

Miscellaneous.

HINT TO BREWERS.

SCALE IN BOILERS.

The number of anti-incrustation mixtures for use in boilers is so very large, and their value in most cases problematical, that every one who has had any experience with such compounds—and what steam user has not—is naturally suspicious when a new material is introduced. This, says our contemporary, *Engineering* was very much our own feeling on the subject, when about a year ago a compound called the Disincrustant Marseillais was brought under our notice. It was, however, so well recommended by responsible people, that we determined to give it a trial, and having satisfied ourselves by some laboratory experiments that it appeared at least harmless, the only acids in it being tannic and gallic acid, and the compound as such being quite neutral, we commenced using it in two cornish multitubular boilers, where New River water is evaporated. The result has been so far, after about eight months' use, entirely satisfactory. Since the Disincrustant Marseillais has been used in these boilers there has absolutely been no scale formed, all the deposit being in the shape of a fine black powder, most of which leaves the boiler through the blow off, which is opened for a few seconds regularly at suitable intervals while working. Previous to employing the Disincrustant Marseillais, soda had been used in these boilers, and some of the scale then formed, particularly on the top of furnace plates, was, though thin, very hard, and had not been all removed. This the new compound has almost entirely dissolved or loosened from the plates, and although one of the boilers has been carefully examined, no signs of any injury to the plates has been discovered. The Disincrustant Marseillais has certainly, as far our experience goes, done its work well, and we understand that it is giving excellent results at sea, the makers, whose factory is at the Knowsley Works, Cheetham, Manchester, informing us that they are doing an extensive business with a number of large shipping companies, and that the compound is used also on numerous stationary boiler plants. The makers claim for their composition that after all scale has been removed from the boiler plates, a protective surface is formed, consisting of tannate of iron, which preserves the plates, and does not allow any deposit to collect on them. Of this quality we cannot as yet speak from experience. One point, however, is well worth mentioning—the compound does not appear to in any way affect the boiler fittings, while when soda is being used, particularly in excess, trouble is often experienced with leaky fittings, cocks, valves, etc. The composition is extensively used, and is exceedingly well adapted for printing works, dye works, etc., and, in fact, in every place where pure steam is of importance.

TREATMENT OF NEW CASKS.

New wood yields an extractive matter which imparts an unpleasant flavor to beer, and it is therefore advisable to submit new casks to some kind of "sweetening" treatment. For this purpose many substances have been recommended, but as the extractive matter is no doubt of an astringent nature, and possesses slightly acid properties, an alkaline liquid is the proper remedy. E. Bibra, in the *Journal für praktische Chemie*, recommends the following method: One pound of soda crystals is used for every 10 gallons of the capacity of the cask, and this is dissolved in a small quantity of soft water; the cask is two-thirds filled with soft water, and then the requisite quantity of soda solution is added; after thorough agitation, the cask is completely filled with water and bunged down; after standing for ten or twelve days the alkaline liquid is run away, and the casks rinsed several times with water. The author found that by this treatment the staves were completely exhausted of all extractive matter to a depth of about a quarter of an inch, and beer or wine might at once be placed in such casks without fear of being contaminated with any objectionable flavor.—*County Brewers' Gazette, (London).*

FILTERING CAPACITY OF SOILS.

The National Board of Health has just published, in the form of Supplement No. 13 to its Bulletin, a very interesting report on the relation of soils to health, and more especially on the filtering capacity of soils, prepared by Prof. Pumpelly, of Newport, assisted by Dr. George A. Smyth. The first part of the report relates to the effects of various soils and substances as filters to remove low vegetal organisms from air, the substances tried being sand of various degrees of fineness, asbestos and charcoal, and the conclusions are as follows:

"I. All the substances operated on are excellent filters in eliminating germs from infected air passed through them, except when they are of a coarse grain, 10° to 20°, when the interstitial cavities become probably much less labyrinthine. All these filters withstood the tests of currents having many thousand times the maximum velocity attained in the soil.

"II. All natural substances tried thus far, except the finest animal charcoal, and, perhaps, tightly-packed asbestos, failed to eliminate wholly the germs from liquids.

"In the only natural soils tried, the sand, loess and kaolin, we find in the sand an absolute absence of filtering power as regards germs in water, which would probably be as evident in columns of 10,000 feet as of 100 feet. In the loess, and in the much more compact kaolin on the other hand, there is evidence of a greater filtering power. In these cases it is not unlikely that we shall find that somewhat longer columns will eliminate the germs from the first water passing through; and that with them the filtering capacity is merely a question of the relation of length of column to the amount of water.

"At this point in our work, it seems as though the filtering capacity were wholly dependent on the size and interstitial cavities; and that in dry air filters there is a critical limiting point, beyond which there is no filtering.

"And the same remarks seem to be true in different degrees with regard to the filtration of liquids. Here far greater fineness and compactness of grain and intricacy of passage are needed than are requisite for air filtration. While sand of 20° is an excellent air filter, sand of 100° in long columns is worthless for water, and the critical limiting point below which soils begin to exercise any filtering action probably verges on the size of grain in an impalpable powder.

"From these results it appears very clearly sand interposes absolutely no barrier between wells and the bacterial infection from cesspools, cemeteries, etc., lying, even at great distances, in the lower wet stratum of sand. And it appears probable that a DRY GRAVEL, or possibly a DRY, VERY COARSE SAND, interposes no barrier to the free entrance into houses built upon them, of these organisms which swarm in the ground-air around leaching cesspools, leaky drains, etc., or in the filthy made ground of cities.

"And from the results obtained from the two series of experiments, viz., in filtering air and in filtering water, we can now draw one very important practical conclusion, which cannot be too strongly emphasized: That a house may be built on a thoroughly dry body of sand or gravel, and its cellar may be far above the level of the ground water at all times, and it may yet be in danger of having the air of its rooms contaminated by the germs from leaching cesspools and vaults; for, if the drift of the leaching be towards the cellar, very wet seasons may extend the polluted moisture to the cellar walls, whence, after evaporation, the germs will pass into the atmospheric circulation of the house."

The italics are given thus in the original. The report is illustrated with drawings of the apparatus employed. We shall probably have occasion to refer hereafter to that part of it which relates to the filtration of fluids; at present we will only note that it confirms the results announced by Carmichael and Werenickie, of the effect of traps upon the organisms in sewer gases. *Sanitary Engineer.*

ARE THEY NOT ARTISTS?—A correspondent of the German-town *Telegraph*, after alluding to the grand painting, superior sculptures, etc., results of the genius of our highest artists, asks: "Are there not others, also, whom we may call artists? When," continues the writer, "I stand among a lot of common stone masons and see one man walk around among the stones, picking one out here and there, dressing one here and there, just as though he were playing, and then suddenly begin to set them up as fast as he can handle them and the mortar, making a handsome wall, I call him an artist. If we look at a man hewing a log straight and smooth, alike in thickness the whole length, and not leaving a mark of the juggling axe, he too seems to me to be entitled to the above name. Or a man, who cannot even write his name, bracing himself aside of a huge tree, and sending his axe into it with the precision of a rifle shot, making every stroke tell, and never missing the mark, and when cut in one side changes hands on the axe and cut the other, and throw the tree just where he wishes it to fall—he, too, is not devoid of artistic skill. And many a common blacksmith, who will forge out a piece of iron or steel as round as if it had passed through the turner's hands, or as square as if ran through the planing machine—I count him among the artists. Yet none of these men are ever classed with those of the higher arts."