Correspondence.

The Skyscraper and Old Fogyism.

To the Editor of the SCIENTIFIC AMERICAN:

A fire lately occurred on Broadway involving an old style low building and a modern fireproof skyscraper. The fire department, on account of a high wind, was unable to control the fire in the low building, and because some inspectors were delinquent in their duties in not having the skyscraper provided with fireproof window shutters, the latter caught and burned out the interior of its upper stories. The fire chief did the best he could with his Lilliputian apparatus; his little steam squirt guns on wheels puffed and snorted; his Siamesed pipe stem of a perambulating water tower could not be lengthened seventeen stories high, and so he called more funny little squirters and towers to his aid. But "all the chief's horses and all the chief's men" could not effectively squirt higher than nine stories. The chief saw the ridiculousness of his puny efforts, for he is quoted as saying, "Let her burn, boys." An extended conflagration might have ensued as far as the department was concerned, had not the high fireproof structure stood like a mighty bulwark and firewall to protect what was beyond.

Old method "authorities" now tell us a law should be passed prohibiting buildings being built over a certain limited height in New York, all because the fire department's apparatus has not kept step with the changed modern building construction. A little later some more "authorities" from Philadelphia came to view the ruins, and they also evoked a new law limiting building heights, and imply as well that modern progress must be jerked back to the limits of their old fire-fighting apparatus. They do not even concede that fire-extinguishing methods can be made to conform to the changed building construction.

The whole thing is a farce worthy of being treated by a Cervantes or a Dean Swift.

All experienced traveling men know that a fast express train is safer than traveling on an accommodation or a freight train, and, for much the same reasons, a skyscraper is safer on account of the great skill and the best material used in construction.

Who ever heard of the necessity of shoring up one of these buildings to keep it from tumbling down, like the low, flat Rothschild building in Brooklyn?

Instead of laws limiting the height of building, called for by the New York and Philadelphia fire chiefs, we should require laws compelling the building of nothing but skyscrapers along the blocks facing Broadway in place of the low buildings that are the true sources of conflagration. Who ever heard of a serious fire originating in a skyscraper? Two parallel blocks of rows of skyscrapers from the Battery to the Harlem River would prove an efficient fire wall, extending along the backbone of Manhattan Island, to prevent an extended conflagration in a high wind, such as devastated Chicago before they were built in that city. The more twenty-story buildings, the better.

The next problem to be solved is to make each skyscraper its own stationary water tower for its individual purposes, and also to drown out fires in surrounding buildings, even those across the street, and to water soak any insignificant tinder box structure that may be on fire below.

Then construct permanent stationary means to conduct plenty of water to each building, independent of the present overtaxed water system, and then provide means to get the water to the place needed with sufficient force.

The tall buildings of Western cities are provided with two or more stand pipes reaching through to their roofs, to which two or more engines may be attached to each pipe when necessary and the water pumped in solid, unbroken streams unaffected by prevailing winds to any desired heights; and in certain sections of these cities hose carts do not accompany an engine. Other cities, like Detroit, have laid underground conduits from the river independent of the usual water supply system, and a powerful fire boat forces the water to the desired locality, and may be operated if desired in conjunction with the stationary stand pipe, with or without the assistance of the usual fire engine. Few of our buildings are provided with accessible stand pipes, and we are unable to avail ourselves of the admirable river fire boats for inland purposes; our only auxiliary to the toy fire engines is a water tank on the roof, that seldom, if ever, is full or holds enough water or gives adequate pressure where and when most needed; or a pumping apparatus in the basement that is of little use, on account of the time to get it in operation, or is of sufficient capacity. Both of these aids practice has shown are quite impractical and unreliable.

There is probably no city in the world so admirably situated as New York for adequate fire service to meet modern requirements. For, situated on a long, narrow island completely surrounded by water, and salt water at that, we have ideal conditions for an ideal installation. We may even banish hose carts, water towers, and engines on wheels and stop killing our citizens and the firemen (who are often strapped to their seats) in their mad career through our streets, sell our engine houses and take our firemen to fires in comfortable patrol wagons unaccompanied by the deadly juggernauts of dangerous fire apparatus.

This may be done by building underground parallel pipe lines at convenient distances apart from both the East and North Rivers toward Broadway, with suitably situated and accessible valves to prevent undesired intercommunication.

These pipe lines could be connected to commodious stand pipes in each building, and each floor provided with hose, and each fourth floor provided with pipes branching toward the exposed sides of each building from the stand pipe, and provided with a dirigible nozzle toward the street or areaways.

The river ends of each pipe would be provided with three to five siamese connections to which the same number of fire boats could be connected. It will then be possible to generate a water pressure that will blow the very skylights out of a fifty-story building; and if five fire boats cannot do it, connect the stand pipe with five other fire boats from the other river.

A fire on any floor of a building thus protected may be fought from within by half a dozen streams of salt water and from without with as many more from adjoining buildings, especially from across the street; and if any tiny steam fire engine wheezes its protests, it could by these means be washed into the bay.

Our present fire system is, from recent examples, too glaringly inadequate and out of date, and even though my suggestions are adopted finally by the city, it will take our municipal fathers and heads of departments so long to get their commissions agreeably adjusted, that I would seriously advise the owners of our skyscrapers to place no further reliance on the senile fire department, or await the tardy action of the commissioners in the matter, but take immediate steps to install the electric pump system as outlined for emergency purposes, and thus be independent of municipal incapacity and procrastination. The chief points in its favor are the quickness, facility, and cheapness of the installation and operation. It requires no skilled attendance other than the intelligence of turning a switch lever or a rheostat handle, and requires no addition to the present building employes. No steam boilers or additional machinery will be required. In fact, the system will be independent in all respects of existing apparatus, with practically no expense after installation, except interest on cost price and for electric current in case of fire, and possibly no appreciable extra piping, as the pumps could be connected directly to the existing water supply pipes.

JEAN A. WETMORE.

Brooklyn, N. Y., December 10, 1898.

Oil as a Road Material.

To the Editor of the SCIENTIFIC AMERICAN:

The great interest that is now being awakened in all parts of our country in the Good Roads movement is born of necessity. In the keen competition in all the markets of the world, America is at a disadvantage, commercially, by reason of bad roads, much as the railroads have done to bring the producer and the consumer close together. The best investigations yet made on the subject show that it costs on an average 25 cents per ton mile to market the produce of our farms over the country roads, often much more; or, the farmers spend as much for one mile as the railroads ask for 75 miles of haulage.

Great areas of our prairie farm country are remote from any supply of good road material, and the outlook for good roads in these sections is discouraging on account of the expense. Some cheap substitute for stone, brick or gravel, if it could be found, is most desirable.

I venture to suggest to your readers that possibly cheap oil may be one solution, and offer this paper in order to induce others to multiply the experiments I am now making. On a certain clay road in Pennsylvania, which lay deep in dust in summer and deep in mud in winter and spring, there was an oil pipe line by the side of the road, which on a certain occasion sprung aleak and spurted a considerable quantity of oil onto the road. An observer noted that for a space of several rods, to which the oil was transported by horses' feet and wagon wheels, this road showed a marked improvement. The dust in summer did not rise, the mud in spring and winter did not exist. The explanation would seem to be that the oil formed a water-tight covering to the road, and the earth beneath being dry no ruts or mud could form and the road became good.

At the recent Good Roads Convention in St. Louis, Mo., the writer brought forward this idea and offered it as a possible help to improving our dirt roads at a small cost, occasioning considerable comment. It seemed rational and at least easy to try, and many asked questions not easy to answer, for want of sufficient knowledge as to method of applying the oil, the best kind of oil to use, the quantity to put on the road, etc.

As confirmatory of the value of oil on roads, the following observations were made: A gentleman from California said that near Santa Barbara, where he lives, they have oil wells and have used the oily sand from the borings to fill holes and ruts in the road, and in places the sand has even been distributed over the roadway. In all these places the road is free from dust in the dry season (a great curse out there), and perfectly hard and firm in the wet season; and he now thinks it must be due to the oil in the sand. Another gentleman said he used to handle oil at Austin, Texas, in years gone by; he remembered the lot, of perhaps a quarter acre, where he had his depot became sprinkled with oil from leaky cans, and was always hard and firm despite the weather, and he thought it must have been the oil that did it. Another, a road builder from Missouri, said that on a muddy road leading into his town a man let a barrel of black oil fall from his wagon, breaking it and spilling the contents. Ever since then he had noticed there was a firm piece of road near that place, where it did not get muddy or rut, and he thought same was due to the oil. A railroad man said the Pennsylvania Railroad began spraying their roadbed with oil to lay the dust, and now found it not only laid the dust, but shed water, kept down the weeds, and preserved the ties.

The present experiments are being made through the liberality of the Standard Oil Company, who, by Mr. Rockefeller's orders, placed a tank of crude oil at the disposal of the writer. On November 20, the writer coated a newly graded piece of dirt road with oil, distributed by means of an improvised sprinkler, over a strip about 12 feet wide by 200 feet long.

A second part of the roadway was sprinkled more lightly about 300 feet further, making 500 or 600 feet in all, and used eight barrels of oil in the experiment. The day after the sprinkling was done and before the oil had time to become absorbed, for it soaked in very slowly, a heavy rain fell. The road was examined during the rain, and quite a marked difference was seen between the oiled and unoiled portions. Where oiled it was evident that the dirt beneath the surface was still dry and retained its supporting power, while on each side of the oiled portion it was muddy and rutty. A heavy freeze, with the temperature at zero, followed the rain, and on the 25th the road was again examined. The oiled part was still more different from the neighboring stretches; the unoiled road was cut up with ruts one to two inches deep, and frozen rough and hard; the oiled portion was perfectly smooth, and the wheels made on it a muffled sound that showed the dirt beneath the surface was unfrozen and dry.

It will scarcely be possible until the spring thaw comes to really estimate the value of the oil, but at present the experiments seem to promise well. It is too soon to make any good estimate of the quantity of oil required per mile of road. It will possibly vary with the character of the soil, whether loam, sandy, clay or gumbo. The place selected for this experiment is a regular black gumbo, which cuts normally into ruts hub-deep, and holds the water like a jug.

My object in this paper, as before said, is to present it to your readers, among whom there are no doubt many who are interested in roads, and induce experiments on varying qualities of soil. To meet with success the following conditions, in the writer's opinion, should be observed:

1. The road should be smoothly graded and rounded well, so as to shed water.

2. Apply the oil to the roadbed while dry. If the soil is filled with water, the oil will penetrate with difficulty, and much of it will be carried off on the wheels of passing wagons.

3. It would be well to roll the ground after the oil is put on. It has a tendency to collect in ruts and small hollows, and the roller would force it into the soil and distribute it evenly.

4. Crude oil costs from 60 to 90 cents per barrel at the wells. Its odor is disagreeable, and oil from which the naphtha and kerosene has been extracted would be preferable to apply in warm weather. When cold the heavy oil becomes too stiff to be applied without heating. This could be overcome by some form of spraying apparatus, using a jet of steam.

M. MEIGS, U. S. C. E.

U. S. Engineer Office, Keokuk, Ia., November 30, 1898.

A Word to Our Subscribers.

We wish to remind our many readers that with this issue many subscriptions will expire, and, in order to prevent any break in the receipt of the paper, it is advisable to remit for the new year with as little delay as possible. We feel that the SCIENTIFIC AMERICAN has been better during the year 1898 than ever before, and we trust our readers will appreciate this fact by sending in their subscriptions promptly and by inducing their friends to subscribe. Many of our readers who are not receiving the SUPPLEMENT would also find that they would obtain enough valuable information in the course of three months to pay for the year's subscription, and by subscribing to both papers at the combined rate, a substantial reduction can be secured. Our Building Edition should not be forgotten.