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JEWISH HYGIENE—THE TALMUD AND VARIOUS OTHER JEWISH WRITINGS HERETOFORE UNTRANSLATED— SUPERIOR ABILITY OF THE JEWS.

The following is an abstract of an interesting paper read at the last meeting of the American Medical Association, at Washington, D. C., by Karl H. VonKlein, A. M., M. D.

We are now in the age of pride and the Niobe of nations. But when we look back even to the dark age of the Egyptians, we find that our sanitary measures are far behind any other advancements of modern civilization. Hygeia, commonly called the goddess of health, and from which the term hygiene has its etymology, was a pretender, as well as her father Esculapius, who styled himself the god of medicine. But when we look back beyond the days of those pretenders, we find that nations lived hundreds of years before them, whose literature was ever preserved by a nation which has preserved itself and survived nations of ordinary power. When the Egyptians strove amongst themselves, their literature was destroyed, and the loss of the library of Alexandria is felt at the present age. But of those people of whom I am now about to speak, though driven from country to country, and from nation to nation, at all ages and in all centuries, and are still persecuted, nevertheless their literature is preserved and shines forth with them in full maturity. Hippocrates, who is supposed to have lived about 400 years before Christ, whose writings on medical art have been preserved, and who

endeavored to explain the causes of disease in the human frame, and their symptoms, and pointed out their preventives, and laid down sanitary regulations and exercises for the preservation of health, appears to have been acquainted with those large volumes of scientific writing, as he well describes their contents. I am surprised at Galen, the great master, one of the most illustrious men in the annals of medical science, that he does not mention something about them. But I am not surprised at Paracelsus, the father of quacks, who styled himself Theophrastus Bombastus, Philosophus, and other great names to which he was not entitled.

Every since the days of Hallé, and to the present day, men have lived in both hemispheres who became illustrious for their researches in sanitary science, still, on those great works which embrace the teaching and learning of human hygiene, they are mute. I mean the illustrious works of the Jewish Talmud, the greater part of its contents, hygiene, a perfect treatise for preserving health. One might not think it possible that the researches of the learned could overlook such a valuable scientific writing. It is strange but nevertheless true, and can be partly explained. They are writings and teachings of a creed whose name was, before the crucifixion of Christ, and ever since has been hated, persecuted, and rebelled against. Secondly, they are written in languages that modern scientists are unacquainted with, from the fact that the Talmudic language is a conglom-

meration of the Hebrew, Chaldaic, Amaic, Syriac, Arabic, Greek and Latin. It was preserved by oral delivery for many generations before Christ, and until about the second century after Christ when the Mishna was compiled. About the middle of the sixth century the entire work was finished.

The Talmud (teaching) comprises the Mishna and the Gamara. Its contents are of a diversified character, relating not merely to religion, but to philosophy, medicine, history, jurisprudence and the various branches of practical duty.

The *mishnah*, (*repetition*), or in abbreviated form, *shas*, (*six*), and the *gamara*, (*completion or supplement*), comprising the Talmud Babylon and Talmud Jerusalem is composed of six *sedarim* or orders, containing 63 *massecoth*, or tracts, and 524 *perakim*, or chapters; of which 231 are devoted to sanitary regulations or exercises.

The first *seder* called *seder zeraim*, *the order of seeds*, treats of sowing the productions of the earth, trees, fruits, etc.

The second *seder* called *seder moed*, *treats of the order of festivals*, when they should begin and terminate, the different ceremonies to be then observed, etc.

The third *seder* called *seder nashim*, *the order of women*, discusses the distinctive rights of men and women, marriage, divorce, the customs, inclinations and sickness of women.

The fourth *seder* is called *seder nezekin*, *the order of damages*,

The fifth *seder* is called *seder kodashim*, *the order of holy things*, treating of sacrifices, oblations, their different sorts, etc.

The sixth and last *seder* is called *seder taharoth*, *the order of purifications*, relative to the purity and impurity of vessels, to household furniture, and other things and the way they should be purified. It is composed of twelve treatises almost entirely devoted to hygiene, as follows: *celim*, vessels, treats of vessels and household goods which convey uncleanness; *aholoth*, tents, treats of tents, cottages and houses retaining uncleanness, how persons

who enter them become unclean, and how they are to be cleansed and disinfected; *negaim*, plague of leprosy, treats of leprosy of men, garments, or dwellings, how their pollution is conveyed and how they are purified; *parah*, the red heifer, directs how she is to be burned and her ashes used in purifying; *taharoth*, purifications, how purification is to be effected when a person who has touched an object has been made unclean; *mikvaoth*, pools of water, concerning the reservoirs of water in which the Jews bathed, or washed themselves; *niddah*, separation, the uncleanness of women during the menstrual period, etc.; *meeshirin*, liquours, treats of fluids and their purification; *zabim*, issues, treats of nocturnal pollution, etc.; *tebul yom*, the day of baptism, treats of certain days when the Jews have to wash their bodies, or immerse themselves in order to become clean; *yadaim*, hands, respecting the washing of hands before eating any meal; *oketzin*, stalks of fruits, relative to the stalks of fruits and how they become unclean by touching other fruits.

It can be seen from the above treatise that it is full of hygiene. It is true that it contains many fabulous, trifling, absurd childish and irreverent things, and we coincide with Milman when he says: "the Talmud, that wonderful monument of human industry, human wisdom and human folly."

The only people at present, with very few exceptions, who seem to be acquainted with the Talmud are the Jews, and they appear to be silent or skeptical in regard to it. I cannot conceive why those Jewish physicians living in the most enlightened parts of civilization, in America and Europe in a city like Vienna, for instance, where in fact the greater part of the medical faculty of the University of that city is composed of Jewish writers and teachers, who are second to none, why they should be silent on the writings and teaching of this great work which has been suppressed for many generations.

It rests with me in my humble judgment to think they are guilty of two unpardonable mistakes,—one the fear of prejudice to their reputation by revealing their treasures,—the other, their false impression that it is theological and of no value to science. It is said Galileo read medicine with a Jewish physician who taught him the Talmud, and from which he formed his ideas of astronomy, and that should remind them of him who to the last moment said “it moves for all that.” They forget that the Codex Romana is taken from the Talmud, on which is based all the moral and civil law of all civilized governments. They forget that among the commentators were physicians of no simple ability, men like Maimonides, Rambam, commonly called Moses Egyptianus, who was a physician to the Sultan; Nachmandides called Ramban, who wrote valuable works on medicine; Rabbi Solomon ben Isaac, commonly called Rashi, and many other illustrious men of the middle ages, like Ibn Gabrial, Ibn Ezra, Abarbanel, and Alfosi, some of them were even counsellors to crowned heads,—the illustrious Abarbanel was privy counsellor to Alphonse the V, King of Portugal. If men of this rank could take advice from those men, I think we surely could be benefited by it. We could translate with great pride Egyptian, Grecian, Roman and Hindoo, names not worthy of mention, but of those men whose names would decorate the index of medical authors, the annals of medical science is obliterated. Those names just mentioned are but a few of the great commentators, whose discourses taken separately would no doubt be approved by the present most advanced minds of sanitary science.

Those works would have long been in the hands of progressive physicians, if not for the short life of Chiarini, an Italian, who proposed to publish a French translation of the whole Jerusalem and Babylon Talmud. In his *Theorie du Judaïsme* and in his *Talmud Babylon,*

Leipsic, 1831, he explained his views and intentions. His death, however, while attending the sick, of cholera, in 1832, unhappily cut short his labors. There were numerous others who have attempted to translate separate treatises and chapters. The best of all is the one lately published by Doctor Rabbinowitz, of Paris, though not complete but worthy of note. I trust it will soon be translated in many other modern languages.

There are besides the Talmud many other valuable works among the Jews which are almost entirely devoted to hygiene, viz: *Chi Adam, life of man*; *Sulchan Oruch*, a set table; *Aarach Chaim*, path of life; *yorah deah*, teaching of knowledge, etc.

I would enter into detail of the *Tarjag Mitzvoth*, six hundred and thirteen commands of the law, more than one-half of which pertain to hygiene, and show that the whole period of Jewish life, from Alpha to Omega, is based upon sanitary measures and morality, which is the basis of health. But my time being limited, I will attempt to prove this as briefly as possible, and comment upon it, basing my views upon the researches of many scientific investigators and naturalists.

To do this we must commence with the first origin of the race. Our earliest acquaintance of Jewish history discloses the fact that it commenced with a sanitary act. Abraham was the first Jew who became such by circumcision.

Dr. Von Klein then refers to the low state of morality in relation to the sexes among the Canaanites and Egyptians, and continues: such was the state of affairs among the Egyptians at the time of Moses the great legislator. He, with his philanthropic heart and active mind, saw that his people were in danger of becoming educated to the same mode of life as the Egyptians. Moses, like Abraham, saw that he could be believed only by frightening them by commands through a heavenly king.

Dr. Von Klein next alludes to the instructions given by Moses in the Exodus,

(chap. XIX). "After the doings of the land of Egypt wherein ye dwell shall ye not do: and after the doings of the land of Canaan, whither I bring you, shall ye not do." Moses then instructs them as to what they shall not do. But there were intervals when the Jews became perfidious. There were many who became uncircumcised in order to devow their nationality. Under such circumstances it became a necessity to establish laws more rigid than those given by Moses. Here arose the great Rabbis and compilers of the Talmud and formed a Sanhedrin who established a court of law which had the power to enact religious ordinances and to decide legal cases, with pains and penalties according to their crime, having jurisdiction over life and death. This tribunal consisted of seventy-one men, the most learned among the Jews, who were the highest power of the nation.

Besides this great body at Jerusalem there existed many minor Sanhedrins consisting of twenty-three members, in every large country, while at smaller places the judiciary consisted of three persons, composing their minor courts. The former mentioned Sanhedrins are the ones who ordained the great laws of hygiene. The last mentioned minor courts are still in existence and operation in almost every congregation throughout Europe. They are termed *baith din*, house of judgement. Their main acts are decisions upon what is *cashir*, clean, or *traipha*, unclean, so that if anything occurs within a Jewish household that raises the question of cleanness it is referred to this body and their decision is generally abided by. These questions arise very frequently, especially among the Orthodox Jews, as their cleanliness is amazingly great.

In washing the hands, *natilat yadaim*, they are not only instructed to do this, but they are told in what manner: for instance, they are not to wash their hands by dipping them in a vessel, but the water must be poured upon them; they must

pour with the right hand upon the left, and with the left on the right, etc., three times; after this they wash the face and rinse the mouth, drying the hands and face with a towel. This must be done as soon as they arise from the bed,—even in the daytime. They must not touch any portion of the body before this is done; also before and after each meal, after each evacuation or urination, or the touching of dead bodies or anything unclean. In districts of Orthodox Jews they have public baths which are used every morning before breakfast by each individual; these are termed *Bait Tbilah*, a house of baptism. This certainly is a very notable endeavor to prevent disease.

It lays down sanitary regulations for what they must eat and drink. The diet is so regulated that one article of food will not interfere with another in digestion; for instance, after eating meat they are to wait three hours before milk or its substances dare be used, as the milk is liable to coagulate and irritate the stomach; even vessels in which meats are prepared are prohibited to be used for milky substances, or *vice versa*. This is done for the purpose of strengthening the commands so that they will not allow themselves to consume meat and milk at the same time. They are also prohibited from eating *chait roet*, wild beasts that do not chew the cud, or have the hoof parted, of the species of a bear, lion, tiger, etc., as such live almost exclusively upon animal food. This is reasonable, as they are liable to be infected by morbid poisons from the consumption of dead animals that might have died from hydrophobia or other raging diseases, such as are sometimes found among dogs, cats, rabbits, foxes, wolves, etc., for whatever disease originates spontaneously in those animals is subject to be transmitted from one to the others; they are therefore dangerous as diet. Even *aphet roet*, wild fowls of the species of the crow, eagle, ostrich, owl, stork, bat, etc., are prohibited as they consume dead animals.

The meat the Jews consume from the beast or the fowl must be killed in a certain way, and with a certain instrument, not according to the vulgar custom by striking on the head, by a rude knife, or in a coarse and violent way that would mangle or lacerate the body, which might produce instant inflammation and probably blood poison, thus making it unclean and unfit for anybody to consume.

The killing of the beast as well as the fowl must be by bleeding through the jugular vein. Prior to the killing the animal must be well rested, and its respiration normal. There must be no broken limbs; their lungs must be blown up to the trachea and if it does not expand it is soaked in water twenty-four hours, when if it does not expand, the animal is unclean.

The veins and arteries must be dissected from the animal; this is done for no other purpose but to ascertain whether there are deep-seated abscesses or not (such abscesses being generally found about the arteries and veins) that would make the animal unclean. The blood of all animals is prohibited as the consumption thereof is dangerous to human life as all animals are subject more or less to scrofula or other blood diseases. According to Drs. Buchner, Kerner, Dunn, Horn, Shuman and others, poison has developed in sausages made of blood and to which they have given the name of Allantotoxicum.

Therefore the Jews do not eat meat, either of the beast or fowl, unless prior to eating it has been well soaked and salted. Their mode of preparing is first to soak it half an hour, then it is well rinsed off with clean water, and salted on both sides, placed upon a board slanting, there to remain from twenty to thirty minutes, then again it must be rinsed three times before its use is proper. The prohibition of the use of *chazir*, swine, for food among the Jews it is unnecessary to dwell upon, as its effects are but too well known to the laymen as well as to the

physician. Not only from the danger of trichinæ but of all other diseases that the hog is inherent to. The hazard from the use thereof and its importation have of late years become national issues in all civilized governments. It should not only be an issue where it is to come from, but its use should be entirely eradicated. Mountains would sink down from the dead caused by the use of this miserable brute. Fish without scales and fins, *dagim bala snapir wacash-cashet* are also prohibited among the Jews. This stands to reason, as frightful poisons are found in many kinds of fish, not to say that all fish without scales and fins are poisonous, but all poisonous fish are without scales and therefore they must be dreaded. Naturalists have declared that fish live upon their kind, that is to say fish without scales live only upon such as have no scales, etc., so they are liable to be poisoned from others.

All *sharatzim*, creeping things, or reptiles or food containing the same is strongly prohibited and the use thereof is considered a great crime by the Jews.

Water, vinegar, and other liquids suspected of foreign bodies must be strained through a cloth. All vegetables subject to vermin, such as parsley, caraway, lettuce, green onions, peas, mushrooms, berries, cherries, and all vegetables whatsoever must be picked and examined leaf by leaf, kernel by kernel, and grain by grain.

All fruits such as apples, pears, cherries, citron, apricots, peaches, oranges, lemons, nuts, etc., that are decayed or mouldy, the use of is prohibited; the seeds thereof are always considered as unfit for use. By this it can be seen the ancients have already feared the germ of disease.

All Wines such as *yayin mesech*, drugged wines are interdicted, as such wines might influence or propagate gout or cause other afflictions.

Even the manner in which food should be cooked and prepared is laid down, for example the Talmud asserts that an egg

cooked in sand, as is done in hot climates, or laid beside a hot kettle, or wrapped in towels, is not proper food to be consumed, this may appear to us as senseless, but nevertheless it stands to reason that an egg cooked in the above described manner may become partly hatched. By this it can be seen that hatching eggs by artificial temperature is not entirely a modern invention,

One, and above all, of the hygienic laws of the Jews is the separation of women during their menstrual period, *halchot niddah the laus of menstruation*. It is the duty of every husband at least two or three days prior to the expectation of that period to separate from his wife not only from the bed, but even the chamber they occupy if possible, or if any spots be visible upon her clothes, or she should inform him of it, he should at once sever from her and they must remain apart during all the period of her sickness and until six days thereafter, and during that time they are not allowed to eat out of one vessel, and it is advisable not to dine at the same table, nor in any way play or joke with each other. This last to prevent the awakening of passion. In six days after the period has ceased, she must test herself with a clean white cloth, if no red spots appear she must then go *mikvah*, pool or *tabilah*, bathing. Bath houses for that purpose are generally erected by Jewish congregations, but the wealthy people sometimes have them erected in their residences. The bathing must be done by immersing so that every hair on top of her head is covered with water; her legs and arms must be spread in order to allow the water to surround all parts of the body. Gentlemen, I can not describe in less than a volume the laws and regulations of separation. The same laws as the above are applied to newly married women: they must make the separation and go through the same *modus operandi*.

They are also instructed how to visit the sick *bakur cholim*, whom they shall visit, and in what diseases. Not only that but even the clothes they wear are regulated, how they should be made and of what fabrics. The cloth must not be a mixture *shatnez*, of linen and wool; this may appear very frivolous to us, but I say there are sanitary measures even in this, as these two textures counteract each other, wool retains its temperature,

is a non-conductor of heat and keeps the body warm, while linen is a conductor of heat and cools the body. The custom of burying their dead in linen, is done for no other purpose but to prevent infection, as wool is a retainer of contagious and infectious matter. Pasteur's experiments are but too fresh in our minds. I do not know whether he attributes the contagion of the sheep to the animal body itself or to the wool. I can not conceive that an animal interred for many years could still contain contagion, as the body would be entirely decomposed. But I do believe the wool might retain its infection for hundreds of years, especially if buried in dry ground.

In accordance with the above proofs it can be seen, as heretofore stated, that the laws of morals and health were with the Jews from their earliest history. And those who are acquainted with the Talmud, which is based upon the fundamental principles of the Bible, know that there is not another religious sect or creed in the universe, with the exception of the Jews, and the Mohammedans, who have in their theology, hygiene and diet. It is an established fact that the Koran is taken from the Talmud, or the Mohammedans would not have it.

One thing is certain; the Mosaic and Talmudic laws have accomplished more by their terrific fear of some unknown power that they inculcate than all the legislation of the civilized world with their rigid pains and penalties.

Some say the works of Shakespeare were written 200 years before their proper time. I have just as much reason to believe that the Talmud was written a thousand years ahead of its time. It appears to have every field of literature cultivated, and those pertaining to health to the utmost extent.

You may ask, what have the Jews to show for their sanitary or hygienic measures? Gentlemen, I will say they have a superior claim to the respect of society. Statistics speak for them and show that they produce a vast amount less of venereal diseases than any of the civilized or uncivilized nations on the face of the earth. Above all, I believe that the sanitary mode of Jewish life has great tendency to cultivate the brain and mind.

The Jewish race appears to produce a greater per cent. of great men (according

to their numbers) in every branch of science and art than any other sect or creed on the earth. Who does not know the great composers and writers in music, Meyerbeer, Mendelssohn, Rubenstein and others? Not a word will I say about the stage, as the name of Rachel and others, are but too well-known. Not a whisper of the great thinkers and poets; Heine, Philippsohn, Zunz and Auerbach, but we cannot afford to skip the the names of Spinoza, Acosta and Moses Mendelssohn.

As commercial men their superior is not known. As financiers they rule the world. There are, however, very few who follow the profession of law, as they are generally debarred from practice in many of the European countries, but if permitted, they are not excelled in that profession. The American bar is proud of and honors the name of Judah P. Benjamin, of New Orleans, his attainments have made him a great man in the courts of England.

I was astounded after various inquiries and correspondence with all the medical colleges of the world, which was done by me at great labor, that 67 per cent. of Jewish physicians maintain professorships in medical colleges; 36 per cent. are medical authors. Medicine appears to be the favorite study, and as a rule, they always maintain a high standing. There have been many Jewish physicians in a professional capacity at the courts of famous kings.

By the foregoing it can be seen that what I have asserted, to wit: that the Jewish hygiene cultivates the mind, has already been recognized as a fact by the highest authorities of church and crowned heads.

In conclusion I will say it is high time for us to review the past history of that nation, and ascertain, while the nineteenth century still lingers, if it is not best for us to adopt some of their codes in life. Let us no longer berate a nation which was so brave and full of humility.

FOR TESTING DRAINS.—It is said the smoke machine is being used in England with great satisfaction. It is a small machine with powerful fanners, which blow the smoke of ignited cotton waste, saturated with oil, into the drainage system, and in due time the smoke issues from all defective points and imperfect traps.

THE PRINCIPLES AND PRACTICE OF HOUSE-DRAINAGE.

BY GEORGE E. WARING, JR., SANITARY ENGINEER.—FROM THE CENTURY FOR DECEMBER.

In arranging the details of house-drainage the main line is always first to be considered. It begins at the sewer, or flush-tank, or—in barbarous instances—at the cess-pool; passes through the house by such a course as may be indicated by a judicious compromise between directness and convenience, past the location of the highest fixture that is to discharge into it; then it passes out through the roof for free ventilation.

TRAPS ON MAIN DRAINS.

THE question of a main trap between the house and a public sewer has been much discussed, and is still determined by no rule. There should always be such a trap between the house and a flush-tank or a cess-pool. I am inclined to the belief that there should not be such a trap in the case of discharge into a sewer, unless it be especially foul. If it is only a great cess-pool, holding the accumulated deposits of a street or larger district, or if its interior atmosphere is at all comparable in offensiveness with that of a cess-pool, then a trap will be necessary; but if it has such an atmosphere as will admit of the entrance of workmen, and if its contents are carried forward in its current with reasonable completeness, I incline to the opinion that, even if no other house connected with it aids in its ventilation, it will be better that the single house under consideration should be connected without a trap.

I have reached this conclusion slowly and in opposition to the opinion of many of the best engineers. The objection ordinarily raised against the practice is that by it "the sewer-gas is laid on" to the house; that contagious diseases existing in other houses connected with the sewer will communicate their infection directly to any house not so cut off; and that, as a matter of common policy, one man alone should not ventilate a sewer that is

used without ventilation by neighbors. There are two arguments against this, and they seem to be controlling ones. (a.) The purpose to be secured is the greatest practicable purity of the drains and pipes of the particular house, and, while it is true that a trap will shut off the air of the sewer, it is also true that the trap itself, unless the course of the drain is very steep and its flushing very copious, may not only form a seat of decomposing filth, but will so set back the flow as to cause a deposit of foul material for some distance along the house side of the drain. If the sewer is not extremely offensive,—more offensive than a critical investigation made a few years ago showed most sewers in New York city to be,—there will be less stench coming from a current of air flowing from the sewer without a trap than will be developed in the house-drain itself with a trap. The absence of the trap will secure a pretty constant and effective current of air from the sewer through to the top of the soil-pipe. Without the trap, a sufficient current can be established by the use of a well-placed fresh-air inlet; but the immediate seat of decomposition in and behind the trap will continue active. (b.) All the cry about sewer-gas being “laid on,” and about the intercommunication of diseases from one house to another by means of the sewer, is the outgrowth of a condition that is now hardly tolerated, and that certainly is not contemplated in this paper. In the older work, there was either no ventilation whatever to the drainage system, or it was very inefficient. The water used, through perhaps not less in amount than now, was not so used as to secure a good flushing effect, while the stability of traps was then little thought of. Pressure of any sort being brought to bear on the atmosphere of the sewer, foul air escaped into house-drains and found no other means of relief than by forcing traps or by working its way out at defective joints. Under such circumstances, the argument in favor of the trap was a strong one. Now, house-drain and soil-pipe are tight, ventilation is very free and complete, the effect of a pressure on the air of the sewer is not to be feared, traps are reliable, and, in the best work, joints are absolutely tight. Under such conditions the safeguard supposed to be furnished by the exterior trap is not

needed,—assuming always that the sewer is a reasonably clean one. Its condition will always be improved by the ventilation furnished by the untrapped drain.

FRESH-AIR INLETS.

In the case of country houses, not discharging into sewers, the trap is a necessity. Wherever a trap is used, there must be on the house side of it an inlet for fresh air. There can be no real ventilation of the drainage system if it is open only at its top. A bottle cannot be ventilated by removing its cork, nor will a chimney draw if it has no opening at the bottom. A copious inlet for fresh air, working in conjunction with a wide opening at the top of the soil-pipe, will insure a free movement throughout the whole system that will accomplish an adequate ventilation, not only of the main channel itself, but, by the diffusion of gases of *short* branches connecting fixtures with it. Most of the directions given in sanitary journals and books for the arrangement of fresh-air inlets, especially in cities, seem to have been made without due regard to their liability to become obstructed by rubbish, and especially to become entirely closed by accumulations of snow . . . There is really no good reason for placing this opening at a distance from the house. I have never known of annoyance resulting from the inlet pipe being brought out at the face of the foundation wall, preferably, of course, not too near to windows and doors. With well-flushed pipes, the constant though often slow movement of air through them so reduces the offensiveness, which a few years since was thought to be inevitable, that, although there might be a slight outward puff when closets or baths are discharged, no annoyance results.

MATERIAL AND CONSTRUCTION.

WHETHER the soil-pipe passes through or under the foundation of the house, unless the wall be old enough for all danger of settlement to have passed, it should be carried through an arched opening to prevent its disturbance if settlement does occur. In any case, the iron pipe should be continued for nearly or quite a full length (five feet) outside of the foundation wall. It may be continued farther with advantage. Although thus laid in the ground and used as a drain, iron pipe, is not, like earthenware pipe, imperishable;

still the greater certainty of tightness and correct grading, if due only to the better class of workmen by whom it is done, is a strong argument in its favor. After reaching solid ground that has not been disturbed in excavating for the foundation, a *carefully laid and rigidly inspected* earthenware drain is to be preferred. After the drain passes inside of the foundation wall it is better, where it is not necessary to connect with fixtures in the cellar, that it should be carried in full sight, along the face of the cellar wall or suspended from the floor-beams, to the point where it is to turn up as a vertical soil pipe. This is advisable because here, as much as anywhere else in the house, it is important to be able to inspect the joints, and to know always the condition of the work. If, however, it should be necessary to make connection with a water closet or other fixture in the cellar, it is better that the main channel should run under the floor to or near the location of such fixture, in order that all or nearly all of its length may constitute a part of the main line, thoroughly flushed and thoroughly ventilated, like the rest of the system.

THE SOIL-PIPE.

It is a generally accepted rule, and a good one where space suffices, to use no short turns—technically, "T branches" and "quarter bends." Two one-eighth bends, or a Y branch and a single one-eighth bend, give a more gradual and therefore better change of direction. So, in the attachment of water closets to vertical soil pipes, it is usual and better to make the connection with Y branches. Where space does not suffice, however, a half Y answers a sufficiently good purpose, and even a T branch (right angles) is less objectionable than it was when flushing was less copious than it now is. The soil-pipe throughout its whole length, horizontal as well as vertical, should be so secured with hangers and clamps or hooks and with supporting posts that it will be rigidly fixed in its position. From the beginning of the work, every joint should be made with a view to being tested under hydraulic pressure. If the workman has this in view, the test will generally discover few leaks. As ordinarily made, especially where the whole circumference of the pipe is not easily accessible to the calking tool, a test will

almost invariably disclose serious leakage. In every case the test *should* be made, and every semblance of a leak should be calked until thoroughly tight under pressure. In making this test, the simplest way is to close all openings into the pipe with disks of india-rubber compressed between two plates of iron forced together with a screw. Such plugs can be fastened so tightly as to hold a head of fifty feet. There is no special advantage, however, in applying this force; for if joints are to leak at all, they will leak generally under a head of a few inches, and always under a head of a few feet. It is generally most convenient to test the vertical pipes story by story, the plugs being inserted through the water closet branches. Another satisfactory test which may be applied after all fixtures are attached is made with an air-pump and pressure-gauge, such as gas-fitters use. If the gauge stands firm even under a slight pressure for an hour together, the work may be accepted as tight. The principal drawback is that, if the work is not tight, it is much more difficult to locate a slight leak than when the water test is used. I think it may be accepted as a well-grounded rule that no prudent owner should receive and pay for his plumbing work until all of the iron waste-pipe has been tested, by one or the other of these methods, under the personal observation of the architect or his plumbing expert. There is probably no occasion to fear that work once made tight will develop leaks for many years, the tendency to rust after a time, even with tar-coated or enameled pipe, being rather to close such slight leaks as may exist..

There are two grades of soil-pipe known to the trade, "common" and "extra-heavy." If common pipe has sufficiently strong hubs to stand heavy calking, *and if the outer and inner circumferences are concentric*, there is no reason why it may not be trusted for very long service; but it is difficult to maintain the core in a perfectly concentric position, and even in the best pipe there is generally a slight difference of thickness between one side and another. A very slight difference is a very serious matter in common pipe. In extra-heavy pipe, unless the eccentricity is very obvious, even the thinner portion will be thick enough for safety. This thicker pipe, however, is sometimes

weakened by air bubbles in the mass. To detect these, the whole pipe should be tested by sharp hammering over its whole surface.

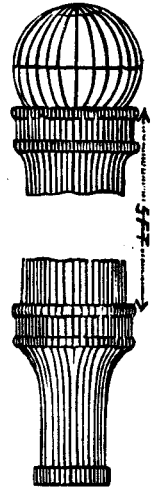
In ordinary work in private houses, a diameter of four inches has been adopted as sufficient for the soil pipe. So far as the mere water-way is concerned, this diameter is ample, even when roof water is admitted from very large houses. Indeed, for most cases a diameter of three inches will furnish a sufficient water-way; then, again, the smaller the pipe the more thoroughly it is flushed by the stream discharged through it. There is, however, another consideration that is important. The siphonic action, or suction, produced upon lateral branches by the discharge of water through the main shaft, is in inverse proportion to the diameter of the pipe. The sudden discharge of a water closet using three or four gallons of water through the three-inch soil-pipe might, under favorable circumstances, produce an almost complete vacuum in the branches. The same volume flowing through a four inch pipe would have a less effect, and through a five inch pipe still less. Practically, where there are no fixtures higher than the fourth story, and where the admission of air from the top of the soil pipe is very free, four inches may generally be regarded as a safe size.

VENTILATION OF THE SOIL-PIPE.

The upward extension of soil pipe for complete ventilation is a matter of much importance, and one that has been considerably bedeviled by invention. Experiments instituted to demonstrate the utility of different caps or ventilating cowls have not yet been carried to a complete scientific result; but they have sufficed to establish two important points. One is, that every ventilating cowl of whatever kind, and of whatever effectiveness during positive winds, — when no cowl is needed, — is invariably an obstructor of the movement of air during calms or under light winds; also, that every deviation from the straight line obstructs the current. Therefore, the cap or bend or cowl, one or another of which is almost always used, is of no real utility in a high wind, and is an absolute obstructor at other times. The best result will always be obtained by running the soil pipe straight up to a certain elevation

above the roof,—more or less according to the exposure,—and leaving it entirely open at the top. To prevent the intentional or accidental introduction of obstructing objects, it is a good practice to insert, and to secure, in the open mouth the ordinary spherical wire-basket that is used to keep leaves from obstructing the outlets of roof gutters. The other point is, that a universally effective increase of the movement of air is secured by increasing the diameter of the pipe at its upper end. Theoretically, the lower down the enlargement begins, and the greater it becomes at the top, the better will be the current produced. Practically, it seems to suffice to increase the diameter of the single upper length of pipe. This is most conveniently done by using an "increaser," from four inches to six inches, just under the roof, and to set a length of six-inch pipe at the top.

The owner and the architect, and all who are interested in securing good work, should bear constantly in mind the importance of making this main channel for ventilation and for drainage absolutely and permanently good from bottom to top. This being assured and tested, the various fixtures or plumbing appliances may be connected with its branches.



THE TOP FINISH OF A SOIL-PIPE.

CHOLERA BOXED UP. — It is said (*Sci. Am.*) that two doctors of Marseilles fancy that they have succeeded in discovering the morbid agent of Asiatic cholera, which, according to their statement, is a "mucor" entirely distinct from the "comma" of Dr. Koch. Considerable amusement was created at the Academy when the perpetual secretary, Professor Beclard, exhibited the sealed box which contained preparations and specimens of the offending "microbe." Amid a general burst of laughter, the president was requested "to keep the box sealed." Thus does the spirit of comedy invade the ground of tragedy even in the most serious of human affairs.

PREVENTIVE ACTION IN THE CAPITAL.
MEETING OF PHYSICIANS TO PREVENT
SICKNESS.

The Ottawa Medical Society, following the almost universal bent of the profession, have just held a meeting for discussing sanitary matters in relation to the city, in view of a possible outbreak of cholera next year.

The President, Dr. Grant, in the course of quite a lengthy address, said, we are called together this evening on a special mission, that of considering the best means of guarding the public against the spread of disease in our midst, and to promote the continuance of health, in its most comprehensive sense. Similar action had been taken in other cities. Our diseases may be homegrown or imported, and it is with regard to the latter more particularly, which find their way in by extraordinary circumstances, such as cholera, that we now desire combined action.

Few cities in Canada have a lower death rate than Ottawa. The site of our city is elevated considerably above the level of the surrounding country. The water supply is equal to any in the Dominion; our drainage although still incomplete, has accomplished a great deal for the health of the city, and the action of the Council in having a regularly appointed Health Officer is a step in the right direction. Our pauper population is exceedingly small. We have not so far required a poorhouse. The greatly increased traffic in the city, owing to the rapidly developing railway communication, has rendered our streets rather muddy during the recent rainy weather. In 1854 when the city was visited by cholera, the death rate was very small indeed, and it was chiefly confined to those localities not sufficiently drained or supplied with pure water. These difficulties have been greatly overcome, and with the exercise of moderate precaution there is no cause for alarm. In various parts of the city we require:—1st., More thorough drainage of the soil, especially near dwellings; 2nd., Better securities

against the contamination of water supply, particularly by filth-saturated soil; 3rd., A strict guard over the purity of the air, and freedom from nuisances and unclean places; 4th., Better sanitary arrangements in public schools, public buildings, factories and slaughter houses.

Dr. Robillard, health officer, said the time had come when we should work in harmony and prepare for the advent of cholera. It was not to be expected that health officers could be aware of all the defects of the city, hence it was the duty of every practitioner to aid them by giving notice of specific disease, when the cause will be looked for. He had recommended in his report that a qualified person be appointed supervisor of plumbing and drainage.

Dr. H. P. Wright said: Our main sewer was good but the side drainage bad. Seven-tenths of the cases of disease were due to defective plumbing and draining. He gave notes of three cases of typhoid which occurred in his practice, all being definitely due to defective plumbing. An inspector of plumbing, such as they have in many cities of the United States, is a very important official, and he thought the society should suggest to the corporation the advisability of appointing such a person.

Dr. Bell said that the medical officer should have a staff under him, as in England, each ward having an inspector of nuisances, and a series of instructions should be posted in various places.

Dr. Prevost and Dr. Horsey spoke in favor of the appointment of an inspector of plumbing.

Dr. Playter said he could hardly see how in the case of most houses already built with the plumbing work all hidden, an inspector could act so as to be of much practical service. He thought that similar steps should be taken to those in Montreal and Toronto, for the registration of plumbers, who were obliged to pass an examination as to efficiency.

Dr. Small wished to know the opinion of the Health Officer and Dr. Playter regarding the effects on the city health of the state of the streets. He was of opinion that the decomposition of refuse there during warm weather must be deleterious. Dr. Robillard said that certainly during damp weather bacteria were more numerous. Dr. Playter

thought that though refuse matters on the streets looked bad and probably deterred people from living in the city, and was of course injurious in a degree, the filth in the back yards and out closets was ten times more injurious. Every privy vault was a prolific centre of disease germs and ought to be thoroughly cleaned out and filled in, and ash or earth closets used instead where there were no water closets. The following resolutions were unanimously carried:

Moved by Dr. Playter, seconded by Dr. Bell, That under the present circumstances and well defined course of cholera in Europe, corresponding with the spread of the disease on previous occasions, every possible degree of care should be exercised by the civic authorities in promoting the sanitary state of the city.

Moved by Dr. Horsey, seconded by Dr. Hall, That the Ontario Board of Health be requested to issue short forms of directions with reference to cholera to the various schools and colleges in the Province, and that such be circulated as far as possible in the various house-holds through the pupils.

Moved by Dr. H. P. Wright, seconded by Dr. Prevost, That owing to the number of zymotic diseases coming under the notice of the different medical practitioners due to defective plumbing work, this society would urge upon the civic authorities the desirability of appointing with as little delay as possible an expert specially qualified to inspect such work and report accordingly.

THE TORONTO SANITARY ASSOCIATION'S INAUGURAL MEETING.

This took place on the 24th inst., in the theatre of the Normal School. There was a good attendance. Hon. G. W. Ross, Minister of Education, occupied the chair and there were present Mr. Henry Langley, President; Mr. Alan Macdougall, Secretary; Hon. G. W. Allan, Dr. Covert, and a number of other medical gentlemen, clergymen and other prominent citizens.

The chairman said the Association took within its grasp matters in which he was interested. The range of the Association

was exceedingly wide, although it was called the Toronto Sanitary Association. They proposed visiting the various schools to hold meetings. They would deal with such questions as the purity of water, and it was likely they would be knocking at the school house doors and giving hints and ideas as to ventilation and other matters exceedingly useful. He hoped they would not only turn their attention to the city of Toronto, but would go all over the Province of Ontario and give ideas with reference to the sanitation of our schools, colleges and public buildings.

The president then addressed the meeting and gave a brief history of the organization. The matter of sanitary reform had been engaging the interest of many outside the medical profession, and it was felt by medical men themselves that it would be well to popularize the movement among the people of the whole Dominion by engaging the interest of classes whose callings brought them more or less in contact with sanitary matters as well as the public generally. The particular object of the Association, Mr. Langley said, was to promote in all proper and suitable ways the sanitary condition of the city of Toronto. To do this, they proposed to hold during the winter a regular monthly meeting for the reading of papers on sanitary questions and discussions thereon. The membership was divided into two classes,—active members who were citizens of Toronto, whose pursuits or studies were directly connected with the practical applications of sanitary science, and also associate members who were desirous of furthering the interests of sanitary science. It was also proposed to take up the question of the pollution of the bay, and of the whole water front, out of which would arise the question of a main sewer, and the best way to utilize the sewage. Then came the question of licensing plumbers and their assistants. It was a matter of pleasure to the speaker to be able to speak as to the interest

which plumbers had displayed in this matter. The old mystery of plumbing was rapidly passing away. Now it was a recognized principle in the best plumbing to show everything, so that bad work was at once detected, and any lady of ordinary intelligence could make herself acquainted with the whole system of plumbing and drainage in her house in a couple of hours. The question of appointing a thoroughly competent plumbing inspector by the city would come before the Association. The laws of public health as to plumbing were being violated every day in this city in the rows of cheap dwelling houses now being put up in such numbers. The Public Health Act of Ontario forbade pan closets, and called for the soil pipe to be carried up through and above the roof. This was not done, and the consequence was a large amount of typhoid fever throughout the city. In conclusion, he had only to express the opinion that Toronto could and ought to be made one of the healthiest cities in the world, and it would be the aim of the Association to make it so if possible. At the conclusion of his address Mr. Langley was loudly applauded.

Dr. Coverton, chairman Provincial Board of Health, then moved a resolution,—that the Association views with deep alarm the present manner of disposing of house, street, and other refuse in filling up low lying places as Garrison Creek ravine, tannery hollow, and along the bay front, and urged that public attention be directed to the matter at once, suggesting that a "destructor," such as are being used in Great Britain (referred to in the last issue of this JOURNAL) be used for consuming the refuse.

Mr. Paull, architect, moved a resolution condemnatory of the practice of still putting into new houses the pan closet and neglecting to carry soil pipe through the roof, contrary to the public health act of 1884, and suggesting that such cases be reported to the local board of health.

Mr. S. G. Curry moved that a properly qualified sanitary Inspector be appointed by the city to see that all plumbing and drainage are properly carried out according to the Public Health Act.

DISINFECTING THE SPUTA OF PHTHISIS.

Dr. Sormani, Prof. of Hygiene, University of Pavia, (Lond. *Lancet*) has given some interesting details at the Hygienic Congress of the Hague concerning experiments made this year on Guinea pigs with the sputa from phthisis. The object was to ascertain what chemical or other methods would neutralize the bacillus which, it was previously ascertained, existed in large numbers in the sputa. The results of these experiments were summarized in the following manner: 1. The bacilli of tuberculosis were generally very difficult to destroy, putrefaction, and most disinfectants failed to produce any effect. 2. A temperature of 100° C. only killed the bacilli after at least five minutes of ebullition. 3. The artificial digestion of bacilli showed that they were the last of all living organisms to be destroyed by the gastric juices or chloridic acid. A very active digestion is necessary to kill this microbe. A healthy man may destroy the bacilli in his stomach, but an infant or an adult with his digestive faculties impaired would easily allow the germ to pass the stomach intact, and retain its virulence in the intestinal tube. This determined enteric ulcerations, etc. 4. The bacillus of tuberculosis can be preserved intact for a whole year when mixed with water. It is probable, though not proved, that it has retained its virulence during that time. Thus drinking water may become the means of propagating tuberculosis. It is probable that contaminated linen retains its virulence for five or six months. 5. Alcohol does not destroy the germ, and hard drinkers often suffer from tuberculosis. 6. Cod liver oil, ozone, oxygenated preparations, and other similar remedies have no effect in killing the bacillus. They injure, perhaps, but do not absolutely destroy, the bacillus, at least not in the doses that can be taken without danger. 7. A more decisive action may be attributed to creosote, eucalyptol, pure carbolic acid, the naphthols, and bichloride of mercury. 8. For disinfecting spittoons, carbolic acid solution at 5 per cent is thought sufficient, and Dr. Sormani asserts that the breath never contains any bacillus. He also suggested that essences of turpentine or eucalyptol should be diffused in the houses as an agent for the destruction of this special germ.

CLASSIFICATION OF BACTERIA.—A demonstration of pathogenic micro-organisms (*N. Y. Med. Times*) was recently given by Mr. Watson Cheyne, who divided the great group of bacteria into four classes: First, micrococci, (round bodies); second, bacteria, (small, oval or rod-shaped bodies); and fourth, spirochætic and spirilla, (rods spirally twisted). He remarked that great differences existed among the various bacteria in their behaviour toward the human body. Some could be injected without causing any apparent injury; others could not develop in the living body, but grew and gave rise to poisonous products in dead portions of tissue and the secretions of wounds. True pathogenic organisms were able to attack the living body and multiply in it; and these included those which found entrance through some wound, giving rise to the traumatic infective diseases, and others which could find an entrance without any observable wound. Certain organisms, such as the bacteria anthracis, were capable of growing outside the body in dead organic substances, while others, such as the bacteria tuberculosis, were apparently capable of development only in the living organism or under artificial conditions, which reproduced to some degree those existing in the tissues of warm-blooded animals, though capable of long retaining their vitality in the dry state. Sir Joseph Lister added the important suggestion that as the bacillus which caused septicæmia in the house mouse was unable to produce any deleterious effect on the field mouse, owing to a very slight difference in the blood of these two animals, it was possible to conceive, that by the administration of some medicines, sufficient alteration might be produced in the blood of the human system, to kill off or arrest the development of any special bacteria on the first appearance of the symptoms of the disease in the patient.

ANNALS OF HYGIENE.—Dr. J. F. Edwards, of Philadelphia, will commence in July, the publication of a series of monthly volumes, to be entitled, "The Annals of Hygiene." The price of each number, to contain 150 pp., will be fifty cents, or five dollars per year in advance. It is intended to make the work "a history of the world's progress in hygiene."

SANITATION A RELIGIOUS DUTY.—At a meeting of the Kentucky State Sanitary Council last month, Prof. Eddy, of Dunville, read a paper on the above named subject. After referring to the fact that thorough sanitation was a religious duty of the Hebrews, he said: We believe that the presence of an atmosphere of filth lessens human powers, certainly shortens life, and may at any time suddenly terminate it. We believe the seeds of some diseases float in the air, that the seeds of others are in drinking water, and that they enter the system by the help of these agents. We believe that these germs, many of them, can be destroyed. We believe that in a perfect state of physical health the seeds of many diseases cannot gain a foothold in the human system, but that filth is a most powerful agent to so weaken the body that disease germs can readily affect it. We believe that filth, using the term in its broad sanitary sense, is to-day mowing down the human ranks as Minié-balls mow down the ranks of an army in battle. If this is true, a responsibility rests upon us for the existence of filth around us, and where there is responsibility there is corresponding duty. 'Cleanliness is next to godliness,' and our lives should be lives of warfare against sin in the shape of dirt, so that, conquered though we be at the last, yet, when we lie down in a good old age, there will be no cause for us to utter the lament of the woman immortalized in the 'Housekeeper's Tragedy':

With Grease and with Grime from corner to centre
Forever at war, and forever alert,
No rest for a day, lest the enemy enter,
I spend my whole life in a struggle with dirt.

Last night in my dreams I was stationed forever
On a bare little isle in the midst of the sea;
My one chance of life was a ceaseless endeavor
To sweep off the waves ere they swept over me.

Alas! 'twas no dream! Again I behold it!
I yield; I am hopeless my fate to avert!
She rolled down her sleeves, her apron she folded,
Then lay down and died, and was buried in dirt!

GOOD PRACTICE.—Some of the medical gentlemen connected with the public health and the military services of Germany are undergoing a course of practical instruction at the imperial health office in Berlin, in the lines of research suggested by the discoveries of Koch, Gaffky and others.

Leading Articles.

THE ALCOHOL QUESTION—EFFECTS OF ALCOHOLIC LIQUORS ON THE HUMAN BODY.

The views of the SANITARY JOURNAL as to the value of alcohol when properly used are pretty well known by the readers of the JOURNAL. At the present time when the question of such value is being so generally discussed we are glad to be able to give the views, as below, based on scientific experiments, of the *Therapeutic Gazette*, an excellent authority on the question:

"The experiments tend very clearly to establish the fact that a certain amount of alcohol can be consumed, if not indeed, appropriated by the system. When the amount given did not exceed one gramme (fifteen grains) to the kilogramme (about two pounds) of the animal's weight, there was no appreciable disturbance from its use. In the same proportion, a man weighing a hundred and sixty pounds, providing the effects of the alcohol were similar in each case, would consume three ounces of alcohol daily without disturbance, as noted either by local effects on the intestinal tract or by its constitutional effect. The experiments in this regard corroborate the opinions generally entertained, namely, that in small doses alcohol stimulates the appetite and increases the flow of gastric juice, and being absorbed, is consumed in the system, the result of the consumption being an increased amount of force. It is not necessary to adduce the various arguments at hand in support of this proposition, so generally accepted by scientists, who view the subject dispassionately.

"Is alcohol a food? To answer this question intelligently, we must first understand what is meant by the term food. The usual meaning of the word makes it a something, which, taken into the system, is digested and appropriated to the repair of waste and the building up of new tissues. With this conception

of the word in mind, alcohol is not a food. A broader, and more proper, meaning makes the word to cover everything which, being consumed in the system, generates the force necessary to the carrying on of the vital processes. Under this definition alcohol is certainly a food, and a very important food. It is rich in carbon, and the union of this element with oxygen, whether in the body or out of it, generates heat. That alcohol is consumed in the system is no longer doubted, and one and a half ounces of the pure spirit may, under the ordinary conditions of exercise and respiratory activity, be daily burnt off in the economy. Under conditions of increased exercise and respiratory activity, an amount in excess of this quantity may be consumed. It has been estimated that an ounce of good whiskey possesses force-producing properties equal to five ounces of lean beef. To secure the full benefits of alcohol as a respiratory food, it must not be given in excess of the capacity of the system to dispose of it. In such excess it dilates the superficial capillaries, and thus, by exposing an increased volume of blood to evaporation, lowers bodily temperature.

"Does alcohol aid in the construction of any of the tissues of the body? No. But while it does not assist in building up tissue, it retards tissue waste, thus, under its proper use, making a smaller amount of food necessary to the conservation of the integrity of tissue."

In relation to this last paragraph, we have always been puzzled to understand in what possible way alcohol could "retard tissue waste" (as it evidently does, in some way) other than by supplying elements which are used or worn out or wasted in the organism *instead* of the tissues the waste of which is retarded. We are inclined to predict that investigation will sometime prove that it supplies actual elements at least for the exercise of the nervous functions.

EXPERT TESTIMONY.

The want of perfectly unbiased, reliable expert testimony is frequently a serious obstacle in the administration of justice; sometimes, and especially, is this the case in relation to the question of insanity both as effecting the liberty and the life of a fellow creature, the line of demarcation between sanity and insanity, as was recently stated in this Journal, is very imperfectly defined, indeed, has never been defined at all. This fact has been plainly manifested in the recent case of Mrs. Lyman of Montreal. When therefore in doubtful cases, wherein an individual at times exhibits peculiarities and eccentricities or perhaps freaks of passion, and yet at other times, and perhaps for the most part, no particular signs of mental alienation, and a number of ordinary medical practitioners, or even experts, are called upon to examine the case and pass judgment upon it, how can it be expected that all will agree as to which side mentally the individual is of a line which never yet has been pointed out nor defined? And yet this is what the public do expect of medical men. And when the latter differ in opinion on a case of questionable insanity, they are seriously criticised and abused and their honesty is brought into question. Previous, too, to the personal examination of the case, certain of the medical men, on the one hand, had been told, honestly or otherwise, by those interested in this particular direction, of all the strange and peculiar freaks of the individual whose sanity is questioned, and certain others of the medical men, on the other hand, have been informed, honestly or otherwise, by others interested in another direction, that the individual never had done any particularly strange thing nor exhibited any signs of insanity: and by such information as this, even the experts must be to a certain, though limited extent, influenced and guided in deciding upon the mental condition of the individual in question. As, in life, the walls of

a dense bony case intervene between the instrument of the mental manifestations—the brain, and the eye and the knowledge of the expert and scientist, he can only judge of the soundness of this instrument by its manifestations, past frequently as well as present.

There may be in the medical profession as in all other professions and classes, and sad it is to relate it, men who, for money, will give evidence favorable to which ever side of a case they happen to be engaged on. But in cases of doubtful insanity, an answer to the question involved is often really a matter of mere opinion, and as men will differ in opinion, doctors being as well as others susceptible to such differences, it is not difficult to find men in the profession who will give an honest opinion favorable to one side and others who will give an honest opinion favorable to the other.

The method now in common practice of medical expert evidence (or indeed any other expert evidence) being called by both sides—the plaintiff and defendant—in a case, is certainly not a good one, and tends to encourage questionable motives and dishonesty in the testimony. The question of substituting some other and better method has been repeatedly discussed in medical journals. To the public who do not understand the whole subject and the various and intricate points involved it appears discreditable to the profession—and it does bring great discredit upon it to see, as a writer puts it, several distinguished physicians testify on a trial that a person is insane, and then to see them followed by several other equally distinguished physicians who testify to exactly the opposite. Non-medical evidence too is sometimes allowed to outweigh, with judge and jury, the medical evidence. All things considered it would be well if medical men would refuse to subject themselves to being placed in such a false and unjust position.

As a remedy, it has been suggested that experts be called only by the court, instead of by the different sides in a case. In this way the physician would certainly be in a much more independent position, and there would be less temptation to give unbiased testimony. This is a point

that might be profitably discussed in medical societies.

In Paris, France, the subject has been recently discussed and it was suggested that the government should provide means for the more complete preparation and education of experts.

The Philadelphia *Medical Times* properly objects to the way medical witnesses frequently express opinions, with "much assurance," on purely legal points, a propensity utilized by counsel in order to discredit the testimony of the witness on purely scientific questions. The *Times* draws attention, too, to the fact that Prof. Wood, at a recent trial in Philadelphia, recognized this distinction. Prof. Wood, when asked "if he thought the prisoner responsible for the deed?" at once referred the question of technical responsibility to the court itself, where it really belonged.

Matters Recent and Current.

THE CHOLERA. — Although already much space, has been given in this JOURNAL to the subject of cholera, this is at the present time one of the most important with which such a JOURNAL can deal. As indicated in these columns from time to time since last year, it is probable the cholera will reach this country next summer. In view of the course of the disease in the past in Europe, the probability of this steadily increases. The bare possibility of such a visitation should awaken all to at least a sense of duty—of duty, if not to themselves, to those depending upon them. All well know that means may be practically employed whereby the ravages of the disease may be greatly lessened and even its lodgement or spread in a community prevented. Hence the nature of the duty is apparent. According to the best authorities and most recent experience it is not, in our inland cities and towns, in the direction of quarantines and sanitary cordons that duty lies, but clearly in that of absolute cleanliness. Prof. Tommasi Crudeli, of Rome, in a recent address before the Royal Academy of Science, on the subject of quarantines asserts that practically sanitary cordons, unless it be in the case of naturally isolated districts, as small

islands, are of no value. Such is the very generally expressed opinion of the best European authorities. The watchword everywhere is "cleanliness." Scavenge, whitewash, disinfect—be every where clean, *clean*, CLEAN.

OTTAWA AND THE CHOLERA.—Ottawa, as every one who has been in it knows, is naturally exceedingly well situated in every respect, and not the least so certainly in its relation to health. But the most healthy locality may soon be made a most unhealthy one by the operations of man. We desire always to avoid everything of an alarming or a sensational character, and while believing that the city is not perhaps in a worse sanitary state than any other city in Canada, indeed it is probably in a better state than many of them, we have learned from good authority that parts of the city are in an exceedingly dangerous condition;—small and circumscribed parts they may be, and probably are, but the cholera germ requires only a very small hotbed in which to commence operations—in which to grow and develop, and with the most marvellous rapidity. A spore of cholera mould (for a sort of mould the contagion probably is) touches the spot and in an incredible short time new generations of spores are scattered to the winds like the products of a collection of powder that a spark has touched. Then the clean share the products and suffer along with the unclean. It is an utter impossibility for a medical health officer, more especially one not sufficiently paid to give his whole time to the work, to even know of all collections of filth in a city like Ottawa. And as stated by Dr. Bell at the meeting of the medical society here, the health officer should have a staff of trained inspectors under him. And knowing of unsanitary conditions, with the limited powers given to a health officer and the limited means supplied to the health department by an apathetic public, comparatively little can be done. No fact is better established than that the cholera and like diseases will not take

root nor develop where there is no filth. Localities and communities absolutely clean, the cholera has entirely passed by and around over and over again. What is to be done? it may be asked. Clean up *thoroughly*, and begin *now*. The resolution passed at the last meeting of the medical society reads, "every possible degree of care should be exercised by the civic authorities in promoting the sanitary state of the city." If the "civic authorities" have not the means, or if they will not employ the means at command, the people themselves must act, or probably suffer severely in consequence of inaction. The medical practitioners of the city have taken a preliminary step—rang the city bells—though not so vigorously and loudly as some of them would have done, and we are convinced they will be ready to do more—more than their share if need be, to prevent sickness; but the public must help. If between now and May every particle of waste organic and excremental matter that could be found and seen with the unaided eye were removed out of the city, we need not have the slightest fear of cholera, for it could not find a lodgement amongst us. It is not the drainage that requires immediate attention. All drains and sewers should be thoroughly flushed in the spring and kept free from *deposits*. Meantime coal ashes to mingle with *all* excremental matter, and carts when and where possible, should be freely used. If we all in order to do it have to deny ourselves many of the luxuries of life, let us have the city perfectly, absolutely clean—"swept and garnished."

BETWEEN HALIFAX AND SARNIA there are doubtless many cities and towns in quite as bad a sanitary condition as Ottawa and some probably much worse. If cholera germs reach this continent they will be almost sure to develop, multiply and spread from town to town. Then not only will there be many deaths, but, and what usually alas strikes greater terror, trade will be paralyzed, and in that way vastly more will be lost to the towns than it would cost to put them "in order." What has just been stated in reference to Ottawa, will apply to every other town, in which

the health authorities, or others if necessary, should be up and doing. A few weeks ago, at the Academy of Medicine, Paris, Dr. Rochard, who had just returned from Toulon where he had been inspecting the fleet, said, "we stand in presence of an averred epidemic of Asiatic cholera. Let us face the danger like men. Let us consider the present visitation as a solemn warning. Let us remember that when *proper sanitary measures* were enforced in the Red Sea, the evil was averted for a space of sixteen years, while, as soon as these measures were laid aside, cholera invaded Egypt, and from thence after a short pause, sprang upon Europe." We in Canada have not yet amongst us the cholera to face, but let us like wise men prepare to prevent it coming or prevent its spread in case it should come.

THE STATE BOARDS AND THE CHOLERA.

On October 14th the representatives of all but two of the state boards of health in North America, including that of Ontario, met in St. Louis, Mo., to discuss the cholera question. After very earnest discussion they adopted the report of a committee in relation to the preventive measures which should be adopted on this continent. It urged upon congress to provide for the appointment and maintenance at foreign ports where cholera, yellow fever, plague, small-pox, or scarlet fever are liable to exist, accredited consuls or other persons to give notice, by telegraph, when practicable, of the appearance of any of the above named diseases to some constituted authority in this country; to give notice of the departure of any vessel, known or suspected to be infected, for any port in the United States; and, when necessary, to inspect and cleanse and disinfect vessels about to depart. It suggested that measures be taken to bring about concerted action with Canada and Great Britain in relation to preventive measures. Gratification was expressed that the authorities of this Dominion and of Ontario had taken active steps toward protecting the people of Canada and indirectly those of the United States, by the adoption of extensive quarantine regulations, and suggested further special regulations along the

"St. Lawrence, &c." Congress was recommended to provide for "local safeguards" in the different states when necessary. The report on the whole is disappointing, especially inasmuch as the chief reliance in the prophylactic measures are shown to be in quarantines, even locally, rather than in measures for the promotion of absolute cleanliness, which is not in accordance with late experience and the best authorities in Europe. The conference, with additional delegates from Canadian and U. S. cities meet in Washington early in December, and we hope for something better.

A SMALL-POX EPIDEMIC of considerable magnitude having broken out in several townships in the county of Hastings, prompt measures were taken by the local authorities to prevent the spread of the disease. Hungerford, we learn, was through its council very liberal in providing means for prophylactics. There had been, it appears, over 100 cases of the disease and between 20 and 30 deaths up to nearly the end of the present month. The people were naturally considerably alarmed; and two Sisters of Mercy were sent for to nurse the sick. Arrangements have been made with the Canadian Pacific Railway that trains should not stop at stations in the infected districts, and no one was permitted to leave the locality without an order from the attending physician, Dr. Pomeroy. A red flag was waved as a signal for the stoppage of the trains when the doctor's certificate was granted.

THE MYSTERIOUS DISEASE in Virginia and Kentucky has shown in a very plain manner the danger of using foul water, as the use of foul water has, almost without doubt, been the cause of the terrible visitation. Most likely due to the existence in the water of vast multitudes of vegetable, or possibly animal organisms: developed rapidly by reason of the large proportion of dissolved organic matter in the scanty water. It is to be hoped that the national board of health or the state boards will have a careful and scientific investigation made that the exact nature and origin of the disease may be ascertained if possible. This probably will be done. It is time however investigators

were about it. We have not learned of any attempt at it yet being made.

LOCAL HEALTH BOARDS.—According to the report of the secretary of the provincial board of health there are now 304 local boards of health in Ontario; considerably more than one half of the municipalities having local boards. There are 184 boards in townships, out of a total of 447 townships. Of these 184 boards, 25 have medical health officers; 19 have sanitary inspectors, while 17 have both medical health officers and sanitary inspectors. Of the 203 cities, towns, and villages in Ontario, 180, or more than six-sevenths of them, have local boards. 145 of them have medical health officers or sanitary inspectors, while 63 have medical health officers, and 92 sanitary inspectors. 44 have both medical health officers and sanitary inspectors. Up to the 25th inst 44 boards had sent in their reports, and other reports were coming in.

TO THE RESCUE.—The chairman of the provincial board stated at the recent meeting of the board that he thought they should take some action and assist the Toronto city medical health officer by expressing an opinion upon the existing condition of privies. He had read that there were 450 privies in Toronto which emptied into sewers where there were no sewer traps. If this were true, he considered it outrageous. It appears, as stated in this JOURNAL some months ago, there are there about 4000 full privies, and no one knows how many there are just about as injurious to health which are not full—probably 8000. And so Toronto supports about twice as many practising physicians proportionately as do Ottawa and some other cities.

REFUSE "destructors" are now being used in Great Britain capable of destroying 20 tons of refuse per day at a cost of 10 cents per ton. They cost, with chimney, from \$1000 to \$1200 each, it appears. The refuse from the "destructor" is well adapted for forming a foundation for street pavements, and may be used for filling up hollows and would be a safe material to build upon. It is to be hoped the "destructor" will soon come into general use in Canada.

THE TORONTO "*Week*" in referring to the announcement in this JOURNAL of last month that the manufacture of liquid beef peptonoids was about to be commenced in Toronto by Mr. Gisborne, says it is open to considerable question whether they ought to be recommended, as suggested in this JOURNAL, for men in "active employment during the middle of the day who hardly take time to eat and are not in a condition to properly digest ordinary foods." Probably our contemporary has not always carefully read the JOURNAL and learned that over and over and over again it has urged the importance of all taking plenty of time to thoroughly masticate wholesome solid foods, for the sake of both the stomach and the teeth. But busy men at midday, seeking wealth rather than health, *will not follow* such advice. We therefore think it much better that they should take partly digested "liquid beef" than to hastily, or even slowly, eat food which their stomach will not digest, or to suffer exhaustion from want of food. The preparation therefore, a want for which man has created, is much better than any "fluid beef."

ABOUT THE TEETH.—The *Week* thinks too that as the suggestion to so use the "liquid beef" discourages the growth of teeth in succeeding generation, as of course it does, it "might be used with much better grace by a dentist." Well, we can only add, we are afraid the progressive destiny of the race to fall into the use of foods which have been partly or wholly digested and to become toothless cannot be successfully combated, even by this JOURNAL. While all now naturally think two rows of pretty, white, even "fencibles" are indispensable to "good looks," all know what strange views to us some races hold in regard to the essentials of beauty. It may be that in the distant future highly civilized humanity will view with horror the present admiration of the race for what they then may term cannibalistic or barbarious appendages—the teeth, with the millions of vulgar, yet essential timber tooth pickers. They will then consider well shaped, delicate pink gums, free from half masticated, decomposing food, all that the most superlative beauty

needs as a second barricade to the principal oral orifice. What about the dentist then?

"OUR NATIONAL FOODS."—Under this name are manufactured by Messrs. Fish & Ireland, at Lachute, Q., a number of foods from native cereals. These are solid foods and require the free use of the teeth. They are highly commended by physicians and in medical journals. The "rolled oats" for porridge is a most elegant preparation. Over a year ago, the writer of this while attending a sanitary convention in London, Ont., ate some delicious porridge made of it and for the first time enjoyed oaten porridge, and has since used it almost constantly in his family. "Desiccated" wheat, barley and rye for porridge and puddings are also prepared by the same firm. The two former the writer has used and is very much pleased with them. The firm also manufacture a "patent prepared barley," which makes puddings equal in delicacy to, and much more nutritious than, starchy preparations, such as sago, tapioca and corn starch. The "desiccated" foods, it must be observed, are partly digested, the starch having been converted into dextrine. Hence these foods are, not only, as the *Canada Medical Record* puts it, nutritious and delicate, assisting in laying the foundation of a strong muscular development as well as brain and nervous vitality, "treated in the light of all the scientific progress of the times," but they are easy of digestion. We have no hesitation in recommending all the preparations of this house as well worthy of public confidence. We do not know of any such prepared foods equal to them in elegance, nutritive value and digestibility.

THE PRESENT BREAD-MAKING SYSTEM is primitive, dirty and uncertain, and a disgrace to our civilization. It is bad enough to have the dough kneaded with the bare perspiring arms of an untidy man in a warm dirty baking room, but we often get more for our money than that suggests. According to the *British Medical Journal* a baker's lad with well marked scabies ("Scotch fiddle") applied to a Dr. Yates of Perth for a remedy.

The eruption was active on and between the fingers and on the hands, arms and legs, and was accompanied by excoriations from scratching. He had "taken" it from the foreman baker, four weeks before, and both had continued kneading and baking. It is marvellous that machinery for mixing and kneading the dough has not been brought into more general use. We believe there is but one baker in Ottawa, Mr. Jamieson, who employs machinery in the manufacture of bread. Besides being cleaner, machine mixed bread is more uniform and superior in most respects.

THE PROVINCIAL BOARD OF HEALTH have just held their last quarterly meeting for the year. The Secretary reported in reference to the satisfactory number of local boards which have been organized in Ontario, on the convention of state boards of health recently held at St. Louis in relation to cholera and on the sanitary condition of Haliburton and Almonte. Dr. Oldright presented his report on sewerage, drainage and water supply. Dr. Yeomans reported on school hygiene, the conclusions of which are given elsewhere. Dr. Ray proposed regulations in reference to small-pox, and spoke of the desirability of towns and cities being kept free from waste matters. And Dr. Cassidy reported on the advisability of taking precautions to prevent infanticide and the best means of diminishing the mortality amongst infants. To the statement of the chairman (as reported in the morning papers) in reference to malaria in Ottawa, and to that of the secretary in relation to deaths from diphtheria in Haliburton caused by decomposing saw-dust, we purpose referring on another occasion. It may be that their statements were not correctly reported.

THE CATTLE QUARANTINE AT EMERSON.—Mr. Joseph Jackson, of Regina, who imported 47 thoroughbred cattle, reports (in *Regina Leader*) that:—"The Government quarantine at Emerson is now in first class condition for stock. It is surrounded by fine bluffs, which afford excellent shelter. There are first rate houses for the cattle, fitted with mangers, and in fact everything that is necessary to keep the cattle in a good state. There is an hospital, the men employed are very

attentive to all the wants of the various animals, and a veterinary surgeon is always present. The Government make no charge for the keep of the cattle during the time they are in quarantine. He says nothing could be better than the whole arrangements of the quarantine, and is loud in his praise of the attention of the Government officials there. The detention of stock is, therefore, a very small matter.

THE TWO MOST IMPORTANT English Educational journals, the *Journal of Education* and the *Educational Times*, express themselves strongly this month as to the necessity for a systematic enquiry into the "Over-pressure" question.

A PROMINENT medical London Exchange says, it is sincerely to be feared that, after travelling all over Europe, the cholera will settle down as a naturalised inhabitant of Western Europe, like small-pox, measles, and scarlet fever, which were unknown to the Roman world, and were imported into the Western world by the Musulman invaders of the 7th and 8th centuries. The importation is already an accomplished fact in some parts of Russia.

CAUSE OF INEBRIETY.—It has always been contended in this JOURNAL that the unsanitary condition of the dwellings of the poor cause resort to spirituous liquors. Dr. Crothers reports (*Jour. Inebriety*) a case in which the cause of attacks of inebriety was bad air, lack of sunlight, and other bad hygienic conditions in his own splendid mansion. The removal to a healthy house cured the patient of his desire for alcohol. Will temperance workers attend to this?

PARENTS should look well after the nurses with whom young children are trusted. The abuse of children by nurses is sometimes fearful. The writer saw a nurse girl, who was carelessly looking about instead of at the road before her, run a wheel of a child's carriage into a hollow in the pavement, by which the child was pitched out on the stones, though fortunately not seriously hurt. It is now reported that a nursery maid in London killed a child by tying a scarf about its neck because its crying interfered with her reading.

MONTREAL'S HEALTH REPORT.

The report of the indefatigable Medical Health Officer of Montreal, Dr. LaRocque, for 1883, is as usual a volume of considerable size, containing much useful information. The doctor very properly gives a brief review of the efforts made in Montreal to promote public health measures in the Province of Quebec and the Dominion, especially as relating to a Dominion Health Bureau.

In alluding to the high death rate of Montreal he claims it is due to the high death rate—perhaps, we judge, too, to the large number of deaths, rather than to the unusual proportion—amongst the French Canadian children, this being due to the high birth rate amongst the French Canadians. And he suggests that, in justice to Montreal, when the mortality of the city is published, the high birth rate should be made known. The following are interesting extracts from the report:—

“The diseases that caused most deaths under the age of five years were dysentery, diphtheria and scarlatina. The proportion of deaths by zymotic diseases last year formed 28.80 per cent. of the total mortality. Hygienists agree that the principal cause of infantile diseases is improper feeding, especially the substitution of food that tends to deteriorate the feeble organs of young children for the mother's milk. The Board of Health has had a card printed giving advice to families regarding drainage, ventilation, cleanliness of dwellings and especially the care of children.

“Next to the diseases just mentioned that which caused the largest mortality was consumption. There were 427 deaths from this cause, most of which occurred between the ages of 20 and 30. More than one-half were women, who are known to take less exercise in the air than men. It cannot be said that the air of Montreal is favorable to the development of consumption. The proportion of deaths from this cause was 15.26 per cent. of the total mortality, while in Philadelphia it was 34.22, in Naples 34.22, Toronto 19.24, New York 29.29, Glasgow 30.31. Our climate is a comparatively dry one. The mean temperature last year was 41°, the mean humidity 72°. In London, England, the temperature was 48°, and the mean humidity 82°.

“Last year the city was comparatively free from contagious diseases. We are happy to say that there has not been a single case

of small-pox since July, 1881. The mortality from diphtheria and typhoid fever was less than that of the previous year. In every case of death from diphtheria, scarlatina and typhoid fever the dwellings and surroundings were visited in order to ascertain, if possible, the cause of the disease. In a large number of cases the drains were found defective, and the cellars and surroundings of the dwellings in bad sanitary condition. On the other hand, in many cases, these were found in excellent order. Certainly defective drains should be put in order; but, even were every attention possible given them, it would be impossible ever to succeed in stamping out contagious diseases without endeavoring to diminish, as far as possible, the quantity of the germs by isolation, disinfection, &c., and, above all, take care not to allow any animal or vegetable matter to be left either in the streets or cellars or anywhere in the vicinity of dwellings. Such matters in a state of decomposition serve as food (pabulum) to those minute organisms called germs of contagion, and so soon as they come in contact with this matter they propagate in an astonishing manner. It cannot, therefore, be too much insisted upon that the city should be kept scrupulously clean, which can only be done by a system of scavenging as perfect as possible, under a strict surveillance.

“I must observe that the entire mortality of the foundlings should not be added to that of Montreal. A large number of those children come from other municipalities. The question of foundlings is not only a question of humanity, but also one of state. In Europe Governments take measures to prolong their lives. The eminent Dr. Brochard, who for a number of years interested himself in this question in France, reports that in the departments in which a medical service is established the proportion of deaths is only 20 to 25 per cent. of the total received, and where such service does not exist the proportion is from 80 to 95 per cent.”

REPORT ON SCHOOL HYGIENE.

The Chairman of the Committee on “School Hygiene,” Dr. Youmans, of Mount Forest, of the Provincial Board of Health, presented at this month's meeting of the board an exhaustive report upon the above subject. Information, upon which the report was based, was obtained from the teachers of the schools throughout the Province. The Com-

mittee expressed the following opinion as a result of their investigations:—1. Better water supply is demanded. 2. Drinking water should be tested by the permanganate of potash test, which may be easily applied by the teacher. 3. That in some instances the trustees should procure a more complete chemical analysis by a competent analyst where any doubt exists. 4. That the drainage, location of wells, the construction and daily management of outbuildings, should be looked after by trustees as well as by teachers and inspectors. 5. That in the construction of school buildings trustees should properly regard the general sanitary requirements such as lighting, ventilation, heating, etc.; false economy on the part of trustees may frequently prevent teachers from accomplishing all that they would desire with regard to these points. 6. That overcrowding and insufficient air space, which at present is a very common evil in our schools, should not be allowed. 7. That better methods of ventilation should be provided by trustees. 8. That special attention should be paid to limiting the daily hours of study, and of single lessons to periods suited to the various ages of the pupils. 9. That exercises and general physical training is recommended, the object being (1) of giving grace and ease of movement; (2) enlarging the chest, allowing free and healthy respiration and freedom of heart action; (3) strengthening the muscular system and correcting and preventing spinal curvatures; (4) and encouraging digestion and natural assimilation of the food. 10. Teachers should endeavor to make themselves aware of any defect in vision or hearing. They could then instruct pupils how to avoid any causes which intensify these defects. (A school physician or medical health officer could direct teachers in this.) 11. There should be a reliable thermometer in every school, so that the temperature might be accurately regulated. 12. Means should be adopted to supply a proper degree of moisture in every school room with the heating arrangements. 13. That the earth-closet system should be made compulsory in every school where no better plan is already in use. 14. That a record should be kept in schools of absentees from sickness, giving the name of the disease as certified. 15. The provision in the Public Health Act for the appointment of a Medical Health Officer for each health district should be complied with, his duties, among others,

being to act as Medical Inspector of Schools as well as Advisory Officer in matters pertaining to school hygiene.

OF THE BACK NUMBER of vol. III wanted the publisher has received sufficient and is much obliged to all those who have sent a copy.

THAT BAKING POWDER.—A stupid error occurred in connection with the formula for baking powder in the last number of the JOURNAL (seemingly by dropping out when made up, of an o—for it was right in proof). The proper proportions are given below. Those who have tried the powder are highly pleased with it. It is fully twice as strong as the ordinary prepared powders—half the usual quantity being sufficient.

Potassa bitart (Cream Tartar)	30 parts.
Soda bicarbonate	15 "
Flour	5 "

Mix well together.

MONEY MAKING.—It is said that dull times do not effect the agents for the large publishing house of George Stinson & Co., Portland, Maine. The reason being that they always give the public that which is highly appreciated and at prices that all can afford. Those who want profitable work should apply. Women do as well as men. Experience is not necessary, for Messrs. Stinson & Co. undertake to show all who are willing to work the path to success. The publisher of this Journal has long possessed articles made by this firm and believes it to be a most reliable one. Full particulars sent free to those who address the firm as above.

AN AUTHORITY has stated that there is not in the whole of the pharmacopeia so sovereign a remedy as hard work. If this is with the pen let it be with Esterbrook's "Easy Writer."

HOW TO COOK WATER.—Delmonico used to affirm: "Few people know how to cook water. The secret is in putting good fresh water into a neat kettle, already quite warm, and setting the water to boiling quickly, and then taking it right off to use in tea, coffee or drinks, before it is spoiled. To let it steam and simmer and evaporate until the good water is all in the atmosphere, and lime, and iron and dregs only left in the kettle—bah! that is what makes a great many people sick, and is worse than no water at all."

Literary and Scientific.

IS THERE A GOD?

(Dr. C. S. Stockton in *Items of Interest*.)

Go to Newton whose imperishable name looms gigantic in the annals of science and philosophy, and ask him. We see him—this Columbus of the skies—as he spreads his sails to navigate the broad ether, moor his bark now to the moon and then steering boldly for far distant planets and satellites, touching even the fixed stars and the outermost rim of space in his sublime course. As he returns we imagine him surrounded by an eager and curious throng, in whose hearts there throbs only one emotion—on whose lips there trembles only one all important question: "O thou who hast discovered the secrets of hoary space, thou who hast rounded great heaven's mighty cape, thou who hast passed the pillars of Hercules, thou who hast safely buffeted with the billows of immensity—tell us—what tidings hast thou? In all thy voyage hast thou found a God? What answer falls from his lips? Not the dismal language of the atheist, or of the agnostic. He builds no altar to some foolish goddess of chance. Entering into the temple of the true Jehovah, he lays down the treasures of his celestial expedition, and rising he proclaims: All the universe has one voice—sun and moon, planets and comets, mightiest stars and nebulae,

"Forever singing as they shine,
The hand that made us is Divine,"—

all join in one magnificent anthem; Hallelujah*, the Lord God Omnipotent reigneth.

IN THE *TORONTO WEEK*, Bystander writes, "Public benefit must have precedence over individual right" are the words, if the report may be trusted, of a prominent advocate of the Scott Act. This is language which cannot safely be allowed to pass unchallenged while so many theories of public rapine are afloat. We delude ourselves, like the school philosophers of old, with abstract terms which are taken for realities. We are always talking of the State as though it were a personage of itself, with rights and duties of its own apart from and above the individual citizens who compose it. "The Public Good" is another phrase of the same kind, and liable, in like manner, to perversion. It becomes enthroned in the imagination as something entirely distinct from the good of individuals, and infinitely more sacred, so sacred as to afford a warrant for that which would otherwise be iniquity. But as the State is nothing but the aggregate of individual citizens, so that the Public Good is nothing but the aggregate of individual interests, for the preservation of which every community is formed. Wrong is not less wrong, when it is done by a majority to a minority or even by all the other members of the community to one man.

Book Notices.

A MANUAL OF DISEASES OF THE THROAT AND NOSE, by Morell Mackenzie, M.D., Consulting Phys. Hospital for diseases of the Throat, Lect. on diseases of Throat, &c., at London Hosp., Med. Col., &c., &c. Vol. II.—Diseases of the Oesophagus, Nose, and Naso-Pharynx. 8vo, pp. 400, 93 illustrations. American Edition. Wm. Wood & Co., New York, Aug., 1884.

This is the long expected second volume of Dr. Mackenzie's comprehensive and valuable work. Dr. Mackenzie is well known as excellent authority, and he writes in an easy graceful style, such as makes the reading of his books a pleasure. The work should be in the library of every physician.

A TEXT BOOK OF PATHOLOGICAL ANATOMY AND PATHOGENESIS, by Ernest Zeigler, Prof. Patholog. Anat., University Tubingen. Translated by D. McAlister, M.A., M.B., F.R.C.P., &c., &c. Part II.—Sept., 1884. Cloth, pp. 365. New York, Wm. Wood & Co. Sold only by subscription to the library for the present year.

This corresponds in general character with the first part of the work. The facts stated correspond closely with the very latest investigations, and are given in few words but with clearness and accuracy. This volume treats of the following: Blood and lymph; vascular mechanism; spleen and lymphatic glands; the serous membrane; the skin; mucous membranes; the alimentary tract; liver and pancreas. A large number of good illustrations add greatly to its value. The third part will be looked for with interest, and the three will form a very valuable work.

PSYCHICAL RESEARCH.—Attempts are being made in Montreal and in Boston to organize societies for psychical research, *i.e.*, for the study of mind reading, spiritualism, mesmerism, etc. Similar societies exist in New York city and in London.

In Chicago there is one doctor to every 548 inhabitants, in St. Louis one to every 475, in Denver one to every 260, in Idaho one to every 51, in Wyoming Territory one to every 30, in Toronto one to about every 500 and in Ottawa one to every 1,000, showing Ottawa is a healthy city.

IT IS ASSERTED (*Pharm. Rec.*) that if bees are kept in any locality where aconite grows, and collect the sweets from its flowers, such honey will exhibit the poisonous quality of that drug.

LIEUT. GREELY observed that when the tide was flowing out from the North Pole the water was warmer than when flowing in the opposite direction—a wonderfully interesting phenomena.