PRUDERY ITS SUBJECT

Tenny. Claflin's Sunday Sermon.

A Deal of Sense in Very Few Words.

Socials Pests Manufactured by Unjust Laws—Society Is Largely to Blame.

By Lady Cook, nee Tennessee C. Claflin.

The practice of prudery is tolerably ancient, although the word itself is somewhat modern and comes from the same derivation as prudent, namely from the Latin "prudens," contracted from "providens," foreseeing; and thus prudent is equivalent to wary, circumspect, discreet. Prudery, however, is the affectation of these; and is to prudence what pedantry is to learning. There is a very large class of well-meaning but excessively narrow-minded people always in our midst; their zeal is usually intense in proportion to their shallowness; the shallower they are the more ardent. They are never moderate, but always in extremes. They scorn the happy mean. And thus, a misery to themselves and a terror to others, they are like those

"Whose life the church and scandal share,
For ever in a passion or a prayer."

"What is prudery?" asked Miss Howe of Alexander Pope, and he replied:

"'Tis a Bedlam
Seen with wit and beauty seldom,
'Tis a fear that starts at shadows,
'Tis (no 'tisn't) like Miss Meadows,
And it urges, strains, and pants
Deep within the breasts of Cants,
'Tis a virgin hard of feature,
Old, and void of all good nature,
Lean and fretful; would seem wise;
Yet plays the fool before she dies.
'Tis an ugly envious shrew,
That rails at Pleasure and at you."

Since Pope's time the word has become so common, owing, unfortunately, to the "overmuch nicety" of a great many, that there are no Miss Howes now who need to ask its meaning. And since those who commend the quality chiefly belong to our sex, still "virgins hard of feature," or "ugly envious shrews," they have been dubbed Prudes, although really the specimens of both sexes are well-nigh equally divided. In this way two very expressive words have been added to our copious mother tongue. We wonder when they will become obsolete? Not until prudens drives prudery from the field, and the prude becomes as extinct as the dodo. As, however, both are still active, and particularly so of late, we venture to point out the evils that are caused by them.

Injustice is the first. And this gives rise to persecution, hatred, malice and all uncharitableness. In "The Blithedale Romance," by the author of "The Scarlet Letter," Zenobia says, "The whole universe, her own sex and yours, and Providence or Destiny to boot, make a common cause against the woman who swerves one hair's breadth out of the beaten track." But this was because among the Puritan New Englanders prudery was a universal habit. Like Hudibras, they belonged to

"A sect whose chief devotion lies
In odd, perverse antipathies,
In falling out with that or this,
And finding something still amiss."

And so prudes today are still accustomed to

"Compound for sins they are inclined to
By damning those they have no mind to."

Thus every walk of life is infested with some form of prudery. Are we accustomed to enjoy with a thankful heart and a cheerful countenance the blessings which God gives us, the heavy prude draws an elongated face and accuses us of frivolity. Do we partake sparingly of the glass that cheers and avoid insobriety, the teetotal prude frowns and says, "Touch not, taste not, handle not." But as Dean Hole has just written in his interesting book "More Memories," I only ask them to give me credit, in turn, for the sincerity of my convictions, that temperance means moderation, and that the moderate use of alcohol is a blessing and not a curse. Abuse does not necessitate disuse, and I fail to see why I should shave my head because another man has brain fever, or rather water on the brain; why I should discard raiment because some do not pay their tailors; or why I should abstain from horse-exercise because others have ruined themselves by racing. So please don't say "Because I don't, you mustn't."

Are we good neighbors, fond husbands, true wives, reverencing our Maker and striving to do unto others as we would be done unto? The theological prude presents us with a bundle of dry creeds and demands our unqualified assent under pain of eternal damnation. Do we regard all living creatures as our co-heirs of joy and sorrow, believing with Coleridge, that

"He prayeth best who loveth best
All things both great and small?"

The vegetarian prude thrusts herself or himself before us and says with Ovid, "Nec sanguine sanguis alatur"—let not blood be nourished by blood. All these modes of prudery, however, are mild and harmless compared to that which relates to sex or sexual relations. We have seen young matrons blush with shame when strangers have gazed upon their naked babes. The beautiful sight of these little, rosy, fragile incarnations of innocence, pure and spotless as from the Maker's hands, could crimson their own mothers with blushes. What folly is this! What irreverence to Him who made us, and saw all His work that "it was very good." It was not thus that Mary presented the infant Jesus to those who came to do him honor, and doubtless for many a year he ran and played with other children, as they do even now in the East, without a vestige of covering. The prurient mock-modesty which is horrified by the sight of a naked child or a nude statue or picture is a reproach to our weak-mindedness and to our defective moral training. If we were not so nice as we are our ideas would not be so nasty. We want more common sense, more philosophy on sexual matters, before the minds of our children can be trained to purity and vice be more lessened thereby. For it is not what we see but how we see. If impurity exists in the soul, it will be inflamed by the most innocent cause, but if pure it will regard all things of evil with indifference and all of good with approbation. It follows then that prudery is a particular form of impurity.

But the mischief is that prudery grows by what it feeds upon. If we encourage it we make a rod of iron for our own backs. It demands that all shall rigidly conform to its precepts, shall love what it loves and hate what it hates. Are we then to give way and be ruled by faddist formalities, and moral mountebanks? Are there to be no more "cakes and ale," no merry music nor sprightly dance, no play nor song for those hard-working and weary minds and bodies need recreation? Are the preposterous nostrums of hired agitators to be forced down our throats whether we will or not? Such a course would end in a recreation like that which followed the Commonwealth upon the Restoration. We should sound deeper depths of depravity than have ever been known and the very foundations of virtue would be sapped.

There is an old saying that "Prevention is better than cure," and experience proves it to be true. If the very fussy ladies of both sexes of the "genus" prude, who have lately been hounding the "unfortunates" from public places of amusement—although these paid for their seats and behaved as well as others—if these, we say, wish to prove their sincerity in their work, let them practice prevention and avoid persecution. Let them cease harrying the immoral women who are irreclaimable, and whose vices are to a great degree the faults of society and of immoral men, and let them strike at the root of our great social evil. This cannot be done by adding to the hardships of adults, but by into proving our laws and ameliorating the lives of the children. It is too late when social pests have been manufactured by unjust laws and cruel conditions to blame them for the misfortune of their existence. Rather let us place the sin where it deservedly stands—upon our own shoulders. We, a christian people, rejoicing in wealth and freedom, permit tens of thousands of our very poor to herd like beasts and to grow up like brutes. Our slums are crowded with those who live, one, two, three, or more families, in one room where every function of life is performed by all. These frequently comprise many grown or growing up youths of both sexes. Brothers and sisters, fathers and daughters, mothers and sons, huddled together in the same miserable bed, every shred of modesty stripped from each from their very infancy, every decency of civilized life daily violated. And the owners of such places often pocket the profitable proceeds of these incestuous tenements, and then persecute the prostitutes who have been born and bred there. As well blame mushrooms for growing on a dunghill. Lady Clara de Vere cannot always keep her honor unsmirched although surrounded by all the advantages of wealth and refinement. The divorce court proves to us how frequently passion w[illegible] as unrestrainedly in the breasts [illegible]ses as of peasants. Yet she [illegible]s the victims of poverty and pha[illegible], whose caresses were kicks and their blessings foul oaths, bred like flies in summer from rottenness, to lead lives more virtuous than her own. Is it any wonder that young girls, educated in the fetid moral atmosphere which they inspired with their birth, seek a solace in illicit love for youths of their own class, and that these are soon exchanged for the mercenary embraces of wealthier admirers? Let the prudes attack the immoral crowding, the foul homes of these unfortunate ones, and urge town and county councils to assist them. Let them insist on the demolition of tenements that necessarily breed thieves and prostitutes, and then they will be prudes no longer, but those prudent and merciful ones who deserve well of humanity.

One thing further is needed. The women who fall into vicious lives through their own love of self-indulgence or through male seduction, are not all derived from the lowest stratum. All classes contribute. Those who were dandled on the knees of pious parents are painted harlots. How is this? Because their own mothers never pointed out to them the dangers of concealed attachments, the pernicious consequences of vanity, flattery and love of dress. Because all sexual possibilities were sedulously concealed from them lest a divulgence might injure their modesty. The mothers play the prude to their own daughters, refuse to tell them what they can never learn with propriety from any other, and so at the first assault of temptation they fall like ripe corn before the sickle of the reaper.

EVOLUTION IN THE COMPOSING ROOM.

Changes That Have Been Brought About by Typesetting Machines.

NEW MEN AND METHODS.

The Craftman Who Superseded the Scribe in Turn Forced Aside by the Modern Operator.

When Guttenburg invented the art of printing from movable type in the early part of the fifteenth century, there were not lacking persons so strongly imbued with superstition as to denounce the art as a new trap set by the Evil One for the destruction of souls, and this in spite of the fact that the first work successfully produced from the printers' hands was a Latin Bible.

The mysteries of the craft in those days were unfolded only to those of high station, and the individuals who were lucky enough to have the secrets imparted to them were looked upon with envy by their less fortunate brethren. The scribe, up to that time the official maker of books, was relegated to the rear, and in his stead appeared the individual—at that time a man of science, later a craftsman, and in our own day called a tradesman—known as the compositor. For more than four centuries the onward march of progress, strewn with the shattered remains of antique systems, left the mode of placing type in position for printing untouched, and then came a simple improvement? Oh, no; a crashing revolution!

OLD TIME SCENES.

The composing room of a morning newspaper presented a much different appearance ten years ago from that of today. Copy was lifted in those days about 2 o'clock in the afternoon, and from that hour to the moment of going to press the scene was one of life and animation. The printers, their eyes covered with brown shades, sitting on high stools in front of the case of type, their nimble fingers transferring the little pieces of metal with great accuracy to the iron composing stick, were in themselves a picturesque sight.

About one hundred and fifty men, usually of many nationalities, from the Russian to the West Indian mulatto, were necessary in a morning newspaper composing room at that time. The dapper graduate of a city printing office could be seen side by side with the Bohemian "tourist," or tramp printer, whose stories of travel always won him a welcome in any party of printers. The verdict of the country newspaper was also in evidence, as well as that "panhandler," or chronic borrower, whose time was devoted almost exclusively to printing newspapers in bar rooms.

Work was begun daily under the direction of the copy cutter and the chairman, the latter a compositor elected by the printers to represent them in all disputes concerning their work. The chairman took to the copy desk a box filled with ivory b[illegible], each having a number engraved on it. After shaking the box well the copy cutter drew a ball and announced the number of it aloud. The m[illegible] work-ing on the frame of the corresponding number would be entitled to "first out," or the best piece of "phat" on the desk. The copy was always turned face downward. The men followed according to their numbers and took the uppermost "take," and you could tell by the expression on an individual's face whether he had fared well or not.

When every one had taken copy the chairman called "Time," and a hundred and fifty hands reached almost simultaneously the box containing the first letter on the copy, and the paper was under way.

THE LATE RUSH.

The end of a busy night was interesting. The copy, on account of the lateness of the hour, would be cut into three or four line "takes," the compositors being frequently called upon to "make even," that is, to space out his words to fill the last line even at the end. To the uninitiated everything would seem disorder. The men making up the different pages would from time to time call for the matter they needed.

"Who has seven of yachts?" would be heard, and then the compositor correcting the required galley would reply by announcing his number.

"Pass it up," and "Pull slugs" would follow in rapid succession, and in less time than it takes to relate the "make up" requiring that particular galley would have it by his side, corrected or not, and would lose no time in placing it in its proper position in the page. Frequently press of time would necessitate the "railroading" of thirty to fifty galleys for the first edition, the term "railroad" being applied to all matter inserted without correction.

The rushing to and fro of the compositors, first to the desk for copy, back again to their frames, and then, when finished with the "take," over to the "bank" to deposit it—the bank being a long grooved table, slanting sufficiently to prevent the type from falling; the cries of the "bankman" and "make-up" for missing matter; the skurrying up and down of the galley boys; the busy attitudes of the various editors, the foreman and his assistant, as well as the din created by the hammering down of the type to make it perfectly even, and the rattle of the little tables on which the pages were made up as they were rushed into the stereotyping department, all made the scene one of seeming chaos.

Suddenly the din ceases and everything becomes comparatively quiet. All the busy workers of a moment previous are chatting and laughing as if they knew not the meaning of the word "rush." The tension is over—the paper has gone to press.

A GREAT CHANGE.

Since the advent of the typesetting machine much of the hustle incident to getting the paper to press on time has been obviated. Only about one-third the number formerly employed is necessary, a skilled machine compositor being able to set from three to five times as much type as a first-class hand compositor. The machine in general use is known as the linotype, so called because it casts type in lines. It was invented by a jeweller named Merganthaler, and is a wonderful piece of mechanism. It is manipulated by means of a keyboard.

The operator touches a key and a brass matrix or die drops into a little grooved channel in full view of the workman. One after another the letters are brought down until the bell rings, notifying the operator that the line is almost full. He presses a lever which brings the line of matrices into contact with the hot metal, and in a few seconds the thing is done. The matrices are being distributed to their proper places, and a solid bar or line of dazzling white metal appears in a little opening to the left of the operator.

The compositors of the various newspapers all receive instruction in the manipulation of the linotype, but a large percentage of those more than thirty-five years old failed to acquire the speed necessary to entitle them to classification as average operators.

CONTRAST IN THE MEN.

The contrast between the careless attire and prodigal habits of the old timer and the garb and deportment of the machine operators is marked. The latter are neatly dressed, bright, active and steady of habits and their genial appearence would suggest a large class of students rather than newspaper compositors. The typesetting machine has proved itself a strong temperance advocate, and though the printer first laughed at it and afterward opposed it bitterly, declaring forcibly that its failure was inevitable, yet, aside from those who lost their situations through its introduction, there is not a man employed in a newspaper composing room who will not be benefited ultimately, for the nature of the new work demands a clear head and attention to the laws of health, which must certainly elevate the printers as a body to that position in social life to which their intelligence entitles them and their spendthrift habits so long prevented their attaining.

As for the newspaper proprietor, the benefits he derives are manifold. The paper is handled with greater ease; it is impossible to "pi" or break up, the type late at night through haste or carelessness; cutting small "takes" is no longer necessary late at night, and the appearance of the paper is improved because "plugging" or wide spacing is not permitted; the type always appears new, and, above all, full justice is now done the excellent service of the press bureaus, which can be utilized to the fullest extent in publication, which was utterly impracticable under the slow and antiquated system of hand composition.

And so the great magician, Progress, has at last stepped within the mysterious precincts of the composing room, and, with a wave of his powerful wand, transformed the appearance of everything. He has summoned the new printer to the helm, and the old printer in consequence passes from the scene of his former usefulness, perhaps to death, surely to oblivion.—N. Y. Herald.

The Statesman has two typesetting machines and was the first paper west of the Rockies to put in two machines, being the second paper on the coast to introduce the greatest modern invention into its office.

"We must have more faith in the soil. The soil will respond generously if one will but feed it. If we starve it, the soil will starve us in turn."

The above is from an agricultural journal on our exchange table. It is particularly opposite if applied to Oregon conditions. Here the land never fails to respond generously to the tickling of the hoe, the stirring of the cultivator, the warmth and fibrousness and renewing richness of fertilizers. The soil here always pays interest and usury upon all honest, intelligent labor loaned to it. It never assigns. It never "goes bust." But the paragraph quoted does not apply so well in the states east of the Rocky range. There frost or blizzard, cyclone or hot wind, pest or drouth may come to repudiate nature's fairest promises. There patient toil of husbandman is not certain of reward. The best conditions of soil and promises of most bountiful yields may prove most dismal failures. What better missionary effort, then, than labor or money expended for the purpose of inducing the farmers of those regions to leave their abodes of uncertainty and come to Oregon to settle and help build up a country where they and their children and children's children will never be deceived or disappointed by any element of kind mother nature? Let's organize and advertise and work together to hasten the manifest destiny of the coming greatest American commonwealth.

SEWERAGE PROBLEM

New Improved Methods vs. Old.

Sanitary Engineering of Importance.

Method of Sewerage Disposal, by Prof. E. J. McCaustland of Monmouth.

It has been well said that there is no surer index of the civilization of a community than the manner in which it disposes of its organic wastes. That filthy surroundings lead to disease and death is a self-evident proposition, and yet it is a proposition to which public sentiment is often indifferent. When a community thoroughly masters the idea that it can, to a great extent, prevent disease by proper precautionary sanitary measures, it has made a wonderful stride in the line of advanced civilization. Sanitary science is properly a branch of medical study, while sanitary engineering is the art of construction of apparatus and systems to carry out the plain directions of the science itself.

The last decade has witnessed wonderful advancement in the art of sanitary construction. Old ideas have in some cases become entirely superceded by new and improved methods and sanitary engineering is today recognized as one of the most important branches of engineering work. The most important branch of sanitary science is that which deals with the disposal of household wastes and human excreta. Under a broad term, all human and other organic wastes are classified as sewage, and its safe and prompt removal from proximity to human habitation is the problem with which sanitary engineering must grapple. Methods of disposal, if considered in detail, are almost without number, but in their broad application they fall easily under two heads, the dry earth system and method of water carriage. It would perhaps be assuming too much to say that the dry earth system has been a failure, and yet it may be safely stated that in but few instances has the system given even moderate satisfaction, and then only when the application was extremely limited and the supervision careful, constant and complete. The various systems are in use in many towns in England, but complaint as to their inefficiency is well nigh universal. The school board in the city of Seattle, Washington, introduced the earth closet but after about one year's use and much complaint they were removed and the trough water closet substituted. It is well to bear in mind that the term "sewage" includes all organic refuse, and any plan which does not provide for the immediate and perfect removal of all organic refuse is in so far a failure.

Herein lies the inherent weakness of the dry earth system. Much of the organic refuse is in a liquid state or is water borne, as urine, kitchen slops, bath room wastes, etc., and these must be provided for in some manner, as their retention is fully as offensive and dangerous to health as is the retention of the more solid matters. If sufficient earth is supplied to absorb and deodorize all wastes, liquid and otherwise, the cost becomes excessive. It has been shown that under this system at least two tons of earth are required per annum for each person. To apply such a system to even small towns, where there might be a fair prospect of disposing of the resulting manure at a good price, lies almost without the range of the possible owing to the cost. Dry earth is not always procurable in proper quantities, and when procured great care must be taken to store it properly that it may be kept dry. If by any means it acquires a degree of dampness, its efficiency as an absorbent is greatly reduced. If the earth is perfectly dry, it acts in a manner to reduce the organic matter to harmless inorganic compounds. Charcoal has been used at times, instead of earth, but it has been shown that charcoal acts only as an absorbent or dryer and does not change the organic character of the refuse treated. For this reason it is never used now except in connection with other substances where it holds its place only as a dryer and not in any sense as a reducer of organic matter.

The subject of the final disposal of sewage has been a constant source of embarrassment to all localities not so situated as to be able to discharge their sewage into the sea beyond the effects of tidal currents. Often, in case of large inland towns, the sewage discharged into rivers has so polluted and poisoned the waters as to entail serious disease upon communities whose water supply came from this source.

It is being more clearly understood daily, that as the country grows in density of population, the problem of the safe disposal of sewage becomes a more complicated one. So far, no city has made her wastes a source of revenue, but in al l cases the removal has entailed considerable expense. The absolute necessity for utilizing all organic refuse for manurial purposes does not yet exist in this country and may not exist for years to come, but the necessity for a safe disposal of all organic refuse is a present and pressing one. The matter was forced upon the attention of the British government many years ago, and the Rivers Pollution commission, appointed in 1867, made several reports covering many phases of the question but leaving the main problem still unsolved. However, sufficient testimony was adduced to prove that most of the rivers of England were in a filthy, polluted state. That the stench from many of the rivers was extremely offensive and positively dangerous to health. That fish were driven from the streams by the inflow of contaminated waters, and that, in many cases, cities were supplied with drinking water taken almost directly from these streams, or at the best, from artificial and, usually, extremely insufficient filters. It required many years to thoroughly arouse a strong public sentiment in England in favor of a rigid sanitary supervision, and the adoption of the most effective means of sewage disposal. The city of London wrestled with the subject for many years, and even now, they still have many knotty problems to solve since the tides persist in returning to the city what the sewers carry away.

In this country, but little has been done in the way of the collection of sanitary statistics. The state of Massachusetts, through her board of health, has given us valuable reports of work done and investigations made at the Lawrence experiment station, along the line of sewage purification. The national board of health has recommended, and has been carried to completion, some very extensive sanitary works, but their efficiency is much curtailed by certain political influences which op pose them. Although sanitary science is yet in its infancy, and opinions of sanitarians are conflicting on many points of importance, yet this much may be considered as established:

First; That methods of dry earth conservancy are not adapted to meet the requirements of a perfect sanitary system. That the manure resulting therefrom will seldom, if ever, pay for its removal. That liquid wastes must be taken care of separately. That if the soil be lacking in quality, or be too moist, the danger of infection at once increased. That the method on the whole is costly, uncertain, and may become positively dangerous. I should then be led to reject the dry earth system, except, perhaps in some special case, where its adaptability and fitness to existing conditions could not be questioned.

Second: Sanitarians are agreed that no water carriage system should be adopted without reference to a proper and safe method of sewage disposal. That the mere removal of household wastes to another vicinity is NOT the end aimed at in the design and construction of a sewerage system. That the sewage must be disposed of in an entirely safe and inoffensive manner. That perfect disposal is not accomplished until all the organic matter is reduced to inorganic compounds, fitted to become food for growing plants. That chemical or mechanical precipitation completely failed to attain this result. That ordinary methods of filtration allow the most valuable manurial constituents, those held in solution, to pass away and become a total loss. That the only known method of disposal which entirely destroys the organic character of sewage and at the same time utilizes it as manure is some method of irrigation.

Under the head of irrigation, there are two general methods in use, known as the broad surface system and the sub-surface system. Broad surface irrigation consists in applying the sewage to the growing crops from a system of surface ditches, so arranged that the sewage may be made to spread over the entire surface and reach the roots of all the growing plants. Sub-surface irrigation consists in carrying the sewage to the soil by a system of pipes, laid with open joints, about twelve or fourteen inches below the surface. From these pipes the sewage percolates through the soil and is finally taken up by the roots of plants. Both methods are in use, but the latter is more usually employed where the amount of sewage to be disposed of is small, the first system being the more available where the works are extensive.

This, then, is the position held by sanitarians today and the position is strengthened by the fact that there are many cities which are treating their sewage in this manner with perfect success. Moreover, numerous experiments extending over many years have shown results which demonstrate beyond question the utility and comparative economy of the irrigation method of disposal.

The final destruction of organic wastes is due to the action of bacterial organisms in the soil, the most effective agent being the "bacterium of ordinary putrefaction everywhere active where dead organic matter is exposed to air, moisture and heat."

"Chemists and biologists who have given the matter close study have concluded that organic wastes become food for the bacteria of putrefaction and nitrification which are abundant in all soils containing organic matter and to which air has free access." The earlier sanitarians held that organic matter underwent some process of oxidation before being reduced to inorganic compounds, and on these grounds urged the necessity of open porous soils. Corfield, an eminent English sanitarian, as late as 1880, remarks: "The physical condition (of the soil) as regards porosity and fineness of division has more to do with the cleansing power of the soil than its chemical condition has." It is now an established fact that in a porous soil, containing the impurities of the wastes of human life, these bacteria increase very rapidly and by combining the organic matter presented to them with the air with which the soil is permeated it is reduced to inorganic compounds which may become the food of growing plants, or may be removed in solution by water percolating through the soil.

Col. Geo. E. Waring, Jr., at present a high authority on sewage disposal, says: "It is now well understood that the bacterium-termo on which we so largely depend for the destruction of organic matter in sewage, is not active except in presence of air." "Hence," says he, "the difference between safe disposal of infected sewage by surface or sub-surface irrigation, and its unsafe disposal in deep receptacles or in deep leaky drains." This also explains the superiority of a porous and finely divided soil. A discharge of organic matter into such a soil is insured a quick destruction and the presence of plenty of fresh air stimulates the growth of the bacteria.

The process of purification is primarily one of nitrification. "Nitric acid is formed from the nitrogen of the organic matter and the oxygen of the air. This acid immediately combines with the potash or soda or lime or other base of the sewage forming nitrate of potash, or of soda, or other salt, but when the same liquid is evaporated and the organic residue is formed and no nitrification results."

Now, excluding the use of electricity, nitrification never takes place except with the aid of organisms which introduce into the process the conditions of organic life. Thus we find that the conditions most favorable to the life of these organisms are the conditions most favorable to the complete purification of sewage. The results of the process of filtration are indicated by the amount of ammonia in the effluent water and the amount of nitrates. The effluent water should be practically free from ammonia, but the nearer the nitrogen of the nitrites and nitrates in the effluent is to the whole amount of nitrogen in the organic matter applied the more completely has the nitrogenous organic matter of the sewage been destroyed.

From a series of experiments, extending over a number of years, the Massachusetts state board of health has arrived at certain conclusions regarding the process of filtration of sewage, which I will now briefly summarize: The work has determined that with suitable filtering material ninety per cent of the organic matter may be removed from sewage, when filtering at the rate of 100,000 gallons per day. In other words, one acre of land will purify the sewage from a population of 1,000, assuming that 100 gallons of sewage per capita reaches the disposal area. The experiments also show that all but the upper layer of six inches of the filter can be used indefinitely, while this upper layer requires agitation and removal to keep up its efficiency. The fact that the lower layers of a sewage filter do not become charged with organic matters, even with years of use, is a very important one and has been so thoroughly tested as to leave no doubt on the point.

Now as to the treatment required by the upper layer of filters in order to preserve their efficiency; the various means to this end are given below, and are quoted from a report of Mr. Geo. W. Fuller, biologist in charge of Lawrence experiment station.

First:—Systematic raking with occasional harrowing or plowing is very satisfactory, particularly for coarse materials.

Second:—Systematic scraping at regular intervals (followed by raking to loosen the material) gives very good results especially for fine material.

Third:—Systematic scraping when necessary without raking or harrowing is not advisable.

Fourth:—The efficiency of very fine material (clogged or not clogged) is much increased by trenching with coarse material.

Fifth:—Such trenches should contain carefully graded materials at the bottom to prevent clogging at the junction of the coarse and fine sand.

Sixth:—When new material is put onto old to replace clogged material removed by scraping, it is always advisable to mix the old and the new together in order to prevent clogging at the junction of the layers of unlike capillary attraction.

Seventh:—The removal of stored organic matter by resting for a limited period is sufficiently great to render this simple and inexpensive method worthy of careful consideration in cases of clogging where the available area is not limited.

Eighth:—It is important that the treatment of filters be such that the conditions of operation be as favorable as possible during the cold winter weather.

Ninth:—Great care should be taken, especially in the case of filters of fine material, that the capacity of the filter be not taxed during the winter months to such an extent that more organic matter is stored throughout the sand than can be removed during the spring and early summer, which is the period of highest nitrification.

In regard to sub-surface disposal, Mr. Fuller says no marked difficulties attend the purification of sewage in this manner, either from a chemical or biological point of view. When sub-surface disposal is adopted, as much of the sludge as possible should be removed from the original sewage by screens and sedimentation before it enters the pipes. These should be provided with outlet gates at the lower end opposite the point of application so that they may be flushed out from time to time to remove the accumulated sludge.

In most cases, in order to avoid clogging, the drain pipe should be surrounded with stones or coarse gravel, and in order to prevent the same from filling the spaces the gravel should be surrounded with successive layers of material of intermediate and gradually decreasing size.

So much for a general consideration of the various points involved in sewage disposal by methods of irrigation, either surface or sub-surface. To apply these methods of disposal satisfactorily in any given case, an intimate knowledge of local conditions is absolutely necessary. The physical characteristics of the soil, the facilities for drainage, the amount of sludge in the sewage, the annual rainfall and its distribution throughout the year, and numerous other conditions have an important bearing upon the final decision as to method adopted.

ORIGIN OF AURORA BOREALIS.

Prof. Berthelot Talks of His Experience with Argon in Paris.

PARIS, April 29.—The interest taken by French savants in the discovery of argon and helium by Prof. Ramsay and Lord Rayleigh is scarcely less keen than that awakened in the English scientific world. Prof. Berthelot, the most eminent of French investigators, has already supplemented the work of the English chemists by experiments which have put the Academy of Science on the qui vive for more important marvels, which everybody anticipates in the near future. Prof. Berthelot discussed enthusiastically the newest members of the recognized family of chemical elements a day or two ago, when the Paris correspondent of the Sun called upon him at his laboratory.

"About argon," he began warmly, "it is a grand discovery and only the forerunner of more important things to come. Prof. Ramsay may be depended upon to add the superstructure to the foundations of the great scientific buildings which he has laid. When Prof. Ramsay sent me in February a tube containing some of the new gas, I failed to appreciate just at first the great importance of the discovery. In the first experiments which I undertook with this sample, I confined myself to two points—first, the chemical combinations which the new gas might be induced to enter into, and, second, the examination of the spectrum of argon as compared with that of the aurora borealis.

"I found, as you already know, that the new element could be induced, under electrical influences, to combine or become absorbed by certain of the hydrates of carbon. The combination is effected, however, much less easily than with nitrogen, which some chemists still consider to stand in the same relation to argon that oxygen does to ozone. When I passed the silent electric discharge through the tube of argon, there resulted a very feeble violet flame or glow, visible only in perfect darkness. Then I introduced ten drops of benzine into the tube and submitted it to a mild continuous current of electricity for ten hours. I found that eleven per cent. of the gas had been absorbed, or rather that the original 100 volumes had been reduced to 89. I submitted the remainder to electric discharge at a higher tension and in three hours this 89 volumes had been reduced to 61. A third time I placed the gas, mixed with benzine, to a high current from a Rumhkorff battery, and the gaseous residue was only 32. This last product was not pure argon, as it was mixed with the products of electrical reaction on the benzine. The 32 volumes of gas proved to be made up of 13.5 parts of hydrogen, 1.5 parts of vapors of benzine, and 17 parts of argon. The solid residuum consisted of a yellow resinous substance, deposited upon the walls of the tube. It was volatilized easily by heat and left an abundant charcoal deposit. The vapors were alkaline apparently, but the quantities were too small for reliable analysis.

"During these experiments in passing electric currents through argon mixed with benzine, I obtained splendid displays of colors similar in every respect to those of the aurora borealis. Testing these with the spectroscope, the identification seemed fully confirmed. It will be necessary to investigate further with larger quantities of new gas before any positive declaration can be made, but the results already obtained certainly suggest that the aurora borealis may be caused by the action of electric currents upon the argon and other elements in the atmosphere."

THE SAME OLD WOMAN.

Rev. Dr. Henson, of Chicago, may be a good man. He is not as courageous, however, as good men ought to be. He is unduly alarmed by the New Woman. She frightens him so that he can almost see "the race wiped out and the devil in possession of the planet."

Nothing of the kind is going to happen. It is not believed by experts in such matters that the devil wants the race wiped out. He needs it in his business. It is also asserted by the experts that he is already in possession of as much of the planet as he can manage without incurring the danger of nervous prostration and paralysis. But that is merely incidental. It is important if true. The main point is different. And it is this—that the New Woman is just the same Old Woman we have known from the beginning.

It will be asserted at once that three thousand years ago even the most advanced representatives of the sex did not ride bicycles, or chew gum, or go to Vassar college, or wear bloomers, or vote in school elections. But these are mere phenomena. Every Hegelian knows that phenomena are not essential realities. Every statistian knows, too, that the number of women with more or less pronounced mustaches is not greater in the thousand than it was five centuries ago.

Hence it is clear that the same Old Woman is still here and that she will stay. She will raise babies whether she rides bicycles or not. She will always know more about the use of catnip tea than she does about politics. She will always be the salt of the earth. And in one way or another she will manage to run the family to suit herself to the end of the chapter. Heaven bless her, and try to make men more worthy of her.—New York World.

JOHN BROWN.

The death of the younger John Brown, as he was familiarly called, will tend to revive public interest in the stirring and tragic story of his father, the grim old abolition crusader. This eldest son of the man who played such an important part in the anti-slavery movement was himself an active participant in the Kansas struggles, and was arrested on the charge of treason and subjected to such severe treatment as a prisoner that he became temporarily insane. He would have been with his father at Harper's Ferry if the attack on that place had not been precipitated before the appointed time by unexpected circumstances. Three of his brothers were there, it will be remembered, and two of them were killed. The little band led by Old Osawatomie on that occasion added a very interesting and significant chapter to American history. Their undertaking was rash and unjustifiable from any reasonable point of view, and they paid the utmost penalty for their scorn of the ordinary rules of prudence and expedience; but it is by no means certain that they failed so far as the ultimate consequences were concerned. It is easy to say that they were fanatics, but, looking back at the matter now, there seems to have been some method in their madness after all. Possibly they did not realize this at the time, but the fact remains that the blow they struck had an effective bearing upon the solution of one of the greatest of modern problems. Salmon Brown, a son of the old crusader, is a resident of Salem.

OREGON INVENTORS.—Frank Batter and W. Murphy, Marshfield, surveying instrument; Robert A. Habersham, Portland, electric treasure-guard; Wm. L. Ingram, Grant's Pass, spring-hinge.

Truly we do not see how it is possible to punish sparking in those colleges to which students of both sexes are admitted. The thing can be carried on in a hundred subtle ways which the old chaps of the faculty can never discover, even by wearing their spectacles, watching with a steady eye, listening for every word, and looking in all directions at once. The strategy of it beats that of Napoleon. It needs not speech, not until it is approaching its natural conclusion, and even then it is, alas! often speechless. Hence we cannot look hopefully for the success of the anti-sparking measures adopted by the faculty of Mount Union college, an Ohio co-educational institution. President Marsh has reprimanded several young men and young women who had aroused his suspicion that they were sparkers; but the chances are that this will only add fuel to the flame. If he were to set up a whipping post, it would add more yet; and if he were to expel the suspects, what would happen next? Look at Romeo and Juliet, besides others. What is to be done about it we can't see, unless President Marsh should raise a high fence between the gallants and their sweethearts, if that would do any good. But, after all, is there any better place for sparking than a college?—New York Sun.

HOP INTELLIGENCE.

The continued cold and recurring frosts have prevented any growth and in fact the frosts which have been very severe must have done great damage.—Otsego Republican.

Waterville Times: Much complaint has been heard from the growers recently on account of the many dead hills in the oldest yards. Many of these did not show until after the yards were poled and grubbed. The recent severe frosts too have undoubtedly injured the growing vine but what the ultimate effect will be cannot now be told.

The fortunes of the Rothschilds family is said to amount to 10,000,000,000 francs, having doubled in eighteen years. Ninety years hence if the rate of increase is maintained it will be 320,000,000,000 francs or about $6,000,000,000. The fortunes of the Rothschilds are based on a scientific principle of compound interest and the preservation of the money in the family. So stupendous is the sum which they have accumulated, even though it be but half of the above estimate, that the accretions from interest, if loss were avoided, would in 180 years bring it up to 1,024,000,000,000.

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