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Theodore L. Mason

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THE PROBLEM OF HEREDITY IN REFERENCE TO INEBRIETY.*

By Thomas Morton, M.D., M.R.C.S.

The problem of heredity, by which I mean the transmission of parental and ancestral characters to each new generation of organic beings, is one of transcendent interest in biology at the present time, not only because it seems to hold the key to a large part of evolution, but on account of its relations to many social, moral, and even political and religious questions.

If I am right in assuming a general belief or impression among temperance men that a tendency to inebriety may be inherited—and I believe few of us doubt it — we cannot be indifferent to the controversy which is raging on the subject of heredity in general. The laws of heredity, whatever they may ultimately prove to be, must necessarily govern the transmission of inebriety, and the facts of inebriety must occupy a place in the body of phenomena, by induction from which those laws will be formulated.

* Read Oct. 4, 1894, before the English Society for the Study of Inebriety at London.

We know that every individual, even the most complex, takes its rise from the division and subdivision of a single cell or its nucleus, constituting the essential part of a bud or a fertilized ovum, in which latter case the nucleus itself results from the union or conjugation of a male and a female pronucleus, derived respectively from each parent. But how is it that this extremely minute particle of matter can convey to the new being, into which it is destined to develop, the precise configuration of the parent form, nay, the very peculiarities, temperaments, and predispositions, not only of an individual, but of a family or breed.

The older and still popular idea was that the reproductive elements were, in a vague way, a sort of quintessential distillation of the parent body; as Buffon puts it, "*un extrait de toutes les parties du corps*"; and, related to this, but elaborated to a high degree, and based in the true scientific spirit on the widest induction from masses of facts relative to reproduction in its various forms, development, reversion, and inheritance, both of ancestral and acquired characters, is Darwin's splendid, but confessedly provisional, hypothesis of "Pangenesis," which, to use his own words, "implies that the whole organization, in the sense of every separate atom or unit, reproduces itself. Hence ovules and pollen grains — the fertilized seed or egg, as well as buds — include and consist of a multitude of germs thrown off from each separate atom of the organization;" or, in another passage, "that all organic units, besides having the power, as is generally admitted, of growing by self-division, throw off free and minute atoms of their contents, that is, gemmules. These multiply and aggregate themselves into buds and the sexual elements, their development depends on their union with other nascent cells or units, and they are capable of transmission in a dormant state to successive generations."

Wholly different in its fundamental conception, and sharply contrasted with this, is Weismann's theory of the "Continuity of the Germ Plasm," so called, which now, it may be said, holds the field, and which teaches that "the

germ cells are not derived at all, as far as their essential and characteristic substance is concerned, from the body of the parent, but directly from the parent germ cell, from which the individual has also arisen ; so that heredity is brought about by the transference from one generation to another of a substance with a definite chemical and, above all, molecular constitution," and, "from this identical starting point an identical product necessarily arises."

Perhaps this further quotation will bring out his meaning rather more clearly, "in each ontogeny, (or generation of a new individual) a part of the specific germ plasm contained in the parent egg cell is not used up in the construction of the body of the offspring, but is reserved unchanged for the formation of the germ cells of the following generation ;" and it is interesting to compare this with the words of Mr. Francis Galton, who, in 1872, anticipated Weismann by saying that "each individual may properly be conceived as consisting of two parts, one of which is latent and only known to us by its effects on his posterity, while the other is patent and constitutes the person manifest to our senses." This idea of the *soma* or body as, so to speak, a sort of appanage of the germ plasm, runs through all Weismann's work, and he even, in metaphor, compares the germ plasm to a creeping underground root stock which throws up leaf shoots at intervals.

It is obvious that, on such a conception as this, the latent qualities of the germ plasm must entirely control and dominate the sensible characters of the body, which expresses them, but can have little or no reciprocal influence on the germ plasm. And accordingly we find that Weismann and his school almost wholly disbelieve in, and take great pains to dispute, the hitherto received idea of the transmissibility of acquired characters, which Darwin himself and most English biologists have assumed to play a considerable, though subordinate, part in the process of evolution.

And, with reference to this question, he draws a distinction, which is certainly valuable and tends to clearness, be-

tween characters acquired or supposed to be acquired in the ordinary sense by the effects of the use or disuse of organs, by habits of life, or the reaction of the organism under the various influences of the environment, and those which are acquired in the course of evolution by spontaneous variations controlled by natural or artificial selection. A moment's thought will satisfy us that these latter are really potentially present in, and depend upon, molecular changes in the germ plasm, before they make their appearance in the *soma* or body, and he proposes to call them *blastogenic*, in contradistinction to the former, which he terms *somatogenic*.

It must be at once evident that an inebriate tendency arising from the intemperance of a parent must fall under the *somatogenic* category, and consequently be disallowed by Weismann and his school, so that if his theories are to be accepted in their entirety we must say good bye to a belief in inebriate inheritance as ordinarily understood.

But are they to be accepted in their entirety? When I spoke just now of the theory of the Continuity of the Germ Plasm as holding the field, I did not, of course, mean to imply that it might now be regarded as established, but merely that it occupies such a position that round it the battle chiefly rages, and upon its proof or disproof the issue of the controversy must mainly turn.

It has the support of great English authorities, among whom I may name Alfred Russell Wallace and Ray Lancaster, but it is of course incompatible with the teaching of Herbert Spencer, who, as is well known, attaches the greatest importance to the influence of the environment, not only on the individual but the race, and it traverses that of Darwin himself, who, in repeated passages, down to a late period of his life, admitted that "a great value must be given to the inherited effects of use and disuse, some also to the modifications in the direct and prolonged action of changed conditions of life." Prof. Vines has, also, published a searching criticism of Weismann's views; and Prof. Turner describes himself as "unable to accept the proposition that *somatogenic*

characters are not transmitted," and adds, "I cannot but think that they form an important factor in the production of hereditary characters." Even Francis Galton who, as I have mentioned, himself anticipated the theory, makes a similar admission ; though he says, "the effects of use and disuse of limbs and those of habit are transmitted to posterity in only a very slight degree."

I cannot help thinking that here is the weak point in Weismann's teaching, and that he will not succeed in making good the absolute seclusion of the germ plasm from all somatic influences, upon which he insists with the warmth of a partisan and with excessive ingenuity. But his teaching is probably in the main true, and at any rate it has to be reckoned with by those who wish to retain that most powerful argument for abstinence which is based upon the assumed transmission of the physical results of intemperance to generations yet unborn.

How, then, do *we* stand who not only wish this but are convinced, from what we have ourselves seen of inebriety, that there is truth in the assumption on which the argument is based.

It seems to me, that the time has come for reconsidering the assumptions on this subject which pass current among us, defining them more carefully, and attempting a positive demonstration of so much of them as can be proved ; and this, not only in the interests of truth, and for our own satisfaction and encouragement in our warfare with drink, but in order to compel the attention of that enormous public, of all grades of intelligence, who will not take the trouble to listen to or understand us, and who more or less consciously justify themselves by regarding us as prejudiced enthusiasts. If what we have believed and taught on this particular subject cannot be maintained in all its fullness we ought to know it, and modify our teaching accordingly ; and if it can the biologists ought to know it, and it is sure of a hearing, as it bears directly upon the vexed question of the transmission of acquired characters.

The object of my paper is not to attempt any such demonstration as I have suggested, but after pointing out, as I have done, the importance of its being given at the present juncture in the course of scientific thought and of temperance advocacy, to indicate the chief difficulties which beset the task, and the lines upon which I think it should be attempted.

1. In existing statistics on the subject it does not seem to be sufficiently recognized that it is one thing to establish the fact that the children of intemperate parents are apt to be afflicted with degeneracy and various neuroses, and another to prove that they inherit a special proneness to inebriety. The class of observations available for the latter purpose is much narrower and more difficult to verify than for the former. Both are available for temperance advocacy, but the latter is what the scientific world wants and will listen to.

2. It is not sufficient to show that a large number of degenerates and inebriates have intemperate parents, or, conversely, that intemperate parents produce a large number of degenerates and inebriates, without knowing, as a standard of comparison, what proportion of the general public have intemperate parents, or, conversely, what proportion of degenerates or inebriates average parents produce. The late Prof. Demme, of Stuttgart, evidently recognized this, and based upon it some excellent work in the comparison of the direct descendants of ten families of drunkards, and ten with temperate parents. The results were very striking as to degeneracy, but less so as to inebriety.

3. It must be remembered that mere degeneracy or insane neurosis involving defective control, not necessarily depending on alcoholic abuse in the parents may show itself in the form of alcoholic excess if circumstances favor that particular form of excess instead of some other. Many typical inebriates have an insane parentage, and such cases go to prove inebriety to be a neurosis, but do not prove the transmissibility of an acquired taste for alcohol.

4. It seems to have been taken for granted that, when the link of parentage exists between two inebriates, the link of heredity may safely be assumed; but we know well that drinking habits will of themselves establish a condition of inebriety in a person of sober parentage, and the children of drunkards are more likely than others to acquire an inebriate constitution in this way, from early familiarity with alcohol. This is an objection peculiarly difficult to meet, even in those strong cases where two or three brothers or sisters are similarly affected; as the only cases which would afford a standard of comparison would be those of the children of temperate parents brought up by intemperate relatives. A somewhat similar objection might be urged as regards degeneracy. The mortality among the children of drunkards is known to be enormous, from the poverty, disorder, and misery in which they are commonly brought up, and many of those who survive may naturally be expected to be puny and feeble in body and mind, independently of any congenital defects they may bring into the world with them.

So much for the objections which, I conceive, fairly lie against assuming as a matter of course that acquired inebriety may be transmitted to descendants. I think that if they are to be fairly met it will be necessary to sift and rearrange the data which we already possess, with constant reference both to some such standards of comparison as I have suggested, and to the distinction between general degeneracy and the special inebriate condition. And they should be supplemented by further observations upon Demme's excellent plan. After all, the proof of such a proposition must necessarily be of a cumulative kind, and rest upon the convergence of several lines of argument, neither of which is absolutely conclusive in itself. And there is one special set of cases which afford perhaps the strongest argument of any. I mean those of remarkably precocious inebriety, if, as I believe, they are never met with except in the families of intemperate persons. Observations on this point are much needed and would be of great value.

Let us now, quitting fact for theory, turn again to the biological aspect of the question, and, admitting almost completely Weismann's contention that the characters impressed on the germ are, so to speak, antecedent to and independent of those which its bearer's life history may impress on his or her *soma*, and that there does not exist any mechanism by which these latter can be impressed upon or registered in the germ, let us enquire whether there does not nevertheless exist a mode in which the bearer's drinking habits may, and indeed must, affect it or the being into which it is destined to develop. "The blood is the life," and even the exclusive and independent germ plasm must share in the life of its bearer so far as to be nourished and kept alive by the same blood stream. And if this blood stream is constantly poisoned at its source by a large infusion of a soluble substance inimical to healthy cell life, and especially to that which is youngest and that which is most complex, should we not confidently expect the tremendous but exquisitely delicate potentialities of the germ cell to suffer some disorder? And, if this be admitted of the quiescent unimpregnated germ, which has simply to maintain and multiply its life like some unicellular organism, what shall we say of the impregnated germ, which has entered upon its career of development, and is drawing to itself large and hourly increasing supplies of nourishment, for many months, out of the maternal blood, which *ex hypothesi* contains alcohol in pathological percentage.

Do we not have here an ample and abundant explanation of the greater potency of inheritance through the mother, which seems to be acknowledged by all observers of alcoholic degeneracy, and which ought to be kept clearly in view in the future collection of statistics?

And we may even go further, and see with the mind's eye the genesis, not only of degeneracy, but of inebriety. We know that one of the characteristic properties of alcohol is to establish a tolerance of itself in tissues where its presence was at first resented as a disturber, and before long to

become apparently so indispensable to their smooth working that its temporary absence is felt to be intolerable. Where alcohol is a constant constituent of the nutritive fluid, it is easily conceivable that the nine months of intra-uterine life may suffice to establish in the tissues of the embryo such a tolerance of alcohol, or intolerance of its absence, as may be readily revived again from time to time during childhood, by the taking of alcohol, and finally re-established in later life. The tissues seem to have a sort of memory of their own, in virtue of which they, as it were, recognize and respond to familiar stimuli when again brought into their presence after an interval.

Mr. President, I am painfully conscious that I occupy to-day the unpopular position of *advocatus diaboli*. But, as the result of that functionary's labors is usually to establish more firmly and indisputably the sanctity of the person whose claims to canonization he opposes, so I trust that my criticisms will lead in the end to the clearing up of all doubt and confusion on the subject of hereditary inebriety, and to the placing of it beyond all cavil or question.

DISCUSSION.

The president, Dr. Kerr, after expressing his high opinion of the philosophical and scientific merits of the paper, and concurring in the suggestion of a re-arrangement of all the facts that could be collected as to cases illustrating transmission of inebriety, submitted that Weismann's theory of the non-transmissibility of acquired characters was untenable from even the comparatively few facts as yet ascertained. It was extremely improbable that the germ plasm could remain through generations uninfluenced and unmodified by the human envelopes in which it was for a time encased. The theory was merely a hypothesis, but he was afraid it was incapable of disproof as it was of proof. The conditions of both appeared to him impossible. They could not experiment in breeding with human animals. He had seen cases of abnormal family trees which he thought

negatived Weismann's proposed law. The Jukes genealogy in America and the Phultain in Britain were illustrations. The great desideratum appeared to the president to be the accumulation of facts. Probably to our successors must belong the deduction of general laws from a sufficiently wide induction of facts.

Dr. H. Rayner complimented Dr. Morton on his paper, which aimed at getting a clear scientific basis for our views on inebriety in a scientific manner.

Dr. Rayner agreed with the president in antagonism to Weismann's theory, and in considering it incapable of proof, but held that disproof was possible.

Recent microscopical investigations had by means of chemical reagents shown distinct changes in nerve structures as minute as those of the germ cells, in persons dying under the influence of alcohol, and an extension of the observations to the germinal cells would probably give similar results. Should this be the case, Weismann's theory would appear to be untenable.

Dr. A. M. Holmes, Denver, Colorado: —

Mr. President, Ladies and Gentlemen:

It is a rare pleasure to be present with you to-day, and hear the valuable paper that has been read. I would much prefer not to enter into the discussion of this difficult subject, since my opinions on many of these points are very imperfectly formed. I may say, however, that for some time past I have been much interested in the problems of heredity, and believe that so long as there are honest differences of opinion among students of biology, just so long should those who are interested in the mention of these problems avail themselves of every opportunity to study them. If the suggestions that have been so ably presented in the paper to-day are adopted, they will hasten the day when many of these problems will be less complicated.

In *The Contemporary Review* for October, in an able article entitled "Weismannism Once More," Mr. Herbert Spencer reviews the discussion between himself as maintain-

ing that acquired characters are inherited, and Professor Weismann, who believes in the "All-sufficiency of Natural Selection," and repeats the statement which he has often made before, that "the question whether acquired characters are inherited is the most important question before the scientific world."

Those who oppose the theory of the "transmission of acquired characters," agree with those who favor it, that there are certain characters that are transmitted, but that these are potentially present in the germ plasm — stable qualities or so-called "fixed characters" of the plasm.

Those who accept the theory of evolution must grant that at some remote period the so-called "fixed characters" were acquired. Consequently I am unable to reconcile a belief in the theory of evolution with disbelief in the theory of the "transmission of acquired characters."

Can there be any other alternative than that these "fixed characters" either always existed, or that they have been acquired?

If they have always existed in what Professor Weismann terms the "Continuity of the Germ Plasm," what function, then, shall we ascribe to evolution?

Or if they have been the result of the slow process of development — the effect of use, the influence of well-selected environment, together with natural selection — then we must not discard the theory of the "transmission of acquired characters" altogether.

After a rather careful observation of the phenomena of life, I am very frank to acknowledge that unless I accept the theory of the "transmission of acquired characters," I am unable to account for the marked resemblance between certain characters which are often observed in parents and their offspring, which, to all appearances, have been acquired by the one and certainly are possessed by the other.

When we adopt a more systematic method of collecting accurate data concerning the influence of heredity, I have little doubt that its anatomical, physiological, psychological,

as well as its pathological aspect will be much more readily traced from parent to offspring.

Mr. President, I should like to state before closing — if you will indulge me a moment longer — that I have been greatly pleased to note the magnitude of the work that your society is accomplishing, especially its efforts in tracing the hereditary effects resulting from the habitual use of alcohol.

One of the most genuine pleasures that I have experienced since I have been in your city, has come from reading the very excellent work on "Inebriety" by your distinguished President. His effort in tracing the influences of heredity into the realms of pathology, is destined to change many of the opinions formerly held concerning the liquor question, and the dreaded disease — Inebriety.

Mr. President, allow me to thank you for the courtesies of this society.

Mr. President: — You are aware that for the last thirty years I have been connected with an establishment for the cure of inebriety, and am therefore in a position to speak upon the hereditary taint to which the majority of these cases owe their origin. But I will give you four particular cases, each of which is marked with its own peculiarities.

The first case came under my notice some twenty-five years ago. A lady, the wife of a professional man in London, was placed under treatment, remained a full year, and returned home cured. For twelve years she did not touch stimulants; but, at the end of that time, being ill, she was ordered to the seaside, a medical man there being in attendance on her. Not being aware of the previous history of the case, he ordered her stimulants, and in a few months time the drinking mania was again developed, and she was, for the second time, placed under treatment. Her friends, however, would not allow her to remain for more than two months, and therefore, when she returned home, she relapsed and died.

The next case brought under my notice is a peculiar one; for the whole of the female branch of the family, with one

exception, had the taint of inebriety well marked, but the male portion entirely escaped. The family consisted of five daughters and three sons. Two of the daughters died from the results of their habits, the third's brain has partly given way, and the fourth was placed under treatment twelve years ago, and was perfectly cured. But she has informed me recently that she has never entirely lost the desire for stimulants, and if a strange medical man is called in and orders her wine, she always tells him of her hereditary tendency, and, in that way, protects herself from the disastrous consequences which would result from her carrying out his instructions.

The third case is that of a lady who informed me that when she and her brother, the two eldest children, were born, the father was very fond of taking large quantities of stimulants. But after that he became a total abstainer, and five other children were born. The two eldest, that is, she and her brother, were confirmed inebriates all their lives, while the five younger ones were all total abstainers.

The fourth case is that of two children of a confirmed-inebriate mother, a boy and a girl. Their father was obliged to separate himself from his wife on account of her habits, and the two children were brought up total abstainers, and the daughter remained so up to the time of her marriage, when her husband, who was a merchant, wished her to take wine. After she had been taking it about two years, she became a confirmed inebriate like her mother, and was placed under treatment. The brother informed me that he was always careful himself not to take stimulants, fearing that it might lead to the same disastrous results as in the case of his sister.

I think, Mr. President, these four cases, selected from hundreds of well-marked cases of hereditary inebriety which have been brought under my notice, go to prove that there is a strong hereditary tendency in the majority of cases placed under treatment; and it also shows, that, where the hereditary tendency does exist, it does not die out. It may

remain dormant, as I have shown in three of the cases quoted, but it can be brought again into activity by the taking of stimulants. Therefore, the only safety is for the patients to acknowledge that they have this hereditary tendency, and never touch stimulants for the remainder of their lives.

Dr. Murray looked upon the eagerness with which infants and little children looked for liquor from their mothers when in public houses, as a proof of heredity.

Mr. Raper had been considerably comforted by the fact stated by the President and supported by other medical men, that sometimes children of drunken parents, shocked at the example set them at home, become resolute abstainers, as he had been formerly discouraged by the fear that alcoholic heredity would be too strong to be overcome by many of the young.

Dr. Morton, in reply, on the general question of Weismannism, pointed out how difficult it is to prove that any transmitted character has had its origin in habit or reaction to environment, and not in so-called spontaneous variation consequent on the continual blending of different stocks in sexual generation. It had been said that Weismannism was incapable of demonstration, but the same might have been said of Darwinism.

As to inherited inebriety, all the cases cited confirmed him in the conviction that the evidence, though ample, required re-arrangement. It was true that drunkards' children were often strict abstainers. Such cases might be cited against inebriate inheritance, but they proved nothing, as such persons might be incapable of moderation in drink. They were, however, a great encouragement against pessimism on this subject.

ON THE VALUE OF REPEATEDLY WASHING OUT THE STOMACH AT SHORT INTERVALS IN CASES OF OPIUM OR MORPHINE POISONING.

By Prof. L. P. Hamburger,

Pharmacological Laboratory of John Hopkins University.

Among the many researches that have been made on the physiological, therapeutical, and toxicological properties of morphine since its isolation by Sertürner in 1817, those of Marmé,* Leineweber,† Alt,‡ and Tauber,§ demonstrating its elimination by the gastric mucous membrane, take a leading place. The medical profession in general does not seem, however, to be familiar with the practical applications that may be made of this discovery, and it is worth while to record the following case of opium-poisoning in which a chemical examination was made of the urine and of successive stomach washings, especially since the results agree with those found by the above-mentioned investigators in their experiments on animals.

On the evening of May 2, 1894, 660 cc. of a sherry-red fluid was sent from the hospital to the pharmacological laboratory, the liquid being part of the washings of the stomach of a Chinaman, Lee Hee, who had attempted suicide.

A report was requested as to the kind of poison that had been taken. The fluid was clear, with a few bits of orange pulp floating in it, and it smelled faintly of crude opium; it was filtered and gave the characteristic meconic acid reaction,

* Untersuchungen zur acuten u. chronischen Morphinvergiftung. Deutsche Med. Wochneschr., 1883, nr. 14.

† Ueber Elimination subcutan applicirter Arzneimittel durch die Magenschleimhaut. Inaug. Dissert., Göttingen, 1883.

‡ Untersuchungen über die Ausscheidung des subcutan injicirten Morphins durch den Magen. Berl. Klin. Wochenschr., 1889, nr. 25.

§ Arch. f. exp. Path. u. Pharmakol., Bd. 27, S. 336.

namely, the red color with ferric chloride or ferrous sulphate which persisted on the addition of hydrochloric acid and also when boiled. A second portion of the filtered fluid was made alkaline with sodium hydrate, shaken up with ether, the ether removed and evaporated, the yellowish-white residue from the ether dissolved in a little acidulated water and this solution examined for alkaloids. It responded perfectly to the following reagents: platinic choloride, iodine in potassium iodide solution, sodium molybdate sulphuric acid (Fröhde), potassium-bismuth iodide and potassium-mercuric iodide. The presence of meconic acid and of alkaloids being demonstrated, it became evident that we were dealing with poisoning by opium.

Lee Hee is supposed to have taken the opium at about 10 A. M., and the quantity taken we estimated to be at least ten grams, judging from the amount that still remained in the little jar which was known to have been full when the suicide was attempted.

About half-past five Lee Hee was brought into one of Prof. Osler's wards in a comatose condition, and it was evident from the state of his respiration and circulation that he was not likely to recover. At this time the stomach was first washed out and the process was repeated until the physicians in charge had reason to think that there was no longer any opium in the stomach. A second lavage was made at 8 P. M. and a third at half-past eleven, a quarter of an hour before death. The fluid secured in these last two washings was colorless, and from this fact it may be concluded that all the crude opium had been removed by the first washing, though unfortunately this conclusion could not receive positive proof, since the last portion of the first washing was not kept separate from the rest and chemically examined. All three washings were examined for opium and morphine and the results, which will presently be given, at least demonstrate the practical value of repeated stomach washings, even after all ordinary signs of opium, such as color and odor, are no longer found.

At 6 P. M., 75 cc. of urine was removed by the catheter and submitted to a chemical examination by Landsberg's method for the detection of morphine in the urine.* The residue finally obtained was a mixture of urea and morphine. No difficulty was experienced in identifying the former; it appeared in the characteristic four-sided prisms with pyramidal ends. In addition to these crystals of urea there were seen numerous very small rhombic prisms. Whether the latter were certainly crystals of morphine was not determined; nevertheless, the chemical tests demonstrated the presence of morphine in considerable amount. This difficulty in separating morphine from urea is not peculiar to this case,† but is due to the fact that both behave toward solvents in much the same way. Control tests showed that urea does not interfere with the following morphine reactions. A minute quantity of the residue dissolved in water and treated on a porcelain dish with a drop of ammonium molybdate, gave a yellow precipitate, and the addition of a drop or two of concentrated sulphuric acid caused that beautiful play of colors, violet, blue, and green, which solution of morphine give under the same conditions (Fröhde). A fragment of iodic acid added to the diluted residue was reduced and the free iodine recognized by shaking with chloroform. In this way the presence of morphine in the urine was demonstrated. In the present case, therefore, there was no difficulty in proving the elimination of at least a part of the ingested alkaloid through the urine. Yet there is probably no point in the physiological history of morphine which has given rise to more controversy than its presence or absence in this excretion. The controversy involves not only the immediate experimental result but the more general problem of the fate of morphine in the body. Thus, some observers, after demonstrating that the alkaloid was present in the urine, claimed that it passed through the body unchanged; others, failing to find it, argued that it suffered a destructive oxidation and could not be demonstrated

* Pflüger's Archiv, Bd. 23. S. 425 (1880).

† Neubauer u. Vogel, Analyse des Harns, Th. 1, S. 359.

as morphine in the urine. But it is now generally admitted that after large doses of the alkaloid a small quantity appears in the urine.

It is in the stomach, however, that the elimination of morphine proceeds most actively. The practical importance of this gastric excretion will be evident upon considering the results of the stomach washings in the present case.

Of these there were three, as already mentioned. The first was the sherry-red fluid, giving meconic acid reactions, and upon treatment by the method of Stas, alkaloidal reactions. This fluid was treated like the urine and a similar brown residue was obtained. This residue was dissolved in water, acidulated with hydrochloric acid and again evaporated. During this evaporation a white precipitate separated out, which upon examination was found to be calcium phosphate, one of the inorganic constituents of opium. Having removed this salt, the residue was dissolved in warm absolute alcohol and allowed to evaporate spontaneously. Morphine crystals of a definite type were not obtained, but the solution gave beautiful morphine reactions, reducing iodic acid, responding to Fröhde's reagent, and giving a pink color with sulphuric and nitric acids (Husemann).

As already stated, it was believed that all the opium was removed during the first washing, and the fact that the second washing came out colorless seems to confirm this view. Nevertheless, the latter liquid gave fine alkaloidal reactions, but did not respond to the tests for meconic acid. In other words, at the first washing the ingested but unabsorbed opium was removed; between this first lavage and the second the alkaloids had accumulated again. How? It could only have been through an excretion by the gastric mucous membrane. Nor did the elimination of the poison stop at this period; for the third washing, made several hours later, colorless also, still gave good reactions.

The meaning of these results must be clear. They point to the excretion of the alkaloids of opium by the mucous membrane of the stomach and suggest a practical application

of this fact. If, as has been shown, these alkaloids, and morphine in particular, are excreted into the stomach, then washing this viscus repeatedly and at very short intervals to remove the alkaloids as fast as they are eliminated, must certainly be a life-saving process, whether the poison has been taken by mouth or hypodermically. Poisoning by the latter method has not, as far as can be ascertained, been treated in this manner, in spite of Alt's demonstration of the presence of morphine in the stomach washings of men who had received 3 cg. of the hydrochlorate subcutaneously. The quantity of the alkaloid capable of being removed by repeated washings has been estimated at almost one-half. Tauber also recovered 41.3 per cent. from the fæces of dogs to whom morphine was administered subcutaneously but where the stomach had not been washed out. Alt has ascertained that for dogs, doses of more than 10–12 cg. morphine pro kilo may be considered lethal; 17 cg. pro kilo almost invariably caused death. On the other hand, if, immediately after the injection, the stomach was washed and the lavage continued for forty-five minutes, then 10–12 cg. pro kilo never produced serious symptoms, and indeed with 17 cg. and even 20 cg. pro kilo the symptoms of poisoning were not so severe as when 12 cg. were administered without repeated washing. Two dogs were saved after the injection of so large a quantity as 24 cg. pro kilo. This evidence goes to prove that the excreted morphine is reabsorbed and that it still has toxic properties; and may not the frequent relapses following apparent recoveries from overdoses of morphine* also furnish proof of such reabsorption? By a continuous lavage the exchange that goes on between the gastro-intestinal mucous membrane and the general system would be interrupted, and in proportion as the alkaloids excreted by the mucous membrane are removed the effects of their reabsorption would be avoided. Conformably to the results of Alt's experiments,

*See, for example, Souchon: "On relapses following recoveries from overdoses of injections of morphine," N. Orl. M. & S J., XIV, pp. 437–39, 1886–87; Taylor: "Lancet," Vol. 1, p. 937 (1884).

the lavage should be repeated at short intervals, and the sooner this can be done after the opium or morphine has been taken the better. In the case cited in this paper no successful outcome could be anticipated, because too long a time elapsed between the taking of the opium and the beginning of the treatment.

In connection with this subject it may be well to repeat Kobert's† suggestion, that a chemical examination of the faeces should be made in cases where the morphine habit is suspected but is denied by the patient and where for various reasons it is difficult to secure conclusive evidence of the fact in other ways.

THIS incident is sent to us by a railroad surgeon and vouched for as correct. An engineer who had been on the road twenty years was laid up with influenza two years ago, and since then has drank spirits to excess at intervals, especially at night. The superintendent paid no attention to this and permitted him to go on his usual daily runs. One day he came in to the end of his route very much intoxicated, ran up to the yard, and left his engine in the proper place, then staggered back towards the depot muttering. The train he brought in went on, when suddenly he sprang on a waiting engine and started down the road after the train. The yardmaster conceived this to be a drunken freak, and wired to turn the switch off from the main line at a distant station. This was done just in time to avert dashing into the rear of the passenger train. The engine was ditched and the engineer escaped unhurt and was taken to an asylum with acute mania, where he is still confined. A very serious accident was narrowly averted and the stupidity of permitting an inebriate engineer to run a train was literally criminality of the most flagrant type.

† Lehrbuch der Intoxikationen, p. 561.

TOBACCO INEBRIETY, AND ITS EFFECTS ON THE HEART.*

By James K. Crook, A.M., M.D.,

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As far as we can learn the use of tobacco was adopted by the Spaniards from the North American Indians early in the sixteenth century. In the year 1560, it was introduced into France by the Ambassador of that country at the Portuguese court, Jean Nicot, whose surname is perpetuated in the generic title of the plant. It is believed that Sir Walter Raleigh, who learned the qualities of tobacco from the Virginia Indians, introduced smoking into England. The alluring weed met with a warm response in the affections of male humanity, and it soon became one of the ruling passions. In the various habits of chewing, smoking, and snuffing it is now largely consumed in every country on the globe. In return for this somewhat dubious blessing European civilization taught the noble red man the potent virtues of firewater — not an uneven exchange. The limitation of the habit to males is, no doubt, to a large extent, due to the difficulty which the fair sex find in overcoming the first repugnance to its odor and taste, and probably also to a natural higher moral status. That tobacco, in some cases, produces a deleterious impression on the human economy has been recognized by medical men of all ages since it came into use. There can be no doubt that these bad effects have become greatly augmented by the recent enormous increase in the cigarette habit. On consulting medical literature, however, we are struck by the paucity of contributions of real value on the subject, most that has been written being from the pens of moralists and clergymen, or medical men with some theory to advance or defend. Among the notable exceptions to this rule may be

* Read before the Clinical Society, March 17, 1894.

mentioned the classical Fiske Prize Fund essay of 1885 by Dr. Hobart A. Hare, which practically exhausted the subject of tobacco in many of its aspects up to that date. Almost all the text-books and systems of medicine refer to the injurious consequences of the excessive use of tobacco, but usually in the most general terms, and leave the reader with but little practical knowledge regarding these effects. Let us pause for a moment and consider the chemical nature of tobacco. The following analysis by Possett and Reinmann, although somewhat antiquated, is with certain modifications about the most trustworthy extant at the present day.

Nicotine (in 100 parts),	0.060
Volatile oil,	0.010
Bitter extractive matter,	2.870
Gum and malate of lime,	1.740
Chlorophyl,	0.267
Albumen and gluten,	1.308
Malic acid,	0.510
Salts of potassium, calcium, and ammonium,	0.754
Silica,	0.088
Water,	88.280

It will be seen that the acrid, volatile principle, called nicotianine, subsequently supposed to have been discovered, has no place in this analysis. This substance has long since been proved to have no existence as a separate entity, although the mistake of enumerating it among the chemical ingredients of tobacco has been perpetuated in the last (1894) edition of the National Dispensatory. The proportion of nicotine in the analysis (less than one-sixteenth of one per cent.) is undoubtedly too small, as subsequent investigators have ascertained it to be present in proportions varying from two per cent. in Havana tobacco to more than eight per cent. in French tobacco. In an analysis of tobacco smoke in 1871, Vohl and Eulenberg found pyridine, lutidine, collidine, picoline, and other bases of the same series, besides ammonia and traces of ethylamine. In passing the vapor through potassa solution, hydrocyanic, hydrosulphuric, acetic, butyric, valerianic, carbolic, and probably other acids were retained. These chemists found no nicotine in smoke, but all subsequent observers state that it is invariably present in greater or less quantities. Dr. Krause, of Annaberg, besides nicotine,

sulphuretted hydrogen and cyanogen, found a considerable proportion of carbon dioxide, and he believes that much of the poisonous effects in young smokers is due to this gas. From twelve experiments made by Dr. Krause, it appears that the quantity of carbon dioxide varies from 5.2 to 13.8 per cent. in the smoke, the average being 9.3. These investigations of Krause have been subsequently fully verified by the chemical experiments of Dr. W. L. Dudley, of the Vanderbilt University. As the consumer of the weed never gives out all the smoke he takes in, it follows that a certain amount of carbonic oxide poison is inevitable. Most authorities, however, agree that the alkaloid nicotine represents the chief poisonous ingredient of tobacco smoke, and it is to that substance we must look when dealing with this subject. This principle, discovered by Vauquelin, but first isolated by Posselt and Reinmann about 1828, is a colorless, or nearly colorless, fluid, having a specific gravity of 1.048. It has an exceedingly acrid, burning taste, even when much diluted; is very volatile, inflammable, and possesses an odor recalling that of tobacco. It is strongly alkaline in reaction, and is capable of forming crystallizable salts with acids. In sufficient doses nicotine is an intense depressant poison, and is said to stand second only to prussic acid in the rapidity of its fatal effects. One-fifteenth of a grain by weight has caused death in a human being, and one thirty-second of a grain is fatal to cats and dogs. In a case mentioned by Taylor, in which an unknown quantity of nicotine was taken with suicidal intent, the victim dropped instantly to the floor insensible gave a deep sigh, and was dead in about three minutes. The symptoms produced by small doses of nicotine represent fairly well those of the plant generally. Few tobacco habitués will forget the horrible nausea, giddiness, vomiting, and feeling of general wretchedness which characterized the inaugural chew or smoke. These effects may be reproduced at any time by the exhibition of nicotine in sufficient quantities. If the amount taken be large, to these symptoms are added burning pain in the stomach, purging, free urina-

tion, extreme giddiness, passing into delirium, a rapid, feeble, and finally imperceptible pulse. Cramps in the limbs, absolute loss of muscular strength, a cold, clammy skin, and finally complete collapse, terminating in death. Basing his calculations on the amount of tobacco produced in the United States, and the amounts exported and imported, Hare estimates that each consumer of the weed in this country uses, on an average, 505 grains of tobacco daily. Taking four per cent. as the average proportion of nicotine, we find that the ordinary smoker is daily exposed to rather more than twenty grains of one of the deadliest poisons known to science. To be sure, only a small percentage of this poison finds its way into the patient's system. As nicotine is very volatile, some of it is lost by heat in smoking, some is caught by the fibres of the pipe (in pipe smoking), while a great part is lost in the smoke and by expectoration. That a certain quantity of nicotine does enter the circulation, both in chewing and smoking, is readily shown by its speedy and marked effects in those not habituated to the use of tobacco.

Having thus ascertained that this plant contains a virulent poison in large quantities, and its vapor at least one additional, highly noxious agent in carbonic oxide, the question arises, Does the daily introduction of these agents into the human system give rise to injurious effects, and what are these effects? It is well known that the race from which we acquired the use of tobacco was composed of hardy and active men, and even the most zealous anti-tobacco writer has been unable to show that European races have degenerated either in physical or intellectual vigor since the advent of the habit. The experiments of Dr. William A. Hammond,* upon his own person, almost forty years ago, showed that in moderate quantities to a healthy adult, tobacco produces no appreciable injurious consequences, but, on the contrary, that it seems to possess certain sustaining properties, and enables one better to withstand a deprivation of the normal food supply. Further than this, we see daily, on every hand, men

* Am. Jour. Med. Sci., 1850.

who have sufferred no apparent physical deterioration after years of constant smoking or chewing. The fact, however, that these habits are in many cases productive of harm to the human system has been recognized by medical men almost from the date of their introduction. The sentiment against tobacco has been so strong as to lead to restrictive legislation in many countries, and even to-day in France, Germany, and many parts of the United States, its sale is forbidden to minors. Among the numerous diseases, disorders, and conditions for which the use of the plant has been held responsible, we may mention general debility, stunting of physical development, color-blindness, amblyopia, amaurosis, ophthalmia, indigestion, cardiac diseases, catarrh of the nasal passages, cancer of the lips and tongue, premature gray hairs, baldness, nervous irritability, blunting of the moral sense, mental aberrations, and even insanity. It is said, also, to promote sexual decline, and as early as 1622 the Sultan Monarch prohibited its sale in his dominions on account of its anaphrodysiac effects. Furthermore, the use of tobacco is said to produce a dryness of the mouth which water alone fails to quench, the partially paralyzed nerve terminals of the buccal mucous membrane and tongue requiring something more stimulating. It thus originates or increases the desire for alcoholic indulgence. "Show me a drunkard who does not use tobacco and I will show you a white blackbird," said Horace Greeley. The scope of the present paper does not comprehend a discussion of these various conditions, but simply of the influence of the tobacco habit upon the heart, with particular reference to its pathological relations. The physiological action of nicotine upon the circulatory apparatus has been studied by a number of competent observers (Brodie, Traube, Tugenbald, Rosenthal, Benham, Hare, and others), but the exact rationale of its influence is not yet fully understood. Upon the myocardium the poison appears to possess but little influence. Immediately after death from the alkaloid the heart is found pulsating, and according to the experiments of Dr. W. P. Benham the poison painted on the cut out heart of a rabbit, or injected into its cavities do not

arrest its movements, but, on the contrary, a heart which has ceased movement is stimulated to renewed action by the application of the drug. These researches of Benham confirm the somewhat older investigations of Brodie, *viz.*, that tobacco acts on the heart through its nervous system. Primarily, nicotine lessens the pulse rate, but how it does this is still unsettled. The later increase in the pulse rate appears to be due to paralysis of the peripheral inhibitory apparatus. The exact cause of the rise and fall of arterial pressure is likewise not satisfactorily accounted for. In the present state of our knowledge concerning the effects of tobacco upon the circulation, we are, therefore, forced to take refuge behind the still undetermined vaso-motor influence of the drug. Now we come to a consideration of the symptoms and signs which indicate the pathological influence of tobacco on the circulation. What is the so-called "tobacco heart"? An exact answer to this question is not to be found in medical literature, nor does the author believe it to admit of a categorical reply, unless we say it is a form of heart trouble due to the effects of tobacco. According to the author's experience there is no complex of symptoms which typify the effects of tobacco. We find in tobacco habitués all grades and conditions of nervous, painful, or oppressed cardiac action depending upon the age of the patient, the amount of tobacco consumed, the continuance of the abuse, etc. Most new cases, however, are observed among recent smokers or chewers. The subject is apt to be a youth, ranging in age from twelve to twenty years. He probably has a pale face, an anxious cast of countenance, perhaps tremulous muscles, and is apt to suffer from heartburn, acid eructations, and other symptoms of indigestion. Most patients of this class readily admit the excessive use of tobacco, and some even manifest a certain degree of pride in the confession. As above stated, the heart symptoms vary greatly. In mild cases there is simply a little occasional palpitation, a flutter, or a dart, which gives rise to but little annoyance. There are no physical signs whatever, and the diagnosis of tobacco heart is made by exclusion. In other cases the symptoms are more

pronounced and cause the patient considerable distress and uneasiness, and there may be some quickening or irregularity of the heart's action. In still other cases, and these are apt to be in older habitués, the cardiac pain amounts to an actual severe pang, requiring the patient to sit or lie down, and to abstain absolutely from all muscular effort for the time being. In a recent case of this kind occurring in the author's office, while the patient was under examination, the face became ghastly pale, a cold perspiration bedewed the surface, the hands were clasped over the heart, and the patient complained of a horrible sense of tightening and oppression in the chest. The symptoms fairly represented a well-marked case of angina pectoris. There was in this case a decided irregularity, and an occasional intermittence of the heart's contractions. These physical signs are not uncommonly found in severe cases of nicotine toxæmia. Auscultation, however, is generally entirely negative, or only confirms what we find by palpitation ; cardiac murmurs, as a rule, have no place in tobacco heart, except, perhaps, as a sequence of long-continued abuse of the habit. The exact pathology of tobacco heart is unknown. It probably involves lesions of the pneumo-gastric nerve which are beyond the reach of our present methods of investigation. Osler states that in young lads excessive indulgence may lead to cardiac hypertrophy, dilatation, and even valvular lesions. Patients, probably, do not often die directly from the action of tobacco on the heart, but life is often made miserable, and the victim useless, by its effects.

The treatment of tobacco toxæmia in recent cases is very simple, a withdrawal of the cause generally resulting in a speedy disappearance of the symptoms. There should be no compromising in this matter, however ; a complete and rigid abstinence should be invariably insisted upon. In more advanced or severe cases some form of internal medication must supplement the withdrawal of the habit. Any of the nervines, antispasmodics, or diffusible stimulants used in functional cardiac disorders due to other causes may be given a trial.

PREDISPOSITION TO TUBERCULAR AND ALCOHOLIC DISEASE, AND ITS REMEDY.

By A. B. Freeman, M.D., Joplin, Mo.

Read before the Southwest Missouri Medical Society in Springfield, Mo., October, 1894.

No truism ever furnished more numerous and forcible demonstrations of its truth than that "like produces like." In fact, it is one of the most rigidly enforced laws of nature, and dependent upon its fixedness is the assurance of the continuity of the species, otherwise all progeny would abound in confusion.

Huxley said: "It is the first great law of reproduction that the offspring tend to resemble its parent or parents more closely than anything else."

That "like produces like" is no truer of man in a physiological than in pathological state. If he has attained a diseased condition of his body, he may transmit it to his offspring just as he would endow it with a likeness of any bodily feature. If his body is contaminated with the tuberculous bacilli he may transmit a similar condition to his progeny.

Quoting from Ziemson: "There is, perhaps, no fact of experience which is regarded as so incontrovertible as the heredity of tuberculosis."

Ransom of London says: "Few medical men who have been long in practice will doubt the existence of family predisposition to tubercular diseases. Thus most of us have seen instances of families of which almost every member has died of the disease, and others in which members of the same family, living in different and sometimes far-distant places, have most of them ultimately succumbed to it."

Lugol states "that more than half the subjects of scrofula have consumptive parents."

The tuberculous transmit to their children constitutional conditions peculiarly adapted to attack by the bacillus. There seems to exist within them a suitable pabulum for its sustenance and reproduction. You will find this condition early in life manifesting itself through the lymphatic glandular system, and known as scrofula, or later in life, in the form of phthisis or lupus, or in the decline of life as cancer. But the tuberculous condition by no means stands alone in transmitting disease and predisposition to disease in children, and in those with whom infected subjects come in contact.

Alcoholism also plays a very important part by way of transmitting from parent to offspring not only a longing for the use of alcoholic liquors, but various neurotic conditions as well. I call to mind at this time two cases in which children, begotten while the father was in a state of intoxication, were not only idiotic, but had the same actions and ways, so far as it was possible to imitate him, as the father had when he was in a state of intoxication."

Down, in a paper on "Mental Affection of Childhood and Youth," said: "With fathers phthisical and irascible, with mothers feeble in judgment and so emotional that everything is a cause of fright, one is astonished that they should have procreated any sane children at all, and, indeed, in some cases the whole progeny of these parents is puny and feeble." He says further: "I feel quite sure that drunkenness must be placed among the factors in the production of idiocy. I have had under my observation several families in which the majority were mentally weak, and the whole more or less fatuous, whose fathers were never very drunk, yet never perfectly sober, and in these cases the chronic alcoholism had produced a condition of mental hebetude from the slow poisoning to which they were subjected."

Dr. Ruez has observed that idiocy was very common among the miners of Westphalia, who lived apart from their wives, only came home, and generally got drunk, on their holidays.

Demany assured himself that out of thirty-six epileptic

patients he had under his observation for twelve years, and whose history he was able to trace, five were conceived in drunkenness. He observed two children in the same family suffering from congenital paraplegia, whose conception also took place under alcoholic conditions in the parents.

Grenier, in his thesis of 1887, in the discussion of the progeny of alcoholismics, shows, by numerous instances, that weak-minded subjects are very much inclined to abuse strong drink, and that from being at first hereditary alcoholismics they become inebriates in process of development by the same sequence as their procreators. "We see alcoholics not only generating feeble offspring, but implanting in them also the taint of alcoholism. Hard drinkers procreate hard drinkers in a notable proportion of cases — approximately one-half."

Legrain, in his thesis of 1886, in summing up the opinions of Magnan and his school, says: "If there be any two propositions we have the right to formulate at the present day the following are the two: First, cerebral inferiority, the direct cause of excesses in strong drink, has its origin most frequently in heredity, that is, excessive drinkers are degenerates. Second, alcoholism is one of the most powerful causes of mental degeneration, that is, the sons of inebriates are degenerates. The relations between alcoholism and mental degeneracy are comprised within this terrible, vicious circle, which is irrefutably traced out and confirmed by innumerable most eminent medical observations." And further, he remarks: "There are but few cases of degenerates in the careful study of which we may not discover, somewhere, evidences of excessive addiction to strong drink. On the other hand, it is notorious that in the category of confirmed inebriates we find their progeny to include cases of idiocy, imbecility, weak-mindedness, and various neuropathics, of which the most frequent is epilepsy." We find the weight of medical authority in England, France, Germany and Belgium in favor of the theory of the transmission from parent to child of not only the alcohol habit but of many

neurotic diseases, and American authors are, if possible, more inclined to the theory than those of any other country.

Crothers, in *Medical Journal of Nervous and Mental Diseases*, says: "That there is no other disease which is more intimately connected with the prevalent physical and mental conditions of the human race." "Inebriety," he says, "is most positively transmitted from one generation to another, and this diathesis or predisposition may be observed to extend through two or three generations."

It is useless to go further quoting medical statistics and reports in proof of the heredity of disease and crime, when every medical man knows that medical literature richly abounds in reports from the very best medical authority of the world in proof of the theory; the evidence is so overwhelming that no man can doubt it.

There is no class of men in so favorable a position to understand and realize the importance of the situation as the physician. He is daily and hourly coming in contact with disease, and is of necessity led to look for its origin. He is supposed to stand between the people and disease. They look to him to care for them in their bodily afflictions, and to act as general supervisor over matters pertaining to hygiene and prevention of disease, and he has voluntarily assumed these grave responsibilities, and it is through his efforts that this much-needed reformation, touching so vitally the welfare of the nation, must be wrought.

Those most concerned, and in whom reform must be worked, if ever, know little or nothing of the matter, and have least opportunity and inclination to learn.

Our suggestions are almost wholly along the line of prophylaxis, as practiced by every intelligent physician in his daily practice, and this course would naturally necessitate the enactment of laws providing against the production of disease and crime.

Government is organized with the power of preserving the rights of its subjects, and can divest itself of the power to provide for them.

As a people we have a right to legislate against the procreation of the diseased and vicious because it would result in the greatest amount of good to the greatest number of people. We have a right to demand of our lawmakers such enactments as will finally stamp out disease and crime.

Candidates for matrimony should be compelled to go before a competent medical board of examiners and subject themselves to a rigid examination, under oath, as to their moral and physical condition, present the written examination to the county clerk, with the stipulated fee paying for the examinations, which papers sent to a general medical examiner, who, being a State officer, should be located in the State capitol, where the report of examination should be put upon record. The general medical examiner, after a careful examination of the papers, should respond to the man wishing to be married, notifying him whether or not he was granted the right to marry, when he can then go to the county clerk's office, and not till then should he be granted a license to wed. This would require the appointment of a board in each county, and the election by the people of a general medical examiner.

Laws for the prevention of crime and vice should have the precedence over those for the punishment of the same. If it is prevented there will be no need of laws providing for its punishment.

If the hereditary effects of syphilis, tuberculosis, scrofula, cancer, alcoholism, morphiaism, absintheism, with the baneful use of other drugs, and of criminal tendencies were eliminated from our progeny, disease and crime, in a few generations, would be almost unknown. In our most sanguine imagination and speculations as to the result on our future generations, we would hardly overstep the limits of reason. There is no reason why the average time of existence should not be doubled, the physique increased in size, strength, and beauty, the intellect rendered more acute and powerful, and the soul more in accord with God. Truly, man might be restored to his creative condition, when it was said

of him that he was created a little lower than the angels. He has retrograded in body and soul, till in many instances he is little above the brute creation, though his capabilities are vast and much varied, ranging through gradations from the deepest degradation to the most superior exaltation. It may be possible for man to again attain his Adamic physical and moral condition. What man has been he may again be, as the result of proper culture, through a sufficient period of time, and it is doubly true of the people of America, whose environment is better than that of any other people on the globe; we have every essential in the way of environment to the production of the perfect physical and moral man.

The key-note to an exalted manhood lies in the enactment and enforcement of laws governing matrimony, to which most holy and sacred ordinance there is absolutely no requirements except the price of a license. Men are allowed under existing conditions to go with a putrid and diseased body and a criminal mind before a justice of the peace, maudlin drunk, and mock this most holy ordinance, desecrate its sanctity and purity with their degradation and unholy desires, and are then sent out to bring into the world their kind, degenerates in body and criminals in mind, a generation of corruption.

There is no social or commercial position to which a man may aspire without certain qualifications except to the marital, where the only requirements are to be so many years old, and the price of a license.

Shame on a nation that will allow disease and crime to run riot, absolutely free and unbridled, with no preventive laws directed to its source!

Gentlemen, the time has come when we must resort to radical and effective means and measures of cure. We have sat still in a state of stupidity long enough concerning this matter. It is our duty to see, if possible, that the conditions are met, and if it is our duty, why do we longer wait?

ESTABLISHED FACTS RELATING TO ALCOHOL AND OTHER ANÆSTHETICS.

By N. S. Davis, M.D., LL.D., Chicago, Ill.

1. The three well-known anæsthetics in common use — ether, chloroform, and alcohol, each and all, when received into the blood, either by inhalation, hypodermic injection, or by the stomach, first suspend the sensibility of the cerebral hemispheres (unconsciousness or anæsthesia), and next they suspend in succession or simultaneously the functions of the respiratory, vasomotor, and cardiac nerve centers or ganglia, thereby suspending life. It is hardly necessary to adduce proof of this proposition, as it is familiar to every practitioner of medicine and surgery.

2. Each of these three anæsthetics act on the nervous centers in the same direction, and consequently each intensifies the action of the others, whether given together by inhalation as in the A. C. E. mixture, or separately by different methods, provided they are present in the blood at the same time. The correctness of this proposition is demonstrated by the experiments of Dubois in 1883, and still more fully by those of H. C. Wood as detailed in his "Address on Anæsthesia" to the Tenth International Medical Congress, Berlin, 1890, and by many carefully observed clinical facts.

3. The action of these three anæsthetics — alcohol, chloroform, and ether, on the cerebral, respiratory, vasomotor, and cardiac nerve centers, is not only in the same direction, but that direction is one of *diminished sensibility* or paralyzant in direct proportion to the quantity used. This has been so perfectly demonstrated by the well-known experiments of Sidney Ringer and Sainsbury; Professors Martin and H. C. Wood; David Cernay, J. H. Kellogg, and others, particularly in regard to the action of alcohol, that it must be admitted as an established fact, or we must deny the value of all experimental therapeutics.

4. These anæsthetics not only directly diminish nerve sensibility and force, but their presence in the blood so modifies the action of the hemoglobin, corpuscular elements, and albumen, as to diminish the reception and internal distribution of oxygen and to lessen the activity of the cell nuclein and leucocytes; and consequently they lessen all metabolic and natural excretory processes. The correctness of this proposition is sustained by an amount of both experimental research and clinical observation sufficient to fill a fair-sized octavo volume. So far as relates to the action of alcohol, the reader will find these proofs alluded to more in detail in a paper prepared by me for the World's Temperance Congress in Chicago, 1893, and published in the second volume of "Temperance in all Nations," 58 Reade Street, New York, and also in an interesting volume "On the Effects of Alcohol," by Dr. J. E. Usher, London.

5. When alcohol, or either of the anæsthetics named, is retained in the blood but a few hours, as is usually the case when administered for strictly anæsthetic purposes, the effects mentioned in the four preceding propositions soon disappear. But when the dose is repeated sufficiently often to keep it pretty constantly present in the blood and tissues for weeks, or months, or even years, as when alcohol is administered liberally from the beginning to the end of many of the acute general fevers and some chronic affections, or drank in the form of beer, wine, or distilled spirits as a beverage, the consequent impairment of nerve sensibility and force and the coincident impairment of oxidation processes necessary for healthy tissue metabolism and excretion, directly encourage fatty or atheromatous degenerations in almost every tissue in the body, and especially in the stomach, liver, lungs, heart, and kidneys, as may be seen illustrated in every case of chronic alcoholism. It is this effect of alcohol in diminishing the internal distribution of oxygen and also the activity of the nuclein and leucocytes of the blood, that mades the individual using it more liable to attacks of almost every variety of acute disease, whether

epidemic or endemic, and lessens his vital resistance when attacked. So true is this, that every modern writer of note on practical medicine tells us that even habitual *moderate* drinkers of alcoholic liquor give a much higher ratio of mortality when attacked with cholera, continued fever, pneumonia, influenza, or almost any other acute disease, than the total abstainers. Even the more intelligent part of the non-professional public have come to quite generally recognize this inherent and inevitable power of alcohol to impair man's physical power and activity, and hence they prohibit its use in all circumstances requiring the highest degree of activity and endurance, whether mental or physical. Having stated as plainly as possible the five foregoing propositions, and believing their correctness to be capable of abundant proof, I will ask a few questions of very great practical importance both to the profession and the public:

1. If alcohol when taken into the living body directly diminishes nerve sensibility, muscular force, and so alters the constituents of the blood as to retard both the internal distribution of oxygen and natural tissue metabolism in direct proportion to the quantity taken, why do we continue to speak or write concerning it, or to use it, as a *stimulant heart tonic, or restorative agent?* Is not such a designation untrue, and directly calculated to perpetuate errors of the most destructive character, both as regards its use as a medicine and as a beverage? Why not give it its true designation, *i. e.*, an anæsthetic and organic sedative; and to be used only as such?

2. If the presence of alcohol in the blood directly diminishes respiratory, vasomotor, and cardiac nerve force, and retards the reception and internal distribution of oxygen, what possible indication can there be for its use in such diseases as pneumonia, diphtheria, typhoid fever, etc., in which all the functions just named are already below the natural standard? Would not its presence not only still further depress the respiratory and vasomotor functions, but also by retarding the internal oxidation and metabolic processes,

help to retain in the system both the specific toxic agents and the natural products of tissue changes, and thereby increase both the duration of the disease and the danger of final exhaustion?

3. Does not an accurate study of the history of therapeutics show that, the greater the amount of alcohol or other anæsthetics used in the treatment of the general acute diseases, especially those named under the preceding head, the higher has been the average ratio of mortality?

4. If alcohol and other anæsthetics actually diminish cerebral, respiratory, and vasomotor functions in proportion to the quantity used, why administer them to any patient coincidently with strychnin, digitalis, strophanthus, convallaria, cactus, or other direct cerebro-spinal, respiratory, and vasomotor tonics? As both direct experiment and clinical observation have proved that strychnin, digitalis, etc., most reliably antagonize the effects of alcohol and chloroform, is it not the climax of therapeutic inconsistency to give a patient a hypodermic injection of strychnin and at the same time fill his stomach or rectum with whisky or brandy?

5. How is it possible to determine the real value of the antitoxin serum in the treatment of diphtheria, if the patient is given at the same time liberal doses of a toxic bacterial product in the form of wine, whisky, or brandy? And if these latter are omitted or their quantity greatly reduced, how shall we know whether the increased ratio of recoveries is owing to the virtues of the antitoxin serum or to the omission of the toxin, alcohol? Having carefully noted the published results of the treatment of diphtheria by antitoxin serum, as given in the best medical periodicals, I find a very large proportion of the cases so imperfectly described as to render them of no value in determining practical results. In many cases, nothing is said about any coincident use of other remedies; in other cases it is simply said that stimulants and nourishment were given, but what kind or amount is not stated; in still other cases the administration of quinin, iron, etc., is mentioned in addition to stimulants and nourishment; and in one case reported in *The British*

Medical Journal, the child, 6½ years old, presenting symptoms of an average case of diphtheria without laryngeal obstruction, was treated with antitoxin and was represented as progressing very favorably until the fifth or sixth day, when a moderate antitoxin injection was given and six ounces of brandy ordered to be given the succeeding twenty-four hours. The next day the child was cyanosed and soon died. Can any one be quite certain whether this last case died from the toxin of diphtheria, the antitoxin, or the torula cervisæ toxin in the six ounces of brandy?

Is it not practicable to have three or four hospitals admitting diphtheria patients supplied with a sufficient quantity of some one of the reliable antitoxin preparations and then make a fair test of its efficacy by treating in parallel beds with good air, rigid cleanliness, and good milk for nourishment, but no alcoholic stimulants, two series of cases as nearly alike in severity as possible. To one series of cases, let the antitoxin or antitoxin serum be given in strict accordance with the most approved rules, and no other internal remedies. To the other series, let just enough calomel be given during the first or second day of the attack to procure one or two intestinal evacuations, and let this be followed by small but frequently repeated doses of a solution of bichlorid of mercury and belladonna until the diphtheritic membrane begins to break up, which is generally between the fourth and sixth days, then substitute suitable doses of tincture of chlorid of iron and quinin until the case is terminated. Let the most complete record possible be made in both series of cases, and then we shall have data that are parallel or comparable, and from which the most reliable practical conclusions can be deduced. If, in cases in either series, the disease invades the larynx sufficiently to demand it, intubation or tracheotomy should be performed as in other cases. The results of the two series of parallel cases thus managed would not only be comparable with each other, but both would be comparable with the results of the liberal alcoholic and all other methods of treatment in vogue.

were highly prized. In 1870 he assisted in the organization of the Association for the Study and Cure of Inebriates, and, in some remarks made at that time, predicted that this association would mark the beginning of a great revolution in public sentiment concerning the inebriate, which would be felt all over the civilized world. Twenty-four years has passed since that event, when fourteen earnest men met in the parlors of the Young Men's Association in New York city, in November, 1870, and organized this association to centralize and proclaim the great oncoming truths of inebriety. To-day eleven of the great nations of the world have similar societies, and Dr. Mason's prediction proved to be a veritable prophecy. He saw clearly that the questions of alcohol and inebriety were vital topics that civilization would recognize and study not far in the future. Among the many prominent papers which he wrote on this subject was an address in 1876, " On the Disease of Inebriety." This was very widely read, and was a calm, dispassionate study, very clear and convincing in its statements, and had a wide influence, that is noted even to-day. Other papers and addresses on this topic were very influential in their clear earnest tone, and strong legal method of presentation. Dr. Mason was always intensely practical, and the present theory or conclusion that could not be used at once and harnessed into the world's working forces did not attract him. As president of our association he urged a steady, persistent adherence to the facts, no matter what the conclusions might be. In the bitter attacks which were made on this journal in its early days, he gave the same advice and counsel, never to stop to fight theories, or notice wild dogmatists ; also if this association and its journal were founded on truths, persecution and opposition would only give it more permanent growth. Dr. Mason was cautious and conservative in forming new views, and reaching conclusions on new topics. When he was fully convinced of the correctness of the facts or methods, he never hesitated or wavered. No opposition or difficulties deterred him. He took up the work of ine-

THE LATE DR. THEODORE L. MASON.

By T. D. Crothers, M.D.

Dr. T. L. Mason was one of the active founders of our association organized in 1870, and in 1876 he was made president, and continued in this office until his death, February 12, 1882. At the next annual meeting of the association, in May of the same year, Dr. Day, the vice-president, paid an eloquent tribute to Dr. Mason and his memory, which he promised to write out for the Journal, but never did, owing to absence of data and a wish of Dr. Parrish to write a sketch. For various reasons, including invalidism, Dr. Parrish failed, and we take pleasure in presenting the first extended sketch which has appeared in the Journal, of one of the most prominent, earnest pioneer workers who has been associated with this great movement. Dr. Mason was born in Cooperstown, N. Y., in 1803, and graduated at the College of Physicians and Surgeons in New York city in 1825, and after a few years of practice in Wilton, Conn., moved to Brooklyn, N. Y., where he spent the rest of his life. He descended from a military and legal family dating back to early colonial times, and inherited a particular mental and moral robustness of character, which gave him prominence all his life. In 1858 he became president of the first college hospital, called the Long Island Hospital, where medical instruction was given in the hospital exclusively. In 1865 he organized and was president until his death, of the King's County Inebriate Home, at Fort Hamilton. From this time he became actively identified as a writer and pioneer worker of the inebriate asylum movement, and the scientific study of inebriates. He was for many years vice-president of the American Colonization Society, and active member and officer of numerous societies, both medical, historical, and theological, in all of which his wise counsel and clear conceptions

briety, helped to found an asylum and association, because they were practical facts that would help on the solution of a problem of the greatest importance. He studied and worked for this subject in the same lofty spirit and high moral purpose that helped found a college, a historical society, or the colonization of poor colored men in far distant lands. His mental vision was higher, and his spirit of philanthropy to raise his fellow man, and do something to help on the race, was broader and wider than his cotemporaries. As a pioneer student and practical worker in the field of inebriety, Dr. Mason will be long remembered. As the organizer and first president of the Kings County Inebriates' Home, he gave a permanent impress and direction to its work, that will be seen and felt for long years to come.

As an active founder and officer of our association, his counsel and labors constituted a very large part of the influence and success of the movement. Dr. Mason was thoroughly a man of faith as well as courage. He knew when others doubted, his energies increased when others faltered, and he saw the movement of events higher up and farther down into the future. We can notice only a small part of Dr. Mason's life work, and that along the line of the inebriate asylum movement. Beyond this a wide circle of friends and a devoted family both saw and felt the genial influence of his life, scattering the clouds and gloom and insensibly lifting and raising all who came in contact with him. It is a source of great pleasure to say that the mantle of his genius has fallen on his son, the well-known Dr. L. D. Mason. Taking up his father's work he has gone on along the same practical lines of study, as the many excellent contributions in this JOURNAL will attest.

He is now the only surviving member of the fourteen who formed the Association for the Study and Cure of Inebriety in 1870. This late tribute to the memory of Dr. Mason has a greater significance to-day than ever. Each year brings new interest to the life and work of one who is already known to all students of inebriety, and especially to members of our

association. Such men have impressed themselves by their work on their day and generation to a far greater extent than any present study can determine. They live on in a constantly widening circle. The truths which they have taught go on as a permanent addition to the development and progress of the world.

STIMULATION.

Dr. McDowell of Dublin in a recent lecture remarked on stimulation as follows: "The second point I would allude to is the fallacy in the application of the word 'stimulant' to alcohol. If alcohol was a stimulant its consumption ought to tend to more and more work being done, and the danger would be from the strain of overwork; but action is different. We get a chain of events made up of three links: Action, increased action, paralysis. The increased action is really a connecting link between ordinary action and paralysis. This is because a great many functions of the body are arranged so that when increased action is required more power need not be directly put forth: there is always more than enough power, and a check, or inhibiting action, keeps it to the required amount. If the check is lessened the action becomes more rapid, but this is from narcotising the controlling agent, not from stimulatipg the action. The common illustration is that if you take the pendulum off a clock, the weights (which are the existing force) are not increased, but yet the action is hurried, because the control is weakened. If a person gets a sudden start, the heart beats much quicker; the start is not a stimulant, it really paralyzes the controlling nerves, whose action is for the time relaxed. So the cause of the heart's quicker action is not stimulation but relaxation. In illness no one would try to stimulate the heart by repeated frights—it would beat quicker but fail faster. The action of alcohol is similar, it does not stimulate but reduces control, and experiments have shown that each special sense is blunted even by small doses. As a matter of fact, those who have most studied its action least use it as a medicine."

INEBRIETY AND IMBECILITY—A MEDICO-LEGAL STUDY.

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

The following records of two cases brings into prominence again the old conception of inebriety, and the recent modern view accepted by the more intelligent courts and jurors.

In March, 1894, John Cronin was tried and convicted for the murder of Albert Skinner. The facts relating to his crime are these: He was a farm laborer, thirty-seven years old, living about Hartford. He has been a periodic drinker since early life, and when sober is a quiet, peaceable man; when drinking is excitable, irritable, abusive, and often quarrelsome. He has been arrested and confined in jail twice for intoxication. His drink periods have been growing longer, and the sober intervals shorter for the past few years. He has been growing more irritable and stupid when drunk lately.

For at least two weeks before the crime was committed he was idle and drank continuously. He was intoxicated on the night before the murder. A few weeks before this time he had a drunken altercation with the man he shot, and at that time made a threat to shoot him. Amicable relations were re-established, and he seemed to be on good terms again with this man with whom he had formerly boarded and been very intimate.

On the morning of Oct. 6, 1893, he went to the house of this man, Albert Skinner, and without a word of provocation shot him at the breakfast table. He was pushed and thrown out of the house twice in a few minutes, and stood round on the street near the house with a revolver in his pocket making no attempt to shoot again, and coolly boasting of what he had done; submitting to restraint and expressing a wish to

shoot others also, justifying himself and affirming that he was ready to accept the consequences and be hung, and if he was permitted would kill others. These expressions of regret that he had not shot more persons were repeated several times.

He was recognized as having been drinking by his breath and strange actions, but several witnesses thought he was fully conscious of his acts and their consequences.

For the next two days all the witnesses seem to agree that he was in a semi-dazed condition of mind, indifferent to all surroundings and would not talk. After this his manner changed, and he responded to inquiries and conversed, claiming not to recollect any of the past occurrences and the crime. He said that Skinner, the murdered man, was the best friend he ever had.

This crime was characterized by two very unusual lines of conduct.

1. Shooting the man in open day in his own home, without a word of provocation, boldly and under the possible observation of many persons; firing only one shot and standing round to see the result, being pushed out of the door by the wife of the murdered man, and going back into the house again, was thrown out by the son; also making no attempt to shoot other persons or run away.

2. Offering no resistance when the pistol was taken from him, submitting to arrest, acknowledging the crime, and in violent language expressing a desire to repeat the act on the murdered man and others, and take the consequences. His cool indifference and violent expressions unaccompanied by acts or delirious excitement, seemed to those about him not to indicate drunkenness, although his breath was strong with the odor of spirits and his manner was strange and unusual.

Thirteen months after the commission of the crime I examined him in the State prison. During all these months he has been free from spirits, and it would be natural to expect that his condition of body and mind would be very near normal.

His appearance was that of a stout, short-built man, with

a small, irregular-shaped head, retreating forehead, sunken, tremulous eyes, large stigmatic ears, and high palate arch. He walks with a shuffling, unsteady gait, and when seated supports his head on his hands, and seldom looks up. He answers questions slowly and with hesitation, and seems in doubt unless the questions are direct and repeated. The answers begin in a natural tone of voice and drop down to a whisper at the close of the sentence. This hesitation and doubt differ widely from the cunning reserve of one who would conceal his mental operations in the apparent feebleness and effort to give some answer and overcome an evasion and incapacity for sustained reason or explanation of any event. The impression he gives is that of a naturally defective brain, already approaching and evidently in the penumbra region of imbecility.

He appears in fair health, and without delusions, and profoundly indifferent to any past, present, or future conditions. As a result of persistent questioning the following facts were brought out, most of which have been confirmed from other sources, hence they are generally correct. He was intoxicated at about fifteen years of age, and has used spirits continuously, and at times to great excess up to the present. He both drinks alone and in company, and when intoxicated has little or no recollection of what he does or says. His memory has never been good. At times he can recall events when drinking, at others they are a blank. Concerning the homicide he has no recollection of it; the blank of memory extends from the night before the crime to some time after being placed in jail.

He cannot understand why he should have shot Skinner, as he was his best friend. He gave the history of a fall on his head with a period of unconsciousness, and a scar showing a scalp wound was exhibited as evidence of it.

Three years ago he was made unconscious by a fall from a train and laid up with injuries of the back and knee for two months. He has been struck on the head several times when drinking and made unconscious. For the past few

years when drinking he has been more irritable and quarrelsome, and been told that he was crazy at those times. He makes no complaint against any one, and expresses no sorrow or indignation at anything concerning the crime or trial. He is strangely indifferent concerning his life, and would not escape if he could, but is ready to die at any time. It makes no difference to him what the result may be.

Concerning the future he has been told that by repentance one can go to heaven; if this is a mistake he will accept the situation. His wishes are of no account, "as the Lord and the law will have their own way." No questions of his moral responsibility and guilt in this crime excite any emotion or nervousness or apparent realization of his condition. He expresses himself coolly and with utter unconcern. At times a half imbecile smile would appear when he could not answer the question, and did not know what to say. There was no irritation or excitement or depression or annoyance from questions which were pressed, and if different answers were suggested he would select the briefest one.

When the same question was put in a different form, he seemed not to realize it but answered in monosyllables, irrespective of any previous answer. In all this there was no criminal cunning or attempt to conceal or to appear crazy, but clearly the natural working of a feeble and imbecile mind. He seemed to have a remarkably abnormal brain, in which all the higher functions were paralyzed, and the normal consciousness of duty and responsibility were absent.

A study of the heredity of this case was startling. His near relatives on both his father's and mother's side were hard drinkers, and on his mother's side insanity and epilepsy appear frequently. None of his relatives exhibited anything more than a very low order of intelligence.

His maternal grandparents were Willliam and Mary Callahan of County Antrim, Ireland. William died in middle life, and Mary lived to be sixty years old, and was insane for some years before her death. Catherine, the oldest daughter, and aunt of John Cronin, became insane from the death of

her child and the desertion of her husband, recovering in part and coming to this country, where she died in middle life. Michael, the second child, was early addicted to drinking intoxicants, and his mother tried to kill the appetite by mixing snuff with his drinks He enlisted in the English army, was discharged insane, and wandered about in the woods and finally died of exposure. Thomas Callahan, the second son, lives in Hartford, and is a respectable man. He drank until he was fifty years of age; since which time he abandoned the habit. He testified as to the facts of his nephew's ancestry before the board of pardons, and appeared to be a quiet man, "thick" in his memory, and in the appreciation of what the counsel was trying to bring out.

Margaret Callahan, the youngest child of William and Mary, and the mother of John Cronin, was a nervous, excitable girl, who went to Wales with her older sister, Catharine. There she married Peter Cronin, a Welsh miner, of a boisterous nature and a man who drank to excess. His wife drank with him daily, and they lived in a state of perpetual trouble. At last Peter was murdered in a drunken row, and Margaret became insane for a time. Her sister Catherine took her home and adopted John Cronin, who was one year old at the time. He lived with his aunt until he was eight years old, when he was put out to work.

His mother, Margaret, came to this country and married a man named Moran, who is now dead. There were three children by this marriage, one dying in early life, and two daughters surviving. One of these, Mrs. George Somers, is subject to epileptic fits, is a hard drinker, and has attempted suicide. She has been in the county jail in this city for drunkenness.

Margaret Moran, the mother of John Cronin, is well known to the authorities of Hartford. She has been a drinking, troublesome woman during her long residence in and about Hartford, and was surrendered to the authorities by her brother, Thomas Callahan, after he had endured her boisterous and wild ways, while under the influence of drink, as long

as he could. She is now an inmate of the almshouse in this town, where she has been for nearly five years.

This brief sketch of Cronin's ancestry shows that his father and mother were both inebriates, an uncle and aunt were insane, and a half sister is a drinking, epileptic degenerate. Of the direct stock of his father, John Cronin was the last, and of his mother the worst.

In these facts a very clear history can be traced of what is well known as alcoholic insanity of the imbecile and epileptic class, the prominent symptoms of which are a marked degenerating heredity, usually from an alcoholic insane or idiotic ancestry: or practically from a dying family, where the race stock is exhausted, enfeebled, and approaching extinction. Alcoholism in such a family is a symptom of progressive degeneration. The drinking is always followed by insane, epileptic, and impulsive conduct. When not drinking apparent sanity and normal conduct may be the rule, but the strain of alcohol on a defective brain will bring on homicide, suicide, or epileptic explosions. The use of alcohol is always followed by delirious conditions, delusions, and strange, unusual acts.

Failures of memory are common symptoms, and may be total or partial. After a time a progressive palsy of the higher brain functions appears. In most of these hereditary defects this moral palsy and loss of consciousness of right and wrong, of duty and obligation, is an inheritance which the use of alcohol develops. All such cases show this strange indifference and unconsciousness of their acts and the consequences. The man's talk and conduct in a criminal act is only a link in the chain; by itself it may display a cunning, deliberation, mature judgment, and recognition of all the consequences, and yet when the other links in the history are known, it will be found to be the act of a clearly insane man.

The act of shooting Skinner with foolish boasts and general conduct, noted by great coolness and indifference, is a good illustration. What he did and said at this time and the impression he created on the minds of persons about him, is

a small part of his history, and when judged alone may be very misleading, but taken in connection with all the facts of his life, points out the real condition of health or disease. It is evident that Cronin's mental condition at the time of this homicide must be judged from the facts of his inheritance, from the facts of his surroundings and manner of life, also from his conduct and acts when sober and drinking, and from all the circumstances and conditions which have been influential in his history.

The State assumed that Cronin had a low criminal brain, capable of deliberation and premeditation, and with power of control. That he could reason clearly concerning his acts and their consequences. That in the crime he displayed malice and revenge and full consciousness of the nature of this act, and the legal penalties.

That he was not only conscious of his conduct, but had the power of control and concealment, to take advantage of favoring conditions. That he has been and is of sufficient mental capacity to distinguish between right and wrong in the abstract, and at the time of the crime was of sound mind. That his claim of no memory of the act and cool indifference are mere subterfuges for concealment.

The fact of his periodical intoxication and drinking the day before the crime were assumed to be aggravations and additional evidence of his responsibiiity.

I urged that Cronin could not have a sound brain ; that his twenty years of drinking had so fixed and intensified the inherited defects that he could not reason or discriminate soundly; that in some respects his conduct would be automatic, where the motives and conditions of living were the same, but change these and his disease would be seen. Also, he had a defective brain, showing great disturbance from the use of alcohol, would always be swayed by morbid impulses of any form, and crime, suicide, and other abnormal acts would be the rule and not the exception.

Many authorities have pointed out the evident unsoundness of degenerative neurotics, who were alcoholics of long standing. The acts of such persons are always open to sus-

picion, and where crime is committed there is always a doubt. Unusual strange conduct can only be explained on the theory of brain degeneration and disease. While it may lack many of the symptoms of so-called insanity, it will nevertheless show degrees of palsy and brain disorder that cannot be mistaken.

This case was finally decided by the Board of Pardons, and Cronin was hung Dec. 19, 1894. He maintained the same stolid indifference to the last, sleeping soundly up to a short time before the execution.

The second case was tried at Norwich, Conn., in May, 1894, and was that of Michael Donovan, who shot and killed John Bell, some months before. Donovan was a laborer, in charge of a stationary engine, forty-five years of age, and a man of quiet, peaceable character. He was married and had a grown-up family, and was a retiring, hard-working man. For five years he had used spirits to excess at irregular times and intervals, and was always silent and stupid when drinking, never quarrelsome or violent. During the year 1893 Donovan had drank more than usual, and been stupid nearly every night. In December of that year Bell, a colored man, called him insulting names and was very abusive for some supposed slight. At this time Donovan paid no attention to this, saying he was not worth noticing, and appeared to be in no way disturbed by Bell's insults. Two days after he took an old revolver to a shop to be repaired and loaded, and told several persons he was going to shoot Bell. He drank several times and showed the revolver, and affirmed that he was going to find Bell and kill him. This he did in a short time, and without any words or apparent excitement, he shot at Bell, and finding that he staggered and fell, fired his pistol in the water and replaced it in his pocket. Quietly walking back he stopped to drink at two saloons, telling the barkeepers that he had shot Bell, then went home, changed his clothes, and walked over to the station-house, giving himself up

That night and next day he suffered from delirium and delusions, and was treated as suffering from a mild attack of

delirium tremens. He soon after recovered and denied all recollection of the circumstances of the crime. From this time on to the time of trial he was quiet, indifferent, and seemed not to be interested in any thing, and only manifested emotion when visited by his family. When examined in jail he seemed to be dull, and, although in fair physical health, was strangely indifferent to the results of the trial; expressed sorrow for having killed Bell, and did not remember the facts of the crime, and seemed to be unconcerned. He could not give a connected account of the difficulties which led up to the crime, and the suspected motive for shooting Bell, who had threatened to have him turned away. His mind seemed confused as to events and his own conduct for some time past. In the history of his family an uncle, on his mother's side, became insane in middle life, and was confined in an asylum until death. Donovan had been a moderate drinker up to about forty years of age, when he began to have distinct drink paroxysms. These increased in frequency and duration, until finally he drank steadily every day. The past six months he drank almost every hour, and was many times unfit for work. He complained of his head feeling bad, and said he was "not right" from the time of an injury from a fall from a wagon. In a conversation with the medical expert for the State two days later, he described the act of killing, denying that he had said he was going to kill Bell, and in a disjointed way, explaining why he had shot Bell. His statements were opposed to the testimony of other witnesses, and seemed to be based on the history of the crime repeated by others.

Two experts swore that he was sane at the time of the crime, and was conscious of his acts and their consequences. Two experts for the defense affirmed that it was a clear case of alcoholic imbecility and unconsciousness of the crime, and at present he was of a low order of intelligence, with unsound, degenerative brain. They further urged, that the cool preparation for the crime, and telling others what he was going to do, and the act in broad daylight, where he was seen by others, was clearly insane. Such

conduct, following excesses in the use of drink, could not come from a mind sane and conscious of the acts committed.

The counsel for the defense, Messrs. Hull of New London and Thayer of Norwich, urged that there was more than reasonable doubt of the soundness of the prisoner's mind at the time of the commission of the crime. Also, that his excessive drinking before the crime would of necessity so far impair his reason and judgment that any unusual acts would be more or less insane, and be committed without conscious reason. They urged that this crime in its boldness and strange premeditation and execution, and his delirious condition after, was strong proof of insanity. The experts for the defense argued that the man at the time the crime was committed, was suffering from alcoholic dementia, and when confined had an attack of delirium tremens, from which he recovered with an enfeebled demented brain, and at present is in a low paretic condition. The verdict was manslaughter and imprisonment for life. This was a rational, modern disposition of the case. In New York State such a case would be sent to the asylum for insane convicts. In Connecticut he would be under observation at the State prison, and when pronounced symptoms of insanity appeared, would be sent to the insane asylum. Both of these cases were alike in the well-marked evidence of imbecility, due directly to alcohol. In the Cronin case, the heredity intensified and made the degree of degeneration very clear, and placed the assumption of insanity and unconsciousness without power of control beyond all possible doubt. In the later case, Donovan's conduct before and during the commission of the crime, and after, clearly indicated the impossibility of mental soundness. Neither of these cases were able to reason rationally, or to form motives, and to act upon them with consciousness of their import and consequences. The hanging of Cronin ignored all modern facts concerning the brain and its disorders, and was a reversion to the theories that prevailed two centuries ago. Donovan's sentence recognized the dawn of a new era in jurisprudence and progress along the lines of development, with clearer conceptions of the relations and limits of responsibility.

Abstracts and Reviews.

REPORT OF COMMITTEE ON ALCOHOLISM IN THE STREET.

To the Medical Society of the County of Kings:

GENTLEMEN,— In making its final report, your committee would emphasize all that it presented in its preliminary report, and more especially that —

1. All persons found upon the street or elsewhere by the police or others, and being in a comatose or semi-comatose condition should be at once removed to the nearest hospital.

2. No hospital should refuse admittance to such cases on the ground that alcoholic cases, or cases in which alcoholism is a prominent feature, are not proper subjects for treatment in such hospitals. This plea should not hold in hospitals that receive aid from the city. If they are not prepared to receive such cases, they should at once make such provision as is necessary. In the opinion of your committee it is as much the duty of hospitals receiving city aid to render medical assistance in such cases as it would be if the patients were the subjects of an accident. Indeed, many of the so-called accident cases are the result of alcoholism, and it would be just as logical to exclude such cases from hospitals as to exclude those who are unconscious from the same cause. Whatever differences of opinion may exist as to the duty of taking care of alcoholic cases, your committee believes that inasmuch as a diagnosis cannot be always made at once, every unconscious person should have the benefit of the doubt, and receive prompt medical attention.

3. Your committee believes that ambulance-surgeons should qualify themselves so as to be able to differentiate alcoholic coma from other forms of coma so far as that is

possible, and that the examination of these surgeons should include questions bearing directly on this subject.

4. In the preliminary report your committee referred to a special hospital for the treatment of alcoholism. To such an institution, centrally located, all cases of delirium tremens which are now treated at the general hospitals at considerable expense and inconvenience to the hospital authorities, could in the special hospital receive skilled treatment by specially trained physicians. Your committee hopes that in the near future the city will see the wisdom and humanity of establishing such a hospital; in the meantime such facilities as exist must be relied upon. Finally, your committee notices already a moral effect which the discussion of this subject by the society has produced. It has attracted attention, not only in this country but also in Europe, and copious extracts have been made by foreign journals from a paper published by the secretary of the committee, in which the work of the committee is alluded to. The medical society of the County of Kings is the first organized body of medical men to move in this matter, and it is not too much to prophesy that the effect of this agitation of a most important subject will spread from Brooklyn to every other civilized center.

The county society is not such a body as that it can enact laws and compel their enforcement, but it can by moral suasion influence police and hospital authorities, and do much to bring about an improvement in the matter under discussion. Your committee would therefore suggest that a circular be prepared, calling attention to the subject, and that a sufficient number of copies be made to be sent to the managers of the various hospitals, to the medical journals, and to such other organizations as is thought wise.

Respectfully submitted,

J. H. Raymond,
L. D. Mason,
John C. Shaw.

GENERAL CONSIDERATIONS ON ALCOHOLIC CIRRHOSIS OF THE LIVER.

Hanot, who has contributed much to the elucidation of hypertrophic cirrhosis of the liver, has recently written a monograph on atropic cirrhosis; and as the result of an exhaustive study based on very many clinical observations, he regards "arthritism" as a necessary predisposing factor in this disease. By arthritism he understands "a constitutional state, characterized by a vitiation, ordinarily congenital and hereditary, of the nutrition of the connective tissues and of their derivatives, which become tissues of less resistance." He refers in illustration to the congenital debility of the cardio-vascular system in chlorotic girls, of the nervous system in the hysterical and degenerate, of the lungs in persons predisposed to tuberculosis. "From a functional and anatomo-pathological point of view," he says, "arthritism is characterized by the exaggerated vulnerability of the connective tissue with tendency to hyperplasia, to fibrous transformation and retraction."

Hanot insists that clinical cases without number confirm his view, the "stigmata" of arthritism being everywhere apparent in the cirrhotic. We will enumerate the principal "stigmata," remarking that the French make quite as much of that monster *arthritism* as we Americans do of its congener, neurasthenia: "pseudo-lipomata, acne, obesity, varicose veins, hemorrhoids, enlargements of the second phalanges, early baldness, dry cracklings in the joints, rheumatic pains in loins and limbs, asthma and atheroma."

Among the signs of cirrhosis in process of evolution, Hanot enumerates dyspeptic troubles, meteorism, constipation, urobilinuria, urobilinic tint of the integument, sometimes a bronze tint from pigmentary deposit, glycosuria after ingestion of carbohydrates, pruritus, epistaxis, gingival hemorrhages, hemorrhoids, localized edemas, attacks of diarrhea.

"As for the dyspeptic troubles, it is," says Hanot, "difficult to define the part which the hepatic disease has in their

production: the stomach is likely to be modified directly by the alcoholism, or by the arthritism. Hepatic patients have a strong dislike for fats and for meat. Hyperchlorhydria is a frequent condition of the stomach in the dyspepsia of hypertrophic cirrhosis, and hypopepsia or apepsia with lactic reaction in atrophic cirrhosis."

The constipation is generally ascribed to absence of bile in the intestines, and the meteorism indicates the same lack, the bile being antagonistic to putrescence. Meteorism is an early symptom, coming before the ascites, in accordance with Portal's *jeu d'esprit*, "Les vents précèdent la pluie."

Hanot has described, under the name of "pigmentary acholia," an alteration of the bile which is secreted without the ordinary coloring pigments. This gives rise to the decoloration of the feces, and is observed in almost all the diseases of the liver. In most cases of cirrhosis, the spectroscope shows the presence of urobiline in the urine, and thereby indicates in a general way the suffering of the hepatic organ and the disorder of the biliary secretion. The bronze tint of the skin is also due to a trouble in the formation of the biliary pigments, and is seen at its maximum in "bronzed diabetes" associated with hypertrophic cirrhosis. The alimentary glycosuria is an early and persistent symptom. The pruritus is a troublesome affection, may exist apart from any eruption, and is not peculiar to cirrhosis, being observed in other hepatic affections with or without jaundice. It is one of the earliest symptoms. Hanot does not believe that impregnation of the skin by the coloring matter of the bile is the cause; this is not well understood. In a certain number of cases there will be frequent attacks of diarrhea alternating with constipation, which are explained by the hyper-tension in the portal system, as the hemorrhages and localized edema attest the profound disturbances in the circulatory system elsewhere. Hanot thinks that the epistaxes, the gingival hemorrhages, the purpura "testify to the cell alteration, and the perversion of its hematopoïetic rôle."

In the pre-cirrhotic period and at an early stage of the

stationary period, the liver is enlarged, "owing to congestive processes which usher in the sclerosis and the final atrophy of the organ." Many cases of cirrhosis, however, according to Hanot, are atrophic from the onset. He believes also that there is a rare form (which he was the first to describe) which is alcoholic and hypertrophic throughout its entire course. Among the later symptoms are the ascites with increased development of the abdominal veins, a dry pleurisy at the base of the right lung, anorexia, a brick-red tint of the skin, emaciation and cachexia.

The complications belong to the group of infectious diseases. The liver in its state of physiological integrity is an "advance-guard of protection against infection;" when smitten in its vitality and its function, it leaves the way open to infections. Among these, grave icterus is "the last act in the period of infection and atrophic degeneration."

Among the inter-current infections which frequently carry off the patient, are erysipelas, pneumonia or broncho-pneumonia, infectious endocarditis, suppurative peritonitis, suppurative cholecystitis, abscess of the liver, acute infectious nephritis, and phlebitis. The patient sometimes dies of a "veritable cholera"— abundant watery diarrhea, algidity, coma. Hanot refers these choleriform attacks to an infection due to the colon bacillus. Cirrhosis sometimes prepares the way for tuberculosis, the latter grafting itself on the cirrhosis.

When the patient escapes or resists any of these inter-current affections, he is very likely to die of grave icterus, which is in fact the natural and final term of the disease. These grave kinds of jaundice are classified according to the microbe that causes them; the symptomatology is somewhat different according as the icterus is the product of this or that microbe. There are grave icteri with hyperpyrexia; there are others with hypothermia. The infection in icterus with sub-normal temperature is believed to be the coli-communis; at least, this is in accordance with some very exact observations.

The liver is the great arrester and destroyer of poisons—microbic and others—according to the modern physiological school. Therefore, when its functions are invaded the organism easily falls a prey to septic agents; and hence, in Hanot's estimation, the grand therapeutic indication becomes plain, to diminish the causes of infection by intestinal antiseptics, and thus to oppose by this indirect way the progress of the disease. Here he is in accord with Bouchard and his school, who teach that more good is accomplished in this disease by intestinal antiseptics judiciously administered than by any other means.

As an effort to throw new light upon hepatic cirrhosis through that popular and universal illuminator, bacteriology, this attempt of our French *confrère* is worthy of attention. The part played by his "arthritism," and the inevitable "stigmata" by which its presence may invariably be recognized, is rather vague and misty theorizing to the Anglo-Saxon mind. Observation continues to convince, however, that excessive alcohol injures the hepatic cells; that the less resistant the organism the earlier the effect: that when the normal hepatic secretions are interfered with, intestinal digestion is deranged, and the general system falls a prey to poisons which are otherwise unformed or excluded.—*Boston Med. and Surgical Journal.*

POISONING BY ONE OUNCE OF CHLORAL HYDRATE: RECOVERY.

Dr. R. J. Colenso described this case. The patient, a lady, aged 34, deliberately took, on December 12, 1893, 1 ounce of chloral hydrate in solution at 8 A.M. At 4 P.M. she was discovered in her bed unconscious. No ordinary rousing measures were of any avail. Medical aid was not procured till 5.30 P.M. The patient was found to be comatose with abolition of all reflexes. The breathing was shallow and stertorous, pupils both small and very sluggish, pulse 130, small and rather firm; temperature 100.5°. The nature of

the poison taken was not discovered for about three hours subsequently. Atropine was given hypodermically, and the stomach washed out with much difficulty; the washings revealed nothing as to the poison taken. Strychnine with ether was next injected under the skin; the pulse began to fail and the coma increased. Nitrite of amyl by inhalation had some good effect on the pulse; deglutition was very imperfect. Sir Dyce Duckworth saw the case at 10 P.M., and at this time a lady friend disclosed the fact that she had on the previous day bought two ounces of chloral for the patient to send to a friend in India. This could nowhere be found. Enemata of strong coffee were now given, and sinapisms applied to the thighs and legs. The patient was vigorously rubbed and slapped with towels. At midnight the temperature reached 103°, the pulse continued to flag, and the outlook became very bad. Enemata of coffee, milk, Valentin's beef essence, and brandy, were continued, but not till 12.30 A.M. on December 13th were any signs of animation manifested. Twitchings of the face and movements of the limbs were then observed. Groaning and restlessness began about 2 A.M., and the hypodermic use of strychnine was stopped. The patient cried out to be left alone and allowed to sleep, but friction and rousing measures were continued until 3 A.M. Short intermissions were allowed, and sleep for ten minutes at a time, and then the patient was taken from bed and made to walk about. The urine was drawn off by catheter early in the evening, and was of dark color. From 8 A.M. on December 13th the patient slept thirteen hours and a half in the twenty-four. Recovery ensued, and the patient left the room on January 7, 1894. Muscular tone was much impaired for some time subsequently, as was the digestion. Periods of excitement, alternating with great depression, ensued for six weeks subsequently. The patient was a very powerful woman of large build and of good condition. Nine-tenths of a grain of strychnine was employed. The amount of chloral was accurately determined afterwards, the bottle being found, and a full confession of her conduct was made

by the patient. An ounce of chloral hydrate dissolved in two fluid ounces of water was the exact dose.

The President has seen a similar case. Artificial respiration was employed, the stomach pump used, and enemata of hot coffee given. Eventually the patient, a woman, made a good recovery. She had probably taken 320 grains of chloral hydrate, and the stomach pump had been used within an hour of its being taken.— *British Medical Journal.*

THE ETIOLOGY OF OSSEOUS DEFORMITIES OF THE HEAD, FACE, JAWS, AND TEETH. By E. S. TALBOT, M.D., D.D.S., Professor of Dental Surgery in Women's Medical College and Rush Medical College, etc. Third Edition. Chicago, Ill.: W. S. Keener Company. 1894.

The author has grouped in this work of five hundred pages a most exhaustive study of degenerations of the head and face. His facts are drawn from a wide range of reading and clinical study, fully illustrated by cuts, tables, and charts. To the general reader the chapters on Changes of Climate, Intermixture of Races, Hereditary Influences, Development, Neurosis, Crime, Prostitution, Sexual Degeneracy, Moral Insanity, Pauperism and Inebriety, Intellectual Degeneracy, Neurotics, Genius, Idiocy, Nutritive Degenerations, Maternal Impressions, City and Country Life, etc., etc., etc., are full of the most startling facts. These topics in themselves comprise some of the most important themes of modern civilization, and give the work a value to all scholars and students that is not easily measurable. The other chapters on Neuroses of Development of the Bones of the Face and Head, also the Irregularities of the Teeth and Jaws, enter exhaustively into a field of study not treated in the usual text-books of medicine. We give the following extracts from the last chapter on the conclusions, which give a good idea of the value of the work:

"The various influences which have been brought to

bear upon the present races of the earth, resulting in neurosis of degeneracy, noted in excessive or arrested development of the osseous system, has been discussed in this work. A neurotic brain may be transmitted, which presides over the development of the osseous system; and this will cause an arrested or excessive development of the osseous system. Persons of this character have a tendency to seek each other's company. As a result they marry, and the children may possess genius and egoism, or they may become idiotic, deaf, dumb, or blind; or in middle or later life become insane, criminal, or inebriates. Such marriages always result in defective osseous growths with mental instability, and these stigmata are handed down for a number of generations. These deformities of the head and jaws often extend to other bones, and the resulting unbalanced bony framework is an unstable blood supply and defective nerve function. Consequently all forms of abnormalities appear, and refer back to physical changes and degenerations. This refers back to the question why criminals, inebriates, and other defectives should possess so uniformly stigmata of degeneration."

The great teaching of this work is the necessity of a more thorough study of these defects, both as acquired and inherited, and a full recognition of the tendencies which are present in the constitution. From these facts certain hygienic lines of acts and living are necessary to prolong life and prevent an early failure and death.

This work should be read by all students of science, and we congratulate the author on this great pioneer study in a new land of unexplored facts.

PRACTICAL URANALYSIS AND URINARY DIAGNOSIS: A Manual for the Use of Physicians, Surgeons, and Students. By CHARLES W. PURDY, M.D., Queen's University; Fellow of the Royal College of Physicians and Surgeons, Kingston; Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medi-

cal School. Author of "Bright's Disease and Allied Affections of the Kidneys"; also of "Diabetes: Its Causes, Symptoms, and Treatment." With Numerous Illustrations, including Photo-Engravings and Colored Plates. In one crown octavo volume, 360 pages, in extra cloth, $2.50 net. Philadelphia: The F. A. Davis Company, Publishers, 1914 and 1916 Cherry Street.

Every physician has his own favorite methods of making uranalysis; "short cuts" practiced now, which he would studiously have avoided when albuminuria, cystitis, and calculary deposits were to his cases of bronchitis, anæmia, pleurisy, eczema, etc., in the proportion of one to ten. Dr. Purdy's book on "Practical Uranalysis and Urinary Diagnosis" deals not only with the aids to accurate diagnosis of diseases which manifest themselves by abnormal constituents in the urine, through chemical processes, but also its effects in physiological and pathological phenomena. This valuable compilation is especially practical for students and the young physician, while older practitioners, who have grown used to certain methods followed by themselves for a long time, would do well to study its text, and thus keep up with the strides chemistry, physiology, and mechanics are ever making, in all branches of medicine. This work is literally the most valuable compendium of uranalysis ever issued. Part I is devoted to an analysis of urine, in which are discussed the theories of secretion and excretion of urine, composition of normal urine, abnormal urine, proteids, carbohydrates, urinary sediments, anatomical sediments, gravel, and calculus. The second division of the work, under the head of "Diseases of the Urinary Organs and the Urine in Other Diseases," aims at a concise description of the special features of the urine that indicate the presence of special pathological processes in progress in the economy, whether they be local or general, medical or surgical, together with a brief enumeration of the leading clinical symptoms of each disease, and in most cases an epitome of their nature and etiology.

A HANDBOOK OF MEDICAL MICROSCOPY FOR STUDENTS AND GENERAL PRACTITIONERS, including Chapters on Bacteriology, Neoplasms, and Urinary Examinations. By JAMES E. REEVES, M.D., Member of the Association of American Physicians; Ex-President of the American Public Health Association, etc. Philadelphia: P. Blakiston, Son & Co. 1894.

The author of this excellent little manual states in his preface that his object in writing the book was to take away from the practising physician all excuse for his neglect of the microscope in his daily work. He says, and very justly, that the time has now come when all progressive physicians and surgeons, general practitioners and specialists alike, must either themselves possess sufficient skill in microscopic technique for the faithful and proper discharge of the high obligation which rests upon them in the diagnosis and treatment of diseases, or else be able to command the ready service of some accomplished microscopist and pathologist to do such necessary work for them. The writer himself is a general practitioner belonging to the former class, knowing by actual experience the needs of those situated like himself, and has the rare gift of being able to impart his self-acquired knowledge to others. The work is not elementary for the professional microscopist, but it is admirably adapted to meet the work of the general practitioner, for whom it was written.

We reprint the above criticism to give it our warm endorsement and add that this is one of the most valuable and practical works that can be placed in the library of every physician.

TEXT-BOOK OF HYGIENE: A COMPREHENSIVE TREATISE ON THE PRINCIPLES AND PRACTICE OF PREVENTIVE MEDICINE FROM AN AMERICAN STANDPOINT. By GEORGE H. ROHE, M.D., Professor of Therapeutics, Hygiene, and Mental Diseases in the College of Physicians and Surgeons, Baltimore; Superintendent of the

Maryland Hospital for the Insane; Member of the American Public Health Association; Foreign Associate of the Société Française d'Hygiène, etc. Third Edition, Thoroughly Revised and Largely Rewritten, with Many Illustrations and Valuable Tables. Royal Octavo, 553 pages. Cloth, $3.00 net. Philadelphia. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

This work comes to us in large clear type, well illustrated, and each chapter ends in a series of questions, which give it special value as a text-book in colleges. The various topics are presented clearly and brought up to the present time. The object is to present the leading facts in a suggestive, rather than an exhaustive way; to this is supplemented many valuable tables. It is essential that every physician should have a clear general conception of the progress of science in this field. This volume answers this purpose admirably and we commend it to all our readers as the best single work published on this subject.

A PRACTICAL MANUAL IN MENTAL MEDICINE. By Dr. E. Regis, Professor Mental Diseases. Bordeaux, etc. A Prize Work, 1886. Second Edition. Translated by H. M. Bannister, A.M., M.D., with an Introduction by the Author. Press of the American Journal of Insanity. Utica, New York. 1894.

This work was awarded the Chateauvillard prize by the Paris Faculty of Medicine in 1886. It is translated by the eminent expert, Dr. Bannister, and is practically one of the most thorough manuals that has appeared in this country. The work opens with an elaborate review of the history of insanity down to date. Under the head of general pathology are given the definitions of the various forms of mental alienation, and the etiology, progress, and termination. In the second chapter the functional elements and the constitutional elements, and the lesions of disorganization are very clearly brought out. After describing the various forms of mania, a

chapter is devoted to the degeneracies of evolution and the degeneracies of involution. Toxic insanities comprise a very interesting chapter. The second part, the practical applications of mental pathology, is not so original or suggestive as other parts of the works. The last chapter, on the medico-legal side of insanity, is suggestive and clear. Taken together as a manual from which a general view of the entire field of psychiatry may be had, it is the best work published. The general reader will find very clear teachings on all the general forms of mental diseases, and some of the divisions of these disorders will clear up the obscurity which has confused many persons. To the mental expert this work will bring many new points to view, and suggest a new study of some topics supposed to be settled. The chapter on toxic insanities, including pseudo-general paralysis, and morphinism, absintheism, etherism, chloroformism, chloralism, haschischism, cocainism, and oxy-carbonism are of great interest to all our readers, and gives outlines of new fields of study in the future. This is the first French work which has been translated in this country, and the first work of the kind ever printed in an insane asylum by the inmates. We predict a large sale and great popularity for the work.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. Edited by CHARLES E. SAJOUS and Seventy Associate Editors. Philadelphia: The F. A. Davis Co., 1894.

The present work marks the seventh annual publication of what has come to be an indispensable possession for those who desire to keep fully abreast with the medical literature of the day. The principal feature of this work is the clear, concise grouping of the new facts which have been presented during the past year. Several of the special reviews of different fields of medicine are of great excellence in their clear scientific presentation, showing skill and experience in the treatment of these subjects. The division of inebriety and allied neurosis, under Dr. Kerr's care, is thoroughly well done, and will attract many readers. This work is now so

well established, and the editor and his associates have become so familiar with the labor and skill of gathering and condensing from all over the field of medicine, that this work may be said to be the most complete encyclopædia of medicine ever published. From no other source can the physician obtain a wider and more complete view of the progress of scientific medicine in the world to-day. An important feature of the work is the excellent index, which at once refers the reader to any given disease, to treatment, or to the authors of publications upon any medical subject.

The *Literary Digest*, published by Funk & Wagnalls of New York city, is one of the most practical weeklies published, giving the reader an excellent picture of every event in all fields of history, art, and science, religion, and travels, covering all the world. Send for a copy and become a subscriber.

The *Review of Reviews* is one of the best magazines that can be sent to the busy man and physician. It contains a picture of the march of events from month to month, and at the end of the year is a splendid history of the times. No more acceptable present could be made. Send to the publishers, Astor Place, New York city.

P. Blakiston Son & Co.'s Visiting List for 1895 is one of the noted annuals that for forty-four years has been published consecutively. Besides being an account book of great value, it contains a great deal of most valuable information that is very practical and useful to every medical man. This is the oldest and best of all the many lists now on the market.

Our frequent notices of the *Popular Science Monthly* is always a matter of pleasure. No other journal brings so large a variety of scientific facts by the most eminent experts. It is a great relief for the physician to turn to other fields of science and watch the growth of new truths. This journal

brings every month a view of the ever onward movement of science, that widens and enlarges our mental horizon. We urge all our readers to become subscribers.

The *Homiletic Review* published by Funk & Wagnalls, brings the story of the march of religious truth, and the progress along the higher lines of life to each reader. This journal is stimulating, vigorous, and helpful to all readers.

The *Dixon Crayon* pencil is one of the most valuable for all general work. All pencils of this company are superior in uniformity and pureness of lead. These pencils are sold in assorted packages to professional men. Address Dixon Co., Jersey City, N. J.

CATARRH REMEDIES SAID TO CONTAIN COCAINE.— Dr. R. G. Eccles of Brooklyn has contributed to the *Druggists' Circular* some observations as to the dangers arising from the nostrums advertised for the cure of catarrah, due to their contained cocaine. He remarks that "the sober second thought has been commended by wise people through all time. When the Birney Catarrhal Powder Company took their second thought they deemed it wise to let their patrons know that they were using cocaine every time they blew Catarrhal Powders in their noses, and began to state this fact on their labels. They certainly could not have done a more discreet thing for themselves nor better for their patrons. This writer has certainly no desire to oppose those who with open eyes walk into medical danger, but he deems it a duty to the public to point out such danger and then allow each person to act as he desires." As to the danger, Dr. Eccles writes: "Persistent use will most likely establish a habit as bad or worse than drunkenness; to become a slave to cocaine is something terrible. The writer has seen several such wrecks, and they are truly objects of pity."

Editorial.

THE NEW YEAR.

It is always a pleasure at the beginning of the year to look back over the road we have passed; to study the movement and direction of events, to find some indications or intimations of the future progress. Twenty-four years have passed since the first meeting of our association at New York city, in November, 1870. Eighteen years ago, in December, 1876, the first number of THE JOURNAL OF INEBRIETY appeared. Only one person is living of that group of physicians who organized the association. THE JOURNAL still continues under the same management. During all these years the great central facts which this association and its journal were organized to proclaim have been slowly working their way into the public mind. That inebriety is a disease, and is curable, is fully recognized. The frontiers of truth concerning inebriety have widened, and each pioneer, from his advanced studies, points to wider and more extended realms of facts that have not been examined. While the year that has passed has echoed the turbulent shouts of the gold cure empirics and their frantic rivalry and dying groans, a great, restless movement has been apparent all over the world on a far different level. The evils and obstacles to all civilization from inebriety, and the possibility of their prevention and cure, are convictions that are rapidly centralizing both in this country and Europe. Wild schemes of reform and wilder remedies, involving the most serious complications and antagonisms are proposed. Legislation, law, theology, and the boldest charlatanism are fighting to have their theories tried and accepted. The many questions of inebriety and alcoholism are coming into prominence in society meetings, into discussions of social problems, in the re-

view and magazine, in the press and pulpit. Opinions are formed and defended with eagerness and boldness unknown before. The cure of a few hundred inebriates in asylums will be lost in the larger questions of prevention. This is the direction of scientific advance. How can we halt these armies of inebriates? How can we prevent and break up the recruiting stations? How can we isolate and lessen their destructive influence on society and on individuals? How can we prevent their culture and growth in our midst? Our association and journal have, during all these long years, urged that the inebriate was diseased, and controlled by laws of dissolution that moved with uniformity, and could be traced and understood. That all the confusion of theories and dogmas which are associated with these armies of inebriates, and the alcoholic problem practically will vanish in the light of scientific investigation. Every year our work raises in importance, and it is more and more evident that we are leading the advance and directing lines of research that promise a great revolution in the present study and treatment of this subject. Each year develops and solidifies the work of the past, and each year brings new assurances for the future. To all our friends and co-workers are due thanks and congratulations. The past is full of cheering promises for the future.

INEBRIETY AMONG RAILROAD MEN.

The drink problem on American railroads is a question of business and without any sentiment. If the man who uses spirits in moderation or excess shows any incompetency he is discharged at once. An engine was sent to the shop for repairs more frequently than usual; an inquiry showed that the engineer was a beer-drinker. The inference was that beer had disturbed his judgment and made him more reckless, and he was discharged. Practical men are afraid to use spirits on the road for fear they will neglect some duty, and not act wisely in an emergency. Re-

cently, a great railroad corporation gathered all the facts concerning the men, and the conditions of every accident which had occurred on their lines for five years. When tabulated it appeared that forty per cent. of all accidents were due altogether, or in part, to the failures of men who were drinking. That in eighteen per cent. there was strong suspicion of similar causes, yet no clear proof. In one year over a million dollars' worth of property was destroyed by the failures of beer-drinking engineers and switchmen. The companies' rules requiring temperate men for all positions are more and more rigorously enforced. Engineers find that practically they are unable to do good work while using spirits, even in small doses. The coolness and presence of mind so essential in their work is broken up by alcohol in any form.

Trainmen, men exposed to the weather, reach the same conclusion, if they are practical men. The startling mortality of brakemen is referable in many cases to the use of alcohol to drive out the cold, or keep awake in long hours of service. Each year the duties and responsibilities of railroad men increase, and men more temperate, accurate, prompt, and careful in their work are required. Only absolutely temperate men can do this work for any length of time ; all others fail and are dangerous in their weakness.

A western road permitted an inebriate, who was really an able man, to continue as a claim agent adjusting accounts against the company. His drinking was supposed to be an aid in the settlement of claims with other drinking men. After his death a temperate man who filled his place saved several thousand dollars a year by doing the same work, repeating the common experience that inebriates are always more or less incompetent. The great railroad strike of last year began among inebriates, and was sustained by drinking men and saloon loungers everywhere. While the large, well-managed companies are steadily driving out all moderate or excessive users of spirits, as business wisdom, and a measure of safety and security to the road, many of them

make the mistake of permitting open saloons in their buildings at stations. The poor workmen are thus exposed at a time when they are least able to resist. It is inconsistent to rigorously forbid all use of spirits to the employes, and provide it for the traveling public. Notwithstanding the fact that nearly two-thirds of all trouble and accidents to passengers are confined to inebriates and persons intoxicated, several roads have recognized and avoided this mistake. It may be said with pleasure that inebriety among railroad men is rapidly decreasing, especially among men in active service. The time is approaching when railroad men will be composed of the most superior mechanics and workmen of the world. Of the railroad men who are inebriates and discharged, they are probably the most incurable. The strains and drains essential and a part of the work, especially of trainmen, are followed by a form of exhaustion and central nerve degeneration from which recovery is difficult. Railroads are rapidly teaching the true solution of the great drink-problem, viz.: That alcohol is an anesthetic and paralyzant, and that inebriety is a disease, and the victim unfit and incompetent to act and reason soundly. They are also teaching the incompetency of men who use spirits to do any form of work requiring care and exactness. When this is accepted as a fact, inebriety will be judged in its true light, and the inebriate thrown out as unfit and unable to do the world's work.

INEBRIETY AND CRIME UNDER THE NEW YORK CODE.

The common law was emphatic in stating that drunkenness was no excuse for crime, but in certain cases evidence of intoxication was admissible, and could be considered as an extenuation. The statement that a man who made himself voluntarily drunk should take the responsibility for any crime committed is repeated as if it was a truism. If the assault was unprovoked the fact of intoxication would not be allowed to affect the legal character of the crime. The jury should

not consider this fact of intoxication where the question of premeditation was raised. From this the New York penal code has varied, and provides that a crime committed while intoxicated shall be equally criminal, but whenever a purpose or motive or intent is apparent constituting a particular species of crime, the jury may consider the fact of intoxication in determining the purpose of the crime. It is affirmed that the fact of intoxication might show either premeditation and deliberation, or the absence of it; this the jury should consider, and the judge should leave it to them exclusively.

Recently the Court of Appeals have decided "that it does not think that under this statute the intoxication need be to such an extent as to necessarily and actually preclude the defendant from an intent or from being actuated by a motive before the jury would have a right to regard it as having any legal effect upon the character of his act. Any intoxication may be considered by the jury, and the decision as to its effect rests with them. But that a man may be grossly intoxicated and yet be capable of forming an intent to kill or to do any other criminal act is indisputable; and if while so intoxicated he forms an intent to kill and carries it out with premeditation and deliberation, he is without doubt guilty of murder in the first degree.

"If, however, by reason of intoxication, the jury should be of the opinion that the deliberation and premeditation necessary to constitute murder in the first degree did not exist, the crime is reduced to a lower grade of murder, or in the absence of any intent to kill, then to manslaughter in some of its grades. The intoxication need not be to the extent of depriving the accused of all power of volition or of all ability to form an intent."

This is a marked advance from previous rulings of judges and shows that the facts are slowly being recognized. The statement "that inebriates can be grossly intoxicated and capable of forming an intent to commit crime or kill is indisputable," is only true in theory. The crime committed in this state is always impulsive, unreasoning, and accidental.

The next statement of being able to premeditate and deliberate when grossly intoxicated is never seen in reality. While men intoxicated may display some cunning and persistency of purpose, they never deliberate or premeditate when intoxicated. This is impossible for a brain anæsthetized by spirits. In some cases men who have drank a little become possessed of delusions, and may develop insane cunning in conduct for a time, but this is so clearly defective as not to be classed as sane. The question of motive and intent in a drinking man cannot be determined; there are no facts or means of comparing his mental operations with that of a sane man. The brain is in a semi-paralyzed condition, and cannot act normally or sanely; also he may have a defective brain when not under the influence of spirits; he may be incapable of forming a conscious motive and intent for any act. The delusion that intoxicated men can act with the same capacity and consciousness as when sane, still clings to the legal theories of crime. Happily, a change is going on in public sentiment, and the law will recognize it in the near future.

GOLD CURE LEGISLATION.

According to gold cure authorities, the State of Colorado has enacted a law, now in active operation, which has some unique features. The first section permits anyone to petition to the board of county commissioners to place a drunkard in a *reputable gold cure institution* at the expense of the county. The inebriate must show his anxiety and willingness to take such a treatment and be properly vouched for. Then the board shall send him to the institution which will receive him at the lowest figures, provided the best interests of all seem to be promoted by this course, and the county shall pay the bills. This cure and treatment shall be according to the wishes of the board, who may change or stop the treatment or send him to another institute, as they may consider proper. No county shall send the same man twice to the same institute. The inebriate agrees to attend the institute

for treatment, and asserts his excessive addiction and inability to abstain alone by will power.

The second law seems to be in operation in Maryland. This provides that the friends of the inebriate may petition the judge of the court to send the case to some institution at public expense. This institution shall show by a sworn certificate that it has had the largest number of cures during the past twelve months and the smallest per cent. of relapses. Such certificates are to be deposited with the secretary of state. This institution shall not charge a sum greater than one hundred dollars for treatment. No case shall be bound to be sent to an institution who will charge less than one hundred dollars unless the judge thinks the best interests will be accomplished.

A law has been passed in *Louisiana* of the same purport, and limiting the cost of treatment to one hundred dollars. A law has been introduced in *Wisconsin* to commit inebriates to some institute where the remedies have been in use for five years, and are supposed to be sound and useful. The cost is not to exceed one dollar a day, and the length of treatment be determined by the physician in charge. This has not become a law yet. Great emphasis is laid on the institute who has demonstrated a thorough method of treatment.

Evidently the day is far spent and the night is coming on, and, unless the State comes to the rescue, many poor inebriates will go down before the gold cure ark comes along.

CASE OF JANE COYLE.

This woman was married, without children, and had lived a quiet life, attending to all her household duties. Her husband was a prosperous groceryman, devoted and kind to his wife. Her ancestors had been beer-drinking English people of the middle classes, and she had occasionally used beer, when feeling badly, for many years. When about forty-four years of age, after a mild attack

of fever, she began to use spirits to stupor. This grew worse until at fifty she was a chronic inebriate. At this time she drank brandy every day, and was intoxicated each night, and had become incapacitated for all duty. In the morning, when not so bad, she would beg her husband to help her, and to find some remedies or physicians who would cure her. Several medical men prescribed for her, and a three months' visit to a private sanitarium was followed by a relapse, and the same excessive drinking. One day, after a period of more than usual excess, when the family physician was called and prescribed some temporary medicine, his opinion was asked by the distressed husband. In a loud, emphatic voice, so she could hear him in the next room, he declared she was incurable. He said she ought to die as soon as possible, that she was determined to kill herself and go to hades, notwithstanding everything that could be done. He urged her husband to procure a barrel of the cheapest brandy, and place it in an adjoining room, and give her every facility to drink as much as she could. Adding that in a short time she would die, and all would be glad to get rid of her. After hearing this and similar advice from the physician, she relapsed into a semi-stupid state, and refused to take spirits. The next day a barrel of brandy was placed in an adjoining room, and both husband and nurse were urgent in their advice to have her drink of it. She continued to refuse, using milk and coffee in the place of it. Finally, she became very angry, and ordered the barrel taken away, and begged them never to mention the name of spirits again in her presence. From this time she recovered, never using alcohol again, and when able to walk about had all spirits removed from the house. She continued temperate and well four years, up to death from acute pneumonia. This was a case of psychical shock, in which some unknown physiological change took place in the brain, and the drink-craze died away at once. The impression of an idea was so overwhelming that it dominated all diseased impulses, and enabled her to live temperately until death.

STATISTICS OF INEBRIATES.

I stated two years ago that there was approximately one million six hundred thousand persons who use spirits to excess in the United States. By excess I meant all persons who drank to intoxication continuously or at long intervals. This would include many persons who are temperate most of the time, then have drink paroxysms. It would also include persons who use strong spirits daily, seldom manifesting the usual symptoms of intoxication, but at all times more or less under the influence of spirits. These figures were reached from a study of the statistics of persons arrested for intoxication in the lower courts, also the general opinion of persons with a wide acquaintance among business men, who assert that less than two per cent. of all drinking men come under legal notice. The comparative statistics of a town of five thousand people in Massachusetts, Kentucky, and Texas might differ widely in the number of spirit-drinkers, and yet the same general facts would prove true in all of them. In some communities a very large per cent. of all the males are spirit-drinkers, and many females use spirits as a medicine most of the time. Of course, wide differences of opinion will prevail until some accurate statistics are made. Two attempts to make a census of drinking men in Eastern towns revealed many difficulties, and the intensely morbid desire to conceal the drinking customs of people. Both of these censuses indicated one drinking man to every eight persons, and a strong conviction that this was a very low proportion. There are many reasons for believing that the estimate of a million six hundred thousand persons who use spirits to excess in this country is a minimum rather than a maximum statement. If the persons who so frantically deny this statement will make a little study in their own neighborhood, they will probably find facts that will materially change their views of the extent of spirit-drinking in this country.

Clinical Notes and Comments.

INEBRIETY AND INSURANCE.*

By Dr. Norman Kerr, London.

Dealing first with the subject of insurance against accident, Dr. Kerr said that associations insuring against accident, or death by accident, usually had a proviso to the effect that no claim could be allowed if the insurer was intoxicated at the time when the accident occurred. Two special legal points were here involved. To successfully resist a claim on the ground of the insured's drunkenness at the moment when the accident took place, it must be established that he was drunk at the time. It must also be proved that the accident was the cause of his inability to follow his occupation, or of his death. With reference to the first point, the lecturer pointed out that the contradictory testimony of witnesses was sometimes most perplexing, due to the fact that there were varying opinions as to what constituted drunkenness.

After quoting cases in which companies had been successful in resisting claims, where proof had been forthcoming that death was due to alcoholic disease, the lecturer proceeded to deal with life assurance apart from accident, and quoted cases to show that resistance to claims for payment had been successful on the ground of concealment of intemperance. In all cases, however, the refusal of the payment of the amount for which the deceased's life had been insured, on the ground of concealment of intemperance, had not

* A synopsis of a second lecture before the Society for the Study of Inebriety.

been sustained. On the point of concealment of intemperance, it was not always easy to establish that the deceased was intemperate either before or after insurance had been effected. Having touched upon the question of opium, the lecturer said that in addition to the purely medico-legal relations of insurance actions to inebriety, there remained a wider and important field for research in the commercial relation of life insurance itself to narcomaniacal indulgence. Insurance companies were generally understood to be desirous of avoiding the risks of intemperate lives altogether, but there could be no doubt as to the fact that a considerable proportion of the many inebriates who abound in our midst were insured. What the exact proportion might be, it was difficult to estimate with even an approach to accuracy. Among the drunken poor only a very small number of individuals had life policies, but as we ascended in the social scale the ratio increased. Of inebriate artisans and skilled workmen, probably more than one-half had their lives insured. Coming to the middle and upper classes, so called, in all probability at least one-third of men had taken out policies on their lives. Inebriates who were insured might be divided into two groups — those who effected their insurance before and those who effected their insurance after becoming addicted to drinking. With regard to the first class of insurers, the lecturer said that no provision except the forfeiture of the policy on the substantiation of the fact of intoxication at any previous period in life could possibly meet the difficulty. Such an insurance revolution, however, would be too radical, such a procedure too drastic, to be practical. If enforced it would probably act as a strong deterrent from insurance altogether. Yet the loss to insurance associations from this source was undoubtedly grievous and amounted to a very much larger sum than almost any one could imagine. Some time ago a leading official to a well-known life assurance company in the United States estimated the annual loss arising on inebriate lives insured with his office at several millions of dollars. With regard to

the second class of inebriates, those who were addicted to intemperance for a longer or shorter period prior to applying for a policy and who concealed their previous mode of life from the office, that was a still more numerous class than the other, and the loss accruing therefrom was very grave indeed. As he had before pointed out, there was a remedy at law for the companies against this species of fraud — for fraud it often unquestionably was; although in many cases the concealment was not purposely designed. Of course the various life offices had to bear the brunt of the heavy financial loss arising from the insurance of both these classes of inebriate lives — or rather the burden of loss on these additional and uncertain risks had to be shared by the policy-holders, the offices being compelled in self-protection of themselves and their assured to weigh the scale of all premiums sufficiently to cover such risks. The result was that the rates of premiums were higher than they would be if the inebriate risks could be substantially reduced. Thus the abstaining life had to bear the loading necessitated by the abnormal risks of inebriate policy-holders. Having pointed out that such a system acted unfairly against and was unjust to the abstaining policy-holder, the lecturer commended the example of such offices as the United Kingdom Temperance and General Provident Institution, the British Empire Mutual, and the Sceptre, who had separate classes for abstainers and non-abstainers. It ought not to be forgotten that the acceptance of so-called "moderate" or "temperate" lives involved not a little risk of the offices being saddled unawares with a considerable sprinkling of undesirable, because doubtful, lives. That risk, however, was practically unavoidable for many reasons, for there were so many interpretations of intemperance, for a given quantity of alcohol had a different effect (*i. e.*, in degree, not in kind, all intoxicants being of a poisonous character) on different individuals, and even on the same individual at different times. It remained, therefore, to locate the standard in the specific life, in the individual idiosyncracy, and

make the standard itself the real (not the apparent) effect which any beyond an arbitrary physiological minimum might, from their modern knowledge of the action of alcohol and its narcotic allies, be reasonably believed to have on the life in question as compared with the known effect on an average life. The effects of such habits might not show themselves immediately; but the insurance office required to be informed of their existence or non-existence, and not of the period when they were likely to affect health visibly or to engender a fatal disease. To assert that a man could be addicted to excessive drinking without impairing his health was contrary to experience. There was no such compensation or balance of habits as was supposed to exist in such cases. Habit might accustom a man to intemperance, it might enable him to drink a large quantity of alcoholic liquor without apparently being injuriously influenced by it at the time. But a deranged state of the system would sooner or later follow, and delirium tremens or dropsy would probably intervene. A good constitution might enable a man to resist the pernicious effects for a certain time, but ultimately they would show themselves in some form of disease, and the result of his intemperance was made apparent by early death. As to what constitued intemperance, the lecturer quoted Dr. Tidy, who had said, "It is difficult to say in words what constitutes intemperance. An occasional 'drinking bout' does not make a man, in strict phrase, 'intemperate.' Again, a habit of indulgence which would constitute intemperance in one man may not constitute intemperance in another. Hence, for insurance purposes, the true question is, not What constitutes intemperance generally? but Is there reason to believe that the applicant takes more alcohol than his constitution will bear? In this matter, the general circumstances of a man's life must be considered. Much beer and much exercise is a totally different combination to much beer and sedentary habits. Hence it is evident that, in insurance cases, physicians and jury must consider the word 'intemperate' as a habit prejudicial

to the life of the special individual and not in any broad and general sense." Continuing, Dr. Kerr said that the most skilled and painstaking physical examination would fail to disclose the initial morbid states of gradually but surely advancing inebriety, in many cases. Only when the disease had attained a certain height could any appreciable sign of its existence be so diagnosed. Hence the need for some more scientific method of dealing with proposals from inebriates who were not recognized to be inebriates by public estimation. Little as we know with certainty about this malady and the action of inebriants on the human frame, we know enough to form an approximate idea of the comparative values of temperate and intemperate lives. By "temperate" lives they might mean insurable persons who, if they drank at all, drank too little and too seldom either appreciably to disturb normal functions, or to keep the system continuously under the influence of the intoxicant. There was a scale which might fairly be applied in the elucidation of this valuation. We know that one prominent effect of alcoholic poisoning, whether spread over a longer or shorter series of years, was premature aging. If there was one fact concerning alcohol better established than another, it was that it operated in antedating the day of our death. Based on an exhaustive comparison of a wide induction of insurance death returns and distribution of profits to abstainers and non-abstainers, the medical examiner ought to be able to load the premiums of any inebriate, whose life was not rejected, with additional years of premium corresponding to the increased risk. That scale might be extended in application to the lives of "moderate" drinkers. As the vital statistics of those companies which insured non-abstainers and abstainers in different sections showed a higher rate of mortality, with a smaller proportionate return of profits among the non-abstainers than among the abstainers, a thoroughly scientific revision of rates would take the abstaining life — free, of course, from organic disease, as the normal starting point. That would be

a typically healthy life, calling for no loading of premium. Each non-abstaining life which might be deemed fit to be accepted (of course some of this class of lives would involve too heavy a risk and would have to be refused) would be weighted with an addition to the premium on abstaining first-class lives, proportional to the extra risks involved. That would be fair to all parties. The non-alcoholic insurer would reap the full benefit of his healthful habits; the "moderate" or "immoderate" or "free" drinker would have to pay a premium commensurate with the actual risk on his life to the office insuring him. Having given it as his opinion that regular "moderate" drinking tended to shorten life, he said that practical confirmation of the noxious influence of what was generally held to be "moderate" drinking and of the accuracy of the scientific classification of alcohol as a poison, was afforded by the only available practical test — experience. The records of associations for insurance against sickness and death, with different sections for abstainers and non-abstainers, supplied the opportunity of applying that crucial test. Take a quarter of a century's returns of the United Kingdom Temperance and General Provident Institution. The expected and actual claims for insurance against death during twenty-five years had been, in the General Section, 7,277 and 7,043; in the Temperance Section, 4,856 and 3,423. That was to say, there was a mortality in the General Section of 96.66 per cent. and in the Temperance Section of 71.49 per cent., a difference in favor of the latter of 26.17 per cent. In other words, reckoned by a common life table, there were 243 fewer deaths in the General Section, against no less than 1,433 fewer among the abstainers. If all those insured had been non-abstainers, the total deaths would have been 11,727. If all had been abstainers, the deaths would have been 8,553, a difference of 3,174 deaths, which last total number gave the nearest approach to accuracy as to the preventable loss by death to a considerable group of selected lives. Any objection to the unmistakable

meaning and force of those figures on the score of the General Section including some inebriates, was counterbalanced by the fact that the lives in that section had been below the expectancy, supplemented by the additional fact that some of the abstaining section had been reclaimed drunkards, and had succumbed to cirrhovic and other fatal lesions dating from their pre-abstinence days. The transfer of insurers from one section to the other, both ways, had not appreciably affected the comparative death rate. The only precise information which he had as to transfers had been with regard to the Sceptre office, Mr. Bingham having supplied him with the total number of deaths in the transferred during the seven years, which had amounted to seven. The fact was that the transfers had been found to occur from the omission of the insured to fill up and send the declaration of continued abstention which had to be done at stated times. The claims by death expected during 1891 in the Sceptre (calculated by the Institute of Actuaries' HM table) as compared with those which actually occurred, were as follows :

General Section.

Expected Claims.	Actual Claims.	Rate per cent.
115	93	80.86

Temperance Section.

Expected Claims.	Actual Claims.	Rate per cent.
61	30	49.18

The returns of the office for eight years showed a difference in favor of abstaining lives of 22.5 per cent. Having quoted other figures to show the advantage of total abstinence, Dr. Kerr said the figures he had given proved that even the strictly limited dietetic use of intoxicating beverages was prejudicial to health, inimical to longevity, and considerably increased liability to disease. Even if the regular limited, or moderate, drinker never drank to excess, other things being equal, he would yet have less vitality, greater liability to disordered health, with inferior recuperative powers to stand up against the onset and weakening effects of disease and accident. Another very important point, especially in these later days of more active philanthropic effort at the res-

cue, and of intelligent medical treatment, of the victims of strong drink, resulting in the greatly increasing numbers of reformed and cured inebriates, was the answer which insurance companies had to make to applications for policies on the lives of inebriates who had entirely abandoned the use of intoxicants and all other inebriating substances. In their "Handbook of Assurance," Dr. J. E. Pollock and Mr. James Chisholm had written these remarkable words: "We scarcely believe in the existence of a reclaimed drunkard, so rarely is he met with in medical practice, and after many years of active professional work we have scarcely seen two such cases which could be verified." And they added: "We cannot, therefore, advise the acceptance of a total abstainer who is known to have been habitually intemperate. They almost always break out again." Mattison, in "Opium Addiction as Related to Life Insurance" (New York), said: "All companies, very properly, exclude alcoholics; but ex-rum users, if all other conditions be good, are taken by most life assurance companies on short-term policies after three to fifteen years, provided the steady taking ended before the age of thirty-five."

It must be borne in mind, continued the lecturer, that even if an inebriate totally discarded his cups and never drank any quantity of any intoxicant, nor consumed in any form any other inebriant, he could not expect in his strict teetotal days to escape "scot free" from the injurious physical consequences of his previous term of intemperance. Especially with alcoholic intoxicants did an inebriate course of five, ten, fifteen, twenty, or more years leave its mark on the frame which had been so long assaulted with heroic doses of so potent a poison as alcohol. In many different ways and on many vital organs, by tissue destruction, by structural degradation, by cell degeneration, by permanent lesions of stomach, liver, kidneys, lungs, heart, brain, and nerve substance, as well as by the deterioration caused by functional disturbance and depravity. Alcohol branded as with a red-hot rod of iron the whole man, leaving the

scars to attest, long after its abandonment, its once blighting influence on the human body. There were, therefore, additional risks in insuring an erewhile though now abstinent inebriate, but those risks were not nearly so great as Pollock and Chisholm's sweeping pronouncement would seem to indicate. The onward route of the marvelous series of phenomena of the nineteenth century known as the temperance movement, or abstinence crusade, had been thickly dotted with an enormous company of drunkards transformed by its beneficent influence into sober and industrious citizens, a chaplet studded with pearls of great price, each of which was worth a king's ransom. Reclaimed inebriates were everywhere around us, entrusted with responsibilities of no ordinary value. In all ranks, professions, and callings they were to be found fulfilling the duties of life as faithfully as the abstainer from birth. After nearly thirty years of study and experience of the case of habitual drunkards, he had no hesitation in declaring his belief that, on an average, at least one-third of such as have been under skilled treatment and in seclusion for a sufficient time have remained staunch water drinkers all through their after life. Even of drunkards brought under moral and abstinence influences alone, without medical cure (though most religious and moral missions of this kind now recognized a diseased condition in the greater number of drink victims), his observation had been that from 10 to 20 per cent. had kept steadfast in the practice of the only safe rule of life for them — entire abstinence from all intoxicants. The aggregate of the saved from alcoholic excess was thus by no means contemptible. He estimated that in Britain there were at least 200,000 ex-drunkards now consistent nephalists, a goodly proportion of whom had a record of from ten to thirty and more years' freedom from alcoholic inhibition, and there were at least as many more in the United States of America. Taking into account the similarity, rescues in our colonies, on the continent of Europe (where special sanatoria and the temperance propaganda had cared for a very large number of individ-

uals), and in other quarters of the globe, he felt that he was far within the truth in computing the present number of permanently restored inebriates in the world at no less than 600,000. He was therefore of opinion that all lives of reclaimed drunkards should not be rejected by life assurance companies. A certain proportion of such lives were so bad, the proposers had so permanently and seriously damaged their constitutions by their former indulgence, that they were practically uninsurable; and justice to the already insured demanded that such utterly bad lives should be refused. Where, however, there was no evidence on examination of organic disease, and where the abstaining period had been long enough to warrant a reasonable prospect of abiding abstention, such lives ought to be deemed insurable at an additional risk, representing an enhanced premium. What the loading should be could be arrived at by actuarial calculation on the wide induction of facts and figures in the possession of insurance societies. In this connection, two points had to be determined — first, What term of abstinence should be regarded as a minimum requirement? There could be no absolute term fixed, as the necessary nephalian term would depend largely on the present state of the proposer's health, on the duration of the drinking habit prior to abstinence, and on his heredity — inebriate, neurotic, and general. But it appeared to him (the lecturer) that, taking into consideration the deceptive character of alcoholic action on the constitution, a minimum abstinent term of five years should be held to be the shortest abstaining career qualifying for the consideration of a proposal from a reformed or cured inebriate — in a case of not more than five years' standing. Beyond five years there should be half a year of probation added for every additional year of former intemperate career. With opiumists, the minimum term of freedom from the drug might be rather less. Though opiumania and morphinomania were more difficult of cure than alcoholomania, pathological science had not as yet revealed any *post mortem* appearances indicative of the grave organic degeneration

and permanent structural alterations seen in the bodies of intemperate alcohol takers. The well-known case of the executors of the Earl of Mar *vs.* Edinburgh Life Assurance company, tried at Edinburgh in 1830, did not yield any facts in support of the contention that opium-eating was antagonistic to long life, which was one of the pleas relied on by the company for resisting payment of the policy. There could hardly be any doubt, however, that in the opinion of the overwhelming majority of medical observers, that continuous, excessive opium consumption was subversive of good health, and therefore likely to induce premature decay. On the whole, giving due consideration to all the probabilities and risks, he agreed with Dr. Mattison's suggestion that three years' entire abstention from the drug in any form, after not more than five years, ought to qualify for the acceptance of a life in other respects eligible for insurance. He (Dr. Kerr) would add the additional condition that the applicant be not above forty-five years of age on this probation. If the practice had been extended over five years, he would extend the period of probation six months for every additional addiction term of two years. In the case of inebriates addicted to chloral and chlorodyne, he would insist on the same minimum probationary term as with opium; but in the case of chloroform and ether inebriates, on the longer term required for abstaining alcoholic inebriates. The other point for consideration was the amount of loading which the premium of an insuring cured alcohol inebriate of at least five years' good standing ought to bear to meet the additional risks on the individual life. Reviewing the results of the various series of vital statistics which he had adduced, before the exact risk was determined by actuaries from a collection of records extended enough to warrant fairly accurate deductions, they might form a rough idea for present purposes. In the case of alcohol drunkards, if the period of alcoholic addiction had been not over five years, he would suggest a loading which would bring the premium up to the

premium payable at the ordinary risk on a life being insured five years later in life. For every additional year of the alcoholic indulgence, he would add half a year's extra premium. In the case of opium consumers who had given up the poison for at least three years, he would age the premium by weighting it so as to bring it to the premium, at ordinary risks, payable if making the proposal four years older. The lives of once inebriate, but now abstinent, persons would thus be eligible for insurance at an increased charge for premium somewhat commensurate with the added risks ; and a solid encouragement would be held out to drunkards to reform. There were many circumstances peculiar to an individual life to be weighed — for example, the risk would be very much greater in the case of a person who had been predisposed or excited to inebriety by permanent structural brain lesion, as in syphilis affecting that organ, than inebriety developed through evanescent functional disturbance. In the same way the risk would be smaller in an ex-inebriate with no family history of inebriety or insanity, than in one with a clear heredity of either of those diseases.

In conclusion, Dr. Kerr said that Dr. Mattison had proposed that the lives of reformed drunkards might be insured on the condition if they relapsed into inebriate excess the policy would lapse. In the event of such a course being adopted, there ought to be adequate provision for the repayment by the company of the surrender value if re-addiction should unfortunately take place. There would appear to be some doubt in the minds of insurance officials as to whether the enforcements of such a condition could be sustained in law, or whether in a suit against the insurer for the payment of the policy on the life of a reformed inebriate who had returned to his potations, the verdict would be against the insured. A legal opinion, however, had been obtained to the effect that such policies might be issued and that there was no legal objection.

THE CURE OF THE ALCOHOL DISEASE FROM A PHYSIOLOGICAL POINT OF VIEW.

By A. Enfield, M.D., Bedford Springs Sanitarium, Pa.

The day of medical theories which do not have the basis of established facts to justify them belongs to the past. It has taken ages of observation and investigation, by the greatest intellects of the profession, to elevate the science of medicine to the high position it now occupies. We live in an age of light and knowledge, an age in which old isms, theories, and fallacies are fast disappearing before the sweeping progress of this century.

The past decade has given us the beginning of a new epoch in the science of life. Medical science is now called upon to defend our bodies from the parasites which prey upon us from without, and physiological and chemical research have taught us the therapeutic application of drugs in the cure of dipsomania and kindred diseases.

The power of self-regeneration is one of great distinctive properties belonging to all organized living bodies, but the moment we commence to live we begin to die. Molecular change may be increased or retarded by various foods and drugs taken into the system at stated periods. We apply the term "hunger" to that peculiar want felt by the human system for food, a sensation (when not too prolonged) by no means disagreeable, and one which is often excited by the sight or smell of a savory dish.

It is true the taking of food is influenced in some degree by exercise and habit, as well as by the sense of hunger, and if our systems are not supplied at regular intervals by this nourishment the sensation becomes so great that we suffer great pain and distress.

All the elements necessary to nutrition (except oxygen and light) can be taken into the system by the mouth; and if it were not that there comes a time in the history of every

organized body when the tissues fail to appropriate sufficient new material to repair the waste we would continue to live forever. Death is, consequently, a physiological necessity. Therefore, there is no such thing as true euthanasia. But it is the duty of the physician to secure for man such good health as shall bear him in activity and happiness onward in his course to the goal. Good health and happiness can be secured by living in obedience to the laws of health. When the medical profession succeeds in teaching the world how to live in a proximate, physiological, and normal condition, then physicians will have reached the consummation of their calling.

Fifty years ago there was not a medical college in Europe or America that had a special chair of neurology, whereas, to-day there is not a school that has not at least one such chair, and some schools have two or even three professors who are giving their whole time and attention to discoveries and advancements in this important branch of medical science. It is, therefore, gratifying to the American student of scientific medicine to note the amazing progress that has been made in the discovery and cure of nervous diseases, especially by American neurologists.

It was our own beloved Rush who, a century ago, stood as the great pioneer (in advance of all the world) to describe and clearly demonstrate the future of this branch of medical science. It was through men like Rush, Pinel, Brown-Séquard, and others who taught us that insanity is a disease, and not the devil, in man, as was generally supposed prior to their time. So that to-day, while medicine is advancing all along the line, in no other department has there been such an advancement as in the discovery and treatment of nervous diseases. Advancement has been so rapid in this special department of medicine that some writers claim that all diseased manifestations are but the result of nervous shock.

Vesalius took his own life in his hands when he was brave enough to sharpen his scalpel for his first dissection of the human body. Galen taught us that the arteries con-

tained blood and not air, and Harvey showed us how that blood circulated. Jenner, Pasteur, and Koch have been bold enough to transfuse the very elements of chemistry into our blood, in order to kill the myriads of germs that infest our organisms, and produce disease and death. By the aid of physiology and chemistry, we have used the elements around us to cure disease and prolong life. The great labors of the past are but now beginining to bear their fruits. Alcoholic neuritis is no longer considered a habit, but a disease ; as much so, indeed, as insanity.

It is an insult to medical science to say that all the brave and good men who have killed themselves with alcohol and opium did so just from habit. Tell me that all the men of genius whose lives have been wrecked and ruined by these drugs were led to their use by mere accident? Impossible!

These men fought like heroes against their diseases, and for these diseases they are not responsible. The day has come in the fullness of time when we can say that this disease which has destroyed so many shall destroy no more. Thousands of human beings are being rescued from the destoying influence of these diseases, and thousands and tens of thousands are yet to be saved from an untimely death.

Every new advancement in science is met with a storm of opposition. Dipsomania must be recognized as a disease and not as a habit. Until recently the medical profession has neglected to examine this subject carefully from a physical point of view. We must examine this subject the same as we examine any other ailment if we wish to reach a satisfactory conclusion.

It is not the intention of this article to begin a controversy with those who honestly believe that inebriety is the result of habit alone. Inebriety is no more due to habit, vice, and sin than is insanity. If inebriety is a disease, then its cure rests with the physician ; if it is wholly a sin, and man is entirely responsible for his appetite, then his treatment and salvation must come from those who claim that it is a habit.

A Christian will be a better, a brighter, and a happier Christian if we can remove this appetite for stimulants and give him a healthy stomach. An ounce of cure is worth a pound of prevention, if applied at the proper time. Thousands have been crying for help from this dreadful disease, while theorists have been talking, and preaching, and splitting hairs as to whether it is a moral or a physical evil.

The word habit, as is the word malaria, is a convenient word with which to explain something we know nothing about. Conversion, change of heart, and the grace of God are the great moral helps, but they cannot cure a diseased system nor a depraved stomach. The moral side of intemperance has been proclaimed for ages, and yet statistics show that inebriety is on the increase.

On this subject the medical profession has remained silent entirely too long, and it has allowed the moralists to advance their own views in the matter, without any scientific examination of its cause, its nature, its character, or its curability. We must admit that the moral agitation of the subject has done much good, but still there is something wanting. The removal of alcohol does not remove the craving for its use, but rather increases the appetite for it.

If we cannot cure the inebriate by the application of drugs scientifically applied, we shall never be able to cure him by forced abstinence. Public opinion may deny this and opposition may come from every superstitious person in the land, but that will not frighten the conscientious and progressive physician who has science, experience, and results to support him. He must go patiently on, and look beyond the present opposition of the incredulous and skeptical public, until he has worked out the physiological and pathological condition of the inebriate and restored him to health

Man is a complex animal, full of variations, and easily influenced by any change in his nerve-centers. His call for stimulants arises from a loss of nutrition to some part of the central system, just as the call for food arises from the same cause. Therefore, it is impossible to cure this morbid crav-

ing, which has its seat in the brain, without first removing the cause by appropriate medication.

The inebriate may be anxious to quit the use of the stimulant, but the moment he makes the attempt his diseased stomach and brain give notice that they must have something to nourish them.

It is not within the scope of this short article to analyze and examine the many predisposing causes of this disease,—such as heredity and non-heredity, occupation, etc., — or we might present many facts and data that would help to determine this question, outside of any social feelings or opinions we may entertain.

There is no subject in medicine that should receive more interest or more attention from the profession than this subject of inebriety, and yet, in the past, we have allowed the laity to do all the thinking, writing, and legislating on the subject. It is time we call a halt. The physician is certainly better qualified to investigate the subject, and to pass his judgment on it than those who have never examined it from a scientific point of view.

The same general principles apply in the treatment of this disease that apply in all chronic nervous diseases. Physical laws and forces are the same in all individuals. The system broken down by long years of dissipation cannot be relieved by any one drug or combinations of drugs alone, but by building up the whole body by special diet, baths, exercise, electricity, and good hygienic surroundings.

In my hands a combination of drugs has proved most beneficial. Each and every case must have special treatment, according to the symptoms manifested.

No doubt chloride of gold may possess alterative properties, and, when properly and systematically given, in combination with strychnine, atrophine, coca, quinine, sulphonal, and codeine, has a tendency to change the habits of the system, remove the diseased condition of the nerve-centers, and allow nature to return to a normal condition.

These powerful drugs, when given for a long time, so pro-

foundly influence and build up the nervous system that the inebriate feels strong and well, and gradually acquires as much repugnance for stimulants as he before had an appetite for them. The treatment breaks or removes the cause of the disease, and the inebriate starts in a new career of life. Of course, he may relapse ; so he may from any other nervous disease. Anything that tends to exhaust the brain or lower the vital forces predisposes to a return of the disease.

The individual should live a life free from excitement, annoyance, and worry ; eat wholesome and substantial food, and be constantly under the observation of a physician. Physicians who are familiar with the modern treatment of inebriety, do not condemn that treatment ; but they rightly refuse to indorse nostrums of which they know nothing. The general practitioner has not the time to devote to the treatment of these cases. He might as well attempt to treat all his cases of insanity.

Specialists have explored the grounds, investigated the disease, and formulated the treatment, and are, therefore, more competent to handle such cases successfully. Nor is it advisable for the patient to treat himself. Most drugs that are of any value in this disease would prove dangerous in his hands.

My reason for dwelling upon the neurological and physiological aspect of this disease is, to call the attention of those outside of the medical profession to the great advancements that have been made in this special department of the healing art. The world is too apt to look with disfavor upon any new discovery that is invisible and incomprehensible to the common mind.

People grow wild over the graphophone, the telephone, or the electric car, but fail to realize the subtle and invisible agents that science is using to cure man. In conclusion, we may then state with perfect confidence that inebriety is a disease and not a habit, and, being a disease, is, therefore, curable ; and, in order to intelligently treat it, we must study the nature and character of the disease as it manifests itself in

different individuals. We must approach the subject from the physical and not from the moral side of the case. We must discard any preconceived notions and theories not based upon facts.

TEA INEBRIETY.

Dr. Wood of Brooklyn, N. Y., in the *American Therapist* calls attention to the consumption of tea and coffee at the Pennsylvania Insane Hospital at Philadelphia. He finds from the statistics of the past year that the women drank one ton and a half of tea, and nearly four and a half tons of coffee. The men drank a half ton of tea and three tons of coffee in one year.

He comments as follows:

"The writer has already reported 125 cases of tea-inebriation. In the study of these cases it was found that 72 per cent. were what is generally known as nervous persons; 20 per cent. had frequent spells of faintness; 50 per cent. were troubled with gastric or intestinal indigestion with all of the attending ailments; 3 per cent. had seriously contemplated suicide; 45 per cent. were sufferers from persistent headache or capital neuralgia; 10 per cent. had spells of great depression; 20 per cent. were despondent; 50 per cent. were excited; 19 per cent. were troubled with conscious palpitation of the heart; 20 per cent. had insomnia, and when it was not complete, what little sleep they were able to get was greatly troubled by the most harrowing nightmares and dreams, so that they by far preferred to remain awake. In 12 per cent. there was noticed increasing muscular tremors. There were found among quite a number well-marked hallucinations, especially those of impending death and robbery. Such a picture as this presented to the thoughtful physician is most deplorable in every respect. These poor individuals often confess to a degree of tea-drinking which without question makes the habit an actual dypsomania.

"The writer is at present studying the place of tea as a causative agent in insanity in this country. Before me lie reports from all the institutions for the insane in Ireland, and in these tea-tippling is given a most prominent place. Those in charge of these institutions do not hesitate to say that it is a direct cause. This fact, in connection with the table showing that out of the 10,562 patients 1,246 were of Irish birth, lends weight to my assertion.

"The writer has traced many cases of insanity to the immoderate use of tea. Every intelligent physician knows that coffee interposes serious obstacles in the treatment of occult diseases associated with or dependent upon hepatic torpor. Yet, here we have men (inmates) consuming coffee at the rate of 30 lbs. a year per capita, and women (inmates) consuming 37 lbs. of coffee and 13 lbs. of tea each, or in round numbers 50 lbs. of tea and coffee annually. Even when used moderately, this would be ten times as much as sane people ought to have.

"No wonder that the record of recoveries is so low as 31 and 32 among the male and female inmates, respectively."

FUNDAMENTAL PROBLEMS. By Dr. Paul Carus, Editor Open Court, etc., etc. Open Court Publishing Co., Chicago, Ill., 1894:

This is the second edition of a series of essays which have appeared in the Open Court Publishing Co. "On Forms of Thought"; Problems of Law and Nature; Questions of Cause and Effect; Agnosticism, Mysticism, Reason, Ethics, Matter, etc., etc. These and many other allied topics are presented clearly, and from the broad standpoint of modern science. The following sentence in the preface suggests the range of the book: "The philosophy of the age depends on the health of our religious, our scientific, our industrial, our mercantile, our political, and our social development." Such works are very stimulating and helpful, and every thinking man should be familiar with them.

MALTINE WITH COCA WINE.

During the withdrawal of opium a great variety of neurotic symptoms appear which are not only very distressing, but difficult to treat. The milder narcotics are aggravating in the transient relief which they bring, and spirits are often unpleasant to the taste, and, only when large doses are used, bring relief. The question often occurs, Is alcohol, in any form, a practical narcotic for these psychical disturbances? This is variously answered, but usually in the negative. Yet, practically, some of the forms of tinctures in which alcohol is the most prominent factor are found to be excellent in certain cases. The tinct. of oats and red bark, and other tonics, have been highly praised, and, in a few cases, seem almost specifics; but much depends on the method and way of administration. The maltine preparations are all excellent tonics, in both alcoholic and opium cases, and can be used with great satisfaction whenever great debility and anæmia are present. The new combination of coca wine with maltine seems to meet many conditions present in the stage of withdrawal of both opium and alcohol that have not been observed before. In two cases of opium ediction, this drug, given in two-ounce doses every three hours, markedly relieved the distress following the rapid reduction of opium. Both cases recovered with less suffering from the use of this drug, and a week after the withdrawal of the opium, changed from maltine and coca wine to maltine and hypophosphites. These results were very satisfactory, and has encouraged us to make a more thorough trial in the future. In four cases of inebriety, the abrupt withdrawal of spirits and the substitution of maltine and coca wine, had equally satisfactory results. The usual nervousness and precordial distress was absent in nearly all these cases, and only noted at the beginning of the treatment. It appeared that this form of spirits, associated with coca and maltine, has some special tonic action that is eminently suited for such cases. We take pleasure in saying that this form of maltine appears to be of unusual

value, and deserves a careful trial and clinical study, particularly in the opium and alcoholic cases.

This prescription is very valuable in many cases, and should be tried :

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R.—Tinct. Capsici,	. . . . .	1 ounce.
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M. Sig. : Teaspoonful in teacupful of hot tea three or four times daily. — *St. Louis Clinique.*

The Antikamnia *Pocket Case* is exceedingly practical and a useful aid to physicians. This firm has distributed them very freely to physicians who appreciate this in many ways.

The *Antikamnia Chemical Co.* are hereafter to put this drug in a tablet form, of definite proportions. This places an excellent drug in the most available form for ready use. No remedy has become more popular as a safe and reliable sedative than Antikamnia.

F. A. Davis Co., the well-known medical book publishers of Philadelphia will issue a companion book to Dr. R. von Krafft-Ebing's famous treatise, " Psychopathia Sexualis," entitled " Suggestive Therapeutics in Psychopatia Sexualis," it being a translation of the original by Dr. A. Schrenck-Notsing, of Munich, collaborator with Krafft-Ebing. This book will contain about 325 pages and be sold by subscription only, at $2.50 per volume, in cloth. It will be of the greatest importance as an authoritative work on suggestion as a therapeutic agent in the hands of the intelligent practitioner.

Dr. R. Cantalupi, writing from Naples, Italy, under date of July 24, 1893, says : " Bromidia has produced successful results in all the most varied forms of insomnia. Among others who have been benefited by its use is Professor Ces-

are Olivieri, well known as a most distinguished surgeon in this city, and who, after undergoing tracheotomy for neoplasm in the larynx, suffered terribly from insomnia, which the usual hypnotics all failed to relieve. Hearing of this, from a mutual friend, I advised the use of Bromidia, which promptly produced the desired result.

Kola Cordial has come into prominence as a powerful stimulant of the nervous system, and particularly of cardiac feebleness, neuralgias, and other disturbances arising from degenerations caused by alcohol and opium. *Park Davis & Co.* have placed a very reliable, preparation of this new drug on the market. Send to this firm for the literature of this new drug.

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Sulfonal and Trional have become the most valuable hypnotics in use. In cases of alcohol and opium inebriety they are invaluable, and in many cases are practically specifics, without any rivals. The well-known firm of Schieffelin & Co., of New York, are American agents.

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The *Arethusa Spring Water of Seymour, Conn.*, has recently come into prominence, as an exceedingly fine table water. It is alkaline, and has a marked tonic action, and may be truly said to be the great American *Apolinaris Water* which will outrank or equal all other waters in purity and

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	Grains per U. S. Gallons.
Silica,	0.607
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Magnesium Carbonate,	0.128
Potassium Sulphate,	0.095
Sodium Sulphate,	0.203
Sodium Carbonate,	0.015
Ferric Oxide and Alumina,	0.009
Total,	1.735

The water is clear, colorless and alkaline, and as the analysis shows is an exceedingly pure and soft water.

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(Signed), R. H. CHITTENDEN.

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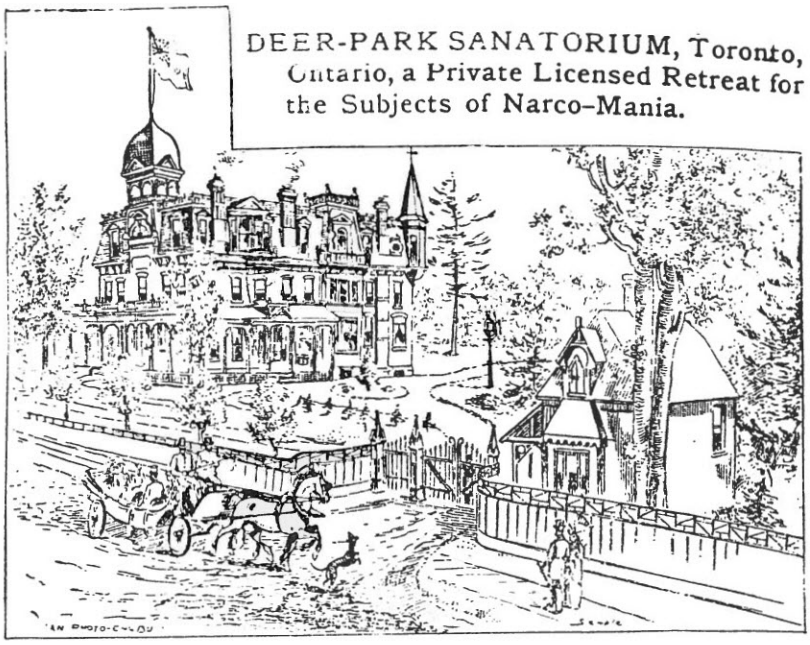

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W. C. Williamson, Esq., 1 Pemberton Sq., Boston.
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C. H. Hughes, M.D., editor of Alienist and Neurologist, St. Louis, Mo.
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Pepsin,	1 gr. $1.00; 2 gr. $2.00
Paregonic, 10 min.,	83c
Opium,	½ gr. 80c; 1 gr. $1.00
Manganeze Binox,	½ gr. 60c; 1 gr. 75c
Mercury Protidide,	60c
Ipecac,	½ gr. 80c
Zinc sulpho-carb, 1 gr. 60c; 2 gr. $1.10; 5 gr.	$1.80
Codeine,	1-5 gr. $4.00; ½ gr. $4.75
Copper Arsenite,	.60c
Podophyllin,	½ gr. 75c
Cocaine,	1-10 gr. $3.00

STRYCHNINE Sulphate, Nitrate, Hypophosphite. Arseniate, Valerianate, any size tablet or granule, 50c per thousand.

COMPOUND TABLETS.

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Gold and Arsenic Bromides,	$5.00
Uterine Tonic (Buckley),	1.90
Gonnorrhea,	1.90
Aloin Atropine Strychnine Cascarin,	2 25
Antiseptic Seilers,	2.25
Antiseptic Bernay,	1.31
Bismuth and Calomel Comp.,	1.31
Brown Mixture,	.83
Calomel and Soda,	.64
Damiana Compound,	2.25
Emmenagogue,	2.25
Four Chlorides,	2.63
Hammonds Tonic,	1.31
Hypophosphite Comp.,	3.75
Iron and Mercury Comp.,	.64
Iron, Quinine, and Strychnine,	1.32
Rheumatic,	1.90
Hepatic (Kenyon),	.94
Acetanalid, Caffeine and Sodium,	2.00
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Cactus, Grand and Digitalis,	1.75

Everything listed by others at lower prices.

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The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, *finds that no two of them are identical*, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, *in the property of retaining the strychnine in solution*, and in the medicinal effects.

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Medical Letters may be addressed to —

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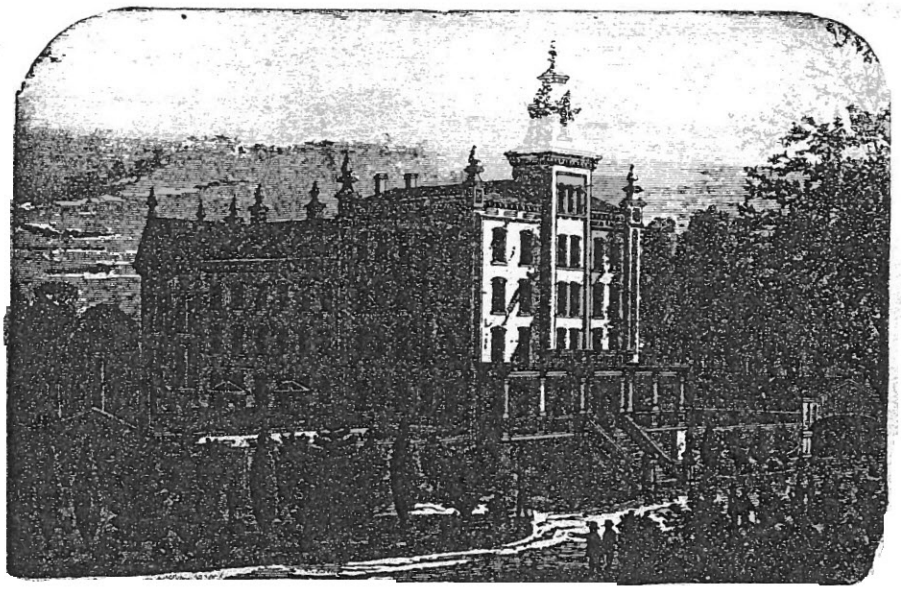

HOSPITAL for the TREATMENT of ALCOHOLISM and the OPIUM HABIT.

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