

First, second and third stories of buildings which have been abandoned as offices and sales rooms, after improvements of the streets with wood blocks become the choice office locations.

Ninth. Wood is the only material out of which a road surface can be made which possesses elasticity at all times.

On a wood block pavement a horse would never become "stove up." Examine your city horses and see the effect of all other pavements on them. You will find that in three or four years on asphalt, bitulithic, brick or granite blocks paving horses become stiff—"stove-up."

The saving on horses and vehicles on wood block pavement would, in a few years, amount to a sum sufficient to pave with wood blocks all the down-town streets in our cities.

Tenth. We have already stated that there is nothing about a wood pavement that can grind into dust under the erosion of wheels or the impact of horses' hoofs; while all other pavements, except brick, are made of materials which are ninety (90) per cent. dust producing, and brick we know to be of 100 per cent. dust producing materials.

Eleventh. We say it can be laid with a smoother surface than any other pavement, and the experience the past twelve years has proven, under heavy traffic, the wear or compression is uniform and the surface continues smooth.

As example, for instance, Tenth Street, Minneapolis; Tremont Street, Boston; Washington Avenue, St. Louis—the latter is so very smooth the children make it, after ten years' service under a heavy traffic, a skating rink; and of Tremont Street the street commissioner of Boston, late in 1912, wrote: "After twelve years' wear it looks as smooth as when first laid." Of Tenth Street, Minneapolis, Mr. George S. Harper, of said city, wrote: "The pavement on Tenth Street has been down ten years and it is in as good condition now as when laid." So with all our creosoted yellow pine block pavements; not so with any other pavement—all, without exception, wear unevenly into ruts and chuck-holes.

Twelfth. It is the least of all pavements affected by heat and cold; neither does moisture seriously affect it. In Minneapolis more than 60 per cent. of all the pavements are creosoted wood block paving. Altogether there are 61 miles, and every yard doing nicely, and some down ten years. In Chicago, Detroit, Indianapolis, Toledo, Cincinnati, Boston, New York, Atlanta, Mobile, Pensacola, Beaumont, Dallas, Kansas City, Mo., also in all the large cities of Europe, the pavements have given entire satisfaction; geographical locations or climatic conditions seem in no wise to affect it. We have testimonials from street officials in every city sustaining this declaration.

Finally. As before stated, the elasticity and smoothness of the wood block pavement cares for the horse, fully doubling his years of usefulness over any other pavement, and in turn the horse does no harm to the wood block pavement.

The same reciprocity exists between the creosoted yellow pine block pavement and the automobile.

The smooth surface of the wood block pavement does not whet out the tires; neither is there found on a creosoted yellow pine block pavement chuck-holes or ruts to bend the axles or throw out of adjustment the delicate parts of an automobile; nor are there slivers to puncture the tires—in fact, on a creosoted yellow pine block pavement, properly constructed, an automobile should last almost forever.

In turn, under automobile traffic, a wood block pavement should last almost forever. The friction between the tires and the pavement in no wise hurts the surface of the wood blocks.

The automobile is a machine of destruction to all other pavements, and in turn all other pavements wear out rapidly the automobile—the grit cuts the tires like an emery wheel; the chuck-holes and ruts bend the axle and throw out of ad-

justment and shake to pieces all the delicate parts of the machine.

If the creosoted yellow pine block pavement possesses all these good qualities, and in a superlative degree, why is it not an ideal pavement?

What is it lacking?

How can it be improved?

What is said against it?

Our competitors say "It is slippery." "It bleeds." "It buckles." "It is unsanitary," and "While creosoted yellow pine block pavement can be made a better pavement than any other, it is so hard to make right, and so easy to make wrong, that it is seldom a city gets a first-class job." And in their extreme lamentations they say, "It requires an army of carpenters to keep it in order."

As to these criticisms, let us see how many are real and how many can be remedied:

First. The bleeding is exuding of the heavy oil injected in the blocks under pressure for two purposes—to prevent decay and to lessen the absorptive power of the wood. The bleeding is positive proof that the blocks have been impregnated with the oil which the engineer said should be, and the inspector declares has been injected. No one has charged that bleeding is injurious to the pavement, except as a temporary nuisance which almost always begins and ends in the first hot season, and which can be made unobjectionable by whipping a thin coating of sand over the pavement two or three times during that period, which labor and expense fall upon the contractor, who is "both ready and willing."

The bleeding is not without its benefit; it helps to form a mastic coating around the blocks, which aids in preventing absorption.

Up to 1908 creosoted wood block paving did not bleed; blocks laid prior to 1908 were treated with oil of light specific gravity and treatment—1.04 to 1.08 specific gravity, and about twelve pounds of oil to the cubic foot of timber.

Since 1908 a heavier oil and treatment have been largely used—from 1.10 to 1.14 specific gravity, and from 16 to 20 pounds to the cubic foot of timber.

Whether about 1908 there was any material change in the mechanical treatment of the blocks we do not know.

The question of seasoned or unseasoned timber for blocks before treatment is an unsettled question.

Since every pavement made of creosoted yellow pine blocks, impregnated with from 10 pounds to 22 pounds of creosoted oil, the distillation, or the product of pure coal tar, with specific gravity from 1.04 to 1.14 has proven successful, and "not one has cost any amount worth considering for repairs," declared by every city engineer during their long service under heavy traffic, some more than twelve years, many miles more than ten years—who can say whether light or heavy oil, light or heavy treatment, seasoned or unseasoned woods, is the best and will be the most durable. We who have spent years studying the pavement have our preferences on all these points, yet none of us can prove our ideas are best. Since the blocks show no perceptible wear, no decay for twelve years under heavy traffic, on what are we to base our arguments?

If I am asked my preference on these points, I would say:

Let the oil be a pure coal-tar distillate, unadulterated by any other material whatever, with specific gravity not lighter than 1.06 and not heavier than 1.08; on distillation not to show more than 5 per cent. up to 210 degrees C. and not less than 45 per cent. nor more than 60 per cent. up to 315 degrees C.

For light traffic, 18 pounds; for medium heavy traffic, 16 pounds; for heavy traffic, 14 pounds to the cubic foot of timber.