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T. D. CROTHERS, M. D., Editor

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The Quarterly Journal of Inebriety.

AUTUMN, 1912.

Psychological Studies of Inebriety.

By T. D. CROTHERS, M. D.,
Hartford, Conn.

The impression prevails that research work in the study of inebriety and alcoholism can only be done in the laboratory with instruments of precision. Studies of cell and tissue will show the damage done by spirits and the defective conditions which preceded its use; sections of brain and other tissue are supposed to contain evidence of the first and later injuries, and to throw some light on the obsession for the use of spirits and the continuous degenerations which follow.

Every now and then some expert pathologist will report the findings from a group of postmortem studies, which fail to confirm the theories of the exact action of alcohol. These are often stated with an assumptive authority that brings confusion to the student of this subject.

A psychological study of the history, inherited traits, environment and training is far more accurate and is equally as exact as laboratory studies of cells and tissue with instruments of precision. Psychological analysis of causes and laws of growth and development is the new field of laboratory work, which promises more startling discoveries, than have been made up to the present.

All students of inebriety and alcoholism are conscious of a vast field of cause and effect, culminating in these diseases that cannot be reached by the physiological laboratory, or determined by lesions found under the microscope.

The work done in this field has been very slight up to the present, and yet sufficient to show that it is far more important and full of possibilities than the highest re-

search work of the causes of diseases in the best laboratories in the world.

As a contribution in outline of what can be done, the following studies are offered.

In an analysis of the causes of many thousand cases of inebriety and alcoholism, heredity stands prominent. In from sixty to seventy per cent the ancestors of such persons show marked mental defects, of which complex insanities, epilepsies, hysterias, inebriety and consumption are very prominent.

Reversing the order of this list consumption seemed to be very closely associated with inebriety. Thus consumptive parents had inebriate children, and inebriate parents had consumptive children.

Insanities, meaning by this term, a great variety of obsessions and degenerations of the mental processes, sometimes developing into manias, hallucinations and deliriums at other times taking on the form of depression and great abnormal weaknesses, were also very prominent in the ancestors of inebriates.

It was evident from this that inebriety and alcoholism were inherited degenerations, dating from defects in the ancestors, that could be studied with more or less exactness. It was also evident that a minute knowledge of these ancestral defects would indicate with more or less certainty the

diseases and conditions of the descendants.

A certain variable number of drinking parents were followed by drinking children, but for many reasons this was not uniform. The children were always defective, but the form of defect did not always appear in the inebriety of the descendants.

The same could be said of epilepsies, idiocies and other forms of degeneration. The studies which follow are selected cases for the purpose of bringing into prominence certain ranges of causes controlled by laws which at present are unknown.

The first example brings out the relation of tuberculosis to inebriety. Wm. Brown was a mechanic who had drank at intervals for twenty years of his life. He was forty-two years of age, married and had been prosperous and was a steady workman. The drink attacks were preceded by colds, bronchitis and so-called grippe. The first attacks were treated with spirits in some form and were followed by a continued use of spirits for from ten days to two weeks.

During this time he was often intoxicated. Then he would become frightened and stop drinking and remain temperate for months. Then another congestive chill and bronchial cough, and another drink attack. This had continued for twenty years, sometimes two at-

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tacks a year and oftener. Tuberculosis had been diagnosed, but this cleared up after a time.

His father was a farmer who had drunk in early life, and finally died of consumption at 42 years of age. His mother was a neurotic, highly sensitive woman, who took a great variety of drugs during her life time. She was a firm believer that nature had provided some remedy to prevent disease and lengthen life and spent a great deal of her time in a search for specifics of this kind.

Three children were born, one died in infancy from some spasmodic disease. The second was a frail, nervous girl, who died of consumption at 18 years of age. The last years of her life she was mentally disturbed. The grandfather on the mother's side was a passionate roving man, who drank alternately and finally died of pneumonia. His wife died from some obscure lung trouble, probably tuberculosis, as it lasted many years.

On his father's side several members of the family died of consumption at different times. Two of them drank to great excess and lived lives of irregularity. There was clearly an inherited defect which localized in the lungs and low vitality. A condition akin to continuous fatigue and exhaustion seemed to be prominent. For this alcohol was very grateful as a remedy and a beverage. The

inference was very clear that defective cell growth, and a tendency to exhaustion from all sorts of causes were transmitted.

There was no history of defective surroundings, nutrition or culture. Undoubtedly there was neglect to realize the influence of these conditions, and probably no special effort was made to train the children to avoid excesses that would lead to consumption or inebriety.

The alternation of acute respiratory affections and alcoholic obsessions was significant of a neuroses that was traceable to heredity. A careful examination of the patient two months after the subsidence of the drink craze, revealed no lesion of the lung, so that whatever may have been before, there were no traces now.

Among other causes which were not very clear was the statement that alcohol at first produced most fascinating sensations of comfort and relief. The impressions of this from early use remained, and when the person felt bad, the memory of the former effects possessed the mind to such an extent, that an effort was made to see if it could be repeated.

Example second, was of a young man, who after continuous use of spirits carried on through his college life, up to 31 years of age, died of acute tuberculosis, which developed and terminated in a few

weeks. He was an athlete during his early life when in college, and used spirits at intervals up to the point of intoxication. Then he would abstain for a time, and resume them again. His father was an abstainer, but suffered from asthma and died in middle life. His mother was a very passionate, high wrought woman, who loved excitement and was very ambitious to be thought well of. She had catarrh and finally died from an attack of acute bronchitis. One brother who did not drink died of consumption at twenty-four. A sister married and died of consumption at thirty-two. A second sister is living in the Adirondack region and is under treatment for consumption.

The grandfather on the paternal side was an army officer and drank heavily until he died from some obscure lung trouble. The grandmother on the same side was a nervous woman and died in early life.

Of the four children born to them three died of consumption and one of alcoholism. On the maternal side both parents were emigrants from Germany, and drank beer, using it as a medicine as well as a beverage. Both of them died in middle life. Of their children only two lived to grow up. Both were drinkers, one was killed in an accident and the other died after a drink excess.

It was evident that this family was profoundly infected with nerve defects and tuberculosis calling for relief from spirits. There seemed to be a close relation between one and the other, and it was noted that all of them suffered from respiratory affection, principally of the throat and nose.

Many children in these families died in infancy. The family in both branches were prosperous, and more than likely suffered from over-nutrition, and certainly they had the best medical care that could be had. They were given good opportunity for training, but there was a neurotic inheritance manifest in various ways, ending in early exhaustion.

Example third, brings out similar facts along another range. It was noted in a family of five, that three girls were consumptive and two boys drank, one continuously, the other at intervals. The parents were both wine drinkers at the tables and were persons who occupied a prominent place in the community. The father claimed to have had tuberculosis in early life which was cured by drinking spirits. The mother was a neurotic, and for years suffered from abscesses of the glands and received extensive medication. This made her an invalid most of the time.

On the maternal side the parents were misers who had lived in the

most abstemious way, in the poorest surroundings and on the cheapest foods. Both died in middle life from obscure diseases. Of the three children born, two of them drank, one died of pneumonia and the other of some kidney trouble. Their children all died in early life. On the grandfather's side, nearly every member of the family died of consumption late in life. Most of them were abstainers and very active stirring people. Two of them were clergymen, one a lawyer. They were neurotics and suffered from various nervous troubles.

These three examples indicate clearly a strain of degeneration that was transmitted, terminating in this way, showing a relationship between the two diseases which had not been recognized. In a study of the causes of death in 200 cases, 40 per cent were recorded as due to tuberculosis, occurring after the drink craze had subsided. This is significant and whether exact or not as to figures, shows a possibility of a relationship which a further study will disclose.

Formerly it was considered good treatment in tuberculosis to keep the patient saturated with alcohol. In a few very rare cases, an apparent recovery seemed to follow. At all events the anaesthesia of spirits diminished the sensory activities and in some unknown way helped to check the growth of the

tubercles. Recent studies show that alcohol produces a very fertile soil for the growth of tuberculosis, and that a large number of persons, who use spirits to excess, die from tubercular abscesses. Another fact has been brought out, that respiratory diseases are relieved very quickly by different forms of alcohol combined with other drugs. The alcohol seems to have a special sedative action relieving exhaustion and fatigue.

Where consumption and inebriety can be traced in the second or third generation, the assumption that this inherited taint has been transmitted and will break out in some form, according to unknown causes, is supported by a great variety of clinical experience.

The following class of persons is not unfrequently seen, but rarely studied. A stalwart, vigorous man, who had spent most of his years in the oil region as an engineer and well driver, came under treatment with a very severe attack of bronchitis and asthmatic condition and aphonia. His physician wrote that he had tuberculosis, and that if we could only help him to abstain from spirits, he might live a little longer. There was dullness over both lungs, bronchial rales and considerable expectoration. The withdrawal of the spirits was followed by the subsidence of bronchial troubles and in the course of two

months, no lung lesion could be discovered. On the contrary, he seemed to be a vigorous healthy man. The aphonia left him, and with the exception of a slight nasal catarrh there were no signs of his former troubles. During the next year, he appeared again in a much worse condition. The lungs were more congested and the dull areas over both lobes indicated a great deal of disturbance. In a few weeks this passed away. He claimed that the lung trouble commenced the moment he began to drink spirits, and that aphonia came on after the first intoxication. He recovered and a year later returned in the same condition, only a little worse and recovery was slower.

After recovery he changed his residence and occupation and after six years was a total abstainer and apparently in excellent health, suffering principally from general debility and weakness. The parents of this man were Pennsylvania farmers living in a mountain region, and while not abstainers, were not considered drinking people. Spirits were kept in the house as medicines, and used freely for colds, shocks and other disorders.

The patient was one of three children, who grew to manhood. One entered the army and after some severe exposure died from tuberculosis. The girl died of

some obscure disease at 34 years of age. In early life they undoubtedly suffered from malnutrition, the parents living on coarse restricted foods. Both parents were intensely religious, and the children were brought up to dread a personal devil, mixed up with many superstitions, which narrowed the mental life and prevented them from developing.

The grandparents on the maternal side were of the same class of persons; lumbermen and farmers, and all of them died of some form of lung disease in middle life. On the paternal side there seemed to be no special disease prevalent. The family was very large. The males were raftsmen and lived irregular lives, probably using spirits, but no member of the family was known to be an inebriate.

Several of them were very eccentric, odd persons and were prominent in religious and political circles. The descendants of these families went West and were lost track of. The patient under treatment claimed that he had been a total abstainer up to 24 years of age, then, after a severe chill and exposure he became intoxicated from drinking hot rum and from that time on, drank at intervals, without any special symptoms, other than fatigue and weakness, after the excesses.

Ten years before admission every drink attack was followed by severe colds, hoarseness and obstinate catarrh. This was treated and he recovered. He was an abstainer for two years, then on the sudden death of two children, he drank to excess and immediately his lungs became affected. From that time until admission, the drink attacks had occurred at long intervals, usually following some period of excitement or depression. He married a neurotic woman and five children were born. Two of them died suddenly, from what was called lung fever; the other three are sickly and evidently have weak lungs and low vitality, and are frequently under the physician's care.

This case brings out some very interesting facts of a local inherited taint, due to the tuberculosis of the second generation back, and the unexplained fact that alcohol, of all substances, provokes acute symptoms of respiratory diseases.

Two physicians have diagnosed tuberculosis in this patient and another equally prominent man was unable to find any signs of tuberculosis. Abstaining from spirits seemed to check the respiratory diseases. The fear of tuberculosis if alcohol is taken again is a mental obsession that will no doubt go far to lengthen out this man's life.

The combination of two strains of defect, one tuberculosis and the other some neuroses with alcoholic tendencies is very significant and probably may be duplicated in many persons whose histories have not been studied. This particular instance brings out the fact that alcohol lowers the opsonic defences of the body and predisposes to the growth of tuberculosis.

Another example of tuberculosis breaking out suddenly with some far away inherited taint, is the following:

A college student, whose father had given him large amounts of money, which he spent recklessly in all kinds of dissipation, suddenly developed delusions of a persecutory character. When brought under my care distinct dullness of both lobes of the lungs and suspicious rales were noticed. The spirits were removed and the delusions disappeared, but an obstinate cough and decided marks of tuberculosis appeared. He was taken to a sanatorium and died in a few months, with well marked symptoms of this disease.

He had five brothers and sisters every one of whom became tubercular at or about 25 years of age. Two of them recovered and are living in Colorado, apparently well. The fourth is an invalid traveling and using spirits moderately. He is married and with his father in-

law and wife is being treated abroad. The fifth is tuberculous and the wife of a wealthy merchant, and is under treatment at a sanatorium in Pennsylvania. All these children gave no signs of this disease until after puberty and owing to the wealth of the parents have received unusual care and treatment. Both parents are well, and use wine at the table as a beverage. They are society people of the prosperous class, conservative, intelligent and generally abstinent. The children were reared with the best possible care, without any untoward event in early life.

The grandfather on the father's side was tuberculous and died in middle life. His wife also died of the same disease. He had five children. Three grew up and were free from this disease and were noted as active healthy people, with no marked family disease. One died of apoplexy and two of heart disease after middle life.

On the maternal side they were farmers and probably used spirits as a medicine. Diseases of the kidneys seemed to be common among them. Cancer appeared in this side of the family. Two members died of this in middle life, and one after a long period of invalidism, died of acute tuberculosis.

There was here evidence of a distinct neurotic inheritance from

the grandfather which broke out in the second generation. The use of alcohol seemed rather a symptom indicating a neurosis that called for relief which this narcotic gave.

The early training of these five children, including the patient seemed to have no recognition of the possibility of tuberculosis. In all probability hyper-nutrition, and mental excitement stimulated early exhaustion and fatigue, which seemed to call for spirits as a stimulant. Later the real neuroses developed.

A marked example of the effect of a mental obsession was noted in the following:

A dentist 44 years of age, who for years had been a very active practitioner came under my care. He claimed to have been an abstainer up to within the last five years. Then from over-work he had used spirits, and could not stop until he became thoroughly intoxicated. On these occasions he was very stupid and obstinate and acted queerly. The remorse on recovery lasted for some weeks and was very intense. Then he gradually recovered and in the course of a few months relapsed again. During his remorseful period he confided his secret obsession that he should die at 50 years of age in a paroxysm of drinking, also that his grandfather on his mother's side and several uncles and aunts had died

at this period, and that he would follow them.

Two years later he had another drink paroxysm and recovered with a more prolonged remorseful period.

Finally at 50 years of age, without any apparent reasons, such as overwork, mental strain or the causes that had provoked the drink paroxysm before, he drank several days to stupor. Then suddenly acute pneumonia came on which ended fatally. His mind was not clear, so that one could not tell how far the obsession controlled him at the last.

A study of the family history showed that two brothers and one sister were living. The brothers drank more or less, but had been successful in business. The sister married, with a large family and was well and considered in good health. The two brothers were invalids from various diseases, incident to old age.

The parents had both died at about 49 or 50 years of age. The father had been a drinking man in early days, but had abstained in later years. He died from some disease of the kidneys. The mother had been an invalid and died from heart disease. The grandfather on the mother's side died of tuberculosis at 50. His wife also had the same disease and died at 48. Three children which grew up all died between 45 and 51

years of age from the same disease, preceded by alcoholism, rheumatism and various other obscure affections.

On the maternal side the grandfather died at about this period of life. He was a sea captain and drank heavily when ashore. His wife was a neurotic and invalid and died at 48. Their children all followed about the same way, suffering from alcoholism, tuberculosis and Bright's disease. Their children all died in early life and there were no descendants except the wife of the patient.

The patient was a very credulous man and although very abstemious and careful, became possessed with the thought that he would die, and under the conditions which he did, and this seemed to be dominant in his mind although it was not disclosed, except to the physician.

He married a neurotic woman and two children born, both died in infancy.

Another example brings out the same fact of obsession in a different way. A physician in middle life, temperate and strong affirmed in confidence to me, that he would die at 60; that his whole family for several generations back had never gone beyond that point, and he could be no exception to them.

The history was as follows: His father and mother, persons of more than usual means had drunk wine

at the table in early life and later used spirits as a medicine and died suddenly from obscure diseases of the brain and kidneys. His brother a clergyman remained temperate up to 55 years of age, and then used spirits as a medicine and died at 58 suddenly. Another brother was a total abstainer up to 60, when suddenly he began to drink spirits to great excess and was regarded as insane and died in a few months. Both grandparents on the maternal and paternal sides had died from consumption and pneumonia and were so-called moderate drinkers, at or about 55.

From this history the patient concluded that he would die at the same time and under the same conditions. Efforts were made to break up this delusion, with apparent success. He seemed to be in good health, passed his sixtieth birthday with cheer and plans for the future. He was thrown from a carriage and sustained a general shock, followed by a congested cold, and with its profound depression, and intense desire for spirits as a remedy.

This was given to him at intervals with apparent relief, but each day the desire increased, and finally he became stupid. The spirits were withdrawn and delirium followed. Then the spirits were given again and he became quiet. He continued in this condition

for several weeks, then, finally died.

The postmortem showed extensive tuberculosis of the military form, which had escaped the attention of the physician. Undoubtedly the obsession in this case culminated in profound depression and the drink craze and tuberculosis were the most natural sequels.

An example of alcoholic degeneration skipping two generations and breaking out in the third is brought out in the following history. Three sons of a very excellent clergyman began to drink at about twenty years of age and after a few years of the most excessive dissipation died. Pneumonia and tuberculosis were the terminal diseases at last. In early life they gave no indication of drink neuroses or any special weakness. On the contrary they were very carefully trained for healthy mental and physical life, and seemed to be rather exceptional young men in their promise of future usefulness. They were abstainers up to this time and lovers of athletics. Two of them were preparing for professional life. The other was to begin a business career. One a graduate from college became suddenly fascinated with theatrical work and began to drink to great excess; he became a wanderer and disappeared. Three years afterward he came home a

wreck and died. The other a student, suddenly ran away and joined the army. He suffered from typhoid fever, was discharged, came home and became a bar keeper. From that time his career was continuously downward to death at 25 years of age. The third son became a gambler and forged notes; he was sent to prison, liberated and after a short career of dissipation died. Both parents were healthy, strong minded persons and lived very temperately in every respect.

The grandparents on the mother's side were temperate people, living in a manufacturing town. The males worked in a factory. Her brothers and sisters were well and free from any peculiarities noticeable. Her great grandparents were alcoholics and died in early life from excesses.

On the paternal side the father and mother of the clergyman were healthy robust people, who

through abstinent living acquired a great deal of property. The grandparents of the clergyman all drank to excess and their descendants, excepting the father of the clergyman died from the drink neuroses.

In this there was a strong alcoholic history in the fourth generation, which for some unknown reason did not appear again. Then suddenly it broke out and terminated fatally. There seems to be a strong probability that this sudden collapse of the three young men, must have dated back to the fourth generation, and some inherited taint had remained dormant during this interval.

No other branches of the family showed this explosive obsession, and the question arises whether it was a coincident or a matter of accident, rather than the inheritance of a degeneration that had been checked through the other members of the family, until finally it exploded in this way.

Further Experiments on the Pathological Effect of Alcohol on Rabbits.

By JULIUS FRIEDENWALD, M. D., Professor of Gastroenterology, and T. F. LEITZ, M. D., associate in Gastroenterology, College of Physicians and Surgeons Baltimore, Md.

It is a well known fact that liver, and that when these substances have been given over a considerable length of time inter-

stitial changes are apt to be produced. The results of such investigations have not been satisfactory in as much as the lesion produced in the liver does not possess the features characteristic of cirrhosis found in human beings. While alcohol is believed to be the cause of cirrhosis of the liver, yet this disease occurs in individuals who have not been habituated to the use of this stimulant, and it is found even in children. In a few instances the continuous administration of alcohol in animals is said to be the cause of actual cirrhosis. Certain investigators notably, Straus and Blocq (1) found an increase in connective tissue in a few animals fed a long time on alcohol.

Mertens (2) placed rabbits in an atmosphere saturated with alcoholic vapor for many months. In those who survived over a long period, a new growth of connective tissue was observed around the portal spaces. Afanassijew (3) as well as V. Kahliden (4) were unsuccessful in producing cirrhosis by administering alcohol to animals for considerable periods of time. Friedenwald (5) found an increase of connective tissue in a few rabbits, which had received from 5 to 8 cc. of alcohol daily for four years. In many animals fed in the same way, and for the same period of time no changes were noted. Numerous attempts had

been made to produce cirrhosis of the liver by the continuous administration of phosphorus, by first inducing a degeneration of the liver cells, producing a marked degeneration of the hepatic cells with neuroses, which is followed by a production of connective tissue. Aufrecht, (6) Dinkler, (7) and Ackermann (8) have produced experimentally an increase in connective tissue by administering small doses of phosphorus to animals. Aufrecht was able to produce a very nodulated liver by means of this drug.

It is a well known fact that when chloroform is administered for a few hours daily, and repeated on successive days, a certain number of liver cells undergo necrosis, especially those around the central 3-5 of each locule. After the recovery the repair takes place quickly and is nearly complete after two weeks, while the liver becomes perfectly normal within three weeks. Some investigators, however, have produced actual cirrhosis in animals by injecting small quantities of chloroform subcutaneously over long periods. Herter and Williams (9) observed the same condition in dogs from inhalations of chloroform when given for an hour a day for 24 days. By administering chloroform by the mouth the same effect may be produced. Opie (10) has shown that with a dose of 1-2 to 1 cc. per

kilogram of body weight given on three successive days, a most marked necrosis is apt to be established.

The peculiar relation of bacterial infection to the liver had always been a matter of great interest. This is well shown in the experiments of Welch and Blackstein who demonstrated that colon bacilli as well as typhoid bacilli, when injected in the ear vein of rabbits are deposited for some time in the gall bladder. Ruxton and Farrey have shown that the typhoid organism when injected in the peritoneal cavity is soon deposited in various organs, but in much larger numbers in the liver. In individuals dying of acute bacterial infections one occasionally finds a central necrosis of the lobules of the liver midzonal necrosis. Opie (10) noted this condition in the liver of a child dying of general peritonitis following gonorrhoea and suggests that the infrequency of this lesion in comparison to the frequency of severe bacterial infections denotes the presence of some undetermined factor. Opie also demonstrated that the effect of this bacterial infection may be modified by the presence of toxic substances entering the blood. He administered to dogs and rabbits chloroform or phosphorus on successive days followed by the injection in the ear vein of a few cc. of a 24 hour

bouillon culture of bacteria (colon, streptococcus pyogenes). After the death of the animal which occurred about the twenty-fourth day, masses and strands of fibrous tissue containing tortuous hypertrophied and newly formed bile ducts were observed. A quantity of chloroform which alone can only cause fatty degeneration has been shown by Opie to produce in association with a single large dose of the colon organisms advanced cirrhosis of the liver within 24 hours. This cirrhosis is more advanced within 24 days than that produced by larger doses of chloroform alone when taken over a period of a number of months. Opie had also demonstrated that the combination of bacteria and the poison acting with greater intensity reproduces a lesion closely resembling that observed in acute yellow atrophy in man i. e., necrosis and hemorrhage; accumulation of wandering cells; formation of connective tissue replacing parenchymatous elements; a new formation of bile ducts. These are the marked features of these changes. His experiments have conclusively shown that bacteria in combination with a poison, as chloroform or phosphorus may cause changes which neither the poison, nor the bacteria alone can produce, and that the bacterial infection is an important factor in the development of cirrhosis of

the liver. In our experiments with alcohol published some years ago we demonstrated that when 5 to 8 cc. of alcohol were given rabbits over a long period of time, that in but 5 out of 120 rabbits could cirrhosis be produced. It is therefore evident that there is another factor, besides the alcohol, which is responsible for the production of this lesion. Inasmuch as Opie was able to produce actual cirrhotic conditions by a combination of a poison (phosphorus chloroform) and bacteria, it occurred to us, that it might be possible to induce alcoholic cirrhosis in a similar manner.

In our experiments 12 rabbits were utilized. These animals were fed on daily doses of 10 to 15 cc. of whiskey or absinthe diluted before feeding with an equal quantity of water. In order to be certain of the exact dosage, these substances were introduced into the stomach through a catheter. In from 5 to 15 minutes after feeding the animals showed signs of intoxication, the movements became sluggish, and unsteady, and in many cases the animals were unable to move. The intoxication passes into a complete stupor, from which the animal cannot be aroused; it awakens in from 3 to 5 hours, and appears normal the following day. These conditions vary much with the

dosage, weight of the animal, and individual peculiarities.

The quantity of alcohol consumed by the animals varied very much, according to their size, and strength, and the duration of life. There were three rabbits that outlived the rest; these were utilized for bacteria injections into the ear vein, after having had daily feedings for 11 months. The animals were in good condition, having gained in weight.

Rabbit No. 1. had consumed 3,950 cc. of whiskey.

Rabbit No. 2. had consumed 3,450 cc. of whiskey.

Rabbit No. 3. had consumed 2,960 of absinthe.

At the end of 11 months 1 cc. of pure boullion culture of pneumococcus was injected into the ear vein of the three rabbits; the animals remained well, and no apparent injury resulted. One week later, 5 cc. of a pure culture of streptococcus pyogenes was injected into the ear vein of the same three rabbits, the animals were made somewhat ill, but recovered in a few days; another injection of 1 cc. of the same culture was injected the following week, they all died the following night. At the autopsy aside from a slight congestion of the liver no pathological change was noted. There was not the slightest indication of any cirrhotic condition of the liver. It is therefore evi-

dent that alcohol alone or the combination of alcohol and bacterial infection is not sufficient to account for the production of cirrhosis of the liver in animals, and that there still remains another factor to account for the phenomenon, which has not as yet been determined.

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Balneology The Science of Bathing

In Balneis Salus (In Bathing is Health.)

By CHARLES ROSENTHAL, M. D., Boston, Mass.

This inscription engraved in letters of gold over the entrance to a Roman therma, or bathing establishment, attests the high appreciation of the ancient Romans of the efficacy of bathing. The ruins of these thermae reveal to us today the stations of the Roman legions, the greatest conquerors, the world has ever seen. And here it must be borne in mind that the Romans had to make their conquests, not so much through superior military equipment but through personal superiority; and as one of the chief means to secure this personal superiority, the Roman legislators provided the people, and especially the soldiers, with facilities for bathing that still elicit the admiration of the students of human history. Our most popular bathing resorts, Wiesbaden, Baden, Aix les Bains, Aquis, etc., trace their origin to the Roman Camp.

In a paper read before the New England Electro-Therapeutic association, entitled Hydro-therapy, I had made the central idea of my thesis, as the title implied, the efficacy of water in the treatment of disease, the restoration to health. Today, I intend to point out the value of scientific bathing for the preservation of health. I wish here to call especial attention to the word scientific on account of the harm which might be and often is done through lack of knowledge of the principles involved in choosing the proper kind and form of Bath for the different needs of the human constitution. Discrimination and selection is just as much needed here as in a Physician's prescription for his patient.

In my paper on Hydro-therapy, I had called attention to our progress in hygienic provision and the subsequent reduction of the rate of mortality and lengthening of human life. These results obtained, while highly gratifying, should not cause us to relax in our activity as if a limit had been reached but they should act as a spur to further effort. The average length of human life, which, as I pointed out, is 43 years, is in my opinion far below what nature had intended as the normal length of life of the GENUS HOMO.

Biology teaches us that the average length of life of an organism is about five times the period of

growth and development. From 18 to 20 years is about the average length of life required in our latitude to bring the human physical constitution to full maturity. Applying the law of life, we get a longevity from 90 to 100 years. It is my firm conviction that as the race will progress in knowledge and in the recognition of social justice these figures will constitute the normal, instead of the exceptional duration of human life.

But it is not only length of life that should receive our consideration, but also the power to enjoy life and for both these objects a knowledge of the theory of bathing and still more the practical application of the knowledge is of primary importance.

The laws of hygiene are mainly based upon three agencies. Pure air, sufficient sunlight, personal cleanliness. The last is the main object of bathing but by no means the only one.

The purpose of bathing might be summed up as follows:

To secure cleanliness of the surface of the skin.

To promote the proper function of the skin.

To cool and refresh the body.

To stimulate and soothe the mind.

To regulate the blood circulation and bodily heat.

To harden the skin against atmospheric influence.

For athletic exercise as in swimming.

This numeration shows that personal cleanliness is only one of the many purposes for scientific bathing.

As chief effects produced, might be given: The opening of the pores of the skin, a greater pliability of muscles, the strengthening of vitality.

The pores of the skin, of which there are about 2800 to the square inch and 7 million in all, must be kept open to secure the orderly function of the other organs of the human body.

To appreciate more fully the need and effect of bathing let us consider the function of the skin.

The function of the skin might be summarized thus:

1. To enclose and protect the internal organs against injury.
2. To regulate the temperature of the body by respiration and evaporation.
3. To eliminate waste material of the body.
4. To serve as our sense of touch.

The alternate application of hot and cold produces a reaction which permeates the entire human system with an enhanced feeling of well-being.

But it is not merely the reaction following the alternate application of hot and cold water which pro-

duces the extraordinary tonic and beneficent effect upon the entire human organism but an inherent tendency for rhythmic contraction all through the vascular system including the vessels must be taken into account.

Dr. Woods Hutchinson, Prof. of Comparative Physiology in the University of Buffalo has coined a word which is expressive of the propulsive action of the cutaneous vessels. He writes of the "skin heart" as a fact in human circulation and it is this skin heart which is acted upon in the alternate application of hot and cold water. The stimulation produced can be enhanced by an addition of salts chiefly such as will be found in sea water and in some cases by the introduction of carbonic acid, but here discretion is necessary. By such means the pulsations of the heart can be lowered in frequency and increased proportionately in power so that the work which was difficult for it, is performed with ease and comfort.

Physiologists have studied the connection between certain areas of the skin and the spinal ganglionic center. The nerves supplying the capillaries connect also the sensory nerves and with nerves surrounding the larger blood vessels both arteries and veins. The nerve endings in the skin, here described, furnish a clew to that remarkable sensitiveness of the

epidermic layer, which opens to hydratic applications, a free gateway to the central nervous system and especially to the sympathetic which controls most of the organic functions.

From this, it must be apparent that metabolism (the process of assimilation) and the entire nervous system are strongly affected in the use of sweat, the so-called Russian Turkish baths and I maintain, without fear of being accused of speaking *PRO DOMO*, that an experienced physician should preside over every so-called Turkish bath establishment.

Hippocrates, who must be considered the father of hygiene, as well as of medicine, lays special emphasis upon the necessity of a periodical and thorough cleansing of the skin not only as a means to retain good health but as a potent factor in prolonging human life. For by keeping the solid parts of the body soft and flexible and making the joints supple, bathing is ever powerfully counteracting that creeping sickness which we call old age.

In the bath, we have also the best means to neutralize the baneful influence of our variable climate and of our mode of life and of restoring what these enemies of our life have vitiated.

As long as man with his healthy organism faithfully observes the laws of his being, he is proof against

disease and he ought to know that disease does not come without cause. There are laws which regulate human life as well as any other system and constitution, physical, mental and moral; and the man who breaks any of these laws should be taught that he must suffer for his transgression.

The man who tries to learn and observe nature's laws such as thorough ventilation, natural diet, cleanliness and to this adds tranquility of mind, will join his efforts to those of nature and lead an ideal life, which life will be more and more realized in the future, as the race increases in knowledge and in the recognition of social justice.

Let us in closing, consider briefly the various kinds and forms of bathing and technique:

Let us first consider temperature

Cold Baths	40 to 60
Cool Baths	60 to 80
Warm Baths	80 to 100
Hot Baths	100 to 120

Higher temperatures exist in the so-called Russian or Turkish Baths where the heat may reach from 120 to 200 degrees. Cold baths are stimulative and duration should ordinarily not exceed ten minutes.

Warm baths are sedative but become stimulative when temperature is raised above heat of body.

In the so-called Russian Bath the medium is vapour and in the

so-called Turkish Bath, hot air. Both applications are misnomers for these forms were used not only in the Roman Thermae but were known to Greeks and Egyptians and most likely to the Atlanteans.

KINDS OF BATHS.

There are various forms of mineral and sulphur baths of which limitation of time forbids an elaboration, but I might say that science has enabled us to furnish the same constituent elements as are found in the mineral springs of Europe and America. Hot brine and Pine needle baths are extensively used.

Oxygen baths are highly recommended by some of our best authorities. The so-called Nauheim effervescent Carbonic acid baths have found wide application in Germany.

There are many other forms of baths, some of which were once extensively practiced, but are being gradually abandoned although I must admit they still have advocates.

Of these I might mention the milk bath, an admixture of milk, sheep's milk preferred.

The wine bath consisting of an addition of wine or brandy, still used in France. I think it will be a source of surprise to learn that even the blood bath has its advocates in the fraternity. But such is the case.

Speaking of technique and equipment, I wish to emphasize the im-

portance of properly ventilated apartments for hot air and steam applications.

Every hydropathic establishment should be equipped with a swimming pool with continuously running filtered water.

But the most important and the most differentiated hydropathic treatment is by means of the douche.

A douche consists of a single or multiple column of water directed against some portion of the body.

In this application three factors are to be considered: Temperature, Pressure, Mass.

The range of temperatures employed in douches is from 45 degrees to 12 degrees F. The pressure ordinarily employed is from 8 to 60 pounds, represented by a water column of 20 to 150 feet. The mass varies greatly according to the effect desired. Douches are classified according to their form; as the horizontal, vertical or broken jet, vertical or horizontal spray, filiform, needle bath, Scotch douche, massage douche, etc.

These various forms of douches as applied to different parts of the body require a knowledge of anatomy as well as of physics of the subject to be treated, as well as the means of treatment.

Balneology has become a recognized science and a scientifically equipped and directed hydropathic establishment offers to the medical

practitioners the same facility for the prescription.—Read before the mechanical treatment as does a Boston Medical Society, February 21st, 1913.

Why Do Men Drink Alcoholic Spirits?

By J. T. SEARCY, M. D., Supt., Alabama Insane Asylum, Pres.
American Medico-Psychological Association, Tuscaloosa, Ala.

Why do men drink alcoholic liquors can be answered very promptly and withal very correctly by saying, because they make them "feel better"; and, from the very beginning of their use, very naturally, they have been considered beneficial, because, whatever removes a person's discomfort or adds to his comfort, is generally found to be beneficial.

Reaching back through the generations, with world-wide experience backing it, there has arisen the growing conviction, however, that the use of alcohol is injurious. The so general use of alcoholic liquors, in civilized countries, has been followed with the belief that they are a source of great injury in the body politic, not only because of their hurtful effect upon the great number of persons using them, but their injury reaches through succeeding generations. This opinion has rapidly increased of late.

In the early use of alcohol, in its many mixtures, it was commended as harmless, invigorating, helpful,

comforting, stimulating, strengthening and even nutritious. It was praised and prized in its private and public use as a luxury; and it was very generally administered scientifically as a medicine. But this general opinion has been very much backset of late. "The consensus of the competent" in recent years, in popular circles and in scientific, has grown more and more emphatic, contradicting the former opinions, until the current seems now to be setting the other way. The alcohol question, however, is by no means settled; there is still much vehemence of assertion on both sides the line.

The scientific aspects of the alcohol question are what it rests upon. What he thinks alcohol does in the body of man, determines the stand any person takes in the use of it himself and determines his stand on the public question. That men take it because it makes them "feel better" still remains an admission by all, and the scientific answer of the opposers of its

use has to explain how that can be the case and still injury follow. On the solution of that point rests the science of the whole question.

The answer to the first part of the question, how does alcohol make the person feel better, is the key to it all; and what, physiologically is "the sense of feeling" is behind that.

Sentiency is a faculty or property of all living things; indeed, it is the characteristic which determines any thing to be living; that it is cognizant of agencies impinging upon it in its environment. The first object of effort of all living things is to continue themselves living; this is universal "from monad to man." In order to continue themselves living they have to possess the faculty of sentiency towards outside agencies, however small and simple they may be and however large and complex.

As things, exerting themselves to continue themselves living, have become more and more organized, nervous systems have arisen. Nerve cells are "the units of the nervous system." A typical nerve cell consists of a body with afferent fibres bringing living action to it and efferent fibres bearing living action from it. Nerve centers are aggregates of nerve-cells, presiding over or controlling activities within their spheres, to the limits of which their afferent and efferent fibres extend.

It is easy to divide the nervous system into two departments; one the psychic department, with the conscious convoluted cerebrum as its center; and the other the sub-psychic department, with those centers that control the functions of internal organs, as its subconscious center. One of these departments relates to the outside of the man and the other to his inside. One adjusts the whole man to his environment and the other adjusts internal organs to each other. They are separate departments in their functions, looking in different directions:—one outside and the other inside.

The psychic department carrying the living faculty of sentiency to the highest grade called consciousness," of which "feeling" is a part, concentrates in its psychic center all conscious sentiency. Its afferent fibers coming from all parts of the body, in themselves all living and sentient, bring information into its posterior receiving tracts. Some afferent fibres are "specialized," so as to bear only afferent action such as is engendered in the sense organs of seeing, hearing, smelling and tasting; but coming in from every where in the body are other afferent nerve lines, some bearing "tactile" sense-action from the surface of the body, and others bearing the sense of comfort or discomfort from internal organs and structures. The

receiving tracts in posterior parts of the cerebrum are the sentiently-conscious living structures for the senses, sensations or feelings, received from these directions.

A person feels comfortable when no discomforting action reaches his consciously sentient psychic tracts, a generally normal condition is indicated. The sensating afferent fibres of the psychic department, in the "periphery" of "the nervous system," and the sensating tracts, in the posterior portion of the psychic center, are the structures engaged in "feeling" and have this faculty, as the highest grade of a property that belongs to all living things in biology and to all living structures of the body. There are all grades of sentiency in biology and in the body of man.

The person, therefore, is comfortable when no discomforting action is brought to the receiving tracts of his cerebrum. It is a negative condition, nothing at the time is discomforting. If a dulled condition of the sensating nerve lines or of the sensating tracts in the cortex, is artificially produced, the subjective sense is the same as if there was nothing discomforting, and the person feels pleased. Some narcotic and anodyne drugs do this.

It is a pleasant condition, much sought for, not to be discomforted. Pleasure and happiness rest upon it. Natural, habitual actions, any-

where in the body, are borne to the receiving tracts as not discomforting; sometimes as actively comforting and pleasant, because they are naturally habituated and constructed for it. Painful, discomforting action comes, because of unusual disintegrating, or disturbing, action in the structures somewhere.

This is the answer to what is "feeling"; next comes, Why do alcoholic liquors make the person feel better?

We have in medicine, a long list of drugs that we administer to dull or obtund feeling; some, most frequently used, are chloroform, ether, nitrous-oxide, chloral, alcohol, the solutions and alkaloids of opium, cocaine hyoseyamin, some of the coal-tar products, nicotine, caffeine, and the like; all act chemically upon the sentient, afferent nerve lines and the sensating tracts of the psychic center of man to dull, obtund or entirely suspend their faculty or function of carrying and receiving sensation.

A good explanation of the peculiar affinity of these agents for these structures is, that they harden and in that way blunt the sensibility of these lines and tracts by their affinity for the delicate protoplasmic material that constitutes the nuclei and axes of their cells and fibres. This protoplasm is more delicate in these structures than in the lower grade cells,

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fibres and centers of the sub-psyche portion of the nervous system, which governs the activities of the heart, lungs, etc. It is first acted upon.

In the administration of chloroform or ether, therefore, enough is given to stop the functions of these most delicate structures of the psychic department; and, in conducting anaesthesia safely, not enough is given to stop the functions of the subpsychic center of eternal life; for, in that case, the heart, lungs and other organs would suspend and the man die. In anaesthesia, the whole psychic department is suspended, not only the sensory afferent fibres and the sensory tracts, on the receiving side in the brain, but, also, on the executive side, the efferent motor-fibres and tracts, and the voluntary muscles; indeed, the conscious cortex and the whole afferent and efferent psychic department is suspended. The lower grade, less delicate cells and fibres of the internal department, however, are allowed to continue in action. Not enough of the anaesthetic is given to stop them.

All the anodynes and anaesthetics, with differences due to the different chemie affinities of each, have effect upon these structures. Some anodynes, like caffeine and nicotine, are much less toxic than cocaine and morphine; and some anaesthetics, like alcohol, are less

active and toxic than chloral, ether or chloroform.

It is a pleasant condition, particularly if there is any discomfort or pain reaching the sensating cortex, to have its sensating ability dulled. Some discomfort is a constant condition of the psychic centers of most persons, and it is pleasant for them to be relieved with any one of these agents. Most persons never know what it is to be entirely comfortable. There are all grades of constant discomfort in different persons; and even in persons apparently normal in their sensating structures, these agents, particularly the milder ones, like caffeine, nicotine and alcohol, have a pleasurable effect. No discomfort is brought to the conscious brain, and it has none in itself, so the condition is pleasurable.

The result of this chemie action on sensating lines and cells, when removed, is to render them more sensitive. The frequent use begets an over sensitive condition—a hyperaesthesia—in these structures, which is increased by their repeated use. A habitue, who takes any one of them repeatedly, begets a hyperaesthetic psychasthenia, in the sensating structures of the psychic department. This makes him "feel bad" when he ought not; and he knows he can relieve his bad feeling by taking more of the drug, and he does so—often dragging a lengthening chain

of neurasthenic discomfort—unless drugged. His "habit" as he calls it, increases.

Alcohol is the least toxic of the anaesthetics. Its injury by repeated use, is not so decided and rapid as that from chloral, nitrous oxide, chloroform or ether, still it not only induces a hyperaesthesia of the afferent lines of sensation and of the sensating tracts in the posterior cortex, but it also impairs the reasoning and the executive structures of the complex psychic center. "Inhibition," on the executive side, is impaired by a dose or two of it, so the man says and does things he would not in his normal condition. His "will power", or general brain strength, by its continued use, is impaired by it, until he has not the ability to stop his use of the drug. If he has any tendencies in his mental make-up to abnormality, such as irascibility, pugnacity, mendacity, eroticism, immorality, paranoia, melancholia, mania and the like, the general psychic injury takes the direction of the predisposing tendency.

The habitual use of alcohol is, in most persons, preceded by a hyperaesthetic psychasthenia, which is an exhibition, generally, of a hereditary diathesis of that kind from his ancestry. It is easy to account for such persons in civilized countries.

Civilized countries, by reason of the superior psychic abilities of the people, who inhabit them, excel other less civilized countries in commercial competitions. Civilized countries exploit the other races for their pleasure and advantage. They bring into their lands things necessary for living—particularly things to feed them and keep them warm. They hunt luxuries also from all directions. In eastern Asia they found caffeine in tea, and in Arabia, caffeine in coffee, and in Africa, caffeine in cola-nuts. Now whole sections of the world are engaged in raising caffeine plants for use in civilized lands. The increased importation of cola-nuts, from which to make caffeine for popular use, is increasing rapidly.

They found a few American Indians using tobacco, and now whole sections are given to raising this plant to furnish nicotine for civilized countries. Opium in Southeastern Asia is imported in large quantities into civilized countries; a large part of which is not used as medicine, but in one form or another, is used as a luxury. The Coca leaves of the Andes mountains, which a few Indians used, is now extensively cultivated, and imported, not all for medicine. Alcohol is now manufactured in the largest quantities for civilized use, in one shape or another, as a luxury.

A few years ago, as the world's history goes, one of these narcotic drugs was taken in separate lands by some of the people; now they are all concentrated into general popular use in civilized countries. In the United States we have adopted the use of these agents until it is an almost universal custom to use them, to a vastly greater extent than any one of them was ever used in its original locality. Caffein is taken in one form or another by women and children everywhere; the men generally use caffein, nicotine and alcohol as luxuries. The increase in the consumption of all these least toxic of the narcotics has grown enormously in the last hundred years, and is increasing year by year. It is an almost universal custom to take them, until their use is hardly noticed or considered. The popular use of the stronger narcotics is also increasing.

All these agents have chemically effect upon the delicate protoplasm of the sensating nerve lines and tracts of the psychic department and center, to produce a pleasant effect, which is the object sought by the users of them. As a secondary and resultant effect, after the withdrawal of the drug, they produce an over sensitive psychasthenia; which renders the person uncomfortable, unless he is "doped" with the drug he is taking. The "habit" is produced and indicated, as soon as the person, who takes any one of them, whether caffein, nicotine, alcohol, cocaine, morphine, chloral or a coal-tar product, on leaving off his drug for several hours, finds himself discomforted by a bad feeling that he knows he can relieve with more of the drug. The amount of the damage done can be estimated by the degree of his general malaise and his discomfort, when his drug is stopped. His whole psychic center is often so damaged that he has not the inherent brain strength or "will power" to stop. Such a person is a "drug habitue", an "inebriate", no matter which drug he takes. Some drugs are more toxic, of course, than others; and some persons inherently more neurasthenic or weak nerved than others—more easily injured. Some persons are peculiarly and hereditarily neurasthenic and psychasthenic, from a parentage given to the use of such agents. We are begetting many children with inherent "dope diathesics", by the so general use as luxuries, of such agents. The land is full of children and adults, who legitimately have inherited impaired psychic centers. There are more nervous children in the schools and more dullards not able to keep up with their classes, and more adults deficient and defective in their mental abilities. Neurasthenia and psychasthenia, with over sensitive

psychic nerve lines and centers, are particularly numerous in America. All our charities and corrections are more and more overworked.

Alcoholism comes naturally in an inherent psychasthenic-neurasthenic person descended from parents given to the use of such drugs. He takes to the use of alcohol, because of his inherent ready discomfort, inherited from "dope using" parents. The extent of such habits blinds the attention to them. They are almost universal. "Everybody does it."

To prove to any such person that he has the drug-habit, get him to leave off his drug for twenty-four hours.

Alcohol is more psychopathic in its effects than either nicotine or caffeine; they, like anodynes generally, affect more the sensating afferent nerve lines than the whole psychic center. The so general use in civilized society of these and other agents is begetting a peculiarly psychasthenic hyperaesthesia in many. They all lead to the use, one of the other, and the milder ones to the use of the more toxic, in the individual and in his posterity.

Why alcohol is used is easy to explain in this way, and the same line of study shows why it is injurious.

The Latest Pathological Action of the Cigarette on the Brain and Nervous System,

By D. H. Kress, M. D., 1616 Milard Ave., Chicago.

The use of cigarettes is rapidly on the increase both in the old and the new world. The typical pipe of the German has almost disappeared and has been replaced by the cigarette.

Statistics recently published show that the consumption of cigarettes in Germany has increased more than ten fold since 1897, and

during the past five years it has almost doubled.

During the year 1911, over twelve billion cigarettes were used by the Germans, an average of over six hundred for every male smoker. In Germany as in other civilized countries the boys are becoming the chief victims of the habit.

Forty years ago the cigarette was almost unknown in the United States. The pipe and cigar were in demand. The pipe is now seldom seen upon the streets of our large cities. It has been crowded out by the cigarette.

During the year 1912 there were consumed in the United States, counting the hand rolled cigarettes, possibly not less than thirty billion cigarettes. It is estimated on good authority that there are not less than two cigarettes rolled by hand to every one manufactured in the factory. There is an increase in the consumption of between one and two billions each year, in spite of the educational and legislative efforts made to prevent the young from using them.

Each day of the year there are probably consumed about eighty million cigarettes at a cost to the consumers of over three quarters of a million dollars.

The habit is becoming almost universal among the boys attending the public schools in some sections of this country. A short time ago the statement was made by the Supervisor of Compulsory Education of Los Angeles, that "Seventy-five per cent of the boys over eleven years of age attending the public schools of that country were addicted to the use of cigarettes or tobacco in some form." Thinking this statement rather ex-

treme, I called upon Mr. Lickley, the Supervisor, and inquired if the statement was as represented. He assured me that the statement was based on careful investigation during the past eight years and was absolutely correct. The teachers in the schools of California have been for several years giving thought to this question.

While the habit is not as prevalent among the boys of the Eastern states, I am confident that it is more common than is generally supposed by instructors. It is surprising how successfully the cigarette boy can keep the facts concealed even from parents. I have repeatedly met boys who had for two or three years used cigarettes on the sly. When parents made the discovery the habit was usually fixed, and I have found that it is about as difficult to reform a cigarette fiend as it is a morphine fiend. As medical men we have been forced to recognize that the cigarette exerts a mysterious influence over the one who becomes addicted to its use, and in this respect we have been compelled to place it in a class by itself and separate from the pipe or cigar. In the past this has been attributed to the inhalation of the smoke. There is no doubt that this in part affords an explanation, but only in part. It has also been held that cigarettes are doped with opium and other narcotic drugs

and that this was responsible for the grip they had on the devotee.

Recent investigation and laboratory experiments conducted by the London Lancet have brought out some interesting facts which throw a side light upon this perplexing problem.

In the analytical methods employed the aim was:

First. To determine the amount of nicotine in tobacco leaf.

Second. What relationship existed between the amount of nicotine in any tobacco and the smoke produced from that tobacco.

Third. Is this relationship modified by the way in which the tobacco is smoked in the pipe, the cigar and the cigarette.

It was found that the tobacco itself consumed, whether in the cigarette, cigar or pipe seldom contained more than three per cent of nicotine and generally less.

It was discovered, however, that there was a considerable difference in the smoke of the cigar, pipe and cigarette.

The cigarette yielded up the least amount of its total nicotine to the smoke formed.

The pipe yielded a very large proportion, in some cases 70 or 80 per cent.

The cigar smoker gave figures midway between the pipe and the cigarette.

Thus far it would appear that the cigarette was the least harmful

form of smoking, providing the smoke was not inhaled, and that the smoker of the pipe runs the greatest risk of nicotine poisoning.

This did not accord with past practical observations, hence the question arose if nicotine was after all the most toxic factor in the cigarette smoke.

From the result of the experiments conducted to ascertain the nature of other products present, it seems that the contention regarding poisoning resulting from tobacco will no longer be determined by the amount of nicotine present, but by the presence of hitherto only dimly perceived and never scientifically demonstrated by-products liberated in the combustion of tobacco.

Among the by-products was found furfural, belonging to the class of bodies known as aldehydes. To aldehydes the poisonous effects of crude, immature whiskey are ascribed. The furfural contained in the smoke of even one cigarette is as much as is present in a couple of fluid ounces of this whiskey.

The fact that only a trace of furfural is found in the smoke from the pipe and is altogether absent in the smoke of the cigar, naturally leads us to suspect that furfural is responsible for the ill effects of excessive cigarette smoking and the strange infatuation it exerts over its devotee.

Aldehydes, of which furfural is a type, are pungent substances and excessively irritating to the mucus membrane of the throat and lungs. Throat troubles, it is well known, are commonly associated with the use of the cigarette. This also affords an explanation of the fact long recognized, that the cigarette paves the way for pulmonary tuberculosis.

It is generally understood that the process of manufacturing cigarette tobacco is a profound secret known only by a few. We know, however, that to the cigarette tobacco, glycerine, sugar, and other sweet substances, are added.

These in the process of combustion produce these irritating aldehydes. Furfural the principal aldehyde being present in large quantities, is said to be fifty times as poisonous as ordinary alcohol, and that small doses cause "symptoms of transient irritation, such as ataxia, tremors, and twitching." This explains the trembling hand and the characteristic handwriting of the cigarette boy. In adequate quantities furfural "gives rise to epileptiform convulsions, general muscular paralysis, ending in paralysis of the respiratory muscles."

One of the commonest effects of over-indulgence in cigarettes is a chronic inflammation of the throat and upper parts of the respiratory passages leading to hoarseness and

excessive secretion of the mucus gland. This is not ascribed to the specific action of nicotine but to the presence of the aldehydes.

In addition to the glycerine, which is added to moisten the tobacco, saltpeter has also been added to make it burn. The "Lancet" report says, "It is clear to us that cigarette smoke contains injurious constituents other than nicotine, amongst which may be counted aldehydes, including acrylaldehyde or acrolein, a class of bodies which are intensely irritating."

The "Lancet" promises further analysis of these products. It is, of course, a matter of profound interest which deserves immediate and adequate attention.

I am convinced that but few appreciate as yet the devitalizing and demoralizing influence of cigarettes upon the growing boy. China did not fully appreciate the evils of opium until almost her entire people were hopelessly enslaved by the habit. Then she felt impelled to make a sacrifice of over thirty million dollars which she annually received as revenue, in order to save herself from total demoralization and annihilation. She has been making a brave fight for several years, but she finds it an almost impossible task.

Twelve years ago when the use of cigarettes was about as prevalent in the schools of Japan as they

are today in the United States, a bill was introduced into the House of Representatives prohibiting the use of cigarettes by young men under twenty-one years of age. This bill passed the house and became a law on the first day of April, 1900.

In introducing the bill Mr. S. Nemoto, a member of the house said, "I would like briefly to give you reasons why we have introduced this bill. Recently even children in our common schools have come to smoke cheap, imported cigarettes, the consequences of which, we fear, may bring our country down to the miserable condition of countries like China or India, because tobacco like opium contains narcotic poisons which benumb the nervous system and weaken the mental power of children addicted to smoking and thus give a death-blow to the vitality of the nation. Therefore from the standpoint of our national policy, we must strictly prohibit the smoking of tobacco by children and young people." He further made the significant statement, "If we expect to make this nation superior to the nations of Europe and America", which, of course, is their aim and ambition, "we must not allow our youths in common schools, who are to become the fathers and mothers of our country in the near future, to smoke. If we desire to cause the light of

of the nation to shine forth over the world, we ought not to follow the example of China or India."

What the future of any country will be may be determined by the boys of the present. A corrupt tree cannot bring forth good fruit. The remedy lies in making the tree good.

Some time ago a Judge of the Juvenile Court in California said to me, "If this cigarette craze continues among our boys as it has in the few years past, the next generation of boys won't be worth killing." To which I replied, "Judge I fear there will be none to kill, the cigarette is capable of accomplishing that."

The cigarette is becoming a greater national evil than alcohol. It strikes down or blasts the youth of our country upon whom we must depend for its perpetuation. The cigarette prevents development of both mind and body. Its use results in physical, mental and moral deterioration. The boy who begins the use of cigarettes at the tender age of eleven or twelve years will doubtless become a degenerate. He will be a failure in school or in any profession he may take up later.

President David Starr Jordan of Leland Stanford University, who has been a close observer of the influence of the cigarette upon the boy, said, "The boys who smoke cigarettes, rarely make failures in

after life, because they do not have any after life. The boy who begins smoking before his fifteenth year never enters the life of the world. When the other boys are taking hold of the world's work, he is concerned with the sexton and undertaker."

Recently in Canada seventy-five per cent of the recruits for the Navy were rejected owing to defective vision attributed to the cigarette and moving picture show. The cigarette is undoubtedly the chief factor in this nerve deterioration. Accidents by land and sea are rapidly increasing and in most instances they are due to defective vision. Mr. Harriman, the railroad king, once said, "Cigarette users are unsafe. I would just as soon think of getting my employes out of the insane asylum as to employ cigarette users."

Its deteriorating influence on the optic nerve merely indicates its influence upon the entire nervous system, including the brain.

Judge W. N. Gemmill of the Court of Domestic Relations, Chicago, recently made the statement that of the twenty-five thousand or more criminals that have passed before him, many of them had the tell-tale yellow stains on their fingers. He said, "Nearly all the men and women who had lost the faculty of blushing smoked cigarettes."

Dr. Coffin who has for a number of years been connected with the Whittier Reform School of California informed me a short time ago, in a visit to the place, that ninety-eight per cent of all the criminals that have passed through the school were cigarette users and ninety-five per cent were cigarette fiends. Whenever I read of a cold blooded premeditated murder or some other dastardly crime, I am prepared for the information which I usually get on investigation that the culprit was a cigarette fiend. As an illustration in the murder recently committed in the city of Chicago by Charles N. Conway, a reporter who visited him found him sitting in his cell unconcerned, smoking cigarettes while he talked volubly to every one who would listen, cracking jokes as though nothing out of the ordinary had taken place. On being asked, "Doesn't the thought trouble you that you killed the woman, even as you say it was in self-defense?" He replied, "Well it doesn't worry me, as far as my trial is concerned." The reporter then inquired, "Why did you tie the body up with robes?" Conway then in an off hand way said, "Give me a cigarette before I answer any more questions."

Recently in one of our Eastern cities fires broke out frequently in various parts, finally the culprit, a boy twelve years of age was

caught. The mother said to the reporter, "We can do nothing with the boy. Cigarettes have turned his head," and requested that he be taken in charge.

A mother in writing for help said, "Smoking cigarettes has made a wreck of my son, once bright and full of brains and ambition, now he can't think; he can't hold a subject in his mind. He was a stenographer, but now he is nothing and God only knows if a good doctor and good nursing can restore him.

Another in writing to me says, "I have a son who has just ruined himself with cigarettes. He is twenty and unable to study or use his mind in any way. He was very bright and capable until he became a victim of this evil habit. This seems to have changed his entire disposition. He will go without clothes to purchase cigarettes, and as he is my only boy and I had hoped much for him, I have felt I could not give him up. This is my only excuse for troubling you, etc." These cases, we all know, who have had to do with the cigarette addict, are not overdrawn. They present actual facts.

If the use of cigarettes increases at the same rate during the next ten years as it has during the past ten, what can we hope or expect in regard to our country's future? The boy with a crippled leg or arm is handicapped in a measure in

life's battle, and is regarded as an object of pity, but if that boy marries his children will have two sound arms and legs. With the boy whose brain is crippled with cigarettes it is different. His children are born with crippled brains and crippled hearts. Thus each generation of smokers becomes more degenerate until they are finally wiped out.

We pass rigid laws to shut out of our country defectives and criminals, but we permit and sanction by law for a few paltry pence of revenue, an evil which is turning our most promising youths into defectives and criminals.

When the boll-weevil was discovered in the South we turned the Government scientists loose, and authorized them to spend the taxpayer's money liberally in hope of defending our National Cotton Crop. Shall we give less protection to our National crop of boys? Shall we continue to close our eyes to this monstrous evil which is leaving its blight everywhere? Shall we follow the example of our more enlightened countries as Japan and China and suppress the manufacture and sale of cigarettes to our youth, or shall we continue to fold our hands and allow this juggernaut to pass unmolested through our main thoroughfares crushing out the very life and the hope of the country's future?

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It appears to me that as physicians interested in all lines of reform, the time has come, and the hour has struck, when we should place ourselves unmistakably upon record as a body as to our attitude toward the cigarette, and by voice, pen and vote, do what we can to forever eliminate the evil.

CIGARETTES FREE SLAYER.

POTTSVILLE, Pa., Nov. 30.—

Judge Brumm, in charging the jury in the case of Edward Radler of Hasleton, accused of the murder of Charles Williams, following

a quarrel over a girl, instructed that the fact that Radler is a "cigarette fiend" must be taken into consideration. The judge pointed to the tobacco-stained fingers of the defendant and said the fact that he smoked a pound of tobacco each week in making cigarettes was proof, in his mind, that Radler's brain was affected, and really caused the murder. The jury returned a verdict of not guilty and requested the judge to make the defendant swear never to smoke another cigarette.

Recognition of the Economic Menace of Alcohol.

By JOHN W. W. WAINWRIGHT, M. D., New York.

In presenting to this Society a thesis on the Economic Menace of Alcohol, I desire at the outset to state that I shall confine my remarks to the economic features, with but only brief references to predisposition, environmental influences and suggestions for its control, leaving to others the much discussed question of heredity, environment, pathology and treatment.

The economic menace of the use, habitual or occasional of alcoholic beverages is exercising the minds of financiers, moralists, philan-

thropists and statesmen throughout the world. Writers have been busy, as witness the scientific and lay literature which has appeared in the last decade. Laws have been proposed and enacted in a number of States in our own country, as well as abroad. Segregation and the unsexing of habitual drunkards is advocated by some; moral suasion, and a propaganda of education by others. Religious and industrial societies, as well as inebriate homes, State and private, have all been advocated and placed in evidence, but the prisons, almsh-

houses, houses of correction as well as the bread line continue to claim their own. Saloons, cafes and hotel bars are everywhere prosperous. Recent statistics show an enormous increase in the consumption of alcoholic beverages for which the industries of the world are taxed a prodigious sum, a sum indeed that staggers us to contemplate. And yet the high price of living continues to mount higher, the burden being largely borne by the wage earner.

Who is it that indulges in alcoholic beverages, and why? This is a difficult question to answer, for observation would indicate that all men and many women use them, if not habitually, at least upon occasions. It is true that comparatively few of those who do indulge become alcoholics or inebriates; that many live to their life expectancy, enjoy good health and die from causes that bear no relation to the use of alcohol. It is not such men, however, that stand in need of moral uplift or medical attention; whose morals or length of life, happiness of selves or family are sacrificed through intoxicants. It is not the sane, stable and moderate use of intoxicants that exercises the philanthropist or the humane. It is the indulgence by the unfortunate; the neurotic, unstable, misfits, unfits. It is not the well poised that become a menace to

society; who find their way into penal or eleemosynary institutions, who make up the army of irresponsible tourist mendicants, who become frequenters of the bread line. True there are the unfortunates who find themselves impoverished in middle or late life, but these cases are more often result from other causes than a too frequent indulgence in alcoholics. It is the fact, however, that only in exceptional cases where antecedents are known to have been alcoholics or otherwise unstable can we predict in early manhood a heredity that would justify us in proscribing alcoholics with a conviction that its use even in a very moderate and infrequent manner was likely to prove disastrous. It is also equally true that because we are unable to predict the environmental development of man that we are justified in sounding the alarm.

Concerning the influence of environment, I shall only refer to the influence which associations undoubtedly exert in favoring an indulgence in alcoholics. Young men are very apt to pattern after middle aged successful professional and business men. They note or learn that the head of a firm or corporation indulges in one or two cocktails before the midday meal, especially in cities where commercial men partake of the luncheon in restaurants instead of their

homes; and that he frequents his club or attends banquets at night where he indulges rather frequently but never causes a scene. He is prompt at his office in the morning, when he has important interviews with heads of departments, and otherwise directs the business with apparently notable success. Such a man becomes the idol of the younger employes who agree among themselves that all this fuss about the danger of moderate drinking is nonsense.

The teacher is known to be fond of dining out; being a fluent speaker some of his pupils are usually present and make mental note of the wine consumed, the flushed face and sometimes crude remarks when delivering an address or replying to a toast. The subordinate engineer, motorman pilot, chauffeur, etc., observes his superior after duty make his way to a saloon; is perhaps flattered by an invitation to partake, and, well nothing goes wrong with the engineer, or motorman, so thoughts of danger in an occasional indulgence never occurs to them, and they soon fall into the same habits. Thus the harm from environment. Fortunately the people are becoming close observers and more often than formerly the true cause for accidents, crimes, etc., become known. It may be true, as claimed, that the loss of life and property annually which can be traced to

alcoholic optimism is less than formerly, but if so it can be traced to surveillance rather than to moral improvement, machinery or equipment.

As a predisposing cause to accidents through the use of alcoholics Wm. J. Boos, a German physician, declared at the recent International Congress on Hygiene and Demography held in Washington, D. C., that "workmen in his country between the ages of 22 and 44 years addicted to the use of alcoholic beverages, suffered from accidents 3 to 1 as compared with abstainers, or three times more accidents than in all other workmen. And that the days absent from work because of illness resulting from such injuries are four times greater than those incurred by all the other workmen. It had been shown that if the accidents caused through the use of alcoholics could be eliminated, 7 per cent of all of them would be prevented, while a saving to the German Sick Benefit Societies for the year 1897 alone would have been 4,500,000 marks, or \$1,125,000 dollars."

These cases are not the forms of alcoholism signalized by intoxication in the workmen that are the most serious as predisposing to accidents. The types of these drinkers are the week-end drinker and the habitual daily drinker. The former figure prominently in such accidents as

occur on Monday, or in general the day following a holiday, when accidents are far more common than on other days of the week. The Monday accidents result from the paralyzing effect of the Saturday night or Sunday debauch; the hangover which may, generally does, last for twenty-four hours or longer.

The quantities of alcoholics which are consumed daily by the habitual drinker are not sufficient to produce a real intoxication, but does considerably reduce the alertness of the individual. He suffers a loss of acuteness of hearing and of vision, while in fact, all of the mental processes or functions are retarded. In some cases there is color blindness, and this doubtless plays a prominent part in railroad accidents because of a failure of the engineers or drivers ability to distinguish the colors of the signals.

We have known for some time, I quote from an editorial written by myself and published in my journal, *The American Practitioner*, for August, 1912, that employes occupying responsible positions with banks, trust companies, insurance companies, corporations, commercial houses, etc., were required to furnish a bond to their employers, this usually being by a bonding company at a rate corresponding to the financial and other responsibilities of the position. It

is also well known that employes so bonded are under surveillance, not only by the bonding corporation, but the institution employing them. This surveillance includes their habits, both in public and private, as well as associates, male and female. Late suppers in questionable company, theater parties, automobile rides, time, place and conduct when on vacations or week-end trips out of town are all noted by secret agents of the bonding company, as well as of the employers. Any lapse from strict habits of temperance, or conduct in general, late hours, questionable companions, or visits to places of shady morals; saloons, all-nights resorts, etc., brings in exceptional cases a warning, usually, however, a request to be relieved from the bond or the resignation of the employee.

An instance in point recently came to the writer's knowledge. The paying teller of an old established and conservative bank in a large city in the east, who had been employed in the same institution as boy, youth and man for twenty years, well respected by his friends and acquaintances, trusted by his employers grew to be a regular attendant at a city club, of which he was a member; whether because he found a more congenial atmosphere there than at home, we do not know. He was sociably inclined and popular;

indulged in cards, took two or three drinks of whiskey during the evening, had been seen with other members of the club automobile riding, once with his face somewhat flushed, laughing and joking with some women in the car. The next day an agent of the bonding company notified the bank president that his company wished to be released from the bond given the bank for its paying teller's good behavior. The man was asked for his resignation, and thus came to a halt a most exemplary and promising career. This is not an exceptional case. Happily, however, for the family and friends, as is usual in like instances, the public never knew why Mr. B. left the bank.

This editorial is not a preaching; does not reflect the writer's attitude towards men's conduct; nor is it a temperance lecture. The reason for its appearance in a medical journal is its bearing on the attitude of employers to exact safe, sane, skilful service from all those hired to do a special work, and especially those who treat the sick. The bank teller had committed no crime it is true, but was he to be trusted? Is a man when under the exhilarating, or contra, the depressing effect of alcohol as sure of himself; has he the same cool dispassionate judgment, the steady eye, hand, as when perfectly normal? From the bank president's viewpoint, the man who

drinks may in a moment of unusual optimism favor "a friend" by loaning him money, signing his note, endorsing his check; engage with him in a questionable financial scheme; go with one equally optimistic, in an automobile, to a gambling house, or to call upon some fascinating ladies; visit a cafe, drink and be seen by a depositor in the bank.

Now, if this can be said of one whose sole responsibility rests with handling other people's moneys what about the man who has in his care or keeping others lives?

We are all acquainted with good, brilliant men, physicians, surgeons who have had a large practice, but who are not doing so well now. Others in the same line are doing better than formerly. Is it for lack of confidence in the older or increasing respect for the skilful attainments of the younger? This is an age of discernment; we are growing acute, learning more about health matters; are more appreciative of sound bodies, demand the best in all things that promote and conserve the health of ourselves and ours. It will shock those of the old school to be told that they will not be tolerated in sick room with the smell of whiskey on their breath, but the fact remains that strict abstinence from indulgence, if not now universally demanded, is rapidly approaching. He who observes will learn.

I believe that the public as well as the employers should be safeguarded by a thorough examination of all employes, especially railway engineers, electric motor-men, chauffeurs, river and other steamship masters, pilots and engineers, stationary engineers, etc., similar to the examinations for applicants for life, health and accident insurance, and that a definite contract between employer and employes should be entered into. The family history should be carefully gone into, a searching physical examination made, habits carefully enquired into and noted in the contract, and only such individuals given responsible positions as fill the requirements for the position. The contract should grant the employer the right to immediately suspend or discharge an employe pending a trial; if it were found that untrue answers had been given and entered in the contract, or that violations of an approved uniform set of rules which had been subscribed to, then the offender should be disbarred. The Workingmen's Compensation Act set in force in Massachusetts July 1911, and similar laws enacted in other States, notably New Jersey, are unjust as they compel the employer to compensate employes for injuries or losses due to any and all accidents occurring during working hours, no matter whether the accident was due to the care-

lessness of the injured one or another: a drunken employe, one of the hangovers elsewhere referred to, in this instance the drunken employe, as well as the innocent one must receive a benefit. This is obviously an injustice to the employer, and if allowed to remain in force will cause great hardships: compensation for injuries in accidents over which he can, as at present, have no control.

It is a compulsory condition of employment with strict surveillance of the habits of the employe that is needed rather than persuasion or preaching. Corporations, public utilities, etc., should demand strict temperance at all times and total abstinence during working hours, with an inspection or certificate of a clear bill of health on Monday morning and the days following holidays.

Statistics compiled for 1905 by medical directors of Life Insurance Companies show that for each of 106 causes of adult deaths in a population of 86,874,996 in the United States and possessions 85,897 deaths, 5.1 per cent of all ages, or 7.7 per cent of the supposed adult mortality at the age of 20 and upward, could probably be declared as an alcohol mortality. Vast sums are spent annually in trying to keep employes honest. Why not turn our attention to a much more needed reform, that of keeping them sane.

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Editorials.

CHANGE OF PUBLISHERS.

The Quarterly Journal of Inebriety will hereafter be issued by the Therapeutic Publishing Company of 703 Washington Street, Dorchester Dist., Boston, Mass.

Plans for a new and larger journal have been completed. The papers read at the Annual Meeting of the American Society for the Study of Alcohol and Other Narcotics, will be published during the year, together with many important new studies on this subject.

Both the editor and publisher aim to make this journal international, and reach every physician and every society interested in the scientific study of the alcoholic problem.

Address the publisher on all business and subscription matters, at Boston, Mass., and to the Editor, Dr. T. D. Crothers, Hartford, Conn., all exchanges, contributions and literary notes.

WASHINGTON MEETING.

The past year has been of more than usual interest in the progress of the study of alcoholism and inebriety. While there has been no startling new paper published, a large number of confirmatory studies have appeared in a number of journals and have taken a somewhat prominent place, not recognized before. The annual meeting of our Society at Washington will be memorable for the large number of very clearly expressed papers, free from statements that critics would call extravagant.

Sixteen of the authors of 32 papers were present and read their contributions, and those that were sent by persons who could not be there, were read by others, and attracted much attention.

The publication in England of the addresses of fifty different physicians on the alcoholic problem in a separate volume

was very significant. These physicians were asked to deliver addresses on the alcoholic problem, at the annual meeting of the British Medical Association in different halls and churches, during the meeting of this association.

There were no fixed theories to be presented. Each one was left free to state his conclusions, as a medical man, concerning alcohol and its effects. The volume published, giving a record of what they said, indicates a very great revolution in medical circles, concerning alcohol in Great Britain.

The Congress of Hygiene at Washington brought out several good papers along these lines that were very highly applauded. A large number of physicians in this country are very deeply interested in the problems that come from the use of alcohol, but show great timidity in expressing themselves for fear of being allied with political organizations and reformers who are so urgent to utilize all the support they can get from any source.

The great effort of our Society will be during the coming year to concentrate these efforts and make the Journal the special organ for the best studies along this line. A change of publishers and a rearrangement of many of the conditions will enable us to do more than has ever been done before.

SOME DISTINCTIONS.

The use of the terms Inebriety and Alcoholism, as interchangeable, one with another, is not accurate. There are a certain number of persons who are literally alcoholics and poisoned by this particular drug. They have all the marks of poison and should not be called inebriates, dipsomaniacs or any other of the names used to describe the effects of the excessive use of spirits.

The alcoholic is usually the so-called moderate drinker, or one who uses spirits continuously. He is toxæmic and suffering from the direct effects of spirits. The inebriate is one who drinks to great excess, then abstains, and has irregular periods of freedom from all use of spirits. During this interval he may be well to all appearances, and show little or no sign of the effects of alcohol. Then spirits will be taken for the most complex causes, often unknown, that are literally obsessions, neurotic paroxysms, states of pain, fatigue and suffering, that call for relief, and demand this particular kind of drug. When the system is saturated, a degree of exhaustion follows and the neurosis subsides, and the drink paroxysm appears. For the time being, such persons are toxæmic, but the real causes are behind that, often they are nerve spasms, convulsive neuroses, and derangement

of functions, calling for help in certain directions. These are inebriates, and present many different symptoms from that of the alcoholic.

The use of alcohol is only a symptom, which may take on some other form. It will be evident that the treatment should recognize the difference between these two conditions. The alcoholic is very likely to have delirium tremens. The system becomes so profoundly saturated with spirits, that co-ordination and correlation of the senses may be broken up. The inebriate rarely has delirium tremens. He may have alcoholic delirium for a short time, but this soon disappears. He may have paresis, different states of dementia which may merge into a great variety of acute organic diseases. The alcoholic dies of pneumonia, nephritis and tuberculosis. The inebriate may have these diseases but they are uncommon. The alcoholic is a criminal, a pauper, and a general degenerate. The inebriate may develop epilepsy, acute mania, suicide, different forms of insanity from which he will recover in some degree. He will have delusions of persecution and disorder of the senses. He will take drugs of any kind that will quiet him. Many drug takers are inebriates at first, but alcoholics are rarely drug takers.

In the treatment, the inebriate recovers and resumes his former condition very largely. The alcoholic never recovers. The spirits are removed but other lesions appear which defy treatment. The alcoholic of a few years duration has never the same vigor, clearness of perception and ability to control that he had before. Various organic diseases are likely to break out any time.

The heart and stomach suffer most acutely. The inebriate may recover and go on for years, with apparently little degeneration. He may work automatically, and seem to be very much the same as before. Demands for new work along new lines bring out his weakness, but without any particular strains or drains, he may appear to be in normal condition of mind and body.

The prognosis is always in favor of the inebriate. His longevity is greater, and his prospect of recovery is better.

Many years ago Dr. Bucknell of England paid a visit to this country and visited the Inebriate Asylum at Binghamton, New York. He could see nothing in the institution worthy of the slightest commendation. He condemned the principles and the plan and the work, in a most authoritative way. The years rolled around, and his conclusions showed his inability to comprehend a subject, that he of

all others; should have had some idea of as he was an alienist of very acute and broad conceptions.

Recently Dr. Mercier an equally strong man has taken upon himself the task of condemning temperance workers and their conclusions, based on statistics, which on the face of them are not correct.

We are all familiar with the criticisms and condemnations of persons who have little or no knowledge of the subject, except in the most superficial way, but when experts come into the field with assumptions of the last words on the subject, it is a matter of surprise.

PROGRESS IN GERMANY.

Statistics of disease and death bring out with great emphasis the very intimate relation between the use of alcohol, including beers and wines, and disease and mortality. Wherever the largest amount of spirits are consumed, this is traceable, beyond any question. Thus in Munich where beer of a very high quality is drunk to great excess, diseases of the heart are more prevalent.

In circles where the highest kind of efficiency is called for, the retarding influence of beer and spirits is noted. This has led to very exhaustive studies, out of which have grown over a dozen different societies, all having for their central object, to stop the use of spirits as a beverage.

These societies are what is called in this country, temperance and total abstinent organizations, and have grown enormously in the last few years.

The spirit interests have of course opposed them very sharply, but this has only served to bring them into greater prominence. Lodges, associations, orders, church societies and all sorts of organizations are coming into prominence with anti-alcoholic purposes and plans.

The Emperor of Germany has shown his great sympathy for the work, and strongly favors abolishing all use of spirits in the army. In the meantime many of the great universities have contributed startling papers, showing the destructive influence of alcohol, and these have been copied abroad, and have given a tremendous impetus to anti-alcoholic studies.

The interest is growing in every direction, and the great German Empire will very soon be ranked among the most advanced countries of the world, where total abstinence is a reality.

THE THIRD BIENNIAL INTERNATIONAL PROHIBITION CONFEDERATION, of representatives from forty different countries in the world, will meet at Milan, Italy, Sept. 22, 1913, for a conference of the best means and measures to promote the abolition of the alcoholic traffic, and the use

of alcohol as a beverage in the world.

This will be the third meeting of this character, and has already assumed a startling significance in its magnitude and purposes. Every civilized nation in the world is represented. Many of these are the most distinguished scholars, physicians and statesmen, and all have a common purpose to bring about a revolution in the traditions and customs of civilization. Hon. Guy Hayer of England is President, and among the Vice-Presidents are many very distinguished scientists from all over the world.

Prohibition, revolution and evolution in the great questions which surround the alcoholic problem are going to follow in the future with absolute certainty. The doom of the liquor traffic as a beverage is written in unmistakable characters, on the walls of today and tomorrow, and the Milan meeting will give new expression and new force to the new civilization of human growth and progress.

DELUSIONAL STUPIDITY.

Every now and then some prominent physician or professional man will introduce his lectures and remarks on alcohol and temperance, with the statement that he personally is not an abstainer. The inference is that what he shall say on this subject will be conservative, judicial and free from all bias and

extreme opinions. He is really expressing his belief in the old time delusion that the stimulant action of alcohol brought out superior intellectual vision and clearness of expression, and that his use of spirits in supposed great moderation, makes him a much better judge of the subject, than one who abstains. Literally this expression is evidence of profound ignorance of the modern views of alcohol and the teachings of science concerning its effects on the brain.

The assumption that any use of spirits gives him a clearer conception of the subject is contradicted by exact experiments and scientific research. A single glass of spirits shows a measurable depression of the intellectual capacity and ability to reason correctly. It leaves a judgment that is uncertain and changeable. The narcotic effect of spirits even in great moderation, weakens the consciousness of expressions and the meaning of statements.

Hence the assertion that the speaker is a non-abstainer creates a suspicion that what he shall say on the subject will lack soundness and wisdom. If one was to discuss mental weakness and state that he, himself had been feeble minded at times, it is very doubtful if his statements would be received with credit.

It ought to be assumed that every man who ventures before an

audience to instruct them on any important subject should have some claims to superiority in knowledge and fitness. When this knowledge is based on personal experience it is narrow and biased. No use of alcohol ever brings with it knowledge that is clear and accurate, and no moderate drinker can comprehend clearly and without bias the subject he is discussing.

COST OF INEBRIETY.

Dr. Sigg, a physician in Prof. Eraepellin's Clinic at Munich, has made a study of the actual cost of inebriety in 42 cases. These cases were all called alcoholics, and probably this term was used to designate the excessive use of spirits. They are classified according to age, the largest number being from forty to fifty, the next from thirty-one to forty, and then decreasing from sixty to seventy, only one, and none of them were under twenty years of age.

Nineteen were single, fifteen were married, three widowers and five divorced. The physical condition is detailed at some length. The entire 42 were unable to take care of themselves. Thirty-three had been condemned as petty criminals and had been maintained in penal institutions at a cost of over \$5000.00 per year.

The incapacity of the entire number through disease and dependence on their friends, amounted to over \$15,000. The sickness rate

alone was over \$5000. Summing up the actual cost to the state, to the families, from penal and hospital treatment, also home treatment, it was found to be over \$1453 yearly for each person. That was the actual money paid out to take care of these persons. Evidently this sum is far below the cost of inebriates and alcoholics in this country. One authority estimates it at over \$1000.00 a year for an average period of ten years.

In an institution, they could be maintained for about \$100 a year, and to much greater advantage than elsewhere. These figures are very significant.

WHO ARE THE AUTHORITIES.

Who are the authorities that can direct us is the question that is sometimes presented? The answer is simple, students who are studying the alcoholic and inebriate, whose scientific spirit and enthusiasm are never assertive or dogmatic. They state conclusions, as apparent for the present time; conclusions that are likely to change with farther study. The subject is so complex and enters into so many different relations of life, and so little has been done up to the present, that it is impossible to write scientifically of any settled facts that may not change with a wider study.

Why does alcohol act on different persons in different ways?

Why does the obsession for drink come on with little or no exciting causes? Why does the drink craze go on through long periods, slowly or rapidly to fatal results? Why does a great variety of other causes provoke the desire for spirits, and what conditions are inherited from one generation to another, making it more or less susceptible? So on through a list of inquiries that fairly bewilder the senses, none of which have been answered.

Opinions and theories are perfectly simple, but they contribute nothing to the real problem. Expert students of mental diseases and enthusiastic laymen will continue to talk and dogmatize, but the real facts will not be found in such literature.

THE NATIONAL TEMPERANCE QUARTERLY has an exceedingly interesting paper by Dr. Neild on the papers read at the Congress at the Hague in 1911. There were 900 representatives from different countries, and thirty papers were read, only one from an American representative. Germany contributed ten, Holland, seven, Switzerland six and England four. It would appear that many of these papers were followed by discussions which served the purpose of expressing the feelings of the authors, rather than adding much to the subject.

This great Congress, the thirteenth in the history, indicates

new interest in the subject and brings out a great variety of questions yet to be settled.

Another Congress will be held at Milan in Sept., 1913, and it is hoped that the American representatives, who in many respects should know more of the subject than any other nation in the world, will contribute something of this knowledge, and add to the growth of the larger sentiment, that recognizes the danger from alcohol and its influence on the progress of the world.

THE ACTIVE PRINCIPLE OF OPIUM SMOKE.

The smoke of tobacco and opium are topics of great significance and largely unknown. The nicotine of tobacco is of course a very active poison, and there is a great deal of dispute in many circles as to its physiological action and its prevalence in the ordinary use of tobacco. The best observers conclude that it is an exceedingly dangerous product and when concentrated has a very serious action on the cell and tissue.

Cigarette smoking is supposed to be the most dangerous form in which tobacco can be used for the reason that the smoke is absorbed directly by the mucous membrane, and its poisonous products carried at once to all parts of the body.

Recently opium smoking has been investigated and the very curious fact developed that a form

of morphia is found in the smoke that has substantially the same effects and action on the system. The smoker inhales literally morphia, and this with other products has its peculiar physiological action on the organism. Control experiments show that the smoke drawn from burning opium injected into the blood of animals produces pronounced narcotism and death, and the supposition that it is owing to a crude form of morphia is verified.

Some very interesting experiments have recently been made with opium smoking and the probabilities are that considerable new literature will be offered on this side of the opium question.

ALCOHOL AND MENTAL HEALTH.

This is the title of a very suggestive paper by Dr. Wiglesworth; published in the Medical Temperance Review. After an extremely cautious presentation of the question whether a moderate amount of alcohol is injurious, he proceeds with the topic in a more confident tone. It is not clear to him that a small amount of alcohol is always injurious, and yet many of the facts he presents would seem to confirm this.

He declares the deleterious effects of alcohol are clearly evident in its disturbing influence on the higher functional activities. The rapidity of cerebral action following a small dose of spirits is explained as the

weakening of the controlling influence of the co-ordinating centers. This takes off the control of the lower centers, increasing their activity, at the same time diminishing their power, and producing confusional efforts.

The theory of a duplex condition of the nerve centers, negative as regards the higher and positive as regards the lower, is found to explain this. The paralyzing influence of alcohol seems to act as a disturber of the consciousness and conception of the individual. He is unable to appreciate the delicate relations of surroundings. His power of restraint over himself is diminished, and a delusion of increased strength follows. He declares that the action of alcohol is intermittent and transitory at first, but that small quantities taken repeatedly produce changes which soon become permanent and develop into a serious impairment. The very highest developments of the nervous system which have relation to the individual and his adjustment to his environment, are the first to be impaired by the toxic action of alcohol.

First it is intellectual injury. This will show itself in unusual inattention to the ordinary duties of life, as manifested by the failure to keep business appointments, the neglect of social engagements and the like; also a want of interest in, and sympathy for others, where it

would be natural to display itself. As the disorder gains force, and altruistic faculties become steadily more and more impaired, while the egotistic ones assume greater dominance.

The man becomes indifferent to business relations, is less decorous and courteous in his conduct towards ladies and others, than was his custom, and actually consents to associate with low characters whose company he would have shunned before. His interest in his family grows less and he is apparently unconcerned about their wants. After a time his higher faculties are so dull that nothing remains but a craving for self-indulgence which seems to over-power every other impulse. His will-power is not only weakened, but utterly fails to regulate or to recognize the degradation into which he has fallen. During this time, his intellectual faculties may remain about the same. He may do the work common to his every day life but with little impairment and be regarded as sane by his associates and yet in other respects, he is suffering from distinct moral palsies which every indulgence even in small quantities increases. This is

the common road out, and yet many men, supposed to be doing good work and occupying responsible positions are in this condition.

If there is hereditary entailment the degeneration is more profound. Sometimes the mental balance is more deranged and the person is more evidently disturbed, in others it remains about the same.

There are several terminals to this condition, of which mania, melancholia, and paranoiac states, dementia and general paralysis are common. The degeneration in these states are very frequently the nerve cells and fibers. The blood vessels undergo changes. Their elastic power of propelling the blood is diminished. The molecules of the cells are ill-nourished and die and the germ plasm generally is deficient.

The conclusion is clear that the anesthetic property of alcohol diminishes cell nutrition, but increases toxins, which in themselves localize and become sources of danger, the direct action of which are on the highest intellectual faculties first and extending down to all the coarser operations of the brain.

PRIZE ESSAY.

Under the auspices of The American Society for the Study of Alcohol and Other Narcotics. Dr. L. D. Mason of Brooklyn, N. Y., Vice. Pres. of the society offers a prize of \$150.00 for the best essay on the following topic:

"THE BIOLOGICAL AND PHYSIOLOGICAL RELATIONS OF ALCOHOL TO LIFE."

The essay must be the result of original research which shall confirm or disprove the present theories of the inherited effects of alcoholic degenerations and indicate how far the defects of parents are transmitted to the children.

Such work may be carried on in man or animals, and the results may be illustrated by drawings or photographs and must be typewritten and sent to the office of the Secretary before July, 1913.

This offer is open to students in all countries, and each essay should be accompanied by a motto and a sealed envelope containing the same, with the author's name and address.

A committee of award of which Dr. W. S. Hall, Prof. of Physiology in the Northwestern University, Chicago, Ill., is the chairman.

All inquiries should be addressed to Dr. T. D. Crothers, Hartford, Conn., Sec'y.

REVIEWS.

MIND AND VOICE.

Principles and Methods of Vocal Training.

By Dr. S. S. Curry, Pres. Boston School of Expression.

This is one of the new books that opens up a field of very unusual interest. The author shows the nature of voice training, and how far the mind can be made to show its power in this way, and by this medium. The physics of sound and the mental training requisite to bring out the voice modulations are described in such a clear vigorous way, that the reader is immensely impressed.

Dr. Curry has spent half a life time in trying to introduce voice and mind culture along lines of expression that shall be most effective in every department of life. This includes training of the body, the nervous system, the mind and the voice in its highest and best forms, and indicates a possibility beyond all the oratorical efforts of ancient times. This book is a text book of the application of great principles in the correction of innumerable faults which impair the possibility of giving correct expression to the mind by the voice.

He claims that if American nervousness could be concentrated in physical and voice culture, we should have a race of the most highly developed people that have ever

been seen. This book deserves the warmest commendation.

THE PSYCHOLOGY OF INSANITY.

By Bernard Hart, M. D., London, Eng. Lecturer on Psychiatry, London, College Hosp., etc., Cambridge; University Press; New York G. P. Putnam's Sons, 1912

The author is a very practical student and in this little book confines the study to recent developments in abnormal psychology, particularly relating to insanity and the border-line cases. It is evidently a contribution of great value in giving new suggestive outlooks of the derangements that are subjects of much controversy in our modern times.

We hope the author will expand his studies into a larger volume, giving some details, which in this he merely outlines.

The book is one of those little brochures which have a peculiar value to practical men, and students in this field, and we commend it to our readers as particularly instructive and helpful.

A CLINICAL TREATISE ON INEBRIETY.

On the Etiology, symptomology, neuroses, psychoses and treatment, and its Medico-Legal Relations. By T. D. Crothers, M. D., Supt. Walnut Lodge Hospital, Hartford, Conn. Editor of the Journal of Inebriety, etc., etc.

This work issued last year of nearly 400 pages is practically the first clinical study of inebriety and alcoholism as a neurosis and disease. Other works have given different phases of the subject, more or less prominence, but this is the first book in the English language to outline the physiological, psychological and therapeutic aspects of the drink and drug neuroses.

The book is divided into 23 chapters, each one preceded by a synopsis of the subject discussed, and a great variety of clinical histories are presented, illustrating the theories of the various cases.

The book may be called a textbook, which gives an outline of the general facts without going down to the details of treatment and symptoms. The reader will find a most surprising wealth of suggestions as to the possibilities of farther study and practical treatment, and every chapter groups a variety of facts that have never been presented before.

It is literally what one of the critics have asserted, "an epoch making book" in which facts are grouped that will become the starting point for farther and more exhaustive studies.

The author, who is so widely known as a life long student of this subject, has put facts in a very readable way, and the public here has presented a volume of unusual

clearness and taste. Both are to be congratulated in bringing out so valuable a work.

The Journal of Inebriety warmly welcomes this book and its conclusions as the consummation of nearly 40 years work and effort, particularly noted in the pages of the Journal from 1876 to the present time. The Harvey Publishing Co. of Cincinnati, will send copies of this book prepaid for \$3.00 and we may say that there is no book in the language on this subject of greater practical value. H. L. Hawley.

HIMSELF.

Talks with Men Concerning
Themselves.

By E. B. Lowry, M. D., and
R. J. Lambert, M. D.

This is another of the famous books which Dr. E. B. Lowry has written on sex questions, and sex physiology and sex life. No author has written so clearly, and with such exactness on these matters. In this book Dr. Lambert is associated as an author and this volume is probably one of the best that has been written, particularly as a guide and a grouping of exact knowledge, that can be understood at a glance.

Running through all these books, there is a delicate simplicity and exact use of words that leave no obscurity to the reader. The discussion of the various topics is scientific in the sense of containing

a great number of facts that are unknown, and are seldom ever put into popular language.

Such a book should be in the hands of every young man, and of every father who would wish to teach his son what he must learn, in a most imperfect, dangerous, way outside.

The chapter on Medical Fakirs and persons who advertise to treat all the various obscure diseases, is invaluable and will save many a wretched experience.

Other books of this author, which are equally valuable are *Herself*, *False Modesty*, *Confidential Talks*, and *Truths*, all comprising a library of most valuable information.

The publisher has issued a very attractive volume and these books should go into the homes of every family as invaluable.

SEX HYGIENE FOR THE MALE.

and What to say to the Boy. By G. Frank Lydston, M. D., Prof. of Genito-Urinary Diseases in the University of Illinois, etc., Chicago, Riverton Press, 1912.

This is a finely printed book of over three hundred pages, amply illustrated, and is written in a very graphic, pleasing way. There is no question but books of this kind are called for, books that can be put into the hands of boys, and read without morbid impressions,

and studied as a collection of facts of intense practical interest.

The author has presented a very interesting discussion, and while the critic might find fault with some of the divisions of the subject, and the technical way in which they are treated, he cannot but be pleased with the strong presentation of other parts. The book is a valuable one and will do a great deal of good wherever it is read.

We commend it most heartily. The author always writes well and has a very clear conception of the whole range of diseases in this direction as well as spirit and drug neuroses, and this book will convey a message to every reader, that will tell, in the great struggle towards the higher life.

THE POPULAR SCIENCE MONTHLY.

The Popular Science Monthly is a journal which for over half a century has been going out to an increasing number of readers, with scientific articles popularized and put in language that can be easily read and understood by everyone.

The last few issues have a more than usual number of papers that are evolutionary, papers opposed by traditions and prestige, with distinct intimations of a new world of science that is coming.

Medicine, chemistry, hygiene and psychological subjects are all treated

on such a broad plain that the physician feels that it is really one of the most valuable of the journals that will be read and not put aside.

Some of the best medico-philosophic papers have been published in this journal; papers that could not be obtained elsewhere without difficulty. The editor is very happy in his choice of topics and shows a wise discrimination to meet the wants of a class of growing readers.

It is published by the Science Press, Garrison, New York, and edited by Dr. Cattell. A copy should be on the table of every practicing physician.

THE HIBBERT JOURNAL.

The Hibbert Journal, published by Sherman, French & Co., of Boston, Mass., has come into prominence as one of the great quarterlies devoted to philosophy, religion and theology. There is a certain judicial treatment of these subjects that is particularly attrac-

tive to the reader. The authors write on a very broad plane with the spirit of science above special pleading, giving the reader an outline view of the subject, and this to the medical man is most attractive. He is swamped with theories which weary one to discriminate, hence to have a subject discussed without drawing special conclusions, leaving that to the reader, is stimulating. Another feature of this quarterly is the large type and general typographic excellence. Every number contains papers that suggest new views and new ranges of thought put in an artistic, literary style that leaves a good impression. This book comes to our table with a message that appeals to every thinker, and we most heartily commend it to every student who would catch views of the great revolutions and evolutions that are gathering about us.

THE ALCOHOLIC CRIMINAL.

In criminal circles the most important fact for the detective is to know whether the culprit uses spirits to excess, and whether he frequents bad houses at times. These two facts are most important clues. After a successful robbery he is almost certain to visit some fast house and drink and associate with women.

He may take a girl and go off to some far away place, but he is almost sure to boast of his skill and success, after the use of spirits. The girl or woman will find out exactly the crime he has committed. He will confide to her what he has done, with delusional egotism and boast of his success.

If he has large quantities of money with him, the girl will take this and communicate with the

police at once, for her own protection and security. Whenever a man of this kind has committed robbery, detectives get in touch with all the fast houses and fast women in the neighborhood or in other cities, and this clue always reveals the presence of the criminal. It brings out into great prominence the effect of alcohol in producing egotism and credulity, confiding to others what he would not do if not using spirits.

The alcoholic criminal never escapes punishment. His brain is so weakened that he is unable to conceal the facts of his life or to exercise persistent caution and discretion. The action of alcohol destroys this and sooner or later he reveals his condition.

FIXED CONDITIONS IN LIFE.

There are fixed conditions in life with positive results, from which there can be no change or shadow of turning. In chemistry, given a certain volume of water, at a certain temperature, adding certain mineral atoms, and certain results will follow.

Thus one part of hydrogen and two parts of oxygen, under certain conditions, produces water. These absolute laws extend to all phases of life. Thus take a company of children with certain atmospheres and certain physical conditions, and inebriety will follow. Change the conditions a little and crime and pauperism will result.

There is no escape from the action of physical and psychical forces which move with unerring certainty, towards definite ends. Knowing the conditions, inherited traits, and the surroundings, and

alcoholism, inebriety and criminality can be predicted, with the same certainty that the courses of the planet can be marked out.

With this comes the possibility from a larger knowledge, of preventing the operations of these laws by substituting other forces,

moving with equal exactness, towards a different end. Everywhere in the scientific world the doctrine of prevention by the use of intelligent laws and forces is the great new land for evolutionary growth.

STARTLING PHASE OF UNIONISM.

A somewhat startling phase of unionism is evident in the strike of 5,000 railway men of the North-eastern Railway System of England. The cause is given as the conviction and reduction in status of engine driver Knox, who was convicted of drunkenness while off duty. The strike was that of sympathy, in which it was asserted that the company had no right to punish the man who drinks at home, or while not in their employ.

It was in reality a claim of infringement of personal liberty.

The Company assert that if Knox can establish his innocence, and prove that he was not intoxicated he will be reinstated. If not they insist on putting him down, and rating him lower in the ranks of active workers.

In this country a strike of that kind, would discount the union men, and give the railroads additional standing with the public. Engineer Knox would drop out of all business with his company, justly and rightly.

ALCOHOL A PREDISPOSING CAUSE.

Every statistical study of the causes of disease, particularly of the mind and nervous system shows that alcohol occupies a very prominent place. Curiously enough, in

view of this fact, we should expect to have attention drawn to this by the great leaders of preventive medicine in their efforts at reform.

Consumption, the social evil, bad diet, bad ventilation are all detailed with great minuteness and alcohol is only causally mentioned. Public sentiment has not yet advanced to sustain the facts so well known to every physician and permit them to be pushed to the front as active and confusing causes.

In the mortality rates alcohol is very seldom mentioned, yet it is recognized as one of the most active, predisposing causes, but the time is coming when these facts will be recognized clearly and distinctly.

TEMPERANCE ANNUALS.

Two Temperance Annuals of unusual interest have come to our table. One, the Scottish Temperance Annual, printed by the Grand Lodge of the I. O. G. T. This resembles the World's Almanac in the variety and scope of the statistical facts concerning the alcoholic problem which it presents.

The other is the Alliance Temperance Organ, less pretentious but equally valuable in many ways. The subject has reached such prominence that only from handy compendiums like these, can one keep in close touch with the movements of societies.

UNSAFE USE OF MORPHINE AND COCAINE.

Dr. Todd in the Canada Journal of Medicine and Surgery, objects to the use of morphine or cocaine, hyperdermatically in persons who are to be anesthized for operations. The reason given is, that these drugs mask the other symptoms and deceive the anaethiser, also

that a degree of susceptibility varies so widely that the effect of these drugs may be very serious and in many ways complicate the purposes intended. This is a valuable suggestion, and should be recognized in the operating room.

STUDY OF ALCOHOL.

Much of the present activity in the study of alcohol and the diseases which follow from it is due to the quack and pretender, who by his boastful remedies has forced the

subject into recognition, and the trained man is obliged to take up the subject and show the absurdity of some of the claims of the specific curers.

Publisher's Announcement.

On the appearance of the first issue of the Journal of Inebriety under the present management it will be undoubtedly deemed a mark of wisdom to give our subscribers and readers an outline, at least, of what we propose to undertake.

The next issue of the Journal will appear during the latter part of May. After that issue the Journal of Inebriety will drop the form of a Quarterly and become a Bi-Monthly being issued in the months of July, September, November, January, March and May of each year.

We believe that this change will be for the best interests of the subscribers, the advertisers and the publishers.

It affords us peculiar pleasure to also announce that arrangements have been made so that hereafter our pages will present the best of the articles, either entire or in abstract, read before the English and German Societies who are working along the same lines as the Society of which this Journal is the Official Organ.

By this means our readers will have a graphic resume of all that is being done both at home and abroad to stop the ravages of Alcoholism and other drug habits.

May we not have the hearty co-operation of every one who reads these words to assist us in our endeavor to increase the circulation of our periodical so that many more may derive benefit and help from its perusal?