other conditions which tend to mitigate the evil; but there is hardly a house that is furnished with the usual plumbing appliances which is not more or less pervaded day and night—but more particularly at night, increasing in density towards morn—with gaseous emanations from drains. A very slight imperfection in a closet or a drain pipe, when covered up from view, becomes an insiduous enemy ever after, breathing out, through imperfect joints, the poisonous gases of the drains; therefore, the more urgent is it that plumber's work should receive the strictest surveillance of the architect, so that such imperfections should be discovered in time.

It is almost incomprehensible the apathy that is shown by the public to sanitary matters. We believe that not one man in a thousand ever cares or thinks about the matter, it is only when death enters the house and carries off one or more of its inmates, that he awakens from his apathy, and seeks to stay the cause when too late. In giving out a contract for plumber's work, seldom is the best work looked for, but the cheapest. For a short time the proprietor flatters himself that he has got as good work done, to all appearance, as his neighbour, and at a much cheaper rate—but soon taps and valves get out of order—pipes burst—ceilings and paper get ruined—and slip joints, hidden from view, give out the noxious vapours of the drain. The first of these evils affect him mentally far more than the rest, because his pocket suffers; broken taps and burst pipes must be mended; but as regards the foul gases, his nostrils soon become accustomed to them, and he ceases to detect them although those coming from the country find the very entrance hall tainted with gases from the drains; nor can you get his uneducated mind to comprehend that at times the most serious danger is often unattended by any marked warning to the senses.

We read a great deal about "sewer-gas," "malaria" and "zymotic diseases." Yet when we come to ask ourselves how much of all our theories is based on clearly ascertained fact, and on demonstrable conclusions, we are forced to acknowledge the really primitive condition of our study. We hear new theories advanced by some writers which are only practical under certain conditions, and would be most injurious under others. Some of them totally impracticable from the lack of mechanical application. Some put forth merely as advertisements, others totally devoid of common sense. We see health committees formed with one half of their members perfectly incompetent to deal with the question; committees in fact formed without a single practical sanitary engineer as a member, and what has been the result? they meet, each to discuss some pet scheme of his own. When will the public see the advisability of appointing two or three really practical men to deal vigorously with the sanitary question, unhampered by any influence whatever?

The finer the house and the more complete its modern sanitary appliances, the more certain it is to be more subject to the inroads of zymotic diseases, than a smaller house with equally perfect plumbing, and if sewer gas were universally poisonous, very few of our first class houses would be habitable at all; but fortunately, like physicians who are daily in the midst of contagious and infectious diseases, many persons live in these houses in tolerable health, under conditions which, while they do not always produce, yet almost invariably accompany attacks of zymotic diseases. This may appear paradoxical at first, and why it is so, it is difficult sometimes to account, but while we have yet to learn why bad air inside the house, or outside of it, sometimes produces zymotic disease, but does not always produce its possibly because some constitutions are less subject to take such diseases than others; this we know, that in its entire absence these diseases do not arise, unless brought to us in our food.

Of what service is a beautiful building laid out with all that taste, skill and constructive ability could do, if its sanitary arrangements are such as to render it a pest-house? We have seldom examined a building in which radical defects were not to be found from garret to cellar. There may be some excuse for a house built ten or twelve years ago when healthful drainage was in its infancy, but there can be no excuse in the present day when sanitation has become a science. Of course many houses are not built by architects, but by so called "practical builders," who do much of the bad house building in our cities and towns. These houses are generally built for speculative purposes, to be sold as quickly as possible, and are constructed of the cheapest materials; for such buildings the visit of an inspector of plumber's work and drains, is absolutely necessary before the work is closed in. Why should an architect or builder be held responsible for a leaky roof, or a defective wall, and not be held responsible for defective plumbing? What shields the architect, builder, or plumber, or on whomsoever the responsibility rests, but the utter indifference of the public to sanitary matters and almost universal disregard of simple and well known methods of wholesome drainage. If a new roof leaked so badly as to destroy the walls, carpets and furniture of a dwelling, would not the proprietor at once take an action of damages against the builder? but for the imperfect condition of the house drainage and plumber's work which lay a whole household open to an ever threatening danger, in nine cases out of ten the proprietor is utterly indifferent, as far as the danger from foul gases is concerned. However we trust the day is approaching when education will achieve more perfect sanitary arrangements in every public building and private residence. A healthy change has already set in the United States, and the Sanitary Engineer and other able scientific papers are strongly advocating sanitary reform, and we hope the day is not far distant when the public will see the necessity of paying more attention to this all important subject than it has done hitherto. Many theories and suggestions for sanitary improvements have been brought before the public, many of them excellent if only carried out by practical and careful workmen, and many of them mere theoretical ideas; in fact the public is bewildered with essays and pamphlets that have been published for and against sanitary improvement, but no matter how efficient a plan is adopted, it will be of no avail if the details of that plan, are not carried out to the letter. The arrangement of plumbers' work, materials and construction, should never be entrusted to mechanics ignorant of those natural laws and conditions which are essential to good sanitary success.

There are, however, certain general principles for our guidance, which may thus be briefly sketched.

1. Effete organic matter cannot enter a house from an unventilated drain without endangering the inmates to zymotic diseases.

2. That a copious admixture of common air acts both