of those highways, with sudden sweeps across fields and over broken country, I saw fat black cables stretching to this city, that town, to these works, those works, carrying the power of Niagara a distance of sixty miles.

Steam boilers to provide power to drive machinery—what an antiquated notion that seems! What are a thousand steam boilers in power compared with a passing brush from Niagara?

Sitting in a trolley car I rode at almost express speed—Niagara was the force that shot the car onward—for twenty miles from Buffalo to where a bit of Niagara was harnessed. The day was autumnal, with a touch of acid in the sweet atmosphere, clearing the palate, brightening the eye, and making the world a good place to live in. There were wooden shanties of villages, bedraggled and untidy—some day, but more than a hundred years away, I fear, America may have pretty villages, and not merely gew-gaw villas, which is the American idea of village repose—and long, tree-clasped avenues with the leafage ruddy and warm. On the left was Niagara River, broad and serene; behind, the smoke of Buffalo and black monsters of elevators; ahead, over the trees, white mist rising to the blueness of heaven—the breath of Niagara!

I got off at a low built, wide stretching, grey stone factory-looking place. There was the muffled buzz of mighty machinery. But two things struck me. Everything was clean, and the place had no chimney.

This was the power-house of the Niagara Falls Power Company.*

The place was nearly a mile from the Falls, but alongside the river, and the waters were already gathering their strength for the great leap. In a sort of courtyard was what looked but the mouth of a canal. It was two hundred feet wide, and narrowed towards the end. It lapped in a little of the river, just a sip of the flood, as a cat would lap a dairy pan of milk. The canal looked a "cul-de-sac." Yet the water was moving in a steady stretch of four miles an hour. It was overflowing into ten huge tubes, and fell gulpingly, with a weird splash, just 135 feet. Four hundred and forty cubic feet of water a second fell down each tube. It fell to darkness. It would not come to light again for over a mile, and then below the Falls. Mouths in the rocks there belched the water to the stream beneath. But each rush of water had done its work. Each of those ten tubes carried the power to drive one of the ten 5,000 horse-power dynamos.

I got into a lift. Down, down I sank, passing ten long galleries of machinery and blinking electric lights, till the pit was reached. An official gave a tug at a trap door. The ears were smitten with an angry roar. There was the water, fury impelled, racing seethingly, only a foot below.

There were the ten turbines generating electric power. The water passed them with an upward thrust—ingeniously, for friction was decreased, and

* Whilst this volume was passing through the press the power-house was destroyed by fire.

weight on the bearings was lessened. The engines were tuned, as it were, to 5,000 horse-power.

When the rush of the torrent becomes stronger the extra power works an automatic governor, and the automatic governor regulates the inflow of water. The governor is a sort of bearing rein on a spirited horse. The water is ready to dash at a rate which would send the machinery flying in splinters. It is allowed to go with the strength of 5,000 horses, and no faster. The constant quiver of the governor is the striving of the water to show what a force it has, and yet itself supplies the check so that the force may be regular.

Factories rise in storeys from the ground surface upwards. The Niagara Power Station digs ten storeys into the earth. Why? Because it is necessary to get a tumble of water, and because, when winter grips Niagara River with ice, water can be drawn from beneath the frosted shield. That is why the station seems only one storey high.

I went into the great hall on the ground level. It was big, airy, and clean, as though it were a giant model of a real thing. Standing in rows were ten dynamos. Such dynamos!

They were as big as the conning towers on first-class warships, black and sinister. The sound was like the wrath of ten million unhoused hornets. It was a buzz with the sing of a knife cutting through. Each dynamo weighed 75,000 pounds; each generated an alternating current at a pressure of 2,200 volts, and at the rate of twenty-five cycles a second.

So uniform was the song of those ten whirling

giants that in a couple of minutes, when my ears became accustomed, the feeling of silence somehow took possession of me. There was something eerie about the scene. Over in a corner sat a raw youth reading a newspaper. I saw a man some way down the hall rubbing a piece of greasy waste over a small dynamo used for exciting currents. Another man was idling about, but with an eye on the generators. That was all.

There was Niagara in the grip of machinery, giving power to work railroads, to drive mills, to light towns, and practically nobody to attend! There were no furnaces, no stoking, no boilers. The place was as cool as an art gallery. Everything was spotless. Everything was driving at high speed.

Fifty thousand horse-power was being generated. But there was smoothness everywhere—it seemed the apotheosis of electric machinery; and they say electricity is yet in its infancy!

The dynamos not only provide 50,000 horse-power to distribute for sixty miles round about, but do other things to save labour even in regard to themselves. All the machinery is oiled automatically. If cleaning is needed, it requires but the pressing of a button, and a rush of compressed air clears every particle of grime away.

The whole thing is worked by the pressing of buttons. Push in one button, and compressed air switches one of those 5,000 horse-power dynamos into silence. Let your little daughter of five pull a toy-like lever, and she has removed the harness from Niagara, and the machinery with a throb and a pant

will settle to rest. Let her pull the lever again, and millions of gallons of water that would have leapt over the rocks go down those ten great tubes and provide power that is actually bringing towns into existence, that is causing manufacturers to bring their plants from far off and set them within reach of Niagara, a power which illuminates a city, drives hundreds of trolley cars, and abolishes boilers and furnaces from fifty factories in the country round.

There are other companies that have harnessed a little of Niagara, but I mention the Niagara Falls Power Company because it is the giant with a capital of piled-up millions, but has yet paid no dividend because the policy is far-reaching. The profits have been enormous; yet every dollar has gone to the further development of the company's plans.

Niagara Falls a year or two ago was but a village of hotels and souvenir shops, living on the constant throng of tourists. Niagara Falls is now a big manufacturing town. Many thousands of horsepower are used in the workshops of the town, all supplied by Niagara.

I confess that when I first went to see the harnessing it was with qualms. I expected to find the grandeur of the avalanche marred, and the torrent diminished. That was an idle fear. What is taken from the falls is a spoonful from a bucket. It is taken a mile above the cataract itself. To turn the falls to commercial value raised visions of grimy, smoke-smear'd factories. There I had forgotten. Factories are springing up, but they are clean, well-built, and they have no chimneys. There can be no

smoke. A cable runs past, and from that is tapped all the power required to drive the machinery.

The Niagara Falls Power Company has the right, under a charter, to take sufficient water from the upper stretch of Niagara River to produce 200,000 horse-power. At present it uses one quarter of that power; within this year it will be using half; it is inevitable that before long it will use every allowable ounce, and be seeking more.

I have said the company is long-sighted. Here is an instance. It has acquired about two miles of river frontage, and over eleven hundred acres of adjoining land. All this is reserved for the location of industries that will use electric power. Again: When the company started, it—or the distributing companies dependent on it—intimated it would charge so much for installation of power or electric light, and then so much a year, and the people could use as much or as little as they liked. Nowhere in America was electricity so cheap. When everybody had got nicely fitted it was announced the electricity would be measured by meter and charged for accordingly. I asked one big firm what effect that had on them. The answer was: "Under the old plan, when we could use what we liked, we were careless. Under the new system we are careful. We now shut off power, and we shut off light, whenever not wanted. We don't use half of what we did before. But we pay twice as much for it. Oh, yes, that's a smart company. They know we are not likely to go to the great expense of putting in a fresh installation and going to another company."

Another instance: a residential village, called Echota, has been laid out close by, especially for the employees of tenant companies. The houses are neat and bright, the streets broad and clean, the lighting is free. There is an inducement to workpeople to live there. Ergo, there is an inducement for firms to start in the locality where, comparatively speaking, there is no vast expenditure for acquiring driving power, and no necessity to build houses for the work-people.

I looked round the district to see what works were benefited by the harnessing of Niagara. There is a paper-mill turning out 120 tons of paper a day. The water for household consumption in the town of Niagara Falls is distributed by pumps electrically driven. One firm uses 5,000 horse-power for the production of aluminium by an electrolytic process. Several big electro-chemical companies use it. A hook and eye and fastener company has all its machinery plied by electricity. At Tonawanda, half way between Buffalo and Niagara, a railroad line running to Lockport, about twenty-five miles off, uses electricity for its engines. The public schools are ventilated with fans driven by the same electricity.

In the City of Buffalo itself I visited the main distributing station, supplying light to the streets and residences and power to drive the magnificent cars. The great elevators by the river edge are worked by electricity. The horse-power is divided into so many units; the touch of a button sets this or that motor working; grain and cereals are swung out of the ships that have traversed the great lakes,

stores the produce, and at the right time loads the railroad cars for distribution over the eastern States. The machinery in the office of one of Buffalo's newspapers is driven by the same electricity. Several big iron and steel and general manufacturing works use electricity instead of steam. There is a place called the Schoelikopi Building, tenanted by a crowd of small manufacturers. In the basement are three motors. The manufacturers use what power they want, and turn off the tap, as it were, when they want no more. There is no cost of keeping a boiler. A firm of biscuit and cake manufacturers now do by the pulling of a switch what required a double shift of men maintaining steam and running the engine. At the Buffalo dry docks, where steel vessels for the great lakes are built, the riveting, the shearing, and the punching is all done by electricity.

And so on and so on through a catalogue of works. There are no furnaces, no boilers, no smoke. A man starts the motors in the morning; he switches them off in the evening. Nothing more.

And it is but a wisp of the rushing waters of Niagara that does it all.

Across the river, on British soil, is the Canadian Niagara Power Company, erecting ten motors of 10,000 horse-power each. Another concern, the Ontario Power Company, is about to raise a plant of 100,000 horse-power. Hamilton, forty miles away, will be utilising Niagara within three years. Within ten years the streets of Toronto, nearly ninety miles off, will be lit with electricity generated by Niagara.

As I saw what was being done, how what is little

other than a sluice from a river is revolutionising and cheapening methods of production, I felt enthusiasm for the future begin to steal over me. But there is enough marvellous reality arranged for immediate years to take interest out of mere brain-spun pictures.

I talked to a man who had taken part in the first move towards harnessing Niagara. People at first were sceptical, conservative, inclined to hang back. The work has now jumped beyond what may be called the experimental stage. In the last five years a wonderful change has come over the countryside. Not only are old-fashioned works discarding steam and adopting electricity, but whole businesses are being transferred from other parts of America to the banks of Niagara River, where cheap power can be secured. Within ten years Niagara will be furnishing a minimum energy of 500,000 horse-power.

Do we realise what half a million horse-power means? One horse-power is the energy requisite to lift 33,000 lb. one foot per minute. All Buffalo City, with its electric cars, factories, elevators, lighting, and the rest, only uses 25,000 horse-power.

Already millions of American dollars are ready to be thrown into schemes for further using Niagara to man's benefit. Were every work-shop, every house, every plant within forty miles of Niagara to use electric energy it is computed some 300,000 horse-power would be necessary. Schemes are now on foot for providing 500,000 horse-power.

And that is just a point which brings out the

difference between the Briton of to-day and the American of to-day. The Briton would supply the power as it is required, and then tardily. The American provides the power, and is then ready to offer it so cheaply that men will transfer their works from other regions so that they may use it. The supply will create the demand.

Are there no limits to carrying Niagara's power? Will it some day kill pigs in Chicago and toss you by elevator to the thirty-second storey of Park Row Building in New York? At present there are limits. The price of copper decides them. After about a hundred miles the cost of the copper cable is such that the charge made for the electric power would be greater than steam-generated power. But there are those that believe that, on the Marconi system, the day is not far off when the power of Niagara will be thrown practically any distance without the use of wires at all.

The certain future, however, of the country round Niagara, on United States and on British soil, is no industrial dream. Niagara Falls, a wonder and a picture, is ceasing to be a holiday site; it is becoming a worker. Its energy is boundless. And a hundred years from now, when electricity has got out of its infancy and Niagara is harnessed to its last pound, what will the region round about look like? When I sat in the spray, and my ears were numbed with the roar of crashing waters, I put that question to myself, and again I regretted I would not be there to see.

CHAPTER XVI.

THE AMERICAN WORKING MAN.

HE is part British, part German, part Irish, and the other part of him is tinctured with polyglot Swede, Italian, and French-Canadian. His pride is to own a good broad-sounding English Saxon name, except when he owns a Scotch name, and then he has "a guid conceit o' hissel," knows Burns by heart, reads Ian Maclaren and J. M. Barrie, and dresses his sons in kilts.

The British-American is proud of his forebears. All other Americans are "Dutchmen," or "Dagos," or—well, this paper would blush pink if I wrote how he speaks of the Irish.

The American working man is a cross-breed; he is transplanted from one soil to another; he is reared in a hot-house atmosphere that makes him bright, alert, inventive. He is all nerve, and his womenkind are all nerves.

There is a greater difference between British and American working men than is thought. We would notice it more if we spoke different languages. The American generally treats the English language badly. His grammar is as crooked as the tower of Pisa, and he avoids the use of the letter "u" in colour, favour, humour, savour, and such words, as though it were inoculated with hydrophobia.

He has a pretty taste in simile. He is witty and

playful, just exaggerative enough to make the contrast striking. As a journalist I would give two fingers off my left hand to have the wealth of imagery with which the average American decorates his speech. He swears. It is not the stereotyped oath of the London 'busman, but original, sparkling, and sarcastic. He chews and he spits. He prefers cigars to pipes, and pays 2½d. each for them. They are green, and, to the British tongue, vicious. If he is where he cannot smoke he bites two inches off a rank cigar and chews it. No place is sacred to him.

He is bigger, better made, deeper-chested, clearer-skinned than the Englishman. He looks healthier. But he isn't nearly as strong. An ill-formed, scraggy-legged, puke-faced, no-chested Cockney will, in the matter of stamina, knock the American into a wreck.

Though the simile is a little strained, I might say the American is the racehorse in work, while the Briton is the carthorse. The racehorse will go faster, but the carthorse will carry a bigger weight and stand more racket. The American lacks patience and doggedness. He works under excitement with strong impetus. Alongside him the British working man is a hobbler. But the American is soon played out. That is why, in big industrial concerns, you seldom see an old man.

As a rule, he is a tall fellow, loose in the limb, and a mixer. A mixer, in America, is one who readily mixes with his fellows. He is cheery and good-natured. The good-nature, the streak of humour that is in him, goes some way to counteract

the strain under which he works. See the gates of an English factory open at mid-day, and out will stream a crowd of men, most of them serious visaged, a little anxious, hurrying to dinner. See the gates of an American factory open, and out come a throng of grown-up school boys, "jollying" and "joshing," and taking life easily.

If you want to find the worn man, you must find the head of the business. He is the captain, the man who has all the responsibility. There is no sparkle in his eyes, and there are lines on the cheek, and often tufts of grey hair over the ears.

Notice the contrast between the two lands. In Britain the healthy, fresh-faced man is usually the employer, and the weary, sad-eyed man is the employee. In America the employee is filled with frolic. It is the employer who is tired—just tired, just worn out, just living to work, racked with worry, as many a man confesses.

An American working man is sprightlier than his fellow on this side. There is the spice of adventure in him, and he will cease to be an engineer and become a saloon keeper, and stop his business as a watch-maker and take to farming, or cease to be a parson and branch out as a "drummer" (*Anglice*, commercial traveller) just because the fancy touches him. You don't hear, "Well, I've got a wife and children, and for their sakes I put up with a good deal." The American will put up with nothing. He is just as good as his employer. He may be a bigger employer himself in five years. He is "a free-born citizen of the United States," and his desire to show

his independence frequently causes him to be objectionable. He is rude, however, without any intention of being offensive. It is just a way he has. He means no more than the Yorkshire operative whom the Londoner accuses of being brusque.

The American gets a real honest joy out of working. He is optimistic. He has a magnificent belief in his own abilities. Whatever he reads in the newspapers about work is to prove what a fine fellow the American is and what a sluggard the European is. He likes that. He won't buy a paper that doesn't tell him he belongs to God's own country. There is enthusiasm in the air. Success is within the reach of anyone who has the brains.

In the workshops the pace is marvellous. I saw how the whirl of machinery, the exquisite mechanism which does away with labour, the music of the machine, made the men throb with ardour.

There was lots of pride. The men loved doing things quickly. If a specially dexterous workman turned out twice as much as other men, there was no talk about his going easier to keep level with the others or the employer would think they ought all to turn out as much! I lost no opportunity of investigating whether there was a tendency to restrict output to balance wages. To say I never heard of such a thing in America would be inaccurate. It does exist, and I believe the tendency is growing. But, in a generalisation, I can say it hardly exists. A clever workman earning high wages causes emulation; other men look up to him with admiration, and there is a sporting effort to do more work, a struggle, with

fun and skill in it, waged for the extra dollars it means at the week-end.

Man for man, in the quality of the work turned out, the Briton is the superior of the American. But these are times—quite as much in England as in America—when quickness, cheapness, temporary effectiveness, count.

A legitimate criticism made against American goods is that they won't last as long as British. But they last long enough for their purpose; they are cheaper, and new ones can be bought. That is why labour-saving machinery plays such a part in America.

I believe the American is not such a good artisan as his cousin on the English side of the water, chiefly because he is not called upon to turn out the same quality. The skilled workman is not required. What is required is, first, the man who can devise fresh labour-saving machinery; second, the labourer who will do one little routine thing year after year, and do it expeditiously. And in both of these things the American is ahead of the Briton.

Though the American working man gets more wages, yet by extra dexterity and the use of machinery he turns out things that can compete successfully with their counterparts produced in Europe, where the wages are lower, but where machinery is only an aid, and not the chief factor. The American employer, therefore, gets his labour cheaper in the net result than does the British employer.

Again, a British employer is often at the mercy of his workmen, who may insist on increased wages

when he has a contract on hand—though probably he has only succeeded in getting the contract at a price based on existing wages—because he is unable to get other men to take their place if a strike be threatened. His is a skilled trade. The American, however, can often snap his fingers at his men, because if there is any trouble others can be brought in, and they, in a few weeks, with their American adaptability, will pick up sufficient knowledge to produce by machine what can be done by the skilled British working man only after years of training.

Trade unions are strong, and their strength is increasing. On the whole, the way they are regarded and conducted in America is more sensible than with us. Generally speaking, with the usual exceptions, union men do not refuse to work with non-union men. Because a man does not belong to his trade union no dead set is made against him. It is a free country; a man can do as he likes. He is possibly regarded as a fool for not belonging. But there is no question of strike. Unionists and non-unionists work side by side.

On the other hand, employers do not make a set against union men and refuse to employ a man who is a trade unionist. They have not much need to bother their heads about trade union difficulties, because in the majority of trades they call in outsiders, boys, who would do the work almost as well in a month. What the American employer wants is smart, energetic workmen, and he does not care whether they are unionists or non-unionists.

In a word, the industrial progress of America is

a progress of machinery. In the last fifty years the number of wage earners has multiplied five and a half times, wages have multiplied ten times, but, most remarkable of all, the value of products has multiplied thirteen times. This means that now a workman turns out a product two and a third times as valuable as his predecessor did half-a-century ago. That is a fact of which he is pardonably proud.

The end of inventing labour-saving machines is not yet. It proceeds at a marvellous rate. Hundreds of thousands of workmen are displaced. They move to other jobs. Frequently, however, the introduction into a firm of a new machine that does twice as much work as the old machine leads to an increase of workpeople instead of a falling off. The firm is able to turn out so cheaply that they get ahead of others in competition, and the mass of orders comes to them.

A complaint by English manufacturers is that their workpeople resent the introduction of large quantities of labour-saving machinery. That complaint is never made in America. Facts are accepted, and the work-people know perfectly well that machinery is really best for a big trade. Another thing is that so many of the inventions, the little changes, come from the workmen themselves.

I have said to many an American manufacturer, "Are the improvements suggested by your workmen?" The answer has invariably been, "Why, certainly; that's what pays best. Any boy can do the work required, but what we want are brains which devise newer and better methods."

I have put the same question to English manufacturers, and the reply has been, "We hardly ever get a suggestion from one of our workpeople."

I am loth to think the British workman lacks the alertness of brain which recognises advantages. But the different relationship between employers and men has something to do with what I have narrated. With us there is a lack of that freedom, even cordiality, that exists in America. An English workman stands just a little in awe of his employer. He is afraid of being thought presumptuous; above all, he wants to avoid being snubbed.

This is what I have seen in America. An employer who was taking me round his works at Cleveland stopped to criticise the way a man was doing something. The man turned on him, and for five minutes the air scintillated with ruddy words as each tried to show the other was an ass. The workman was certainly impudent. I stood on one side and smiled. Afterwards I said to the employer, "No master in England would allow a man to answer him back as that man answered you."

"That's all right," I got reply. "I would have thought nothing of him if he had done just what I wanted. But you see he had an opinion of his own; he has ideas, and that is the useful man in works like these."

A workman calls his employer "boss," but does not look upon him as his master. "Master" is a word you never hear. The relationship is almost that of partners, but with not the tittle of an ounce of sentiment in it. Each party is pushing his hardest

for most money, often becoming antagonistic, but generally level-headed, and having straight talks with the other, and not losing sight of the point that they are both in the same business, and that they cannot hurt each other without hurting themselves. Employers don't keep their men at a distance, and the men have not the slightest hesitation about approaching the "boss."

The American working man is bound by no traditions. He works hard, but he doesn't know he is working hard except by comparison with Europeans, and Europeans he guesses to be "back numbers," and too slow to be buried.

He hustles. Everybody hustles. An Englishman, who declares he is not such a fool as to kill himself with a pace like that, finds himself unconsciously, but nevertheless most certainly, hustling by the time he has been a few months in the country. Hustling is in the air. I never met an American who did not prefer to do things at a rush and under severe pressure. To suggest that the Englishman, by going slower, produced better work, simply awoke a contemptuous smile. Anyway he is always ready to work hard. He loves the dollars. The young mechanics through the technical schools of America. College men go into works and labour alongside illiterate immigrants, knowing watchful eyes are on them, and that progress will be rapid if they are any good.

Life is hard. Many workmen go to the wall. The principles of work are materialistic. There is no philanthropy, no consideration for old servants.

It is a struggle for the survival of the industrially fittest.

The British workman I know thinks no small beer of himself; but he is modesty itself alongside the American. Across the Atlantic the American is first, and the rest of the world nowhere. He is a great "blow-hard"—to use his own word.

Wages can only be reckoned by their purchasing power. Therefore, while the American working man undoubtedly earns more than the Briton, he has to work harder, and he has to pay more for the necessities of life—in the case of house rent about three times as much. Of recent years wages in Chicago have increased 10 per cent.; but the cost of food has increased 40 per cent., so the working man is worse off than he was five years ago.

In a restricted way the same thing applies to all the United States. I have some Government figures before me which demonstrate that while the total amount now earned by workers is 23.2 per cent. ahead of ten years ago, the number of workers has increased 25.2 per cent. The average wage has decreased 1.5 per cent. in ten years, and the general increase of price for articles of consumption has increased 1.8 per cent. So there is a decrease of 3.3 per cent. in real wages, or the purchasing power of a day's work. Striking an average on the last ten years' figures, I find, taking America as a whole, that wages are on the decrease, whilst the cost of food is on the increase.

CHAPTER XVII.

THE MANUFACTURE OF BOOTS AND SHOES.

NOT one per cent. of the people in Great Britain fail to pay a toll of some sort to America for the boots they wear. If not manufactured wholly or in part in the United States, the boots are in some way or other dependent on machinery made in America, or the makers pay a royalty to an American patentee. You cannot enter a single shoe factory in England without finding that the principal labour-saving machinery is American.

American boot and shoe shops are to be found in most British towns of any size. If you take a walk along Regent Street, London, you can see seven shops selling American shoes.

English folk have no predilection in favour of things American. But they have taken to wearing boots from the other side of the Atlantic because they are either better or cheaper. American shoe factories are bursting with work ten months in the year. English factories are running short time, and some have to put up their shutters. The Massachusetts shoe operative is making fifty shillings a week with almost constant work. The men of Northampton make fifteen shillings, and are doing well if they make twenty-five shillings. The export shoe trade of America to Great Britain is bounding ahead. Take the Board of Trade returns for 1902 as evidence.

It is only five or six years since American shoes began to appear in considerable numbers in English shop windows. There was a serene smile, with a glimmer of contempt behind it, at so foolish a suggestion that American competition would ever make a huge British industry quiver. The manufacturers of Northampton, of Leicester, of Leeds, said it was a passing fad, and that one winter would demonstrate to Englishmen how unserviceable American boots were. But it didn't.

When the invasion had set in and the English maker began to be really hurt he showed an inclination to throw the blame on the home workman. He accused him of being unsteady and slow. Also he decided pernicious trade unions had much to do with his being unable to compete with the American. They restricted the output. After that he realised that labour-saving machinery accounted for more than he reckoned. To get level he began adopting American methods. Then the British shoe operative, seeing the introduction of contrivances which would make shoes cheaper and quicker, and naturally with fewer workmen, went on strike as a holy crusade against the bread being taken out of his mouth. The men in one town "demonstrated," they paraded, they hooted, they threw mud at works where American labour-saving machinery had been introduced.

The English manufacturer was dull witted; the English operative was stupid and short-sighted.

Meanwhile American manufacturers were turning out a first-class article, neat of shape, and pleasant to the foot. When the American understood

that a boot one size might be just a little bit too tight, and the next size just a little bit too loose, he didn't say, "Well, those are our sizes," but he took to making half sizes. He was adaptive. To-day every American factory turns out shoes in half sizes. Again, the American manufacturer realised—which, somehow, the English manufacturer did not, till afterwards—that everybody has not the same proportioned foot. So now each size boot is made in half a dozen different widths. And that is the secret of the American boot fitting well. Englishmen have had to fit their feet to new boots; and we can all recall experiences of that operation.

"It pinches a bit on the instep," you may have said. You remember the reply: "That will be all right when you've worn them a few days." Americans taught English makers to turn out a boot that would be all right at the start.

In London I said to an English dealer, "Why don't you have English boots in half sizes and varying widths, like the American. You would be able to give a better fit."

"Yes," he replied, "but just think of the enormous stock I should have to carry!"

I went round the corner to an American shop. "Have half-sizes and varying widths much to do with the big sale of American shoes?" I asked. He smiled at my apparently puerile inquiry. "Well, yes, I guess so, sir," he said. "We carry four or five times the stock an English dealer does; but then, we sell six or seven times as many boots."

There, in the very heart of London, I got a sidelight of the characteristics of the two nations. The American was prepared to suit his customer, appreciating that that meant increased trade. The Englishman would not have a big stock because he had not a big sale. I fancy an hour's talk would not have proven to him the relationship of cause and effect.

Now nowhere in the course of my American journeyings did I find anything more interesting than the boot and shoe factories at Brockton, Lynn, and Haverhill, in Massachusetts.

First of all I tried to weigh in the balance the respective merits of the American manufacturer and the English manufacturer, the American workman and the English workman.

In regard to the manufacturers I met, they were, in business capabilities, infinitely superior to those in England. Let there be no mistake about that. They were awake. They had all the keenness of their brains focussed on their work. They knew all about the business from top to bottom. They wanted the very latest machinery, and never mind the price of the machinery that had to be thrown out to make room for it. They wanted each man to put the last ounce of his energy into his work; they wanted every machine driven to the ripping point. They had their wits constantly at play to save the cost of a few workmen, to get work done by boys that had formerly been done by men; to get out an article not only good but cheap, and so "scoop" the market.

In regard to the merits of the workmen of the two countries, I will say this: if I wanted a pair of

boots made in honest, sterling workmanship—suitable, for instance, for climbing in Switzerland—and did not consider the price, I would choose the English bootmaker, because as an artisan he has not his equal in the world. The boots he can produce under such circumstances are beyond compare.

But if I wanted to name a man who had sense to understand what the strife in present day commercialism really meant, who knew the inevitability of labour-saving machinery, and therefore welcomed it, and made the best of it, that man would not be the British boot operative, but it would be the American.

To-day the English shoemaker is excellent as an artisan; he is second rate as a worker. The American is a worker, and nothing of an artisan.

Let me explain. American machinery has reached such a pitch of excellence that shoemaking is done by machines through a hundred operations, and all the man has to do is to put one part through a particular operation. A man will spend his whole life in holding up boots so that a knife can make a delicate curving cut on the inner part of the heel. He will do that with a rapidity that makes the Englishman a positive sluggard. But he cannot do anything else. He could no more fit a toe-cap nor attach a heel than I could. There the British shoemaker is his superior.

And there also is the dividing line—quite apart from alertness and dulness—between English and American methods.

The American manufacturer succeeds, largely, because he specialises, and it was he who taught the

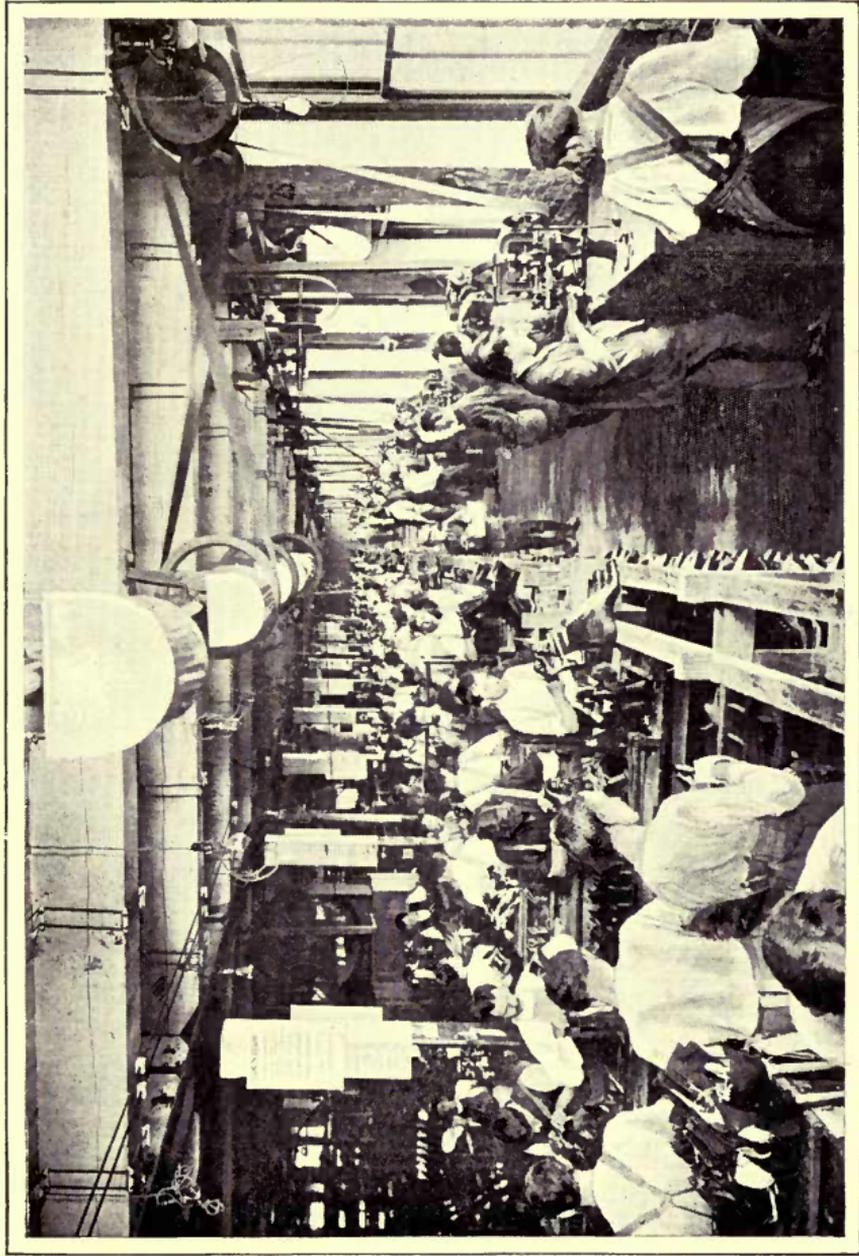
English shoe manufacturer (who provides the most notorious instance of toddling at the tail of the American for ideas) how to specialise also.

In the first place, he only makes one kind of article. There are practically no factories in America that make men's, women's and children's shoes. A manufacturer gets into one line and makes that kind of boot alone. One firm I visited made nothing but dainty, highly finished ladies' boots. Another firm made nothing but low walking shoes for ladies. Another made nothing but a stoutish serviceable boot for working women. Another made nothing but misses' boots—boots for girls between childhood and young womanhood. Another made nothing but ladies' shoes.

In the United States are 551 works that turn out between them over 68 million pairs of men's boots and shoes; there are 589 establishments that turn out over 65 million pairs of women's boots and shoes; there are 552 places that turn out over 42 million pairs of misses' and children's boots—each firm specialising on one particular kind of boot or shoe.

The manufacturer benefits enormously by keeping his employees to one kind of work. He knows a man cannot be so expert if he is making men's boots to-day, women's to-morrow, and children's the day after as he is when his work is limited, say, to moulding an inner sole of a lady's walking shoe.

Mr. Carrol D. Wright, the United States Commissioner of Labour, has analysed the different operations through which the factory-made shoe



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passes in its making, and gives the time needed to carry on the same operation by hand. He has taken a hundred as a basis. Take men's cheap grade, pegged boots. Hand made, they passed through 83 different operations; machine made, they passed through 122. Hand made, only two workmen were employed; machine made, there were 113. Hand made, the time spent in making those hundred boots was 1,436 hours 40 minutes. Machine made, the time was 154 hours 4 minutes. Hand made, the cost was \$408 (say 16s. a pair); machine made, the cost was \$35 (say 1s. 6d. a pair). These are American prices, but they are indicative of what machinery has done in the cheapening of labour. And the same thing runs through every grade of shoe.

It is within the last fifteen or twenty years that American bootmaking machinery has risen to the region of the marvellous. One morning I visited a factory a few miles outside Boston, where only first grade women's shoes were being made. I had not been ten minutes in the place before the remark broke from my lips, "Why, you've nothing but boys and girls working here."

"That's mainly so," replied the manager. "We don't need many men. We don't want men who have had an apprenticeship. Most of the things that have to be done here can be picked up in a fortnight. Boys and girls are cheaper than men, and they work just as well. We've over 75,000 pairs of boots under construction, and we send 7,500 out every day."

"Honestly now," I said, "suppose I put you to the test, how long would it take you, with the way

clear, to make a pair of boots from beginning to the end?"

"Well," he replied, "we tested ourselves not long ago, and from the leather to the finished article, ready for wear, the time was just seventeen minutes."

That may make an English manufacturer cry "Phew!" But everybody works on the piece system in America. Individual workers have to do but the tiniest fraction of the necessary labour. For instance, a man's medium grade calf, welt, lace shoe, single soles, and with soft box toes, passes through the hands of 371 work people, many of them girls and small boys. And it is not to be overlooked that the employment of men in the American shoe trade is decreasing, whilst the employment of women and children is on the increase.

Let me try to convey how a saunter through a New England shoe factory impressed me. There was the great unpicturesque building humming like a hive with machinery. I looked down long aisles of whizzing, buzzing, screeching contrivances worked by boys and women, and every one of them doing their little part with an adroitness and alacrity that was amazing. There, as in other works in other parts of America, the suggestion that slipped into my mind was that a competition was on, and everybody was driving their hardest to earn the prize. I could understand people working at that rate for half an hour and then stop fagged and worn. What I could not well understand was how delicate, nervous young women kept at it week after week. Lots of them would tumble out from physical ex-

haustion; but for the couple of years that the majority can undergo the strain, their hands move so swiftly that I found myself frequently dawdling, attracted by their speed. In these works were employed 1,000 women and 1,500 boys, and the manager told me that within the last twelve years the employment of women had increased quite 50 per cent.

From the beginning to the end I followed the making of the shoe. In a top room were the cutters (*Anglicè* "clickers"), who were thrown tickets describing the shoe required. With a switch and a curve a machine blocked out the vamp. Another man shaped the vamp. Another cut the tops. The side linings, the stays, the facings, and all trimmings, were got together. Bundles were made, and a travelling screen carried them off to the fitting department. I saw one workman who for eighteen years had done nothing but cut vamps. Another had done nothing for ten years but run a machine knife round the edge of a rough sole. There were two gangs of men working close together; one gang did nothing but scour heels, the other gang did nothing but shave heels. There was a good deal of similarity in the work, but under the American plan none of the men were ever put to the other job.

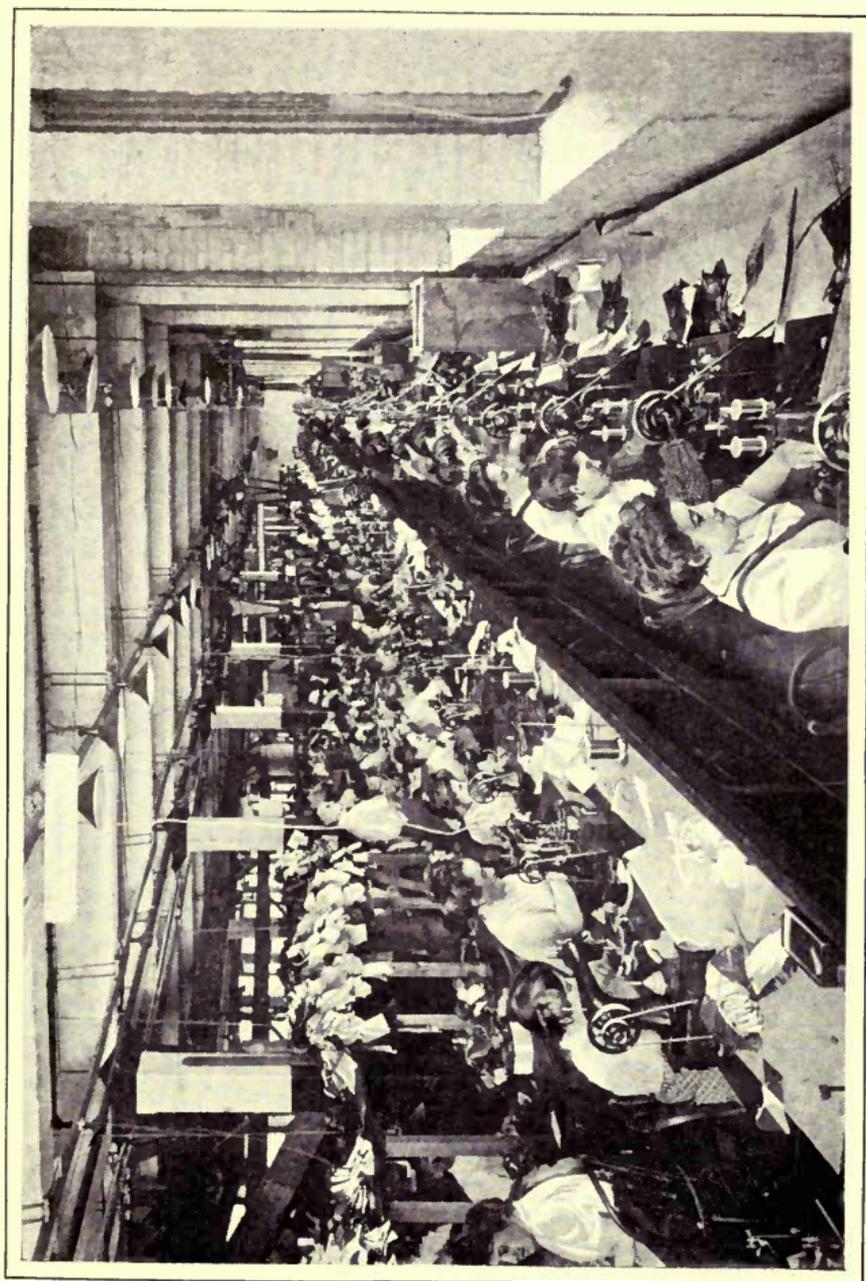
There were 125 cutters in that room, all toiling at feverish speed. Yet no confusion, for when they had finished they placed the sole on the travelling screen, and it passed on to the next room.

The only people hurrying about were boys with patterns, for though makers keep to one style, the

American wearer is rather fanciful in his and her ideas, and so constantly there are little alterations to tickle the liking of the public. On some bundles were red labels, "Hustle," and "Special Rush," an indication to the employees which work they were to take into hand first.

Have you ever seen buttons sewn on to ladies' boots by machinery? I saw a girl throw a couple of handfuls of buttons into a machine as though they were coffee beans. She set the machine working. She ran the side of a boot through an opening, and with a ravenous clicking it had fastened on eleven buttons. She told me that with this machine she generally sewed buttons on 400 pairs of boots a day—8,800 buttons in a working day. I saw another girl, not more than sixteen years of age, running the edge of a boot through a clattering sewing machine contrivance, and quicker than you can mutter the name of the proverbial Jack Robinson holes had been made and eyelets clamped in. She said she got through about a thousand boots a day.

A wonderful contrivance was the sewing machine. It has a double stitch lock, and one man can do the sewing of from 600 to 700 pairs of boots a day. Another wonderful machine was that which does the difficult process of "pulling over"—accurately centring the shoe upper on the last and securing it in position for the work of lasting. It is provided with pincers which close automatically, gripping the shoe upper at sides and toes. The pressing of a foot-lever draws the upper tight on the last,



IN THE STITCHING ROOM OF AN
AMERICAN BOOT FACTORY.

and secures it in position by tacks automatically driven.

Whether it was driving in nails, or shaving the heel, or emerying the sole, everything was done by machinery. And a machine was not allowed to do only one operation. I saw one machine moulding the shape of soles, and it worked on three shoes at once. A man inserted a shoe. He gave a push with his foot at a lever. A mould that had just cast out a sole came up, and the other sole was put under a pressure of forty-five hundredweight. All he had to do was to insert the sole. The gripping, the pressing, the releasing, and discharging, all followed automatically.

Around the works were walking "quality" men. They just strolled anywhere, picking up this and that shoe, seeing the quality of work was all right. There were "hustle" men, going about with nothing to do but keep people working hard, and seeing that particular orders were pushed ahead. There were "odd shoe" boys, whose duty was, when any shoes got out of place, or if one fell, to see they were put right. It was not for the workman to waste time putting shoes in their places. That was the function of the "odd shoe" boys.

There was no dawdling and wasting of time in getting to work. In the typical works I am referring to, a start is made at eight o'clock in the morning. But everybody must be within the gates at 7.55. An hour and a quarter is given for dinner, from noon to 1.15. But the gates of the factory are closed at 1.10. Every grain of work possible is got out of the

employees. As to the wages, the men make about 50s. a week, and women and boys make from 12s. upwards.

I found in American works more economy of time than in England. There was more evidence of well-thought-out methods. The men undoubtedly work harder, but if a man suggests an improvement in a machine so that it can do twice as much work when the contrivance is applied, it is not expected he will turn out twice as much at the old pay. He will be met by the manufacturer and given half the benefit.

The struggle in competition is fierce and merciless. But I found, with exceptions, good relationship between employers and employed. Often there is a big cut in wages. But the men know competition causes it, and with the masters they set their wits to work how to turn out more pairs of boots, and make up the difference that way.

With everything done by machinery, with consequent cheapness of labour, with an eye to accommodating popular fancy in the way of shape, with readiness to adapt himself to circumstances, with power to make a difficulty into an opportunity, the American shoe manufacturer of to-day has pitted his business capacity against that of his British cousin.

Is he going to win the game? Of that, however, I am not so sure. Just in the nick of time the English manufacturer has awakened from his sluggish complacency, and instead of pooh-poohing the American has rubbed the dust out of his eyes. That

has been, and will be, his only salvation. But in his half-hours of quiet thought does he not think there has been something lacking in that he himself has not been the man to show the world up-to-date boot and shoe manufacture?

CHAPTER XVIII.

COAL MINING.

MINING districts are much the same all the world over. When I made a trip from Pittsburg, in a grimy car with cracked windows and uswept floor, on my way to the coal beds that keep to the valley of the Monongahela River, it almost slipped my memory I was in Pennsylvania. I might have been in a South Yorkshire mining district. The country was not good to look upon. It was untidy. The villages were dirty and ramshackle. Indeed, when I came to make comparisons everything was in favour of the British mining village.

A coal company owning about fifty mines in a stretch of ninety miles had given me leave to go where I liked and inspect what I liked. So I found myself dumped at a woe-begone cluster of wooden huts on the river side, where mighty barges, seemingly an acre in area, were pressed to the water edge with coal, waiting for the river to get in flood, and then in long procession, with a little tug snorting ahead just to give them steering way, to float for two thousand miles down the Mississippi to New Orleans. The barges were nothing but nailed planks, and at New Orleans would be sold for old wood, as it would not be profitable to tow them back.

From a cut in the hills came a drunken little railway track, and the shriek of an engine warned me of clattering coal trucks that banged and creaked down the valley, ran upon a platform over the river, and pitched the coal into the huge maw of a barge.

Then I climbed into the cab of the engine, hot and greasy, and the driver with a load of empty trucks behind him "let her go." She was a rickety old engine, and kicked. When crossing a wheezy trestle bridge she lurched, and I expected a sudden descent to the brown, iron-stained bed of a dried-up rivulet below. The driver, a young fellow, who proceeded to eat a cigar I handed him, was used to it all. "Do you ever go off the track?" I asked. "Not very often," was his reply.

At heavy gradients the engine panted hard. We stopped for half-an-hour at a saloon so that the driver and fireman might drink beer. There were patches of houses as though thrown down anywhere. Where there were fences they were broken. There was no attempt at gardening. The women folk were as slatternly a lot as I have ever seen. There was no roadway, only a crooked humpy cart track with foot-deep ruts in places.

I was about to visit a bituminous drift mine with no shaft, driven straight into the mountain side. Where the hill was too steep for the engine there were heavy wire ropes to haul the trucks up and let them down. There was a boring in the hill, and, as though one looked through a telescope from the broad end, a peep of light was to be seen far off. Through this tunnel a little delve in the hills was

reached. There was the heavy beat of the engines in the power-house. Beyond was the electric plant. Beyond that again the rails ran into a black mouth of a tunnel which swallowed a string of cars.

This was the Beck Run Mine, and as there is no fire-damp naked lights can be used. Having been provided with a smelly little lamp, I squatted in the bottom of a truck beside the superintendent of the mine, and away we went for a mile-and-a-half ride into the mountain side.

There is always something eerie and impressive about a mine. On either side the reflection of the lamp flickers danced on the coal face. Just above—that would bang the head if one dared to sit upright—was a roof of black rock. Once we halted, and the silence was like nothing that can be experienced in the outer world.

We came to an opening that suggested the furnace of a great ocean liner. Bulb electric lamps were everywhere. The roof was staged with iron bars. In front were two mighty ovens, blazing ravenously. This was the ventilation system. My back was struck by waves of icy wind. I had, however, to hold up my hands to save my eyes from the scorching glare. Two men, stripped to the waist, their coal-dusted chests trickling with sweat, heaved fuel to the flames.

On we went again, until we reached a tangle of cuttings, and orange tongues of flame danced from the little lamps fastened to the caps of the miners. Here, again, I was struck with the youth of the men. There were no old men; only a few middle-aged.

They were black with coal dust. They were not lacking in oaths, especially at the mules which brought the trucks from the workings to the main rail, which, it would seem, had all the vices but none of the virtues of the rest of the brute creation.

For a quarter of a mile I stumbled along a stone-strewn gallery to see some electric machines at work.

What a clatter! Intensify a million times the sudden running down of a blind, and you will understand something of the uproar. In what is called a "room" were two young fellows with one of these machines. They stuck its face against the lower part of the coal, and pulled a lever. Immediately there whizzed a chain with a hundred teeth, that cut through the coal, and ate its way in for about six feet in two minutes. The dust was so thick that one was obliged literally to fight for breath. The machine was run back, pushed along with a couple of props, and set to work again.

A machine which, under the charge of two men, can win ninety tons of coal a day compares well with the English method of working by hand with the pick and shovel. But these electric appliances can only be used in mines where there is no gas. Where there is gas it is customary to use pneumatic machines.

"With six men using the pick we could not turn out as much as one of these machines and two men can," said the superintendent. "No," he added, "they are not specially trained. They are just lads

who worked in the mine and picked up the use of the machine."

About $2\frac{1}{2}$ d. a ton is what the men who work the machines are paid. The men who load the trucks—and they are expected to keep the ways clear and remove all the slate waste—get, as a rule, 2s. 3d. a ton. An eight-hours day is a practice. There are no "play days." There are no Saturday half-holidays. Men work a full six days a week, and their wages are from £3 6s. to £3 12s. But often for a month, or even two months, there is no work at all. So the average wage falls considerably.

While there are many shaft mines, the majority of the American mines are drift. An English shaft will sometimes be near 4,000 feet deep, but an American rarely goes below 200 feet. While Great Britain has a coal field of 9,000 square miles, the American coal-bed is 222,500 square miles.

Man for man, the British coal miner turns out only 300 tons a year compared with 526 turned out by the American. For the same price an English railway company charges to carry a ton of coal an American line will carry six tons. Whilst an English truck with ten tons of coal is considered heavily laden, an American truck carries fifty tons.

The method of coal working is much the same as in England. A tunnel is driven through the seam, and then chambers are opened up right and left, with pillars of coal left to uphold the roof, and these are not removed till a seam is exhausted. They are then gradually cut down and the coal sent to the surface,

whilst, as the work recedes toward the shaft, the roof is allowed to fall in.

There are no general mining laws. Each State in an authority unto itself, and what is legal on one side of a fence is sometimes a crime on the other side. In Pennsylvania every mine is obliged to have a second means of escape should the principal shaft become impracticable. There are other laws, admirable because they are stringent, but I regret to say not always put in force. The great coal-barons, as they are called, have various means by which they can be ahead of the law. Until quite recently it was the custom of many mines to have stores, where the families of the colliers traded, and on pay-day the money owing was deducted from the wages. This was the old pernicious truck system. It forced the miners to deal with the mine stores, often placed the food regulation of the district under the control of the coalowners, and provided a grip on the men themselves. Now the colliery owners are obliged to pay their men in coin at least once every two weeks.

There is a law that no boy under fourteen shall be employed in a mine, or under twelve outside a mine. There are some 40,000 boys employed about the anthracite mines, or one in four of the total employees, and thousands of them are obviously under fourteen and twelve. The employer evades responsibility by getting an affidavit from the parents that the child had passed the legal age, and the parents, eager for an extra dollar or so a week, lie readily. An inspector who inquired into the age of a batch of boys, who seemed younger than their recorded age,

told me that in nine cases out of ten cases inquired into there had been lying. Children of twelve are to be found in the Pennsylvanian mines—a cruel thing.

A Pennsylvania mining village always looks as though the blessings of heaven were specially kept from it.

The miners' trade unions are strong, but with nothing of the strength possessed by the British unions. Besides, the leaders have not anything like the confidence of the men such as Thomas Burt or "Mabon" have in England and Wales. There are too many instances of agitators having their mouths closed with bundles of green-backs. That every man has his price is believed in by Americans. That a man's silence should be bought is regarded as a business deal. That honour should be thought so easily purchasable struck me as a much too common trait in commerce.

Half a generation ago, if you went into a Pennsylvanian colliery, the majority of best workers would be found to be British. Now there are hardly any. I got among a body of 250 colliers, and inquired how many were British born. I found one—a Welshman. Miners to-day are chiefly Hungarians and Poles, and Slavs generally. They are cheap, and they have the endurance of mules. They are far beneath the average for intelligence. Their manners are unwholesome; their personal habits are vile. Uncouth, uneducated, they overload the labour market in the anthracite district, and while there is good money when work is good, the production is in spurts, and there is many an idle week.

The second great American coalfield lies within the prairie plains of the Mississippi valley. The coal is exclusively bituminous, a good steam coal, but not much good for the purpose of cooking or gas-making.

Here, I must say, the conditions of labour are better. By far the larger percentage of workers are of Anglo-Saxon race and English-speaking, and they have the best classes of work, and nearly all the machinery is in their hands. But the Hungarian has wandered into this district also, and, as he is a good worker and cheap, he is putting the higher-priced labourer at a disadvantage.

The trade unions are captains of the situation. In Iowa employers and men meet once a year, and draw up a contract of wages for the next twelve months. Now and then big companies break loose and fight the unions, and win. But this does not affect wages. In the non-union mines the wages are the same as in the union mines. Mine owners make no distinction between union and non-union men.

“All we ask is that a man shall be a good worker,” is their plea. There is, however, always trouble when the unions attempt to dictate what men the owners shall not employ. But I found that where the unions were strongest, where wages were high, the hours short, there the quality of the work and the quantity of coal turned out were decidedly below other districts where what is called “free labour” prevailed. On the other hand, I must say that in such States as Kansas and Missouri, where the big companies defy the unions, the conditions of work

are unsatisfactory, and the wild scamper of competition makes pay bad and employment irregular.

Roughly it costs in the western coalfields about 5s. to produce a ton, for which the miner gets about 2s. 10d. It is calculated that coal sells at the pit mouth from 5d. to 7½d. above the cost of operating.

While the general conditions of mining labour in the States are inferior to those in Great Britain, largely, as I have shown, because of the passing away of any large need for expert pitmen by the wholesale introduction of machinery and the inflow of Hungarians, and while in intelligence and habits of life the British miner is, in American jargon, "out of sight" compared with the Pennsylvanian coal earner, I found among the coal owners and the managers—as, indeed, I found everywhere among heads of departments—far more business eagerness and faculty for swiftly re-arranging things to meet altered conditions than I have noticed among Englishmen of corresponding position.

Business is not friendship. You are doing the American no injustice in saying he is unblushingly unscrupulous if it suits him. He resents the use of the word, I know, but I speak of him in comparison with employers I have met in other regions of the earth. He knows the other man is trying to outwit him, and the clever man, the man who wins applause, who is the commercial idol of modern America, is not always the man of integrity, but too often the man who outwits the most and has the biggest bag of dollars.

But putting all sharp practices on one side, and

regarding the handling of coal from the point of energy, finding new outlets, adaptability to circumstances, the American has a hundred things to teach the Briton. Coal is not an easily handled freight, and over long distances will be carried at the rate of one-sixteenth of a penny a ton per mile. A modern coal truck carries fifty tons. Indeed, coal from the Pennsylvanian fields has been delivered in Italy at 6s. 6d. a ton.

A large output per man, low wages, up-to-date machinery, combinations of mine owners and railway owners and ship owners, together with the push and bustle which would reduce an Englishman to a wreck in a month, is laying the way for America to actively compete with Great Britain in the coal markets of the world. America has well passed us in the output, and, excepting in India, no coal in the world is produced at a lower cost. Striking averages, it costs 6s. 4½d. to produce a ton of coal in the United Kingdom; in the United States it is 4s. 5d. At present the United States consumes 250,000,000 tons of coal, and Great Britain consumes about 175,000,000. The American coal output has doubled in twelve years. And so it will go on, the American getting the upper hand, unless British mine owners show more business adaptability, and our miners work harder.

Yet the Americans are paying a big price for their success. I recall sitting among half-a-dozen men who were waiting to go into a pit. They were young fellows, most of them, but pale and worn, and with the tiredness of the long-worked on their fea-

tures. There was energy about them, but it was feverish; they drove at their work, for that was a necessary condition to earn a livelihood. But none of them would ever become old in years.

A friend took me to the office of a coal magnate. He was very kind and friendly, but he was pale and pinched, and his eyes were the most wearied I have ever looked into.

“What’s the matter?” was asked.

“Oh,” he said, with a sigh, “I’m tired; just tired; just so tired I would like to crawl into a hole in the ground and shut it behind me.”

I made some remark about the fascination of controlling an enormous industry. He smiled.

“Yes,” he said, “I used to feel like that—when I was younger. Now it has gone. But the anxieties, the rush, the worries—they are more than ever. I cannot sleep at night because I have my business to think of. I wish I was a farmhand with just my work to do, and when it is done nothing more to bother about.” He sat with his head leaning on the palm of his hand. “Yes. I’m just tired out. I wish I could go away for a rest,” he said in reverie.

CHAPTER XIX.

ELECTRICAL WORK.

SOME day—far off, but not altogether visionary—it will be possible to go into a great engineering shop which will be a maze of machinery, with huge cranes gliding and swinging overhead, and below black monsters of intricate tools. But with only one man in sight.

He will sit before a little instrument not unlike a typewriter. There will be the click of a button, and one of the cranes will rumble along in obedience; another click, and a stream of spluttering fire will flow into the nozzle of a casting; another click, and another, and many clicks, and the metal will take shape and pass on to machines, cunning and wonderful, which will file here and affix there, and from the door of the far end of the engineering shop will pass out one of the marvels of the world, a dynamo with the power of the fabled genii, awful in its completed strength.

This was the picture that formed itself in my mind's eye as I stood on the bridge overlooking the main aisle in the works of the Westinghouse Electric Company, lying in a dreary, bleached valley within a dozen miles of the smoke-shrouded town of Pittsburgh.

There were more than six thousand people about

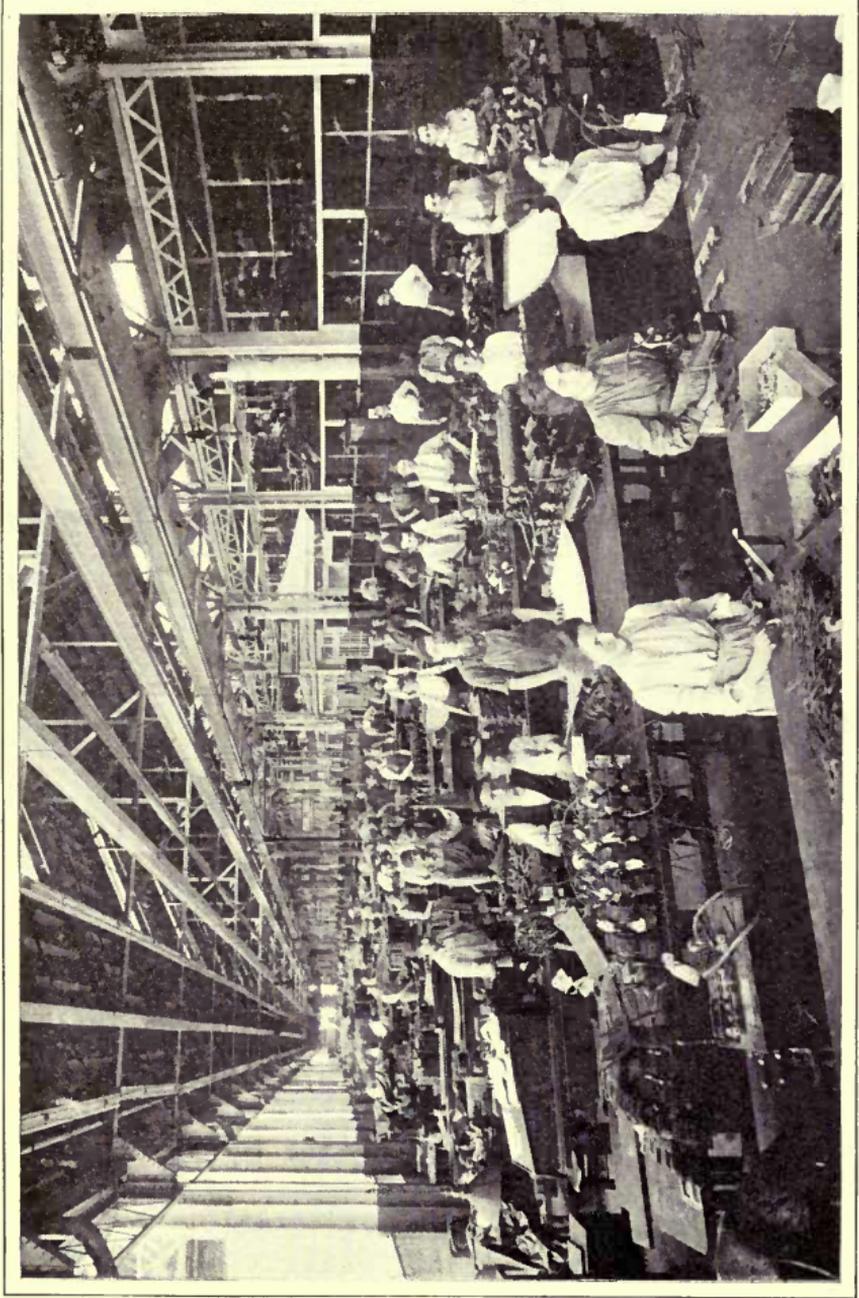
the plant, but from that point, with a quarter of a mile long shop stretching to haziness below me, it was as though I had dropped in when work was practically over, and only a sprinkling of men remained to tidy things up. Yet the place was in full swing of labour. Big machines were busy, biting a way through steel, carving delicately with chisel-tooth a perfect circle, carrying completed work, and depositing it on one side. There was something grand in the silent, Cyclopean strength of it all.

I remarked on the absence of men. "Yes," I was told, "we pay men to look after the machines. But it is the machines that do the work."

Two days I spent about these Westinghouse electric works. To me, more wonderful even than the wit of man which, with quaint devices, has captured the mysterious, terrible power called electricity, was the way the harness, as it were, was being fashioned by other machines.

It was in the Westinghouse shops I realised, without the shadow of a doubt, that the old order of toil is absolutely passing away, that the great worker is the machine, and man only an overseer. And when I fully understood this, my mind skipped to the future, and I saw the man sitting at the typewriter-like appliance, and I heard the click-click-click, and every click meant that something was being done mechanically which formerly had taken dozens of men to accomplish.

They speak of George Westinghouse in Pittsburg as "an old man." He is old only according to American reckoning. He is fifty-five. Thirty years ago



BUILDING TRANSFORMERS AT THE
WESTINGHOUSE WORKS

George Westinghouse was a "dirty mechanic" on a United States warship. To-day he is the head of twenty-five companies with an aggregate capital of £20,000,000, and employing more than twenty thousand people.

He is the typical specimen of the American at work, a colossal man physically, a storehouse of energy, a man who doesn't know what rest is, and who has his Pittsburg house near the railway, and on the railway his special car so that he may work with his secretaries whilst he dashes to New York; a man who, when he comes to England, is jokingly said to walk all the way, because, with only halts to eat and sleep, he tramps the decks up and down hour after hour.

I talked with his managers, his men, even his office boys; and his character—his contempt for dawdling, and his bluff "let me see work" attitude—stirred enthusiasm in them. His men say he has the quickest eye for ability. Experience and age count nothing with him. What he wants is brains.

"Where did you start in the Westinghouse Company?" I asked a young fellow of twenty-seven earning £1,000 a year.

"At the very bottom—doing cleaner's work."

"And what gave you your start to your present position?"

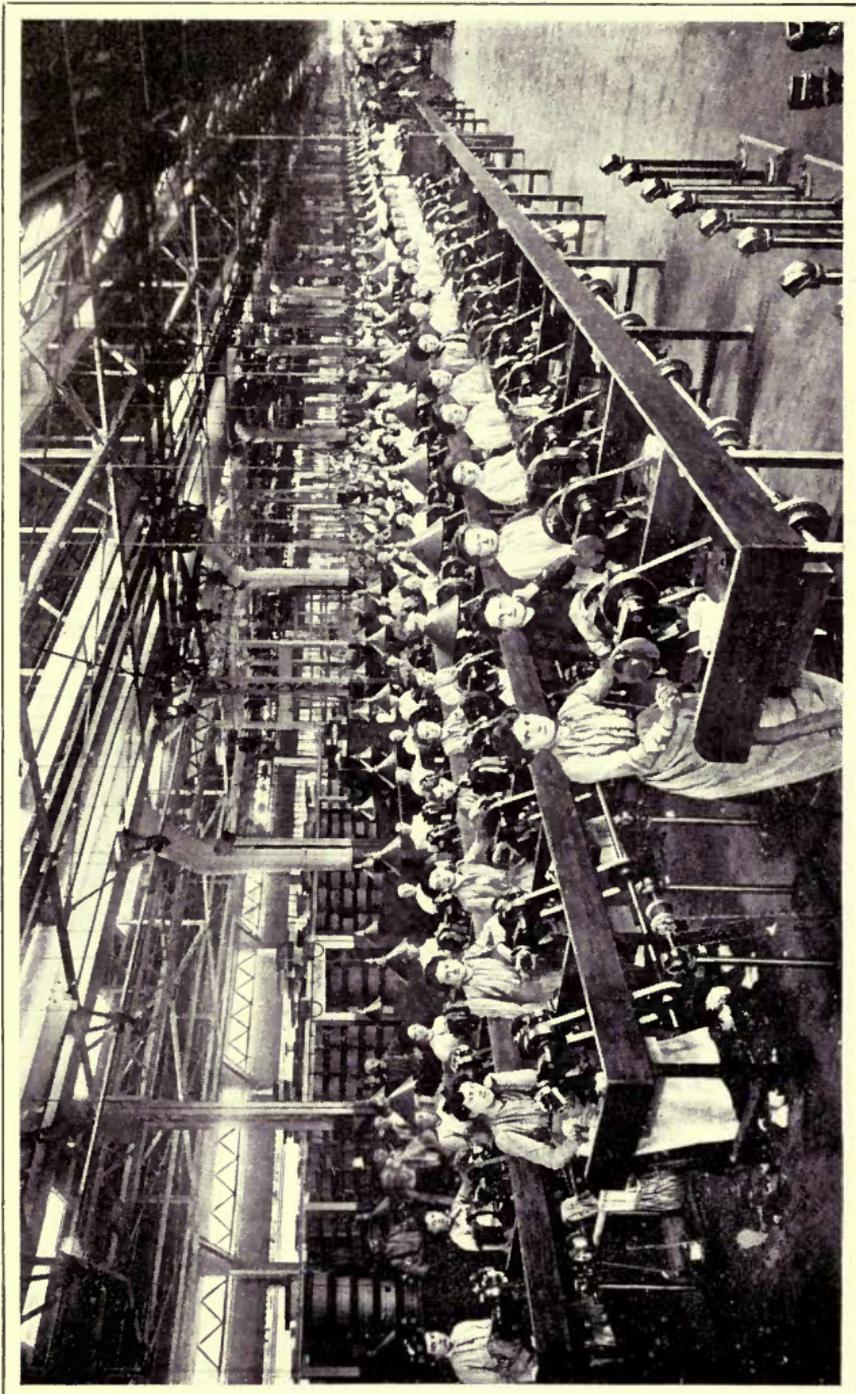
"One day Mr. Westinghouse said to me, 'Drop what you're doing, and just go wandering round the works and let me know where you think money can be saved.' That was all. One day I noticed a lot of copper filings in the sweepings. They were being

lost. If they were saved it would mean money. And within a fortnight I had found out how to save the firm \$400 (£80) a month."

Thirty years ago George Westinghouse started "making things." He invented the compressed air brake bearing his name. When you go from London to Edinburgh, look between the carriages and you will see the clamping of pipes. That is the Westinghouse brake. Go to Central Siberia, and when the great trans-Asian train halts for long at a wayside station you will probably find that the engine-driver has applied the Westinghouse brake so vigorously that he cannot get it off again.

When George Westinghouse started making air brakes he turned out two a day. Now his company turn out one a minute every minute in the twenty-four hours of the day. There are a million and a half of them used in the world. But it took him seven years to induce the European railways to adopt his invention. All the "mile long" freight trains in America (really not a third of a mile long, but that is the American way of putting it) have now the automatic brake. Europe again lags. The only Old World country that has fully adopted the Westinghouse brake for freight trains is Russia. A £400,000 order from the Russian Government was recently given to the Westinghouse Company to supply brakes for freight trains.

There was a fortune in the Westinghouse brake. George Westinghouse, however, turned his mind to something else. He started making pneumatic railway switching and signalling apparatus. He



WINDING DEPARTMENT AT THE

applied electricity to the same thing, and in America he has revolutionised switching and signalling.

As you ride out of American stations you pass signal boxes, but you see men pressing buttons and leaving it to electricity to do the rest. At the Union Terminus in Boston, it required 350 levers and fifty-one men to attend to the switch and signal work. Calculating twenty levers to each man, and the shifts eight hours each, the old mechanical contrivance needed seventeen men to a shift. Now only seven men altogether are employed, or two to a shift. Seven thousand pounds a year is saved at the Boston Station by the electric system.

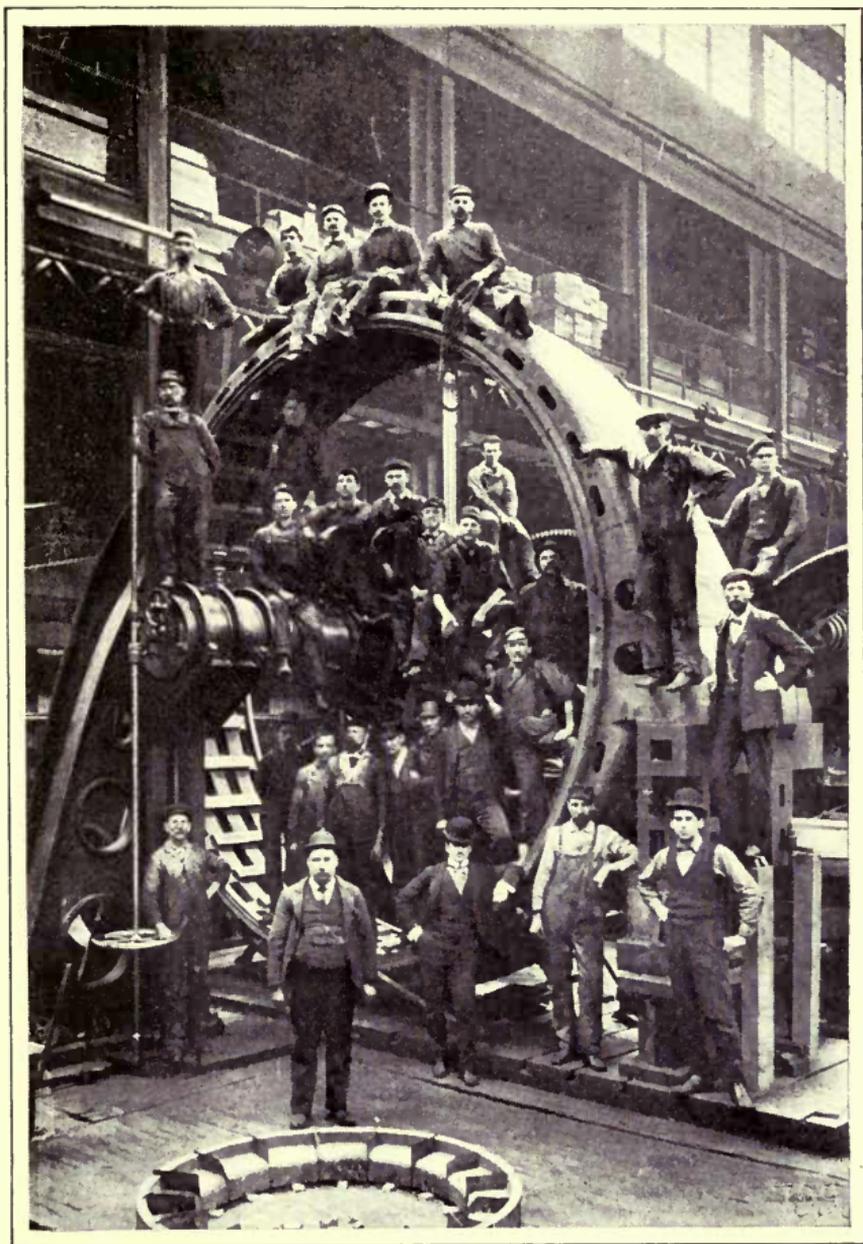
Another development. It is sixteen years since George Westinghouse decided to "play electricity for all it was worth." The Westinghouse Electric Company at East Pittsburg is the greatest plant in America, as the Westinghouse works at Old Trafford, near Manchester, is the greatest plant in England.

East Pittsburg is to-day the mart for ideas in electrical work. And here is a point which shows the type of man who directs these businesses. There are thousands of inventions, good in theory, which won't bear practical work. Most manufacturers, being satisfied that an idea, however ingenious, is unpractical, would thank the inventor, and say good-day. Mr. Westinghouse, with the intuition of genius, often buys a patent that has been condemned. He has a body of men who do nothing but experiment. He takes an unworkable patent to a man. "The idea in this thing is all right, only it won't work in prac-

tice. I want you to put it right." And it has to be done.

We all know the name of Nikola Tesla, who in the scientific world is regarded as an electrical visionary. Mr. Westinghouse cut through the flamboyant imaginativeness of Nikola Tesla and got down to the bed rock of his theories. He saw that Nikola Tesla, behind all his firework talk, had brains. Patents of Nikola Tesla, regarded by many men as waste paper, Mr. Westinghouse bought. He handed over the ideas to sound, level-headed electricians with the order, "Make them practicable." It was from the scoffed-at Tesla that came the germ of the distinctive Westinghouse electrical apparatus in induction motors, and the use of alternating high-tension currents.

George Westinghouse, like all Americans, is always enthusiastic about something. He took up the Nernst electric lamp, which was nothing but a laboratory device, and made it practicable. Natural gas was found accidentally on his works. He started making gas-engines. He has two in his power house, one of 750 horse-power. George Westinghouse is a believer in gas. He says that the economies which must result from the distribution of power by means of gas generated at central points, and conveyed in pipes along the lines of railroad for the operation of engines and electric generators, would justify the expenditure of large capital necessary for such installation in connection with the electric equipment of railways, particularly on metropolitan and suburban lines.



A HUGE GENERATOR FIELD
AT THE WESTINGHOUSE WORKS.

You see from this something of the energy, the tirelessness, of a typical American at work.

The management of a great American business concern is carried to its finest point in those mammoth shops at East Pittsburg. Take that great aisle. There was being built a generator forty-five feet high, intended for the New York Rapid Transit Company, a great wheel, sister of the Pyramids in size, and generating an electric current sufficient to drive 600 street cars. It was the biggest thing of the kind ever made. It was being tested, and would then be sent in sections to New York. Of course, no railway track could carry it, no tunnel could let it pass through; so the sections were as big as possible, and made within one and a quarter inches of a tunnel aperture. The whole floor was of steel, with thousands of bolt holes. There were the colossal cranes. They were not swinging work to the machines. The work was so big that in all cases the machines had to be swung to the work. Everything was driven electrically. Some of the "tools," as big as a cottage, were "self contained"—within the frame they carried a motor, and it simply needed the fixing of a button to set the thing working.

I went among these "tools." They were all busy with an intelligence that made the layman wonder. Six or seven big "tools" were thundering and cutting, and not a man near.

"Haven't you a man to look after these?" I asked.

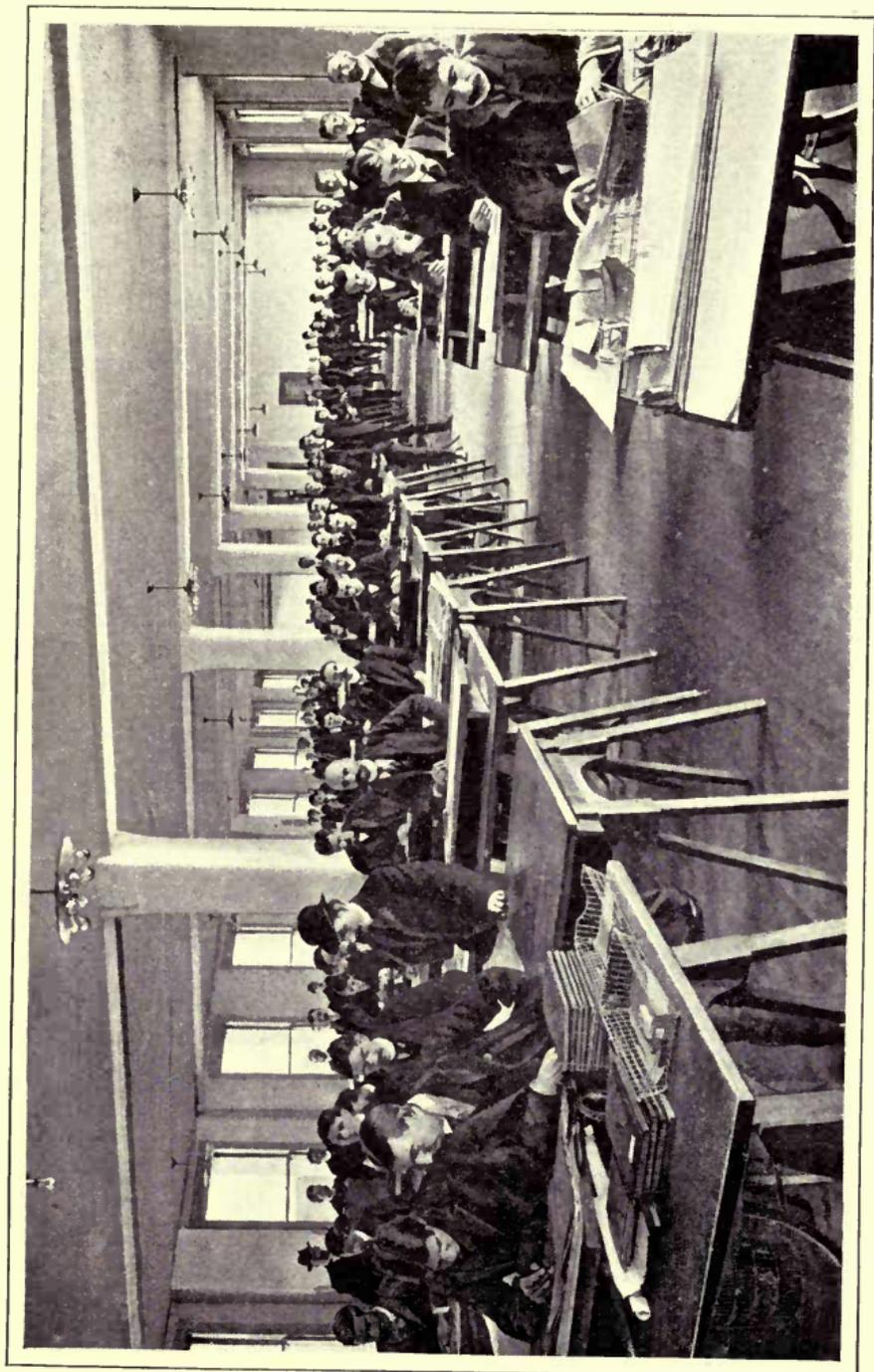
"Oh, yes," was the reply, "but I suppose he is busy just now doing something else."

Throughout the works were 1,750 machine tools, from delicate watch-maker's appliances, turning out jewelled bearings for sensitive measuring instruments, to making the frame work of electric cars weighing fifty tons.

At the first glance everything seems confusion. But look at the door at one end of the shop, and you see a rough, ungainly part being brought in. Look at the other, and you see finished machines being packed on railway trucks and despatched to their destination. The whole thing is clockwork. The scheme is one of dates. An order comes in to the main office. It is handed on to the twelve men in the production department. Every section of the works is informed of what is required, not simultaneously, but at proportionate dates, sometimes six months from one to the other. Every day's work is arranged to a nicety, so that the men working in the middle of the shop won't get a pile of stuff ready, and block the way long before the appliances are wanted.

The making of parts is specialised. Often a workman doesn't know what he is really making. But he delivers on a certain day, and on that certain day another department is just ready to receive and advance the work another stage. Such an immensity of work is done that it takes fully six months for a motor to pass through all its stages in that quarter-of-a-mile-long shop. But each day from that one aisle there leave sixty 200 horse-power motors for street cars.

Many were the shops I visited, the grimy foundry,



DRAUGHTING DEPT.,
WESTINGHOUSE WORKS

and the brake works where the Westinghouse brakes were being turned out at the rate of one a minute. But I always found my way back to the electrical departments, for here there was something like wizardry in the machinery, making machinery more wonderful still.

“The work of our designers is to simplify,” I was told. “Electric appliances are not becoming more complex, but more simple.”

That explains largely why, of the 6,000 employees on this plant, 1,200 are girls. It explains also how a man who was a clerk six months ago is now working in an electric shop; how, when a man is dismissed from watching a machine that punches holes, he is soon expert enough to look after a machine that cuts a groove. The standardisation of parts, and the devoting of years to making the same thing, have the effect of converting men into machines, and the machines into intelligent workers.

Yet what room there is for brains! A man who can devise an improvement in a machine which will reduce cost and produce more: he is the man worth anything. The American working man knows this. He has got rid of the old-fashioned idea that he is doing an ill-turn by displacing labour. He is doing a good turn for himself, and this is the thing that counts. An employer thinks little of a man who has no suggestions. The management are all eyes for the clever man or boy. There is no room for grumbling that a man doesn't get a chance. If a man misses chances in America he lacks the brains. All this is understood. When an American working

man sees another do something ingenious he is positive he can do it also. Anyway, he tries. If he fails he knows the reason.

Specially did I inquire into the conditions of labour in the Westinghouse Electric Company. I saw that the secret of the enormous output was due to four things: standardisation, labour-saving machinery, good pay to good workers, enthusiasm of the men. There were many Englishmen employed. In regard to them it was the same story I had heard elsewhere. On their first coming they were slow. They were jacks of all trades in electricity and masters of none. But when they dropped into American ways of focussing all their energies on one thing they were able, not only to hold their own, but often to beat the American.

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CHAPTER XX.

THE WOOLLEN INDUSTRY.

IT was an American, and a professor at one of the big textile colleges, who spoke. Said he: "It is the high fence of a tariff that keeps English textiles out of the United States. If English goods were able to compete on even terms with American, half our woollen and cotton factories would be closed in a year. As it is, Heaven help the American textile manufacturers when you Englishmen take to using quick machinery."

At Lowell, Massachusetts, I visited the Textile School, the best in all America, and had a long talk with Mr. William W. Crosby, the Principal, a charming man, young, widely read and travelled, and with keenness in every line of his handsome face. He was enthusiastic about technical instruction, and especially about what it was doing for the textile trade, lifting America into the sky above European work.

As we were leaving the school he assisted me with my overcoat. "Why," he exclaimed, "here's my coat, the same as yours, and made at the same place. I bought it last year when I was in London, and at half the price I would have to pay in America. As to quality, it has been the marvel of many of our manufacturers, for they cannot turn out stuff like that. Yes, and this suit of clothes I am wearing

was made in London also. I know a good piece of cloth when I see it, and I was simply astonished that I had to pay only £4 for the suit. Splendid goods, indeed! Why, here I couldn't get anything like that quality for twice the money."

That almost accidental confession from the Principal of the Lowell Textile School was a striking commentary on the relative merits of English and American cloths.

During the time I was in the States I often shuddered at tailoring prices, and thanked my lucky stars my wardrobe was sufficient to take me back to my own country. Nowhere did I see American textiles that came within a long distance of English. When I did see excellent clothing, with a fit equal to Conduit Street, the material was English imported, and the price was from two and a half to three times that of London.

It is a common remark that American working men are better dressed than the English workmen. If I may indulge in an exaggeration to demonstrate a truism, I would comment that American clothes won't last long enough to get shabby.

Take the average crowd that shoulders you in Cheapside, and compare it with the crowd that hustles you in Broadway. The first swift impression is that the New Yorkers are far better dressed. That impression holds. Men coming from Pittsburg iron-works are certainly more sprucely clad than the cutlers of Sheffield. You cry "Yea, yea!" to the constant assertion of Americans that they are better dressed than their English friends. One day, how-

ever, you meet an English gentleman. You notice a dignity, a refinement, a restraint of tone about him and his dress that the American never has. It is not the fit of his clothing, for the Americans are as able as English tailors, but it is the quality. From him you may commence to reason backwards. You will find the American business man, while he dresses neatly—though his fancy in shirts last year was on the lines of a Neapolitan ice—is wearing material such as you find in the cheapest English goods; stuff the like of which in quality is hardly ever seen except upon a dummy at the doorway of a “ready made” shop.

Large though American incomes may be, a man has to be within the circle of the wealthy to afford having a suit specially made, even of this stuff. It is marvellous to notice the number of well-to-do men who wear ready-made clothing. The fit, however, is far better than the fit of English ready-made clothing.

A trained, and not a lay eye is necessary to identify a ready-made coat in America. That bespeaks ingenuity, adaptability, a huge stock of accommodating sizes. Besides, half-made clothes have a run in America. The goods are cut and tacked, as one's clothes are in England at the last fitting-on by the tailor, and but few alterations are necessary to make the coat look as though it has been specially made.

There are, however, several reasons why American textiles are poorer than our own. There is the tariff. When the tariff was cut down a number of years ago the American woollen manufacturer found

himself hard hit by the fine and cheap goods sent from Yorkshire. He met the competition in two ways—first by producing a better article than he had ever done before, and by clamouring for a reimposition of the heavy duty. His clamours succeeded. Up went the tariff fence again, shutting out English wares, and down, with a rush, came the quality of American goods.

Another reason is that the ordinary American is more anxious than the ordinary Englishman to have clothes that look smart rather than wear well. Also he wants them cheap—from the American idea of cheapness. A British working man gets a serviceable suit, and it may be two or three years before he discards it. In its latter days it will be dirty, greasy, baggy-kneed, and frayed. The American working man never wears a suit till it gets in that condition. He has something neat, well-fitting, and of latest cut. It may only be poor shoddy. In three or four months, when it begins to go to pieces, he has got tired of the suit.

And just as an American hardly ever has his boots repaired, but throws them away and buys a new pair, so he has three or four suits of clothes to the one suit that the Englishman has. American clothing would not last long enough to get into the state of grime a British workman's clothes are often in.

In writing this down, I am not overlooking the fact that, man for man, the American is much more solicitous about the smartness of his appearance than is his compeer on this side of the Atlantic. There-

fore the second reason why American woollen goods are inferior is that the American would rather have something that looked good than was really good.

The manager of one of the biggest works in New England said to me: "Of course we've got nothing like your English stuff," and then dropping into a simile, he added: "As long as we are making fortunes, turning out wheelbarrows which people want because they are cheap, why should we spend time turning out fine equipages which are dear, and which people don't want?"

Then he ventured upon an assumption which was hardly warranted. He implied that, if they wanted to, the woollen manufacturers of New England could turn out as excellent cloth as we have in Great Britain. Certainly, when the heavy tariff was removed, they gave evidence of turning out far better stuff than they do now. But he failed to reckon two important factors.

Frequently have I referred to the stimulating atmosphere of America, that braces one, pumps the ozone of energy into one's veins, exhilarates, and spurs one on. But this atmosphere is not suitable for woollen manufacture. The muggish air which hangs about Yorkshire dales plays a very important part in the fine quality of woollen goods. There the English weaver has an advantage which the American can never have.

Another thing is that among the workpeople in New England, which is Old America, society is more settled. The habit in the west, of being a cow-puncher one year, a saloon-keeper the next, an in-

insurance agent the next, a parson the year after, then a farmer, then a speculator in mines, does not exist. People are more inclined to keep to the industry they have once embarked upon.

But sentiment, tradition, environment, count for much in commercial work. And in the woollen business this exists to a small extent in Massachusetts, Rhode Island, and the adjoining States. In the Yorkshire woollen areas it is possible to trace back two or three generations, and perhaps more, of families who have done nothing but weave wool. Many American manufacturers told me they reckoned this a great advantage to the British trader. Young people grew up in the atmosphere of wool-weaving, and almost by second nature they knew things which the best equipped textile college could not impart. Comparatively few of the workers in the New England woollen mills are American born. The mass are French-Canadian and Irish—good enough workpeople, in a restricted sense, but lacking the intuitive knowledge of our Yorkshire weavers.

The best workmen are imported English people, and the best machinery is that which comes from England. In places are whole colonies of transplanted English folk, and in some mills I went past rows of machines bearing the plates of Yorkshire and Lancashire firms. In works that turned out goods of the cheap and shoddy quality quick American machines were used. In the works that produced a fairly good article slower English machines were to be seen. I am not far from the mark in saying that the quicker the machine, and the greater the

quantity, the quality decreased in almost exact proportion.

To me, a Briton, with, I suppose, some few in-born British prejudices, in considering the industrial conditions of America, trying to be absolutely fair, appreciating what was better in England, having my little fling at what was worse and unwholesome, it came almost as a breath of relief to pass from trades and businesses that had management superior to our own, to the centre of the American textile world, and find that here at least England could still stand with chin high poised.

America is truly the land of contrasts. These contrasts are a constant stumbling block to the man who would like to generalise on differences between the United States and England in single phrases. Take the matter of specialising, which Americans rightly declare is one of the reasons of their industrial prosperity. They are apt to scoff at the British manufacturer, saying that he does not succeed so well because he tries to do the whole business under one roof, instead of centring all his energy on a speciality. That is true, and I fancy the American cannot have better proof than in the woollen factories of New England.

In Yorkshire the preparation of yarns, carding, or dyeing is often quite a separate industry from that of weaving. In the Massachusetts mills the practice is for each firm to do everything from the time the greasy wool is delivered to its despatch as finished cloth. Therefore, I am tempted to say that one cause of the Yorkshire woollen manufac-

turer being prosperous is that he runs his works rather on the American line—though the system existed long before America put forth its strength as an industrial nation—whilst the Massachusetts manufacturer runs his works on the general English plan by not specialising.

This led me to make investigations which were interesting in their results. Just as the English manufacturer in the mass suffers from competition because he does not specialise, so the Massachusetts woollen manufacturer who does not specialise either stands on a low level or makes comparatively slow progress.

The method of the American woollen mills is an anomaly in America; it is an anachronism; it is altogether contrary to the way that nine Americans out of ten will declare is necessary for success.

Here, then, I found a trade, not managed in the way it is managed in England, but managed in the way most other English trades are managed in England. I wrote to Washington, and an obliging Government official sent me a bulletin of facts and figures. When I dived into them I discovered that during the last twenty years the number of establishments engaged in wool manufacture had decreased over 13 per cent. This, however, was accounted for by the consolidation of businesses, because the invested capital had increased over 100 per cent. Wages had increased enormously—but in striking an average the salaries and incomes of proprietors and firm members were reckoned—while the employment of men had increased 34 per cent., and

many of these were boys of seventeen, eighteen, and twenty; women had increased 69 per cent., whilst the employment of children under sixteen years of age had within the last ten years increased 37 per cent.

That looked fairly reassuring from the American point of view, till I turned to the table giving statistics of the making of woollen goods. Here I found that in the decade between 1890 and 1900, not only had the establishments decreased 21 per cent. (they decreased 34 per cent. in the previous decade), but the capital invested had decreased 5 per cent., the number of salaried officials had decreased 7 per cent., the salaries themselves had slumped 25 per cent., wage earners had decreased 10 per cent., and there was a steady decrease of men, women, and children. Their wages had gone down, in the case of men 0.9 per cent., women 13 per cent., and children 11 per cent. The number of looms, the value of products, showed a falling away of over 10 per cent. The only increase was in the number of spindles, from 1,815,380 to 1,906,581—a move upwards of 5 per cent.

The official explanation of this falling off is that the introduction of worsted cloth for men's wear, and the development of knit goods manufacture have made inroads on the consumption of carded wool goods, which formerly were necessities. The real explanation why the quantity of wool used in the American mills is 10 per cent. less now than ten years ago, despite the vast increase of population, is that the customer will have a cheap and showy article,

and this can be turned out with worsted, flannel, and shoddy. Indeed, there are 105 mills in America that turn out nothing but shoddy. An attempt is being made to push a Bill through Congress making all manufacturers of and dealers in shoddy goods pay a heavy tax, and tag their goods, stating their nature. The wool growers are enthusiastic; the cloth manufacturers are contemptuous and wrathful. The wholesale use of shoddy in America made of anything from tattered carpets to seaweed, the willingness of the public to wear such material so long as it looks nice for a month or two, has hit hard the genuine woollen business. The machinery in many mills is only in partial operation or run on part time.

Though there is not that helter-skelter, nerve-racking kind of life in the eastern that there is in the western States, the employers I found were all awake to the necessities of modern trade. In one way they provided a parallel to English manufacturers, for theirs is one of the oldest industries in America, and while admitting the pace and the daring was not so great as in other businesses, they pleaded custom, long usage, difficulty in making a break from the habits of a century—precisely the excuses the English manufacturer gives when face to face with American competition, and he is invited to get himself and his works into line with ways across the Atlantic.

What the American does is to keep his eye on improved machinery, and work the machinery and men to their utmost. While ten years ago only a

few broad woollen looms were operated up to 100 picks per minute, now they run at from 115 to 120, and in some cases 150 picks per minute.

There is no "ca' canny" among the workpeople. There are practically no Huddersfield difficulties of men only looking after a loom or two while several miles away other men are able to look after half as many again. The Huddersfield man is an admirable workman, but if he went to Massachusetts and started talking about custom, and only wanting to do about half as much work as men round about him were doing, he would be told many things for his good, and his ears would tingle for a fortnight. But when Huddersfield men go to Massachusetts, and after a few grimaces throw away their Huddersfield arguments and adapt themselves to their new situations, not only are they as good men as the Americans, the French-Canadians, and the Irish, but far better, and with a smile look after twice as many looms as their "local custom" allowed them to attend to in the old country.

America has practically no export trade in woollen goods. Her mills supply only the home market, and any foreign competition is wellnigh killed by high tariffs. Beyond the United States, where the wool stuffs would be tested alongside those of England, America has no chance at all.

In regard to the conditions of labour, I found that the working week was generally 60 hours. The wages of a man who looks after eight looms is about 45s. Women make from 20s. to 25s. Children, youngsters between the ages of fourteen and

sixteen, make about 12s. Rent is high, and clothes are dear. Food, however, is about the same price in both countries. The New England mill operative "does himself well." He feeds well—better than the Yorkshire operative. He has, however, no eye on a coming rainy day. It doesn't enter his mind that he may fall sick or ever get out of work. He doesn't save money.

On the whole the English manufacturer is more prosperous than the American, whilst the American mill hand works harder and longer, and gets more wages. Balancing one thing with another, however, the operatives of the two countries are, in material condition, very much on a level, though a trifling advantage is on the side of the American.

The American mill operative, Englishman, Irishman, French-Canadian, or American, struck me as a clear-headed, far-seeing fellow. He has no prejudice against labour-saving machinery. He doesn't regard the boss as his natural enemy.

Summing up my impressions of the woollen industry, I would say that though America has much to teach us, it is not yet necessary to send Yorkshire mill owners nor operatives to Massachusetts to learn their business. We amble behind our Yankee friends in many trades. In the woollen business, however, it is they who do the following.

CHAPTER XXI.

THE COTTON INDUSTRY.

FALL RIVER is the centre of the American cotton industry. It is as like a Lancashire manufacturing town transplanted as you can well conceive. My first acquaintance with it was on a grey, sodden morning. The streets were no wider than those of Oldham; there was a depressing dinginess about the main thoroughfare; groups of idlers, hands in pockets, hung about the street corners—not a usual sight in America. Up side-streets could be caught glimpses of huge, stone-built mills, and occasionally there would strike the ear the roll of multitudinous machinery.

There are 41 companies, owning 87 cotton mills, in the town, with 3,000,000 spindles, over 75,000 looms, with close upon 30,000 workpeople, who draw over \$240,000 a week in wages for turning out 250,000 pieces a week, or 865,900,000 yards of cloth a year. The total horse-power is 88,048, but only 1,148 of this is got from the ten water-wheels on the banks of a little stream, Fall River, which gives its name to the town. The capital stock in the mills is touching £5,000,000.

Though Fall River is on American soil, and has more than one-seventh of all the spindles in the

United States, it cannot fairly be called an American town. The population is 105,000, but out of that number only 15,000 are American-born. There are just as many English people; there are 23,000 Irish, 30,000 French-Canadians, 5,000 Portuguese, and about 10,000 Italians, Poles, Swedes, Russians, and Armenians.

I went into one huge spinning room where the foremen were all Irish, and all the women workers French-Canadian or Italian. I saw notices to the workpeople printed in four languages.

The town is less than fifty miles from Boston, which is a great dumping ground for immigrants, and as labour is in heavy demand throughout Massachusetts, these people get work almost at once. The scarcity of labour puts up its value. They secure good wages, though the work they give in return is by no means good. Yet high though the wages are—that is, comparatively high with what such labour would be worth in the old countries—they are really 20 per cent. less than they were a generation ago, when American working people were chiefly employed. Cheap foreign labour knocked out the born Americans.

A great mass of the labour is of the shifting sort. A man goes into a cotton mill not by any means because he is a cotton spinner, but to earn money. Next year he may be a steward on one of the huge palaces of river boats, or be doing a thriving business as a patent medicine vendor. Each week every mill loses from 5 to 10 per cent. of its workpeople, principally because they are turning

their hands to something else, and raw material in the shape of ignorant Hungarians or French-Canadians has to be brought in to take their place. Manufacturers complained to me that they are severely handicapped alongside the Lancashire manufacturers, because their workpeople have not the atmosphere of the mill about them.

Here, then, in the cotton as in the woollen industry, I saw that one reason why the American product was inferior to the English was because of the absence of heredity, if I may use the word, of those people whose fathers and grandfathers were spinners and weavers, and who have known something about cotton ever since they have known anything.

Americans are at the heads of the mills, but what struck me forcibly is that the tremendous percentage of the men who are skilled, who are doing the work requiring skilled labour, are Englishmen. The principal instructors at the Textile School at Lowell—an institution doing splendid work, and which filled me with admiration—are Englishmen. The finest machinery, despite the heavy, almost prohibitive tariff, is English. I visited the Fall River Ironworks—the biggest of all the Fall River mills, and formerly an ironworks. I saw much English machinery. There were 266,512 ring spindles, and 7,660 looms, and the number of employees is 2,700. I found Mr. Hathaway, the superintendent, in a block of new buildings overlooking the erecting of a fresh plant of 25,000 spindles and some 2,500 looms. The mass of new machinery being unpacked was from Lancashire. Mr. Hathaway was using

vigorous language at the time it took his men to clean out the sawdust that clogged our grease-smearred machinery, as from cases it was arranged on the floor of the building. He is a man of decided opinions, and later on I heard him use much more vigorous language about the rusty machinery being delivered by an American firm.

“You believe in English machinery,” I remarked, after he had sung various praises.

“Well,” he replied concisely, “I don’t know that I believe in English machines; but I believe in the best I can get hold of, and these come from England.”

He was very proud of the Fall River Ironworks, was Mr. Hathaway, who is a youngish man. That is, it will be some years yet before he is forty. And he is one of the extremely rare cases of a man succeeding his father as a salaried official in the control of the same concern. He receives £6,000 a year as manager.

I was interested in Mr. Hathaway because he seemed such a contradiction. Physically he is the antithesis of a hustler—short, broad built, inclined to stoop, rather lymphatic, and altogether unlike the typical Yankee. But during the afternoon we spent together whilst he was showing me over the ironworks, in which time he must have chewed up six cigars—not smoking them, but biting them in half and then munching them—I saw the working of an extremely alert and far-seeing mind. He was un-effusive, even slow in speech, but his thoughts were all of the Napoleonic order. He took me to the print

works, where he said that the cloth printed each year was enough to wrap round the world three times.

“How much stuff is woven a year at your mills?” I inquired.

The answer was “120,000,000 yards, which is 23 miles an hour, or about as fast as the *Oceanic* travels across the Atlantic.”

The cotton manufacturer of the States has just as lively an appreciation as any of his countrymen of the advantages of machinery. He, like the rest, has his eye fixed on the abolition of skilled, and, therefore, expensive labour, and getting level in the race for trade with Europe—where labour is cheap, and where American-grown cotton is delivered in Manchester at a less transit rate than it is in Fall River itself—by using the latest of labour-saving machinery, needing only an unskilled and therefore a comparatively cheap labourer to do all the looking after. He doesn't care a brass farthing where the inventions hail from. He will have them if they mean a saving in the cost of production.

And here, again, though the American is inclined to boast of his inventive faculty, the credit is really due to his unprejudiced adaptability. It is a striking fact that a tremendous percentage of names to be read in the list of inventors at the Patent Office at Washington have a distinctly British smack about them, and that in the cotton and woollen industries, just as in engineering, there is a great number of out-and-out British patents, not used, not even adequately tested in England, but tested, adapted, and improved in American workshops.

Americans, as I show in my chapter dealing with the Westinghouse Electrical Company, will take an idea, good in theory but bad in practice, and work at the thing until it is really useful commercially. The British manufacturer, I am sadly afraid—though the disposition is passing, and must, I hope, pass absolutely—has a curious, almost inexplicable contempt for all new-fangled notions. Even when he gives them a trial it is hesitatingly, and one eye at least is kept very wide open for all mishaps and inefficiencies. He is rather pleased with himself when, with “I thought so” and a complacent smile, he can pooh-pooh the thing as useless. The American’s attitude is “Gee-whish! that thing is more bother than it’s worth; but the idea is all right, and I guess I’ll put a man on to it who will find out what is wrong and put it straight.”

There is the Northrop loom, invented by James Northrop, of Keighley. If half a dozen mills use them in Lancashire it is an outside number. There are thousands of them in America, and the Draper Company, of Hopedale, Massachusetts, who now own the patents, are improving the machine every week. I did not see it in the Ironworks Mills. Mr. Hathaway spoke most unfavourably of it, saying the looms were still in the experimental stage; that though they saved much labour, they required a great deal more looking after than the ordinary loom, and were constantly breaking down, so that on the matter of money-saving it was rather broader than it was long.

This was said to me in the presence of the manager of another Fall River mill, who burst out

into surprise at the criticism, said he had used the Northrop looms for two years without the slightest hitch, and then marched me off to see this famous loom at work, about which there is as much controversy among cotton manufacturers as there was among ordinary folk in England about the Education Bill.

In a great long room, whirling with machinery, and with only a few girls, and, I think, one man about, I saw a bunch of these automatic looms. I have visited some of the great Lancashire mills, and have been filled with amazement, as a mere layman, not so much at the machinery, but at the marvellous minds that evolved such perfection. But in Lancashire I never saw the Northrop loom, and to me (again as a layman) it was the very excellence of ingenuity.

See what it does! It automatically feeds the shuttle with bobbins, and when a single warp breaks there is no bad weaving, for the machine comes to an instant stop.

You know what a revolver magazine is like? Well, on one side the Northrop automatic loom is a similar magazine charged with about thirty bobbins, which will supply the shuttle for between two and three hours. Watch an empty shuttle as it is being flung from side to side! Just at its last yard it is beneath the magazine. You hear the click as of a wooden trigger, and though your eye be not quick enough to follow the operation, you do notice that the empty bobbin has been knocked out of the shuttle, and tumbles into a box where lie others of its exhausted

mates, that a full-charged bobbin has been threaded and is clattering away without the apparent halt of a second. There is no worker necessary to watch for the emptying of the bobbin.

In ordinary looms a very sharp eye must be kept for the breaking of any warps, to mend them, and so stop a stretch of defective weaving. In the Northrop loom each warp is threaded through a little brass key. When a warp breaks that key is released and drops, automatically stopping the machine. So a trained eye is not necessary to look out for a snapped warp. The tender of the machines has his or her attention called to the fact by the machine stopping.

What is the consequence? A good weaver can look after twenty looms, whilst a fairly inexperienced hand can look after twelve. But these weavers have less outside work, as it were, than the Lancashire weaver. The labour is sub-divided. A weaver does nothing but weave. Other people do the cleaning and oiling; boys bring the weft and take away the cloth.

Lancashire manufacturers declare the Northrop is constantly breaking the warp, and the delay consequent is bothersome and expensive. The reason there is not so much breaking in America is that the warp is usually of coarser and stronger yarn than that used in England, and because the automatic looms are run slower than the ordinary looms.

That the automatic loom, however, delicate as it may be at present, has come to stay in the States there can be no doubt. The principle of the thing is recognised as being invaluable in saving the cost

of labour; that is what the manufacturer is after, and always after.

As the English manufacturer is a little too conservative, I am fain to think the American manufacturer is a little too fond of change for newness' sake. But that is a tendency of the right sort, for it shows open-mindedness and daring.

Let me give one instance which will show the spirit with which things are done in America. The trend is all towards the complete adoption of automatic looms. Now in England, if a Lancashire manufacturer who had a fine set of ordinary looms became converted to the use of the automatic, he would sell the old looms to some smaller manufacturer glad to get good machinery second-hand. The same thing is often done in America. But the makers of automatic looms know that this retards, for some years at least, the second firm going to the expense of getting automatic machinery. What is done by one big firm who make automatic looms when it gets an order? It takes the ordinary looms, which may be quite good, as part payment for the new. It doesn't sell them; it just smashes them into uselessness. That is, on the face of it, the throwing away of thousands of pounds. It is a thing, I fancy, no Englishman would have the courage to do. But look at the long-sightedness! It is putting out of the market a huge quantity of looms, and so, partly by inducement, partly by compulsion, forcing on the time when all manufacturers will take to automatic machinery. Then will be the time when the huge harvest will be reaped.

Two things not to be lost sight of, however, in comparing Massachusetts with Lancashire, are that the looms are generally narrower in America than with us, and that the quality of the material, generally speaking, is inferior to the English, though in the matter of appearance, fancifulness, taste in design—usually copied or adapted from the French, not infrequently with incongruous effects which cause the artistic purist to squirm—the American has the best of it. Another thing which would make a Lancashire manufacturer grey-haired is the amount of waste permitted. In English mills the manufacturer sees some of his profit in keeping the amount of waste down to the minimum. At Lowell I mentioned this to a manufacturer, and his reply was characteristic: “Of course, there is waste, a tremendous amount, but we find by experience it costs more to save the waste than it is worth. We let our machines rip along; we get more than a return in turning out cloth as fast as we can, and having all the weavers’ energies focussed on that, than we would if time were occupied in saving the waste.”

Experienced and skilled men cannot, of course, be dispensed with, and that is why the best workmen to be found in the American cotton mills are Lancastrians. The Massachusetts manufacturers, however, are by no means fond of them. They take with them to the States English trade union notions, and whenever there is trouble in the way of a strike, there is usually an Englishman at the bottom of it all. English manufacturers are now more or less reconciled to trade unions. The American cotton manu-

facturers abominate them. They anathematise talk about conditions of labour, hours of work, and quantity of work to be done. The idea is a free field, hard work, and any price for labour that fits the market. Therefore on the whole the American cotton manufacturers rather prefer the Irish and French-Canadians and Italians and Hungarians, unskilled labourers, who have, as yet, not the ability to organise themselves.

The American weaver, who does absolutely nothing but weave on machines that run rather slower than in England, is able to look after twice as many looms as the weaver does in Lancashire. Indeed, on an average, the looms the American looks after run about 20 per cent. slower than do those the Lancastrian looks after.

When in Boston I had a long talk with Mr. North, the secretary of the Cotton Manufacturers' Association, and he provided me with an interesting series of figures in regard to wages. I found that the average weekly wage of the Massachusetts weaver is about 45s., whilst the average of the women workers is about 24s., which is exceedingly good compared with the average wages in Lancashire. Boys and girls from sixteen to eighteen get anything from 12s. to 20s. per week. The hours of labour are much the same as in England.

Of recent years the New England manufacturer has been hard hit by the great cotton industry—due to the introduction of Northern capital—which has sprung up in the South, in Georgia, and in North and South Carolina. There labour is cheap. Men

only get about 23s. a week, and the women about 16s., and young women 10s. for a week of sixty-six or seventy hours. In some places there are no regulations as to the age of child workers, and little ones of ten or even eight years of age are to be found by the hundred in the Southern mills working these long hours for 4s. or 5s. a week. Child labour is one of the blackest spots in American industrial life.

CHAPTER XXII.

SOME GENERAL CONCLUSIONS.

IN the preceding chapters I have dealt only with a few particular industries, and a few special phases of commercial life. There are many other methods and points of view with which I might have dealt, but these would only be a corroboration of what I have already indicated is the general trend of work in America. At one time I was tempted to include in this book a chapter on child labour in the United States, a subject on which I gathered a mass of data, and which shows that in some parts of the States there is more talk about humanity than the practice of it. I have refrained from doing so because it would be rather beyond the scope of my book, which is to deal with broad issues, and to point out the reasons why the American is beating so severe a competitor as Great Britain.

Here and there in the preceding chapters I have allowed to peep out the fact that many things in the United States grated on my nerves. These, however, were personal, and in this, the concluding chapter, I wish to sum up exactly how a careful study of conditions in the two lands has impressed me.

The first conclusion I come to is that, whether they like it or not, the British people must become

reconciled to the fact that the position, so long held in the world, of Great Britain being the first commercial nation, must be transferred to the United States, and this largely because America has enormous and increasing natural resources with which we cannot possibly vie.

The raw material from which America produces its workers is, I take it, the finest procurable in the world. America is not the dumping ground of the world's refuse. The immigrants into America are hardy Europeans discontented with the conditions in the old countries, but who have saved enough to set out and try their abilities in the new. Daring, pluck, and enterprise are necessary to break with family ties, and the men who have shown sufficient courage to do this are the very men likely to prosper wherever they settle.

These people have mixed in marriage. The race produced is mongrel—I use the word in no offensive sense—and the keen, sprightly intelligence of mixed breeding is displayed in their character. There is no restraint under tradition, but there is the healthy feeling that every man's destiny is in his own hands.

America lags behind the rest of the world in scientific attainment, in serious studies, in the production of work remarkable for its excellence rather than its quantity. But in energy, in whirl, in desire to do things passable and quickly, to turn out articles by the million, serviceable for a sufficient time at any rate, the workers of the United States stand at the head of mankind. The whole progress in America has been that of machinery, whilst prac-

tically no progress has been made, compared with the rest of the world, in science. That, however, is another issue rather beyond the bounds of work and commerce.

In one way the United States is from a generation to half a century behind Great Britain. Let me explain. It is from thirty to fifty years since Great Britain rose to the crest of the wave of industrial prosperity. The country was dotted with great works, many of them built up by men who had risen from the ranks. They had laboured in mills and in ironworks themselves, and by great perseverance reared up businesses with world wide reputations.

These men became kings in commerce because they brought to it the strength and the virility of the common people from which most of them sprung. These great firms exist to-day. But the heads of them are the sons or the grandsons of the founders—men who have never had the necessity of putting forward all the mental and physical energies necessary to raise a great concern to prosperity.

It is doing the majority of them no injustice to say that if they had not inherited the business it is unlikely they would hold the positions in the industrial world they do to-day. Nature soon exhausts herself, and one of the reasons why Great Britain is not showing the energy, the adaptability, the strenuousness of former days, is that the chiefs of trade in many cases are not really the men fitted by nature to occupy these positions.

It is only to be expected that a man coming into the inheritance of a large business, and finding and

appreciating the social advantages of wealth—having a culture which his sire never attained, and developing artistic and literary hobbies, showing a fondness for politics, for hunting, for travelling, for golf, for a hundred things, indeed, to which the founder of the firm never gave a second thought—should lack the concentration requisite to make the business increasingly prosperous. There are many exceptions to all this, but the theory I have laid down will be generally admitted by everybody who looks thoughtfully round the circle of their manufacturer acquaintances.

In America the industrial community are practically still of the first generation. One of the striking things which impressed me in the course of my investigations was how many of the great firms were founded by men who are still in the heyday of their energy. They are very much in the position of the founders of great British firms half a century or so ago—men who have risen from the common stock, men with brains, possibly ungrammatical in their speech, resentful, maybe, towards those who talk about culture and refinement, and who affect the manners of what is called Society, but men who direct every ounce of intelligence they have in them towards further building up and developing their works.

It is because our manufacturers are mostly of the second generation and have never had the great impetus of necessity to compel them to carve out their own futures, that they do not reveal that adroitness of mind, that alertness in realising possibilities,

and that stirring vigour to carry out ideas, that they compare not very favourably with the American manufacturer, who is virgin soil, as it were, who is nothing if not daring, who cares not two straws for social distinction, whose only thoughts are for business and money-making, who is eager for everything new, and willing to adapt anything to the necessities of the age. The fact that he is not so charming a man to meet at the dinner table as the British manufacturer is entirely beside the point we are discussing.

Pursuing what I have already written about the first and second generations of manufacturers, let me say that when I had opportunity of inquiring into the capabilities of "second generations" in America I was amazed at the deterioration. I know that the tendency among many young men of the United States is to go out and rear a fortune for themselves. There are nevertheless many businesses long enough in existence for sons to inherit part of the control, and in regard to a number of such cases I inquired into it was lamentable to hear men talk about what poor sticks the sons were compared with their fathers. So exactly the same procedure which has been going on for half a century in Great Britain is beginning in America.

One of the things which accounts for much success in America is the atmosphere. There is something in the atmosphere of America which keeps nerves braced up to continuous work. The air is so dry, clear, and invigorating that the Briton, most sluggishly inclined, feels the difference when he

lands in New York. He is a healthier man than at home; he can walk further, and work longer and quicker. After lunch, in America, instead of men dawdling half an hour away, the chief wish is to get back and be doing something.

Incentive to industrial evolution is the result of being placed in difficult circumstances. Great Britain has lagged for a decade because she had little commercial rivalry and could do as she liked. America has advanced because she has had to fight a hard battle, a battle for industrial existence, and the intensity of strife has brought her out on top. She has milked the world for ideas, appropriated anything and everything in the way of invention to her own service, and has good reason—though at times she trumpets it a little too blatantly—to be proud of her achievements.

While Great Britain cannot hope to rival the United States in resources, that is no reason why our manufacturers should not get into line with modern commercial and industrial methods. Nine-tenths of the things which America holds to-day as precious she has inherited from Great Britain. It is time, therefore, she gave us something in return, and it is time also the British manufacturer should throw aside his reserve and his scoffing and be ready to learn.

If the preceding chapters of "America at Work" teach anything, they teach that if success is to be attained in business, conservative ways must be abandoned. The British manufacturer has to learn that what has been good for twenty years will not

necessarily be good for the next twenty. At the head of great concerns we must have not merely ornamental directors, but men who have "gone through the mill" and have had experience in actual work. Working men must get scraped out of their minds the idea that the aim of employers is to grind them down to the last farthing in wage. Employers must recognise that it is by paying well and readily and being free with expressions of appreciation that the best in a workman is brought out. There will have to be a little less of the feeling of master and man, and a little more of the feeling of partners working together, and each man knowing that the best he is doing for the firm, the best he is also doing for himself.

Young men will have to understand that Great Britain cannot continue to be great unless they take as much interest in their country's commerce as they do in county cricket. Older men, the heads of concerns, will have to realise that it is with young men possessing push, perseverance, ingenuity, and enthusiasm that success in modern business lies, and not always with the greybeards, whose chief virtue may be that they have kept, and can keep, a steady keel.

When once you get beneath the surface there is more soundness of character in the Briton than in the American. It is not, however, by talking about our good qualities that we tread the road to success. It is by finding out our weak points and putting those right. And there is one word—a word which I have frequently used in these pages, representing a

quality of which the Briton is not largely possessed, but with which the American is saturated—the word “Adaptiveness.” And when the people of Great Britain realise what that word stands for there will be less talk about the loss of trade, less grumbling about increased cost of production, and a great deal more progress.

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