

little carbonated water and dropping it into a crystal of yellow prussiate of potash. A change of color will satisfy you at once that something is wrong. Search for it, find it, or stop drawing soda water, as you will have otherwise attained the highest point you will reach, and your trade, instead of increasing, will certainly and rapidly leave you. I have known instances of copper contamination in an apparatus that was supposed to have no brass or copper about it. Once it was a copper cooler tinned outside and inside, and sold as a solid block tin can cooler, a thing that does not exist. Again, the contamination was traced to a brass coupling, originally tinned, but from which the tinning had been worn off. I have known new apparatus to yield contaminated water through one of the parts having been put in without tinning, undoubtedly unintentionally, but the result to the business would have been just as disastrous had it not been for proper care and watchfulness.—*Pharmaceutical Era.*

LOOK TO THE ARCHITECT.

The cry for sanitary reform is likely to crowd the plumber unjustly close. The occasional hint that the tinker of pipes of the future will have to be a sanitary scientist is inspiring an assault upon him as the cause of all drainage trouble. This is a mistake. The plumber may justly be held blamable for any departure from the plans of an architect, or for any slighting of the specifications, or for botching his work; but it would seem that responsibility for the scientific arrangement of water service, drainage pipes, and ventilating flues should lie between the architect and the plumbing inspector; and if there is no inspector it should rest upon the architect alone.

The small boy who as "helper" to-day carries the furnace and solder-pot, is the plumber of to-morrow. His work is not of an attractive nature, and between him and the achievement of recognition as a journeyman with a journeyman's pay there are difficult, wearying, and disgusting tasks. If he is assiduous and is in charge of an instructor of the right sort he will eventually become a proficient workman; if not he will take a place among the botchers who annoy patrons and bring down condemnation on plumbers in general. This line of training does not beget sanitary scientists. Unless the apprentice is naturally studious and retentive he will be a mere reflection of passing theory.

On the other hand, the architect is brought up in an atmosphere of calculation and systematic design. He is taught to analyse everything, and to leave nothing to chance. No duldard can "help" himself into knowledge of the business by simply packing tools from place to place. The training of an architect involves the inculcation of scientific principles, and therefore the architect is more capable of assuming the responsibilities of applying sanitary science than the plumber.

An ordinance has been introduced in the Common Council of Chicago which, if adopted, will compel each master plumber to file a bond in the sum of 10,000 dols. for damages that may result from his ignorance as to the arrangement of the water service and drainage systems. The ordinance also contemplates the establishment of a board of examiners of plans, to consist of a practising physician, an employing plumber, and a journeyman plumber; this board's duty also to include the examining and licensing of plumbers.

The proposed ordinance is misdirected. It should require the filing of a bond by the architect, and should hold that individual responsible for non-observance of common sanitary rules. The architect and the plumbing inspector should divide the duty of arranging systems of drainage, water service, and

ventilation, and the plumber should be held responsible for the quality of his work only.

When this responsibility is rightly placed there will be fewer death-traps built by conscienceless Budensicks.—*The Evening Wisconsin, U.S.A.*

HOW TO MAKE A GOOD FLOOR.

Nothing attracts the attention of a person wishing to rent or purchase a dwelling, store-room, or office, so quickly as a handsome, well-laid floor, and a few suggestions on the subject, though not new, may not be out of place.

The best floor for the least money can be made of yellow pine, if the material is carefully selected and properly laid.

First, select edge-grain yellow pine, and not too "fat," clear of pitch, knots, sap, and split. See that it is thoroughly seasoned, and that the tongues and grooves exactly match, so that when laid the upper surfaces of each board are on a level. This is an important feature often overlooked, and planing-mill operatives frequently get careless in adjusting the tonguing and grooving bits. If the edge of a flooring board, especially the grooved edge, is higher than the edge of the next board, no amount of mechanical ingenuity can make a neat floor of them. The upper part of the groove will continue to curl upward as long as the floor lasts.

Supposing, of course, the sleepers or joists are properly placed the right distance apart and their upper edges precisely on a level and securely braced, the most important part of the job is to "lay" the flooring correctly. This part of the work is never, or very rarely ever, done nowadays. The system in vogue with carpenters of this day of laying one board at a time and "blind-nailing" it, is the most glaring fraud practised in the trade. They drive the tongue of the board into the groove of the preceding one by pounding on the grooved edge with a naked hammer, making indentations that let in the cold air or obnoxious gases, if it is a bottom floor, and then nail it in place by driving a sixpenny nail at an angle of about 50 degs. in the groove. An awkward blow or two chips off the upper part of the groove, and the last blow, designed to sink the nail head out of the way of the next tongue, splits the lower part of the groove to splinters, leaving an unsightly opening. Such nailing does not fasten the flooring to the sleepers, and the slanting nails very often wedge the board so that does not bear on the sleeper. We would rather have our flooring in the tree standing in the woods than put down that way.

The proper plan is to begin on one side of the room, lay one course of boards with the tongue next to, and neatly fitted to the wall (or studding, if a frame house), and be sure the boards are laid perfectly straight from end to end of the room and square with the walls. Then nail this course firmly to the sleepers, through and through, one nail near each end of the board on every sleeper, and you are ready to begin to lay a floor.

Next, fit the ends and lay down four or six courses of boards (owing to their width). If the boards differ widely in colour, as is often the case in pine, do not lay two of a widely different colour side by side, but arrange them so that the deep colours will tone off into the lighter ones gradually. Push the tongues into the grooves as close as possible without pounding with a hammer, or, if pounding is necessary, take a narrow, short piece of flooring, put the tongue in the groove of the outer board, and pound gently on the piece and never on the flooring board. Next, adjust your clamps on every third sleeper and at every end joint, and drive the floor firmly