

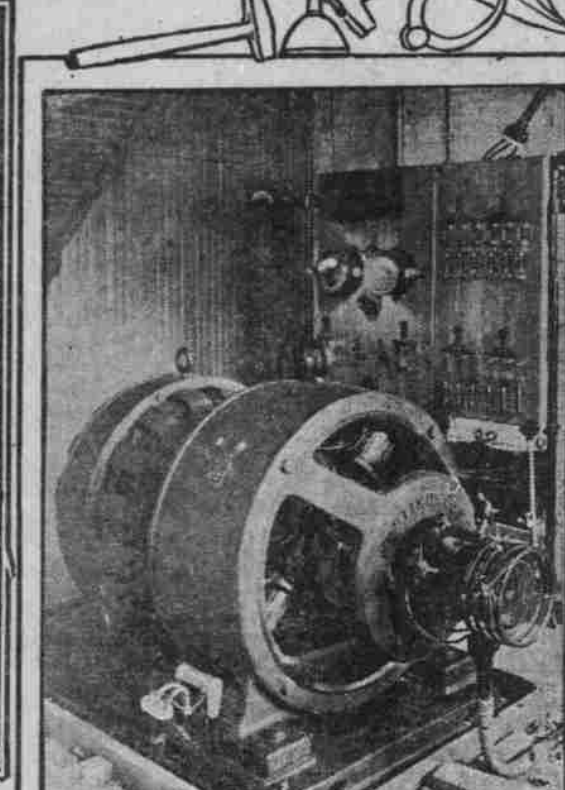
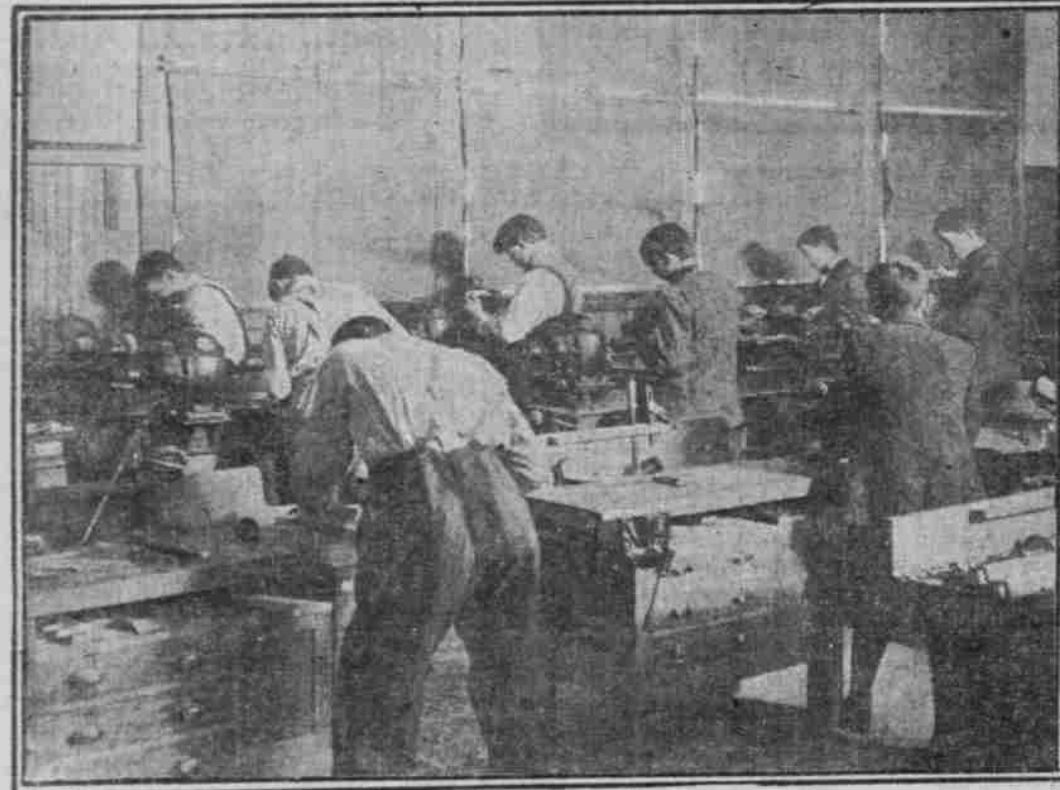
MAKING GOOD MECHANICS OUT OF PORTLAND BOYS

WHAT THE NEW SCHOOL OF TRADES IS DOING FOR SKILLED WORK IN WOOD AND IRON



IRON WORKING MACHINERY DEPT.

DRAFTING ROOM



DYNAMO ROOM



IRON WORKING MACHINERY DEPT. DRILL PRESS AND PLANER

BY HOWARD BRATTON MARSDEN.

PORTLAND is destined to go down in the educational history of the United States as being the second city in the country to introduce manual training into the public school system of education. With the establishment of the Portland School of Trades, which, of course, is the first time that the scheme has been tried here, this city has taken a step considerably in advance of many Eastern cities that pride themselves upon their progressiveness in matters educational and industrial. Manual training has developed into a most potent educational force; and yet many essentially industrial centers have failed to grasp comprehensively the wonderful advantages in training for future mechanics that are afforded by institutions of this character, conducted as a part of the public schools. The Board of Education of this municipality has placed within reach of every reasonably intelligent boy of a technical turn of mind, an opportunity to study and train himself, at the expense of the commonwealth, to become a highly skilled mechanic. Philadelphia was the first city in the Union to introduce manual training as a part of the public system of education, this being inaugurated two years ago. On September 14 the Portland School of Trades was formally opened. Today this city, with a population more than a million less than Philadelphia, has twice as many students in its trade school as the Quaker City. Seven days after the opening of the institution in this city, Milwaukee established a school of a similar character. Philadelphia, Portland and Milwaukee are at present the only cities in the United States that have institutions of this character maintained as a part of the public school system.

There are 118 students enrolled at the Portland school. These earnest young boys, many of whom are graduates of the various grammar schools, and even of the high schools, are pursuing courses of instruction in carpentry, cabinet-making, pattern-making, modeling, electrical construction, machine shop practice, mechanical and architectural drawing and plumbing. In addition to the purely mechanical end, instruction is also given in such academic branches as English, mathematics, applied physics and electricity and industrial chemistry. This work is done under the supervision of an able faculty composed of George W. Hamilton, principal; George H. Burton, instructor of machine-shop practice; Charles A. Merrill, instructor in pattern-making; Otto P. Goldenshneider, instructor in electricity and drawing; L. T. Newton, instructor of mathematics and English; and P. P. Sullivan, mathematical, English and drawing.

These men are all experts in their respective lines. They give to the students the benefit of their years of study and their experience in the various shops. They were selected, primarily, for their practical fitness.

Aptitude of Students.

In speaking of the character of the students, Mr. Hamilton, who was for-

merly identified with the Philadelphia school, pays a most flattering compliment to the young men of Oregon. He avers that they are not only more earnest and hardworking than the Easterners and that they take their school work more seriously, but that they manifest a greater aptitude for the work. The students of this school come in from the suburbs, and yet they are never late in arriving at the school, which opens at 9 o'clock in the morning, the session continuing until 3:30 o'clock in the afternoon, with a half hour for lunch at noon. This is indicative of the interest taken by the boys in the work of the school, which is in striking contrast to the conduct of the Philadelphia boys, who, according to Principal Hamilton, are invariably late, despite the fact that they all live within reasonable distance of the school.

The Portland lads arrive at the institution promptly, get into their overalls, hustle down to the instruction shops, and, apparently, nothing distracts their minds from the subjects upon which they are working.

The equipment of this school, considering the short time that it has been in existence, is equal to that of the Philadelphia school, which was founded two years ago. The machinery is of the most modern and approved pattern. The course of study is thoroughly practical, covering the theoretical principles underlying the work of each trade, and applying them in the best manner to secure the most satisfactory results. Attention is also given to the consideration of business practices; the purpose of this being to give a broader training to the young men than may be acquired by them in learning trades in purely commercial establishments.

The many advantages of a trade school education are legion. When a comparison is made between the methods followed in a shop and those of a trade school, it will be clearly seen that the latter has decided advantages. For example, a young man enters a shop to learn his trade; as a rule, in most shops, he is required to make himself generally useful about the place. Neither the proprietor nor the workmen have at their disposal the time to impart the necessary instruction, with the inevitable result that the apprentice must be observation rather than knowledge as he may. This makes his progress painfully slow, frequently discourages him, and invariably gives him but a limited understanding of his trade.

Personal Attention Given.

In the new Portland School of Trades, which occupies the recently constructed annex to the Atkinson School, every effort is made to give the student personal attention and to advance him as rapidly as he can master the details and absorb the instruction. Naturally, under these favorable conditions, the young men make quick headway in their chosen

WOOD WORKING DEPT., SHAPING LATHES AND BEDSTEAD

work. One distinctive feature of this school is that the young man may quickly determine for himself whether he has aptitude for the trade he has selected, and if it becomes apparent that he has no special fitness for the particular line he has elected to learn, he may change to another. This is something that cannot readily be done in a shop.

In the department of patternmaking, for instance, the course of instruction is of a very general character. The pupils are taught the care and use of bench and lathe tools; the lathe, with its various parts and uses, is thoroughly explained and each detail mastered; the woods best fitted for the patterns, and their economical distribution in the work consistent with the necessary structural strength, is carefully taught to the pupils. A number of exercises are made to enable the student to become expert in the use of tools and to become acquainted with the principles underlying the construction of patterns. Following this, patterns are made for parts of machines and engines, such as pipes, braces, brackets and flanges, cylinder heads, pistons, cross heads, cylinders, with the necessary core boxes, pumps, pulleys and dynamos. Demonstrations are given in the art of molding. This is to enable the student to understand foundry work. Principal Hamilton says that, while patternmakers are not called upon to do molding, a knowledge of this trade is necessary to become a skilled workman.

Splendidly Equipped.

The pattern shop has one 36-inch motor-driven band saw; 16 Oliver motor head lathes; one Oliver lathe; one 3 1/2-inch surface, one Cleveland grindstone, one revolving oil stone, 16 work benches, fitted with drawers and rapid-acting vices, one glue heater and bench for gluing; in the machine shop one is favorably impressed with the superior make of the different machines. This shop contains 18 Prentiss vices, one Brown & Sharp Universal milling machine, one 16-inch Gould & Eberhardt shaper, one 16 1/2-inch American lathe, one Lodge & Shipley lathe 14 1/2 inches, one Prentiss lathe 12 1/2 inches, one Le Blond lathe 30 1/2 inches, one Clark drill press 2 1/2 inches, one Worcester sensitive drill press, one 2 1/2-inch Cincinnati planer, one power hack saw, one Garvin motor head speed lathe, surface plates, chucks and small tools.

A salient feature of this school is that all the machines are individual motor driven, the direct current being used. This is furnished by a Westinghouse motor generator set, 50 kilowatts being available at all times. The generator is compound wound, the three-wire arrangement making it possible to use either 220 or 110 volts, for power and lights, respectively. The motor generator set is located in one of the rooms used for

teaching electrical construction. The switchboard is installed directly behind the motor set, and this close proximity gives the students greater facility for the studying of the parts and the management of the machine; also the manipulation of the switchboard.

In the department of electrical construction through instruction, both theoretical and practical, is given in the care and use of tools; low potential work is treated; use and construction of the various kinds of batteries, and the purpose for which each individual type of battery is best adapted; bells, their parts, wiring, and method of connection; annunciators, gas lighting, pendant and automatic burners, cut-outs, relays, burglar and fire alarms, telephones, connecting up in series, parallel and multiple. This work is supplemented by field and armature winding; switchboard construction and wiring, care of recording instruments, generator and motors, and the running of cables and splices.

Work in Other Departments.

All the members of the electrical workers' course are given certain periods each week in the machine and woodworking shops. This is to make them more skilled in the construction of the numerous electrical appliances. It is the belief of the faculty that all electrical workers should have instruction in these lines. They declare that they have no desire to turn out "crew-driver" electricians.

In the department of mechanical and architectural drawing exceptionally good work is being done by the students. The instructors exercise considerable care in matters of skill, speed, judgment, correct observation and taste. Effective and practical methods are taught, and workmanlike habits inculcated. The care and use of the various instruments are taught; the use of "T" squares and triangles; the different curves and their uses; tracing and blue printing, and design and drawing of constructive work and machinery.

As soon as possible the department for the instruction of those that desire to learn bricklaying will be organized. The students who enroll in this department will be taught the various properties of lime, sand and cement; lime and cement mortar; construction of nine, 12 and 18-inch straight walls, and the many other essentials incident to masonry.

Mechanics, Not Theorists.

It will be readily seen that the course of study and the methods of practical instruction are sufficiently comprehensive to enable the student to leave the school at the end of his three or four years, not a mere theorist, but a practical, trained mechanic.

For a long time there was the most bitter opposition on the part of many educators in this country to the in-

struction of manual training as a part of the public school system. They now concede that it is an educational force which cannot be kept down, and that its maintenance as a part of the public school system will add materially to its effectiveness and render it considerably more advantageous.

Portland, generally speaking, is in the industrial infancy, and it is apparent the possibilities of a school of this character are infinite.

Russian Royal Family a Mint.

The imperial family of Russia is the richest royal family in Europe and derives its vast wealth from three sources—the state treasury, the imperial domains (formerly church lands) and the so-called "cabinet properties." The state treasury pays out \$7,000,000 per annum for the needs of the imperial house, principally for the maintenance of the palaces and the officials and servants attached to them. The reigning Empress, for example, has an allowance of \$100,000 per year and the Dowager Empress the same. Every child born to the Czar receives from birth to the age of 12 nearly \$20,000 a year, while the heir to the throne receives annually, in addition to the maintenance of palaces, \$50,000. Daughters receive a dowry of 1,000,000 roubles when they marry.

The Measure of Toll.

J. W. Fols, in New York Times.

It was only a step on a Summer day To the creek and the rock where the spring-board lay; It was over the meadows and through the fence And half a mile through the woods so dense. It was down a valley and up a hill On winding path past the ruffled mill. And you might think it a weary way, But 'twas only a step on a Summer day.

But, oh, it was far down the short corn row, Where the weeds grew thick, with a heavy hoe!

It was only a step on a Winter night To the skating pond where the snow lay; It was past the common and through the wood And over the hill where the schoolhouse stood. It was down the turnpike and through the snow That lay in drifts in the valleys low. 'Till the stars shone out and the moon was bright— It was only a step on a Winter night.

But, oh, it was far through the bitter snows To the old barn door where we were sent to close!

'Twas light as a feather, the sack we bore Of shining nuts, that could hold no more. And each of us staggered beneath its load, 'Till we sat on the dusty road. 'Till we sat on the dusty road and we made a vow To carry it far as the dead tree now. And never was burden so gladly borne, Nor ever were bearers so little worn.

But, oh, they were heavy too far to tell. The pails we bore from the near-by well!

Every Sleep a Beauty Sleep

New York Sun.

"EVERY sleep should be a beauty sleep," said a beauty lecturer, "and it is a woman's own fault when it is not.

"With most women a night's sleep is not a beauty restorative. Our patients come to us in the morning all tired out. They drink coffee at night, which keeps them awake; they play cards, which makes the nerves too sensitive; they go to bed hungry, which makes the stomach uneasy. In the morning they show the results of their indiscretions of pastime and diet. That is why morning is a woman's worst time from a beauty standpoint.

"Every beauty doctor and every masseuse will tell you that she has been called upon at times to give a patient a beauty rest. Her work is merely to suggest sleep. If the patient is very luxurious she will suggest a pillow of roses.

"It takes four dozen American Beauties to make a pillow. If the smaller roses are used it takes six dozen.

"The roses have all the stems cut short and all the thorns and coarse leaves taken off. They are then placed upon a silken pillow and piled up until a soft mass is formed just where the patient rests her head. The smaller cushion all and sweetly spiced she takes her midday or mid-afternoon repose.

"But fortunately the beauty sleep does not depend upon having a pillow of roses at all. One can get a very good beauty sleep without spending anything. The important point is that all the conditions should be favorable to sleep.

"Few women, for instance, know how important a thing the arrangement of light is to the looks. Eyes will be weak in the morning, the head will be achy, and there will be a fine batch of wrinkles where the forehead should be smooth and fair; all because the morning sun has beated upon the optic nerve.

"A bright light is like a hammer beating upon this nerve, and unless the nerve gets its certain amount of rest it will show its bad treatment in wrinkles and a worn-out, good for nothing feeling.

"Exercise just before you sleep. This is important. The cross-country walker, the woman who must get out and exercise, will not complain of insomnia, nor will she be apt to waken with a tired feeling as the woman who has done nothing.

"It is a sure rule that the woman who goes to bed without taking a certain amount of fresh air and exercise will waken much more tired than the woman who goes to bed with every bone aching. The tired woman wakes up fresh. The other woman wakes up tired.

"Drinking something hot before you go to bed is a good plan for the woman who wrinkles. A warm drink will refresh every nerve in the body.

"As a test of whether your sleep has been a beauty sleep or not, just note your feeling when you awake. If you waken with an idea that all is well with you and the world, you may be sure that you have had a beauty sleep. Rise from your bed and look at yourself in the glass. Your eyes will have the contented look of a pretty woman.

"Most of them wake up suddenly and with a start.

"How shall I wake up slowly? asked a woman of me once upon a time, a tired out woman, who could not seem to learn how to sleep a beauty sleep.

"My answer seemed irrelevant. 'Have you a kitten in your family?'

"Yes," said the woman.

"Then take lessons of your kitten.

Note how she wakes up. She yawns, she stretches her paws, she extends the muscles of her back and spine.

"She takes several minutes to wake up, and by the time she is thoroughly awake she feels frisky. Let your kitten give you lessons in waking slowly from your beauty sleep!

"The woman who wakes up slowly and who learns to exercise her muscles will feel lively as she wakes. She will have a rested feeling.

"There are women who not only wake up tired but they wake up cross as well. To wake up cross spoils at least the first half of one's day, and maybe the whole day. Try to keep your serenity of mind.

"There are certain exercises that give a woman a quiet mind. One of these is the repeating of a certain set of words.

"If you wake up looking wrinkled and feeling cross you can treat yourself instantaneously for your trouble. Go to the window, open it wide, no matter what the time of year. Put on something warm if necessary, and then extend your arms. Lower them, lift them and extend them again.

"The beauty sleeper must always go to bed with a smile on her face. Go to sleep smiling and you will wake up with an expression of joy that will last you the greater part of the day.

"The beauty sleeper must have all kinds of scented pillows. Sometimes one is in a mood for one odor and sometimes one prefers another, but one should have plenty of pillows so that one can change off and be always suited.

"Scents have a great influence upon sleep. The woman who sleeps in an ill-scented or a badly-ventilated apartment will always have a wrinkled look of discontent next day."

Knock for Knock.

Lippincott.

"This coffee isn't settled," said Mr. Rounder.

"Neither is your board-bill," replied the landlady.

Idle Wishes.

E. E. Kiser in Chicago Record-Herald.

I wish that I might be as brave as I am here in the play. And that I might have sudden strength, as his to clear existing wrongs away.

I wish that I were as rich as he is. I wish that I could always win the fair maid, as he always can; It's such a dismal thing to be a common, unheroic man!

I wish the girl who sits and looks at me sometimes across the aisle. I wish that the lady in the play and that if I should dare to smile. She would have sudden faith in me and some and snuggle at my side.

And tell me how in heaven's name she will be true to me, when she has seen the fair maid, as he always can; And that on me she might confer the right to keep her in my care.

I wish her father might be rich, as he is sometimes across the aisle. I wish that, although he spurned me now, he might express regret some day; I wish—but why keep wishing on? I presently must leave this car. To tell you truth with all my might, where many money-grubbers are. While she that sits across the aisle and chews gum and has a face I would not turn around to see.