HEAT AND PORTLAND CEMENT.

The results of a recent investigation of the action of heat on Portland cement are given by J. S. Dobie, in an interesting contribution to the Digest of Physical Tests and Laboratory Appliances. Over 200 briquettes were prepared for this purpose, some consisting of neat cement, while in other cases one part of cement was mixed with one, two or three parts of sand, the age of the pieces ranging from two months to four years. In making the tests the briquettes were heated in a gas furnace to a temperature of from 650 deg. to 1,775 deg. F. After removal from the furnace every briquette was found to have lost weight, while in the case of the neat specimens cracks were usually to be observed, these latter being less apparent in the other briquettes containing sand. After cooling, the briquette was tested for tensile strength, with a load applied at the rate of 400 pounds per minute; in all cases a marked decrease in tensile strength was noted, which seemingly was connected closely with the loss in weight of the sample. In other cases in which the reduction in weight showed that practically the whole of the water of crystalization had been driven off, the specimens had practically no breaking strength. The effect of different temperatures was, however, peculiar, since briquettes heated rapidly to 1,775 deg. F. showed a loss of strength out of proportion to their loss in weight; but when the heating was slow these two losses were closely proportional. After cooling, the briquettes of neat cement could be crumbled in the fingers; those containing sand disintegrated spontaneously on standing.—*Engineering.*

U. S. IRON INDUSTRY.

The revolution in the iron industry of the United States, which began with use of cheap labor in the South, to mine and reduce ores lying close to supplies of cheap smelting coal, and ended with the discovery and exploitation of vast deposits of high-class ore on the upper Great Lakes, close to cheap water transportation, to smelters close to cheap coal supplies on the lower lakes, is a most effective illustration of the economic limitation of the value of a protective tariff.

The iron industry in the United States never could have been built up without the aid of a generous protective tariff. It existed for two generations in the Middle States, under conditions of mining and transportation not more favorable than those in foreign countries, and with a much higher scale of wages for labor. The industry never could have been started, or would have been crushed out in infancy by foreign competition, had not this been shut out by a high tariff at the seaboard. Under this shelter the industry grew to the vast proportions of ten years ago, and in spite of its extent and vigor never could have continued to grow without it in the region to which up to that time it was practically limited.

But the pressure of domestic competition, the emulation to undersell and conquer profitable markets, pushed the iron industry to explore new sources of ore and new conditions of coal supply and transportation North and South. On one side it penetrated the mountains' between the Ohio Valley and the Gulf slope, finding there cheap land, cheap labor, high-class ores, and near and abundant coal. These mines struck the first blow at high prices for iron in the United States, disturbing the conditions of the domestic markets in the West, and finally finding a market for their product, exported through Southern ports, in London and in Lancashire itself. The most remarkable revolution ever seen in an American industry, is that marked by the abundant exports of coarse iron products to British markets in the last year.

But this export movement never would have taken place but for the enormous development, only a little later, of the apparently exhaustless surface mines near the head of Lake Superior, and the marvellous improvement in transportation facilities to which it gave rise. The latest mining development is in the Mesaba district, where high-grade magnetic ore is scooped up with steam shovels from the surface, and loaded on cars run here and there on temporary tracks. This cheap mining has been supplemented with transportation so low that the price of ore delivered in Cleveland is less than the bare cost of carrying it ten years ago. As a result, two-thirds of the ore consumed in the United States comes from the upper lakes.

This it is which has sent the Southern ore abroad. Even five years ago the product of those mines found a profitable and steady market in the Middle West, from Cleveland to Chicago. Now it has been driven out by the ore from the upper lakes, and must seek a market, less lucrative, but still profitable abroad. It was this influence which broke up the Iron and Steel Trust and brought prices in this country so low that, even with absolute free trade, foreign competition would be impossible. The greatest industry in the country, owing its establishment to a protective tariff, has thus entirely outgrown need of it.—*New York Commercial Advertiser.*

ACTIVE SHOE TRADE IN THE STATES.

Duplicate orders have come in considerable numbers during the past month. Reports from the salesmen are most encouraging. Some manufacturers state that in their opinion the next spring run will be the most prosperous since 1892. There is a striking inequality about the distribution of business. In one factory there have been made during the past month an average per day of 4,000 pairs, while in the near vicinity fully a half dozen manufacturers have been very quiet. Still, the September business as a whole in Lynn is believed to have been ahead of that of one year ago. This is the opinion of the makers of cartons. Among the cut sole and shoe supply concerns there is a feeling that business is growing better. The larger portion of September was quiet in this branch of trade. Shoe manufacturers some weeks ago bought heavily at old prices, and it is very difficult for them to make up their minds to pay the present figures. It is very clear that they will stand off just as long as possible, imitating the action of the jobber, who will not place his order for goods at present rates unless he is actually compelled to. The nearer one gets to the consumer the more difficult it is to secure an advance. The nearer shoe supply people get to raw material the more stiffly do they meet the advance in prices. It is the opinion of cut sole and shoe supply manufacturers that it will be a waiting game in the shoe business for some weeks. It stands to reason that shoe manufacturers will not pay the new prices until "the last gun fires." They want to feel assured that there will be no fluctuation, and that the advance will hold.—*Shoe and Leather Reporter.*

AMERICAN WOOLENS.

The week has been rather quiet in the men's wear department of the woolen business. The clothiers were buying very few heavy weights, though prices are firmer than ever. The important feature of the next fall opening will be that goods of the same quality of last year will have to be offered at such greatly increased prices, that a doubt exists in the minds of some commission merchants and mill agents, whether this condition will not necessitate their making practically an entirely new line of goods. They realize that the manufacturing clothier has got to have certain grades of goods at limited prices in order that he may make up his regularly graded stock.

It is not generally believed that the purchasing power of the public will, by that time, be so largely increased, as to justify the expectation that the consumer will be able to pay about 50 per cent. more than last year for his clothing. In other words, a worsted fabric, which was sold this fall at $1.50 a yard, and which the wholesale clothiers made into suits, for which were asked all the way from $9.50 to $14, according to the quality of trimming and tailoring, must, during the fall of 1898, cost not less than $2 a yard, in which event the suit cannot be produced and sold wholesale at a profit for less than from $12 for the very lowest grades of make and trim, to $16.50 for the best. In the first case, the suit could be, and was retailed, at from $12 to $18, while next fall the same qualities will have to be retailed at from $16 to $22. The wholesale clothier must have for fall and winter of '98, a worsted fabric around $1.50 a yard. It will not be possible to give him an all-worsted fabric at that price.

Now the question is, will the necessities of the case be sufficiently strong to overcome the clothiers' well-grounded prejudice against cotton mixed worsteds, and will they be willing to take a fabric with cotton at the back at $1.37½ to $1.50 a yard? It looks very much now as if there will be of necessity a great demand for this sort of fabric.—*Wool and Cotton Reporter.*

TWO IMPORTANT TRADE MARK DECISIONS.

Our news columns this week contain two recent decisions in trade mark cases which serve as fresh indications of the growing tendency of the courts to lean toward the broad equity rather than toward the narrower interpretation of law which its strict letter might justify. In one of these cases the words involved as a trade mark possess enough of natural descriptiveness to have caused them to be denied, under the common rulings of the courts a few years ago, any right of exclusive ownership or use. But in the present temper of the courts, it having been shown that these words were first adopted in good faith by a manufacturer to designate a new article, and value having been given to them by his effort in pushing that article into extended public use, the right of exclusive use of the words rests in him as against any imitators. Those ethical persons who contend against the granting of restrictive rights in the use of descriptive words, will suffer a shock from the restraining order against the use of the words "lavender salts" upon any preparation excepting that to which they were originally applied, and whose success has made them valuable. But the equities clearly point to the right of this manufacturer to be protected in the sale of an article, the demand for which he has created by a heavy outlay. It is creditable to the fair-mindedness of those who were enjoined, that the injunction was obtained practically without contest upon their part, and that they, as well as others, have readily desisted from what was doubtless a not carefully considered or duly premeditated offence.

The second decision, which applies to the design adopted by rival plaster manufacturers as a trade mark is equally broad, in that, while it recites no other evidence of attempted imitation, it takes strong grounds in favor of the exclusive right to the use of a trade mark by a manufacturer whose prior use of it had led to its' having become a term for the oral designation of an article. So far as the eye is concerned, it does not appear that the resemblance between the packages of the contending manufacturers could be regarded as deceptive, and for this reason the lower court threw out the case. But the appellate branch goes farther into the question, and its decision at great length rehearses the equities as defined by numerous opinions, and reverses the judge below.—*Shipping List.*

—The copper-gold property at Kamloops, B.C., owned by John Cobbledick and others, is said to show $10 to $12 per ton of gold in addition to the copper. Shipping ore has been got from the surface down, and there is a seven-foot vein.