PERVERTING FACTS.

WERE the following assertions of Mr. J. R. Hovenden in his address on painting, recently delivered before the Architectural Draughtsmen's Association of Toronto, Canada, to be accepted, the painters and decorators of the Dominion would be certainly entitled to our commiseration. The lecturer, as reported by the CANADIAN ARCHITECT AND BUILDER of that city, observed :

"I have avoided recommending the use of boiled linseed oil in mixing color or brown japan as a dryer, from the fact that nineteen out of every twenty barrels of boiled oil is what is known in the trade as 'bung hole' boiled oil, viz., so many gallons of raw oil is taken out of a barrel and a corresponding number of gallons of a cheap liquid dryer is put back in its stead ; the barrel is then bunged up and rolled around, and you have your boiled oil complete. The average brown japans are very little better as to quality, being made from a very small quantity of cheap varnish gum and a very large quantity of resin (or North Carolina gum), with a little shellac. The use therefore of either or both in painting wood work inside or outside is somewhat dangerous, and when used the work is certain to crack, honeycomb and blister. Of such work there are thousands of specimens to be met with in this city to-day.

Assertion is not proof. The assumed positiveness in giving the actual proportion of sophisticated barrels to the entire bulk supplied excites incredulity in the speaker's honesty and sincerity. It is always easy to denounce and to exaggerate. Had the speaker contented himself with mentioning the fact of adulteration, his statement would no doubt go unchallenged ; in the architectural draughtsmen he appears to have thought he had a lot of gullible listeners. Those painters in Canada who want pure linseed oils and good japans can doubtless get those articles if ready to pay the price and possessing sense enough to buy from reputable houses. The allegation appears to have been an attack on painters themselves, who are by no means helpless sheep whose fleece are being torn by ravenous wolves. So of the following :

"A mode of procedure to be avoided is that of priming wood work with a color composed of all the odds and ends of a paint shop. It is usually 'fat,' and will not dry hard no matter what pains are taken to make it do so, and the result is, in all cases where used, cracks, blisters, &c."

No one of course compels a painter to make up such a priming. We advise Mr. Hovenden, whose remarks to the draughtsmen show him to possess some knowledge of painting, indeed to be a house painter himself, to keep within the limits of his own knowledge in his future public assertions. After all it is well to learn of embyro architects getting a lecture on how to prime and lay on coats of paint. Were our own architects so far instructed in the art of painting as better to appreciate good work, the lot of the qualified house painter and decorator would certainly be happier.—*Painters' Magazine and Coach Painter*, New York.

It is recommended that muriatic acid and arsenic, in the proportion of one ounce of acid to two ounces of arsenic, that is arsenious acid, be employed to blacken brass in order to insure the finest result. Lacquers of all kinds are prepared by dissolving shellac in alcohol or wood spirit, as good a method for beginning being found to be that of continually adding shellac to a sufficient quantity of alcohol until the varnish is as thick as will probably be needed, the fact being that as a rule the lacquer is made too thick, about one ounce of shellac to ten or twelve of alcohol usually answering the purpose. To this shellac-varnish is added various coloring matter soluble in alcohol to impart to the lacquer a golden color ; these colors were formerly obtained with dragon's blood, aloes and gamboge, a substitute for these, however, being now the aniline colors which afford all shades of yellow and red that are desired, and which with the plain shellac varnish, furnish all the gold, red gold and coppery hues that can possibly be required. All work to be lacquered should, of course, be warmed, and the lacquer be applied with a soft camel's hair brush.

CEMENT FROM IRON SLAG.

THE subject of the manufacture of cement from iron slag has become an important matter. Not long ago ground slag was added to Portland cement, but was virtually a mere adulteration, injuring the quality of the cement, and useful merely as a means of defrauding customers, under color of a theoretical similarity in chemical composition between the cement and slag, which might be quoted with good effect by a plausible salesman ; and a few years ago a convention of German cement manufacturers denounced the addition of slag as dishonest and useless. Now, however, by persevering effort, the art of making good cement from slag has been greatly developed, and it seems quite probable that the next decade will see the completion of two great industrial achievements, the production of a cheap and excellent cement from materials almost everywhere available, and the profitable utilization of one of the most cumbersome waste-products known to the arts. The extent of the resources which the manufacturers of the new cement have to draw upon may be judged from the fact that, in addition to the mountains of iron slag which already cover the smelting districts of Great Britain, the English furnaces now in blast furnish nine million tons of fresh slag every year, while those of the United States are not far behind their British rivals, and the French and German furnaces turn out nearly as much more. As a barrel of cement weighs on an average about four hundred pounds, the annual British product of slag alone, if it could all be utilized, would afford forty-five million barrels of cement—enough, if made into concrete, to build a dike fifty feet wide, and a hundred feet high, across the English channel.

Within certain limits, the chemical composition of iron slag is nearly the same as that of cement, both being composed of lime and clay, with a little magnesia and alkali. An important difference, however, consists in the relative proportions of lime and clay, the foreign Portland, like our Rosendale cements, containing about two-thirds lime to one-third clay, while the iron slag varies from equal parts of clay and lime, in that from hematite ore, to one-third lime to nearly two-thirds clay, in the Cleveland ores. As it is well understood that cement, either natural or artificial, containing more than one part clay to two parts lime is inert, and incapable of setting, either in water or in air, the solution of the problem of making slags into good cement must obviously lie in the direction of adding lime to it in sufficient quantity to give the proper proportion between the two principal ingredients. The history of the manufacture of Portland cement has already shown that in order to do this efficiently an extremely thorough grinding and mixing is necessary ; and the successful modern processes for the manufacture of slag cement secure this in various ways. The process now in most extensive operation appears to be that invented by Messrs. Bosse & Walters, of Brunswick, in which the slag, hot from the furnace, is run directly into cold water. This has the effect of granulating it ; and after cooling, and drying thoroughly, the mass is coarsely ground and sifted. Meanwhile one part of lime to every three parts of slag has been slaked, by immersion in water, dried, and separated by a fan from the heavy and unburnt articles which may have been contained in it. The proper quantities of sifted slag and lime powder are then introduced into a corrugated cylinder, together with a number of small cannon-balls, an inch or more in diameter. After turning slowly for two hours, the cylinder is found to be filled with a very intimate admixture of the slag and lime, in powder so fine that it will pass through a sieve containing forty thousand meshes to the square inch. This is the slag cement, ready for use. In rapidity of setting, the new cement resembles our Rosendales more than our Portlands, the time to the first induration varying from two to eight hours, while Portland cement often sets in half an hour. In use, the slag cement resists the action of water better than Portland, and it is certainly free from disposition to swell in setting. In tensile strength the Portland cement is superior for the first month or so after setting, but the slag cement then begins to gain; and a few months later the strength of the slag cement, either pure or mixed with sand, is in some cases nearly double that of Portland cement. In other respects, the two sorts of cement closely resemble each other, so that the slag compound seems quite as desirable for use as the rather uncertain Portland, while the price is much less, mortar made with three parts sand costing now only two-thirds as much with slag cement as with Portland, while the manufacturers assert that with a little more experience the slag cement can be made and sold at a profit for ten shillings a ton, or less than fifty cents a barrel. This is little more than one-half the price of our native Rosendale cements ; and if the iron furnaces of Pennsylvania, Ohio, Tennessee and Alabama could produce a first-class article, at anything like the same price, they ought to find the profits of their business materially increased, while the people of the country would be benefitted by having one of the best and most useful of building materials put within reach of the slenderest purse.—*American Architect.*

TERRA COTTA LUMBER.

A REPRESENTATIVE of the CANADIAN ARCHITECT AND BUILDER recently had an interesting visit at the works of the Canadian Agency of the Chicago Terra Cotta Lumber Co., situated in Montreal, and managed by Mr. W. C. Evans. From the latter gentleman it was learned that terra cotta lumber is composed of gritless kaolinic clays and sawdust in such portions as to afford a degree of porosity to the burned product sufficient to allow of its easy working with tools commonly used in carpentry. Its experimental manufacture, and its application as "fire proofing" was introduced in 1882, and has ever since found increasing favor at the hands of architects and builders. Other inventions of later origin are "Brickwood" a composition of clays, or clayey loams, and sawdust so intimately mixed and worked into form by heavy steam or hydraulic power as to render its burned product one-third the weight of common building bricks; "Cellular pottery," a mixture of surface clays, with fibrous vegetable matter, as straw, or its equivalent, in such proportions as to enable the safe drying and burning of hollow blocks pressed into the shape of joists and timber in lengths as great as ten or twelve feet; "Holstein," or woodstone, so called because composed of clay and sawdust, with sufficient straw added to furnish the required amount of fiber in their green pressed state to overcome the tendency of the wares to crack, while drying, will safely yield large hollow blocks, for the outside walls of houses, in the place and imitation of stone weighing as much as two or three hundred pounds.

All of these wares are incombustible and offer as much resistance to the action of fire as bricks, for the final process of their bring is indentical. Unlike brick, however, their great porosity confers remarkable non-ductional properties of heat, cold, and sound. It is claimed that their production can be had of any sort of clay or loams; that their first cost is cheaper than "stopped" bricks; that wooden framed buildings, at no enhanced cost, may be so sheathed and protected by their application as to be as secure against incipient fires, as the usual fire-proofed structure of iron; and that such construction affords the comfort of houses of brick in northern countries and of woodes in hot climates.

COMPOSITION OF ANCIENT MORTAR.

MR. JOHN, HUGHES, F. C. S., in the London *Builder*, after an analysis of some pieces of ancient mortar draws the following general conclusions therefrom :

1. That in ancient mortar a much larger proportion of lime was always used than at present is the practice.

2. That a superior quality of lime was employed, and that the proximity of good limestone for burning purposes was as important as the presence of good stone for building purposes.

3. That sand of an angular character, with sharp edges, is much more effective than sea or river sand, which possesses a rounded surface, and is, therefore less binding.

4. That if more attention were paid to the quality and composition of mortar and its freedom from rubbish, such as earth of a clayey nature, new buildings would be more durable and require repairs less often.

A Saratoga Springs, N. Y., inventor has devised a radiator with a swivel joint at one end, to which the steam and return pipes are connected, and around which the radiator can be swung, if desired to change its position or to clean under it.

We are pleased to learn that the Barnum Wire and Iron Co., Windsor, Ont., has been awarded the contract by the Dominion Government for all the interior iron work for the new Departmental buildings at present in course of construction at Ottawa.

Messrs. Clare Bros., Preston, Ont., manufacturers of heating furnaces, are adding to their works a three storey stone addition 195x67 feet. Mr. John Wirsching has the contract for the mason work, and Mr. L. Eyers for the carpenter work, Mr. George Winterhalt supplying the lumber.

On June 5th the J. F. Pease Furnace Co.'s factory on Queen street, in this city, took fire from a box factory in the rear. Before it could be extinguished $10,000 worth of stock had been destroyed. The building was also damaged to the extent of $2,000. The entire loss is covered by insurance.

The Napanee Cement Co. have recently removed from Napanee and have taken possession of the new buildings erected for them at Napanee Mills on the Napanee railway, five miles from the town of Napanee. It is the intention of the manager, Mr. Brenvender, to put in operation shortly a second pair of stones.