

New Use for Lemon Verbena.

The well known fragrant garden favorite, the sweet-scented or lemon verbena (*Lippia citriodora*), seems to have other qualities to recommend it than those of the fragrance for which it is usually cultivated. The author of a recent work, entitled "Among the Spanish People," describes it as being systematically gathered in Spain, where it is regarded as a fine stomachic and cordial. It is used either in the form of a cold decoction, sweetened, or five or six leaves are put into a teacup, and hot tea poured upon them. The author says that the flavor of the tea thus prepared "is simply delicious, and no one who has drunk his Pekoe with it will ever again drink it without a sprig of lemon verbena." And he further states that if this be used one need "never suffer from flatulence, never be made nervous or old-maidish, never have cholera, diarrhoea, or loss of appetite."

A VELOCIPEDE FEAT EXTRAORDINARY.

Two intrepid velocipedists, M. le Baron Emanuel de Grafenried de Burgenstein, aged twenty years and six months, and a member of the Society of Velocipede Sport, of Paris, has accomplished, with M. A. Laumaille d'Angers, the greatest distance that has been made with a velocipede in France.

Leaving Paris on March 16, they returned on the 24th of April, after having traveled a distance of more than three thousand miles.

Their route extended through a part of the west, the middle, and the south of France, Italy, and southern Switzerland. They traveled through Orléans, Tours, Poitiers, Angoulême, Bordeaux, Montauban, Toulouse, Montpellier, Marseilles, Toulon, Nice, Menton, San-Remo, Genoa, Turin, Milan, the Simplon—where they barely escaped destruction by an avalanche—Vevay, Berne, Lausanne, Geneva, Dijon, Troy, and Provins. The longest distance that they accomplished in a single day, was between Turin and Milan, a distance of 90 miles, which they made in 9½ hours.

Superior Excellence of American Goods.

The *Post*, of Birmingham, England, remarks with regard to American competition, that "perhaps the most humiliating feature of the business for British manufacturers is the fact that their competitors are prevailing, not through the cheapness, but through the excellence of their goods. Time was when English workmanship ranked second to none, and the names of our great manufacturing firms were a guarantee for the sterling quality of the goods they turned out; but competitions, trades unions, piece work, short hours, and other incidents of the 'march of progress' have altered all that. Complaints, received by hardware merchants from their customers abroad, are not confined to the goods of second class firms. Manufacturers who have obtained a world-wide reputation for their products are frequently convicted of sending out scamped and unfinished work, and they do not venture to deny the impeachment, pleading only that the most vigilant must be sometimes at fault, and that their men, unfortunately, are not to be depended upon. In other cases it is the merchants or their customers who are to blame for the inferior quality of the articles by cutting prices so low as to preclude the possibility of honest work, thinking, probably, that anything is good enough for a foreign or colonial market. But whatever the cause, the fact is now undeniable, that a great deal of the manufactured produce shipped from this country of late years has been of a very low standard, and that the American manufacturers have consequently had an easy task in beating it."

Petroleum Oils as Lubricators.

Oils from petroleum are now produced suitable for nearly every mechanical process for which animal oils have heretofore been used, not excepting those intended for cylinder purposes. A serious objection attaching to the animal oils is present in petroleum. If, through the exhaust steam, some of the oil be carried into the boiler, foaming or priming is the consequence, but the same thing happening in the case of petroleum is rather a benefit than otherwise, for it not only does not cause foaming, but it prevents incrustation or adhesion of the scale or deposit, and this aids in the preservation of the boiler, and is perhaps the best preventive of the many everywhere suggested.

Often, in removing the cylinder head and the plate covering the valves of an engine, we see evidences of corrosion or action on the surfaces, differing entirely from ordinary wear, and the engineer is generally at a loss how to account for it. According to the general impression grease or animal oil is the preservative of the metal, and is the last thing suspected of being the cause of its general disintegration. The reason of this is that vegetable and animal oils consist of fatty acids, such as stearic, margaric, oleic, etc. They are combined with glycerin as a base, and, under ordinary conditions, are neutrals to metals generally, and on being applied they keep them from rusting by shielding them from the action of air and moisture. But in the course of time

the influence of the air causes decomposition and oxidation, the oils become rancid, as it is called, which is acid, and they act on the metals. What happens at the ordinary temperature slowly goes on rapidly in the steam cylinder, where a new condition is reached. The oils are subjected to the heat of high pressure steam, which dissociates or frees these acids from their base, and in this condition they attack the metal and hence destroy it.

This applies as well to vegetable as to oils of animal origin, fish or sperm oil included. Petroleum and oils derived therefrom (generally called mineral oils) are entirely free from this objection. Petroleum contains no oxygen, and hence it cannot form an acid, and therefore cannot attack metal. It is entirely neutral, and so bland that it may be and is used medicinally as a dressing to wounds and badly abraded surfaces where cerates of ordinary dressing would give pain.—*Coal Trade Journal*.

Influence of Light on Plants and Animals.

Professor Paul Bert, who has recently devoted a great deal of attention to the study of the influence of light on animals

in the transparent layers of the skin must be affected by light. According to Dr. Bouchard a sunstroke is the effect of the direct action of light upon the skin, produced by the blue and violet rays. The heat producing rays have no part in such accidents, as proved by the fact that workmen exposed to intense heats do not feel their fatal effect. Professor Bert, in a series of experiments on a variety of animals, found that none avoided light, but all rather sought it; and the lowest forms, like the highest, absorbed the same rays. As regards intensity of color, however, there was a difference, some being more partial to one ray than another. Thus the microscopic daphne of the pond preferred yellow; violet was less in request; spiders seemed to enjoy blue rather than red rays—so resembling people suffering from color blindness. No two persons are sensible to the same shades or tones, while absorbing the same light; and this would seem to indicate that the retina possesses a selective power.

New Mechanical Inventions.

An improved Weighing Scale has been patented by Hosea Willard, of Vergennes, Vt. The object of this invention is to economize time in ascertaining the weight of an article by avoiding the necessity for shifting the poise on the scale beam. It consists in providing a scale beam with a number of dishes suspended from different points on said beam, and representing or corresponding with different weights, so that the weight of an article may be ascertained by placing it in one or more of said dishes and observing which dish is depressed.

William John, of Rigdon, Ind., has patented an improved Tire Setting and Cooling Apparatus, by which the tire may be set by one person, easily and quickly, without burning the felines, and without straining the wheel by the unequal cooling of the tire.

Joseph A. Mumford, of Avondale, Nova Scotia, Canada, has patented an improved machine for Sawing and Jointing Shingles. This machine cannot be properly described without engravings. It has an ingenious feeding device, and its flywheel carries the jointing knives.

Ill-balanced Production.

The Philadelphia *Record* sensibly remarks that the popular complaint of over-production is a mistake. Though of a few things we make or mine too much, our main trouble arises from not producing enough, in variety if not in quantity.

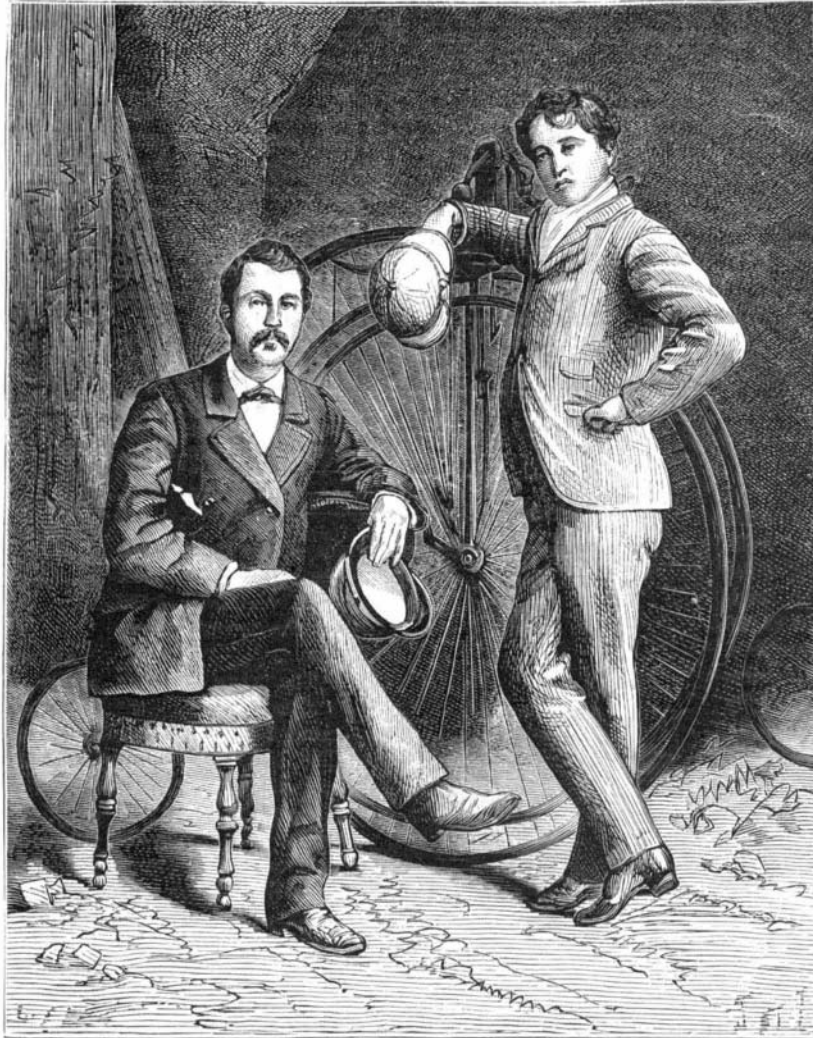
"The wants of mankind never can be satisfied. Every new means of supplying a want creates new wants. They grow by what they feed on. As long as humanity is so constituted, over-production, in a general and enlarged sense, is impossible. It is this impossible thing with which the reformers would deal who propose to work fewer hours each day, or fewer hours in the week. The trouble they deplore does not exist; the remedy they propose defeats itself. A man cannot get rid of his load by shifting it from his right hand to his left hand. Production will not be stopped by making men their own employers certain hours in the day or certain

days in the week, instead of allowing them to pursue their usual avocations.

"The real trouble, which the labor reformers seem incompetent to fathom, is that there is not enough diversity in employments. What is desired is more work in productive enterprises, a more diffused industry, and a closer commercial connection with those countries wherein we can make desirable exchanges both of our raw material and our manufactured products. Every miner that drops his pick and takes up a hoe, every idle man that turns himself into an earner of wages, every person that picks up some loose thread of employment, every capitalist that takes advantage of stagnating industry and cheap material to build a house or beautify or improve a country seat, or set on foot some new process of manufacture, does something toward working out the problem which is puzzling the economists. In good time the surplus iron and coal will be sold; new populations will want new railroads; recuperated capital will gather confidence and take hold of new enterprises, and the whole nation will move forward again to more assured prosperity and to vaster undertakings."

Labor in Germany.

The consul at Barmen reports that for agricultural labor the pay varies greatly, according to the proximity to or remoteness from manufacturing centers; and ranges from fifty-six cents a day in the neighborhood of Barmen to thirty-one cents a day in the lower Rhine valley, and as low as eighteen cents in parts of Silesia. At Barmen, Crefeld and Düsseldorf, carpenters, coppersmiths, plumbers, machinists and wagon-smiths earn fifty-one to seventy-five cents daily; saddlers and shoemakers forty-seven to fifty-two cents daily; bakers and brewers, with board and lodging, from \$1.42 to \$2.14 weekly, and without board from sixty cents a day to \$4.28 a week; farm hands are paid from \$107 to \$215 yearly, with maintenance; railroad laborers from fifty-six to eighty-

**A VELOCIPEDE FEAT EXTRAORDINARY.**

and plants, denies that the leaves of the sensitive plant close on the approach of evening, the same as if they had been touched by the hand. On the contrary, he finds that from 9 in the evening, after drooping, they expand again and attain the maximum of rigidity at 2 in the morning. What is commonly called the "sensitiveness" of plants is but the external manifestations of the influences of light. Professor Bert placed plants in lanterns of different colored glass; those under the influence of green glass drooped in the course of a few days as completely as if placed in utter darkness, proving that green rays are useless, and equal to none at all. In a few weeks all plants without exception thus treated died. It has been proved by the experiments of Zimiriareff that the reducing power of the green matter of plants is proportionate to the quantity of red rays absorbed, and Bert shows that green glass precisely intercepts these colored rays, and that plants exist more or less healthily in blue and violet rays. In the animal world phenomena of a directly opposite nature are found, and of a more complex character. Here the light acts on the skin and the movements of the body, either directly or through the visual organs. M. Pouchet has shown the changes in color that certain animals undergo, according to the medium in which they live. For instance, young turbot resting on white sand assume an ashy tint, but when resting on a black bottom become brown; when deprived of its eyes the fish exhibits no change of color in its skin; the phenomenon, therefore, seems to be nervous or optical. Professor Bert placed a piece of paper with a cut design on the back of a sleeping chameleon; on bringing a lamp near the animal the skin gradually became brown, and on removing the paper a well defined image of the pattern appeared. In this case the light acted directly, and without nervous intervention. If, however, the eye of the chameleon be extracted, the corresponding side of the animal becomes insensible to the influence of the light.

Professor Bert's conclusion, therefore, is that the circulation

three cents per day, and as high as ninety-five cents daily for piece work on tunnels; silk weavers can earn \$2.15 to \$2.85 a week per loom; factory women \$2.15, and children \$1 a week. Business and wages are very low. In good times wages are eighty per cent higher. The cost of the necessities of life has increased some fifty per cent in thirteen years, although it is now but little higher than five years ago. A man and wife with two or three children can live in two or three rooms in a poor and comfortless manner for \$275 a year, and to support such an establishment all the members have to work ten or twelve hours daily. For a family of six persons the cost is about \$7 per week—an amount but few families can earn, as the depression of trade and the reduction of time allow few to do a full week's work, although wages are nominally a trifle higher than five years ago.

Petroleum June Review.

DRILLING WELL ACCOUNT.

The low price of oil and large accumulation of stock in the producing regions have had the effect to lessen operations in this department during the month of June.

The total number of drilling wells in all the districts, at the close of the month, was 266, which was 110 less than in the preceding month. Rigs erected and being erected 243, against 309 last month. The number of drilling wells completed during the month was 269, being 151 less than in May. Aggregate production of the new wells was 3,788 barrels, against 6,851 barrels in May. The total number of dry holes developed in the month was 22, against 42 in May.

The operators in the great northern field (Bradford district) have curtailed operations to an extent which will compare favorably with the operators in the other portions of the producing regions, as will be seen by the following statement, namely:

Number of wells drilling at the close of the month, 187, against 284 at the close of the previous month. Number of drilling wells completed in June, 193, against 346 in May. Number of rigs erected and being erected, 196, against 234 in May.

PRODUCTION.

The daily average production for the month was 40,575 barrels, being a decrease of 227 barrels. The new wells completed in June failed to make good the falling off of the old ones, by decreasing the daily average 227 barrels. Bradford district shows a daily average production of 16,000 barrels, being an increase of 1,280 barrels over last month.

The aggregate production in June of all the other districts combined, with the aid of 76 new wells, decreased the daily average 1,507 barrels.

SHIPMENTS.

The shipments in June, out of the producing regions, were 174,225 barrels larger than in the preceding month. The total shipments of crude, and refined reduced to crude equivalent, by railroad, river and pipes to the following points, were 1,135,119 barrels:

New York took.....	555,794 bbls.
Pittsburg ".....	153,182 "
Cleveland ".....	239,389 "
Philadelphia ".....	73,426 "
Boston ".....	29,266 "
Baltimore ".....	26,623 "
Richmond ".....	7,000 "
Ohio River refiners took.....	5,200 "
Other local points took.....	45,239 "
Total shipments.....	1,135,119 "

Included in the above shipments there were 140,299 barrels of refined from Titusville and Oil City, which is equal to 187,065 barrels of crude.—*Stowell's Petroleum Reporter.*

Remarkable Poisoning of a Lake.

A contributor to *Nature* describes the remarkable poisoning of Lake Alexandrina—one of the bodies of water which form the estuary of the Murray river, Australia. This year the water of the river has been unusually warm and low, and the inflow to the lakes very slight. The consequence has been an excessive growth of a conferva which is indigenous to these lakes and confined to them. This alga, *Nodularia spumigena*, is very light and floats on the water, except during breezes, when it becomes diffused, and being driven to the lee shores, forms a thick scum like green oil paint.

This scum, which is from two to six inches thick, and of a pasty consistency, being swallowed by cattle when drinking, acts poisonously and rapidly causes death. The symptoms of the poisoning are stupor and unconsciousness, falling and remaining quiet (as if asleep), unless touched, when convulsions are induced, the head and neck being drawn back by a rigid spasm, subsiding before death. The poison causes the death of sheep in from one to six or eight hours; of horses, in from eight to twenty-four hours; of dogs, in from four to five hours; and of pigs in three or four hours. A *post mortem* shows the plant is rapidly absorbed into the circulation, where it must act as a ferment, and causes disorganization. As the cattle will not touch the puddle where the plant scum has collected and become putrid, all they take is quite fresh, and the poisoning is therefore not due to drinking a putrescent fluid full of bacteria, as was suggested.

When the scum collects and dries on the banks it forms a green crust. When, however, it is left in wet pools it rapidly decomposes, emitting a most horrible stench, like putrid

urine; but previous to reaching this stage it gives out a smell like that of very rancid butter.

A blue pigment exudes from this decomposing matter, having some remarkable properties. It is remarkably fluorescent, being red by reflected and blue by transmitted light; it appears to be a product of the decomposition, and allied to the coloring matter found in some lichens.

ASTRONOMICAL NOTES.

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, August 10, 1878.

The following calculations are adapted to the latitude of New York city, and are expressed in true or clock time, being for the date given in the caption when not otherwise stated.

PLANETS.

Mercury sets.....	8 03 eve.	Saturn rises.....	8 59 eve.
Venus rises.....	2 42 mo.	Saturn in meridian.....	2 53 mo.
Jupiter in meridian.....	10 52 eve.	Neptune rises.....	10 27 eve.

FIRST MAGNITUDE STARS.

Alpheratz rises.....	6 54 eve.	Regulus sets.....	7 29 eve.
Algol (var.) rises.....	8 34 eve.	Spica sets.....	9 24 eve.
7 stars (Pleiades) rise.....	10 53 eve.	Arcturus sets.....	0 08 mo.
Aldebaran rises.....	0 17 mo.	Antares sets.....	11 24 eve.
Capella rises.....	9 40 eve.	Vega in meridian.....	9 15 eve.
Rigel rises.....	2 23 mo.	Altair in meridian.....	10 27 eve.
Betelgeuse rises.....	2 08 mo.	Deneb in meridian.....	11 19 eve.
Sirius rises.....	4 24 mo.	Fomalhaut rises.....	9 34 eve.
Procyon rises.....	3 59 mo.		

REMARKS.

Mercury is brightest this date, and furthest from the sun August 13. Venus will be at her descending node August 17. Jupiter will be near the moon August 17, 4h. 20m. morning, being the moon's apparent diameter north; this will be an occultation south of the equator. Saturn will be near the moon August 16, being about 7° south.

There will be a partial eclipse of the moon August 16, in the evening. The moon will rise more or less eclipsed east of Kansas, west of which no eclipse will be visible.

	Middle.	End.
	H. M.	H. M.
Boston.....	7 24 eve.	8 50 eve.
New York.....	7 12 eve.	8 38 eve.
Washington.....	7 00 eve.	8 26 eve.
Charleston.....	6 48 eve.	8 14 eve.
Chicago.....	—	7 44 eve.
St. Louis.....	—	7 33 eve.
New Orleans.....	—	7 34 eve.

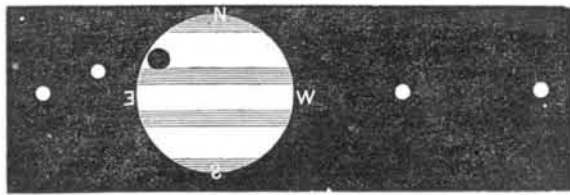
The following shows the appearance of the moon when the eclipse is greatest—7.1 digits, or 0.596 of the moon's diameter.



The size of the eclipse will be the same for all places. The time of middle and end for any other places may be obtained by applying the difference of longitude from Washington, converted into time, to the Washington time of middle and end, adding if east of Washington, and subtracting if west.

An Interesting Astronomical Observation.

To the Editor of the *Scientific American*:
While viewing the planet Jupiter, at about 5 minutes past 10 o'clock P. M., a very strange sight presented itself to the observers, who were looking for a transit of one of the satellites. A very dark spot much larger than a satellite was seen on the eastern edge of the disk, as shown in the above diagram. It moved rapidly westward along the upper margin of the northern belt and passed off at 1 o'clock 24 minutes A. M. (12th). From its first internal contact till its last



external contact was just 3h. 19m., Pittsburg time. It appeared to be a solid opaque body, truly spherical, very sharply defined, and most intensely black. The transit of the satellite occurred at 15 minutes after 11 o'clock, and had no unusual appearance. Now what was that dark body? We are constant observers of the heavenly bodies, though not deeply versed in the science of astronomy, and are anxious to know if any one can give us some light on the subject. The telescopes used were a 2½ inch and 5 inch achromatic, magnifying 154 and 216 diameters, but the 154 was chiefly used.

JOSEPH WAMPLER.
JAMES R. GEMMILL.

McKeesport, Pa., July 11, 1878.

Some of Professor Marsh's Recent Discoveries.

Mr. S. W. Williston, the assistant of Professor Marsh, has been giving to the Omaha *Bee* some interesting facts with regard to the great reptilian fossils recently discovered in Wyoming and Colorado. The bones found represent reptiles of many sizes, from that of a cat up to one sixty feet high. The latter, found at Como, Wyoming, be-

longed to the crocodile order; but the remains give evidence that the animal stood up on its hind legs, like a kangaroo. Another found in Colorado is estimated by Professor Marsh to have been 100 feet long. A great many remains of the same general class, but belonging to different species, have been collected and sent East. Among them from three to four hundred specimens of the dinosaur, and about a thousand pterodactyls, have been shipped from Colorado, Wyoming, and Kansas. The wings of one of the latter were from thirty to forty feet from tip to tip. Seventeen different species of these flying dragons have been found in the chalk of western Kansas. There have also been found six species of toothed birds. Comparatively little has been done toward classifying the late finds, the task is such an enormous one. Great importance is attached to them, however, since nothing of the kind had been found in America until a little over a year ago and great stress had been laid by certain geologists on their absence. Another remarkable feature of the discovery was that the fossils which had been reported as not existing in this country had hardly been brought to light in one locality before thousands of tons of them were simultaneously discovered in half a dozen different places.

Trying to Save a Hundred and Fifty Million Dollars a Year.

Professor Riley, recently appointed Government Entomologist and attached to the Agricultural Department, reports that specimens of insects injurious to agriculture are constantly being sent to the department from all parts of the country, with requests for information. In every instance, if a proper examination could be made, an effectual remedy could be found, and not less than \$150,000,000 saved to the country annually. Recently a worm entirely new to science was sent to the department by an Iowa farmer, whose orchard of several thousand apple trees had been rendered unproductive for several years by the new depredator. For the interests of Western fruit growers this insect should immediately be investigated. Professor Riley asserts that the \$5,000 recently voted by Congress for the investigation of the cotton worm, which has sometimes damaged the cotton crop of the South as much as \$20,000,000 in a single fortnight, might have been used to better advantage by the department; the salary of the entomologist will use up all the money, leaving next to nothing for experiments for the eradication of the pest.

Industrial Education.

All are agreed that some education is necessary; but what? The great proportion of those having the direction of our educational system and facilities in charge still cling to a system which was established long before the first mechanical operation came into existence. Before the present system of man's relation to man, socially, industrially, politically, or commercially, was heard of, and notwithstanding the revolutions and advancement in all other things, there is a determined resistance to any attempt at revolution in what shall be considered education.

There is an effort to establish compulsory education; but what is the child to be taught? As if in league with the false theories of the rights of labor, these efforts take the apprentices from the shops, force them away from where they would learn something, and confine them inside a school house to learn—what? Certainly nothing of the materials, or tools, or pursuits by which they are to obtain their livelihood. The child knows nothing of when or by whom the compass was discovered, the printing press, the use of powder, electricity, of steam, or of any one of the thousand mechanical operations now controlling every department of life. Does any school boy know how many kingdoms there are in the natural world, or whether an animal, a vegetable and a mineral all belong to the same or to different ones? Will he know that from instinct the young of animals seeks its food and expands its lungs, as by the same instinct the root of a seed sucks up its nourishment from the soil and sends its leaves up to breathe the air? Will he know anything of the nature or requirements of the soils or the plants that grow in them? Will this compulsory education teach the boy anything of the iron furnace, the foundry or rolling mill, or the uses or handling of any of their products? Will it teach him anything of woods and their value, or for what and how they are useful to man?

Will this knowledge, for which the powers of the State are to be required to force him to know it—will it teach him anything of the nature or uses of metals, of metal working, or the business depending upon them? Will it teach him anything of gold or silver, copper or brass? Anything of pottery, of bone, ivory, celluloid, etc.? Will he learn anything of hides, leather, or the production of these necessary articles? Will he know whether the word textile applies to anything but a spider's web or the wing of a butterfly? Whether the United States make, import, or grow cotton, wool, silk, flax, and hemp?

Will he know anything of commerce, railroads, telegraphs, printing, and the great number of clerk labors in the larger towns? Will he have learned a single thing which will assist him in his work of life? Will not every boy thus taken out of the shop and placed at the compulsory schooling find after he has mastered all it has to give him that he yet knows nothing; that he must then commence where he was and serve his apprenticeship; that instead of compulsory education his past years have been wasted in obtaining but a compulsory ignorance?