NEW YORK, JULY 1, 1848.

Theory and Practice.

The word theory is very much abused. It is too generally considered to be a system of vague thought—a code of opinions set forth by men who think and write and do nothing more. This is a general and great mistake, and when we hear, as we often do, the expression, " this is mere theory, not according to practical results," we always endeavor to correct the error. There can be no theory without experiment—theory is just accumulated and arranged experiment, and this constitutes a science, be it Chemistry or Geology. There are many theorists who are not practical men, but their theories are the result of practical men's experience. There is, therefore, a great difference between *a theory* and a theorist. Theory and practice are twin sisters. As well might the astronomer predict the revolution of the spheres and tell all their movements without the telescope, as a man to found a theory without practice ; and the astronomer who would observe the heavens like a child gazing into a camera obscura, would just be to the world like a practical man without a theory. Theory and practice consist in a man understanding the principles which *govern* the various operations at which he labors—the knowledge of the head and the skill of the hands. What man—what mechanic, will plead an ignorance of either of those requisites so essential to be good workmen and intelligent men ? We trow there is not one. But where is the evidence of universal theory and practice ? Is it not a fact that many, day after day, finish parts of machines and cannot tell the relative propertions which one part should bear to the other nor where this and that part should be placed in their relative positions ? It is true, and many regret, candidly regret their want of knowledge in this respect. There is a remedy—they must read, they must reflect, and they must converse upon those subjects on which they desire to be enlightened. No man can acquire *all knowledge*, but each in his sphere can be *a king*, and there are no men who have such advantages in this respect as our practical working men. They are the men who above all others, can, if they will, understand the full meaning of Theory and Practice.

Sleepers for Plank Roads.

A correspondent of the Memphis (Tenn) Eagle, of the 7th June, in an interesting article on " Plank Roads," speaks of preparing or kyanizing the timbers to prevent their decay, and refers to the railroad of prepared timber which was in operation near London some years ago. He says : " If this process should not be too expensive, plank roads being thereby rendered imperishable—and not wearing by use, would be preferable to railroads, and, indeed, would be a foundation for railroads, if the other should not be deemed preferable—because all that would be required to convert a plank road into a railroad, would be to spike down rails 3 inches thick upon the plank and put cars upon them. The Editors of that incomparably valuable paper the Scientific American, can, perhaps, furnish the information required. To wit : Is the road aforesaid, near London, still in use, and still situated as at first ? If so, how were the timbers prepared ? If the preparation be calculated to prevent decay and wear, why has it not come into use to prepare timbers for pavement ? TELPERT."

As it regards the English wooden railroad, we are unable to tell in what condition it is in. We know that in England the iron tracks are cheapest in the end, because timber is so high in price in that country. But as it regards the preparation for the preservation of wooden sleepers, Telpert has suggested a very important improvement for our plank roads, a suggestion which we hope to see carried into practice in the construction of all new plank roads. We recommend the sulphate of copper as being the best substance to use for this purpose. It forms an insoluble compound in the wood and is not expensive nor deliquescent. It is also a destructive poison to insects. Corrosive sublimate no doubt is better, but it is very expensive. The way to prepare the wood is just to immerse it in the liquid, or else by placing the timber on an incline, the liquid to be placed in contact with the upper end, and soaking down through the pores of the wood, expelling all the air. This latter plan is the best, because it is very simple. Iron cylinders are used by the French, into which the timber is placed and the air exhausted by an air pump, and then a solution of corrosive sublimate forced into the cylinder, which instantaneously rushes into the pores of the wood.

It never can be expected that wood will endure as long as iron, be it prepared in any manner whatever. Nor is it to be expected that any preparation will make one kind of wood as enduring as another in any situation. Full experiments in preparing timber have been made by eminent men and the result has always been in favor of those kinds of timber which naturally are the most enduring. This is a subject which ought to arrest the attention of those who are engaged in the construction of plank roads. Chesnut and cedar are certainly the best sleepers that can be used.—Hemlock does well for the planking, and considering its price it is the best planking that can be used, but we prefer oak were it as cheap. The utility of plank roads is unquestionable, especially for level districts, be they sandy, clayey or swampy. Our broad and beautiful country is now well threaded (and " the work still goes bravely on,") with railroads, but our byroads, those roads so essential to the agricultural comfort and prosperity of our sturdy yeomen, are in general unworthy of our character for enterprise and industry

The common plan of repairing roads, used to be by filling up the ruts and mud holes with dry mud by a scraper—a slovenly and miserable way of road-making. If it is true that " the civilization of a nation is represented in its roads," we trust that our people will not neglect to take the hint and profit by the construction of good plank roads, especially where they can be built with so much advantage to our rural population.

Atmospheric Railways.

The London Mining Journal contains the following notice of a proposed system of atmospheric propulsion, patented by Mr Dawes of Old Kent and the City Road, London. The idea of using atmospheric air as a locomotive agent has for years been familiar to many minds, but great difficulties were anticipated in reducing the very reasonable theory of the work to practice, a principal one consisting in the extreme rarity of the fluid sought to be employed.

The invention of Mr. Dawes consists of " a truly cylindrical tube, closed throughout, divided into sections of about two miles, one end of each section being closed, the other open, in each of these sections is a truly fitted piston, which we will suppose to be at the bottom or closed end of the tube, at the open end is a drum, around which a rope is wound by proper gearing, the action of this drum sets in motion another drum the reverse way. The piston having arrived at the open end of the first section, a perfect vacuum is formed in the tube, and the piston being set free, the atmospheric pressure forces it down the tube with great velocity, of course drawing the train attached, and as one rope is wound up the other is unwound.

The patentee proposes to have stationary steam engines, of about ten horse power at every two mile section of tube which he considers would be sufficient to raise the necessary power to drive heavy trains at any required speed every half hour. He proposes that the lines should be laid down on the natural surface of the ground, on the usual portion of turnpike roads, and working without any interruption to the usual traffic. The diameter of the tube would be about three feet ; one foot in the same would drive twenty to thirty feet on the road : consequently from one hundred and fifty, to two hundred feet of tube, in one or more lengths, would drive a train one mile. The piston moves slowly, while the train runs with great velocity. The plan proposed for the formation of a company is, in the first place, to raise by subscription sufficient to lay down two miles of railway, and thus truly test its capabilities; these subscribers to have the choice of shares with a good bonus should a company be formed, and the remainder to be submitted to the public. The cost of such a line including propelling power, with all accessories complete for driving a heavy train every half hour, is estimated at two thousand five hundred dollars."

The scheme to our view is very airy—not half so good as many others already well known.—ED.

Washing Butter.

As a great number of our subscribers are engaged in agricultural pursuits and have a taste for science in every one of its departments, especially what relates particularly to their own profession, we extract the following remarks from the Boston Cultivator, which are positively sound to our knowledge, and to which we would request earnest attention.

" We doubt the utility of washing butter in cold water. There is in butter properly made from good cows in the best of feed, a peculiar rich aroma and flavor, which is, in some measure, washed away by the use of cold water.

We know that a thousand evidences may be brought forward to justify washing in the shape of Dutch butter, and good productions throughout the country. But we want something more than good butter. We want extra fine. Some say butter is an oil and water will not dissolve it. But what evidence have we that the fine savor of butter consists in oil ? We have seen butter that had all the peculiar properties of oil and grease, and yet so far from having a delightful savor, it had the contrary, and if used for crackers, as is often the custom with bakers, the odor was apparent in them, on wetting them in warm water.

Water will surely extract the fine flavor of butter, as has been shown by putting balls of butter in salt water for preservation It becomes insipid ; and we have no doubt that washing butter has the same effect, only less from the transient operation. The finest butter that we ever tasted was well made without washing in water, and it was sometimes kept in the best condition one year, and with no other preservative but salt.

We have found sugar an excellent preservative for butter not to be used soon, and so is saltpetre, but as to the effect of the latter on health much has been said, and doctors disagree. To preserve butter for a long time, it is usually salted high ; and if we can modify this excess of salt, by using more palateable and salutary substances, of equal efficiency in conservative qualities, it will be an improvement. Sugar has these qualities. We have the opinions of chemists, judging from the composition, decomposition, and combination of various substances in their laboratories, which are all very well so far as they extend, but we want the effect produced in the laboratory of nature on the living animal. The plain practical effect is the philosophy that we need."

Shingle Manufactory.

Mr. S. N. Cutler, of Ashland, Mass., has a manufactory where shingles are made with great economy and expedition. The logs are barked, then taken into a mill and sawed in halves or quarters, according to size, then with a circular saw they are cut into suitable lengths. These bolts are put into a large water tight box that holds more than a cord, and covered with water, which is heated by a fire in a copper tube or funnel, running nearly through the box, and returning to the other end where the smoke is discharged, a very economical mode of heating, both in construction and fuel. The bark from the logs supplies the fuel.

After soaking nearly 24 hours, the bolts are taken out and placed on a bed, that moves gradually under a great knife, that goes with great force and rapidity, cutting through bolts 8 or 10 inches wide, knots and all, and making 150 strokes per minute. Two men and a boy are employed, who complete 8,000 a day, ready for sale, after the timber is prepared for the boiler. This quantity is cut out in an hour and a half. Then the boiler is filled again. Much depends on softening the wood by thorough and long soaking in hot water.

The shingles are jointed on the side of a circular wheel, containing two jointers, which goes rapidly, and operates with great expedition. They are then packed in bundles, and ready for market. The wood generally used is chestnut, and it is very durable.

New England Lead.

A lead mine was discovered about eighteen months since, in Thetford, Vt, about one and a half miles from the Connecticut River Railroad. The mine and several hundred acres of land appertaining thereto is owned by Mr. A. Stowell, formerly of Charlestown. It is only about four or five months since, that a furnace was erected on the ground, and the smelting of the ore commenced Thus far the product exceeds the most sanguine expectations of the owner, the ore yielding about seventy-five per cent of pure lead. The lead is pronounced of an excellent quality. The vein which is now being worked, is from four to 25 inches in width, and has been worked to the depth of some twenty-five feet, and appears to be inexhaustible. Two men with one cord of wood, will turn out in twelve hours, a ton of the pure article.

Peg Manufactory.

The Waterville Mail states that Mr. M. Y. Reynolds, at Brown's Corner, in Vassalboro, Mass., has machinery in operation which can easily complete of a most superior article of shoe pegs, three hundred bushels a month. These are sold readily to the shoemakers at $1,25, to $1,50 per bushel. The machinery is of Mr. Reynold's own invention, secured by patent. The pegs are very superior in a great many respects to any now made, and the demand is greater than can be met, with the present machinery. The wood used is second growth yellow birch, for which five to eight dollars a cord is paid. A cord will average about fifty-five bushels of pegs. The wood is worked while green, and is sawed, planed, pointed, split and polished by machinery.

Preservation of Posts.

Mr. Philip Wilbur, of South Dartmouth, has reported an important experiment which he has tried with salt in preserving fence posts. Of two posts, the same kind of timber, cut and set at the same time, one has long since decayed. and become worthless, whilst the other saturated with salt, now stands in a remarkable state of preservation. The manner in which Mr. W. applies the salt is by boring an inch and a half or a two inch hole obliquely, about eight inches above the ground, and fills with salt from time to time as it becomes dissolved.

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