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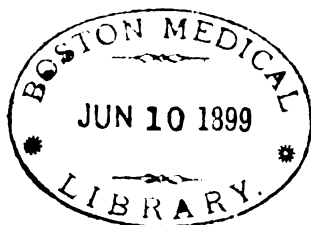
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INDEX, VOL. XVIII.

	PAGE.
A.	
Alcohol Insanity,	I
Andriesen, Dr. W. Lloyd,	I
Angina Pectoris due to Alcohol, -	43
Alcoholic Poisoning and Strychnine,	66
Alcohol on the Central Nervous System,	109
Alcoholic Neuritis and Tuberculosis,	129
Alcoholic Inebriety,	223
Alcoholic Cirrhosis of the Liver,	301
Alcoholic Neuritis in Old Age,	301
Alden, Dr. C. H.,	363
B.	
Ball, Dr. M. O.,	67
Berkley, Dr. Henry J.,	109
Bromides, effects of,	252
C.	
Crothers, Dr. T. D., 51, 82, 86, 139, 180, 189, 196, 281, 292,	354, 394, 402
Cocaine Poisoning,	67
Cocaine, its use and Accidents,	209, 309
Cannabinomia,	265
Constipation in cases of Tea-poisoning and Inebriety,	383
Chloride of Sodium Inebriety,	389
D.	
Delirium Tremens Treatment,	27
Day, Dr. Albert, Sketch of,	51
Delirium Tremens as seen in the eye,	165
Dipsomania in Insanity,	173

	PAGE.
Davis, Dr. A. E.,	165
Delusions in Inebriates,	189
Dalrymple Home in England,	263
Danger from the use of Alcohol in Schools,	290
Dipsomania as a Defense for Crime,	320
Delbose, Dr. E.,	309

E.

Effect of Acute Alcohol Poisoning,	338
--	-----

F. /

Hypnotism in the Management of Inebriety,	139
Habitual Offenders in Scotland,	138
Heredity Case,	197
Hydrocyanate of Iron,	202
Habitual Drunkards in Austria,	248
Hygienic Treatment of Dypsomania,	273
Homes for Inebriates' Association,	304
Hereditary Inebriety,	390

I.

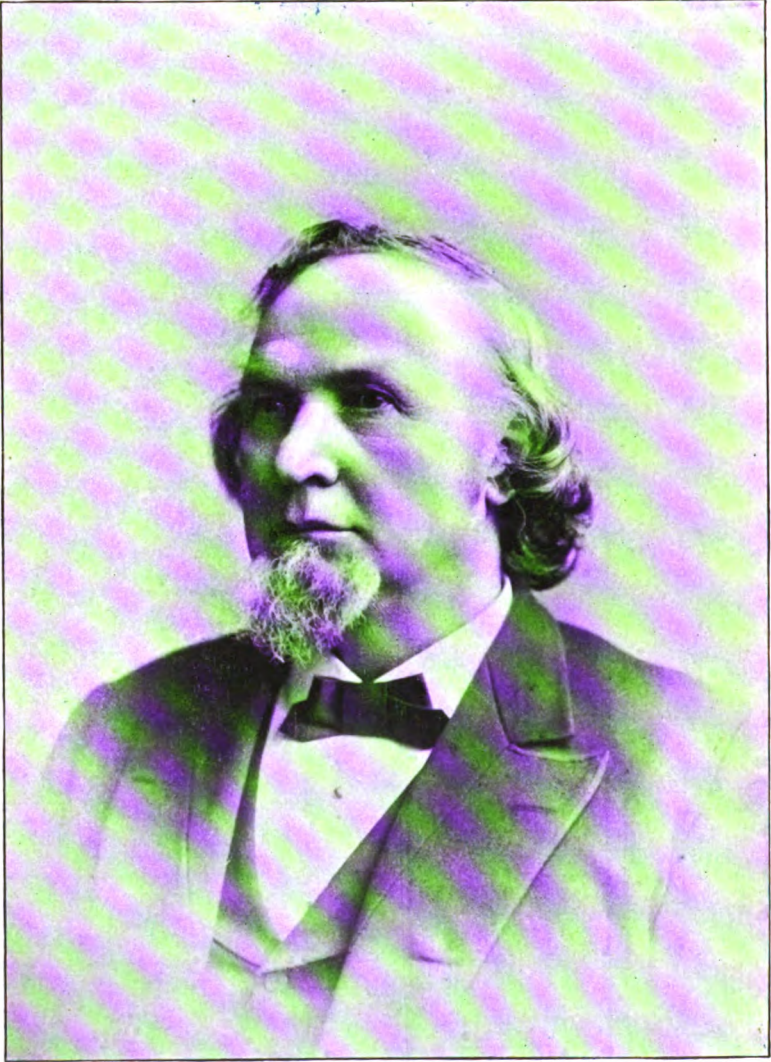
Inebriety and Insurance,	78
Inebriety, Clinical Study of,	82
Inebriety, Moral Insanity of,	84
Intemperance and Mental Disease,	119
Inebriety, Conditions which precede it,	180
Inebriate of Sound Mind, can he be?	190
Inebriety in Infancy,	192
Inebriety and Language Symptom,	194
Intoxicated or Dying,	198
Island Inebriate Home,	272
Inebriety and Homicide,	281
Inebriety and Sobriety in Royal Circles,	293
Inebriety among Railroad men,	304
Intoxication and Insanity,	330
Inebriety a Defense for Crime,	385
Intoxicated Wasps,	388
Inebriety in the Adirondacks,	398

Index.

v

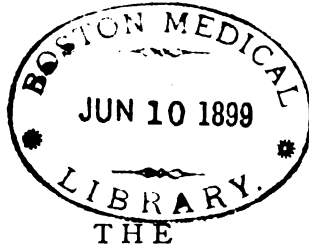
	PAGE.
J.	
Journal for 1896,	82
K.	
Kerr, Dr. Norman,	27
Kinney, Dr. E. Spencer,	56, 223, 349
Kiernan, Dr. James G.,	320
L.	
Lunacy and Inebriety,	179
M.	
Marks, Dr. Heine,	145
Morphinism, Treatment of,	174
Morphinism in Children,	200
Morphine Habit,	234
Mitchell, Dr. S. Wier,	255
Mental Impairment in Children,	275
Medical Treatment of Inebriety,	354
O.	
Ophthalmoscopic appearance of the Eye in Delirium Tremens,	165
Obstacles to the Successful Treatment of Alcoholic Inebriates,	349
P.	
Phelps, Dr. R. M.,	73
Pierce, Dr. Bedford,	119
Precocity in Childhood followed by Inebriety,	288
Personal Experiences,	297
Psychical Periodical Inebriates,	396
Paretic States in Inebriety,	400
R.	
Report of Massachusetts Hospital for Dipsomaniacs,	35
Report of Walnut Lodge Hospital,	44
Report of One hundred and Twenty-Five Cases,	73
Report on the Liquor Traffic in Canada,	176
Relations of Alcoholic Indulgence to Insanity,	376

	PAGE.
S.	
Strychnine and Alcohol Poisoning,	66
Symptom of Language in Inebriety,	194
Statistics of Tobacco and Tea,	301
Searcey, Dr. J. T.,	330
T.	
Treatment of Delirium Tremens,	27
Trance, Double Consciousness,	56
Trional, Reports of,	87
Tuberculosis and Alcoholic Neuritis,	129
Treatment of Alcohol Morphine and Cocaine Cases,	145
Treatment of Morphinism,	174
Tobaccoism,	181
Treatment of Consumption,	222
Treating Female Inebriates,	259
Tetanus following Morphine Injections,	267
Toxaemia from Tobacco and Alcohol,	266
Tea on the Digestive Organs,	271
Two Theories,	283
Treatment of Relatives of Inebriates,	285
Treatment of Inebriety by Newspapers,	287
Treatment of Alcoholism,	363
U.	
Use of Cocaine, and Accidents resulting from it,	309
W.	
Walker, Dr. H. F.,	234
Wyman, Dr. H. M.,	273



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ALCOHOL INSANITY, IN THE LIGHT OF MODERN PATHOLOGY.

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While in the majority of cases the onset and early history of mental disorganization under alcohol point to extensive and wide-spread involvement of brain areas, it happens that in a certain number of others, these extensive and generalized changes are by no means the most prominent or typical feature, the change in these being more *intensive* and *specialized*, falling with peculiar vehemence on this or that sensorial, psychical, or psychomotor region, and comparable, therefore, to other local and intensive lesions like the focal epilepsies. It is, we think, in the latter type of alcoholic insanity we find the features which tie this class to the instinctive criminaloid and the epileptic individuals in whom the typical and peculiar morbid characteristics are also intensive and specialized. We have seen how, in the Jacksonian epilepsies, the primary focus of disease may be in some area of the psycho-motor, sensorial, or psychical sphere, and that the external manifestations vary accordingly.

So it is with our *early* alcoholic insanities. It may happen in *some* that the whole progress of the brain (mental) disease will have progressed in an *extensive and generalized* fashion, gradually lapsing into chronic weakmindedness and terminal dementia. During the period of lapsing into such dementia, or later, when the dementia is obvious, it will happen that these patients exhibit the most protean and multiform clinical symptoms — *e. g.*, senile excitement, emotionalism, epileptiform convulsions, cerebral softenings and paresis, apoplexies, acute hallucinatory excitement, etc., etc.; a vast sea of symptoms in which the flotsam and jetsam of the most varied psychical and bodily conditions are present; a state of affairs that has given rise to the adage that “to the alcoholic all things are possible.” But before such an ultimatum is reached a definite and intermediate clinical history will have been gone through by the vast majority of alcoholics, the lines of march of these falling in certain fairly distinct and definite tracts, so that at the onset and in the early and intermediate stages it is possible to arrange the subjects of these diseases into certain definite natural orders. It is customary among neurologists, who, in the main, deal with the former kind of case, to state that the symptomatology of the chronic alcoholic is of the “extensive and generalized” kind, and such is the clinical type portrayed in our text-books (*vide* Gowers’ “Diseases of the Nervous System,” Vol. II., *sub voce* Chronic Alcoholism). While these cases are by no means rare in our asylums, the majority of our alcoholic insane are those who belong to the other class in which the main morbid stress and evolution of symptoms is developing in this or that “intensive and specialized way.” This latter is, at any rate, the predominant symptom, though careful investigation will in some cases reveal the presence also of the more generalized group of symptoms. The logical development of the symptoms in our opinion is from (*a*) the generalized and extensive to (*b*) the specialized and intensive, the real fact being that these first vary according to the personal equation, *e. g.*, heredity, stress of special sort, etc.,

under which the person lives. Having said this much by way of making our ground clear, we shall take up the feature in the onset and morbid evolution of the disease.

The chronic alcoholic exhibits among the early recognizable symptoms, the following seven main groups :

Generalized and extensive symptoms-complex.

First. Diminished power of recollection (amnesia), *i. e.*, of revivifying past mental images or ideas.

Second. Diminished power of attention and volition, *i. e.*, in sensorial or kinæsthetic spheres, including their interconnections.

Third. Diminished initiativeness and energy in conduct (correlated to one and two).

Fourth. Diminished muscular power ; trembling (kinæsthetic sphere); muscular act (kinæsthetic center) requiring to be reinforced by other sensory stimuli for efficient execution.

Fifth. Blunting of higher moral and ethical sense.

Sixth. Insomnia ; loss of capacity for sleep and recuperation (*i. e.*, nutritive breakdown of the whole cortical sphere).

Seventh. Serious disturbance in the balance of cortical representation of *external* world and empirical ego, with melancholia and suspicion, delusions of persecution, and excitement, hallucinations, vague and gloomy feelings, and other pathetic emotional states, suicidal tendencies, passing into various chronic insanities.

We shall consider these groups of symptom groups *seriatim* : —

(a) *Diminished power of recollection* (amnesic type). Under the law of psychogenesis we had previously noted that the power of recalling past memories — of re-visualizing things seen, of re-hearing things heard, and of re-representing previous mental images — imply a highly evolved cortical (mental) organization, and that it has behind it a nutritive law of deep significance, under which “the external logic of events is now no longer a *sine quâ non* needed to

revivify them. They arise spontaneously, they become recalled thoughts, memories. Thus, thoughts arise in the child's mind. The feeling of spontaneity which accompanies these thoughts gradually get built up into the distinct recognition of the ego as the empirical source and center of such feelings." This capacity depends upon the integrity, therefore, of the cerebral organization in two regards, viz., (a) the integrity of the latest evolved and elaborated anatomico-physiological *connections* between the neurons which subserve it, and (b) the high nutritive elaboration, the high "nerve tension" and capacity for spontaneous discharge of the said neurons from time to time. Though these two are not separate, yet we shall consider them separately in order to be able to apprehend more clearly the pathogenesis of amnesia. In what respect does alcohol produce changes in these, viz., *first*, in the anatomico-physiological connections, or "field of conjunction" between the neurons, and *second*, in the *higher nutrition* of each individual neuron.

The results of our investigation with Golgi's method show us that definite and recognizable changes occur in each of these respects.

Changes in the anatomico-physiological connections (or "field of conjunction") between the neurons. Since the exact nature of such connections in health has been proved indisputably by the application of Golgi's method, it remains to inquire how and to what extent these are altered or destroyed, if at all. Our observations show that change of a very striking and unmistakable character occurs in the ultimate protoplasmic expansions and "contact-granules" situated upon them on the one hand, and in the ultimate naked fibrils (collaterals and terminals) which everywhere come into relation with such protoplasmic termini and granules on the other. Beginning with a softening and swelling of these contact granules, and also of the protoplasmic twigs on which they are situated, the earliest noticeable changes are a coalescence of these into small irregular "composites" of such, recognizable here and there as a local coarseness. As

the changes progress in coarseness and extent, they can now be more easily recognized as commencing moniliform swellings along the course of the terminal protoplasmic twigs. These are chiefly seen in the alcoholic brains we have examined with Golgi's method in the superficial parts of the cortex—molecular and sub-molecular plexus regions especially. With the further progress of the lesion these softened and enlarged protoplasmic masses form irregular botryoidal masses, mainly clothing the now irregularly bared protoplasmic stem, which itself rapidly becomes softened, attenuated, and excavated (vacuolated) in places, till finally what is left is a mere ghost-like tattered protoplasmic stump, such as some of the cells exhibit. These changes affect the apical expansions of both ambiguous, long pyramidal, and mixed pyramidal or polymorphic cells, and the chief stress of the lesions fall in the region of the molecular and sub-molecular plexuses, and in the sub-pyramidal plexus region. In the latter (and below) we come for the first time on the mixed pyramidal cells, and these show further changes, extending to the cell body itself, and remarkably striking in character. We are speaking of brains in which there is as yet no vascular blockings, and consequent softenings, for such we have purposely excluded from the present research, as the changes were too grossly secondary and advanced. The changes we now refer to are such as appear in this or that group of cells, when other cells in a part of the convolution a few millimetres off will appear but very slightly diseased. These changes consist in a gradual disintegration of the cell body; after the apical several of the basilar processes have considerably suffered. Here and there at the side of the cell body the protoplasm seems to get frayed, and, as it were, eroded or ulcerated away, the site of such being a local excavation of the cell protoplasm, with an adjacent little heap of *debris*. In other cells these changes will start from several points on the surface of the cell body irregularly eroding and demolishing it, until but small fragments of the cell, mere ruins, with a little *debris*, are left in

the pericellular sac. Such a cell, in which the destructive process has yet left its axis cylinder and a few withered basilar-protoplasmic processes is seen. In other cases, again, the cell-protoplasm gets vacuolated from within, and the progress of this continues till its whole internal protoplasmic structure is channeled and tunneled by such holes and seams of liquefaction. We do not mean to correlate early and recoverable alcoholic amnesia with the *advanced* destructive changes in the cell body. Rather we look upon it as associated with the early changes in the fine protoplasmic contact granules of the apical expansions which we have already figured and described. The lesions in these fine protoplasmic granules, however, represent but one element in the field of conjunction, and we must now refer to the other element, viz., the fine collaterals and terminals which, arriving from association, commissural or terminal fibres spread out in the three main plexus regions, viz., molecular, sub-molecular, and sub-pyramidal, forming the other element of the nervo-protoplasmic connections. These have to be carefully looked for with high powers, as, owing to their extreme delicacy, and their paleness of staining with silver chromate, they are else liable to be overlooked. A careful search, however, will soon reveal the fact that these are extensively changed and altered. The changes we have noted are mainly of two *kinds*, external and internal. *External changes*: These refer to the outline and contour of these fibrils. In health they are fine, delicate, smooth, and clear-cut in outline, like a thread of silk, and stain *internally*, with a uniform clear coffee-colored tint. In disease these become *granular* and *wrinkled* in outline, as though the firm smooth consistence of the fibre underwent a granulation with softening, and lost its cleanness of contour. Here and there, too, small irregular swellings are seen. *Internal changes*: These are very distinct in many specimens, and can leave no doubt in our mind that chemical alterations are taking place within the fibril. The most striking feature is discontinuous and uneven staining. The fine and delicate collat-

eral or terminal fibril, which stained (if it stained at all) of a uniform clear coffee tint, is irregularly stained along its course, in some parts the pallor and want of staining almost indicating that the fibre is broken into separate fragments, till the most careful focusing and search will reveal the unstained intermediate parts. These streaks of discontinuous and irregular staining are so remarkably frequent and conspicuous in several specimens we have examined, that we have no doubt they represent what is a real pathological change going on within these naked nerve fibrils.

These two sets of changes in the naked collateral and terminal fibrils (internal and external) constitute, to our mind, the other element of earliest and recognizable change in the field of conjunction, whereby the pathways for the passage of nervous excitations from neuron to neuron, and from one complex group of neurons (nerve center) to another, is thus rendered difficult or impossible. Both these sets of changes in the field of conjunction are, as far as the present author is aware, only recognizable with the use of Golgi's method and its modifications, the author having used for this purpose his own modification, published in the *British Medical Journal*, March, 1894. Our work in this line leads us to the view that it is here, in the changes in the anatomico-physiological junction regions, in this field of conjunction, we find the earliest dynamical changes, and that these represent, on the psychical side, the diminished capacity of the neurons to be excitable to presentative sensorial stimulations (the equivalent of the softenings and obliterations of the protoplasmic contact-granules), and a diminished permeability in the pathways of nerve currents issuing from one neuron by its nervous process and its terminals to another neuron in the cortical area, the psychical counterpart of which would be a *slowness in the arousing of associated images, and delay of reaction time*. Finally, as regards the earlier and subtler nutritive changes within the cell body and nucleus. The physiology of nutrition is in the nerve cell elaborated to a high degree, and each nerve center of

this or that part of the central nervous system has its own intrinsic nutritive rhythm. In the alcoholic brain, the early and subtler changes affect, not merely the field of conjunction (produce *dynamical* effects as far as the reception and transmission of nerve currents are concerned), but the *trophic or nutritive focus* (cell body and nucleus) of each individual neuron. The *advanced* trophic changes, especially as shown in the polymorphic elements, we have already described and portrayed. The cells in this region are also favorable for the study of the *commencing* trophic changes in the neuron. The methods we have used for this purpose are four in number: (*a*) sublimate and alcohol fixing, and staining with Toluidine blue; (*b*) frozen sections, stained with aniline blue-black; (*c*) Nissl's methylene-blue method; (*d*) Golgi's method. Each of these helps to supplement the other.

Commencing trophic changes in the cell bodies and nucleus. We are of opinion that these also are definite and recognizable, and further, that in certain respects (*viz.*, as elucidated by the aniline blue-black method) these have been abundantly described and figured by Bevan Lewis ("Text-book of Mental Disease," 1890). For our own part we would add certain details obtained by our investigations with the three other methods named, *viz.*, the Toluidine, Nissl, and Golgi methods. The first and second of these methods are useful for showing certain fine intra-cellular and intra-nuclear changes which the aniline method does not help to show, while the third enables us to apply a certain test to identify what fragments of nerve-protoplasm still remain. Fortunately for us, not all the cells show equally advanced changes in the alcoholic brain, for while some show moderately advanced intra-cellular changes at once recognizable as such, others (neighboring cells) on whom the stress — for some reason or other — has not fallen so severely will show us appearances consistent with health, or only faint indications of a commencing departure from the normal. This gradation of pathological changes helps us greatly, for it offers an intrinsic control method of distinct value. Keeping

this in mind the earliest changes we see are: (a) Deeper staining, of cell body and protoplasmic processes (with aniline, Toluidine, and Nissl's method). (b) Swelling and softening (indistinctness of outline) of the intra-cellular chromatin rods, and increased intensity of their staining (with Nissl's method). (c) Thickening of intra-nuclear reticulum, and increased prominence of nucleoli (with Toluidine method). (d) Increase of the normal golden cell pigment which is present at or near the basal portion of the cell (with all three methods). We are not as yet in a position to state which of these four changes occurs first, or whether any two or more of them occur simultaneously; but certainly they all occur in the *earliest* stages, when the contemporaneous changes in the finest nervo-protoplasmic regions which we have before detailed occur. To us these four points mentioned indicate two things, viz.: (a) that there is increased functional activity in the cell body, and (b) that this is productive of a degradation in the form of nerve energy, the physical accompaniment of which is a softening and alteration of the blue chromatin rods and granules, and their gradual replacement by yellowish pigment. The increase and progress of pigmentation is the equivalent of the onset and progress of *degradation* in the functional activity of the cell — the replacement of living protoplasm by non-living pigimentary product as in senile decay and in chronic epilepsy: here (in chronic alcoholism) it is attended with the other intra-cellular changes of a more subtle kind, viz., intensity of staining of cell protoplasm, and swelling and softening with increased staining of the intra-cellular chromatin rods and granules, the reservoirs for the building up and storage of nerve energy under high tension, *i. e.*, the pabulum of the cell. The earliest lesions, therefore, of alcoholism are of a nutritive and dynamical type, dynamical in so far as it affects the protoplasmic granules on the one hand and the nerve collaterals and terminals on the other which enter into the constitution of the nervo-protoplasmic plexuses (fields of conjunction) in the brain; and nutritional in so far as it affects

the protoplasm and nucleus of the cell body and therefore interferes with the higher evolution and elaboration of nerve energy, and especially with the quasi-spontaneous or voluntary vivifications of former memory images which is the peculiar property of the cortical neuron during its period of increased functional activity.

But this is not the only result of the alcoholic lesion. Another outcome of it is the next group of symptoms.

(b) Diminished faculty of *attention* and *volition*.

Here there is a slightly deeper involvement, we think. In the mild amnesia we have considered there is the loss of *re-vivification* or re-rousing of past experienced mental images and states; here, even when the objective images are present, the capacity of receiving and registering them in the mind is diminished. On the psychical side this is, in other words, diminished power of attention. It may be that in one case this is mainly limited to the visual, in another to the olfactory, in a third to the kinæsthetic, or in a fourth, etc., to the auditory, etc., sphere, and that in other cases it extends to all these. The faculty of attention is an early one in the infant, and we think it is simpler in character and grade than volition. At least two sensorial elements enter into the composition of attention, viz. : (a) the special or local sense which is being active; (b) its special kinæsthetic auxiliary. The mode of evolution of each special or local sense has been a twin evolution, a special kinæsthetic element having entered into it, and got incorporated with it. With sight there is the representation of the movement mechanism, which is concerned in *fixing* an object seen, in bringing it into the field of clear vision before it can be the special object of attention. With it comes *accommodation*, which is also brought to bear on the object. Besides these bin-ocular and intra-ocular kinæses a head movement may also enter into the primary constitution of attention to a visual impression (turning the head towards it), *cf.* also auditory attention and movements of the ears. This is the primary kinetic reaction, appearing

early in the animal kingdom, and early in the child. It is forerunner of and prerequisite for attention.

So in hearing there is the external ear movement and the internal one (tensor tympani), these kinetic elements entering into the composition of auditory attention. So with smell (nostril and respiratory indrawing as in the child on its mother's breast, etc.). And with touch or tactile there is a parallel incorporation of a movement sense of the organs of touch (the fingers, hand, etc.).

Attention is thus analyzable into a compound or complex of at least two sensory elements ; therefore it is a higher sensory state (psychical state), and is the psychical concomitant of nervous action in such conjoint sensorial sphere. The feeling of effort enters into both attention and volition, and this has misled some to speak of the act of attention as an essentially "motor" process. But this is due to a little confusion of ideas. The sense of sight, of hearing, the tactile sense, the muscular sense, etc., each of these has its appropriate auxiliary muscular organs, the function of which has been to produce a movement in the peripheral sense organ. This has been so constant a thing that from frequent repetition their organization has become perfect, until in man the motor action is habitual and follows the sensation. Thus according to our view every sensory organ has its auxiliary muscles which by their aid help to reinforce its function. The cycle of events is : (a) Stimulations of cortical sensory center = consciousness of sensation. (b) Movement following, whereby the external object is brought into the *center* or focus of the field of consciousness by pricking of ears, fixing with eye, etc. (c) As the result of (a) and (b), stronger arousal of cortical sensory center by the re-entering sensory currents both from the *sensory organ* and its *auxiliary muscles*. Such re-entering of auxiliary kinæsthetic currents serves to *reinforce* and increase the *functional activity* of the sensory center. The psychical side of such intensification of the activity of the sensory center is attention. Hence we cannot localize the faculty

of attention in any one "area" of the brain (as *e. g.*, Ferrier, in the pre-frontal lobe in monkeys). It accompanies, and can accompany the activity or any of the specific centers of sensation, whether visual, auditory, tactile, gustatory, olfactory, or kinæsthetic. There is no special center for the faculty of attention.

Now the above heightening of the functional activity of a sensory center has for its object some act immediate or future on the part of the organism in response to the sensation which is now distinctly felt. It may be now one, or it may be at another time other act, according to the dynamical (anatomico-physiological) connections possessed by the sensory center which is in a state of such increased functional activity.

During the condition of attention there is thus not only an increased functional activity in this or that sensory center, but an overflow or discharge from that center to *others* along definite routes, or diffusely all over its borders. Where a voluntary act or movement is one of the outcomes, the neural discharges consist of (*a*) primary sensation, focusing-reflex, and attention; and (*b*) discharge from such sensory center, (*c*) with resultant excitation of other sensory or psychical centers, arousing feelings and mental images (*ideas*), or of a kinæsthetic center, in the last case evoking a more or less obviously special movement. The sequence of events comprise, therefore, (*a*) arousing a sensory center to attention; and its discharge, along (*b*) a tract to (*c*) a kinæsthetic center; followed by an appropriate movement to its completion, or, in psychological language, *first*, perception; *second*, apperception and attention; *third*, strong revival in mind of the act to be performed; *fourth*, execution of the idea.

Attention thus belongs to the sensory side; volition to a specialized and intensive discharge therefrom to the kinæsthetic sphere. Volition is thus a development from attention, and passes on to execution; it is thus the passing from *attention to execution*: in the brain it overlaps the psycho-

motor sphere on the one side, and the sensory on the other ; its region is, therefore, the *transitional* or association system one between these two.

On the anatomico-physiological side we think the mixed pyramidal or polymorphic system to chiefly represent this association region, partly on comparative and developmental grounds, and partly from pathological considerations. The gradual historical development and elaboration of this system in the mammal, till it attains its acme in man, and the lateness of this lower cortical organization to complete its growth in the new-born and young indicate that this "accessory association system" of the brain is the chief structure which subserves the higher psychical functions, and especially volition. Further, of all the various cell systems involved in chronic alcoholism, it is the one in which the changes—especially the trophic ones—are most advanced.

We therefore correlate its special implication and various before-described phases and early change with the special neurasthenia of the alcoholic, including the next group of symptoms on our list—diminution of initiativeness in conduct, and laziness with blunted moral and ethical sense behind these.

Coming next we have a definite group of symptoms, viz. : (a) *loss of* muscular power, with tremor on exertion. We regard this special condition as due to lesions in the kinæsthetic area, affecting both the dynamical and nutritive parts of the nerve apparatus ; *i. e.*, both nervo-protoplasmic connections and cell bodies. Indeed, this Rolandic (or movement) sphere is the commonly used one for its study because the cell elements are large and easy, therefore, for study in this situation ; and perhaps because the further progress of the lesions are apparently more conspicuous and striking here (*e. g.*, atrophy and wasting of convolutions : œdema and thickening of pia-arachnoid, etc.). We have seen in studying the development of the Rolandic region in the young how the increased growth and extent of collaterals from the descending axis-cylinders of the ambiguous and pyramidal

cells, and their coming into further contact with the protoplasmic expansions of the lower and larger pyramidal cells constitute a special intrinsic mechanism for the consolidation of movements. These collaterals conspicuously suffer, viz., in the Rolandic area, and to this we attribute the tremor and unsteadiness (dynamical disturbance) in movement. Apart from this tremor there is a true *weakness*, as shown with the dynamometer, which may amount to a paresis of 20-40 p. c. below health.

We correlate this with the commencing nutritive degradation of the nerve cells which discharge down the pyramidal track, inciting thereby the motor cells of the cord. It is, we think, a phenomenon parallel to the muscular weakness of neurasthesia when tested with the dynamometer. This combination of tremor and weakness are the basis for the dyskinæsis of alcoholism.

The reinforcement these cells require, even to enable them to act continuously for a time, should be noted. The alcoholic holding a ball or jug in his hand will often drop it if he be not looking — fixing his attention — on it. For the normal tactile and kinæsthetic ascending currents arrived at the brain, have to act on psycho-motor cells of but low energy which may flag. By looking at the object (attention) the sensorial visual excitations arrive after passing the visual center, to the hand center, and *reinforce* the volume of the sensory exciting currents which keep up the functional activity of the psycho-motor cells. The phenomenon here is also analogous to that of subminimal stimulation of the cortex, which, though of itself failing to evoke movement from the kinæsthetic focus, will do so if the paw be first stroked gently a few times, and then the electrodes applied. The center thus slightly roused in its excitability now just reacts. Instead of the paw the stimulus of some associated area (*e. g.*, *smell*) will also serve the same purpose, viz., heightening the excitability of the kinæsthetic center. (In this connection, note also Belmondo's experiments on the spinal cord motor cells associated with stimulation of the

posterior roots, *Archiv. Ital. de Biol.*, 1891, Part I.), which also fall into a similar category.

(*b*) *Insomania*. This is another of the early alcoholic symptoms. How far this may be due to habit it is difficult to say. But its injurious effect on the brain is certain. We know from physiological experiments that cell elements, whether secretory or motor, exhibit physico-chemical changes during activity: *e. g.*, electric changes and changes in intracellular structure. When pushed to the limits of fatigue, these changes in the *secreting cells*, the *muscle fibre*, or the *motor end plate* of the nerve are not too difficult to recognize. A pseudo-sanctity which has hitherto surrounded the nerve cell and sought to exclude it from the circle of these metabolic changes is now breaking down, and of late years the experimental work of cerebral thermometry (Mosso), and of the microscopic changes in nerve cells accompanying functional activity (Hodge and others) have gradually brought a series of positive facts to displace the old superstition.

Hodge's work in this respect, following on the older observations of Sadovski and others, shows that in the cerebral cells of the honey-bee, swallow, pigeon, and sparrow, such recognizable changes are found. To summarize them, and finds (*a*) changes in the nucleus, *viz.*, shrinkage, and crenation of outline, loss of fine intra-nuclear reticulation, and tendency of the nuclear chromatin to stain more darkly than during rest. His experiments were extensive, carefully and laboriously done with abundance of control material, and the results obtained are regular and very uniform. Besides these intra-nuclear changes, there are (*b*) the alterations in the cell protoplasm: these include shrinkage in size of the cell with (in the case of the cerebral cells) enlargement of the peri-cellular lymph space, commencing vacuolation in the cell protoplasm, and diminished staining reaction of the fatigued cell. The present author having been favored with the actual microscopic specimens from Dr. Hodge, can entirely concur in the above statement of facts as borne out by the preparations. This subject has also a further interest

owing to the researches of Dr. Batty Tuke, who, with Dr. Mann, has investigated the changes underlying fatigue in the bipolar cells of the retina (second layer), and in the occipital lobe of the rabbit in connection with visual stimulation, as well as the changes in the cells of cervical ganglion also, during fatigue induced by stimulation of the sympathetic cord lower down. The specimens and micro-photographs which illustrate their research (yet unpublished) leave no doubt that a series of changes parallel to those described by Dr. Hodge are present beyond doubt. Their conclusions I present in Dr. Tuke's own words: "In the unstimulated cell the nucleus stains lighter than the protoplasm; the first effect of stimulation is to reduce the staining of both to the same degree of intensity; as it is continued the nucleus darkens, but remains lighter than the protoplasm; then the nucleus becomes distinctly darker, and begins to get deformed and crenated; and eventually a condition is produced which may be spoken of as a collapse, nucleus and protoplasm losing all power of taking on stains." The third stage, in which there is the conspicuous dark staining of the nucleus, as well as of the cell protoplasm, and in which the nucleus itself begins to get deformed and crenated is stated by Dr. Batty Tuke to be the "limit of functional activity changes." Experimentally it has been reached after eighteen hours' continuous excitation of the cell, and marks the borderland where the whole pabulum or nutritive material of the cell body is used up, and yet leaves the organ in a condition admitting of reconstruction (recuperation). A fourth stage, according to the same observer, marks the pathological, the condition of actual or commencing vacuolation and disintegration within the cell protoplasm "from which it is doubtful whether full recuperation can be obtained." The consensus of results obtained from the work therefore of Heidenhain, Langley, and others on glandular secreting cells, of Kodis, on cells of the epidermis, *Sadovski* ("On the Changes of Nerve Centers caused by Peripheral Irritation," 1889), and *Madame Ternonski* ("Changes in the Spinal

Cord due to stretching of the Sciatic Nerve, etc.," 1885), on spinal ganglia and the cells of the spinal cord, and the more recent work of Lambert and of Vas on the sympathetic ganglia, and of *Hodge* on nerve cells ("A Microscopical Study of Changes due to functional activity in Nerve Cells," 1892), and of Drs. Batty Tuke and Mann (on the same subject, 1893-4) form a growing body of definite and well-ascertained facts which the present author thinks will have the profoundest bearing on the scientific basis for practical treatment in neurasthenia, insomnia, and fatigue, with commencing breakdown, which mark the milestones along the high road to the ultimate development of the various alcoholic insanities, the melancholias and the various other protean brain and nervous maladies which are so abundant in our decade.

And this leads us now to the next group of symptoms-complex in our general consideration of the alcoholic group of the insanities, which completes our general survey, viz.:

Melancholia with suspicion, vague dreads, mixed with phases of momentary excitement, and finally of acute hallucinations and delusions, maniacal excitement, delirious conditions, and epileptic fits, from which, if relief is obtained, a permanent residuum of weakmindedness is left behind, or of chronic mania or systematized delusional insanity. The earliest in this group is melancholia, with vague and general suspicions, intensified at moments with distinct hallucinations of the senses. It is at this stage that most of our asylum alcoholics come under observation, having at home passed through the previous six stages. This, the seventh stage, is one of bad omen. It indicates not only a serious progress of the mischief beyond the limits where, according to Batty Tuke, repair is possible, but is very often the beginning of a downward progressive stage of peculiar malignancy, most unsatisfactory to treat, and very disheartening in its sequelæ. Of course all parts of the higher cerebral organization have not suffered equally in these cases; the clinical and psychological indications they exhibit prove this. But though the patient be placed under good hygienic conditions,

with rest, abundant food, and absence of worry and anxiety, and the administration of sedatives to procure sleep, of massage for the body tissues, and even of intestinal asepsis, in the vast majority of cases the capacities for recuperation have been passed, and their march and progress is towards systematized and chronic insanity.

Considerable extents of cortical tissue have been damaged beyond repair : points of softening and breaking up in the molecular and sub-molecular nervo-protoplasmic plexuses, and a more notable involvement in the sub-pyramidal region (polymorphic system) with pigmentary and fatty degenerations of nerve cells, cutting off and complete degeneration of one or more entire basilar protoplasmic processes or of the whole apical process, and similarly to crown all a vascular disease (endo-arteritis and fatty changes with narrowing of lumina of cerebral blood vessels) with *its* sequelæ, viz.: imperfect nutrition of the brain tissue, thrombosis and focal softenings which complete the picture of progressive rotteness and disintegration of brain tissue which can never be recovered from. This stage is associated with softenings and swellings in the neuroglia elements themselves, with *vacuolation* of their cell protoplasm, with pigmentation of the cell body, with swellings of the processes, and the abundant formation of so-called colloid bodies in the brain. Our observations show us that in a considerable number of cases these latter structures, viz.: "colloid bodies," are derivatives of the neuroglia fibre cells, as revealed by the method of staining with silver chromate. They are to be met with in all sizes, from the smallest recognizable speck situated on a delicate neuroglia fibre to a considerable swelling or series of beaded swellings occurring along the course of the same neuroglia fibres. As to their origin in medullated fibres from swellings and spherules of the myelin substance, our observations give no indication (negative evidence), but it leaves no doubt in our minds, in so far as the sharpness and precision of staining with Golgi's method leaves no possible ground for doubt, that at least one source of their origin is

the neuroglia element — the fibre-cell. In the surface condensation system of neuroglia fibre, in a region where the medullation fibres are absent, these bodies can be recognized in all sizes from the minutest to the largest met with. Is it not singular that according to the view of the origin of these bodies from myelin, these bodies should be rare and conspicuous by their absence from the very heart and center of Exner's plexus, where medullated fibres abound, whereas when we pass more superficially through the "clear zone" and enter into the substance of the tangential plexus of neuroglia fibres, that here, in a region barren and devoid of medullation nerve fibres, but abounding in neuroglia fibres, these colloid bodies should be abundant? We have also noted their presence in the ependyma in connection with the special layer of stellate cells in the subepithelial region, these bodies being undoubtedly in this region caused by swellings along the processes of these stellate fibre cells. With alumbæmatoxylin we have confirmed the statement of Obersteiner that they stain a fine blue color, and their deep violet reaction when treated with iodine, followed by dilute sulphuric acid. With Ranvier's picro-carmine they also stain darkly, but not with aniline blue-black. Chemically we regard them as coming closest to the eleidin granules discovered by Ranvier in the epidermis. We have now in the briefest manner to touch upon the specialized and intensive lesions in chronic alcoholic insanity to finish our general survey of the law of pathogenesis.

Specialized and Intensive Pathological Types of Alcoholic Insanity.—The subjects of these have a neurotic heritage, epileptic, intemperate, and criminaloid. The early and severe implication of certain regions of the cortical organization in these betrays to us a significant fact, that the vice is in the nerve cell; the cell is the selective agent, so to speak. Under stress of another kind, *e. g.*, worry, sexual excess, etc., the result would have been a form of downbreak (disorganization) of a similar sort (*e. g.*, melancholia and delusional insanity) to what it would be under alcoholic stress.

We must recognize the intrinsic hereditary vice of organization of the nerve cell ; giving to alcohol, syphilis, sexual excess, worry, etc., or other external facts, its subordinate position as an element of *stress* which, whether acting directly as a chemical poison or indirectly, *via* the peripheral nerves, is but an auxiliary in bringing out the intrinsic cerebral defect. The intrinsic vice of organization is within, and requires but little stress of circumstances to reveal itself. In these subjects the "generalized and extensive" group of symptoms before mentioned is rapidly passed over or abbreviated, and the special and intense insane involvement early makes its appearance, viz., melancholia with persecutory delusions (two-thirds of the total number of cases) with or without ideas of grandeur, varied by outbursts of acute excitement (mania), in which acute hallucinations may play at times a casual part. These hallucinations and delusions may be *aural, visual, olfactory, cutaneous, gastric and abdominal, genito-urinary*, etc., or several of these combined, in fact the most protean and multiform that could be imagined, and having affinities with the more rapidly evolving G. P. on the one hand, and the more slowly developing paranoiac on the other, and equally with those of hopeless prognosis.

We have now concluded our brief survey of the law of pathogenesis, which in a future publication we intend to deal with in greater detail than is possible within the limits of the present paper. We have seen how the onset and early course present all the phenomena comparable to fatigue conditions of the nerve cells, and that when these nutritive changes pass a certain limit, the manifestations of insanity commence. We have seen also how, with the involvements of the delicate collateral and terminal fibrils and protoplasmic granules which enter into the dynamical constitution of the cortical centers, this general diminution of brain power will be accompanied by sensory, psychical, and kinæsthetic clinical symptoms of a very distinct and definite kind, and how, with the added vice of hereditary taint, the law of psychogenesis finds its rapid and full realization in the various delu-

sional and melancholic states, with alternating phases of gloom and excitement, which passes on by natural evolution to the more hopeless and helpless grades of insanity.

From the whole body of the foregoing research and discussion, long and tedious as it has been, the following conclusions are therefore drawn :—

GENERAL CONCLUSIONS.

First. The doctrine of localization of functions in the brain is the basis which renders a study of the psychology and pathology of insanity possible, and especially the extension of the function to the "neuron" the unit of nervous and psychical function considered from every point of view.

Second. All nervous mechanisms of the bulbo-spinal type are organized on a common fundamental basis, and consist of at least two nerve elements—a sensitive epithelial bipolar cell, and a central motor element. Over and above these an intermediate system of cells may be developed, subserving a great variety of functions in all vertebrates.

Third. These intermediate cells of the bulbo-spinal axis allow of co-ordination and correlation of activities between the various metameric segments of the bulbo-spinal tube, and between the several bulbo-spinal centers on the one hand and the encephalic organs on the other.

Fourth. There is an actual and demonstrable basis of structure in the bulbo-spinal system which allows of a great variety in so-called reflex movements; some of these latter being sufficiently elaborate to almost deserve the name "purposeive."

Fifth. The cerebral system is a growth and elaboration of neurons in connection with three great sensory projection systems, viz., the *olfactory*, the *optic*, and the *bulbo-spinal* (this last including within itself *tactile*, *gustatory*, *kinæsthetic*, and other sensory projection systems).

Sixth. The cerebral system has developed at that part of the organism which led in locomotion, was the first to come into contact with the environment, and whose sensi-

tiveness and reactivity would therefore be the most highly developed in the organism. It is a region, therefore, towards which not only ganglionic concentration takes place, but in which the higher and more complex nerve mechanisms continue in a growing and therefore more plastic state; a highly educable nerve organization.

Seventh. The cortical mechanism or pallium arises in the scale of mass (quantity) and internal elaboration (quality) as we pass from the amphibian, *via* the reptilian, to the mammalian series, finally attaining its highest quantitative and qualitative evolution in man. It becomes the seat and organ of every form and quality of psychical life.

Eighth. The elements which enter into the cerebral organization in man are the ultimate product of a long series of evolutions in structure and function through countless ages past. These elements are mainly of three kinds, *nervous protective*, and *nutritive*.

Ninth. The cerebral nervous elements (neurons) are separate and distinct anatomically; they do not anastomose one with another, but function only by contact. The individual neuron is a three-fold mechanism, its protoplasmic and nervous processes constituting the two parts which enter into dynamical relationship with other neurons, while the cell protoplasm and nucleus constitute the highly-evolved and specialized trophic and nutritive focus of the whole.

Tenth. The cerebral cortex in man is composed of various cell elements disposed in layers; of these there are four main systems, *viz.*: the molecular, ambiguous, long pyramidal, and polymorphic, each having its special anatomico-physiological characters.

Eleventh. The sensory excitations passing upwards to the cortex by projection fibres, mainly spread and get distributed in the molecular and sub-molecular regions, affecting thereby both ambiguous cells and long pyramidal cells. This is true of the olfactory and optic projections, and probably true also of the fillet radiations.

Twelfth. While the main fibres and branches of such

sensory projection systems are medullated and insulated, the insulation ceases in the "field of conjunction," or nervo-protoplasmic plexuses of the *molecular* and *sub-ambiguous* regions. Here the "naked" collaterals and terminals of these fibres come into the most intimate contact with the enormous expanse of protoplasmic branches and twigs which ramify in those plexus regions.

Thirteenth. A sub-pyramidal nervo-protoplasmic plexus is also formed in the cortex to further increase and perfect the various intrinsic association and commissural systems in the brain.

Fourteenth. That as we rise in the vertebrate scale to the mammalia, a new sub-cortical system of elements (polymorphic cells) is developed. This is even in early life still undergoing demonstrable evolution. It is to be looked upon, therefore, as the latest portion of the cerebral organization, and one distinctive of the mammalian brain.

Fifteenth. That the whole system of association and commissural fibres grows in accordance with the degree of brain evolution, and that these, together with the polymorphic cell elements, attain their highest relative and absolute evolution in the human brain.

Sixteenth. That the specific natures of psychical processes depend upon the specific activities in the various sensorial "areas" of the cortex, and that the latter are to a certain extent localizable. That the whole body of anatomico-physiological and pathological evidence demonstrates such localization of function; and that the Golgi method enables us to push this localization further, at least as regards the kinds of cortical nerve elements, which are the first to subserve sensorial activities.

Seventeenth. That in disease such centers (according to the locality of the disease) may be the seat of visual, auditory, gustatory, tactile, and cutaneous, olfactory or kinæsthetic discharges (hallucinations and Jacksonian epilepsies); and that similarly more extensive and higher cortical areas may be involved, giving rise to "psychical epilepsies."

Eighteenth. That recent evidence and facts tend to show that the Rolandic area is the seat of sensory processes mainly belonging to the kinæsthetic order, concerned, therefore, with the executive activities (bodily *acts*) of the organism in relation to or in adjustment to the environment; and that the whole Rolandic area thus is the finally disposed executive mechanism as far as the brain is concerned.

Nineteenth. That the study of the *aphasias* show that according as various cortical centers and tracts are the locus of the lesion, the clinico-psychological symptoms vary. The whole body of evidence so far considered in our paper shows that the cerebral cortex is the seat, of various psychological activities not only differing in kind, but different also in the form and extent of their elaboration.

Twentieth. That in the Rolandic (kinæsthetic) area a structural evolution is at the root of, and accompanies the functional evolution of movements and acts, the progress of the nerve organization being parallel to the progress of movements from dyskinæsis to eukinæsis. A similar anatomico-physiological evolution of the cortex takes place in other areas.

Twenty-first. That according to the nature of this anatomico-physiological growth of the brain, it is capable of receiving new impressions and is within certain limits plastic and educable, not a rigidly pre-established structure.

Twenty-second. That quality (extent and complexity) of organization in the brain is the real basis of intellectual (mental) capacity, and not mere quantity or mass; that thus a brain small in size (like that of Gambetta) may from its intrinsic high elaboration be able to subserve more varied, extensive and multiform activities in life and thought than others of grosser organization, even if blessed with greater size, can be capable of.

Twenty-third. That the law of psychogenesis takes place in the child not only in the psycho-motor and sensuous, but also in the intellectual (relational) sphere which combines these two, following very definite lines, and that

during such stages the child is peculiarly impressionable to surroundings.

Twenty-fourth. That the evolution of language as an instrument for the reinforcement of psychical activities (which, however, can take place in its absence) co-operates greatly in brain development. It allows the child to represent the most varied and different things in terms of a common denominator; it is thus of the highest *formal* value in the exercises and repetitions of psychical processes which underlie mental evolution.

Twenty-fifth. The gradual recognition of the empirical ego as the center and source of spontaneous activities and its distinction from and antagonism to the external world, are the bases of self-consciousness, self-assertiveness, and volition; the higher states of self-sacrifice and altruism arising later (during and after adolescence) in human character.

Twenty-sixth. That under the law of pathogenesis many of these early evolutions in brain and mind, from the foetal to the adolescent stage, may undergo *alteration* (perversion) or *defect* (absence), and that such pathological conditions of the organism are the basis of the insanities.

Twenty-seventh. That besides lesions in the nerve elements proper, lesions may occur either in the special *protective* or the *nutritive* mechanisms of the nervous system, which we have fully described before, furnishing additional bases towards pathogenesis.

Twenty-eighth. That the whole course of clinico-psychological and pathological evolution in the early stages of an insanity of slow development like alcoholic insanity, enables us to recognize two great classes or types, in one of which the morbid changes are more *generalized and extensive*, while in others this first stage is slight or abbreviated, and a *specialized and intensive* development of pathological changes takes place.

Twenty-ninth. That it is possible to correlate the early pathological (internal) changes taking place in the brain

with the early clinico-psychological symptoms of the alcoholic insanities, viz. : amnesia, diminished power of attention and volition, diminished initiativeness and energy in conduct, muscular weakness and tremor, and insomnia, and that the further progress of the morbid changes in the brain in association with the psychical conditions of melancholia, with delusions of suspicion, acute hallucinations, maniacal and epileptiform outbursts, are of a more protean but also more advanced type, in which serious destructions (disorganizations) occur chiefly in the nervo-protoplasmic plexuses of the molecular and ambiguous regions on the one hand and in the polymorphic elements on the other; in these cases the nutritive changes *within* the cell-protoplasm and nucleus being also advanced beyond the limits of repair, the changes in the non-nervous elements being also far advanced.

Thirtieth. That the whole of the above body of neurological and pathological evidence, together with recent experimental work, show that in the early stages of the insanities there is a profound *nutritive and dynamical* failure in the nerve elements of the brain, which finds expression in the insomnias, the melancholias, and the commencing loss of memory, with easily induced mental fatigue which their subjects experience, and that the pathological facts ascertained, in so far as they afford us any light, force on us the conviction that we are dealing with serious nutritive and dynamical changes in the central nervous organ, a conviction which must profoundly influence the clinical study and practical treatment of insanity in the future more than it has in the past.

TREATMENT OF DELIRIUM TREMENS.*

BY DR. NORMAN KERR, LONDON, ENGLAND.

Of the treatment there has been no end. Not so very long ago all cases were freely plied with alcoholic beverages from outset to finish. The question used to be, not "Shall this patient have an intoxicant?" but "What stimulant shall he get?" the practice being to give liberal quantities often of both wines and spirits. During the past thirty-five years or so, the superstition on which this treatment was based, that it was perilous to cut off alcohol at once, has gradually been exploded, though the writer has now and then met with patients whose attending practitioner has shrunk with horror at the risk involved in "so dangerous a step." By respectable authorities we are even now gravely assured that in serious cases it is imperative to continue to give the patient the same intoxicating drinks in which he has been accustomed to indulge, and that it is a mistake to suddenly withdraw the liquor.

An experience of some hundreds of cases has shown the writer that this is an erroneous belief. In this disease he has never seen the liquor do anything but decided harm, in some instances putting in jeopardy the safety of the patient, in other instances contributing to a fatal issue. Both by their direct effects and by their influence in reaction, alcoholic drinks are injurious.

The patient is laboring under a toxæmia induced by alcohol, and to keep giving him more of the poisoning agent is to keep up the toxic action. He is being weakened by the excessive and prolonged discharge of nerve energy, and by his muscular convulsive restlessness and struggling. If more

* This paper consists of a part of a chapter on Alcoholism, published in vol. 3 of the *Nineteenth Century Practice*.

alcohol is supplied more nervous energy is called forth and there is more muscular excitement. Thus he is directly enfeebled. Further, after alcohol freely administered there is apt to be reaction, which reaction in this and other diseases not unseldom perils the recovery of a worn-out and collapsed patient.

There need be no fear of serious danger from the sudden cessation of stimulants. Not many less than one hundred thousand criminals and paupers are admitted into prisons or workhouses every year in Britain. The bulk of these are broken down inebriates, shattered by alcohol, yet their liquor indulgence is forthwith cut off, not only without injury, but with such remarkable benefit that they speedily regain health and strength.

The first condition of cure, then, is complete abstention from all intoxicating drinks.

Where any risk is feared, aromatic spirits of ammonia in cinnamon water, aromatic powder in hot water, or hot water itself, or some liquid preparation of beef, or hot milk, or broth may be substituted with advantage.

It is true that even in some special institutions for the treatment of inebriates, beer, stout, or an ardent spirit is employed in small doses as a calmative; but through this quieting is sometimes achieved for the moment by the anæsthetic influence of alcohol on some individuals, it is never unaccompanied (even when for the moment successful) with some risk of subsequent damage.

The writer, therefore, strongly insists on the exclusion of intoxicating liquors from the remedies with which we should attempt to combat delirium tremens. In incipient slight attacks, soon after the premonitory symptoms have threatened a seizure, a good dose of tincture of opium, an old-fashioned but useful drug, will sometimes produce a sound, long sleep, and avert the threatened attack.

With this exception, the less opiates are resorted to, the better. The once common free administration of opium with alcohol has been proved to be as unsafe and unreliable in delirium tremens as it is in cholera.

Opium and morphine in substantial doses, by their lowering of vital energy, diminish the chances of recovery, apart entirely from the risk of an overdose. It seems to be too often left out of consideration that opium and morphine do not counteract the deleterious narcotic action of alcohol, but rather intensify it. That the risk of an overdose of opium is real, the reports of many inquests testify. Fellow-students of the writer, fairly moderate consumers of alcoholic intoxicants, have taken to opium or morphine to secure the sleep which their arduous labors as physicians or scientific investigators have robbed them of, and have been found dead from the combined effects of the two narcotics; while patients laboring under an attack of delirium tremens have died from a sub-cutaneous injection of an opiate administered by the attendant physician.

Digitalis, in one dose of half an ounce of the tincture, followed, if necessary, by a second in a few hours and a third of two drachms, has been highly recommended by Jones; but the writer found it of no avail in averting a fatal issue in one case, and its potency demands great caution in its administration.

Opium used to be largely employed in the endeavor to induce sleep, which has been deemed by many to be the true cure of the disease. But there are two kinds of sleep, one sound, healthful, and natural, which if sufficiently prolonged and if the patient awakes refreshed and calm therefrom, is the principal curative process; the other light, disturbed, fitful, short, and morbid, on coming out of which the patient awakes unrefreshed and delirious or semi-delirious.

The sleep secured by opium and morphine seems usually to be of the latter variety, and in many cases, by the subsequent reactionary disturbance, to aggravate the nervous tumult. These drugs require to be given in very large doses to procure sleep in delirium tremens, and with such heroic doses, in tissues already saturated with alcohol, deep and prolonged coma may supervene, with a fatal issue accompanied often by profuse serous cerebral effusion. If an ordi-

nary dose of either narcotic is given, the brain is only excited and the general nervous perturbation intensified.

In one case of considerable gravity in a male intemperate of the age of twenty-seven, the writer tried the experiment of an evening dose of Dover's powder one day, and on the succeeding day an emetic dose of ipecac.

The sleep following the Dover's powder was restless and disturbed, the patient next morning when fully awake feeling parched and excited; while after the emetic of the preceding evening he had a sound, restful, uninterrupted sleep of at least five hours' duration, and awoke comforted, rested, and refreshed, with a steadier hand and quieter brain. A good deal of these unfavorable effects may also arise from cannabis, chloral, sulfonal, ether, chloroform, hyoscyamine, and to a less extent from the bromides. Phenacetin in 8 to 10 grain doses for not more than two hourly repetitions is less risky but unreliable. Chloral and sulfonal are depressing to the heart, besides, their lowering and disturbing influences on brain and nerve function, the latter having in some cases a strong and somewhat prolonged injurious depressed excitant effect on the cerebellum, the patient sometimes for days or weeks having a tendency to fall backward, and to walk with unsteady gait. Paraldehyde, trional, and other hypnotics less dangerous than opium or morphine, are all more or less liable to be succeeded by reactionary excitement after the artificially induced sleep is over. Potassium and sodium bromides, either alone or in combination with chloral and henbane, have certainly at times proved useful; though even when given by themselves, they have often, to be effectual, to be given in such very large doses, or in so many repetitions of a dose (by the summation of their cumulative influence more than equivalent to such an unusually large dose) as seriously to depress vital function and deprave the blood.

Even such comparatively innocuous antispasmodic drugs as asafoetida and such harmless tonics as calumba and humulus, though productive of no direct injurious effects through their

own action, and of no substantial reactionary after-symptoms, are open to the objection that reliance on them is wasting valuable time. The writer excludes such more potent tonics as strychnine and its preparations as out of the question till the delirium has ceased.

As delirium tremens is a direct product of alcoholic poisoning, practically an acute disease produced by the action of the poison on a nervous system so responsive to such acute poisoning, either by reason of a preceding chronic poisoning or of a susceptible nervous organization, rendered so by a constitutional neurosis either inherited (as it generally has been) or acquired under abnormal non-alcoholic conditions; as, in fact, the delirium is simply a symptom of active poisoning, the first indication of treatment is to eliminate the poison as rapidly as possible.

None of the medicinal substances just enumerated can take an active part in this process of elimination, however efficacious they may possibly be in other respects.

The poisoning process must be grappled with by speedily freeing the system from the poison, and there are but three easily available means of achieving this end.

So far as this alcohol elimination is concerned, the object might be gained by diaphoresis in a Turkish hot-air bath, but the depression and exhaustion consequent on a sojourn long enough to be effectual, as well as the impossibility of securing a bath with adequate attendance, in most cases, contribute to render this plan as a rule impracticable. Even in a hospital furnished with an ample Turkish bath, expensive attendance would be needed, the temporary dwellers in the sutatorium being bodily unrestrained by bedclothing, with the additional risk of the delirious injuring themselves in their convulsions and struggles. The perspiration, which is the only efficient method of securing the necessary elimination of the poison, might be secured by the wrapping of the patient in a wet pack, but this is liable to the special objection that, particularly in grave cases, the close restraint of the contorted sufferer in a properly fitting pack would

heighten the nervous excitement and cerebral pressure, everyone knowing this to be the effect of forcibly restraining violent involuntary muscular action.

In light forms of delirium tremens, both the Turkish bath and the wet pack are sometimes of service where they can be conveniently applied, and the writer will later on speak of their great usefulness in certain phases of chronic and sub-acute alcoholism ; but in violent cases of delirium tremens he cannot recommend either, in ordinary practice.

In addition to rapidly clearing the alcohol out of the body, it is of the highest importance to conserve the patient's strength. To restrain his muscular contortions would be more quickly thereby to exhaust his vital energy, which, especially in those who have had repeated attacks and have not been abstemious in the intervals, is not generally so abundant as to warrant any preventable loss of it.

This preservation of nerve force is best accomplished by allowing the muscular movements to be as untrammelled as possible. There are two ways for providing for this. One is by shutting up the delirious patient in a padded room, where he can have nothing to injure himself with and cannot hurt himself, even if he dash himself in blind fury against the padded walls.

This is a procedure which is rarely obtainable, though by the favor of the master of a London workhouse the writer was once enabled to employ it in the case of a publican, who could not properly be controlled or fed in his public house by five men, and whose unruliness and cries were seriously detrimental to the trade carried on in the shop beneath his bedroom.

The man received no medicine, milk and coffee being handed to him through an aperture in the door padded in the interior, but in some three days he exhausted himself and fell into a profound and long sleep, from which time he steadily and thoroughly recovered.

This excellent provision of a padded room being, however, rarely within our reach, must be regarded as in gene-

ral practice also impracticable. One is therefore driven to find a medicine which, while operating, as soon as may be, to get rid of the accumulation of alcohol in the system, would not by the depression of narcotization on reactionary excitement weaken the vis medicatrix, in which latter really lies the potency of cure.

All this the writer believes he has found in the innocent yet powerful liquor ammonii acetatis, which in addition seems (either by its antifebrile properties or by some unknown chemical action on the alcohol saturated tissues) to exert a specially favorable influence on the rapidity and completeness of the elimination.

The usefulness of this drug in alcoholism is not limited to delirium tremens; but in delirium tremens it has appeared to combine all the advantages of the cooling and calming emetic treatment by ipecacuanha, with, by the characteristic profuse perspiration which it causes, the best qualities of the wet pack and hot-air bath.

Withal, there being neither chemical nor muscular restraint, the restless sufferer's already lessened nerve force (lessened by the disease) is not further drawn upon to combat the depression occasioned by opiates or other narcotism, and the nervous exhaustion from the excitation aroused by the physical restraint (envelopment in a close packing of sheet and bedclothes, as in a straight-jacket) of turbulent and inco-ordinate muscular contractions.

Since relying mainly upon the acetate of ammonia, the writer has had much less trouble with cases of delirium tremens, a great deal less anxiety from serious complications (which formerly chiefly arose from the after-effects of opiate, chloral, and bromide remedies), and a much larger percentage of good recoveries. Of course, care must be taken to have sufficient attendance to guard the patient from harm. This is a point very often of vital importance. If in delirium the vigilance is relaxed, there may be a sudden termination of the case.

Though, usually, alcoholic delirates in attacks of delirium

tremens are fairly easily manageable, suicide may be attempted in almost the momentary absence of a nurse. The maximum extent of freedom compatible with safety is attained by the patient being kept in bed. With a little tact, an intelligent attendant can exercise considerable control over the excited patient by pressing down on the patient near and over the knees outside the blankets. This allows free play for practically all needed involuntary muscular movement. The patient is thus allowed to exhaust himself by his continuous muscular efforts, till the true restorative state of natural sleep overtakes him through sheer weariness. There is nothing so valuable here as the sound, wholesome sleep of fatigue; in character and effects so opposite the unwholesome, disturbed, and disturbing sleep procured artificially by narcotics.

In all that has just been stated about the treatment of delirium tremens, and this is equally true in other diseases, it should ever be borne in mind that exceptional cases may occur which may require alcohol or other remedies not here referred to.

The writer is ready, for example, to administer alcohol at any time when it appears to be called for, but he has never yet seen a case of delirium tremens in which he considered this remedy was desirable.

WE give place to a long clinical paper to make known the value of trional which has come into much prominence lately. Schieffelin & Co. are the American agents for this drug.

REPORT OF THE MASSACHUSETTS HOSPITAL
FOR DIPSOMANIACS AND INEBRIATES AT
FOXBOROUGH.

The following extracts from the report of this hospital under the charge of Dr. Hutchinson will be of great interest to our readers.

There have been 212 admissions during this year, 59 more than during the previous one. The daily average number resident in the hospital was 125.14.

Few subjects are receiving more general and persistent consideration than that of inebriety, and there is none upon which more varied and opposing views are maintained. The term "inebriety" is inexact, and thus far no clear and sufficient definition of it has been given. Still it is accepted as the distinctive name of a true disease, a phase of insanity, characterized by an intense, imperative, irresistible craving for the soothing effect of some narcotic poison, notably alcohol. It is distinguished as a disease, not as a habit. As a disease it has its history, causes, and symptoms, and is subject to pathological laws as are other diseases. In the words of the American Association for the Cure of Inebriates, it is "a disease that is curable in the same sense that other diseases are, its primary cause being a constitutional susceptibility to the alcoholic impression, which may be inherited or acquired."

It does not, as an organism, enter the system from without, but arises from within, and exists as a change of structure or function, or both. Apparently no organ or tissue escapes. There are irregularities in the functional activity of the various organs; there is impairment of muscular movement, even paralysis; also neuritis, with its attendant pains, frequently called "rheumatic pains." When fully developed, it manifests such symptoms as are associated with hardening of the

tissues and fatty degeneration. The most characteristic of them, diminished will-power, blunted moral perception, and impaired cerebration, point to the brain. They indicate a state of dementia which frequently can be recognized long before it is sufficiently pronounced to justify a certificate of insanity.

The careful observations and studies already made of the condition of the inebriate, the subject of chronic alcoholic poisoning, have made it apparent that this disease is very largely dependent upon inborn tendencies, or heredity, and upon surrounding conditions and influences, or environment ; that it is frequently dependent upon physical conditions and causes with which the substance alcohol has nothing to do ; that where there are no predisposing or exciting causes, it may be originated by the indiscreet or inconsiderate use of alcohol itself.

The inebriate, as he is presented for care and treatment, is usually shattered by years of alcoholic indulgence and dissipation. Not infrequently he is further weakened by some associated neurosis, or by some organic or constitutional disease. It is not reasonable to suppose or expect that under such circumstances he can be restored to health in a few weeks by the use of any one drug, or combination of drugs, alone. Other agencies must be employed,—complete cessation from the use of alcohol, restraint and control of the person for a time, even for a long time, rest, freedom from worries, baths and systematic exercise, occupation, regularity in habits, diets, and good hygienic surroundings. Most persons must seek the protection and care of a hospital, for they are too deficient in will-power to be controlled by personal appeal, pledge, or fear of financial or social ruin.

There is no short cut by which the disease can be checked and the diseased tissues restored to their normal condition. It is necessary to follow the same general course as in the treatment of other diseases, particularly those affecting the nervous system. Until the exact pathology of the disease and the true physiological action of alcohol are demonstrated,

it will be necessary to look to the inferences and results of experience for guidance in its treatment.

It may be of some interest to indicate what is sought to be done in the care and treatment of those committed to this hospital. By the statute law governing commitment to and detention in the hospital, provision is made for one of the chief factors in treatment,—time, or prolonged residence in the hospital. Time is necessary, compelling the non-use of alcohol, affording an opportunity for nature to restore the diseased tissues to their normal condition, and also for the sustained use of drugs, baths, exercise, and other remedial agencies. Under the law, a man, when committed, can be detained for two years. The trustees are given discretionary power for earlier discharge, which discharge is not full or final, but conditional, or leave of absence. When so discharged, any person violating the conditions of his release and resuming his drinking habits may be returned to the hospital and there detained during the unexpired portion of the two years for which his commitment papers are valid. According to the rules established by the board, each person is allowed to go from the hospital on leave of absence at the end of six calendar months, provided he has met all requirements as to the taking of medicines, occupation, and attendance upon the classes in physical training.

When received at the hospital each person is bathed and then examined for injuries or anything else unusual. He is then placed in a room, where he remains in seclusion for some days, to preserve his strength, if much debilitated or in a state of delirium. The use of alcohol in any form is stopped at once. While in a state of delirium he has an attendant constantly near him, both night and day. When otherwise seriously sick the same watch is maintained. Appropriate treatment is directed to the relief of the conditions resulting from the use of alcohol, and also any complicating disease.

At a suitable time each one is required to attend regularly a class in physical training. About one quarter part are

excused for some positive incapacity. The classes in physical training are under the direction of one who has been specially educated for such work. His services are given during five half-days of each week. At the close of each exercise each class receives, at the hand of the instructor himself, a carefully tempered bath, a spray bath, which cleanses the body of all exudations, stimulates the nervous system and the subcutaneous circulation. As the patients present themselves for the training, they show faulty attitudes, weakened organs of circulation and respiration, imperfect muscular co-ordination, comparative inability to concentrate and apply their mind, slow response to mental stimuli, diminished will-power. It has not been sought to train athletes for the performance of special acts, but to bring about a healthy action of heart, lungs, and mind, and more perfect co-ordination of nerves and muscles, a proper performance of the other bodily functions, to form habits of order, application, and purpose; most of all to increase the power of the will in controlling, through its organs, the central nervous system, all functions, movements, and desires of the body. This end is sought through a series of movements so arranged and executed as to bring all parts of the system under the influence of the will, and to strengthen the will through the frequent and well-directed use of it.

To afford the instructor a thorough knowledge of each patient, to enable him to better understand his condition, his weaknesses, and needs, and in turn to more intelligently regulate the amount and character of the exercise he is to receive, an examination is made. Such matters as height, weight, lung capacity, state of nutrition, etc., are noticed. By means of special machines, tracings are taken upon paper of the outline of the chest in a vertical section from front to back, while in a state of rest and also while in the state of full inspiration and of full expiration. Similar tracings are made of a horizontal section of the chest. Another tracing is made showing the line of the spinal column and any lateral curvature, if present. Another such set of tracings is made

just before the patient goes from the hospital. By comparing the two sets, a ready estimate of the improvement secured is made. By the original diagrams, particularly when compared with those of fellow-patients, each one is shown his defects, so that he will the more willingly and intelligently assist in remedying them. Each month what is called the strength test is made. This consists in ascertaining the height, weight, lung capacity, strength of back, chest, legs, and forearms by means of special instruments. These items are brought into relation to each other, and projected on a chart as a diagram. As a record, and for the purposes of comparison, each patient has a chart devoted to him, upon which his line or diagram for each month is projected. These charts act as a safeguard to the instructor. They show the exact standing of each patient, and give him a chance to modify the treatment for such as have not made satisfactory progress. By explaining his chart to each patient he can see and know how much progress he has made, or to what extent his defects have been remedied; and it may be hoped that he will be stimulated to more earnest co-operation and effort.

The patients are also placed upon parole within the limits of a certain portion of the hospital grounds, and have this freedom from breakfast time to that of supper. When given parole they are at the same time assigned to some task. Thus they assist in the kitchen, dining-rooms, laundry, boiler-house, barns, in the work upon the farm, in painting and general repairs. There is also a broom shop, which affords employment for some all the time and for many during the winter season.

During the past winter the patients have provided themselves with an entertainment nearly every week. These have been arranged and conducted by a committee chosen for each evening, by their own action, from among their own number. They have always relied upon the talent to be found among themselves and employes. Occasionally kind friends have assisted, coming from the village.

Another great need in connection with the classes in physical training is better and increased facilities for bathing. As it is at the present time, the class is huddled together in a small room under a waterproof canopy, touching elbows, while receiving the needed bath administered through the spray nozzle of an ordinary garden sprinkler. A few of the men have objected to attending the classes because of the lack of privacy in connection with the bath.

Mention is made below of some of the men who have been longest away from the hospital, and who are still looked upon as doing well, or abstinent. They serve to indicate the good accomplished under adverse, even seemingly hopeless circumstances. Many who are admitted are evidently hopeless from the first. During the year seventeen have been transferred to a hospital for the insane. Many others are recognized as very close to the line, if not actually within the limits, of insanity. Others are subject to such gross physical degeneration as to preclude any hope of lasting benefit.

Stone cutter, sixty years old, widower ; has been drinking for forty years ; to excess during the past twenty, as often as every two months. Has no known heredity or exciting cause. Has no known associated habit. Has been much more intemperate since the death of his wife, sixteen years ago. At time of commitment was tremulous, irritable and somewhat confused and debilitated. He was under treatment about six months. He has been absent from the hospital twenty-three months, and according to the statement of his children he is doing all right, is working regularly, is as they would wish him, is happy with them and they with him, contrary to what has been during the past twenty years. He has not taken anything intoxicating but once, in small quantity, and that was associated with July 4th.

Professional man, forty-three years old, married ; has drunk for years ; uses Jamaica ginger as freely as he does liquor. For six weeks just prior to commitment he con-

sumed large quantities of liquor, also of Jamaica ginger. At entrance appeared to be verging upon delirium tremens. His father used liquor. No known exciting cause. His indulgence was solitary. During this last spell he has imagined that his wife was intending to poison him, and he became very ugly towards her. At entrance he was much debilitated, tremulous, and his stomach was much disordered. Had an alcoholic fit four days after entrance. Says he had a similar fit about thirteen years ago. Was in the hospital about six months. Has been at home twenty months, and from reliable sources it is known that he has continued abstinent and has attended to his business regularly.

Laborer, thirty-two years old, unmarried; duration of drinking habits unknown. His father was a heavy drinker. He has been known to the committing physicians as a confirmed inebriate, who wandered about at night searching for some imaginary thing, and was a nuisance to those around him. Had no known associated habit. At time of admission he was extremely weak, but not intoxicated. At end of ten days he began to rally, and improved rapidly. Was in the hospital about six months, and his improvement was very pronounced. Has been at home a little more than nineteen months, and is known to have worked regularly and to have been abstinent.

Carpenter, forty years old, married; has drunk for twenty-five years, or since he was fifteen years old; has always drunk immoderately, but much worse since his head was cut, two years ago, taking his liquor away from home. His father and mother both used liquor to excess. All his relatives are or were people of weak constitution. When not in liquor he thinks well of his family, but when in liquor he is ugly and abusive, and for that reason his wife has once left him. An employer has discharged him because of violence threatened. He was in the hospital six months. Has been home eighteen months. From reliable sources it is known that he has worked regularly, has been what he should be to his family, and also abstinent.

Bartender, thirty-eight years old, married; has drunk during all his married life of five years, how much longer is not known. Has drunk immoderately during the last year. No known heredity. Entered the hospital in a state of delirium tremens; was entirely incoherent and very tremulous. Required camisole during the first twenty-four hours, to prevent self-injury. Became coherent on the third day. He was in the hospital a few days less than six months. Went home in a very much improved physical condition. After an absence of nineteen months it is known that he works regularly and is abstinent.

Salesman, twenty-eight years old, married; has drunk for seven years; has also used choral and absinthe. His father and all male relatives on his father's side have used liquor. His maternal aunt is insane. During the year preceding his commitment he used whisky or brandy daily in large quantities, and developed marked chronic alcoholic poisoning. He has had eleptiform seizures undoubtedly due to alcoholism. At such times he was violent to persons and destructive to things, requiring vigorous restraint. At entrance was sober, but tremulous and much debilitated from recent drinking. He had a severe fit the same evening. He was in the hospital about six months. Has been absent from the hospital eighteen months, and according to good authority he has been constant at work and abstinent in habit.

Clerk, thirty-five years old, unmarried; has drunk during eight years, and to excess during the last three. Hereditary or exciting causes unknown. He always began with beer, socially, and ended with whisky. He has had treatment a number of times in a private institution. At entrance quite tremulous, stomach much disturbed, heart's action irregular, and had bromide eruption over body. Has been out of hospital twenty-three months, and has continued abstinent and industrious. Recently his father wrote: "He is one of the best improved young men in ——, in a good position. If you saw him I think that you would not know him, the improvement is so great for the better. He has no use for liquor now."

Salesman, forty-four years old, unmarried ; presented himself for examination and asked for his commitment. Has drunk during twenty-three years, and to excess during the last eight or nine. Admits being in house of correction about four years ago, and also in the Massachusetts Reformatory about a year for inebriety. His drinking habits quite constant of late years. He bore evidence of continued chronic alcoholism. Eight months prior to admission was much troubled with diarrhoea, for which he took laudanum and rhubarb ; then laudanum alone ; became frightened at the laudanum, and took to whisky. Said he had been drunk every day for six months. After being in the hospital three months he ran away, remaining out one month, when he was returned to the hospital. He then remained about seven months. Has now been out of hospital seventeen months, and during that time has been seen frequently by people from the hospital ; at such times always was sober. He is now managing a good business. His friends claim that he has at all times been abstinent.

ANGINA PECTORIS DUE TO TOBACCO. — Professor Potain points out (*Journal de Médecine de Paris*, October 6, 1895) certain peculiarities enabling the physician to diagnose the angina pectoris caused by the excessive use of tobacco. In true angina pectoris from a coronary lesion, the attack is due to increased work of the heart ; the pain is of a tearing, burning character, and is substernal. In tobacco-angina the attack is spontaneous, without any effort on the part of the heart, and lasts several hours. The pain is often substernal, but also frequently præcordial ; it is as intense as in true angina pectoris, but there is a feeling of dilatation. This rule, although not absolute, will be found to apply in the majority of cases, and it will also be observed that whereas in true angina pectoris the least movement will increase the attack, that due to tobacco is in nowise influenced by movement.

ANNUAL REPORT OF WALNUT LODGE HOSPITAL, HARTFORD, CONN.

The work of this hospital during the year 1895 continues to be of the same interest as of former years.

The grouping and study of cases that are practically unknown have always a fascination that deepens as the real facts multiply. In a small institution where each case is made the subject of exhaustive study, some idea of the laws of physiological and psychological growth and decay is obtained. Opportunities occur of verifying facts and theories more difficult to utilize in a larger hospital. Special means of treatment which can be individualized and applied to meet the particular care are always practical where only a few persons are treated.

The special object, as heretofore, has been to give each case the best possible facilities for restoration and to concentrate the most practical means and methods which the history of the case demanded.

The records of the year show that fifty-two cases were admitted for treatment; this, with the eight cases in the hospital at the beginning of the year, makes sixty cases in all under treatment in 1895. Forty-four of these cases were discharged and left the hospital.

The following indicates a general classification of the character of the cases :

Periodical Inebriates,	-	-	-	-	-	-	-	-	23
Continuous Inebriates,	-	-	-	-	-	-	-	-	10
Dipsomaniacs,	-	-	-	-	-	-	-	-	4
Opium Inebriety,	-	-	-	-	-	-	-	-	9
Cocaine Inebriety,	-	-	-	-	-	-	-	-	2
Chloral, Ether, Ginger, and other Inebriates,	-	-	-	-	-	-	-	-	3
Complex cases using any narcotics at hand,	-	-	-	-	-	-	-	-	7
Exhaustion, spirits used as remedies,	-	-	-	-	-	-	-	-	2

This general grouping is clinical and describes cases by the most prominent symptoms apparent. Many of the chloral, ether, and other drug-takers, may at times use spirits, opium, and cocaine. But for some unknown reason abandon them soon and depend on some specific drugs, such as choral, ginger, ether, or allied narcotics. These cases are repeaters and are often treated in different asylums for different drug addictions. The complex cases are of the same class, except they do not appear to have any special drug addiction, but use any one most convenient. It is unfortunate that any cases should occur in which spirits are used by advice as voluntary for its supposed medicinal effect. In the two cases under treatment, both the patient and friends became alarmed at the necessity for the use of spirits and the treatment was followed by the most favorable results. The cocaine cases were the usual complex examples where other narcotics had been used before. Physicians seem to be the most exposed to this form of drug addiction and not unfrequently the most incurable.

In a study of the causes the same class of facts have become more prominent.

The following table gives an outline of these facts :

Heredity direct, - - - -	19	Traumatism, - - - -	6
Heredity indirect, - - - -	12	Exhaustion, - - - -	5
Heredity collateral, - - - -	11	Environment and contagion, - -	7

Direct heredity is used to describe cases where the drink craze or symptom was prominent in the parents. The indirect heredity describes cases where inebriety of some ancestor noted in the grandparents, and the immediate ancestors were free from this disease, although exhibiting defects and degenerations.

In the collateral heredities various neurotic disorders occurred in the ancestors, of which inebriety, epilepsy, hysteria, paranoia, consumption, and other brain and nerve disorders are common.

Traumatism or injuries are no doubt responsible for many cases that are unknown at present. Shocks and brain

strains are not only obscure but profound in their effects and become the starting point of serious lesions of nerve and brain cells. Exhaustion includes a great variety of conditions that are noted by anaemia, cell and tissue starvation.

The influence of contagion and surrounding is always prominent in developing latent defects and tendencies to certain diseased states.

Of itself alone it appears to be an important factor, but it acts both as an active cause and as a symptom of other states. In three of the cases under treatment some defect of the brain centers existed from birth, probably retarded development, and the persons exhibited an unusual susceptibility to surroundings. They became early inebriates from contagion, but responded to changed surroundings and society hopefully. The following tables relate to some general statistical facts:

Age of Persons under Treatment.

From 20 to 30 years of age, -	10	From 50 to 60 years of age, -	5
From 30 to 40 years of age, -	24	From 60 to 65 years of age, -	3
From 40 to 50 years of age, -	18		

Social Condition.

Married and living with wife, -	36	Widowers, - - - -	5
Married and separated from wife, -	2	Single, - - - -	17

Occupations.

Physicians, - - - -	7	Spirit dealers, - - - -	2
Lawyers, - - - -	4	Broker, - - - -	2
Farmers, - - - -	3	Mechanics, - - - -	3
Merchants, - - - -	2	Soldier, - - - -	1
Clerks, - - - -	6	Bankers, - - - -	2
Manufacturers, - - - -	4	No occupation, - - - -	2
Druggist, - - - -	1		
Lumbermen, - - - -	2		
Drummers, - - - -	2		
Speculators, - - - -	4	Housewives, - - - -	3
Engineers, - - - -	3	Teacher, - - - -	1
Barber, - - - -	1	Physicians, - - - -	2
Students, - - - -	2	No occupation, - - - -	1

Duration of the Inebriety.

From 5 to 10 years, 8	From 15 to 20 years, 15
From 10 to 15 years, 26	Over 20 years, 11

Education.

Collegiate, 19	Academic, 20
University, 10	Common school, 11

Former Treatment in other Hospitals.

Been treated at Keeley Institutes, 31
Treated by other Gold Cure Specifics, 10
Treated at other hospitals, 7
Never treated before, 12

The relapsed cases from the use of specifics are increasing, and the same class of symptoms, resembling acute insanity with hallucinations are common. The experience of other asylums are confirmed in the difficulties of treatment and the extreme prostration manifested by these cases. The delusion that the cure is effected when the taste for spirits dies out, and that some heroic remedies can be given to change and restore the brain to health in a brief time, is very prominent in most of these cases.

The Results of Treatment.

Recovered, 23	Improved, 13
Unimproved, 6	

These figures are a fair approximation of the present results. The unimproved are those who relapse soon after leaving and who manifest, during treatment, a continuous desire to procure spirits. They are practically insane and possessed with a dominant idea of using spirits without any particular motive. Every possible physical ill suggests spirits and every condition of life, real or anticipated, demands the same. The control of this impulse by drugs is only another form of restraint, that is temporary, and fails because it does not reach back to the real causes. Many of these cases recover permanently, usually dependent on unknown causes and physiological conditions.

This gives encouragement to continuous effort, even in the most hopeless cases, especially hygienic and constitutional measures, which encourage physiological changes in the entire body.

Of the class marked recovered, a knowledge of the causes of the inebriety has suggested methods of treatment that would remove such causes and point out conditions of living that would prevent relapse in the future. Many of these cases may be considered cured in the broadest meaning of that word. The results of exact physiological hygienic and asylum treatment of all these cases is not only helpful and hopeful, but brings the reasonable promise of cure in exact proportion to a knowledge of the causes and their removal, together with the building up and restoration of the entire organism.

That inebriety is curable is an established fact. To what extent we do not know, nor are we yet familiar with all the various means and appliances suitable for each case.

One of the most serious obstacles which all institutions encounter is the unreasonable criticism of the public.

The delusions of patients are accepted as facts, and the work is regarded as empiric and based on the lowest motives, of which taking advantage of the weakness and emergency of patients is prominent.

The laws do not give asylums power to hold cases long enough to secure reasonable promise of cure and the suspicions of the public magnify the failures, and those who are permanently restored disappear and make every effort to conceal the fact of treatment.

Yet, notwithstanding all the various obstacles, the growth of asylum treatment of inebriates has been rapidly increasing.

WALNUT LODGE HOSPITAL has followed a uniform continuous course of progressive experimental work; especially in seeking to obtain a clear history of each case and the proper means and remedial measures best suited for restoration.

It has been repeatedly proven by experience, that special individualized personal treatment, based on a knowledge of

the facts of the history, gives the best promise of success in recovery.

This can be accomplished in small hospitals and by persons who manifest a practical scientific interest in both the pathological and psychological symptoms, fully realizing that recovery depends on the use of every means that can possibly build up and restore the brain and body.

The publication of the *JOURNAL OF INEBRIETY*, now in its eighteenth year at this hospital, brings us in a very close relationship to the literature and scientific studies of this subject from all over the world.

We are thus able to compare our work and utilize and test the experience of others to a greater extent than usual. Many of the conclusions from studies here are published in this *JOURNAL*, which, together with the experience of other asylums, form a valuable addition to a knowledge of the subject.

The results of the year's experience is the accumulation of facts confirming the conclusions which were asserted years ago with so much confidence "that inebriety is a disease and curable as other diseases are."

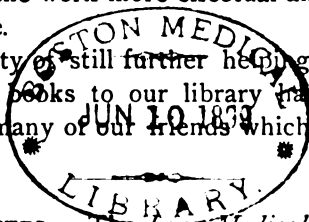
Starting from this point the great questions awaiting solution are, To what extent are these cases curable? What are the laws which govern the origin, progress, and termination of these drug neurotics? Also, what are the means and remedial measures most valuable for this purpose? Towards the solution of these questions we have been able to add considerable evidence.

The narcotic neurotic is still a mystery. The term inebriate is used to describe a class of neurotics whose disorders are only faintly outlined by the most advanced studies. Each hospital and asylum is slowly and with great difficulty pushing on into this new land. In every direction new facts, new laws, and new forces appear. The work of each year widens and enlarges the next and the failures and successes of any particular asylum really broadens the road and gives greater capacity for a larger work. The men and

women who have been restored and helped at WALNUT LODGE in the year past have been literally object lessons and mile posts, to indicate the direction of the movement that will literally stamp out and neutralize in the future not only the drink evil but many of the forces which manifest themselves in this way.

It is impossible, in a brief report, to convey more than a general impression of the work at this hospital. The kindly sympathy and interest by the members of our board have helped to make the work more effectual and has elicited our deepest gratitude.

The possibility of still further helping on the work by contributions of books to our library has created a lively interest among many of our friends which we hope may extend to others.



TEA CIGARETTES.—The *Lyon Medical* for December 1st says that fashionable English ladies are no longer content to drink tea, but that they smoke it at their five o'clock teas. A lady who is very well known always has tea cigarettes passed around after dinner. Another spends nearly two pounds sterling a week in order to gratify her taste for tea cigarettes, and three celebrated actresses have given tea-smoking parties several times. In Kensington a number of literary ladies have organized a club for this same purpose. The habit has spread so elsewhere that tobacco merchants are offering packages of tea cigarettes to the public.

THE surgeon-general now assures us, and furnishes statistics to prove, that inebriety is on the decrease. In 1890 no less than seventeen posts had more than ten per cent. of their average number under medical care for drunkenness; in 1891, eleven posts; in 1892, ten; in 1893, seven, and in 1894, four. These figures are hopeful, and warrant the belief that in the near future delirium tremens will form no part of the unofficial tactics of our standing army.

THE LATE DR. ALBERT DAY. — A BIOGRAPHICAL SKETCH.

BY T. D. CROTHERS, M.D.

Our readers will recall the many papers and selections from the writings of Dr. Day which have appeared in the *JOURNAL* almost from the beginning of its publication. These papers were always noted for a breadth of observation and practical recognition of all the conditions present. The inebriate to him was diseased and degenerate in all directions, physically, mentally, and morally.

His writings always attracted more attention among temperance philanthropists and reformers, and were very largely quoted, and had a wide influence in correcting popular errors of the day.

Dr. Day was born in Wells, Maine, in October, 1812, and died at Melrose Highlands, Mass., April 27, 1894. The death of his father in early life forced him out into the world dependent upon his own resources. After mastering a trade, he determined to secure an education, which was accomplished by studying nights with great persistency and energy. He finally graduated from the Harvard Medical School and entered upon asylum work for inebriates.

He was early attracted to reform measures for inebriates, and was identified with the Washingtonian movements of 1840. In 1856 he was a member of the Massachusetts Legislature, and introduced measures which finally culminated in the establishment of a home for inebriates. After varied reform efforts he became superintendent of the Washingtonian Home at Boston, organized in 1857. This was the first asylum that was opened for inebriates in the world. Other institutions were in process of organization, and the idea of disease and physical care and treatment were maintained and disputed with energy and earnestness.

The Washingtonian Home began as a lodging house, and by slow beginnings and halting progress, grew up to an asylum, in which the idea of physical care and treatment became prominent. Dr. Day followed, with good judgment and clear sense, making prominent the moral side to keep the confidence of the friends and patients of the asylum, and at the same time urging the physical necessities to support the moral. The power of an idea, and the force of moral contagion was pressed daily as a remedy, and for years this was ostensibly the special treatment of this asylum. In reality it was only the stage setting, the play and actors were very different.

After enthusiastic appeals to sign the pledge and trust to faith and prayer, Dr. Day would urge in private a materialistic course of conduct that was startling to the patient, who supposed his malady was a spiritual one. To many persons this was very strange; after making one side prominent in public, in private he attached little importance to it. Evidently Dr. Day had a very clear conception of the power of the mind over the body, and its peculiar potency in this class, and realized that a combination of the two methods of treatment were essential.

In 1867 Dr. Day was called to preside over the fated asylum at Binghamton, N. Y. Three years later he resigned and opened a private home at Greenwood, Mass. This was burned down some years after, and he was recalled to the charge of the Washingtonian Home, where he remained until 1893, when he resigned from ill health, and moved to Melrose Highlands, Mass.

He was actively engaged in asylum work for inebriates thirty-seven years, and some six years before he was manager and director of an inebriate lodging house and asylum for the temporary relief of drunken men found homeless on the street. Altogether his active life in this special field was over forty years. More than ten years before he had been a very active temperance man and was always engaged in efforts to help the inebriate and educate the public to realize the dan-

ger from the use of spirits. At his death he was the oldest pioneer worker in this new field. He had no doubt seen more inebriates and treated them medically than any other person. Dr. Day was one of the original members of the American Association for the Study and Cure of Inebriates which was organized in 1870, and at his death he was president.

In 1888, a reception and dinner was given to Dr. Day on the thirtieth anniversary of the Washingtonian Home, an account of which has been published in this JOURNAL.

Dr. Day was not considered a great scholar or bold pioneer leader far in advance of his day and generation, but he was eminently a wise, prudent man, who sought rather to give shape and direction to events of the present than to lead beyond. While not antagonizing the theories of the day in any harsh way, he turned them into new channels and roads, and pointed out new and wider meanings to the foolish dogmatism of his cotemporaries. This was done in such an adroit way as to escape all criticism. On the platform as a public speaker, in his contact with patients, and everywhere, he seemed to accept all the moral teachings of others, and added to them the most pronounced materialistic rational means of treatment, which were accepted without controversy. He was an optimist who realized the limitations of theories, and who never lost faith in the final triumph of the truth. The most of his life was an exasperating struggle with theorists, and delusions of half-vice and half-disease. The public demanded that he should point out remedies to reach and control the paranoic inebriates, and teach the only proper means and methods of cure. Wild storms of harsh criticism were always about the asylum, and the pulpit and press and philanthropists and good men and women were always ready to condemn. A new work opposed to the common sentiment of the day must pass through the fires of persecution, and Dr. Day and the Washingtonian Home were no exceptions.

Dr. Day was clearly a great captain guiding a ship freighted with new facts and new truths down through the

most difficult narrows to the open waters beyond. His genial, sunny faith never lost sight of the highlands before him. Thus year after year he struggled on until he saw the final acceptance and endorsement of the truths which had been so violently opposed in the early years of his work.

The yearly reports of the Washingtonian Home contain a very significant history of the growth and progress of the disease theory, and the struggles to keep just ahead of public sentiment and not startle the friends of the asylum. The asylum was an infant dependent on a variety of widely differing theories ; the acceptance of any one to the exclusion of the other would have been its ruin. It required rare tact and judgment to follow a medium course, and avoid the threatened dangers. Dr. Day could not have succeeded had he been indiscreet and impulsive, or failed in any way to recognize the conditions about him, and act upon them wisely. He could not have accomplished more by original research or elaborate investigation. All his tact and energies were needed to formulate and organize the half-theories into working principles, good for the present and valuable as stepping-stones for the future.

Later, when he was beyond this point of preliminary work, he realized that more might have been done from elaborate studies in this field, but he saw that it was only by the long era of preparation that the ground had been cleared away for other and more scientific work.

Dr. Day's real work to the cause of science and the development of the fact of disease in inebriety will appear more clearly as the years roll on and the subject is better understood. He, more than all his cotemporaries, gave prominence to the power of ideas, and the mental force of suggestion. He taught that ideas, coupled with physical forces, were all powerful. This is a realm which has not yet been opened. The appeals and prayers and pledges, and the physical means used continuously, were forces that sent many poor unfortunate inebriates back to health again. Dr. Day was a cheerful, sunny man, kind-hearted, tender in his sympathies,

and warmly attached to those who were struggling to do right. He was a close reader of current events, and followed with great interest all the changes of science and social life. He took an active part in church and masonic matters, and stood high in the latter order.

After a long life of active, arduous work, he resigned, and with a few patients went to live in a quiet suburban village near Boston. A few months later he died suddenly of heart disease.

The only work which Dr. Day wrote was "Methomania," which had a large circulation in its day. It was an excellent summary at the time of the facts of inebriety, and was a very useful influential work. His annual reports and lectures to various societies, and papers in the *JOURNAL*, were all of an exceedingly practical character. We are too near to judge clearly of the great work Dr. Day accomplished.

A sorrowing family, consisting of a wife, one son, and two daughters, survive him. Beyond this, his influence and memory continues in the hearts and homes of a vast army of men and women who have been made better by his life.

We present a fair portrait of Dr. Day in this number of the *JOURNAL* and assure our readers that in the coming century he will be one of the few men whose life work will be studied with critical interest.

BUFFALO has the discredit of having the largest number of liquor saloons in proportion to its inhabitants. In Philadelphia a license cost \$1,000, and there are 1,355 saloons, or one to every 841 persons. In Boston a license costs \$1,500, and there are 1,080 saloons, or one to every 500 persons. In New York city a license costs \$200, and there are 7,300 saloons, or one to every 234 persons. But in Buffalo, a saloon license costs only \$125, and there is one saloon to every 160 persons.

TRANSC-DOUBLE CONSCIOUSNESS, ETC.

BY C. SPENCER KINNEY, M.D., MIDDLETOWN, N. Y.

Assistant Physician, Asylum for the Insane.

The following unique cases are presented for the consideration of the society, as the psychical changes here noted came under my immediate observation.

Case I. — For a number of years G., aged 28, had been a periodical drinker, at which times he had not hesitated to take anything containing alcohol, going so far as to be wholly content with commercial alcohol so long as there was enough of it. He possessed a remarkable physique, with a very even commingling of bilious, nervous, and phlegmatic temperaments. He was well educated, had traveled considerably, and the effects of his frequent debauches had produced no apparent degenerative results. He was an accountant, and capable of occupying a good position. At no time had he shown any especial mental symptoms. There had been no insanity in his family, and his drinking had become an acquired habit rather than a disease. The attacks of drinking varied from intervals of a week to several months.

The instance which I have to mention in his case arose at a time when he had been for some days without drinking at all, and was in excellent physical condition. While out of doors and walking briskly, and in exuberant spirits, he suddenly heard some unfortunate news — news that affected him personally. As soon as he was able to appreciate the importance of the information and its bearing upon his future, he suddenly took on all the appearance, actions, and helplessness of a drunken man. He staggered in his gait, stammered, stuttered, and mouthed his speech. The expression of his face changed to a sottish cast, his eyes became suffused, and he needed the assistance of a friend to make his way along the street. This continued for over half an hour before it passed off and he was able to collect himself.

I had never seen an instance of this kind before, and although fifteen years have passed since this case came under my observation, I have never seen its counterpart.

Four years ago last October I presented a short paper to the Homœopathic Medical Society of the State of New York on "Alcoholic Trance." Since that time I have met a number of instances of this peculiar condition, and one of which I was fortunate enough to be present at the transition from the trance state to one in which he became appreciative of his surroundings.

No. 4131; age, 27; married; occupation, laborer; predisposed by inheritance to insanity; assimilative powers weak, and his general appearance showing a lack of harmonious development; was admitted to the Middletown State Homœopathic Hospital May 9, 1894. His friends state that during the past twelve years he has had times when he would suddenly leave his work and home and be absent a week or two without either knowing his whereabouts or, on his return home, being able to give any account of where he had been or what he had been doing previous to the time of regaining consciousness. He had used tobacco freely and had drunk occasionally, but never to any great degree, although easily influenced by either one of these two agents. The death of his mother brought on a depression of spirits that was followed by a condition of excitement in which his friends became alarmed. Suicidal tendencies developed, and, for safe keeping, he was placed in the jail, when one of our nurses was sent for him. From the time the nurse saw him until he reached the hospital, a period probably embracing thirty minutes, the patient was continually talking to the nurse about fighting, and telling what he could do. He showed considerable irritation because the nurse would not fight with him, and called him many names.

I happened to be on the ward when the patient came, and on attempting to talk with him he showed irritation, and was overbearing in his manner without any apparent reason. Finally I asked him if he would not sit down and

talk the matter over quietly. He consented, although no change occurred in his general style of acting until he stopped suddenly, pressed his hand to the back of his neck, and, looking about him with some degree of interest, said, "Where am I?" I asked him where he thought he was. He said, "In some hotel." On being told the character of the place he quickly answered, "Why, my brother was employed here for some time," which was true. With this his manner completely changed; he was pleasant, exerting good self-control, showed no trace of his recent irritation, and had no memory of anything that had occurred directly previous to his coming here or of his great desire to quarrel with the nurse who accompanied him to the hospital. From that time until he was discharged, several months after, he presented no symptoms not to be found in a case of ordinary melancholia. How long he had been in this trance state he did not know, nor could any facts be gained from his friends that would point to any clue, although the duration of the time in which he was said to have been sick was given as one month previous to his admission.

The peculiarities of this trance condition have struck the novelist as being an unexplored mine. An article in the *Cosmopolitan* for February, 1894, entitled, "The Disappearance Syndicate," by T. C. Crawford, and another article, "People Who Drop Out of Sight," written by Dr. E. A. Osborne, in the *Medico-Legal Journal* for June, 1894, are worthy of careful consideration.

The next case is one of somnambulism that has some peculiar features. This patient was a strong, athletic young man of 21; single; occupation, law student; of good education and habits, and with no insanity in his family history. On his admission, his pupils were somewhat dilated, bowels inclined to constipation, had a good appetite, was coherent in his speech, feeling in good spirits, and gave the following history: In July, 1893, he with a party of several others, rode to Washington, D. C., on their bicycles. One day during their journey the party covered about 120 miles

over quite a rough road. They rode in and about Washington, and returned to Brooklyn on the cars. The patient rode from Hackensack, N. J., to Middletown on a very warm day and suffering from a sharp attack of diarrhoea. He felt weak on reaching home, as well as on the following day, but immediately resumed work. At no time during his trip was he conscious of being overcome by the heat, although he had exercised violently several consecutive days, riding from six in the morning until ten at night, with only an occasional stop during this time. About two weeks after his return home he began having headaches. They came on in the morning on getting up, and continued until about five in the afternoon. The pain began in the forehead, extending over into the back of the head and neck and was throbbing in its character. When the headaches prevailed, the patient had no appetite and occasionally had water-brash. They came at irregular intervals, occasionally coming on every day for two or three days and then skipping a week or two. Nothing seemed to aggravate them during the day. Following this condition came frequent attacks of somnambulism; in which he would dress in his bicycle suit, and at other times would not dress at all, and, taking his wheel, would ride about town and into the country, usually meeting with some accident that would awaken him. These accidents generally resulted from his being unable to use the same degree of judgment when in this trance-like condition that he would exercise when awake. One night in August, 1893, he got up, and dressed only in his undershirt, rode his wheel out of town, down a steep hill, and woke up lying on his back, with his head on the edge of a pond of water and his wheel about thirty feet distant. His fall awakened him. At another time he woke up and found himself suspended in the air, by his shirt, from the limb of a pear-tree in his father's yard. Whether he had fallen from the roof of the house or whether he was trying to get on to the roof, he has no way of knowing. At other times he has gotten up and gone to the office at which he was employed during the day, filled out a copy of

service, and had the same correct, although not remembering anything about it afterwards. One day he worked hard in the settling up of the accounts of an estate, and found that he was unable to draw a balance. He was, at last, obliged to give it up for the day. The next morning, on returning to the office early, he found the balance correctly drawn, and an error corrected that he had repeatedly overlooked the previous day. These experiences gave rise to his facetiously remarking, "I guess I am smarter when I am asleep than when I am awake."

These experiences simply illustrate what the patient has gone through during the past eight months, bicycle riding and office work being the things he indulges in during these attacks of sleep-walking. The patient has no memory, when he comes to himself, of what he has done during these intervals. The attacks, he claims, leave him with a sensation of exhaustion that he carries with him the next day. At times objects appear as if they were a long distance from him. His first night's record was a counterpart of many nights. His roommate stated that he got up three times. Once he jumped out of bed suddenly and banged into the door of his room, which was locked, and bumped his head against it so suddenly that it awakened him. Another time he ran against the wardrobe and wall with so much force that he woke up. The third time he tumbled over his roommate and his bed, which also awakened him. He returned to his bed each time with no serious results from the attacks.

As an illustration of what he would do when asleep, I present the following as coming directly under observation. As a rule, he went to sleep almost immediately on going to bed. At a quarter past nine I found him up and walking about his room, talking as if he were speaking to some one at the telephone. He carried out his part of the conversation quickly and in a spirited manner, correcting himself on making mistakes. His mind appeared to dwell wholly upon business relating to the office he had been working in. Every effort that was made to awaken him was met by him with

violence — striking or pushing. He could be lifted about or pinched, called to, shaken, and cheek slapped, with no result so far as getting him awake. The fumes of ammonia were placed under his nose, when he suddenly came to, bright and with perfect control of his faculties. The patient said he had no memory of what he had been saying, nor did he know that he had been talking. Another night he jumped up on the top of his wardrobe, where he sat with an open umbrella over his head, and talked rapidly and incoherently for some time, until he was rescued from his perilous position and put to bed. It was found that any excitement during the day induced a disturbed night, consequently every effort was made to have him lead as quiet and uneventful a life as possible. Company was avoided, attendance on dances and witnessing ball games were prohibited, and no exposure to the hot sun was allowed.

Another instance, peculiar in its character, occurred on the evening of June 10th. While sitting on a balcony, talking in a lively manner with some of his fellow-patients, the chair in which he was sitting slipped on the floor and he fell, striking the back of his head with considerable force. He was at once picked up, and was found to be sound asleep, was taken to his room and efforts made to awaken him, which were met with the usual resistance. On being awakened he complained of pain in the back of his head, and hot water was applied, but almost immediately he went to sleep, and continued asleep until morning. Each morning it was found necessary to awaken him, although it was a less difficult matter than when he was in one of his somnambulistic states. On August 7, 1894, there had been a gradual improvement in his physical and mental condition, without any essential change in the character of his attacks, although they appeared to be less in degree. On the 7th he complained of a headache, that he described as a sharp, hard, frontal headache, and after a careful study of the symptoms it was decided to give him *natrum muriaticum*, which was given in the 30th potency every three hours. From the

time he began taking this remedy his symptoms lessened in severity, his sleep became more restful and he woke in the morning of his own accord, free from all headache and with good self-control, was more hopeful regarding his case, and, in an indescribable manner, felt better than he had since his sickness began.

On September 20, 1894, he was paroled, and his parole has been renewed from time to time in order that we might keep his case under observation ; he reporting at the hospital every three or four weeks. On November 9, 1894, he returned and made the following statement: "Before I began being disturbed in my sleep I was passionately fond of music, both instrumental and vocal. During the last few months while under medical treatment I have refrained from having anything to do with music, even to the giving up of playing on my banjo. Since I have been away from the institution on parole, I have found myself unable to listen to a combination of instrumental and vocal music, the vocal music having the effect of making me nervous and restless to the extent that I have been unable to remain in the room or house, or in fact within hearing of it. Instrumental music does not seem to affect me in the way that both combined do. Several times a severe headache has been induced by listening for a short time to music, I at first believing that such an effect could not be produced, and it is only after repeated trials that I have become convinced that the above is the case." (On February 9, 1892, I presented a short article to the New York State Society on "The Influence of Music on the Insane," touching this peculiarity.)

While directly under our observation every effort was made to prevent his being subjected to any emotional strain, and he was cautioned to lead as much of a vegetative existence as possible. While here, previous to the *natrum muriaticum*, he had *aconite*, *belladonna*, and, for a while, five drops of the tincture of *cimicifuga rac.* every night on going to bed. This seemed to give marked relief, and lessened the intensity of his headaches. While he is still under

observation it is not likely that he can, with any degree of safety to himself, take up any intellectual brain work for, at least, a year.

The next case mentioned was reported by Dr. Talcott at the annual meeting of the Medical Superintendents of the American Institution for the Insane, held at Old Point Comfort, Va., May 18, 1888. No. 2207 was admitted to the Middletown State Homœopathic Hospital November 17, 1887. This patient was a male; single; age, 18; occupation, laborer; education, common school; habits temperate, and no record of insanity in the family. When admitted he was in good physical condition, and his history declared that down to the date of his injury he had been a bright boy. During the past year he had been trying to earn his own living; part of the time keeping books, and part of the time working on a farm in Westchester county.

On the 8th of October, about six weeks previous to his admission to the hospital, while standing on the top of a ladder, twenty-six feet in length, picking apples from a tree, the ladder broke and he fell to the ground, striking on the back of his head. He was carried into the house unconscious, and remained so for several hours. He remained in bed only one day. A few days after the accident he returned to his home in Delaware county. From the date of his accident to the time of his admission, he is said to have spoken but two or three words. He could not speak when admitted; but during his entire illness he was able to comprehend questions written upon paper, and would answer these questions readily and rationally in writing. In his written replies he states that all spoken words sound like noises to him, but have no meaning. He could hear a low tone of voice but not a whisper. In writing answers to questions he does so quickly, and shows a clear comprehension. He asks questions intelligently by writing, and says that he has a dull steady pain from the base of the brain down the spine to the small of his back, and this pain is aggravated by any sudden jar. On examination, the spine

from the first lumbar vertebra to the skull was found to be very sensitive to touch and pressure. He says that exercise does not tire him, and he has for several weeks been allowed to do as he pleased. He has spent much of his time out of doors playing with a large Newfoundland dog, to which he became much attached, and which attended him when he came to the hospital.

On the 13th of November he became much enraged at his mother, who would not grant some request he made, and he flourished a long knife and tried to injure her. On being shut up in a room, he broke the door and was very violent. His friends then had him committed to the hospital at Middletown, where he arrived November 17, 1887. When admitted his pupils were normal in size, and the reaction was natural. The tongue was clean and firm, with no muscular tremor. The pulse was 78; the temperature was 98.4° F. The patient weighed 150 pounds, and seemed generally in a good physical state. He had a good appetite, slept well at night, stated in writing that the pain in his head had ceased; and he deported himself like a bright, good-natured, active boy. But he could not hear distinctly, and he could not speak at all, although apparently comprehending everything that was written and placed before him.

Here was a case of motor aphasia or aphemia (can write but cannot speak), resulting from a blow upon the head, with occasional attacks of maniacal excitement; the excitement being displayed by restlessness and ebullitions of rage, without any ability to give articulate utterance to his emotions or passions. Although the patient had been allowed to walk about as much as he pleased for nearly six weeks, we concluded it would be better for him to remain quiet. Consequently we placed him in bed and kept him there.

November 19th.—Writes on paper that he caught cold last night, and when he coughs it hurts his head. On the 23d, about 9 A. M., he wrote on a slip of paper "headache," and gave it to the attendant. About 11 A. M., the pain

in the head had increased, and at 11.30 A.M. he was rocking backward and forward in bed with both hands pressed tightly against his head, one being over the forehead, the other over the occiput and upon the seat of the injury. His face was flushed, pupils dilated, and the eyes deeply injected. While I was noting these symptoms, he suddenly removed his hands from his head, looked up like a person awakening from sleep, gazed about the room in an inquiring manner, turned to the window, looked out for a moment, then suddenly turning to me said, "Where in the devil am I?" These were the first coherent words uttered since the injury. This patient's mind went back to normal position with a snap, so to speak, just as a dislocated bone returns to its socket when it is "set" by a surgeon. On being asked if he did not know where he was, he said, "Not in the least. I know I was picking apples when the ladder broke and I fell, striking on the back of my head. Oh, how it hurt!" On being told that it was some weeks since the accident and that he was in a hospital, he said, "Why, that was on the 8th of October; what day of the month is it now?" On being told that it was the 23d of November, he replied, "To-morrow will be Thanksgiving Day; a lunatic asylum is a queer place to pass Thanksgiving Day." When told that he had not spoken before since coming to the asylum, he said, "I must have been good company!" On questioning him, he declared that he had no memory of anything that had taken place since his fall from the ladder. For six weeks time had been a blank to him. He had become well acquainted with me since his admission to the hospital and always recognized me pleasantly on the morning visits. On the morning mentioned he had anticipated my coming with hopes of obtaining relief from his headache. A moment before he became conscious of where he was he knew me and the circumstances connected with our acquaintance; the instant he regained his normal state of mind I was a stranger to him and he knew nothing of me.

After he began to talk his headache lessened. He was

kept quietly in bed and given hot milk and beef tea every three hours. The headache and tenderness along the spine soon passed away, and no symptoms of brain or mind trouble returned.

He remained at the hospital under observation until the 27th of February, 1888, when he went home in excellent physical and mental condition. While his memory was dislocated from October 8th to November 23d, he could, after the later date, remember distinctly all the previous experiences of his life, and all new experiences; but he could never recall any incident that occurred between the dates just mentioned.

THE abuse of alcohol has been the *remote, sole, and direct* cause of more litigation in cases of life insurance than anything else that can be imagined. — *Judge Jordan.*

It has been pretty well established that the children of intemperate parents are afflicted with degeneracy and various neuroses. Associate this, then, with suitable environment and the drunkard or inebriate is an inevitable result.

ALCOHOL POISONING AND STRYCHNINE. — Runkewitch in the pharmacological laboratory of Professor Burzynski, of Tomsk, studied the action of strychnine in alcohol poisoning, finding that the drug rapidly and distinctly augments the excitability of the motor area of the cortical substance of the brain, previously depressed by alcohol. In this manner it raises the action of the depressed respiratory centers and augments the blood-pressure during alcoholic narcosis. It affects the temperature only in doses large enough to cause tetanus. The experiments of the author were made upon animals, and further investigations are necessary in order to determine whether his conclusions apply equally to man.

Abstracts and Reviews.

ACUTE COCAINE-POISONING.*

M. V. BALL, M.D., PHILADELPHIA.

In presenting this report of a case of acute cocaine-poisoning, I doubt whether I can offer anything new, and yet there are several interesting points to be noted.

The literature on cocaine intoxication, though widely scattered, is, however, quite extensive. Mattison of Brooklyn and Germain Sée of Paris have each reported, in 1892, two hundred and more cases of poisoning, with twenty deaths. Since then quite a number of deaths have been recorded in medical journals.

The dose at which fatal poisoning has occurred varied within marked limits. In five fatal cases reported by Mannheim the quantity of the alkaloid taken was over 15 grains. In two cases reported by Mattison death occurred after hypodermic injection of $\frac{2}{3}$ grain.

Symptoms of poisoning have set in when the drug was administered by the stomach, when thrown into urethra, nose, ear, rectum, or when injected under skin or into the gums; or when simply rubbed over the surface of the face.

Absorption is very rapid, and in some of the cases reported the operator barely had time to withdraw the needle of his syringe before symptoms of intoxication set in.

The symptoms described in each case differ greatly, and there are all stages, from slight incoherency in speech, with dizziness and dilated pupils, to excited hallucinatory delirium, thready, uncountable pulse, convulsive breathing, or sudden collapse, or marked tetanic spasms.

* Read before Philadelphia County Medical Society, October 9, 1895.

Cocaine-poisoning exhibits the symptoms of strychnine-poisoning in some cases ; in others, that of alcohol, and in some a mixture of both.

I will describe the case in question :

Mrs. C., aged thirty-five years, white, a sufferer for ten years past from rectal stricture, accustomed to use cocaine locally on pledget of cotton in the rectum, being tired of her existence, resolved to end her life by swallowing 25 c.cm. (6 drachms) of 5 per cent. solution of cocaine, equal to about $1\frac{1}{4}$ grammes ($18\frac{1}{2}$ grains) of the alkaloid.

The dryness in the throat was speedily produced, and, in attempting to get up from her couch to ring for the servant, she felt dizzy and fell to the floor. A young medical student, living in the house, and summoned at once, found her in a raging delirium. She wanted to throw herself from the balcony. She talked loudly, incessantly, and incoherently. She was restrained by physical means, and when the student endeavored to give her a hypodermic of morphine, she resisted, and would not allow him to do so. He persuaded her to take the tablets by the mouth, and so $\frac{1}{4}$ grain was administered. It was about half an hour after that I saw the patient. She was held down on the bed by her friends, and was gesticulating wildly, yet was able to recognize me as soon as I entered the room, appealing to me for help. I suffered her to be released, when, immediately rushing past me, she made for the open window to fling herself out. This she was prevented from doing, remarking, as she was led back to her couch, that, after all, "she wanted to look pretty when she died."

Her pupils were widely dilated, the pulse hardly perceptible and very frequent. The tongue would be protruded spasmodically, and teeth gritted together in a tetanoid manner. She talked incessantly. In a few minutes I was able to gain control over her without using physical restraint ; and, though she talked irrationally at times, her delirium was less marked, and she told me that she was not going to get over the effects, nor would she allow me to give her an antidote ;

in the next breath she would ask me to listen to her singing or recitation. Frequently looking at her hands, they appeared dirty to her, and she would rub them. Her tongue was much congested, bluish, anæsthetic. Her throat was very dry; other parts of the body, tested superficially, gave no indication of anæsthesia.

Respirations were normal. Temperature normal. Pulse, when counted, was 140. She stated that she felt glorious—never so happy before; wanted to drink champagne, and when it was brought to her, forgot that she asked for it. Delusions of persecutions were present to a slight degree, and her most intimate friend was accused of treachery and underhandedness. She was desirous of moving around; wanted to leave the house and visit a place she had not thought of for many years. Gradually a feeling of tiredness supervened, talk became less lively, bodily sensations were now complained of, and especially great thirst, which water or ice had no power to quench. Lemon and vinegar applied to lips was tasted, showing that sense of taste was not entirely absent.

Pulse still very frequent and small; was able to administer black coffee and lukewarm water, and thus induce free emesis. At this time, which was two hours after the cocaine had been swallowed, the patient was resting quietly, with her pulse stronger, but still rapid. Thirst was extreme, and in attempting to go to bath-room, she found her legs almost useless. The urine was passed. Strychnine, grain $\frac{1}{30}$, was administered by mouth, and some champagne was given. Perspiration started on skin, and the former pallid condition of face changed to a slight glow. Four hours after the initial onset the patient was sleeping soundly, and the pulse went down to 100, but was much stronger. Consciousness entirely returned, but no recollection of time, and little of previous events, although she remembered when I came in. Next morning she was very weak, her body felt bruised, and her limbs heavy and almost useless. Feces and urine had been passed without trouble. No appetite. Tongue and throat

still much parched, and thirst still present. Congestion of tongue was gone, and normal sensations had returned.

A history of a previous overdose was obtained. The alkaloid in dry state was taken by mistake, and an active delirium, much worse than the one just recorded, occurred. Morphine was administered in large quantities at the time.

Very few cases are on record of recovery from so large a dose as the one taken in this case, although in a case where 22 grains were given by mistake, by the mouth, patient died almost immediately. Forty grains have been taken daily by persons habituated to its use. Recovery would probably not have occurred were it not that patient was under the influence of the drug, more or less, for some time past.

One of the earliest, possibly the first, case of cocaine poisoning is recorded by H. Ploss in the *Zeitschrift für Medicin, Chirurgie und Geburtshilfe*, vol. ii, 1863.

Nieman, who was the first to isolate the alkaloid and gave it the name it now bears, made known his discovery in 1859; but this fact was known to a certain apothecary who was experimenting with cocoa leaves, and who, in 1863, thought he obtained a poison from them as fatal in its effects as strychnine. He took of this extract a considerable quantity, with a view of ending his earthly existence, and, while waiting for the drug to take effect, he joined some friends in a beer hall and indulged in a few mugs of beer. He then retired to his bed and fell into sleep. Some three and a half hours after he took the poison he awakened with severe thirst and dryness in mouth, dizziness in head, and in attempting to walk across the room his legs gave way. He was unconscious then of what occurred until the morning, but, from the appearance of his room, he must have been rather active. In the morning he felt very weak, and still dry in mouth, and thirst.

In the cases of poisoning that I have been able to collect, frequency of pulse, dilatation of pupils, convulsive twitchings of face and general convulsions, respiratory muscle spasm,

unconsciousness, excited delirium, suppression of urine, and cyanosis are the symptoms most common.

The delirium is to be distinguished from alcoholic delirium from the absence of frightful hallucinations. Hallucinations are rarely present. One, the so-called cocaine bug, and which occurred in my patient, is believed by Erlenmeyer to be due to disseminated scotoma.

Spots of dirt are seen on white surfaces, as noted in this patient, the fingers seemed black and dirty.

LeGrain states that alcoholic tremor is wanting, but it was distinctly present in our case. The thirst and dryness of throat is a distinguishing feature. Otherwise, without a history, they seem very much alike.

Moreno Y. Maiz (*Recherches Chimique et Physiologique sur l. Erythroxyton Coca*, 1868) states that the thoughts are not mixed up as in alcoholic intoxication. The phantasms are brilliant; there is a flow of wit. I have seen in an advanced case of general paresis a similar delirium—a desire to sing and recite, to move about, to express a feeling of happiness. An habitue of cocaine has expressed himself as desiring ten years with cocaine rather than 10,000 centuries without it. The element of grandeur and personal aggrandizement sometimes enters.

Dujardin-Beaumetz, in his *Dictionnaire de Therapeutique Supplement*, 1895, states that the effects of cocaine in toxic doses in warm-blooded animals are similar to strychnine, but in cold-blooded animals—the frog, for instance—no convulsions are produced.

It is a curare for the sensitive nerves, exciting the nerve-trunks, and rendering the peripheral nerves analgesic.

Francois (*Arch. de Physiologique*, 1892, p. 562) finds it a paralyzing poison, not only on the sensitive fibres, but also on the motor, and on the fibres of muscles as well as the protoplasm of cells.

The frequency of pulse is probably due to paralysis of the vagus; the prenic nerve is likewise interfered with, causing the respiratory spasms and tetanic arrest in some cases.

In my case there was no interference with the urine. The urine is often suppressed; other secretions, as those of the mammary and sub-maxillary gland, have been noted as likewise affected by toxic doses.

Maurel thinks that death is due to destruction of leucocytes, their dead bodies collecting in capillaries and forming embolic processes.

Reclus holds that thrombi form in veins, and when death occurs after an injection under the skin, it is due to the penetration of a small vein.

This will hardly account for the deaths happening after the drug has been thrown into the urethra, or when swallowed by the mouth.

As to treatment, I cannot offer anything suggestive. Morphine has been looked upon as antagonistic, and has been given in the majority of cases recorded where symptoms of collapse are present early, with tetanic convulsions and cyanosis. Nitrate of amyl is indicated.

Where heart's action is weak, stimulants, strychnine,—hypodermatically,—alcohol, ammonia, and ether have all been suggested and tried.

The early administration of $\frac{1}{3}$ grain morphine did probably influence the course in the case described, but recovery is often rapid without any treatment.

As the poison is eliminated rapidly by the urine and skin, the free action of these organs is desirable, especially as there is a tendency for them to be less active than usual.

While the dosage of cocaine cannot be said to have any well-defined limits, several clinicians, among them Hänel and Decker, believe that $\frac{1}{2}$ grain, hypodermatically, should be the maximum dose.—*Medical and Surgical Register.*

THREE HUNDRED AND TWENTY-FIVE CASES OF INEBRIETY. BY R. M. PHELPS, M.D., Rochester, Minn., Assistant Superintendent Rochester State Insane Hospital, Rochester, Minnesota.

As holding a position by reason of which I have had some 400 admissions of inebriates, representing some 325 individuals, pass under my observation, mostly during the past five years, surely some resume of such observations and some deduction based upon the same should be of value. I here simply wish to group a few of the impressions which have grown out of such work.

1. *Kind of Patients Received:* Patients received have been such that their behavior made it seem that they could not otherwise stop drinking, or that they had in some way become obnoxious to society. They were mostly, therefore, what are called confirmed inebriates, or in the later stages of inebriety. Of these inebriates ten have received the Keeley Cure, and about twelve have received cures, which, under other names, had yet pursued the same hypodermic medication. Nineteen had also definite mental derangements, quite sufficient to have committed them not as inebriates, but as insane. Others showed varying grades of mental impairment, but about 80 per cent. would, by all ordinary tests, be sane and responsible.

2. *Is Inebriety a Disease?* This is perhaps still a living question, but would be better stated as follows: *In what way is inebriety a disease?* The question, indeed, calls for definition rather than argument. We, personally, would define alcoholic inebriety as the drinking of alcoholic liquors (not "excessive" drinking, for that makes an indeterminate and variable drinking). Then, inebriety (drinking) would be a cause of certain diseased conditions, of which the kidney lesions would be most prominent in some cases, lesions of the liver in others, neuritis in others, and brain lesions (causing mental impairment) in others, and so on through less common lesions. This conveys a different meaning from that given by the simple statement that

"inebriety is a disease." The difference is considerable. As a subordinate fact, of course, it is to be allowed that occasionally a nervous or mental weakness *induces* (rather than "causes") the inebriety.

Some subordinate questions may be anticipated. First, some have assumed that there is always mental impairment—"obscure brain degeneration,"—and have assumed *that* to be the disease, thus inferentially making inebriety one form of insanity.

A bird's-eye view of the whole field, however, will show that there is the tendency to call only those inebriates who have shown, as a mental symptom, a lack of control, which is inferred to be a mental or moral reduction. But these are not one in 25 of the whole number of drinkers. We would think, then, the preceding statement not accurate. Though every drinking in every drinking man may induce invisible increments of mental reduction and brain degeneration (as they may also, indeed, of the kidneys as well), so, also, may many other causes which may be mentioned, etc., etc.

Secondly, direct heredity I have not been able to demonstrate in these cases. Indeed, as descending from a generation in which a large proportion drank, drunkenness in the father and child would indeed come as mere coincidences. Fifty years ago drinking was not so disreputable as now. If inebriety be inherited *directly*, as for example, inebriety in the father, producing in the child a quick and uncontrollable appetite for alcohol, it would not be exceeding strange, although I personally have not met any such cases among this chronic class.

Thirdly, *periodicity* rather fails to prove disease. Some periodicities in people are normal, like that of menstruation. Usually in insanity, though not clearly understood, it seems quite clearly the sign of a defective constitution, usually inherited. And in inebriety it is probably the same defectiveness, in its exacerbations calling for alcoholic or other relief.

3. *Causes of Inebriety*: Naturally these fall into two

divisions. (A) The causes of the beginning of the habit.
(B) The cause of its present excessive continuation.

In our list there are none noted, who started at the very beginning of the drinking with an excessive appetite. Though such cases are noted in literature, usually here from five to ten or more years have been needed to bring about their present condition. Their answers as to the causes are various. Brain work, producing a nervous or neurasthenic condition, is occasionally claimed. Not, however, more than 2 to 3 per cent. in the 325 cases. Worry of a family or domestic kind is much more frequently spoken of, often, however, we think, more as an excuse than a cause. In general, however, mere sociability has to carry all of the blame of the early drinking, and this shows the trivial character of such drinking.

As to the cause of the present drinking, the gross inebriety, nearly every one will say that he loses control of himself after taking the first glass. As to the feelings that prompt this "first glass," they are very vague indeed. Rarely can they seem to know clearly. It is a kind of mysterious *vis-a-tergo* impelling them on. Frequently it is a kind of depression, produced perhaps by some family trouble or worry. Occasionally one will describe a vigorous fighting against periodical, overwhelming desire. Only some three or four in the whole number, however, have so described their appetite, and close study seems to show that what happens is the coming of a depressed state, for which they seek relief in alcohol; probably the current element is the depression, instead of the appetite. Of course, also, as in all movements, there is in alcoholism a tendency to periods or sprees; the exhaustion from one attack leading toward a remission, and a recovery leading toward a renewed fall.

Briefly stated, the later stages of inebriety seem to be caused by unstable nerves, calling for support. Morphine produces a like condition of the nervous system, with its tremulous unrest and pain, calling imperatively for some

stimulant; and the stimulant in turn producing secondarily the same condition which it tries to relieve.

Some prevalent erroneous ideas seem worthy of note. First, drinkers rarely realize at all how hopelessly they are bound, and the friends and relatives can hardly realize it well either. In fact, only the persistent recurrence of the subject under our observation makes us fully realize it. So well, clear, rational and so seemingly of good intent are the best of them,—so free from desire after a residence here that it is difficult to believe.

2d. Drinking alone does not make an inebriate. The essential is a constitution affected by drink. Probably of twenty-five who drink, only one is so constituted as to give away fully to its control.

3d. Few drink, because they like the taste of the liquor. Even though they hardly know it, they drink for the mental and physical uplift or well being. The gross intoxication which follows is to them an undesirable accident.

4th. Few drink because of an imperious desire. This is the reason that they feel ordinarily so secure. Each new spree seems to them a kind of "happening"; they do not see that it is always of this character, until toward the last of their trouble.

5th. The more intelligent and highly educated the man, the more complicated is the mental and nervous complex of symptoms, the more apt to be exhibited the periodicities and more apparent the brain failure.

4. *Treatment:* That the Keeley treatment is a "scheme," even the popular mind is coming to believe; but assuming strychnine to be the basis of the hypodermic treatment, I have used it (usually with some atropine also) and have produced, to a large extent, the same incompatibility to the drinking of liquor as described by the Keeley graduates. There was here no revival to help it out, and I did not have the same most promising subjects, as were selected by Keeley, especially during his early work.

For the most part our patients fell back. Strychnia seems to be the central drug in treatment, however. Of other tonic treatment, and the treatment of any causal or complicating lesion, no detail is called for here, nor need the judicious use of baths, electricity, exercise and general hygiene be advocated.

All told, however, the inevitableness of the relapse is appalling. I always look with favor on the as yet fancy picture of a colony made up of such people with their families ; a colony large enough to furnish all of the trades and occupations, and the living of a life just as at home, with only one restriction, and that is the keeping of them with their bounds and free from liquor. This is, of course, in final analysis practically only a local prohibition law, and it is an even chance to wonder about, whether this or *general* prohibition will come first.

Twenty-five to fifty years from now will doubtless show wondrous changes. For, after all is said, men struggle with the results of this drink,—annually a million men are being impaired in their work, and probably some 200,000 men with their families are yearly in despair, disgrace and probably 100,000 die when logically the prohibition of the drinking is as much the easier as would be the quarantining of cholera, instead of letting it freely in and then drugging, legislating, and trying to cure the sufferers, which steadily are taking the disease.

When, simply to shut the saloons of New York city over Sunday almost pulls down the power of a law that tries it, we simply confess that we want the cholera and will stand our chances. It is beginning, however, to be common for newspapers to denounce the traffic in liquor, which is an index of the forward swing of public opinion, and this, as its overbalance toward prohibition becomes more probable, will act the faster, and some kind of prohibition or restraint will rapidly prevail.—*Medical Fortnightly.*

INEBRIETY AND INSURANCE.

In a paper before the London Insurance Association, on "Doubtful Cases," by Dr. Dreschfeld, occurs the following:

"Dr. Dreschfeld went on to speak of those cases which were classed as doubtful because the family history showed some hereditary disease, although the individual proposer had unexceptionable health. He mentioned consumption, cancer, gout, Bright's disease, diabetes, rheumatism, epilepsy, insanity, and intemperance, and put briefly before his audience some of the principal considerations to be kept in mind in dealing with proposers in whose family history any of those affections occurred. With regard to hereditary intemperance, he said that they met occasionally with a whole family of drunkards, where both male and female children were affected with the complaint. In such cases it must be looked upon as an inherited disease rather than a vice. On the other hand, they often noticed cases in which, though one of the parents, or even both, were habitual drunkards, all the children were abstemious, though they often suffered from some nervous affection. As far as it affected life assurance they might say that the intemperate habits, when inherited, showed themselves at an early age, and were often fully developed before the individual reached the age of twenty-five. If, therefore, the proposer had reached that age, and was of temperate habits, such a life might be accepted; and he would not except from this even the offspring of those who, like publicans and hotel-keepers, had special temptations to become intemperate, though in that opinion he differed from some well-known authorities. From his own observation, he must conclude that the children of publicans of intemperate habits were often most temperate, and remained so. Dr. Dreschfeld next spoke of a second group of doubtful cases, which included those where there was no hereditary taint in the family history, but where the individual, either by his occupation, mode of life, or from the result of some illness, or because of the presence of some slight disorder, could not be considered as an A1 life. Among the occupations which

rendered life risky he mentioned those which gave exceptional temptations to over-indulgence in alcohol, such as publicans and commercial travelers. As regards habits, the most important to inquire about were as to temperance. Intemperance was the most formidable enemy to the safe assurance of life. They could not often in these cases rely on the statements of the proposer, as some could "carry drink" well and were not easily intoxicated, and often the evidence of friends was not trustworthy. There were, however, certain signs of alcoholism which might be inquired into by the insurance agent — using, of course, a certain amount of tact — with results which he had often known most useful. Where the decided symptoms of alcoholism appeared the "life" was no longer doubtful, but ought not to be accepted at all.

TEXT BOOK OF NERVOUS DISEASES—A COMPENDIUM FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. BY CHARLES L. DANA, A.M., M.D., Professor of Nervous Diseases in the New York Post-Graduate Medical School, etc., etc. Third Edition. William Wood & Co., New York City, 1894.

The author, Dr. Dana, is a widely-known teacher in New York, whose accuracy and thorough knowledge of mental and nervous diseases has given the profession great respect and confidence in his ability to write an excellent book. In this volume of over five hundred pages he has compressed a most excellent summary of the present knowledge of mental and nervous diseases.

Special attention seems to be given to the anatomy and pathology of nervous diseases.

Many of the anatomical descriptions are models of clearness, although appearing, in some cases, to be burdened with technical terms, which could be made clearer in other forms.

The classification and description of these diseases are excellent, and conservative in all questions of doubt; and the

reader, who may not be acquainted with the author and his personal work, will feel great confidence in the accuracy and soundness of this book.

In future revisions changes in the proportion of topics will be made, and the scientific technique of terms will undergo some changes. The work commends itself as among the most valuable books on this topic which has been published. The excellent illustrations, clear type, make it very readable.

A work of this class, from so prominent a teacher and author, needs no commendation. It comes to a class of readers welcomed from the start. The third edition, already out, shows the high appreciation of its value.

To all our readers we urge the value of this work, which should be on the table for daily consultation.

The *Scientific American* is unrivalled for interest, and each week brings a most fascinating table of contents.

The *Voice* still leads with increasing vigor the war against saloons, and the effort to banish alcohol as a beverage. This journal recognizes the value of agitation, in its great problems of spirit drinking. Opposition, battling, movement, excitement, all mean progress in the course of years.

The *American Journal of Psychology*, edited by G. Stanley Hall, Clark University, Worcester, Mass., discusses with great ability those various departments of psychology which are attracting so much attention in the scientific institutions of the world at the present day. The subject matter includes the results of experimental investigations in psycho-physic laboratories, studies in abnormal psychology, including the insane, criminals, idiotic, blind, deaf or other defections or degenerations, the anthropology of myth, custom, religious belief, symbols, etc., among savages, and ethnic shocks, studies of animal psychology, neurological researches, the psychology of philosophy, ethics, æsthetics, theology, etc. It

will be seen that the *Journal* discusses questions of great interest from a philosophical standpoint.

The *January* and *February* numbers of the *Popular Science Monthly*, contain some excellent papers, and altogether this journal is superior to all other science journals in the English language.

The *Homeletic Review* published by Funk & Wagnalls, New York city, would make an excellent present to a clergyman, also be a most instructive magazine to every thinking reader.

The *Magazine Romance*, which has heretofore been devoted to fiction entirely, has undergone a complete change, and is issued as a five-cent magazine, filled with illustrations of a popular kind. The magazine is a novelty, the idea being to emphasize the illustrated side of it rather than the text. There are 48 pages containing not less than 60 illustrations, printed from the best of plates on the best of paper. There are pictures of noted painters, of people of the day, of actors and actresses, of literary individuals at home. Scientific matters are treated and amateur photography is given a generous space. Altogether the design has met with a cordial reception wherever spoken of, and readers will be sure to profit by purchasing the early numbers, which will form a perfect little picture-book of genuine, contemporary interest.

Editorial.

JOURNAL FOR 1896.

The eighteenth volume begins with this number, and it is a source of much pleasure to look back over the seventy-two issues of this JOURNAL and trace the direction and progress of the scientific literature of the subject.

The intention expressed in the first number, of grouping and giving form and shape to the many facts of this, the most complex neurosis known to science, has been accomplished to a far greater degree than anticipated. The JOURNAL has attained an eminence that is unmistakable, and the demand for issues and complete sets from the great libraries of Europe and this country is evidence of this fact.

The lofty contempt of some critics, and the sneering pity of others at the folly or the theory of disease in inebriety, is most significantly answered in the papers of this number.

Again we present a portrait and sketch of one whose life work was devoted to this cause, who has dropped out of the ranks of the living. We send to all our friends and readers the warmest greetings and congratulations for the coming year.

The progress of research and the mass of facts which are accumulating far exceed the capacity of this JOURNAL, and point to the necessity of a larger number of pages or more frequent issues to keep up with the demands of the subject.

CLINICAL STUDY OF INEBRIETY.

Some carping critics have expressed harsh contempt for the work of students of inebriety, because it lacks physiological research. These critics imagine that all advance in medicine must be along lines of physiological and pathological work.

Literally, the real knowledge gained from a physiological and pathological study is very small compared with the facts which a clinical study has revealed, and almost infinitesimal compared with our ignorance of the vital processes, and the means of controlling them. Every one feels the need of new facts and the absolute certainty that they exist, only awaiting the discoverer and pioneer worker. So far, inebriety has been studied clinically. The aim has been to observe symptoms and trace them back to some final causes. The physiologists would study the organism and seek to ascertain its functional activities by an exact knowledge of its structure. This is carried on by experiment, while the clinician follows the line of observed facts.

The work of the clinicists is more difficult than the experimenter. The latter can control the conditions, and vary them with circumstances at will. The former is called on to unravel and analyze an assemblage of phenomena of the most complex character. When he succeeds in differentiating groups of related symptoms, and traces their connection to some morbid process or lesion, he has advanced physiological and pathological knowledge as positively as any laboratory experiments. The experimenter should realize that he *needs* the proof of clinician to complete the value of his work.

The solution of problems of inebriety that depend entirely on the laboratory experience are open to many sources of error. The same is true of grouping of observed facts and efforts to find out what their true meaning may be. The clinical study of inebriety must of necessity precede all other methods. The experimenter may inquire into the conclusions taught by this method, and seek to prove them by exact laboratory work. It would seem doubtful to discover many facts that are positive by physiological research. The clinician may err in his analysis, the experimenter may obtain different results at different times from the same data by similar methods. Both will fail to arrive at a degree of certainty and completeness of facts. But together, both methods will bring out conclusions and facts that can be relied

upon. These critics are narrow and do not realize the scope of the subject, or the vast field of research which must be examined by clinical grouping and study of symptoms. The pressing need is trained men who will study the facts above all prejudice, and with no other motive except to arrive at the truth.

The clinician and experimenter are both needed, and carping criticism of each other is only a measure of the extent of the ignorance of the critic.

MORAL INSANITY IN INEBRIETY.

While the term moral insanity is disputed, there is no other name which describes so clearly many cases that are obviously defective.

The inebriate whose mind seems unimpaired, but whose conduct is wild unreasoning and insane in every sense, is an example.

The man who is a model of uprightness, wisdom, and good judgment, who suddenly drinks to excess in the lowest company is clearly wrong. The usual terms, vice, wickedness, and depravity, convey no rational idea of the condition of which such conduct is a symptom.

A number of persons are to all general observation free from the common signs of mental defects or disorders that attract attention as strange or unusual. Yet at intervals they display the most insane conduct, in the use of alcohol and other drugs. Many examples are familiar to all our readers. Usually such cases after a short time of alcoholic excesses display intellectual unsoundness along certain lines.

How shall we express this insanity of conduct, which appears not to be complicated with unsoundness of mind?

Disorders of the mind appear in which the physical condition of the body seems unimpaired. Disorders of conduct are noted in which the average intellectual capacity and ability for mental work remains the same.

If the term moral insanity is used, it expresses in a general way disorders of the higher moral centers manifest in conduct more than in thought.

Secret alcoholics or inebriates who lead double lives, appearing in public as exemplary, judicious people, and in private by act and conduct as the most idiotic and insane, are clearly of this class.

The disorders which manifest themselves in conduct are local and no doubt limited to certain brain centers, and functions, and do not extend to other parts of the brain.

Why these disorders should be limited to conduct to a large degree is unknown.

Many serious mental diseases pass away and leave only disorders of conduct as the lasting entailment. Yet a fair degree of intelligence remains and most of the time rational conduct follows. At intervals the behavior is clearly insane.

The sudden unusual change of conduct is to be referred always to the motor side of a higher reflex act, and no doubt is a reaction from some stimuli either within or without.

The alcoholic impulse which drives the victim to the lowest surroundings for its gratification and displays the most insane conduct, is disease. It may spring from concealed delusions as sudden imperative ideas which dominate the mind to the exclusion of all other thoughts.

To the general reader insanity in all its forms manifests itself in mental changes. The cases in which changes of conduct only are manifest have not received the attention they deserve. The inebriate more than any other class displays insanity of conduct, particularly in the first stages. Later failures of mind and defects of judgment follow. A certain class of inebriates manifest more insanity of conduct than of mental disturbances.

A large mass of facts await study and formulation in this direction. Every asylum for inebriates furnishes striking examples of this form of insanity which may be most aptly called moral insanity. We refer to this topic again to give emphasis to the fact that inebriety is always insanity, not as

understood by the common or legal definitions of the present time.

Inebriety is an insanity in the sense that every disorder of the mind and conduct reflects a physical condition of the body as a whole. No sharp distinctions of causations can be drawn. Disorders of mind and conduct are alike physical states. Moral insanity describes disorders of regions at present unknown but clearly outlined by a mass of ever accumulating facts.

ACTION OF MORPHINE AND CHLOROFORM UPON LEUCOCYTOSIS. — A. Popoff, from experiments on 38 dogs, concludes (*Inaug. Diss.*, St. Petersburg, 1895) that morphine causes gradual though slight increase of the white corpuscles without previously diminishing them. For this reason it is a suitable hypnotic for animals. The action of chloroform is similar, but more pronounced. Diminution of the white corpuscles begins only on the third day, the number of leucocytes of all shapes increasing until the third day, when the number of multinuclear cells diminishes and that of the young cells increases. Under inhalations of chloroform the activity of the white corpuscles is disturbed and slackened, but on awakening from narcosis the number is increased. Transfusion of blood from a narcotized into a normal animal always increases the number of white corpuscles in the latter.

Clinical Notes and Comments.

CLINICAL REPORTS ON TRIONAL.*

BY DR. F. A. A. BOUDEAU, OF PARIS.

The following cases observed by me in the service of Dr. Gaillard at the Hospital de Tenon, serve to illustrate the various uses of trional as a hypnotic and sedative :

I. INSOMNIA DUE TO PAINFUL AFFECTIONS.

CASE I. Henri D., butcher, 40 years old, suppurating hydatid cyst, with very violent pain, which, at the time of his admission to the hospital, supposed to be due to hepatic colic.

March 23, 1895. Four hours' sleep from a hypodermic injection of a moderate dose of morphine.

March 24. Took one gm. of trional at seven o'clock in the evening and slept from half past eight till one o'clock. One half an hour later fell into a sleep which lasted till six o'clock in the morning. The sleep was quiet without nightmare, and the patient awoke feeling well.

March 25. Did not take trional. Sleep lasted about three hours, restless and suffering a good deal of pain.

March 26. Took one gm. of trional at seven o'clock. Slept from half past seven until five in the morning, the sleep being sound without nightmare. On waking the patient felt rested, and had no disagreeable sensations.

March 27, 28, 29, 30. Continues to take one gm. of trional and sleep on an average, eight hours.

April 1. Did not take trional. Suffered a good deal and could not sleep.

April 2. Took one gm. of trional and slept nine hours.

April 3. The patient was transferred to the surgical service. Each time that the patient took one gram of trional

* Thesis presented to the Faculty of Medicine of the University of Paris, 1895.

he slept from eight to nine hours on an average, and was more comfortable during the daytime. On the contrary, when he did not take it, he suffered a good deal and was not able to sleep. No inconvenience was ever noted from the medication.

CASE 2. Ferdinand D., tinsmith, 17 years old, attack of lead colic, which prevented the patient from getting any sleep whatever.

March 25. One gm. of trional at seven o'clock. Slept from nine till eleven and again from two till four. The sleep was disturbed by nightmare. Pulse 70.

March 26. One gm. of trional at seven o'clock. Fell asleep at eight o'clock and woke at four. The sleep was profound, but broken by nightmares. Lumbar pains on waking. Pulse 95.

March 27. One gm. of trional at seven o'clock. Slept from eight till six. He woke once during the night, but went to sleep again immediately. Pulse 96.

March 28. Did not take any trional. Slept well for eight hours.

March 29. Did not take any trional. Slept for two hours, restless.

In this case an average sleep of eight hours was obtained from trional, without causing any secondary disturbances.

CASE 3. Claire B., 40 years old, domestic, attacks of mild hepatic colic which have prevented sleep for fifteen days. From time to time she was able to obtain a nap for half an hour or so, but was soon waked by the pain. Bromide of potassium was given in doses of 2 grams for several days without effect.

On June 20, she took one gm. of trional at seven o'clock and slept from nine o'clock until five in the morning, waking only once and then going to sleep again immediately. From that time she continued to take one gram of trional, obtaining an average sleep of seven hours. No disturbances were noted, except that during the last few days there was a little diarrhoea.

CASE 4. N., 45 years old, suffering from a neuralgia of the diaphragm, which prevented her from sleeping more than one or two hours each night. For several days, two gms. of bromide of potassium was given without success. On June 18, at seven o'clock, was given one gram of trional. She fell asleep at ten o'clock and rested till three o'clock, when she woke and immediately fell asleep again until five

o'clock. Some nightmare. On awaking there was malaise, her head was heavy, and she staggered a little, but these symptoms disappeared. June 19, took one gram of trional at seven o'clock. Slept from half past seven until five o'clock, rising once to pass water, but fell asleep again immediately. On waking, the same disturbances as the day previous, so that she was obliged to lie down again for a few minutes, but the symptoms soon disappeared. The hypnotic action continued throughout the day, during which she slept pretty soundly. The pains are less violent even during the daytime, than they were the day before yesterday.

June 20. Took one gm. trional at seven o'clock. Slept from nine o'clock until midnight, when she was waked by colicky pains, having taken on the previous morning a purgative which had up to this time failed to act. She subsequently slept from three till five o'clock. On waking, no further unpleasant symptoms.

CASE 5. N., suffering from lymphangitis of the arm, which caused a good deal of pain and prevented him from sleeping. Took one gram of trional for two nights in succession and slept for nine hours the first night and seven the second.

2. IMSOMNIA IN CARDIAC DISEASES.

CASE 6. Joseph M., metal cutter, 69 years old, with aortic insufficiency, and albuminuria, œdema of the legs, and oedematous râles at the base of the lungs; sleep impossible on account of the marked dyspnoea. Pulse 110.

March 24. Took one gm. trional at seven o'clock. Did not actually sleep, but there was a little drowsiness for two hours. The general condition remained bad, but was not aggravated. Pulse 120.

March 25. Took the same dose with the same lack of result.

March 26. Did not take any trional. Slept soundly from a hypodermic injection of a moderate dose of morphine. Pulse 92.

In this case trional was shown to be inferior to morphine. It had, however, no bad effect upon the heart.

CASE 7. Yvonne M., day laborer, 54 years old, mitral insufficiency with enlarged liver; several attacks of jaundice. Usually sleeps about five hours each night, restless and wakes two or three times to pass water. Her first experience with trional was on the 5th and 6th of February, when

she took one gm. each evening, sleeping about eight and twelve hours respectively. The sleep was profound and accompanied by nightmare.

March 17. Took one gm. of trional at eight o'clock. Up to ten o'clock there was no special effect. At this time her vision became disturbed, the head felt heavy, and there was a ringing in her ears. At ten o'clock the patient yielded to an irresistible drowsiness and slept until four o'clock. The sleep was heavy but without nightmare. On waking she had pain in the loins, headache, a little drowsiness, noises in the ears with pretty marked deafness, and a little uncertainty in walking.

March 18. Refuses to take trional on account of the disturbances just mentioned. The disturbances of vision, hearing and the headache gradually diminished, but did not disappear for several days.

CASE 8. N., 45 years old, mitral insufficiency. Has not slept for some time on account of the feeling of oppression. Took one gm. of trional for five days in succession. Sleep came on after an average interval of two and one-half hours and lasted six hours. It was somewhat restless. No disturbance nor any bad effect upon the heart.

CASE 9. N., 30 years old, nitral insufficiency, compensation well established. Does not sleep at all. During eight days took one gm. trional each evening and slept on an average two to four hours each night. The sleep was intermittent, but the patient was very much relieved by it. No disturbances and no injurious action upon the circulation.

3. INSOMNIA DUE TO FEBRILE AFFECTIONS.

CASE 10. Francois P., day laborer, 57 years old, left lobar pneumonia, with frequent cough and abundant expectoration. Sleep impossible. Pulse 95.

March 24. Took one gm. of trional at seven o'clock. Fell asleep at nine o'clock and woke at five o'clock in the morning, feeling very tired. He was awake two or three times during the night, but only for a short period. He had a good deal of nightmare. Pulse 90.

March 25. Took one gm. of trional at seven o'clock and slept from half-past seven till one o'clock only. The sleep was disturbed by nightmares. General condition very bad. Pulse 140.

March 26. The trional was stopped on account of the seriousness of his condition. Pulse 140 and thready. No sleep.

March 27. The patient died.

In this case the trional gave an average of six to seven hours of sleep.

4. INSOMNIA DUE TO A NON-FEBRILE PULMONARY AFFECTION.

CASE II. Madeline T., 64 years old, attack of pulmonary congestion without fever. Insomnia due to frequent coughing. The patient has only slept on an average five hours each night for the past week. No nightmare.

March 11. Took one gm. of trional. After two hours had a continuous sleep of six hours, but it was broken by nightmares. Awoke feeling somewhat tired and with a tendency to drowsiness.

March 12. Sleep of the same character coming on one hour after the administration of the drug and lasting seven hours.

From March 13 to March 17. Did not take any trional, and slept on an average five hours each night.

March 17. Took one gm. of trional at seven o'clock. Slept from nine o'clock till five o'clock in the morning, with nightmares. On waking the head was heavy, there was headache, nausea, no staggering.

March 18. Trional stopped. Slept soundly from nine o'clock till four, no nightmare, felt rested on waking.

March 19. Slept soundly from eight o'clock till four, without nightmare.

CASE 12. Jean C., carriage cleaner, 43 years old, bacillary phthisis. His cough was so constant that he could only obtain one or two hours' sleep each night, and it was disturbed by nightmare.

March 19. Took one gm. of trional at seven o'clock. Slept from nine o'clock till midnight and again from one till four o'clock. The sleep was interrupted by nightmare, and the patient awoke tired and with a tendency to sleep.

March 20. Took no trional, and was awake the entire night.

March 21. Took one gm. of trional at seven o'clock. Slept continuously from ten o'clock in the evening till four in the morning. Some nightmare; a little tired on waking.

March 22. Took one gm. of trional at seven o'clock. Slept soundly from nine o'clock in the evening till five in the morning, followed by a little pain in the lumbar region.

March 23 and 24. The same result as on the previous day.

March 25. Left for Vincennes.

The average amount of sleep has been seven to eight hours. The only comment is that the restful effect was not as great as would have been obtained from a natural sleep of the same duration.

CASE 13. L. M., bronze founder, 25 years old, pyo-pneumo thorax, general condition very bad, night sweats. Complete insomnia, notwithstanding the administration of pills containing opium and hyoscyamus.

March 25. Took one gm. of trional at seven o'clock. Slept from eight o'clock until two in the morning. The sleep which had been somewhat restless, was not resumed. Nevertheless the patient felt rested on waking.

March 26. Took one gm. of trional at seven o'clock. Slept from half-past seven until four o'clock. Sleep restless, and had pain in back on waking.

March 27. Trional stopped.

CASE 14. Leon L., jeweler, tuberculosis. Remains in a drowsy condition throughout the entire night without actually sleeping. The cough is frequent.

March 12. Took one gm. of trional. Half an hour afterward he fell into a good sleep lasting eight hours, with two or three interruptions. No nightmare. Cough a little less frequent. Awoke rested and comfortable.

March 13. Took one gm. trional. Two hours later slept for six hours, but not continuously. Woke with nausea, headache, and then two hours later fell asleep for two hours, waking rested, the various disturbances having disappeared.

During the week following the same results were obtained; the action of the drug continuing for one night after its administration was stopped. The average duration of sleep was eight hours.

CASE 15. N., 25 years old, tuberculosis, with pneumo-thorax, very cachectic. Sleeps only about two hours each night. Spends the rest of the time in coughing. Has taken chloral, sulphonal, and opium without the least result. For about a month he took 50 centigrams of trional and fell into sleep on an average three hours later, the effects lasting about four hours. Although the sleep was disturbed the

patient was somewhat rested by it. In this case the trional never caused any unpleasant symptoms.

CASE 16. N., emphysema. Sleeps only about one hour each night, coughing the rest of the time. Has taken opium without any advantage. For twenty days, took one gm. of trional and on an average, one and a half hours later experienced a quiet sleep, lasting four to five hours. Never any unpleasant symptoms.

CASE 17. Abel A., 19 years old, pasteboard maker, suffering from pleurisy on the left side. Does not sleep more than one hour each night. During the remainder of the time he is so restless that he cannot remain in bed on account of the severity of the pain at one point in his side.

June 19. Took one gm. of trional at eight o'clock. Slept from half-past eleven until four o'clock, the sleep being sound and quiet. On waking felt rested and had less headache than usual.

June 20. Took one gm. of trional at eight o'clock. Slept very well from midnight until eight o'clock. No disagreeable symptoms on waking.

The same medication was continued for five days, the sleep lasting on an average seven hours, without any bad effects.

5. NERVOUS INSOMNIA.

CASE 18. Louis V., sculptor, cerebral softening. Patient is very restless, and walks about the room in the middle of the night.

March 18. One gm. trional at seven o'clock. Was quite as restless and sleepless as on the preceding nights.

March 19. Two gms. of trional at seven o'clock. Slept from ten o'clock till four in the morning, waking several times. He was less restless, although still somewhat talkative during his wakeful moments, but was quieter during the daytime.

March 20. Two gms. of trional at seven o'clock. Slept from nine o'clock till five. He was a little more quiet than last night.

March 21. Two gms. of trional at seven o'clock. Slept from nine o'clock till six. The patient was very quiet and did not wake at all. He was much rested in the morning and remained quiet during the entire day.

March 22. Took only one gm. of trional. Still very quiet.

March 23. Took one gm. of trional. The patient was a little more restless than the previous evening, as well as during the following day.

March 24. Took the same dose. The restlessness increased and the sleep was reduced to three or four hours.

The administration of Trional was then stopped. In this case there were never any bad symptoms following the remedy, but it was manifest that the dose of one gm. was quite insufficient to give any result.

CASE 19. Marie G., burnisher, 21 years old, subject to attacks of minor hysteria, without loss of consciousness, coming on almost every morning and evening. She wakes almost every morning with a headache which persists in a diminishing degree throughout the entire day. When there are no evening attacks she sleeps calmly for nine hours. After an evening attack she has a very restless sleep for seven to eight hours, which is interrupted by sudden startings. No nightmare.

March 16. She has had a slight attack at four o'clock and is very excited. The taking of one gm. of trional at eight o'clock was followed immediately by nausea. She slept continuously from half-past eight till five o'clock and was restless but had no nightmare. On waking, felt rested, with no tendency to drowsiness and no more headache than usual. During the following day there were none of the usual attacks.

March 17. No trional. Had six hours of quiet sleep. But four hours after waking had a slight attack, the only one during that day.

March 18. Took one gm. of trional at half-past seven. Only slept about one hour, beginning at two o'clock, and woke with lumbar pains. Nevertheless, the day following was quiet and free from attacks.

March 19. Took one gm. of trional at half-past seven. Slept from eight o'clock till one. The sleep was light, the patient awaking at the least sound, but falling asleep again immediately. When she woke at one o'clock, she was restless, felt compelled to walk about, and had a peculiar sensation of heat with urgent thirst. Although the patient was tired, she was more quiet during the next day, and there were no attacks.

The trional was then continued for six days with the same result. The average amount of sleep was about six hours, but it was somewhat disturbed and did not give very much

rest ; on the other hand, although the trional was given in small doses, it seemed to exercise a very favorable influence on the number of attacks.

CASE 20. Louise H., day-laborer, 43 years old, slight attack of rheumatism, neurasthenia. For the past three or four weeks she has only had, at the most, two hours of restless sleep each night.

March 18. One gm. of trional at eight o'clock. Slept well and quietly from nine o'clock till eleven, but not after that time.

March 19. One gm. of trional at eight o'clock. Slept lightly from half-past eight till midnight, and felt somewhat rested on waking. As the trional did not seem to give much result its use was abandoned in this case.

CASE 21. Adelaide B., jeweler, 39 years old, chronic alcoholism in a neurasthenic subject. For a long time she has only slept three or four hours each night. Sometimes this sleep was continuous and sometimes broken, but it was always restless and disturbed by nightmare. Has profuse perspirations. There is always a sensation of marked fatigue on waking.

March 5. Took one gm. of trional. Three hours later, slept for six hours. This sleep was sound, without nightmare. On waking there was some nausea and a little headache with some giddiness.

March 6. Took one gm. of trional. Went to sleep four hours afterwards and slept for two hours only. There was nightmare and nausea and headache on waking.

March 6-11. No trional given. There was a complete absence of sleep.

March 11. The patient took one gm. of trional, and three hours afterward had only two and a half hours sleep, interrupted by nightmare. There was profuse perspiration, nausea, and headache.

March 12. Took one gm. of trional. Two hours afterward fell asleep for two and a half hours only. The sleep was broken by nightmare. There was a little perspiration but no headache or nausea on waking.

March 13. Took the same dose. Four hours afterward, slept for five hours, but she was restless and woke frequently.

March 14. The same dose. Three hours of restless sleep.

March 15. Took one and one-half gms. of trional at half-past eight o'clock. One-half hour later there was a sensation of torpor and weakness, and at half-past nine an irresistible desire to sleep. She slept lightly until ten o'clock, hearing every sound, and the same light sleep interrupted by nightmare was renewed from eleven o'clock until three in the morning. On waking there was lassitude and heaviness of the head lasting all day.

March 16. Took one gm. and one-half gm. at half-past eight o'clock. Began to sleep one hour afterward; woke at eleven o'clock, and immediately went to sleep again, waking finally at three o'clock in the morning.

March 17. Took one and one-half gms. at eight o'clock. Slept well from eleven o'clock till one, and immediately after fell asleep again until four o'clock. On waking, there was fatigue, nausea, and headache, the latter symptom, which was not a constant one before the administration of the drug, has become so since then.

March 18. Two gms. of trional at half-past seven. From half-past eight till eleven there was pretty intense headache, great weakness, and profuse sweating. At eleven o'clock the tendency to sleep was irresistible, and she slept from that time until half-past three, but very lightly, hearing all that was going on about her.

March 19. Two gms. of trional at seven o'clock. Slept from half-past eight till three o'clock in the morning. The sleep was light and restless; she woke two or three times, but went to sleep again immediately. On waking was very tired, but had no headache.

March 20. Took two gms. and had a broken sleep, lasting from quarter past eight till four o'clock in the morning.

March 21. The trional was stopped. During the next two nights the patient slept for a few hours, and afterward relapsed to her former condition of insomnia.

In the case of this patient, a dose of one gm. of trional produced a sleep of three to four hours; with one and one-half gms. an average of five hours, and with two gms. about seven hours. The size of the dose did not seem to influence the rapidity of the action.

CASE 22. N., 56 years old, neurasthenia. Very restless, sleeps about one hour each night. A dose of two gms. of chloral hydrate produces about three hours sleep.

May 17. Took one gm. of trional at half past seven o'clock. Had a good, quiet sleep from eight o'clock till half-past one.

Was not restless during the remainder of the night. Awoke quite rested.

May 18. One gm. at eight o'clock. Slept well without nightmare from nine o'clock till half-past four. At half-past one o'clock arose to pass urine, but fell asleep again immediately.

From *May 18* until *May 28* continued to take one gm. of trional, and fell asleep on an average three-quarters of an hour after the administration, the effect lasting about seven hours. The sleep was quiet and the patient awoke feeling rested, having only a slight dull feeling in the head, and a tendency to sleep during the daytime. With chloral the condition on waking was more disagreeable, the patient continued in a condition of drowsiness and felt less rested.

CASE 23. L. P., 19 years old, shop-girl, major hysteria, with attacks about every other day. Sleeps only about two hours each night, is restless, and has frequent nightmare. In the daytime she is very agitated and complains of violent palpitations. She has never taken any hypnotic.

June 19. On account of the extreme agitation of this patient, she was given a gm. of trional at the outset, — one gm. at seven o'clock and another at eight o'clock in milk. She slept from half-past ten till two o'clock, then set up on the edge of her bed and soon fell asleep again until half-past five, when she awoke quite rested, having only a slight dull sensation in the head. The sleep was very quiet. The palpitations were less violent, and there were no attacks of hysteria during the day. On the following day she received two gms. each evening with the result of obtaining, on an average, eight hours of sleep, a calmer condition during the day, and some diminution in the frequency of the crises. Nevertheless, as the condition of excitability was still quite marked, and as she could not receive the necessary attention in a general hospital, she was transferred to Saint Anne on June 27th.

6. INSOMNIA DUE TO VARIOUS CHRONIC AFFECTIONS.

CASE 24. Eugenie B., cook, 37 years old, had undergone a laparotomy, thirteen days before, for a fibroma which the surgeons were not able to remove, and which has been the cause of a very profound anæmia from repeated metrorrhagias. For a month she has not had any continuous sleep. She falls into a doze from time to time, and then, after a short nap, will lie awake for an hour or more. No restlessness.

March 16. Took one gm. of trional at six o'clock. Slept from eight till nine o'clock, and again from ten to twelve, and then immediately fell asleep again till four o'clock. But the sleep was very light, the patient hearing everything which took place about her. No nightmare. Nevertheless she felt on waking more refreshed than usual.

March 17. One gm. of trional at half-past six o'clock. The same light sleep as before from half-past eight till eleven o'clock, and again after an interval of a few minutes until four o'clock.

March 18. One gm. of trional at seven o'clock. Slept from nine o'clock till half-past ten, and again after a brief interval until two o'clock, but the sleep was very light, interrupted by frequent waking, and was followed by a sensation of fatigue.

March 19. Took one gm. of trional at half-past seven o'clock. Slept from nine o'clock until midnight very quietly, and again from half-past twelve until four o'clock, but during this latter period was very restless. Felt somewhat refreshed on waking.

March 20. The trional was stopped. Sleep continued to be broken in character. Never any unpleasant symptoms. The average amount of sleep obtained was about six hours, but it was light and very broken.

CASE 25. Catharine A., 42 years old, cyst of the ovary. For a long time the patient has not slept more than two hours each night.

April 23. Took one gm. of trional at half-past six o'clock in the evening. Slept from seven till five o'clock in the morning, quietly and without any interruptions. Awoke feeling comfortable and refreshed.

April 24. One gm. trional at one-quarter past eight o'clock. Slept from half-past nine o'clock till midnight. Fell asleep again, waking for a few minutes towards three o'clock, after which she slept continuously until six o'clock, well rested. The use of trional was continued for eight days longer at the same dose. The average result was eight hours of quiet sleep. After the drug was stopped, the patient slept a little longer than she had previously.

CASE 26. Amelie A., 18 years old, florist; chlorosis with phlegmasia alba dolens of the right leg. Has slept about half an hour each night for about a month, and is very restless during the rest of the night. At the first trial, with one gm. of trional, she slept eight hours on the first night

and two hours on the succeeding ones. At the second trial, March 13th, she took one gm. of trional at seven o'clock in the evening. Beginning five hours later, she had six hours of continuous sleep without nightmare and was much refreshed on waking.

March 14. One gm. of trional at seven o'clock. Fell asleep, two hours later, for five hours.

March 14 to March 17. An average sleep of five hours.

March 17. One gm. trional at six o'clock. Two hours later she slept for three hours, the sleep being restless. There was drowsiness and lassitude, which passed off during the day.

March 18. At the patient's request the trional was replaced by the same dose of sulfonal, taken at half-past six o'clock. She slept from nine o'clock till half-past one, and again from three o'clock till six, the sleep being quiet, refreshing, and not followed by heaviness in the head. The same results were obtained on March 19th and subsequent days, the average sleep being about nine hours, and coming on two and one-half to three hours after the administration of the drug. Sulfonal in this case proved to be superior to trional which only gave an average of five hours sleep. There was not much difference in the rapidity of the action, sleep coming on two hours after the trional, and two and one-half hours after the sulfonal.

CASE 27. Alphonsine A., housewife, 61 years old, cancer of the stomach, can hardly be said to sleep at all during the night. From time to time has a nap of a few minutes.

March 18. One gm. of trional at seven o'clock. Slept from half-past seven till ten o'clock, and again from eleven o'clock till three, the sleep being sound without nightmare.

March 19. One gm. trional at seven o'clock. Slept from half-past seven till half-past ten, and again from eleven till five o'clock, waking, however, several times. On waking the patient was much refreshed, felt better and was more hungry than she had been for a long time. During the night she perspired profusely, which had not occurred previously.

On six other days the same results were observed, the mean duration of sleep being seven hours. No unpleasant symptoms except the unaccustomed perspirations. The trional seemed to have a good effect upon the appetite.

7. INSOMNIA IN DYSPEPTIC PATIENTS.

CASE 28. Louise L., housewife, 34 years old, dilatation of the stomach. For the past six weeks has only had one or two hours sleep each night, and this has been broken by nightmare.

From *April 6* to *April 11*. Took one gm. trional each evening at seven o'clock. Falls asleep toward nine o'clock on an average and sleeps till midnight. Does not rest well, and has more severe headache than before the administration of the trional. Has profuse night-sweats which were not present previously. No influence on the gastric condition.

CASE 29. N., 35 years old, dilatation of the stomach. Has only two or three hours of heavy sleep interrupted by nightmare.

May 20. Took one gm. of trional at half-past seven. From eight o'clock until five, had a sound and quiet sleep, without nightmare, and awoke feeling very much refreshed.

May 21. Took one gm. trional at eight o'clock and slept very well from half-past eight till half-past four o'clock.

May 22. Took no trional and did not sleep.

From *May 22* to *May 28*. Took one gm. trional each evening, and, after an average interval of half an hour, sleep came on, lasting six or seven hours. No bad symptoms.

8. INSOMNIA IN A MORPHINE HABITUE.

CASE 30. Renee L., 32 years old, morphine habitue. Has been in the habit of taking daily, twelve prayaz syringefuls of a 1-40 solution of morphine.

The patient is extremely emaciated, vomits frequently, has palpitation and profuse sweating. Menses are regular but very scanty. She came to the hospital on March 8th, having already taken eight syringefuls during the day. She was given two more during the evening of a solution of 1-50.

March 9. She received injections of four syringefuls of 1-50 with one gm. of trional after the evening hypodermic. One hour later had a sleep lasting six hours. Pulse 80.

March 10. Four syringefuls of 1-50 and one gm. of trional. After two hours, slept well for six hours without nightmare. Pulse 76.

March 11. Three syringefuls of 1-50 and one of 1-100 with one gm. of trional. After an interval of five hours, had a quiet sleep lasting six hours. Pulse 82.

March 12. The same dosage. Nine hours of calm and refreshing sleep, coming on one hour after.

March 13. Three syringefuls of morphine 1-50 and one gm. of trional. One hour later, slept for eight hours.

March 14. The same dosage. Two hours later slept for nine hours.

March 15. The patient asked for an increase in the quantity of trional to make up for the diminution of the morphine. The dose was raised to one and one-half gms. She was more restless than on the previous nights.

March 16. The dose of trional was increased to two gms. and one of the hypodermic injections was made with a solution of only 1-100. One hour later the patient had a very good sleep lasting about ten hours. No discomfort on waking.

March 17. The same doses were given with the same result.

March 18. Two and one-half syringefuls of 1-100 solution of morphine and two gms. trional at half-past eight o'clock.

Slept from nine o'clock until six in the morning, but woke frequently.

From *March 19* to *March 23*. Patient menstruated normally except that the flow was not very abundant. The medication was continued as before with an average result of seven hours sleep, coming on one and one-quarter hours after taking the drug.

March 24. The injections were reduced to only two of morphine 1-100 with two gms. of trional at eight o'clock; slept quietly from nine o'clock until six.

March 25 and *26.* The same result obtained.

March 27. The dose of trional was raised to 2½ gms.

From *March 27* until *April 20*. When the patient voluntarily left the hospital, the same medication was continued, resulting in an average sleep of nine hours, coming on from one to one and one-half hours after taking the dose.

The urine was examined every day with reference to albumen glucose and hæmatoporphyrine. Nothing abnormal was found at any time. According to our observation, trional did not seem to check perspiration. No disturbance of any of the bodily functions was noted at any time during the treatment.

In all of these cases the urine was examined at frequent intervals and neither sugar nor albumen was found at any

time, nor have they ever shown the dull red tinge which indicates the presence of hæmatoporphyrine.

The average amount of sleep obtained has been about seven hours, and it has followed after an interval of three-quarters of an hour to one hour after the administration of the drug, given in wafers and followed by a hot draught.

The time required for the drug to act has, however, varied between the extremes of fifteen minutes and six hours. The patient is easily aroused from the sleep, but it is resumed immediately.

In some of the cases Nos. 2, 4, 11, 12, trional has seemed to cause nightmare. Gaillard has also reported a case in which the patient refused to take it on account of the frightful nightmares which it caused her.

We observed one case of failure in a case of cardiac disease with defective compensation (No. 6) in which the insomnia yielded to morphine. In our two hysterical cases (Nos. 19 and 22), it had a quite marked sedative action. In four cases (Nos. 4, 7, 11, 21), there were some transitory disturbances on waking; nausea, headache, vertigo, uncertainty of gait and noises in the ears. In case 21 the headache was, however, persistent. In case 15, trional was shown to be superior to chloral, sulfonal, and opium; but in case 25, on the contrary, it was inferior to sulfonal given in the same dose. In two cases (Nos. 27 and 28) there was noted sweating which had not been present previously, and for which there was no other explanation. In the first of these cases last mentioned, a very decided improvement occurred in the appetite.

In nearly all the cases the temperature was taken in the evening before the medicine was taken, and on waking in the morning. There was no difference that could be attributed to the drug. The pulse was taken every morning and showed no changes after trional. Neither have we observed any action upon the respiratory apparatus. A case of favorable influence upon the digestive organs was mentioned above, in addition to which we find note of a little diarrhœa in case 3.

INDICATIONS FOR THE USE OF TRIONAL.

Trional is indicated in insomnias of every variety. It succeeds particularly well in those which are purely nervous, with little excitement; on the other hand it is less efficacious when the sleeplessness is caused by a violent cough, as in a

case of tuberculosis, for example. Its action is much more reliable in melancholia than in conditions of well-marked excitement. In delirium tremens it has seemed to give good results, although this opinion is not shared by all the authors. In morphinomania very good results have been obtained with it. In general paresis the results are less favorable. Speaking broadly it may be said that trional is better suited to the cases of those who go to sleep with difficulty, than it is to those who find no trouble in getting to sleep but who wake too easily. (Vogt.)

In surgical practice, it is indicated in the insomnia of exhaustion from chronic surgical ailments, because it does not depress the heart action like chloral, or is the wakefulness, not associated with much pain, which is met with after operations (Van Schaick.) However, we believe that pain is not a contra-indication for the use of trional, which often relieves, not the pain itself, but the conditions of nervous hyper-excitation resulting from it.

It gives good results in the night terrors of childhood.

DOSAGE.

Trional may be administered in single or in divided doses. In single doses, small doses, below one gm. usually give no result. Moderate doses, from one to two gms., act chiefly as hypnotics in all cases of insomnia without too much excitement; but their active sedative effect is not marked. The method of Pelanda and Cainer seems very advisable. They recommend giving a dose of one and one-half to two gms. at the start, and then reducing the dose to one gm. on the following days, in order to keep up the hypnotic effect without any cumulative action. Large doses, from two to four gms. should be reserved for conditions of violent excitement. Their sedative action is especially pronounced.

IN DIVIDED DOSES.

By giving wafers containing 50 centigrams two or three times per day a pretty marked sedative effect is obtained with relatively small doses, but without hypnotic action. It is especially in such cases and when trional is given for a long time continuously, that its use should be suspended at frequent intervals, and the freedom of the bowels assured if necessary by purgatives. As in the cases in which hæmatorporphyrinuria has appeared, the urine has always been

found strongly acid. Prof. Muller of Gratz advises that this symptom be met by the use of large doses of bicarbonate of soda. As a preventive measure, the alkaline mineral waters should be given along with the trional. The dose of trional for women should be, on an average, 50 centigrams less than that for a man, as it has been noticed that accidents are more common in their case.

The following, according to Claus, are the doses for children :

From 1 month to 1 year,	2 to 4 centigrams.
From 1 year to 2 years,	4 to 8 "
From 2 years to 6 years,	8 centigrams. to 1.2 gms.
From 6 years to 10 years,	1.2 gms. to 1.5 gms.

When the insomnia is associated with pain, it is desirable to combine the trional with one centigram of morphia, or two or three centigrams of codeia, or perhaps with phenacetine or acetanilide. Good results may thus be obtained, which could not be secured by either drug alone.

METHODS OF ADMINISTRATION.

Trional may be given :

1. Suspended in cold milk, tea, or a mucilage.
2. In a hot liquid such as milk, wine or punch, in which it is partly dissolved and partly held in suspension.
3. When the patients refuse liquids, out of suspicious motives, it may be mixed with finely divided food or with broth; in the case of children, it may be given in honey or sweetmeats.
4. By enema, the effect follows as promptly as when given by the mouth.

But the best way is to give it in unleavened bread, followed immediately by a drink of 200 cc. of some hot liquid. This should be given about a quarter of an hour before bedtime.

CONCLUSION.

1. Trional is a good hypnotic in mental disorders as well as in the insomnias of miscellaneous origin. Its effects is produced in from three-quarters of an hour to one hour, and the average amount of sleep is about seven hours. The patient sleeps quietly, is easily aroused, and falls asleep again promptly.

2. It seems to act upon the cerebral cortex, perhaps by inducing a condition of ischæmia.

3. It succeeds most uniformly in the insomnias attended by pain. When the pain is too severe, the addition of morphine or phenacetine will secure a good result.

4. It will be found to be less efficacious when there is a condition of violent excitement, or when there is severe cough.

5. Compared with sulfonal and chloral, it seems to equal the former in effect and to be inferior to the latter; but it excels sulfonal in rapidity of action (it acts in from 3-4 to 1 hour) and has an advantage over chloral in that it does not set up a drug habit, and that it is not depressing when given with any degree of caution.

6. It will, therefore, be particularly useful in those patients in whom chloral has lost its effect from long habituation, and in patients whose condition is already one of marked depression.

7. Small doses (1-2 gms.) seems hypnotic chiefly, and large doses (2-4 gms.) sedative in cases showing excitement. Divided doses are also sedative in action. The former should therefore be given in all cases of insomnia without much excitement, and the latter when that condition is very pronounced.

8. Trional is not an analgesic.

9. At least in therapeutic doses, it has no action upon the circulation, the respiration or the digestion. The secretions and the heat function are only affected to an insignificant degree.

10. Slight symptoms of intoxication (vertigo, headache, and unsteady gait), may follow the first dose, even though it be a small one (1 gm.) Such symptoms usually pass away of themselves, and do not contra-indicate the use of trional, but merely call for care in its further administration.

DR JAMES A. BLANCHARD, who for fifteen years was superintendent of the Inebriates' Home, died Jan. 8, 1896, of heart disease, at the institution. Dr. Blanchard was born in Norwich, Conn., fifty-five years ago and studied in the schools of his native town until 1858, when he took up the study of medicine and surgery at the College of Physicians and Surgeons, in New York city, from which he graduated in 1867.

He then practiced his profession in this city until 1878 and in that year received the appointment of medical superintendent of the asylum for the insane at Flatbush. In 1881 he was made superintendent of the Inebriates' Home, at Fort Hamilton, a position which he held with signal success, linking his name so thoroughly with the institution that one was as well known as the other.

During the war of the rebellion he enlisted in the Twenty-third New York regiment and for valuable services rendered was promoted to the medical corps.

He was a man of rare qualities of heart and mind and his circle of friends was very large. His wife and a little girl nine years of age survive him.

Fellows' Hypophosphites has become a standard medicine in the various neurotic disorders of the times. Its value is established in the popularity and wide demand from all parts of the country. A trial is the best way to prove its merits.

The *Arethusa Spring Water* of Seymour, Conn., is an aspirant and very prominent rival, as a rich medicinal table water, to the famous foreign waters so much in use. Send for some circulars.

The preparation of *Tissue Phosphate* by *Dr. Wheeler of Montreal* is a rare and very satisfactory tonic in all cases of brain and nerve debility. We commend it as worthy of prolonged trial.

The question of how far *Celerina* will meet the demands for relief in cases of removal of spirits has been tested in many cases with great satisfaction. A number of physicians have become enthusiastic in praise of its merits. There is no doubt that it is very valuable, and should be tried in all cases. Send to the *Rio Chemical Co. of St. Louis, Mo.*, for a trial bottle.

The TREATMENT OF INFLUENZA OR LA GRIPPE. Antikamnia Tablets (5 gr. each), No. xxx. Sig. One tablet every two hours.

If the pain is extremely severe, the dose is doubled until relief is obtained. Often this single dose of ten grains of Antikamnia is followed with almost complete relief from the suffering. Antikamnia is preferred to the hypodermic use of morphia because it leaves no bad after-effects; and also because it has such marked power to control pain and reduce fever. The author says that unless the attack is a very severe one, the above treatment is sufficient.

After the fever has subsided, the pain, muscular soreness and nervousness generally continue for some time. To relieve these and to meet the indication for a tonic, the following is prescribed:

℞ Antikamnia & Codeine Tablets. No. xxx. Sig. One tablet every four hours.

Dr. Bell also says that in Antikamnia alone we have a remedy sufficient for the treatment of nearly every case, but occasionally one of its combinations meets special conditions. He always instructs patients to crush tablets before taking.

Hosford's Acid Phosphate grows in value and use as it becomes known. The demand for it expressed in hogsheads, amounts to thousands every year. Its use as a popular drink is a most hopeful sign of a new era of temperance coming.

Taka-Diatase, an isolated ferment in powdered form, for the treatment of amylaceous dyspepsia. This is a new preparation of great value, put on the market by the famous firm of Park, Davis & Co. This firm is entitled to the thanks of the profession everywhere for their scientific skill and enterprise.

Therapeutic use of *Protonuclein*: 1. Antagonism of toxic germs of all kinds. 2. Asthenic conditions (where the organism is below the normal physiological standard)—restoring the vitality of tissues, stimulating and supporting

assimilative nutrition. 3. As a prophylactic or preventive in exposure to contagion or infection, in which case it either protects the organism from attack, or greatly modifies the virulence of the disease if attacked. Reed & Carnrick of New York make this excellent preparation.

The *Maltine tonics* prepared by the Maltine Manufacturing Co. of New York city, are the most useful and practical preparations in the market. We have called attention to *maltine with coca wine*, and now desire to earnestly urge the use of *maltine with hypophosphites*, and *maltine with phosphorus, iron, quinine, and strychnia*, as most excellent tonics. Several other preparations, equally valuable, are made by this firm.

BATTLE & Co., St. Louis :

Some time ago you sent me specimens of your preparations of Bromidia, Papine, and Iodia. Unlike many who send out specimens, you sent an amount large enough to really make a trial with. I had used the two first-named a little, but having them more forcibly brought to mind, and recognizing the fact that I had them on trial, I watched their action more carefully. I can say that they are both elegant and health bearing. Bromidia I used on a man verging on mania a potu. Papine on a nervous typhoid woman, and Iodia on a young man who had carried boils for three years as the result of ivy poisoning. The preparations were a decided success in every instance.

Yours truly,

E. C. ADAMS, M.D.

Watertown, S. D., Dec. 10, 1895.

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THE EFFECTS OF ALCOHOL ON THE CENTRAL NERVOUS SYSTEM.*

BY HENRY J. BERKLEY, M.D., BALTIMORE.

The subject of the pathological effects produced by the action of alcohol, in any of its numerous forms, upon the tissues of the central nervous system, has attracted, since the inception of modern pathological medicine, considerable attention, but until quite recently the results accomplished have not been at all commensurate with the amount of labor expended; in fact have resulted in nothing positive beyond demonstrating fairly conclusively that the prolonged use of alcoholic drinks extending over a period of years are conducive to atheromatous and other changes in the blood-vessels, and certain ill-defined degenerations of the cerebral nerve cells.

Attempts to ascertain the effects of alcoholic drinks on the brain of the human subject cannot be very conclusive in their results from a microscopical standpoint, because we are hampered by a lack of knowledge of the post-mortem

* Portion of a lecture on the effects of toxins on the nerve cell, delivered at the Johns Hopkins Hospital, March 29, 1896.

changes that follow dissolution within a few hours, and it is rare indeed that one can obtain pathological material from the human subject sufficiently early to be absolutely certain that we can definitely exclude all anatomical changes.

The finer the stains we use, the more difficult does it become to recognize the minute histological alterations, and after an attempt on my part to study the human brain in alcoholism, from the standpoint of a previous knowledge of brain cell lesions, I was obliged to abandon the attempt until the definite lesions could be ascertained by experimental study, not that we were unable to find pathological changes, but from an inability to interpret them, and differentiate between abnormal conditions and post-mortem states.

The literature on experimental alcoholism consists of only two articles, from the pens of Vas and Dehio, both using the Nissl method of staining. The first-named writer finds alterations in the chromatin structures, the finely granular character of the nerve cell is perceptibly diminished, and gives place to a homogeneous swelling. In advanced cases of the alteration, the cellular protoplasm alters its power of taking up the coloring matter, and appears darker than usual. A shrinkage of the protoplasmic body cannot be definitely ascertained.

The study of Dehio was never finished. He tried rapid poisoning of animals with large doses of alcohol, and studied its results on the Purkinje cells. Alteration in the chromatin of the cells was found, with more uniform absorption of the dye than normal, but this pathological find is far from definite.

Nearly a year ago, owing to the kindness of Dr. Friedenwald of this city, who was conducting a series of experiments on the effects produced by alcohol on the animal organism, I was enabled to procure the brains of eight rabbits that had been subjected to the continued—*intra vitam*—action of alcohol over a period of time varying from three weeks to more than one year.

They were cerebra from two series of experiments. The first series comprising five brains had been systematically fed daily with quantities of absolute ethyl alcohol, varying from five to eight c. c. Death eventually took place in convulsions. The principal clinical symptoms noted were a progressive diminution in weight, increasing torpidity, and eventually convulsions. Nearly all the animals showed at the post-mortem evidences of fatty changes in the heart muscle.

The second series comprised the brains of three rabbits that had been subjected to the action of the drug in a somewhat different manner, more closely approximating the course taken by a man while on a debauch. The rabbits were first fed for several days on a minimal amount of ethyl alcohol, and after a certain tolerance had been established, the quantity was gradually increased until it reached twelve to fifteen c. c. of the poison given daily in a single dose. Despite feeding and careful attention the animals emaciated greatly, losing nearly one-half their weight, and eventually all died, almost precisely three weeks after the beginning of the experiment.

The material for the study obtained, it then became necessary to find some special method of staining by which the finer portions of the neuron, the protoplasmic dendrites, and the substance of the axon and collaterals to their end-apparatus could be stained with certainty. This was finally accomplished by the addition of phospho-molybdic acid to a silver nitrate solution, by which Muller's fluid preparations were impregnated somewhat after the manner of the rapid Golgi method. Those portions of the cerebra fixed in absolute alcohol answered perfectly well for the Nissl and other aniline stains for the demonstration of the protoplasm of the cellular bodies, the nuclei, and the structures of the blood vessels.

The histological lesions in the two classes, acute and chronic alcoholic poisoning, divide themselves chiefly by the different characters of the vascular lesions into two groups,

the nerve cell lesions being of the same character in both, only varying in amount and intensity of the alteration.

In the acute series the damage to the vascular apparatus is exceedingly well defined. Especially in the medium-sized and smaller arterioles, the nuclei of the intima are swollen, show definite alterations in their staining qualities, and at times appear to be even necrotic. The muscularis is greatly swollen, hyaline in appearance, has assumed new staining qualities, and the elongated nuclei have in part disappeared from their positions. Owing to the swelling of the middle vascular layer the Virchow lymph space has been obliterated, and, in fact, in many places where the swelling is intense, the adventitial layer is closely pressed against the outer margin of the peri-vascular space. This last sheath of the arteries does not appear to have been damaged to the same extent as the more internal ones, its nuclei staining better, and there being no visible tumefaction. The contents of the peri-vascular spaces, wherever the swelling of the muscularis has not completely obliterated it, attracts attention. In it are large quantities of a finely granular detritus, and scattered thickly among the granular matter lie numbers of leucocytes in various stages of degeneration and disintegration.

Within the vessel are mingled with the red blood corpuscles large numbers of leucocytes, all showing evident signs of corpuscular alteration. Somewhat strange to note, all these leucocytes are of the polynuclear variety, hardly any of the mononuclear ones being visible among them. Here and there in the arterioles and capillaries the leucocytes have aggregated into masses, and form veritable plugs in the lumen of the vessels, and from their very closely packed appearance must have occasioned an almost complete stoppage of the blood-stream sometime before death. Outside the walls of the arterioles the leucocytes are in places so thickly set together that they compress the sheaths of the vessel, and in this way have helped to retard the blood current. Ruptures of the walls of small veins are by no

means infrequent, but never is the blood extravasated beyond the sheath of the peri-vascular space into the surrounding cerebral substance.

Two factors have probably place in the damage to the circulatory apparatus, the presence of a poisonous irritant circulating with the blood-current, and damaging the walls, and secondly, and not less important, the production of an acute leucocytosis from the deteriorating action of the alcohol on the blood-forming organs. The immense numbers of leucocytes that are carried by the blood stream into the cerebral circulation accumulate, probably, from the atonic condition of the heart muscle and the muscular walls of the arterial system not being able to force them through the capillaries equally with the red-blood corpuscles by reason of their larger size, and they accumulate in these canals, plugs of them are slowly formed, a backward pressure on the arteries begins, which is especially deleterious in the already weakened condition of these vessels from the poisonous effects of the drug, and eventually so great does this pressure become that the arterial walls are greatly damaged, and lose to a great extent their vitality.

The changes in the nerve cells seen with the aniline stains are commensurate with the arterial ones. They consist chiefly in alterations of the cellular protoplasm, which now shows an increased absorption of the dye, together with diffused staining of the chromatin particles. The most extensive degree of cellular alteration is found in the immediate neighborhood of greatly damaged vessels; where the vessels have little or no alteration of their sheaths the cellular elements are usually sound. Nuclear lesions are neither well marked, nor advanced.

The interesting degeneration of the protoplasmic twigs, which occurs equally in the chronic alcoholism, will be described under that section.

Morbid changes in the neuroglia are of interest and moment. The ordinary support neuroglia, both along the pial margin, and the star-rayed cells more deeply situated,

are unaffected by the changes in the vascular and nervous elements. On the other hand, the vascular neuroglia shows important changes. The cells are much swollen, the bodies rounded, the tentacles thickened, though not spreading over more territory than normally; altogether they appear to be taking an active part in the process of degeneration, taking up and removing from the tissues the detritus of the destroyed protoplasmic twigs and stems.

Vascular changes in the chronic cases are not nearly so pronounced as in the acute ones. The walls of the arterioles are irregularly shrunken, and their nuclei, while not increased in numbers, are swollen, and show abnormalities in their staining qualities. Changes in the muscularis are almost absent. The peri-vascular spaces are larger than in the control preparations, and the hyaline sheath is a little more definite than normal. In the larger arteries there is thickening of the sheaths, and considerable focal multiplication of the nuclei of the adventitia. In the spaces around the vessels a few grains of hematoidin debris is occasionally found, together with a little fine granular detritus. Miliary hemorrhages near the pial margin of the cortex are not infrequent.

The vascular contents attracts but little attention, there is a rather unusual number of polynuclear leucocytes in the blood, but, very few of these have transuded through the walls into the outer space.

The protoplasm of the cortical nerve cells, especially those of the psychical variety, shows insignificant departures from the normal in the form of alterations in the chromatin, and absorption of larger quantities of the dye, the cell staining somewhat diffusely. Nuclear variations on the contrary are very pronounced, and show mainly in the central nucleolar figure, which is enlarged, roughened, and has elongated buds projecting from its surface. The portions of the nucleus beyond the nucleolus show diminution of the presence of the molecular particles, in contrast to the control preparations. In the clear karyoplasm there is a

decided tendency to take up more than is normal of the aniline stain, and so marked does this tendency become, that at times the contents of the nucleus are rendered indistinct, and it becomes much less refractile than natural.

In examining a pathological tissue by any of the silver methods we must bear constantly before our mental vision the fact that this method of staining is extremely apt to lead one into error, not only from the unknown post-mortem changes of the cerebral structures, but also from the inconstancy and inequality of the staining of the elements. We should, therefore, have always at hand a large supply of control material, so that whenever question arises we may have before us all variations of the normal characteristics of the nerve cell. These variations in health are within certain limits, and must be passed before one can say with certainty that we have before us a pathological condition. Inequalities in staining are much more likely to lead one into error than any amount of physiological variation.

For the practical purposes of this examination, the intrinsic variations in the neuron may be reduced to the normal inequalities or varicosities in the substance of the finer dendrites. These varicosities in the dendrons are of comparatively infrequent occurrence, and show either as knots at the forkings of the branches of the dendrites, or as small irregular swellings, seldom more than one or two on each stem, particularly at or near their terminations. Equally with the other portions of the stems the irregularities are covered by the gemmules. This presence of the knob-ended gemmule helps one greatly to differentiate between normal and abnormal thickening of the dendrites, for, whenever the irritation which produces the swelling is continued over a considerable period, the gemmulae fall off and disappear.

After all possible allowances have been made for artifacts and physiological variations in our sections stained by the silver phospho-molybdate method, there remain a large

number of cells that are distinctly abnormal. The principal lesions of the nerve cell in the alcoholic brain, to which we would call attention, are a distinct diminution in size, disappearance of the gemmules, certain swellings of the dendritic stems, roughening of the thicker processes, and also to some extent of the cellular body, the last being caused by shrinkage of the protoplasm.

A careful comparison of a control preparation, and one from an alcoholic rabbit will show the following essential differences: the cell bodies and main processes are in the control more even and smoother, the dendrites are broader, and the gemmules stouter and more numerous, thicker, more feathery, apparently spreading over more lateral surface, and are very regular in appearances, while in the alcoholic, there is a gap here and there as if some of them had fallen off, or had disappeared, while the processes appear to be thinned, and have at numerous places irregular thickenings on which the lateral buds are entirely absent.

Among the cellular layers we find a vast number of cells, especially the pyramidal form, which show upon their protoplasmic extensions some of these tumefactions of rounded or elliptical form. Some of them are very small, and are only to be noticed after close search, while others are so large as to immediately attract attention. The number of the dendritic swellings may vary greatly, a dendron may be almost covered with them, or there may be only one or two on the stem, in the latter case they are usually larger than in the former.

The process of tumefaction always appears to begin near the free extremity of the dendron, and gradually extends downward toward the body of the cell. The basal dendrites are usually not so extensively involved in the degeneration as the apical.

An essential accompaniment of the process of tumefaction of the protoplasm of the dendrites is the loss of the gemmulae. The smallest pathological swelling causes an evident decrease in the number of the buds on the portion

of the dendron affected, as the swellings increase they progressively disappear, and when a process is filled with tumefactions and knots they entirely vanish, with, perhaps, the exception of a few scattered ones situated along the least diseased portions of the stem. In the intervals between the thickenings the dendrites appear to be atrophied.

It would seem from our specimens, as if the denudation of the gemmulae and the tumefaction of the stems was the first step in a process that eventually was to end in the entire destruction of the cell, at least so far as its functions are concerned, for the stumps of cells that remain can have neither projective nor receptive faculties. It is true though that very few of the cells show signs of advanced deterioration of the substance of the cellular body, though here and there a neuron may be found which exhibits a more striking degree of degeneration. The body is now greatly roughened, and the staining of the altered protoplasmic substance is very irregular.

Unlike the dendritic substance that of the axon shows no decided changes, even when attached to the most degenerated cells. The collaterals and end-apparatus of the axon is equally uninfluenced by the degenerative process, and these portions of the neuron have everywhere all the appearances of health.

While the alterations of the neuron in the acute alcoholic cases undoubtedly is due to the combined effects of the alcohol and the disturbance of the vascular supply, the same conditions do not wholly apply to the nerve elements in the chronic ones. The vascular lesions are now inconsiderable, and accordingly we must now look to the direct action of the poison as the cause of the degeneration of the nerve elements, acting as it does through the medium of the nutrient supply upon the cellular protoplasm, the serous portions of the blood permeating through the tissues, and with the admixed alcohol coming directly into contact with the living protoplasm of the cell, the least resistant portions, those at

the greatest distance from the corpus suffering first, then the other portions of the soft protoplasm.

Cerebellar lesions in alcoholism correspond entirely with those in the cerebrum.

One striking feature of the degenerative process is, that very considerable numbers of the cerebral and cerebellar cells remain apparently intact, perhaps, it is only every third or fourth cell that shows pronounced alterations, but this fact cannot militate against the conception of the degeneration as a pathological entity from the standpoint of the numerous forms of dementias and chronic alcoholic psychoses, for the nerve elements of the cerebrum are intricately connected one with another by means of their conductor-endings and the knob-ended gemmulae, between which the dynamic forces originating in the cell-body pass from one cell to the other over the almost imperceptible space that is present between the two, and thus the death of a single cell may destroy the normal relations between dozens of other cells, and in this way induce an inco-ordination of thought and action, while the vast majority of the cellular elements retain their histologically normal characteristics.

Using the same methods of staining and fixing of the tissues, we have found similar lesions in the cerebra of human alcoholics as in our rabbit series, only the lesions are less extensive than with the animals, perhaps, only because the human subjects had received presumably smaller quantities of alcohol in proportion to their bodily weight than the rabbits.

ON THE RELATION BETWEEN INTEMPERANCE
AND MENTAL DISEASE.

BY BEDFORD PIERCE, M.D. (LOND.),
M.R.C.P. (LOND.),

Medical Superintendent of the Retreat, York.

In considering the relation between alcohol and mental disease, the first question that arises is the extent to which insanity is produced by alcohol. Every text-book upon mental diseases describes a special form of insanity due to alcoholic intemperance, independently of that acute form of mental disorder known popularly as delirium tremens.

It is unnecessary for me to point out the characteristic features of alcoholic insanity, even if it were easy to do so; but I may remark that it presents no constant symptoms, and that unless one knows the history of patients suffering from it, there is great difficulty in distinguishing them from those laboring under other forms of mental disease. Hallucinations of hearing in the form of "voices" are common; also delusions of suspicion, and such patients may be very dangerous; in other cases they are profoundly depressed, with a strong tendency to suicide. A large proportion of those "found drowned" and reported in the press are, if their history were known, chronic alcoholics, and it is noteworthy that no less than 20.8 per cent. of the suicidal male patients admitted into our asylums give a history of intemperance. Profound mental enfeeblement is the termination of almost all cases that do not recover. Alcoholic insanity, however, when not of long standing, is one of the more curable forms of mental disorder. As one would expect, total abstinence from alcohol is essential if the recovery is to be complete. I have no sympathy with a treatment that prescribes for such patients "a hair of the dog that bit

them." Two thousand three hundred and sixty-five patients suffering from alcoholic insanity have been annually admitted into English asylums, taking the average of the last five years. This gives a percentage of the total admissions of 14.2 per cent. There is, however, a great difference if we distinguish between the *sexes* in the incidence of alcoholic insanity, since drink was the cause in no less than 20.8 per cent. of the males admitted, and but 8.1 per cent. of the females.

These figures are obtained from returns furnished to the Commissioners in Lunacy by the medical officers of asylums, and are published in the Blue Book for 1894.

If private patients (those whose friends are able to pay for their maintenance) are considered apart from pauper patients, the percentage is very slightly reduced; and we may safely conclude that this cause of insanity operates to almost the same extent in the middle classes as in the lower classes of our population.

In the Retreat the numbers are too small to allow of any reliable comparison. Including all cases in which alcohol may be a contributing cause of the mental break-down, I find that out of 40 males admitted during the past three years, 10 gave a history of alcoholism; while out of 58 females, there were but 8 cases. Thus my cases give a total percentage of both together of about 18 per cent., which, so far as they go, corroborate the figures given in the Blue Book, as allowance should be made for the fact that I include patients whose attack was accelerated, but not entirely caused, by alcoholic excesses.

Dr. Clouston, of the Royal Edinburgh Asylum, gives the percentage of admissions during fifteen years as 16.4 per cent., though during the influenza years there was a sudden increase to 26 per cent.

Exaggerated statements of this question are, I regret to say, made; but it would not be far wrong to conclude that from 14 to 18 per cent. of the cases of mental disease occur-

ring in Great Britain are due in large measure to alcoholic intemperance.

The mental ruin produced by alcohol is in no way proportionate to the 2,000 unfortunate persons who, from this cause, find their way into our asylums. Everyone is acquainted with men and women whose mental powers are so shattered by long-continued indulgence in drink that they have reached the borderland between sanity and insanity, even if it be not overstepped.

These subjects of chronic alcoholism may have entirely lost the power to abstain from drinking, they may have gradually allowed their families to become penniless, and their children to lack the common necessities of life; their character may have so altered for the worse that it is obvious to everyone that they are almost different persons, — thoughtless and selfish instead of kind and affectionate.

I do not propose to allude to the pressing need for further legislation to obtain increased powers for restricting the liberty of habitual drunkards, nor to the urgent call for inebriate homes for the poorer classes; to which I may add the need for the imposition of penalties upon those who knowingly supply drink to persons notoriously of intemperate habits, since these matters are outside the scope of my paper. I wish, however, to emphasize the fact that alcohol does incalculably more harm in producing mental degeneration in the many who are never placed under care, than in the few who find their way into asylums.

There are two forms of chronic alcoholism which, as a rule, can be distinguished; in one the indulgence is more or less constant, and in the other it occurs in periodical outbursts. In the former there is often considerable enfeeblement of mind or other signs of mental deterioration, often without actual drunkenness at any time; so that the patient may be quite unaware of the change and his relatives even may be ignorant of the true cause. It is one of the most striking features of alcoholic intemperance that, in both acute and in chronic cases, the subject does not rightly appre-

ciate his condition. This greatly adds to the difficulty of treating such patients.

The other variety of chronic alcoholism is paroxysmal in character, and to it the name "dipsomania" has been given. It consists of a craving for stimulants which overmasters the subject from time to time when he or she gives way to an outburst of drunkenness. These patients usually suffer less mental deterioration than the habitually hard drinker.

These forms of chronic alcoholism cannot, however, be sharply defined, and many cases are intermediate between these extremes.

In dealing with the effects of alcohol upon the individual in producing mental disturbance, I have begun with the more chronic and deep-seated affections, and have yet to mention two acute disorders produced by this agent.

Delirium tremens, acute alcoholic delirium, is a condition of profound mental disturbance which occurs after a drinking bout, and frequently when some physical disease has lowered the vitality of the patient. It is characterized by restlessness and excitement, and hallucinations of sight (the seeing of creeping things, etc.).

Delirium tremens is a very grave complication of disease and may render highly dangerous some ailment which otherwise might have been in no way serious.

Besides this, a form of acute mental disorder of longer duration (*mania à potu*) is described by alienists as distinct from chronic alcoholic insanity.

Besides the various mental disturbances already mentioned, I must also point out that the deleterious effects of alcohol are not confined to the individual, and that there is overwhelming evidence to show that the children of intemperate people inherit a tendency to intemperance or some form of nervous disease.

Modern writers on heredity, Weissman and his school, have attempted to demonstrate that acquired characters are not transmitted to the offspring. I am satisfied that this

does not apply to acquired alcoholic intemperance, and doubtless Weissman would not teach that a definite poison could be imbibed by a parent without injury to the offspring, and would probably protest against his biological dictum being carried into the sphere of pathology. Be that as it may, it would be easy to quote a number of authors to show that alcoholism in parents is very prejudicial to their descendants. Thus are the sins of the parents visited upon the children. The offspring of such parents may either be peculiarly susceptible to the influence of alcohol, or may inherit a mental instability rendering them easy victims to it, or the inherited defect may be manifested in a tendency to insanity, epilepsy, or some other form of mental disorder.

There is, moreover, very strong evidence to show that drunkenness in parents is one of the most frequent causes of idiocy or imbecility in children.

Dr. Legrain, in a recent work upon "Social Degeneration and Alcoholism," has published an account of the descendants of 215 drunkards that he personally has traced. This work shows conclusively that in such families a very large number of the children die young, and that the families rapidly die out; that epilepsy, insanity, and other nervous disorders are extremely common.

Before leaving this part of my paper, it may not be out of place to express the opinion that I consider the influence of alcohol upon the brain of infinitely greater importance than its influence upon the circulation or upon other parts of the body.

In England it is true that we have heard of the watering of geraniums by diluted solutions of alcohol, and of attempts to accustom water-fleas to living on weak spirit and water, and we hear that neither geraniums nor water-fleas flourish. All this, however, is remote from the problem in hand, and the skeptical person is not convinced by deductions drawn from such experiments. The work done by Prof. Kraepelin and his pupils in Heidelberg promises to be of very great importance.

Kraepelin has summed up his conclusions as to the action of alcohol in his *Psychologische Arbeiten*, Band I, p. 83. He states that experiment has shown that the idea that alcohol strengthens has arisen from self-deception. Alcohol only facilitates the discharge of motor impulses, and does not make them more powerful. If there is any strengthening effect, any increase of power, it is very transitory, and is quickly followed by a pronounced diminution, which takes some time to disappear. He goes on to say:—"Moreover, the powers of conception and judgment are from the beginning distinctly affected, although we perceive nothing of it. The actual facts are exactly the opposite to the popular belief. I must confess that my own experiments, extending over more than ten years, and the theoretical deductions therefrom, have made me an opponent of alcohol."

The relation between intemperance and mental disease is, however, a reciprocal one, and not only is drunkenness a cause of insanity, but mental disease is a cause of drunkenness.

This latter aspect of the question I propose briefly to discuss.

Consider in the first place the case of a man in the early stages of an attack of mental disease. The disease in question may be almost of any kind, characterized by either excitement or depression; but for our purpose we will assume the attack is one of simple mania, the leading features of which are deficient self-control and lack of judgment, excitability, talkativeness, and usually restlessness and inconstancy of purpose. Such a patient becomes an entirely altered man, and among other changes we may find that he has commenced to drink freely, and perhaps for the first time in his life is intemperate. The early stages of such a mental attack are insidious, and it may not be for a week or two that the patient's relatives recognize the actual unsoundness of mind, and take the necessary steps to ensure proper treatment. In looking for an explanation of the attack, what is more likely than that the whole may be ascribed to the

unaccustomed indulgence in drink? And thus the case may be considered primarily alcoholic, when the alcoholic indulgence was really secondary to the mental disorder. My point is this, that in the course of acute mental disorder it is not rare to find that patients hitherto abstemious may become very intemperate, owing to the loss of self-control produced by the disease. It is, however, certain that this influence of mental disorder is not limited to acute disease.

If we consider the extensive evils which, during the past few years, have been produced by influenza, we shall find that one of the most common results has been a more or less defined mental and nervous disorder. Numberless people have never been the same since their attack, and not a few have become actually insane on account of this obscure and insidious nervous poison. It may, I think, be fairly contended that intemperance has also been caused in the same way. We know that there was an extraordinary increase of spirit drinking, coincident with the appearance of influenza among us. Doubtless much of this was due to habit or a false belief as to the efficacy of spirits in combating the disease; but I also think there is good reason to believe it was due in large measure to the depression produced by the disease itself.

There are other forms of nervous disease which may contribute to the production of intemperance, notably hysteria, epilepsy, dyspepsia; and several well-authenticated cases are recorded in which habitual drunkenness dated from injury to the head. Thus in some obscure way a shock or actual injury to the brain may be the proximate cause of drunkenness in persons who have previously been temperate.

If we examine the family history of chronic alcoholic patients, we shall find they present an unusual number of relatives suffering from some form of mental disease. And, indeed, in cases where there is a history of alcoholism in the parents, a further inquiry may show an insane inheritance.

The following case quoted by Legrain will illustrate this point :—the patient, an epileptic imbecile, was one of a family of sixteen, ten of whom died in childhood ; one sister, who was hysterical, had nine children, many of whom died in convulsions. One brother of the patient was feeble-minded and deaf, one brother was epileptic, and a brother and sister are described as very nervous. The mother of these children was alcoholic and hysterical, the father was an inveterate drunkard, and two paternal uncles were drunkards. The paternal grandparents, however, were not intemperate, but the grandfather was weak-minded and the grandmother hysterical.

This case illustrates the conclusion which I believe we can safely draw, viz.: that alcoholism tends to arise in families that are unstable, and that this instability is an inherited neurotic condition that may be manifested in many different ways.

It may serve to emphasize this point if I quote the opinions of a few authorities :

Dr. Clouston.—"Excessive drinking and mental disease are closely connected hereditarily in many cases. The children of drunkards often become insane, the children of insane people still more often drunkards."—(*Morningside Reports*, 1889.)

Dr. Maudsley.—"The neuropathic nature of dipsomania is further attested by these facts ; first, that it is commonly found to own a morbid, nervous inheritance, such as ancestral insanity, epilepsy, or drunkenness ; and, secondly, that it is sometimes acquired as the sequel of an injury to the head, or of a sunstroke, or of a regular attack of acute insanity."—(*Pathology of Mind*, 2d Ed., p. 501.)

Dr. Legrain found heredity in 63 out of 103 cases of drunkenness. He also says "the great majority of drinkers are predisposed, disordered, and defective. The drinker is almost overwhelmed by a number of cerebral affections in the family with which he is connected by the close band of morbid consanguinity. Excess in drinking is only one of

the numerous characteristic symptoms of mental ruin."— (*Tuke's Dictionary of Psychological Medicine*, p. 65.)

Dr. Blandford. — "Early habits of drinking are also frequently contracted by weak-minded people, and we constantly find that habitual drunkards, as well as dipsomaniacs, are the offspring of insane or epileptic patients." — (*Insanity and its Treatment*, p. 161.)

Dr. Savage. — "Drinking may be an early symptom of insanity. It may be a direct inheritance, or it may be a result of neurotic inheritance." — (*Insanity and Allied Neuroses*, p. 421.)

My own results, in so far as they go, entirely corroborate the opinion that a neurotic inheritance (by which I mean the inheritance of a tendency to epilepsy, insanity, hysteria, or other kindred nervous diseases) is a predisposing cause of inebriety. Out of 18 alcoholic patients, 8 presented a history of mental disease, 3 a history of alcoholism in the family.

One other point in the inheritance of a tendency towards drunkenness is the increased susceptibility to the influence of alcohol that certain members of a neurotic stock possess. In its cruder forms this is seen by the production of profound intoxication by very moderate quantities of alcohol.

To sum up, I think there is no escape from the conclusion that, on the one hand, alcohol does an incalculable amount of harm quite independently of any question of inherited failings or even acquired predisposition; and, on the other hand, in very many cases of habitual drunkenness there exists a decided inherited proclivity to alcoholic intemperance or other manifestation of nervous instability.

One conclusion is inevitable in considering this question, viz., that members of unstable and neurotic families should totally abstain from alcoholic beverages. Yet we all know of cases where, in spite of every warning, this necessary means of avoiding calamity is entirely disregarded. But if we reflect, we may see that this reckless conduct is not necessarily due to willful choice of a dangerous path, but it

may be due either to inherited and imperative desire for self-indulgence, or to some innate defect of judgment.

Everyone with experience in mental disease knows how ill-defined is the boundary between sanity and insanity; and the study of mental disorder in the few within and the many without asylum walls profoundly influences our opinions upon responsibility for errors of conduct. It makes everyone charitable to recollect how poorly equipped mentally, as well as physically, such a large number of mankind begin life, and how ill able they are to surmount its difficulties. In reflecting upon the causation of drunkenness, the same charitable considerations must influence us.

Alcohol seems to have a special affinity for the nerves of the extensor muscles of the legs. Why should the terminal portions of the peripheral nerves be first affected? Is it because they cover a much larger area than when collected into bundles, and so are more exposed to the poison circulating in the capillaries, and partly because they are farthest removed from the nerve cells, on the energy radiating from which their health depends?

The selective power of alcohol is also remarkable, for the sensory nerves and cells causing much disturbance long before paralysis comes on. Is this nerve intoxication which in most cases is found to be a breaking up of the medullary sheath of the nerve in segments? Wide-spread central nerve and muscular degeneration follow from alcoholic poisoning, but whether this is nerve intoxication, nerve degeneration, or nerve inflammation, is not clear.

PULMONARY TUBERCULOSIS IN THE SUBJECTS
OF ALCOHOLIC NEURITIS.

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turer in Pathology, The Owens College.*

Under the heads of alcoholism and tuberculosis, the pathologist has to group a considerable number of lesions, which, while presenting different macroscopic and microscopic characters, are yet in all instances due primarily either to the toxic influence of the chief product of the growth of yeast organisms, or the toxic bodies associated with the development of the tubercle bacillus. In both cases we have to deal essentially with the results of a toxæmic condition.

Modern observations have clearly shown that the development of certain micro-organisms in the body may be modified by the presence of other organisms or their products.

And, still further, the results of recent treatment by so-called immunized serum and animal extracts seem to indicate the great probability that some, at least, of the as yet but little known conditions, which we speak of collectively as "predisposition," are closely dependent on chemical influences which may not only be recognized but possibly controlled.

A consideration of such facts as these leads one to ask—Is there any reason to believe that chronic alcoholism predisposes to tuberculosis?

An impression exists among a large section of the public, and indeed, is supported in some medical quarters, that habits of alcoholic excess are antagonistic to, and even preventative against, tubercular disease.

Payne, a few years since in the Discussion on Chronic

Alcoholism at the Pathological Society of London, stated that: "With regard to the influence of alcohol on the production of tubercle, the utmost divergence, and indeed contradictory opposition of opinion, prevails. Huss found tubercular phthisis to be rare in drunkards, and that has been the general conclusion drawn from post-mortem observations. It has even been thought that drinking freely checks the progress of phthisis, but of this I can find little evidence. On the other hand, the more general impression is that alcoholism is a frequent cause of consumption." Payne goes on to add: "On this disputed point we must appeal to the methodized experience of those who have special opportunities of observation."

Adopting this suggestion of Dr. Payne, I have ventured to indicate very briefly our experience in the Pathological Department of the Manchester Royal Infirmary during the last three years, limiting myself, however, at the present time to a consideration of those cases of alcoholism in which the chief feature was that of "paralysis." In these cases the history and clinical features conclusively established the fact of the long-continued alcoholic poisoning.

Eight fatal cases of alcoholic paralysis have been examined in the Pathological Department of the Manchester Royal Infirmary since October 28, 1892, and in no less than seven, pulmonary tuberculosis was found.

The following abstracts of our notes will briefly indicate the chief features :

CASE I.—*Chronic Alcoholism ; Hepatic Cirrhosis ; Multiple Neuritis ; Acute Pulmonary Tuberculosis ; Gangrenous Colitis with Perforation ; Acute Peritonitis.*

Fanny G., æt. 45, was admitted under Dr. Dreschfeld, July 30, 1892. Well marked history of chronic alcoholism ; typical symptoms of peripheral neuritis ; much gastro-intestinal disturbance, with vomiting during last month ; recent development of symptoms of acute miliary tuberculosis of lungs.

Autopsy.—Much wasted, sallow-looking middle-aged female.

Lungs: Both extremely congested. Numerous recent scattered tubercles in lower left lobe. No tubercles in right, which was emphysematous and deeply pigmented. Weight: right, 11 oz.; left, 15 oz.

Heart: Six ounces, small, myocardium soft, flabby. Peritoneum: Semi-fluid fæcal matter in abdominal cavity. Stomach: Acute gastritis. Intestines: Small, intensely congested. Large localized gangrenous enteritis in central portion of transverse colon, with distinct perforation. Liver small, 39 oz., distinctly "cirrhotic." Spleen: 2½ oz., much congested. Kidneys: Fairly normal. Bladder: Walls thickened, much inflamed, and in places seat of phosphatic deposit.

CASE 2.—*Chronic Alcoholism; Multiple Neuritis; Cardiac Dilatation; Pulmonary and Intestinal Tuberculosis.*

Mary T., æt. 57, was admitted under Dr. Steell on March 29, 1893. On admission presented well-marked symptoms of peripheral neuritis. Quickly developed delirium of "alcoholic" type, and died April 4th.

Autopsy.—Short, well-formed, middle-aged female.

Lungs: Both much congested; patch of "healed phthisis" at left apex; numerous areas of recent caseous pneumonia throughout greater part of upper lobe. No distinct tubercle in right lung.

Heart: 8 oz., cavities of left side dilated. Intestines: Numerous tubercular ulcers along ileum and ileo-cæcal valve. Liver, 52 oz., slightly cirrhotic and markedly fatty. Spleen: 2 oz., soft, congested and pulpy. Kidneys: Both congested, but otherwise apparently normal. Brain: Congested. Irregularly triangular patch of red softening in left lenticular nucleus. Membranes congested and somewhat thickened.

CASE 3.—*Chronic Alcoholism; Pregnancy; Normal Parturition; Fatty Degeneration of Myocardium; Steatosis of Liver; Multiple Neuritis; General Anæmia; Pulmonary Tuberculosis.*

Ellen W., æt. 40. Admitted under Dr. Harris, February 10, 1894. Very marked alcoholic history; said to have been in the habit of taking a bottle of whisky daily. Had been very weak and pale for twelve months. Was confined six months ago. On admission, characteristic aspect of alcoholic paralysis. Intense general anæmia. Very feeble action of heart. Patient died suddenly day after admission from cardiac syncope.

Autopsy.—Body, that of wasted, dusky-looking, middle-aged female.

Lungs: Right: Whole lung anæmic and œdematous. Numerous patches, chiefly in middle lobe, of tubercular caseous pneumonia. Slight puckering at apex, but no distinct indication of old tubercle; left area of complete consolidation of tubercular caseous pneumonia. The cheesy area was breaking down in center, forming an irregular cavity which extended to the pleura. Left apex presented no evidence of old phthisis, and lower lobe free from macroscopic tubercles.

Pleuræ: The left pleura in greater part of visceral pleura thickened by recent deposit of inflammatory lymph which could be readily detached. On posterior part numerous, small, raised, white, glistening tubercles. *Heart:* Enlarged, flabby; much sub-epicardial deposit of fat; myocardium, soft, friable, yellowish-brown color, and presented, particularly in region of papillary muscles, distinct "tabby-cat" striation. *Peritoneum:* No tubercle. *Stomach and intestines:* Anæmic. *Liver:* Old perihepatetic adhesions; weight, 100 oz.; general steatosis; slight cirrhosis. *Spleen:* 4½ oz. *Kidneys:* Finely granular.

CASE 4.—Chronic Alcoholism; Chronic Pleurisy and Peritonitis; Multiple Neuritis; Acute Pulmonary Tuberculosis.

Isabel C., æt. 32, housewife, admitted under Dr. Dreschfeld, May 28, 1894. Had been a "secret drinker" for a long time. On admission characteristic symptoms of multiple neuritis. Little or no improvement, and then development of marked pulmonary phthisis, leading to death on July 23.

Autopsy.—Middle-aged, much emaciated female; bed-sores.

Lungs: Both much congested, and studded with tubercular nodules.

Pleuræ: Extensive firm, fibrous adhesions. *Heart:* 8 oz., and apparently normal. *Peritoneum:* Old peritonitis, with much matting together of intestines. *Liver:* 44 oz., slightly cirrhotic. *Kidneys:* 5 oz. each, slightly granular surface. *Cord:* No macroscopic changes.

CASE 5.—*Chronic Alcoholism; Fatty Liver; Multiple Neuritis; Pulmonary Tuberculosis; Paralysis of Diaphragm.*

Margaret C., admitted under Dr. Steell, August 1, 1894.

History of steady drinking for last fifteen years, during which she had very little food.

On admission presented characteristic symptoms. Complete paralysis of lower extremities. Tendon reflexes absent. Muscular hyperæsthesia disappeared from the calves, but continued in the thighs. For the last few days before death the diaphragm was almost completely paralyzed. Death from respiratory failure occurred on October 19, 1894.

Autopsy.—Well-formed, somewhat wasted, middle-aged female. Foot dropped on both sides, with drop of big-toe most marked.

Lungs: Right, more or less crepitant throughout, congested, slightly œdematous and with several, small, gray irregular foci of consolidation, especially marked in upper lobe, and evidently tuberculous. Left upper lobe almost completely consolidated by tubercular pneumonia. Considerable fibroid induration, caseation, and softening with distinct cavitation. Lower lobe also congested, œdematous, and studded with recent tubercle. *Pleuræ:* Slight adhesions. *Bronchial Glands:* Enlarged and evidently tuberculous.

Pericardium: Normal. *Heart:* Small; weight, 8½ oz.; much sub-epicardial deposit of fat. *Myocardium:* Soft, flabby, friable, and seat of considerable degenerative changes.

Peritoneum: Normal. *Stomach:* Congested and coated

with mucus. Liver: 56 oz. No cirrhosis, but slightly fatty. Spleen: Normal. Kidneys: Normal. Brain: Apparently normal; vessels, healthy. Spinal Cord: Presented no distinct macroscopic lesions. Phrenic Nerves: Microscopically found to be in condition of marked neuritis.

CASE 6.—Chronic Alcoholism; Fatty Liver; Multiple Neuritis; Pulmonary Tuberculosis.

Charlotte A., æt. 41. Admitted under Dr. Leech, February 5, 1895. Alcoholic history. Had cough three weeks before admission. Six months ago said to have spat blood. For last month had severe pains in legs and progressive weakness in limbs. On admission, characteristic signs of extensive neuritis in lower extremities. Also much cerebral disturbance, chiefly in form of delusions. Extensive dullness over upper part of right lung, with bronchial breathing and râles. Temperature high and irregular. On February 12th, shortly before death, paresis of diaphragm was noted.

Autopsy.—Well-formed, wasted, anæmic, middle-aged female. Foot drop on both sides.

Lungs: Both seat of extensive tuberculosis. Right most involved, upper half being converted into pigmented fibrous tissue, in which were numerous foci of caseation and many large cavities. Recent caseous nodules occupied upper part of lower lobe, in several places breaking down into cavities. Left lung presented caseous areas and several small cavities. Pleuræ: Extensive adhesions especially marked on right side.

Pericardium: Contained quantity of serum. *Heart:* Much sub-epicardial deposit of fat. *Myocardium:* Soft and flabby. *Peritoneum:* No tubercles, but slight adhesions in neighborhood of liver. *Stomach:* Dilated, congested, and with hemorrhages in mucous membrane. *Intestines:* Apparently normal. *Liver:* Much enlarged; weight, 68 oz., smooth, soft, friable, yellowish-pink color, no cirrhosis. *Spleen:* Normal. *Kidneys:* Normal. *Uterus:* Apparently parous. *Brain:* Presented no gross lesion. *Dura:* Adherent to scull cap. *Pia-Arachnoid:* Thickened and opaque, and with considerable sub-arachnoid œdema.

CASE 7.—*Chronic Alcoholism ; Multiple Neuritis ; Acute Pulmonary Tuberculosis.*

Gertrude D., æt. 24, single, barmaid, admitted under Dr. Steell, June 6, 1895. Distinct history of alcoholism. Had been in the habit of taking very large quantities of alcohol, in various forms, daily, for a considerable time. Three weeks before admission, first noticed weakness in lower extremities. Had cough and expectoration for some time.

On examination, extensive paresis of extremities ; unable to stand ; grasp very feeble ; anæsthesia of hands ; numbness of fingers ; marked muscular hyperæsthesia ; inability to hyperextend wrist ; considerable pain in legs ; characteristic dropped attitude of toes and feet ; knee-jerks absent. Paralysis of diaphragm followed ; temperature irregular—hectic type ; cough and expectoration became marked. On June 17th, tubercle bacilli found, but no very distinct physical signs of phthisis detected in lungs up to a few days before tubercle bacilli were found. The course of the phthisis was exceedingly acute ; she rapidly became more emaciated, her cough became more distressing, and she died August 18th.

Autopsy.—Well-formed, wasted, anæmic young female ; extremities especially thin, with extreme atrophy of muscles of hands ; well-marked drop of toes and feet.

Lungs: Right : Extensive tuberculous consolidation, with commencing cavitation in upper lobe. Left : Extensive, diffuse, and apparently recent tuberculosis ; apex converted into huge cavity ; numerous small cavities throughout greater part of lung. Pleuræ : Left pleural cavity obliterated by pleuritic adhesions ; much matting between left lung, chest-wall mediastinal tissue, and sternum.

Pericardium : Adherent, externally, to left pleuræ and adjoining structures. Heart : Slightly enlarged. Myocardium : Soft, flabby, friable, and evidently the seat of extensive degenerative changes. Peritoneum : Normal. Stomach and intestines : Congested. Liver, spleen, and kidneys ; Congested, but otherwise presenting no gross lesions. Ovaries : Normal. Uterus : Nulliparous.

Without entering fully, at the present time, into the pathology of this striking association of tuberculosis with alcoholism, attention may be drawn to the following points brought out in these few Manchester cases :

(1) *Number and Proportion of Cases.*—As above indicated, post-mortem examinations have been made at the Royal Infirmary on eight cases of multiple neuritis of alcoholic origin during the last three years. Pulmonary tuberculosis was present in seven. This gives a percentage of over 87.

(2) *Sex.*—All the cases were females.

(3) *Age.*—The average age was 39. The oldest subject was said to be 57, the youngest 24.

(4) *Associated Active Tuberculous Lesions.*—In only one case were there distinct tubercular lesions elsewhere than in the lungs, and then the intestines were involved.

(5) *Old Tuberculous Lesions.*—In one case there was an old tubercular patch at the apex, but here it was doubtful if infection was not from without rather than from this "latent," or so-called "healed" focus.

(6) *Extent of Pulmonary Tuberculosis.*—In five cases both lungs were more or less involved. In two the left was the only one showing any distinct tuberculous process.

(7) *Duration of Phthisis.*—The duration of a tuberculous process in the lungs is often difficult to estimate. Judging from the history and the character of the lesions, it appeared to have run a very rapid course in at least three of the cases. In four it seemed to have lasted for several months. One is stated to have "spat blood" six months before her death. Another had had "cough for some time."

(8) *Character of the Phthisis.*—In one case the infection was evidently recent, and one lung only was studded with small tubercles. In two there was more or less extensive caseous pneumonia. Four presented evidences of softening and cavitation. In two of these four the lungs were also the seat of considerable fibrosis.

In drawing attention to the common occurrence of tuberculosis in these Manchester cases of alcoholic paralysis, I would take this opportunity of pointing out that the liability of the subjects of alcoholic paralysis to phthisis, although definitely recognized by Ross, Dreschfeld, Finlay, Gowers, Payne, and other well-known authorities, does not seem to be so clearly acknowledged in most of our text-books of medicine as appears desirable.

Sir Benjamin Ward Richardson and others have gone so far as to describe a distinct form of phthisis as occurring among hard drinkers.

Professor Delèpine has also shown that drunkards are peculiarly liable to attacks of pulmonary congestion, which, under certain circumstances, may give rise to a pneumonia or hæmorrhagic consolidation of large tracts of the lungs which may afford the tubercle bacillus a suitable soil for further development.

The evidence of these few cases will, I venture to think, tend to show that the conditions met with in chronic alcoholism, at least in the form of "alcoholic neuritis," may strongly predispose to pulmonary tuberculosis of a progressive and fatal character.

Such an admission must of necessity have considerable influence in directing our diagnosis, guiding our prognosis, and indicating lines of treatment.

A consideration of the above cases seems to warrant the following conclusions:—

(1) The subjects of alcoholic paralysis are peculiarly liable to pulmonary tuberculosis.

(2) A recognition of this fact is of considerable importance in arriving at an early and complete diagnosis, and in forming a reliable prognosis.

(3) It is desirable to treat cases of alcoholic paralysis in special hospitals, in country homes, or in healthy private houses, rather than in the almost unavoidably tubercle-contaminated wards of a general hospital.

(4) The necessity for immediate removal of all alcohol from these cases and its replacement by nutritious diet.

(5) The careful avoidance of causes leading to, and the necessity for early treatment of, all catarrhal conditions of the respiratory passages and congested states of the lungs.

THE deaths from alcoholism in Stockholm amount to 90 per 1,000, which is the highest rate in the world.

HABITUAL OFFENDERS IN SCOTLAND.—The Departmental Committee on Habitual Offenders in Scotland have drawn up a unanimous report, which is now published in a blue-book. On the subjects of retreats for habitual inebriates the committee make recommendations practically identical with those made by the English Departmental Committee of 1892, with certain additional recommendations. The inebriate of the police court would be provided for by the "Labor Settlement," to which he would find his way as an ordinary habitual offender. The additional powers which the committee suggest would provide for the compulsory committal of habitual inebriates within the meaning of the Act of 1879, at the instance of their friends, if they could support them, and at that of the Procurator-Fiscal, at the public cost, in cases where their conduct, though not such as to bring them within the category of habitual offenders, was sufficiently objectionable to render them a public nuisance. The definition of habitual drunkard should be extended to cover persons suffering from the abuse of opium and other drugs as well as alcohol.

There are in the Patent Office at Washington eleven hundred and thirty-seven different patents taken out for methods and devices for the manufacture of alcohol.

HYPNOTISM IN THE MANAGEMENT OF
INEBRIETY.*

BY T. D. CROTHERS, M.D.

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The impression that the continuous use of alcohol is followed by hyperesthesia and increased sensitiveness and susceptibility to the surroundings is not true, only in exceptional cases. All inebriates who use alcohol, opium, or other narcotic drugs, have diminished susceptibility and impaired sensory activities, extending from slight defects to general paralysis, not only of the functional but organic activities, and extending to the entire organism.

The inebriate is a neurotic, and irrespective of all first causes suffers from starvation and poisoning. The power of control, of reason and discernment, is defective, and beyond all outside influences is swayed by the unknown impulses of a degenerate and defective organism. The power of a dominant idea lasts only as long as it is not in sharp conflict with the morbid impulses of degenerative process.

The neuroses of inebriety is practically paralysis, not of one part of the body, but of the entire organism. If the hypnotic state is pathologic, and the three special phases, lethargy, catalepsy, and somnambulism, are common symptoms, it is clearly possible that the narcotic effects of these drugs may favor these conditions. But in reality the lethargy and catalepsy from poisons introduced from without, and formed within the body, are controlled by conditions that are largely unknown and unforeseen. From inference it seems clear that any defect or disease of the nervous

* Read in the section on neurology and medical jurisprudence at the forty-sixth annual meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

system in which the excessive use of drugs is a symptom, follows a different line of degeneration from that called hypnosis. In one case, general organic degeneration exists; in the other, the power of control is broken up, and follows suggestions from without. Of course no state of poisoning from any of the drugs used in inebriety will permit the power of hypnotic influence to dominate the acts or conduct of the case. When the poisonous effects of the drug have passed away, then the unstable nerve centres will respond to external influences in various degrees.

If hypnotism is a physiologic state resembling sleep, and not an abnormal condition — only a peculiar susceptibility to certain external influences — it would seem that the inebriate seldom would, if ever, be affected by it. The observed facts vary widely, and are not sufficiently clear or well-attested to form the basis of any authoritative conclusions. The few observers in this special field have not found the same conditions even in the same cases; and at different times widely varying degrees of susceptibility have been noticed. On the cessation of the drink paroxysms or when from any cause the person abstains from drink, the reaction is followed by a period of psychical weakness. In some cases intense melancholy, or hyperesthetic sensitiveness, and fears of their condition, are fertile fields for hypnotic influence.

At this time, there is a degree of prostration and absence of assertive will-power, with strong tendencies to depend on any influences which will afford help. Good illustrations are seen in temperance revivals, where at the command of the enthusiastic orator they go forward and sign pledges, make prayers, recite experiences, and assert positive changes of life and character. These are hypnotic phenomena along coarser lines, and their potency is apparent in the very small number of cases that are permanently benefited. In these cases the impression of a dominant idea has become so fixed as to overcome all other tendencies to use spirits again. Personal counsel, advice, threats, and appeals

are followed by the same obliteration of the drink symptom in an equally small number of cases.

The inference is that at this period in the progress of inebriety, hypnotism skillfully applied may have a marked value. Experience differs widely, and the power of a controlling influence one day is lost the next; and the idea that seems so strongly held at one time disappears later. The case which appears to be controlled by the operator suddenly breaks away and the theories are disproven. There seems to be a struggle between the morbid impulses of a degenerating brain and organism, and the power of suggestive thought. The latter appears to be both physiologic and pathologic: physiologic when the brain naturally turns for guidance and direction to others, and readily accepts statements of facts which are presented in an emphatic way; and pathologic when suffering from adverse conditions and seeks relief in the promises and suggestion of others. The power of hypnotism in the reactionary state of inebriety is apparent in many ways, although not explained or understood, and the permanency of this control is still more obscure. The same power in cases who are away from this period, and are termed restored, used to prevent them from taking spirits again, is equally obscure. In one instance this power gave the inebriate a special repugnance to drink in a certain old circle of friends, but did not stop him from drinking alone. In another case, he claimed he could not drink in his native city, but drank in a distant town. The power of suggestion that one can not drink again, may hold intact for an unknown period, but its permanency depends on the degree of physical vigor and health, and other influences. This is illustrated in the gold cure specifics. The profound impression made on the organism by narcotic drugs, is strengthened by the hypnotic force of a dominant idea; spirits can not be taken again. This in a certain number of cases is real, as long as the person gives unusual care to his physical condition. If curiosity tempts him to test this statement, the delusion is quickly exposed.

It appears clear that hypnotism is a power in the treatment of inebriety, but its application is limited to cases not under the influence of spirits or drugs. It is not clear that these cases can be so positively controlled, or that command or suggestion will last as long as in other cases. Evidently clearer and more exact studies are necessary on this topic.

Profound hypnosis that is continued from time to time on inebriates varies widely in its action. Some persons assert that its influence is permanent, others say it depends on the presence or proximity of the operator. It is natural to expect that a knowledge of the presence of the operator, and a repetition of the power of control would finally become dominant, to the extent of superseding all other morbid impulses, and in this a cure could be said to follow. It would be a question, whether the susceptibility to hypnotic influence, frequently repeated, is a pathologic condition resembling that which follows the degeneration caused by spirits.

In a case mentioned by Dr. Kerr, in the free intervals from drink in a paroxysmal inebriate, hypnotism was sought and enjoyed. The man was hypnotized often, and the idea that he could not drink impressed on his mind. He was used to show the power of hypnotism on many public occasions. This was kept up for a long time, until the operator moved away, when the man relapsed. This illustrated the fact observed in other circles, that the frequent hypnotic action will take the place of spirits, and is a condition that is akin to intoxication, and in some cases may be agreeable to the person. I have frequently been conscious of a personal hypnotic influence over certain cases of inebriety which was effectual in restraining them from drink at the time. In all institutions a certain small number of cases never drink in and about the building, irrespective of all conditions. Such cases come and go without restriction, but when away from the institution and its influences, relapse at once. It would appear that both managers and the institutions exercise a hypnotic power which enables the

person to keep from drink. The same principle explains the power of faith and prayer asylums, where a dominant idea is urged with great intensity and impulsiveness, and for the time being is made to absorb all other thoughts. In this way the morbid drink impulse is overcome by a class of different ideas, which for the time break up every other thought. This condition has reactions, and the men who are most emotional and absorbed by the suggestions of help and salvation, unbend in private, displaying very opposite traits. This is evidence that the power is hypnotic and depends largely on the operator and the surroundings. It will be accepted as a fact that inebriates are less susceptible to hypnotic influence, and such influence is more transient and uncertain in its duration. Yet this is a power of great therapeutic value in an institution where it can be repeated and made continuous, and where the surroundings are under the control of the operator. To apply it practically it may not be necessary to at once dominate the will of the patient and overwhelm his personality, in abject submission to another's will, only in certain cases. But in all cases the dominance and continuous pressure of suggestion are the essentials. Suggestions that can be carried out and enforced by conditions of surroundings.

By studying these influences on susceptible cases, and forcing their recognition suddenly or slowly, a power of control is built up of practical value. A certain number of inebriates are most clearly held under restraint by the hypnotic influence of certain persons closely associated with them. The death or removal of these persons is followed by a breaking out of the drink impulse.

The special question to be answered is this: Have we in hypnotism a therapeutic power of sufficient general application, in the treatment of inebriety and drug narcotics, to demand a technical knowledge of its application and use? It appears that we have. Irrespective of all theories of either the pathologic and physiologic action of this force, its power over the brain centers is assured and demonstrable.

As an anesthetic, its application in many cases has attracted great attention, but how far it can be used to control unstable and psychical diseased brain centers is not well understood. It would seem that from the evidence so far, its power in the treatment of inebriety should be utilized in all cases. The operator should first become familiar with the technique and the general principles of its application, and then put it to practical use and test, the same as any other therapeutic agent.

So far, it would seem the best results may be expected in an institution where the operator can command the surroundings and conditions of the patient. The complexity of all cases of inebriety would most naturally increase the difficulties in the treatment, especially in the application of psychic remedies, and favorable results are not to be expected in the same proportion or degree as that which follows other means. The fact that a few cases are greatly benefited is the strongest encouragement for its more extended use.

In a summary of what appears to be the sound conclusions of the present knowledge of this agent in inebriety, the following may be stated :

1. The inebriate is a neurotic, and not a good subject when under the influence of spirits and drugs for hypnotism.
2. After the withdrawal of the drugs, a period of marked instability seems most favorable for suggestions. This will be transient unless followed up with persistence.
3. Experience points to the wide extended influence of hypnotism in inebriety, although not known as such, in the psychic forces of public meetings, and the power of dominant ideas impressed with emphasis on the mind.
4. Clinical experience furnishes many facts which seem to prove that in certain cases its value is very marked, also promising from more exact studies greater results.
5. Evidently, hypnotism is yet to be studied and tested by the same methods applied to all therapeutic agents. So far, its value in inebriety is established, to what extent and how far it can be used are to be settled by future observers.

THE GENERAL TREATMENT OF HABITUAL
AND PERIODICAL ALCOHOLIC, MORPHINE,
AND COCAINE INEBRIATES.

BY HEINE MARKS, M.D., ST. LOUIS.,

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of the American Medical Association, etc., etc., etc.*

In these latter days every reputable physician approaches with something of dread the subject of the treatment of those classes of patients known as morphiomaniacs and dipsomaniacs. So much has been spoken and printed on this subject ; so much has been illegitimately claimed for so many nostrums ; it has become such a "fad" with so many grasping and irresponsible members of the medical profession — that the practitioner who attempts to discuss its various features and phases and treatment must make up his mind in advance to undergo malignant misrepresentation at the hands of proprietors of the legions of specifics and so-called "cures." If this were all, however, no one would be in any wise deterred. But the conscientious investigator is met at the outset with hostile criticism and the suspicion of empiricism from indifferent members of his own profession. Nevertheless, I feel that there are certain things which should be said, certain facts which ought to be cited ; and, in my capacity as superintendent of the St. Louis City Hospital I have had an experience somewhat out of the ordinary, the results of which I gladly give in the hope that they may prove interesting and valuable to the profession at large, and helpful to victims of the morphine and kindred habits.

Thus far I have taken note of thirty-six hypodermic morphine and opium smoking patients whom I have treated. So far as I have been able to learn, only two of these have since

lapsed; and as these were men who seemed to be beyond the pale of influence of a moral consideration, and of whose "staying qualities" I was at no time very sanguine, I am inclined to feel somewhat pleased with my success. It must be borne in mind that these patients were in no sense easy ones to handle. Most of these men and women were chronic "hypo fiends," and had been taking the drug subcutaneously for periods ranging from one to fifteen years. The quantities injected varied from a minimum of 5 grains to a maximum of 80 grains per day. The "hop fiends," or opium pipe smokers, in some cases frequently smoked constantly in every hour of the twenty-four, except the few hours during the day in which they were overcome with sleep.

Of course, all habitual users of opium and its derivatives are difficult to cure of the habit, and I need not tell the profession that the very worst and most distressing cases find their way into such institutions as the St. Louis City Hospital. Not a few of these men and women were absolutely poverty-stricken. For a long time previous to their coming under my care some of them had been insufficiently clad and nourished, having voluntarily deprived themselves of proper clothing and food, and not infrequently gone without lodging that they might procure their favorite intoxicant. As a consequence, I found their intense craving for morphine complicated with extremely low vitality, with derangements of the nervous system, with cardiac and pulmonary affections, and with various rectal troubles. These were certainly complex and discouraging cases to treat, and the very fact of success, despite these obstacles, is an impressive object-lesson, which is a gratification to myself, and ought to be an incentive to the profession generally.

At the outset, I wish to say that I do not claim my success to have been due to any new or startling discovery. I simply took old and proved medicaments, and made such combinations thereof as seemed most likely to produce a given desired result. As a preliminary, I made sure that the fundamental and essential ingredients were absolutely

pure. Then I compounded them personally. The principal medicaments which I used were the old and well-known bitter tonics. I found an efficacious remedy in assayed Peruvian bark (cinchona) select, which contains 3 per cent. of quinine and 8 per cent. of alkaloids. I also found useful in this respect colombo, gentian, and other bitter tonics, with aromatics. It is notorious that the market is flooded with various worthless compounds of these and similar ingredients, and that the proprietary or "quack" companies set afloat an imperfect and unreliable product because they are constantly seeking a preparation in which there shall be a very large margin of profit. They use inferior drugs, and in striving to prepare tinctures they resort to any and every means to save alcohol, on account of its being so expensive.

The usual symptoms following the deprivation of morphia are that all of the secretions of the body are increased; there is running at the nose and eyes; diarrhoea and vomiting; acute gastritis; cramps or excruciating pains in the arms and legs; contractions of the muscles of the face; restlessness; insomnia — in short, all the general conditions which we get in nervous prostration. In general, I administer a dose of one of these bitter tonics every two hours. Sedatives and hypnotics are given according to the special needs and condition of each patient. Nourishing and tempting food is set before him as soon as it is craved, or can be taken without subsequent distress; but there is no forcing. The usual baths and sanitary measures are, of course, enjoined.

In cases of acute alcoholism, where a quick restoration to a normal condition is necessary or desirable, I have devised a plan which has never failed to prove efficacious. This is simply washing out the stomach. The apparatus for this purpose consists of a glass funnel inserted in the end of a rubber tube leading into the stomach. Through this I pour plentiful quantities of salt water, until vomiting ensues and the stomach is thoroughly washed out. The patient is then placed in a hot bath and afterwards immersed in cold water.

In fifteen minutes he is comparatively sober, and the next morning perfectly so, and steady, too. By this device I have been enabled to save for the city a great deal in the way of salts, bromides, chloral, and other drugs. This treatment arrests gastritis, and, in experienced hands, never fails of accomplishing the desired result, though in inexperienced hands it might be attended with great danger.

In prolonged acute alcoholism it is sometimes necessary, or at least merciful, to administer alcohol, but it should always be given in a disguised form. This extension of mercy, however, should not enter into the treatment of opium or morphine patients. There should be no "tapering" in such cases, for the reason that the suffering consequent upon the deprivation of the last quarter or eighth of a grain of morphine, after the "tapering" process, is just as great and just as prolonged as though the administration of the drug had ceased abruptly when treatment commenced.

It is not unusual to find hypodermic morphine users combining cocaine with their preparations, sometimes to the extent of from 12 to 15 grains per day. The soothing qualities of cocaine are well known to the profession. In most cases the cocaine is added to deaden the pain caused by the frequent use of the hypodermic needle.

There recently came under my observation and treatment a peculiar case — that of a young man who was a victim of self-injected cocaine and strychnia. He admitted to me that he had been taking this rare combination for about a year, and had reached a point where his system required 30 grains of cocaine and 2 grains of strychnia per day. He was found unconscious in the street by the police, and brought to the hospital for treatment. To my surprise, he voluntarily told me that he had been engaged in the founding of "institutes" for the cure of the liquor, opium, and morphine habits in various parts of the country for two years. Had it not been for the unwritten law concerning professional secrecy, I might easily have obtained the formulae used from him. I did learn, however, that in the treatment of morphine

cases he "tapered" them, at the same time keeping them more or less under the influence of chloral and bromides. He said that he used the same formulæ as those employed by a company of more than national notoriety, which he claimed to have obtained in Europe from the man who sold them to the head of the American company. In all, he (the patient) claimed to have established about fifty "institutes" in this country, and had reaped great financial gain therefrom.

The habit of opium smoking is almost always contracted through curiosity and association — hence, the moral influence is often found to be of great assistance after repairs to the physical system have been made. Contrary to the opinion so long and generally held, this habit is more easily broken up than either the alcoholic or the morphine habit. Those who take morphine through the stomach are, likewise, much more easily and quickly cured than when a hypodermic needle is used.

Permanent cures of those who inject morphia and those who drink alcoholic liquors excessively are by no means so plentiful as they are reported to be. The "periodical" is the most difficult type to treat among the alcoholics. Their attacks seem to recur at certain regular intervals, or in gradually diminishing cycles, preserving, as it were, a sort of rhythm. They can be easily "wound up," and will run without aid of any kind for a certain period. When persistent sleeplessness occurs, during seasons of abstinence, the mind assists the body in overthrowing the enfeebled will. Even in cases where a man yields but rarely, his life is, at these times of restless craving, a hell upon earth. Any physician who makes a study of the "periodical" alcoholic will be surprised at the extent to which heredity enters as a factor. Take the case of the lamented Edwin Booth, for instance. He inherited a strong appetite for alcoholic liquor, which only at rare intervals overpowered him. He knew better than anyone could tell him of this natural tendency, but could not at all times conquer it. His admirers throughout

the whole country were shocked when he pitched forward near the footlights while he and Barrett were playing together in New York. Later, to a sympathetic friend, he said: "I never drink at a social gathering. My start is always a solitary one. The very men who coax me to drink at a banquet are the ones who would first avert their faces, or spurn me with their feet, when they saw me lying in the gutter, where I should eventually and inevitably land." What a sidelight is this on the perpetual struggle that tortured and embittered the life of this great actor — how it adds the element of heroism to the character of the man whom we were accustomed to regard solely as a histrionic genius!

In strong emotional natures, when these periods of temptation occur, there seems to be absolutely no preventive save temporary restraint, isolation in the country, or a long sea voyage, with accompanying medical attention. Will power alone cannot avert the explosion. The patient's condition seems to run its independent course, and must "come to a head" as naturally and inevitably as does a boil. The "periodical" drunkard is sufficiently desirous of leading a life of sobriety to abstain entirely from the use of liquor for a considerable time. As he grows older, however, these periods of sobriety become shorter in length, through gradual mental and physical enfeeblement, until the man who formerly "went on a spree" once a year shortens the intervals to four months, three months, two months, and finally sinks into the condition of the habitual, well-nigh hopeless drunkard.

One "periodical," who came under my observation, puzzled me for a long time. The man was intelligent and apparently sincere in his desire to permanently reform; yet at the very first opportunity he would get stupidly drunk. I despaired of ever effecting a cure in his case, until the thought struck me that perhaps he was afflicted with a nervous derangement distinct from the alcoholic appetite. Inquiry confirmed theory into fact—he had been troubled thus

from childhood. I treated him accordingly and effected a cure; yet he realizes, as I do, that at certain intervals he will have to undergo similar temptations as long as he lives. In this instance, mental and moral as well as physical, forces were at work. Attacked first by nervous indigestion, he soon lost his appetite entirely. After forcing himself to eat, he experienced great distress, and finally his stomach rejected all food. A little later on, insomnia was sure to follow. Protracted loss of sleep produced mental and nervous disturbances which interfered with the performance of his work and caused great irritability. In such condition I have seen him, and really considered him as being for the time mentally irresponsible. Restraint and treatment would alone "bridge over" one of these periods. If these aids were not accessible, he would surely reach a point at which every moral consideration would be swept away, and in a spirit of desperation—expressed by his: "Don't care! Anything is preferable to this"!—he would gulp down half a dozen big drinks of whisky in quick succession, and then continue to drink until he became stupid and sank at last into the long-craved sleep, which always proved to be the precursor of an exceedingly debilitating debauch. "I am afraid to trust myself with drugs," he said to me, "and I know that whisky will 'do the trick,' with some prospect of my awakening again in this life."

There are no doubt thousands of similar cases, and there surely ought to be some refuge for these unfortunates when their "periods" approach. This man told me that he once applied at a private hospital for restraint, and was informed that there was not a single private room vacant. "But you'd take me if I were drunk"? he asked. "Oh, yes," was the reply—and the next night he was admitted as a patient, stupidly drunk. All men have not the moral strength which sustained Edwin Booth, but there are many who possess something of his temperament and are not able entirely to escape the degradation which he so heroically avoided.

The "cycling" recurrence of the appetite is by no means

so marked among the consumers of opium and morphia, yet I have no doubt that it does exist in some degree. This belief is strengthened by the fact that in many towns and cities in the West there are to be found certain peripatetic panders to "hypo fiends." These peddlers go well provided with the drug and a syringe, somewhat after the style of the "walking liquor-stores" peculiar to Kansas, and have their regular customers among gamblers and prostitutes, whom they call on and "shoot" at certain hours every night. If the "hawker" be even a minute late his customers become restless, and after a five-minutes wait they are almost frenzied. Promptness and reliability are, therefore, the chief and only merits of these morphine-peddlers. Among the classes referred to, alcohol is too much of an excitant, and to carry on their several occupations with ease it becomes necessary that they should have frequent and regular injections of morphia.

Just here I wish, parenthetically, to call attention to a lamentable fact, and one far from being creditable to the medical profession. So far as my observation and inquiries have extended, I have found that less than 25 per cent. of morphine users have become slaves to the habit through curiosity and association. By what means, then, have the other 75 per cent. acquired the appetite? I am compelled to the conclusion that it was through the recklessness of ignorant and unskillful physicians. Of course, there never was a morphine user without a plausible excuse for the formation and continuation of the practice; but I feel that this estimate of 75 per cent. is under, rather than over, the true number chargeable to physicians, and is as nearly correct as it is possible for an estimate to be. These unintelligent physicians are not close enough observers to determine the existing cause which produces a certain pain, and, not knowing what else to do, they prescribe morphia. They are thus, at least, reasonably sure of giving the patient temporary relief. Physicians of this calibre ought to be classified with criminals. Our modern educational system is in some de-

gree responsible for their existence. A large number of physicians now being graduated from medical colleges are men who are woefully lacking in fundamental education. A host of these incompetents is turned loose every year, and their ranks are being constantly augmented. There are too many medical colleges in this country. These must necessarily have students to sustain them. Therefore they enroll nearly every applicant for admission. Not a few institutions offer tempting inducements in the form of lenient examinations and cheap fees, thus encouraging young men of no education or fitness whatever to embrace the profession, and leave the plow — to inject morphine. These are the men who are mainly responsible for the vast increase in the army of unfortunates whom I have been describing. They flourish principally in the new communities of the Far West. The reason for this is not hard to find. In the large, congested cities of the East, and even in the smaller towns and villages, it is tedious and difficult for a young man to establish a practice, except in association with and under the guidance of an old and experienced member of the profession. Hence, the newly-fledged practitioners too often "go West to grow up with the country." The records of the various sanitariums establish the fact that the number of victims who have contracted the pernicious morphine habit in Kansas, Nebraska, New Mexico, Arizona, Utah, Wyoming, Idaho, Montana, and the Dakotas is out of all proportion to their several populations, as compared with those of eastern states. Dissipation, anxiety, excitement, exposure, privation, and hardship render residents especially liable to fall into the hands of these young practitioners — after which, God help them!

In this respect, there is one educational reform which I should like to suggest. Professors in our medical colleges teach too much physiology, pathology, and anatomy — or, rather, too little *materia medica*, or the application of medicine to disease. Thus unevenly equipped at the outset, these young doctors prescribe morphia to relieve ordinary transitory

pains, and the relief following the practice induces them to persist in it until their clientage of this character assumes alarming proportions. Too often they tell their patients what they are giving to relieve them. I am not one who believes that a physician should thus take his patients into his confidence. There are entirely too many of that sort of pseudo-partnerships.

I have no faith whatever in the so-called "home treatment" theory. Nor do I think it possible to reform a real "fiend" in that manner, be his special intoxicant what it may. Even in sanitariums the patients must be, for a considerable time at least, under the special care and watchfulness of the physician in charge. Visitors must be rigidly excluded, for they, in mistaken kindness, are apt to smuggle in liquor, or morphine, or opium. Mail matter should be opened in the presence of the physician, for opium and morphine have been known to travel in that way, and otherwise honorable men will lie and deceive where their special longings are concerned.

The complications of each case must be studied separately, and the idiosyncracies of each individual noted, and when possible, humored. Gregarious patients should be allowed to congregate if they choose, but others thrive best in solitude. With no other class is it so essential that the physician should possess the confidence of his patients. Each should feel that a special study is being made of his case, and that special treatment is being given him. Every "fiend," of whatsoever description, has a conviction that his own particular case is peculiar and remarkable, and that his sufferings surpass in intensity those of all other persons similarly afflicted. After a few days of treatment, the patient commences to experience relief, heightened by contrast with his recent pain; he takes food with relish, and from this time forward usually gains flesh rapidly.

I do not believe that any remedy has ever been or ever will be devised that will infallibly cure every case. There are any number of so-called "cures," or "substitutes," which will

alleviate or remove present suffering, and temporarily restrain a "fiend" from indulgence; but the percentage of permanent cures is small and variable, and there is no means of accurately determining what proportion of cases treated remains cured. The difficult factor to differentiate — the unknown quantity — is the number of persons who are cured through the influence of the mind, or by what has come to be known to the profession as "suggestion." A man who has remained "cured" for six months or a year, and to whom the vendor of the remedy "points with pride" as convincing evidence of its efficacy, may, through a combination of circumstances, "break out" again at any moment. There is certainly nothing in the medicines given that will prevent a man from drinking liquor, injecting morphia, or smoking or eating opium — if he wants to. In most instances, those who have undergone treatment are told that if they relapse they "shall surely die." In some cases this has proved true — in others it has not. It goes to show, however, that the drugs administered were harmful, or dangerous, and probably produced organic changes which impaired the constitution of the patient. It also illustrates how strong the appetite is in some men, when they will voluntarily resume such a habit in the face of so impressive a warning. If it is simply a question of fighting one poison with another — why, anyone can do that; but when such a combat is arranged by ignorant and unscientific men, who are solely "out for the stuff," the evil becomes an appalling one and demands vigorous repression.

One palpable mistake of the vendors of secret or patented nostrums is in treating all cases alike. There is no universal panacea. There are many reasons why the treatment of these three classes of patients, and even of the different types of the same class, should not be identical, as it is at so many sanitariums. How any sane physician can range scores, or hundreds, of morphia, opium, and alcoholic users in line, give each the same (or approximately the same) medications hypodermically, and identical internal medicine —

and yet hope for success, passes comprehension. The only explanation that occurs to me is that the sway of the mind over the body is much greater than we give it credit for. The more cases I observe the more am I impressed with the psychological influence. The "impressionable" or "sympathetic" natures of some men render them peculiarly liable to contract and be divorced from physical and mental disturbances. In proof of this assertion, I might cite an instance where an eminent neurologist, the head of one New York's great insane asylums, became mentally disturbed through contact and association with the unfortunates under his care. Happily, he was in a short time restored to complete control of his mental faculties. In my own experience I have found a "placebo" to work admirably. Morphine sufferers have implored me to give them relief, and a little distilled water has produced the desired effect. Where a single injection failed, a second, or a third, was sure to bring ease and quietude. It is truly a remarkable exhibition of the power of imagination.

At all large sanitariums the apparent success of the remedy is thus emphasized. Men "imagine" that they have inherited or acquired an appetite, or a tendency toward an appetite, for opium, morphine, or liquor. Being easily impressed, they are just as quick to "imagine" that they are "cured," especially when they hear of and see so many quondam slaves uniting in a pæan of exultation over their new sense of freedom. Alas, that it should so often prove to have been but a Barmecidal feast! Probably the "cures" least likely to be permanent are those of what are known as "village drunkards." Every hamlet has at least one of these. The ambition to be regarded as an unfortunate, incorrigible drunkard has been nursed and indulged so long that it has become a sort of "second nature" with them, and at times amounts to an acute eccentricity. When the public sensation excited by their reformation has become stale, they "feel lost" without their accustomed notoriety, and speedily "fall." And when they do "fall" they "fall hard," else their craving for

public notice would not be completely gratified. These are the men who can be found lounging in sanitarium hallways, or on curbstones, loudly proclaiming, after three or four days' treatment, that they are completely cured and could not take a drink of whisky if they tried.

Other important factors to be considered are age, constitution, present physical vigor, previous habits, temperament, and occupation. A considerable number of these patients will be found to be night-workers, legitimate or otherwise. Sleep can, of course, be induced in such more quickly and easily during the daylight hours in which they have been accustomed to rest. I have had patients who were heavy and "droopy" all day, but who aroused immediately when lights were turned on in the evening, and whose mental activity was greatest between 10 o'clock and an early hour in the morning. In this last-named interval no ordinary hypnotic seemed sufficient to make them drowsy. Their systems would "shed" heavy doses of the bromides, chloral, sulfonal, hyoscyamus, and paraldehyd like water from a duck's back.

One other important aid, available alike to pretenders and legitimate practitioners, is mental rest. By this I do not mean absolute indolence, but a temporary divorce from "business." In some cases this is obtained by a sojourn in the mountains or at the seashore, or a sea voyage or prolonged yachting excursion. I know one of the great financiers of the country, and also an eminent lawyer, who have been nominally "cured" at one of the many sanitariums—the former of the morphine and the latter of the "periodical" alcoholic habit. They have told me that, after having once received treatment they dropped all "business" and returned to the sanitarium when they began to experience a feeling of exhaustion, coupled with a longing for their favorite stimulant. At first they returned four times a year, then three times, and now manage to get along with two visits per annum. They tell me that they do not know how much merit to ascribe to the medicine, but that the change of scene and repose of

the particularly overtaxed faculties certainly aid largely in restoring them to such a state of mental health that they can grapple easily and with self-confidence with hazardous money transactions and legal cases involving many thousands of dollars. This brain rest and repair they cannot obtain at the "Springs," or the fashionable resorts, and to "make sure" of restoration within a month, they give the medicine the benefit of the doubt, instead of going off on a hunting, fishing, or yachting trip. The truth is, these gentlemen are far-advanced victims of nervous exhaustion, and are doubtless benefited by the course of tonics and the general surroundings, which tend to inspire mental repose and confidence in the ultimate result. Before permitting themselves, as hitherto, to become entirely "worn out," they simply "take a rest" and thus avert re-enslavement to their favorite stimulants.

The abnormal craving for liquors or drugs is usually found to be complicated with some organic derangement. Catarrh, bronchitis, and liver and kidney diseases are the most frequent accompaniments. When there is pronounced or chronic disturbance of the brain or nerves, reform is scarcely to be hoped for; with other disorders, the case does not present such great difficulties. Oftentimes a pernicious habit may be broken off by removing the local derangement which precedes or accompanies it. In women the co-existent disturbances are usually of the uterine or spinal nerves.

One of the symptoms most distressing to the morphine or opium patient is the loss of vitality occasioned by frequent orgasms and copious seminal emissions. When first deprived of the drug, male and female alike are not free from these terrific drains on their vitality, sleeping or waking. In some cases they occur every five or ten minutes. It is not unusual for a patient to have ten or twelve of these emissions through the night and eight or ten during the day. In those not addicted to excessive sexuality, the emissions rarely exceed two per day. These seminal losses are not an invariable accompaniment,

but they may fairly be classed as general. It is necessary to check the emissions as soon as possible, for no relief can be obtained while they continue with such frequency and quantity. Consequently, I administer the most nourishing food—frequently a dozen or more eggs per day, with milk *ad libitum*.

Another popular fallacy is the taking it for granted that all over-indulgence in harmful drugs is due solely to a physical cause. In my experience I have found three factors, any one or all of which may be powerful in a given case. These are the mental, the moral, and the physical. The fact which I wish to make emphatic is that any method of treatment which fails to take cognizance of mental and moral causes and influences will surely prove a failure. In other words, the source of most of these abnormal conditions, appetites, and indulgences is to be sought within not without.

As to the immoral phase of morphine-taking we know but little in this part of the country. The Western states and territories are the places where it can best be studied face to face, and knowledge of it can only be obtained here through conversations with "fiends" from that section of the country. The immorality of the practice will be conceded when we reflect that most of its devotees there are gamblers and prostitutes. For this reason it is extremely difficult to work a permanent cure in one of them unless an absolute moral reformation be accomplished. Hence, I always urge upon my departing patients the importance of breaking off all old associations that are vicious, and of a complete change of environment when possible. I do this because I am convinced that no medicine can entirely renew wasted, weak, and flabby nerve-cells. All that we can do is to assist nature in partially restoring them, and to so change the occupation, diet, social condition, and surroundings that a sufficient reaction may be produced in the nerve-cells of the person treated to enable abstention to be easily permanent.

Continued physical or mental excesses are sure to create a tendency: First, toward the use of a stimulant to flagging mental and moral and physical energies; and, next, toward the employment of a powerful sedative. Hence, the drinking of alcohol is quite naturally superseded by the smoking of opium. This is, at first, found to be deliciously satisfying, and the moral sense is blunted by the reposeful social features incident thereto. The newly-developed smoker at once becomes an active instrument for the propagation of the practice. He begins by inducing his intimate associates, male and female, to "try a pipe." The insidious and powerful nature of the drug renders it both an alleviator of mental anxiety and physical pain and weariness, and a terribly fascinating and soothing sedative. But, after a time, the victim's system becomes so thoroughly impregnated with opium that he can scarcely smoke enough to satisfy him. In an evil hour he takes a few injections of morphia. Thus he "graduates" from a "hop fiend" into a "hypo." The effect of morphine is much more powerful than that of opium, being, when taken subcutaneously, about six times as strong—and "action is had" more quickly by means of it. There is a saving of time, too, and, instead of sinking into a state of stupor for hours, the partaker is nerved to greater achievements without any increase of effort or weariness. In the East, except in a few large cities, the morphine habit is a secret one; in the West, it is an eminently social custom. Groups, or circles, or coteries of congenial men and women get together and "shoot" one another through the hypodermic needle. These people do not regard the morphine habit as an immoral one. At first some of them may have done so, but frequent repetitions soon blunt all moral susceptibility.

Nor is this moral paralysis peculiar to uneducated people—it afflicts the cultured and refined, in the end, also. The standard of right and wrong, after all, is a matter of individual judgment, when not fixed by law.

Most morphine users are without hope of permanent

reformation, while opium smokers and alcoholic drinkers are always sanguine of attaining to a state of freedom. All murderers cherish hopes of being spared from execution on the gallows, but the enthralled "hyppo" fully realizes that he cannot escape tortures worse than death, even should he be eventually rescued from the grip of the habit.

A knowledge of the psychological laws governing what we call "Suggestion" is what the medical profession stands in need of. Causative forces are not understood. Scientific men have endeavored to deduce laws governing abnormal conditions of the mind, and have failed. The only thing they have demonstrated is their own ignorance. Many natural laws doubtless exist which are totally unknown to us, by virtue of which the nervous system may become susceptible to impressions not ordinarily received. That the mind has a distinct nature and a distinct reality apart from the body, and yet frequently controlling it, or acting in co-ordination with it, will probably be conceded by most students of mental science. Certain conditions may be absent in some persons, and marked in a few, while between these extremes there may be every gradation, from the faintest impression to the most vivid reality.

Now, these lamentable cases which I have been considering do not "happen" — they "grow" — and they are just as surely the result of evolution from "within" as animal life is. The "within" is hidden from us; we know nothing of so-called "Soul Life;" but we have progressed sufficiently far to be able to assert that every full-fledged action is a lawful sequence of previous incubation, nourishment, and growth. It is also demonstrable that what men dwell upon they become like, which is one way of illustrating the power of mind over matter. There are doubtless special forces which germinate the indulgences under consideration. However spontaneous or impulsive any given offense may appear, the foundation upon which it rears itself has been of slow and gradual growth from miscellaneous, sedimentary immoral deposits. A vent would have been found somewhere.

The tendency of the age is in the direction of abnormality — mental, moral, and physical — or, rather, in the contemplation of abnormal phenomena, and the deducing of general laws therefrom. This brings us into that most delightful domain — psychology. This branch of mental science is entrancing almost to the verge of painfulness. But we find there have been many explorers in this realm before us. The whole world is full of “Suggestion,” and hypnotism is only an infinitesimal part thereof. It would be easier for the progressive medical man to write a book than a paper on “Suggestion,” as applied to the practice of medicine, especially in the cure of mental and nervous diseases.

We are certainly on the eve of great discoveries in mental science. Only a few years ago many operations in head and abdominal surgery, which are now performed daily with success, were unthought of, the cases pronounced “hopeless,” and the patients abandoned to die as comfortably as possible. Who knows but that the incipient parietic may yet be restored to a life of reason by the aid of surgery, instead of being confined to await the awful “explosion” which precedes death! A true understanding of mental science is all that is needed in the various cases which I have been considering. As soon as we comprehend the laws of any force or thing, we have it not only under control, but harnessed for use.

The theory of “Suggestion” is a proper subject for investigation at the hands of the medical profession. Many patients are habitually in the subjective condition; others desiring to be cured can easily bring about such a receptive state of mind. This important branch of legitimate practice must be wrested from the hands of quacks and charlatans. They are not so blameable, after all, for claiming to destroy the alcoholic, opium, and morphine appetites, when they know that they can rely upon that mighty and mysterious agent, “Suggestion,” to aid them. True, they employ it ignorantly; but who is there to challenge and expose them, when reputable practitioners are too indifferent to in-

investigate for themselves? These crude and ignorant pretenders claim to know all about the laws that govern mental phenomena, but educated and experienced investigators know that neither themselves nor the quacks understand anything about them.

“Suggestion” is too powerful an ally of medical science to be ignored, or permitted to be employed solely by ignorant and unprincipled men, whether inside or outside of the profession. I appeal especially to the neurologists—that sturdy and growing wing of our profession—to give the subject more careful attention. In the single department which I have been discussing there is a splendid field for an earnest, sincere investigator, aided by pure drugs and “Suggestion.” This fertile ground has been almost entirely abandoned by quacks, with their worthless nostrums, while thousands of victims of alcohol, opium, and morphine are crying unto you, legitimate members of the medical profession, to save them.

I am constantly in receipt of letters asking me if I think I can “cure” a husband or a son. In a touching letter received a few days since from the far West, I am besought to treat the husband of the writer. “The doctor administered morphine when my husband had the rheumatism,” writes the wife, “and it seems as though he couldn’t possibly give it up. He is a good man, and knows that I am writing to you. Can you not treat him at home? If not, although we are poor, I will go to St. Louis and keep him company until you say he is cured. Somehow, we both have faith in you, but we have none in the —— Cure, for we have seen too many honest men fall back into their old ways after having taken that treatment.” This is a sample of many other similar appeals which I am compelled by circumstances to deny.

The “bunco” physicians are waxing fat and impudent off the woes and credulity of their fellow-beings. Some of them are no better than the Hungarians who wrenched and cut rings from the fingers and ears of dead women just after

the terrible Johnstown flood. They are harpies, pure and simple. Plain language should be used when referring to them, and vigorous action should be taken against them. They cannot follow us in surgery — do not let them precede us in mental therapeutics. I hope to live to see the day when paresis will be regarded and treated as a curable disease, and when the worst morphine slave in the land may be bidden to “take heart.”

Do we not, as a profession, owe a great duty to the users of morphine? Have not more or less incompetent medical men, ignorantly perhaps, inoculated thousands of them with the woe-compelling and soul-destroying virus? Is their any other profession on earth whose members are so numerous represented in the hosts of victims of morphia as our own?

I have, however, given this subject my personal attention for a considerable length of time; and I feel it to be my duty to lay the results of my investigations before my professional brethren, and appeal to them to intelligently explore and specialize this branch of medical science, and, while “rescuing the perishing,” at the same time analyze and develop that new and powerful ally — “Suggestion.”

THE OPHTHALMOSCOPIC APPEARANCE OF
THE FUNDUS OCULI IN DELIRIUM
TREMENS.

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In the summer of 1894 Dr. C. L. Dana suggested to me that I should study the condition of the fundus of the eye in alcoholic patients while they were in the state of *delirium tremens*. At the same time he afforded me entrance to the alcoholic wards at Bellevue Hospital, where I could make these investigations.

The fact that no such investigations have ever been made heretofore in these cases may be accounted for by the simple reason of the difficulty of making such observations. A man in the state of delirium is not an ideal subject for ophthalmoscopic examination, by any means, and I may say here that my observations have not been altogether satisfactory.

Altogether I examined but sixteen cases, eight of which were in delirium tremens, and eight were acute drunks. While the object of this paper is primarily to give the condition of the fundus of the eye in delirium tremens, yet I incidentally add those of the acute drunks as a matter of interest in this connection, especially as I find but few observations in literature on such cases.

CASE I. — J. McD., aged fifty-four years, laborer. Has been in the hospital once before with delirium tremens for a period of four days. For the last three months he has been drinking steadily, whisky and beer being the two beverages mostly consumed. Has not been able to eat for the last two days. His general condition is fairly good, but

now he has gastritis. Was admitted to the hospital to-day, June 15th. No medicines yet.

Condition of the fundus oculi: The arteries and veins are very large, and the veins tortuous; and the blood in both darker than usual. There is pulsation of the veins on the discs, which appear white from contrast with the rest of the fundus. No lesion in either eye. The pupils are small, and react but slightly to light. A second examination the following day, with the eye under the influence of atropine, and after the patient had been given bromides and chloral, showed the vessels somewhat smaller, and no pulsation in the veins.

CASE II. A. J., aged thirty-one years, chemist. His first time to have delirium tremens, and he has them now only in a mild form. He drinks everything in the liquor line. General condition is good, but he has not been able to eat anything for a day and a half. Has been drinking for five years. Admitted to the hospital to-day, June 23d. No medicines.

Condition of the fundus oculi: The arteries and veins both are much larger than normal, and filled with dark blood. Passive congestion is marked. The discs appear white from contrast. No lesion of either fundus. A second examination under atropine the following day showed but little change in the condition of fundus, though he had been given bromides, chloral, etc. Was still in delirium.

CASE III. — C. H., aged thirty-eight years, millwright. First time to have delirium tremens. He was admitted to the hospital three days ago, June 19th. Has mild delirium during the day, and marked delirium at night. Has had large doses of bromides and chloral since in the hospital. Beer has been his chief drink, and he has been a moderate drinker for years.

Condition of the fundus oculi: The arteries and veins are moderately large, with venous pulsation on the disc well marked in the right eye. Evidences of passive congestion. No lesion in either eye.

CASE IV.—C. R., aged thirty-three, barkeeper. Has been in the hospital for two days, and has had large doses of bromides and chloral, but still has marked delirium.

Condition of the fundus oculi: The arteries and veins are but slightly enlarged, but the fundus in each eye is to some extent actively congested. Slight pulsation of the veins on the discs in each eye. A second examination under atropine the following day showed no change in either eye.

CASE V.—A. G., aged twenty-five years, bartender. Drank hard and steadily for two or three months before he came to the hospital. For a week before entrance he would retain but little or no food on stomach. He developed delirium two days after admittance, although he had been given bromides and chloral.

Condition of the fundus oculi: The arteries and veins are both very large and tortuous, with evidences of passive congestion marked. The disc appear white from contrast with the rest of the fundus. No lesion in either eye, though he has a large amount of albumin in his urine, and is known to have a parenchymatous nephritis.

CASE VI.—J. M., aged sixty-two years, laborer. Claimed by his friends that he has been drunk most of the time for the last forty years. He drinks whisky and rum, and has had delirium tremens twice before. His general health is not good. Drinking heavily for the last two weeks, and stopped yesterday simply because his stomach would tolerate neither food nor drink. His delirium lasts for a few hours, stops, then comes on again. Has had one dose of bromides and chloral.

Condition of the fundus oculi: The arteries and veins are both very large, the veins tortuous, filled with dark blood, and with distinct pulsations on the discs. Passive congestion quite marked. The discs appeared whiter than normal, simply from contrast with the rest of the fundus, as in the other cases. A second examination under

atropine the following day showed less pulsation of the veins, but the passive congestion was still well marked.

CASE VII. — M. G., aged sixty-four years, printer. Has been drunk for the last five months on whisky and rum. He is fairly well nourished. Has not eaten anything for the last two days. Has had no medicine yet.

Condition of the fundus oculi: Widely dilated veins and arteries, with pulsation of veins on the discs. The discs are white from contrast. A second and a third examination showed but little change in the fundus of either eye, though the patient's delirium was about gone.

CASE VIII. — J. L., aged twenty-six years, housewife. Has been drinking for the last two years. Went on a protracted spree last week. Rum and whisky were the chief beverages used. Delirium is well marked at night, but mild during the day. Has had bromides and chloral.

Condition of fundus oculi: Large, dark veins and arteries, and discs white from contrast.

Besides the above cases, I examined the fundus oculi in eight patients in the stage of *acute drunk*, two of which were in acute delirium.

Three of these last eight cases had not been drinkers of long standing. The fundus of the eye in these cases was greatly congested, passively so, from the depressant action that the alcohol had on the vaso-motor system. The arteries and veins both were dilated and filled with blood darker than is ordinarily seen in congestions of the fundus. The pupils were contracted in two of the cases, and normal in the other.

Two cases were acute drunks of chronic drinkers. The fundus oculi in these two cases were much like the eight suffering with delirium tremens — that is, the arteries and veins were large and tortuous and filled with dark blood (passive congestion), and the discs appeared more or less white by contrast with the rest of the fundus. In one of these cases both arterial and venous pulsation were present,

although the tension of the eye was normal. The pupils in each case were contracted.

Of the two cases with acute delirium, the fundus in one was greatly congested, passively so. In the other, which ended in stupor and death, the veins and arteries were very large and tortuous, with pupils widely dilated and no reaction to light. This patient had been in acute delirium for four days before he was brought to the hospital. He had to be restrained for the first twelve hours in the hospital, when stupor set in and ended life in the next twelve hours. This patient was a very large and muscular man, weighing at least two hundred and twenty-five pounds.

An eighth case of acute drunk was a dipsomaniac. The fundus of the eye in his case was much congested. The veins and arteries were dilated and darker than usual. The patient went on sprees about every three months; this last spree had lasted for ten days.

The conditions of the fundus of the eye as observed in the above cases of delirium tremens are not to be accounted for wholly by the delirium. In the study of these cases the physiological and pathological action of alcohol on the whole system must be taken into consideration. The delirium itself, in fact, is only a psychical phase of chronic alcoholism, due to nutritive changes in the nervous system, and brought about, not by the primary action of alcohol, but by its temporary withdrawal from the individual addicted to its abuse. As a condition in itself it is but little understood. "The anatomical lesions after death from delirium tremens shed no light on the pathogenesis of the condition.

"Meningeal congestion, œdema or piameter and of the cortical substance of the brain, scattered minute extravasations of blood, and some augmentation of the cerebro-spinal fluid have been observed. In the greater number of cases no lesions whatever beyond those characteristic of chronic alcoholism have been discovered."

The dilated, tortuous, and in some cases, pulsating vessels observed in the above cases, are not to be accounted for

altogether, therefore, by the psychical derangement of delirium tremens, but are due in part to the toxic action of alcohol on the vaso-motor system of nerves. As is well known, alcohol in physiological doses stimulates circulation, and in toxic doses depresses it. On the vaso-motor system, to which I wish to call special attention here, it acts as a depressant from the first; and this even in small doses, as shown by the flushed face, which is due to dilated capillaries. And if the use of alcohol is persisted in the capillaries become permanently dilated. In fact, this is one of the earliest pathological changes produced by alcohol. A second and graver one is the tendency to atheroma, while a third and later one is sclerosis.

The dilated vessels in the fundus of the eye, in delirium tremens cases, is due in great measure, then, to the depressant action of alcohol on the vaso-motor system, the toxic action of the alcohol lasting for some time even after the drug is withdrawn. The dilated vessels in the acute drunk cases are certainly due to the toxic effect of the alcohol on the vaso-motor nerves, which allows the vessels to dilate.

The very dark blood observed in the arteries and veins in these cases is due to the lessening of oxidation in the blood from the alcohol in the system — a well known physiological action of alcohol; partly, also to passive congestion.

The vessels in the fundus of the eye are subject to the same changes from the action of alcohol and other toxicants, as on the vessels in other portions of the body, although Schulten, cited by Noyes, seems to think: "To a remarkable degree the intraocular circulation is independent of the systemic vessels because shut within a special cavity, yet a slight relation exists." In this view I think Schulten mistaken, as is shown by the changes occurring in the ocular vessels in the above cases, both in the delirium tremens and in the acute drunks. Again: "In cases of *congenital malformation of the heart* with cyanosis, such as defective closure of the foramen ovale or stenosis of the pulmonary artery, the retinal vessels show markedly the general disten-

sion of the veins and the change of color of the blood. Liebreich gives a striking picture of such a case, and Leber remarks that in two cases observed by him the dilatation affects the arteries as well as the veins."

Again, in Graves' disease: "Some dilatation and even pulsation of the retinal arteries is found in some cases."

Furthermore, we know that the vessels in the fundus of the eye are among the first, if not the very first, to suffer from the secondary changes in the numerous forms of Bright's diseases with albumen in the urine. Neither primarily nor secondarily, then, are the vessels of the fundus exempt from the changes of the general circulation, but, on the other hand, in some diseases they are particularly liable to early change.

Where delirium tremens occurs in old alcoholics who have toxic amblyopia, that is, degenerative atrophy of the optic nerves, the vessels may be found normal in size, or, if the degenerative atrophy is far advanced, even smaller than normal. No such cases were observed by me in the above eight. This lessening in size of the blood vessels is due to the atrophy of the nerve and sclerosis of the vessels, and not to the delirium in such cases. Toxic amblyopia, however, and other ocular lesions such as neuro-paralytic keratitis, paralysis of the ciliary muscle, night blindness, paralysis of the ocular muscles, xerosis of the conjunctiva, etc., etc., all of which may be caused by the abuse of alcohol, and be coincident with delirium tremens, are not to be considered in this short paper. Besides, they are fully elucidated elsewhere.

The pulsating veins and in one case pulsating arteries, in the above cases are to be accounted for in two ways: First, by the slight increase of tension produced by the dilated vessels, allowing more blood in the eye than it is ordinarily accustomed to. It is a well-known fact, and one easily verified, that by pressing on the eyeball with the finger, thereby increasing the tension of the eye, while looking into the eye with the ophthalmoscope, a distinct pulsation can be observed

in the veins; and if the pressure is hard enough arterial pulsation is produced. This same phenomenon — pulsating veins and arteries — is sometimes observed in glaucoma, where tension of the eye is greatly increased. Second, pulsation in the veins, and even in the arteries of the fundus of the eye, may be caused by an enfeebled heart, or by dilatation of the blood vessels with a resultant decrease of arterial tension. Now, in delirium tremens all of the above conditions — conditions favoring pulsation of the vessels — are present: the weakened heart, the dilated vessels and the slight increase of tension of the eyeball.

Outside of the study of the fundus condition in the above cases of delirium tremens, the one feature and symptom that interested me most was the hallucinations that all of them suffered from — how to account for them. Hallucinations are the one peculiarly characteristic symptom of delirium tremens; and, pertinent to this inquiry, these hallucinations are almost always visual in character, perhaps in ninety-five per cent. of the cases, and always in motion. This last feature distinguishes them from the hallucinations that occur in other conditions, when the objects of the hallucinations are at rest. Not only are the hallucinations of delirium tremens characteristic from being chiefly visual and in motion, but from being confined most of the time to one set of objects — “snakes.” These, however, may be distorted into demons or most anything else.

Heretofore, these hallucinations have been attributed to the psychical derangement from which these patients suffer, but I think they are due in great measure to another cause — a *circulatory condition*. To make my position clear it will be necessary to call to mind two points in the anatomy of the retina. First, that the blood vessels of the retina lie in its anterior layers; they never enter deeper than the *internal molecular* layer. Second, the seeing or perceptive layer of the retina, the layer of *rods* and *cones*, forms the posterior layer of the retina; consequently the blood vessels are in front of this layer.

Ordinarily, the retinal vessels are so small and semi-transparent that they are not projected into the field of vision and made visible. But when, as occurs in delirium tremens, the vessels become passively dilated, tortuous, pulsating and filled with dark blood, dark enough, as I believe, to be projected indistinctly into the field of vision and to be seen, they appear as "snakes." The tortuosity of the vessels would naturally resemble in shape a snake, and the constant motion of the blood through them would give the motion always present in such cases.

With a befuddled brain, these objects could be easily transformed into any other objects and distorted into endless forms.

The psychical condition of the patient may play some part in the formation of the hallucinations of delirium tremens, but I believe the true and main cause lies in the circulatory condition of the fundus of the eye.

DIPSOMANIA AND INSANITY.

The current discussions anent these morbid states ignore their complete difference. Dipsomania is a true periodical insanity of which the drink element is a mere phase. The insane acts are preceded by depression, apathy, and depreciatory ideas. The dipsomaniac period itself is characterized by tendencies to impulsive homicide in which the nearest and dearest may suffer. These acts occur in other periodical insanities entirely independent of alcohol, and hence here must be regarded as an expression of the mental state, not of the alcohol, which tinges the mental state. In inebriety the alcohol is the causative factor. In dipsomania the abuse of alcohol is a mere expression of the insane tendency. Dipsomania, as a rule, is one of the degenerative states demarcable from simple imperative conceptions and inebriety. During the dipsomaniac period these patients, like all periodical lunatics, are absolutely irresponsible. — *Dr. Kernan in "Medical Standard."*

Abstracts and Reviews.

THE TREATMENT OF MORPHINISM.

In the *Bulletin général de thérapeutique* there is an article by M. Gilles de la Tourette. According to the author, there are two methods of treating morphinism, the immediate suppression of the poison and the slow suppression — that is, diminishing the daily dose of morphine progressively. Each of these methods, he says, has its indications. Generally, when patients have been in the habit of taking eight or ten grains of morphine a day, immediate suppression is the best way, as the other method requires too long a time to break off the habit.

The patient should be placed under conditions peculiarly favorable to the treatment. Isolation in a hydrotherapeutic establishment, with a special physician attached to it, is essential, as the treatment can be more strictly carried out there than at home. The patient's organs should be examined, for in cases of cardiac affection or angina pectoris immediate suppression may produce syncope. The digestive canal should also be examined, and the digestive functions regulated. The hypodermic injections of morphine must be given regularly, in the morning, at noon, and at night, as these are the three most important hours of the day. For this reason isolation is particularly necessary, for the habitual tendency of a patient to take a hypodermic injection at any time when he feels the need of it presents a difficulty hard to overcome. If the patient has been in the habit of taking fifteen grains of morphine a day, half the dose only should be allowed on the first day of the treatment; generally, says the author, on the first day two-thirds of the dose are suppressed, on the third day it is diminished to two grains and a half, and

on the fifth day no morphine is given at all. During the first twelve hours the treatment does not provoke any troublesome symptoms, and the patient feels comparatively well. At the end of twenty-four hours, however, the following symptoms supervene: 1. Syncope, which, if very serious, is sometimes fatal. If there is no cardiac affection, it is of slight importance. For this symptom an injection of from a grain to a grain and a half of morphine is given. For vomiting in these cases champagne, iced grog, etc., are given. 2. Diarrhœa. This symptom should be carefully observed, for, according to Sollier, the poison is eliminated by the intestinal canal. There are, however, cases where the diarrhœa becomes so intense that it results in true morphine cholera, and in these cases this symptom must be treated. For maniacal excitation and delirium soothing spongings or baths are prescribed. During convalescence the diarrhœa should be carefully watched, as it may persist for three or four weeks, often making it necessary to resort to the injections. It is the same in regard to insomnia. If the patient can remain for a month or two longer in a special establishment, the rest will be a valuable aid in the treatment. Baths, douches, tonics, and good food should be prescribed to insure the repair of the physical condition, and to avoid the troubles of convalescence. The patient should be weighed, for an increase in weight shows the beneficial results and a good condition of the digestive functions. If practicable, it is well to send the patient away in order to avoid all causes capable of provoking a return of the habit.

With regard to slow suppression of the drug, says the author, this method does not give such good results, owing to the length of time required for the treatment, which is from two to three months. It fails, he says, at the least eight times out of ten. Professor Charcot employed this method as follows: The patient is made to give up from the beginning a third of his daily dose of morphine. 2. The thebaic extract is substituted for morphine; for example,

for three-eighths of a grain of morphine from a fourth of a grain to three-tenths of a grain of opium is given, to which may be added from forty-five to seventy-five grains of potassium bromide where there is pain in the legs or excitement.

When the morphinism has yielded to the treatment the use of the bromide and the opium should be stopped, as they are no longer useful. It is then a question only of ten or twelve days before a cure is completely effected.

CANADA'S ROYAL COMMISSION ON THE LIQUOR TRAFFIC.

The report of the Royal Commission of the Dominion to investigate the liquor traffic has handed its report to Parliament. It consists of several thousand pages of type-written evidence and testimony. The commission has cost over \$70,000. The commissioners were accompanied by the attorney of the Liquor Dealers' Association and traveled thousands of miles in gathering testimony.

The Rev. Dr. McLeod handed in a minority report. He gives prominence to the disease, pauperism, waste, and crime which have resulted from the licensing of saloons. He says :

“ There is no room for differences of opinion in regard to the fact that intemperance and its inevitable train of harmful consequences constitute one of the most formidable evils that afflict society, diminish the wealth of the country, and impede progress of civilization. The fact is universally admitted. Regarding it the commission did not deem it necessary to prosecute extensive inquiry. In Canada, as in other lands, intemperance is the prolific cause of pauperism, disease, insanity, idiocy, excessive mortality and crime, with all the suffering and sorrow which attend those conditions.”

Dr. McLeod then proceeds to discuss the evidence regarding pauperism, and says : “ Whatever evidence relating

to pauperism was heard in the course of the commission's investigations in the United States was in agreement with the foregoing statements, that nearly all of it is traceable, directly or indirectly, to intemperance."

As to disease, insanity, and mortality, he says: "There is a diversity of opinion among medical men as to whether or not a moderate consumption of alcoholic liquors is in every case physically injurious. A majority of medical men unhesitatingly endorse total abstinence as safe. Many claim that it is essential to the fullest degree of physical health. All the evidence obtainable goes to show that heavy drinking is universally condemned, and also that there is a growing tendency among medical men to discountenance even what is known as moderate drinking."

The question, "Is total abstinence in your opinion compatible with the fullest degree of physical health?" was one submitted to 207 medical men in Toronto by the secretary of the Dominion Alliance, but the commission declined to receive the statement in reply. Ninety-two replies were received, and the question was answered directly in the affirmative in eighty-three cases, and of the remaining nine only three expressed a definite opinion that total abstinence was not safe for most people, and even they did so in a very hesitating fashion.

Dr. McLeod dwells on the terrible results of the habitual use of liquor, and points to the replies to questions sent by the commission to physicians and life insurance companies in Canada as proof of the physical evils resulting from strong drink. Of 1,355 Canadian physicians, 1,068 said that the general health would be improved by total abstinence. Of 1,340 who gave definite answers to a question about moderate drinking, 901 said that the use of intoxicants even in moderation is injurious to health and to an active condition of body and mind. Of 779 physicians a large majority said that the use of intoxicants increases the number of the insane. The evidence is quoted to show that not only many drinkers become insane, but that the mental weakness which under

any one of various forms of excitement is liable to become insanity is in a large degree traceable to the intemperate habits of the parents.

The question of excessive mortality is fully covered in the report, which quotes the statement of Hon. G. E. Foster in Parliament in 1885, that 3,000 deaths per year might safely be set down to liquor in Canada. Vice and crime, engendered by strong drink, are also very fully set forth and sustained by extracts from the evidence. From 1882 to 1892 inclusive the total number of convictions in the Dominion was 383,459. Of these 183,371 were for drunkenness, and probably not one-third of those who drink to drunkenness ever appear in these records.

A conservative estimate of the amount paid annually by the consumers of liquors in Canada is placed at \$40,000,000. The cost of prisons, loss of labor, and misdirected efforts should, Dr. McLeod thinks, be added to the expenditures on account of the traffic, and he therefore makes the following estimate :

Amount paid for liquor by consumers, \$39,879,854; value of grain, etc., destroyed, \$1,889,765; cost of proportion of pauperism, disease, insanity, and crime chargeable to the liquor traffic, \$3,149,097; loss of productive labor, \$76,288,000; loss through mortality caused by drink, \$14,304,000; misdirected labor, \$7,748,000; total, \$143,258,716.

Against this he sets receipts from the liquor traffic as follows : Dominion government, \$7,101,557; provincial governments, \$942,652; municipalities, \$429,107; total, \$8,473,316. Net loss, \$134,785,400.

Many of the things which might properly be included as chargeable to the liquor traffic are omitted in the above statement because of the difficulty of putting them into dollars and cents. He could add 50 per cent. to the balance against the liquor traffic, and at the lowest it is so large that it might well engage the attention of even those who take no other view of the situation than the business one.

LUNACY AND INEBRIETY.

We are indebted to Mr. Charles Heneage for a translation of two papers on Austrian procedure *re* curatel, with persons deemed to be lunatics and habitual drunkards. By the Austrian Universal Civil Code, par. 21, persons who, on account of extreme youth, or mental infirmity from any other cause, are incompetent to manage their affairs properly, are placed under the protection of the law. By paragraphs 167 and 269, the court has power to appoint a curator or attorney for all those unable to guard their own rights. The Royal Imperial District Court, where the person in question last resided, receives notice from the parish authorities, or the superintendent of an asylum for the insane to which the inmate has been admitted on the certificates of a government physician or of a "Psychiatrische Klinik," the competent tribunal appoints a commission of inquiry, consisting of a government legal commissioner, two government doctors, and a secretary. The medical experts, after a period, short or long as the case demands, report in writing, the legal commissioner appending remarks to the medical report, to the upper court, which decides whether the curatel is to be applied. In the first instance the district court appoints the curator. Legal proceedings to oppose the application of the curatel can be taken, within a time limit, in the upper provincial or in the Supreme Court. Legal procedure can also be taken for the annulling of the curatel, which is carried into effect on the written report of two scientifically educated medical experts. Habitual drunkards, morphinomaniacs, and persons suffering from aphasia or chronic brain disease are liable to the same procedure. Professor Schlangenhausen states that the proportion of habitual drunkards in asylums for the insane varies from 10 to 40 per cent. Drunkards are generally sent to a "Psychiatrische Klinik" or to a hospital for observation, and are thence transferred to an asylum for the insane. While there curatel first comes in, as psychologically degenerated drunk-

ards come under the law, which lays down that curatorship is required for those who are incompetent to manage their own affairs and guard their own rights. When the patient recovers control the curatel may be annulled, though if he break down it is reapplied by a renewal of the former legal procedure. In this way some drunkards have been known to have been put under curatel and to have had it annulled from ten to twenty times, till either permanent seclusion in an asylum or death ended their lives. Inebriates are not proper inmates for an asylum for the insane, as they are apt to smuggle in drink to the insane, and to have a demoralizing influence on these latter, and as they cannot always be suitably treated and looked after. Therefore the government have brought forward a bill for the construction of public asylums for drunkards, to which drunkards can be sent on the order of a judge, on the application of relatives or guardians, of a manager of an asylum for the insane, or of a magistrate based on the written report of experts in lunacy, the final decision resting with the Supreme Court. The limit of the period of detention is two years, with a further like period on relapse. If the habitual drunkard have property a curator must be appointed. Schlangenhausen thinks that the curatel has aided in the treatment of drunkards.—*British Medical Journal.*

CONDITIONS WHICH PRECEDE INEBRIETY.

Inflammations, now recognized as proceeding from some specific causes, are in many cases followed by degenerations that naturally lead to impulsive demands for relief, which spirits or other narcotics temporarily supply. Degenerations from toxemias, and poisons formed both in and without the body, fall most heavily on the nerve centers, creating the same demand for relief. Alcohol, while bringing temporary relief, rapidly increases these very conditions by adding new toxines, and new and stronger impulses for help. The brain centers become more debilitated and incapable of recogniz-

ing the danger, and the degree of actual poisoning becomes more and more intense.

In many cases there is inherited a feeble power of resistance, and inability to react and recover from the strains of injurious agents from without or poisons generated within. Shocks and powerful emotional changes leave a permanent impress on the nerve centers. Poisons generated in the body or the first intoxication from spirits leaves degrees of degeneration from which there is no recovery. In a certain number of cases this defective organization shows a marked tendency to develop into certain forms of degeneration or disease processes. Inebriety, insanity, and many of the allied neuroses are common. The tendency to either of these forms of disease may be seen in certain symptoms far in advance of its full development. — *T. D. Crothers.*

TOBACCOISM.

Lewin states that the deleterious effects of tobacco are observable after its use in any form, — smoking, chewing, or snuffing.

Typical nicotinism occurs, as a rule, after a long-continued use of tobacco, sometimes not until twenty years or more. While many smokers reach old age, many people do not live to old age because they are smokers.

In nicotinism the skin is the subject of itching and erythema, the nerves of taste are blunted, an angina granulosa develops in the throat, and anorexia, epigastric fullness and pain, matutinal vomiting and disturbance of intestinal function are common. There is menstrual disturbance in women, and in female cigar-makers abortion is frequent. General sexual power and appetite are impaired, and sometimes impotence occurs.

The most frequent pathological effect is disturbed heart-action, palpitation, rapid and intermitting pulse, præcordial anxiety, weakness, faintness, and collapse, with sclerosis of coronary arteries and left ventricular hypertrophy.

Cigars and cigarettes produce irritation of the nasal mucous membrane, diminished olfactory sensibility, chronic hyperemia of the epiglottis and larynx, sometimes even of trachea and bronchi. Bilateral nicotine-amblyopia is common, with central disturbance of the field of vision, — a central, horizontal, elliptical scotoma for red and green, sometimes, also, for blue in a lesser degree. Often there is swelling of the auditory nerves and its consequences — noises in the ear, etc.

Central nervous function is affected. In higher schools, non-smokers get on better than smokers, children from 9 to 15 years of age who smoke showing less intelligence, laziness, and a craving for strong drink. Adults are liable to cephalic pressure, insomnia, or its converse (sleepiness), melancholy aversion for work, and dizziness.

There may also be atoxic symptoms, paretic weakness of sphincters, trembling, and spasms. Nicotine-psychoses are said to rarely affect smokers, occurring more commonly in snuffers, and still oftener in chewers. The prodromal stage, which lasts about three months, shows general uneasiness, restlessness, anxiety, sleepiness, and mental depression of religious type. After this follow præcordial anxiety, and, finally, the psychoses proper, consisting of three stages:

1. Hallucinations of all senses, suicidal tendency, depression of spirits, attacks of frights, with tendency to violence, insomnia.
2. Exhilaration, slight maniacal exaltation, agreeable hallucinations; after from two to four weeks' relaxation, again followed by a maniacal condition.
3. The intervals between exaltation and depression diminish, the patient becoming irritable, but otherwise not alive to his surroundings, perception and attention being lessened.

It is claimed that the patient is curable in five or six months if he stops the use of tobacco during the first stage. After the third stage the disease seems incurable. Withdrawal of tobacco is an essential part of successful treatment.

Potassium iodide, laxatives, and warm baths hasten elimination of the accumulated poison. Subcutaneous injections of ether are employed against the dizziness; pilocarpine for the disturbance of hearing; strychnine, hyoscyamus, biniodide of mercury, pilocarpine, etc., for the amblyopia.

W. T. Cathell of Baltimore (Dec. 16, '93), divides tobacco-users into three classes; those whom tobacco does not injure, those whom it injures slightly, and those to whom it is a poison.

The pipe might be the exciting cause of cancer of tongue and lips. — *Annual of Medical Science.*

SYPHILIS IN THE MIDDLE AGES AND IN MODERN TIMES. By DR. F. BURET, Paris, France, Translated from the French, with notes, by A. H. OHMANN-DUMESNIL, M.D., Professor of Dermatology and Syphilology in the Marion Sims College of Medicine; Consulting Dermatologist to the St. Louis City Hospital, to the St. Louis Female Hospital; Physician for Cutaneous Diseases to the Alexian Brothers' Hospital; Dermatologist to Pius Hospital, to the Rebekah Hospital, to the St. Louis Polyclinic and Emergency Hospital, etc. Being Volumes II and III of "Syphilis To-Day and Among the Ancients," complete in three volumes. 12mo, 300 pages. Extra cloth, \$1.50 net. Philadelphia: The F. A. Davis Co., publishers, 1914 and 1916 Cherry street.

This is an exceedingly interesting study of a disease which has caused a great deal of trouble in the world. Historically, it groups a great variety of facts, which revealed the state of society in the past; and scientifically, it points out the influence of syphilis in the events of the world. The peculiar value of this book is the "side lights" it pours out on the ages, and the methods of treatment, and the opinions of kings, princes, and physicians. Every library should possess this work.

THE MARVELS OF THE BODILY DWELLING.

By **MARY WOOD ALLEN, M.D.** The Wood Allen Publishing Co., Ann Arbor, Michigan, 1895.

This is a school book of physiology in which metaphor, parable, and allegory are used freely to make the facts clear and interesting. While authorities may differ as to the success of this effort, all will agree that the book is interesting, reliable, and very useful in many circles of society. In the hands of wise teachers it may be very valuable in school instruction.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By

E. J. HOUSTON, PH.D., and **A. E. KENNELLY, SC.D.**
Cloth, 412 pages; 128 illustrations. Price, one dollar.
W. J. Johnston Company, publishers, 253 Broadway,
New York.

This work is one of a series that are intended to give clear elementary instruction in electrical problems. This volume is written for the physician, to give reliable information on the various facts of applied electro-therapeutics. The electro-technics of apparatus, and the laws of electrical currents, and some of the facts which are established are presented with unusual clearness. This treatment of the subject will be of great value to every physician, because it deals with facts not in the medical text books, and so covered up in the larger works on electricity as to be practically inaccessible. For simplicity and clearness of statements, and facts that enable the reader to understand some of the relations of electricity, this book is simply invaluable.

Every asylum and physician who uses electricity should have a copy of this work, as essential for every-day study. Everyone who would know some of the facts of this new problem will find this a great assistance.

DON'TS IN CONSUMPTION. A description of the scientific management of consumption, and how a modern sanitarium may be had at home, and what means should be used to assist nature in recovery, etc. By C. W. INGRAHAM, M.D., Binghamton, N. Y. Published by the author at Binghamton, N. Y., 1896.

This one of the few really reliable hand-books, giving clear, accurate advice to consumptives, that can be commended. The physician will find many general principles outlining the treatment of value, and giving him hints that can be applied in many ways.

While there are many admirable statements and chapters that should be impressed on all who treat this disease or suffer from it, the work will bear careful revision, and should be enlarged and rearranged in many ways. We commend it most heartily as a decided advance over the shifting uncertain therapeutic notions of many physicians.

The value of this work, in many ways, will be inestimable, especially to intelligent victims of this disease.

THE ANNUAL OF THE UNIVERSAL MEDICAL SCIENCE. Report of the progress of medical science throughout the world. Edited by C. E. SAJOUS, M.D., and seventy associate editors. In five volumes. The F. A. Davis Company, publishers, Philadelphia, Pa., 1895.

This is the eighth issue of an annual which gives the reader a very complete review of all the new facts which have appeared during the past year concerning medicine. The first volume is devoted to diseases of the lungs, heart, kidneys, also fevers, and all diseases of the blood; the second is devoted to diseases of the brain and nervous system, also diseases of women and children; the third volume is devoted to surgery; the fourth to diseases of the skin, eye, nose, throat, and medico-legal questions; the fifth to therapeutics, climatology, and anatomy and microscopy.

In these five volumes the reader can find all the new

facts and theories which have been urged and defended for the past year. It is evident at a glance that this is the most valuable addition which can be made to any medical library. With these works the physician can see at once what has been said on the subject all over the world.

These annuals have become established as indispensable, and no library can be complete without them. Write to the publisher for a prospectus.

THE DISEASES OF THE NERVOUS SYSTEM. A text-book for physicians and students. By **DR. LUDWIG HIRT, M.D.**, Professor at the University of Breslau. Translated by **AUGUST HOCH** and **FRANK R. SMITH, A.M.** (Cantab.), M.D., Assistant Physicians to the Johns Hopkins Hospital. With an Introduction by **WILLIAM OSLER, M.D., F.R.C.P.**, Professor of Medicine in the Johns Hopkins University. 8vo, 683 pages. With 178 illustrations. Cloth, \$5.00; sheep, \$6.00. New York: D. Appleton & Co., 72 5th avenue.

This is one of the most readable works on nervous diseases which we have seen. The clearness of style and fresh suggestive methods of expression give a charm to a really difficult subject. There is no padding, no strain to express the idea in technical words that are unusual, but an easy, practical flow of simple words that make ideas clear and unmistakable. The arrangement of the various topics differs from other works, but seems to be a great improvement in many ways. The author is a master of this subject, and a thorough teacher, not only of facts, but the relations they sustain to each other. He is not only a guide, but he points out new paths of study and roads for the travel of future investigators. This work has taken place among the great classics which every physician should possess, — books that are inseparable to every good library of medicine.

KEY NOTES OF HEALTH AND A CENTURY OF LIFE. By **DR. C. W. SCOTT**, late professor of anatomy, Kansas City College, etc., etc. Boston, Mass.: Published by C. W. Scott, Jr.

This is a volume of much practical information, designed for both the profession and laymen. It appears to be the conclusions of a close observer, and one with wide experience in practical medicine.

THE NATIONAL DISPENSATORY, WITH SUPPLEMENT, EMBRACING THE NEW EDITION OF THE NATIONAL FORMULARY. *The National Dispensatory*. Containing the Natural History, Chemistry, Pharmacy, Actions, and Uses of Medicines, including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with numerous references to the French Codex. By ALFRED STILLE, M.D., LL.D., Professor Emeritus of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania, JOHN M. MAISCH, Phar.D., late Professor of Materia Medica and Botany in Philadelphia College of Pharmacy, Secretary to the American Pharmaceutical Association, CHAS. CASPARI, JR., Ph.G., Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore, and HENRY C. C. MAISCH, Ph.G., Ph.D. Fifth edition, thoroughly revised in accordance with the new U. S. Pharmacopœia (seventh Decennial Revision) and embracing the new edition of *The National Formulary*. In one magnificent imperial octavo volume of 2025 pages, with 320 engravings. Cloth, \$7.25; leather, \$8.00. With Ready Reference Thumb-letter index, cloth, \$7.75; leather, \$8.50. Lea Brothers & Co., publishers, Philadelphia and New York, 1896.

Appleton's Scientific Library is one of the literary events of the year. There are sixty volumes in all, whose scientific value is incalculable. Eighteen authors are represented, among whom are Huxley, Darwin, Spencer, Tyndall, Bain, Whitney, J. W. Draper, Le Conte, and Proctor, to say nothing of as many others only less well known but not less authoritative than these. The books in the library are world-famous. Spencer's "First Principles," his "Principles" of biology, of psychology, of ethics; Darwin's epoch marking

"Descent of Man" and "Origin of Species," his "Animals and Plants under Domestication," and "Coral Reefs;" Huxley's works, and Tyndall's; Bain's "Education as a Science," Draper's "Conflict between Science and Religion," Whitney's "Life and Growth of Language," Proctor's "Other Worlds Than Ours;" these are only a few of the books that make this scientific library so valuable. This is an *edition de lux* of the best works of science, that will be a rare addition to any library. Send to D. Appleton, New York city, for prospectus.

The Journal of Hygiene continues to bring every month a rare and most useful table of topics, which are helpful to every reader.

Appleton's Popular Science Monthly is literally one of the great magazines of this country. Each number grows more valuable and indispensable to the thinking readers.

The *Scientific American* brings every week a rare table of contents of most stirring work by the leaders of the new science.

The *Homiletic Review* is without a rival in the world of religious thought. Its lessons become more and more valuable and helpful to the readers. Send to Funk & Wagnalls of New York, for prospectus.

"*Blood Purifiers*," "*Nerve Tonics*," and *Alcohol*.— The following so-called "blood-purifiers," "nerve-tonics," and other remedies of similar character were recently examined by the chemist of the Massachusetts state board of health, with reference to the amount of alcohol contained in them:

	Percentage of Alcohol by Vol.
Ayer's Sarsaparilla,	26.2
Thayer's Compound Extract of Sarsaparilla,	21.5
Paine's Celery Compound,	21.0
Hood's Sarsaparilla,	18.8
Greene's Nervura,	17.2
Allen's Sarsaparilla,	13.5
Dana's Sarsaparilla,	13.5
Brown's Sarsaparilla,	13.5
Corbett's Shaker Sarsaparilla,	8.8
Radway's Resolvent,	7.9

These are all vaunted remedies for "that tired feeling."

Editorial.

The twenty-fifth anniversary of the organization of the American Association for the Study and Cure of Inebriety, occurs in November of this year. It is proposed to celebrate it with appropriate ceremonies, a public meeting and dinner. The same room where the first meeting was held has been offered for this occasion.

DELUSIONS IN INEBRIATES.

Periodical inebriates often manifest delusions in the free intervals that are not recognized. In one case the most miserly parsimony and dread of poverty appears. Every thought and effort will be directed towards the accumulation of money, even up to dishonesty, causing distress among all associates. When the drink period begins he is generous, kind, and benevolent. The free interval in another case is a period of contention, suspicion, distrust, and doubt of the reality of appearances and motives, of every one. Pessimism in its most aggravated form appears. A great variety of most complex mental states appear, which are delusions both transient and fixed. The common form is the intense religious fervor seen in persons whose drink craze has subsided. This becomes a burning zeal to rescue others by what is called gospel temperance work; or more recently in wild hysterical praise of gold-cure specifics; or entering upon the work of curing others with unusual credulity, by unknown specifics. These delusions always end in relapse sooner or later. The more prominent they become the sooner they explode. Recently I had a case, that after the subsidence of the drink craze, became insanely slanderous. Nearly all the waking moments were occupied

in finding dishonesty and falsehood in others. Every hint or possible act was construed into treachery and baseness. Corruption was discovered in everything; no one was free from wrong. There was a peculiar maliciousness and insane cunning in this that could not be mistaken. The physical basis for it was manifest in the great improvement from sharp eliminating treatment, by purging and baths. In another case sexual delusions of the immorality of others, and the efforts to entangle the person, would come and go every two weeks.

Delusions of persecution by friends, relatives, wife, or parents are also common, but usually unfixated and changeable.

These conditions are loosely termed "crankisms," but in most cases are organized and systemized into open or concealed beliefs. They are always dangerous, because unknown, and likely any moment to develop into acts that may be serious. These delusions are false beliefs which are in most cases without any foundation or reason from without. They are the workings of defective cell activities, which project themselves to external objects, apparently governed by no known conditions. In all probability they exist in all cases, but are easily corrected and transient in most instances. After a drink paroxysm the senses are defective, and the power of analysis weakened. Discrimination between the true and false is imperfect and misleading. This in most cases can be called unsystemized delusions, while in others it is systemized. The mental peculiarities of reformed men is a new field for the study of these delusions.

CAN AN INEBRIATE BE OF SOUND MIND?

This question has been recently discussed and answered in the affirmative, by several authorities who have made a study of mental disease.

To a specific question of the possibility of a person using large quantities of alcohol and opium daily for years, and

retaining a degree of mental health and sanity, the answer was that it was a common occurrence. Instances were given to illustrate and prove this fact. The evidence of these statements were found to be based on general observation and the opinions of the inebriates themselves or their friends. Why should the assertions of persons who have paralyzed themselves for years with alcohol and other narcotics, be accepted as evidence of sound mind, simply because it sounds reasonable? Why should the statements of such people be accepted without critical inquiry and examination in the same way as the assertions of persons notably insane are studied?

The conduct and opinions of inebriates are pre-eminently subjects of critical study, because the toxic causes are fully recognized. The reason that this is not done in all cases, is the prevalent opinion that alcohol and other narcotics are harmless in small doses, and taken in moderation.

It is impossible at present to draw lines where any drug ceases to be harmful, and say that up to this point it is safe and beyond it is dangerous. The inebriate has visibly poisoned himself; the fact that he displays no common symptoms of insanity or pronounced mental unsoundness is no evidence of mental health.

Serious diseases exist which do not manifest themselves in the ordinary changes of conduct and character. Mental soundness is not established by the presence or absence of certain fixed symptoms. The central fact that alcohol or other narcotics are used daily, is always evidence of two absolutely certain pathological conditions. One degeneration of the higher brain centers, manifest in the continuous use of these drugs. The other, paralysis of all the functional and psychical brain processes.

The continuous action of alcohol and opium, depressing and diminishing cell activities, causing complex changes, chemically and physiologically is always incompatible with mental health. The demand for spirits or drugs, whether explained by any reasoning or possible motives, is always

abnormal and inconsistent with health. It may come from error of judgment in the person or his advisers, but soon it becomes a pathological state, growing more and more fixed. Theoretically and practically no inebriate can be of sound mind. Cases that are held up as examples of persons who have used spirits for a lifetime, will not bear the test of critical examination. It is extremely doubtful if any such persons exist; all the examples of persons who have used spirits twenty years or more are found to be unsound in both mind and body. Up to the present time no exceptions have been noted. The fact that little change in character and conduct was apparent to superficial observation is no evidence. An inebriate who boasted of his immunity from disease from alcohol, was found to have neuritis cirrhosis, mental delusions of suspicion, and illusions of spirits guiding him.

Any careful study of such cases will furnish abundant facts of disease and mental unsoundness. The medical authority who doubts this, has simply to appeal to the facts for evidence which is accessible and convincing.

INEBRIETY IN INFANCY.

Recently a neurologist denied the possibility of the alcoholic craze in young children, and asserted that it could not be proven by actual clinical cases. The *JOURNAL OF INEBRIETY* has published a number of such cases, and other journals have noted similar instances.

While these cases are rare, or, at least, have not been observed very often, they exist in homes of the wealthy as well as the very poor.

I have met some cases like the following: A boy, two years old, in the family of a wealthy man, who had been kept from tasting any form of spirits, suddenly became intoxicated. He drank a glass of wine found by accident. From this time he was a literal dipsomaniac, whose excessive irritability could only be quieted by some form of spirits. No medicine could take the place of spirits. Medical skill was

unavailable ; nothing would quiet the excitement and nervous tension but alcohol.

This was concealed in various ways, but the constitutional proclivity for spirits refused any other means for relief. After two years of persistent effort, the father abandoned all other drugs and gave spirits regularly every day. The child died at eight years of some obscure fever. The father called this a judgment on him for continuous drinking up to the second year of married life, when his wife died, and he partially refrained from all spirits. Such cases are fortunately not common, but the facts they bring out exist in many ways unobserved.

Examples are moderate drinking parents, who use wine on the table, and who insist on total abstinence in children, or permit them to drink small quantities. Such children may suddenly become intoxicated, or develop a craze for spirits, and, after a period of semi-delirious excitement, become chronic inebriates, or die from some intercurrent disease. This craze may appear in infancy and in early childhood, and be covered up by the parents and physician, until death (which usually comes early) closes the scene.

In the very poor the same conditions follow, only the craze seems more dependent on physical conditions and less concealed.

I have seen three cases in children under five years of age, who possessed a maniacal desire for alcohol. One was in a wealthy family, the other two were in mechanics' homes. The parents in all these cases were moderate and excessive drinkers. One child died of pneumonia, the others I have been unable to follow.

I have, through consultation by letter and statements of other persons, heard of a number of cases where this desire for spirits came on suddenly and was a veritable dipsomania. The experience of physicians who see many cases of children confirm this fully. Often a class of most puzzling symptoms in children suddenly disappear, from the use of alcohol,

which may be concealed or combined in some form of a tonic.

After a time it will be apparent that the alcohol is the only drug of value.

Some inherited defect has been awakened, and the imperious demand for relief will not be satisfied with any other drug. Inebriety exists in infancy as an inheritance, as a transmitted form of degeneration, which rapidly runs its course. Of course inebriety can be very easily acquired in early life, but its duration is longer, and the antagonism of growth and development retards its progress until maturity. The inebriety of infancy or early childhood is of short duration, and always an inheritance that ends in early death.

There is no doubt that many cases of this kind are concealed from observation, and that inebriety in infancy is more frequent than it is supposed to be.

LANGUAGE SYMPTOM IN ACUTE INEBRIETY.

The effect of alcohol and other drugs on language and power of expression varies widely. A study of a number of cases indicates a general uniformity in the defects of selection, and capacity in the use of words, which is possible to group and compare. The first action of alcohol in suddenly increasing the circulation of the blood to the brain is apparent in an alteration of capacity, of expression, and change of common language. This is often noted by a tumultuous flow of words, which begins along natural lines and merges into confused statements, with an increasing number of adjectives.

In other cases language changes at once, either to extremely coarse violent words, or to most deferential polite expressions. After a short time the power of expression becomes palsied, and only confused expletives and negations continue.

In certain cases a marked aphasic condition begins in the

first stage of drinking and continues to a nearly total loss of words.

Such cases are not stupid, but seem adverse to all powers of expression, and, when forced to use words, select the briefest expletives.

Another class seem to have no power of selection in the use of words beyond the terms which express the lowest animal impulses. They repeat such terms over and over again, manifesting satisfaction at their sound.

Nearly all inebriates suffer from exaltation and deliriums of mental vigor and power. This is dominant in language, which is often bold and extravagant in words.

Often a consciousness of the effects of harsh words are realized, and a shrinking or increasing boldness in their use is manifest.

The mind has not lost its power of selection altogether. Fear or other motives rouses a degree of restraint in words that are remarkable at times.

When extreme volubility appears there is confusion of ideas, beyond boasting of power, and wild, strange adjectives. Language ceases to become mental expressions of anything beyond the lowest animal impulses. This may take on sexual phases, wild combativeness, or miserly selfishness, with suspicion of wrongs from others. Coarse, unguarded words express these impulsive or localized irritations of certain brain centers. In one case wild, threatening words, that seldom merge into acts, are seen. Often these violent expressions are overcome by opposition and fear, or they become intensified into true deliriums. If the sexual brain centers are affected, the language expresses this. Often the concealed, miserly impulses burst out in words at this time. The language is not an expression of the normal condition of the man, but only of some state of general or local paralysis, which may have been existing for some time.

Deliriums of exaltation and grandeur, or of melancholy and depression, manifest in words at first natural and con-

nected, then confused and vague, are common to many cases.

Aphasic states, where words and expressions are used without conception of their meanings, are also common. An instance is that of a business man, who wrote while intoxicated, using words which conveyed a certain meaning to him entirely foreign to their real import.

Extravagant use of words in all circles of life attracts attention to the mental condition. Where alcohol and opium are used defects of powers of expression and conceptions of the value and force of words are common to all cases. In some this is very prominent ; in others the finer shades of word palsy are only noted by study. Some very startling facts will appear from a comparative study of this symptom in inebriety.

Clinical Notes and Comments.

CASE OF HEREDITY.

Dr. McClelland, in an excellent essay on "Heredity *versus* Education," gives the following very remarkable study of a case:

"A distinguished judge of Kentucky was for a long time a secret drinker, then became openly addicted, and died from the effects of drink. He had three children, one daughter and two sons. One son died in infancy of convulsions. The other, at the age of 19, was sent to an insane asylum. The daughter married a healthy, temperate man, then became an inebriate and died from the effects of drink. She left six children, two sons and four daughters. One son committed suicide at forty-two years of age. The second son, a physician, was a passionate, misanthropic man, who married and had two children; then broke off all family relations. One daughter is a neurotic, and has hysteria; two other daughters are unmarried, and, while intelligent, are considered queer. The fourth daughter was unusually well-developed, handsome woman, who married happily to a temperate, healthy physician, who lived a long life of great regularity. Six daughters and one son came from this marriage. One of the daughters was feeble-minded from infancy, and was finally burned to death by accident. A second daughter had intermittent attacks of insanity. The youngest daughter committed suicide by throwing herself out of a window. The son became a successful physician, but developed inebriety."

The history of this family is as follows: The first generation, alcoholic excess. The second generation, insanity and dipsomania. In the third generation, hypochondria, suicide, mania, and hysteria. In the fourth generation, imbecility,

mania, insanity, and dipsomania. In the fifth generation, one of the children has already evinced unnatural cruelty to animals. This exhibits a wonderful tenacity of hereditary transmission of degenerative qualities.

INTOXICATED OR DYING?

Of the numerous cases in which the physician is called upon to express a diagnosis, and prescribe treatment, there are none, we believe, more difficult to decide on than those of persons found insensible in the streets. Very frequently there are cases of simple poisoning from excess of alcoholic drinks, especially of an adulterated and deleterious nature, but at times there are cases of disease, or of disease complicated by head injuries, which, if not promptly recognized and treated, may ultimately prove of a serious nature. We are prompted to refer to the liability of errors in diagnosis of such cases, and the necessity of great caution in dealing with them, by the not uncommon occurrence of them, and the fact that they frequently become public, and excite a good deal of comment in the public press. A young man is found insensible in the street; is taken by the police to the nearest station; and is there seen by the medical officer in charge, who gives as his opinion that the insensibility is due to alcohol. In the morning more serious symptoms show themselves, and medical treatment is resorted to, but unfortunately without avail. A *post mortem* examination reveals that apoplexy was the cause of death. In another case a man is brought by the police to one of the hospitals, is admitted there, and after a few hours is once more sent back to the police station as suffering from an excess of alcohol. Soon after his return to the police station it is observed that his condition is not satisfactory; the police surgeon is summoned, and he gives it as his opinion that the man is suffering from some serious head injury, and sends him back to the infirmary from which he had been dismissed only a few hours previously. Such incidents as these cause a painful im-

pression on the public mind, and are calculated to destroy public confidence in the ability of professional men to recognize what is, and what is not, drunkenness, to say nothing of the serious consequences that must accrue to a patient suffering from some disease or injury of the brain from being thus conveyed through the streets at that early period of his illness, when prompt medical treatment might prove of some avail. We can only say, that such cases should serve as an instructive lesson to all those who are connected with the reception of patients at our infirmaries, and should impress on physicians generally the advisability of erring on the safe side, and of not giving a positive diagnosis in any case about which there can be a shadow of a doubt. — *Editorial Mass. Medical Journal.*

Dr. Lobias of Coatesville, Ind., writes in September *Courier of Medicine* as follows, on spirits in typhus fever :

“Of what use is alcohol in medicine? We have a better heart tonic in digitalis ; as a lung tonic a vastly better in strychnine ; nitrate of amyl acts quicker ; atropine warms up better. To tide over a dangerous time we would prefer iron, quinine, and strychnine, concentrated food, and attention to hygiene. Is it capable of prolonging life or in any way assisting nature in throwing off the microbes of disease? The most extravagant claims have been made for it by the laity. It is the one panacea for all the ills to which the human flesh is heir. But when we come to look at its effects in a fair and impartial manner, do not its claims as a therapeutical agent rest on a very unstable foundation? It prevents oxidation of the tissues. Physiologists tell us that when taken into the system the effect of alcohol on the red blood corpuscles — which are the oxygen carriers — is to lessen their power of giving off oxygen, and in this way the oxidation of tissue is interfered with. It does not require any great stretch of the imagination to see that while this condition of inactivity exists, all the organs of the body must suffer, for any interference with the supply of oxygen will

necessarily interfere with evolution of force. In Flint's Physiology it is said: 'Alcohol is capable of being absorbed and taken into the blood, but that it passes out again unchanged. It cannot be regarded as an aliment, and hence cannot take the place of articles that are assimilated.' The fact that those who indulge in alcoholic liquors are unable to endure the same amount of fatigue, is conclusive evidence that alcohol is in no sense a food. Men have been enabled to endure the extremes of heat and cold much better without alcoholic liquors of any kind than with them. The effect of alcohol on the human organism, in either health or disease, is unfavorable, as its use tends to increase the risk of infections in contagious diseases, and the progress is rendered more grave because of diminished resistance on the part of the organism in either health or disease. It is perfectly safe to predict that the time is not far distant when it will be as rare for a physician to prescribe alcohol as it is now for him to prescribe blood-letting, and when a healthy man will no more think of taking alcohol, with a view of preserving health, than he would strychnine for the same end.

MORPHINISM IN CHILDREN.

Dr. J. B. Mattison of Brooklyn read a paper on this subject in which he stated that although the literature of this subject was extremely scanty, he believed that the condition was not very uncommon in children. Among the illustrative cases was the following remarkable one: A baby of seven months when first seen presented the shriveled and wrinkled appearance of an old man, and attracted one's attention by its peculiar, solemn manner. It was learned that the child had been perfect at birth, and had thrived up to the age of four months, when in order to quiet it when fretful it was given paregoric. It very soon became necessary to give laudanum, and also to increase the dose, so that when first seen by the physician, it weighed only seven pounds, was shockingly emaciated, and extremely weak. It was taking

at this time no less than one ounce of laudanum daily. The laudanum was reduced one drop at each dose, and at the end of one month the child had become plump and well again. The speaker said that there were those in the profession who insisted that the chief factor in the causation of morphinism was moral obliquity, but cases like those just cited were in themselves sufficient to show that this theory was wholly untenable. In this experience, children showed a very strong tendency to become victims of morphinism. The consequences of this habit in the young were speedy decline and death, if not promptly treated; but if there were no structural lesion, and nutrition had not been too greatly impaired before coming under treatment, every case could be cured by judicious management. It was, in his opinion, monstrous to think of withdrawing the morphine abruptly in adults, and certainly it should not be thought of in children. The gradual withdrawal of the drug together with general tonic measures constitute the whole treatment. His reason for thinking that morphinism was much more common in children than the literature would seem to indicate, was the extensive and reckless use of many nostrums for the children, nearly all of which contained opium in some form. If the physician would instruct mothers regarding the great risks incurred in using all such preparations for their children, and at the same time the sale of these nostrums were under national or state control, much would be accomplished in the way of mitigating this terrible evil.

Dr. J. H. Fruitnight said, that in an extensive experience, he had never encountered the congenital form of morphinism in the young, but he had frequently seen the acquired form, as a result of dosing them with soothing syrup and cough medicines.

Dr. E. A. Tucker said that he had seen one case of congenital morphinism in the hospital. It was the offspring of a mother, who, for several years previously, had been addicted to taking morphine, and also to smoking opium. At birth the child appeared to be perfectly healthy, but when handed

over to a wet nurse it began to lose ground rapidly. This he had attributed to the sudden removal of the baby from the influence of the morphine to which it had been subjected *in utero*. In the future, he would be disposed to try the effect of giving the child for a few days after birth small doses of morphine, and gradually withdrawing it altogether.

The chairman described a case illustrating the difficulty in many instances of determining positively that the child is a victim of this drug habit. A child who had been unusually docile and free from excitement while under the care of the nurse, suddenly became almost maniacal when the nurse was called away for a day or two. This outburst was evidently due to the child being suddenly deprived of the drug.—
Pediatrics.

HYDROCYANATE OF IRON (TILDEN'S) IN EPILEPSY. BY X. T. BATES, M.D., GLADE SPRING, VA.

Epilepsy is termed an affection of the nervous system, dependent on many causes, and pronounced very intractable if not incurable in the great majority of cases. The more subtle and occult the cause, the more obstinate has been the disease usually, and the more unpromising and unfavorable is the result.

The ordinary approved methods and remedies in my experience have been signal failures, their effect being to produce and hasten the very mental disturbances and physical decay which the disease itself likewise is sure to induce. And in the treatment of epilepsy it is with great satisfaction that we may leave the old beaten track, turning away from the demoralizing bromides to the adoption of hydrocyanate of iron, which has a benign and reconstructive influence on the system, being pre-eminently a neurotic tonic and valuable in other diseases than the one under our consideration, particularly dyspepsia, gastralgia, neuralgia, and anæmia appearing in neurosthenic subjects.

Hydrocyanate of iron (Tilden) some years ago enjoyed quite a reputation in the treatment of epilepsy, engaging the serious attention of many physicians, and its merits along this line elicited considerable literature, but for some reason it did not bear out their sanguine expectations, and consequently fell into disfavor and comparative disuse as a remedy to combat this disease. Of late it has been revived, and again it has come to the front, fulfilling its earlier promise. The maximum value of every remedial agent depends largely upon the perfection of its preparation, and the fact that this medicine now proves more effective and reliable than heretofore may be owing to improved methods of manipulation in the laboratory whereby the manufacturing chemist can supply a better article than formerly. My own experience with hydrocyanate of iron has been most gratifying, and I believe it may well be our primary dependence in all cases of epilepsy save those that come within the realm of surgical interference. I give the following case, which, in this connection, seems to me of special interest and worthy of report in detail, since it had so long baffled all treatment and yet so readily yielded to the hydrocyanate of iron.

A. B., male, aged 35 years, resident of Kansas, occupation house-painter, which he had followed for only two years, when he felt compelled to abandon it in consequence of frequent and prostrating epileptic seizures, thinking, possibly, there might exist between his vocation and his sickness the relation of cause and effect.

Later he engaged in the real estate business, but shortly was obliged to relinquish this also. The attacks had regular periods, coming on every ten days, and were very severe from the outset. In the convulsive stage he would froth at the mouth, bite his tongue, and finally lapse into a quiet, unconscious state, in which he would remain from six to ten hours. With the return of consciousness he would be semi-dazed, and this condition would last for several days, during which interval he suffered with a dull headache. Sometimes eight or ten convulsions would follow in rapid succession,

and then he would be confined to his bed continuously for three weeks.

The history of this person traces his epileptic state to no traumatic origin, nor does it reveal any habit, condition, or inherited tendency sufficient to account for the disease. He was apparently in perfect health when first stricken down. The subtle undermining influence at work in his system may be termed "idiopathic," the least understood and the most difficult to overcome.

The initial seizure was in 1888. He has been treated by several physicians, one of whom was a specialist in New York. The paroxysms were so persistent, obstinate, and progressive both in severity and length of duration, that his medical advisers ceased to give him encouragement, and finally he relinquished all treatment, and came East in 1894 in the hope a change of climate might benefit him. He did this as a *dernier resort*. After having been among the mountains of Virginia for a few months he noticed that the paroxysms, though recurring just as regularly, were somewhat less pronounced, and this revived his hope and renewed his grip on life and prospective business. But his encouragement was of short duration, for soon the paroxysms, instead of being confined to the night season, began to appear without warning during the day also. Disappointment and despondency now came over him because he was forced to the conviction of a gradual decline instead of a radical improvement. His brief and delusive hope was to be accounted for, no doubt, by the kind attention of friends, such as he had not heretofore received in the West. Here they watched him night and day, and would change his position whenever they observed him going into a fit, which would have the effect to modify the attack. From the first his appetite was impaired, bowels constipated and confined, and a purgation was required about once a week. Continuously since the first attack his body has been covered with yellowish blotches about an inch in diameter, which would assume a deep orange color just previous to his taking on a paroxysm.

Patient can give no information as to what the drugs were which he had taken. They always were liquids of a salty taste, and presumably they were bromides. He first consulted me October 20, 1895. I prescribed :

R. Hydrocyanate of iron tablets, 1-2 gr. each (Tilden's).

S. One tablet before meals, and as a digestion I ordered Elixir Maltopepsin (Tilden's) after meals.

At this time the paroxysms were severe and coming on regularly every ten days, and their effect was perceptible on the countenance, which, naturally strong and vivacious, had become dull and expressionless. His memory, formerly good, was now very defective, and from day to day he could barely recall the names of new acquaintances. His whole physical system was decidedly weakened, and his mind comparatively inactive. His native ambition and will power had greatly degenerated, and he was indolent, inclined to eat and lie down, manifestly lacking disposition to take the exercise his health required. In the early part of 1895 he was offered an excellent position in a neighboring city, but he had no energy to avail himself of it.

Before taking my treatment he was nervous and restless every night until toward morning, when he would fall into a deep slumber, breathing heavily, and would awaken with a headache.

December 2d, and frequently since coming under my charge, he has called on me, always reporting progress and exemption from his convulsive attacks, though stating that at regular periods he would have slight monitions of the same, such as a momentary dizziness or passing headache, symptoms just enough to make him apprehensive.

January 1, 1896. About this time I ordered an additional tablet at bedtime. The concurrent testimony of his immediate friends is that he is markedly improved both physically and mentally, and he is now applying for a business situation. His facial expression and entire physique have undergone such alteration for the better as to elicit favorable comment from the most casual observer, and he declares himself

"made over new." His appetite is good, his flesh harder, his weight much increased. He now sleeps easily as a child, with no labored breathing, and awakens rested and refreshed.

January 15th. The blotches referred to have entirely disappeared, and he has had no severe convulsion since the commencement of my treatment. His only convulsive attack occurred December 27, 1895, and was a very light one and of short duration, from which he rallied quickly. The spell now seems broken, for since this there have been no symptoms whatever, and he is now engaged as "weighmaster" and assistant bookkeeper in a large manufacturing plant, having entered upon this position January 9th. In his own confidence he has assumed these business responsibilities without my consent or approval.

I shall advise the continuance of present treatment for at least the space of twelve months, never deeming it wise in epilepsy to relinquish combative measures within a shorter period than this after the malady has ceased to manifest itself.

Listerine has become a standard drug which is recognized in every section of the country.

The Rio Chemical Company will send a trial bottle to any one who wish to test *Celerina* as a mild sedative and tonic in various affections.

We call especial attention to an article on *Hydrocyanate of Iron*, prepared by Tilden & Co., New Lebanon, N. Y.

It is a pleasure to call attention to the new preparation of Reed & Carnrick of New York, called *Protonuclein*. It appears to be a most valuable medicine in many cases, and worthy of a more extended trial. The well-known character of the firm, as manufacturers of reputable drugs, brings great confidence to any preparation which they offer to the public.

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The *Tissue Phosphates* of Wheeler's formula, is a peculiar nutritive tonic of great usefulness.

The drug *Antikamnia* has come into very general use, for its value in controlling pain with the least disturbance to the general system. It possesses other powers in therapeutics of great value.

The curative power of Fellows' *Hypophosphites* is clearly attributable to the combination of iron, manganese, lime, potash, quinine, and strychnine.

Bromidia, *Papine*, and *Iodia* are three medicines prepared by Battle & Co., that are invaluable to every general and special practitioner.

Parke, Davis & Co.'s, new compound for all forms of dyspepsia, is of great practical value, and becomes a favorite remedy wherever used.

We call attention to a new remedy of great power, the *Arsenauro*, which is worthy of the closest attention.

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This Hospital is pleasantly situated in the suburbs with the best surroundings, and every appointment of an elegant residence.

Experience proves that a large proportion of cases who come under treatment, and who unite with the physician in the use of all means of treatment, are permanently restored and cured. Each case has the direct personal care of the physician and attendant; and no one is received for less than four months unless by special arrangement.

All letters and inquiries should be addressed,

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

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THE USE OF COCAINE AND ACCIDENTS RESULTING FROM IT—PHYSIOLOGICAL ACTION.*

BY DOCTOR E. DELBOSE.

Cocaine has been regarded as a general anæsthetic, but this view cannot be maintained from more intimate knowledge of its physiological qualities. It can be likened to no other medicament, except, perhaps, morphine.

Local Action.—When a solution of cocaine is applied to the naked skin, to the mucous surfaces, or is injected subcutaneously into the cellular tissues, the tegument in contact with the liquid becomes pale, assumes a livid tint, and becomes soon insensible to pricks. Three minutes are sufficient to obtain this result, and all parts impregnated with the solution may be cut or torn without the subject experiencing any pain. The sense of *touch*, however, is preserved, that of pain only suppressed. In one word, it is a simple analgesia.

This partial insensibility was at first regarded as a secondary phenomenon. The first effect of cocaine was to provoke a contraction of the coats of the blood vessels, and

* Translated from *La Clinique*.

the sensory nerve cells, insufficiently nourished, lost their physiological functions.

Arloing has proved that these two phenomena are absolutely independent.

He attributes the anæmia, the paleness of the tissues, to an excitation of the vaso-constrictor fibres of the grand sympathetic. It is enough to cocainize the eye of a rabbit and then to cut the cervical sympathetic, to see an enormous vascularization of the conjunctiva follow the anæmia of this membrane. And, nevertheless, the eye remains *insensible*. Hence the *analgesia* cannot be attributed to the constriction of the vessels.

Arloing believes in a direct action of cocaine on the terminal sensory fibres. And this opinion is not a simple hypothesis; it is based on the following experiments:

A fragment of the sciatic nerve of a frog is immersed in a strong solution of cocaine. The nerve becomes yellowish brown, and on microscopic examination the whole contents of the nerve fibres are found to be coagulated. Another piece of nerve immersed for the same time in distilled water shows no coagulation, save in the neighborhood of the sheath of Schwann. It must, then, be admitted that cocaine acts by disintegrating the protoplasm of the nerve elements.

Besides this, it is to be noticed that, in a mixed nerve, the sensory fibres are the first to be attacked; the motor fibres are so only secondarily. *Feinberg* has shown that cocaine applied to an exposed nerve produces a local anæsthesia which is propagated to the periphery, while the central end of the nerve and its motility remain intact.

Sometimes, after a local application of cocaine, a general analgesia of the whole surface is obtained. *Laborde*, who first noticed this phenomenon, offers no explanation of it; he is content to observe that the nervous system is not influenced, "for the excitability of the nerve trunk is preserved and even increased." *Brown-Sequard* thinks that this phenomenon must be allied to that case cited by *Richet*

in 1846, where a simple cauterization by red-hot iron produced an analgesia, not only of the point touched, but of the entire body.

To sum up, and without troubling ourselves with this inexplicable and very rare phenomenon, we may say that cocaine, applied to a mucous surface or injected into the subcutaneous cellular tissue, suspends the physiological functions of the sensory cells with which it comes in contact. A weak solution of the alkaloid is sufficient to produce the result. Thus a centigram of the salt in solution, injected into the derma, will give a perfect analgesia of all that portion of the derma bathed by the liquid.

General Action.— Besides these purely local effects, cocaine, under certain circumstances, may give rise to general phenomena which are often very remarkable.

The evolution of these phenomena is subject to diverse causes.

The quantity of active substance has naturally a preponderating influence. A certain dose will produce a simple excitation, while a little larger dose will provoke convulsions.

The method of administration is important. Thus, taken by the stomach, an animal will be able to absorb with impunity a quantity of cocaine that, injected into its cellular tissue and, above all, into its peritoneum, would produce alarming general symptoms; and this same dose, injected into a vein, would surely cause death. The quantity of active substance is then relative; all depends on the rapidity of the absorption.

The kind of animal experimented on is also of great importance. A fish, for example, does not react in the same manner as a dog. The former, having regard to the proportions, resists a dose of cocaine that would infallibly kill the latter. We shall endeavor to explain these differences, for in them we believe lies the interesting point of this general action.

In 1879, *Aurep* studied the physiological effects of co-

caine, and he was the first to point out the action of this substance on the nervous centers. He had seen that cocaine increased at first the excitability of the subject. This first action is manifest in a warm-blooded animal, and appears to be absent in cold-blooded ones.

On injecting under the skin of a frog a solution of cocaine, we see for two or three minutes the animal become agitated and jump about with no apparent reason. But this excitement is fugitive, for it soon ceases and we only see a sort of flaccid paralysis. There still remains, however, an exaggeration of the reflexes, indicative of excitability of the spinal cord. But this excitability may be rapidly exhausted; it is true that it is regained almost as easily. In fact, the animal reacts less in proportion as one multiplies the excitation, but if we let it be an instant it responds with as much energy as ever to new excitations.

On a warm-blooded animal this primary action of cocaine is most manifest. A rabbit, for example, will commence to run of its own accord; if it stops, it is enough to touch it gently to see it start out again. When the dose of cocaine is too strong, the excitability increases rapidly and convulsions ensue. From this moment we obtain truly toxic effects. We might, perhaps, term a "physiological dose" the dose of the alkaloid capable of simply heightening the physiological functions of the animal without disturbing them; that is to say, without giving rise to convulsions.

But at the same time other phenomena are produced which have all the same origin.

Thus *Vulpian* has noticed in the dog a protuberance of the eyeballs, mydriasis and swelling of the eyelids, results absolutely the same as those we get by electrifying the superior end of the cervical sympathetic when cut. *Vulpian* believed that cocaine excited first of all the cervical origins of the sympathetic. This excitation had, as a consequence, a constriction of the blood vessels, which allowed him to understand the elevation of blood pressure. This elevation followed the primary lowering of blood pressure due to a direct effect of cocaine on the walls of the heart.

Laborde believes also in an excitation of the vaso-constrictor fibres of the grand sympathetic, for he has always observed in the rabbit anæmia of the auricular vessels.

The excessive frequency of the heart beats may be explained in the same manner. Thus all these phenomena, joined to the reflex hyper-excitability, are indubitable proofs of the action of cocaine on the spinal cord.

But the other parts of the cerebro-spinal axis are equally influenced. We naturally think of the medulla oblongata to explain the modifications in the respiratory rhythm, and of the cerebrum to explain the irresistible motor impulse which animates a cocainized animal.

It is well to remark that this action on the brain is much more manifest in man, whose psychic faculties are notably increased and often disturbed.

From all these facts we may conclude that cocaine in its physiological dose is an excitant of the cerebro-spinal axis with predominance perhaps of the medulla.

When we pass this physiological dose which we shall farther on endeavor to determine, we see convulsions ensue, which, tonic at first, becomes rapidly clonic. The animal does not always succumb. Recovery depends on the quantity of the alkaloid; hence the possibility of administering a convulsive dose which shall not be a *mortal* one.

But why convulsions?

Laborde believed that they were due to excitation of the spinal cord. A very simple experiment of *Danini* has destroyed this hypothesis. In a cocainised animal in a convulsive attack, to cut the cord will stop the convulsions. The starting point of these epileptiform attacks is not then in the cord, but in the part of the axis above the section, that is to say, in the superior center. *Richet* thinks that they are due to an excitation of the motor zone of the encephalon.

Certain substances may modify these convulsions. *Skinner* has shown that atropine arrests them, chloral has a like effect, as also chloroform. Morphine, on the contrary, is a synergic of cocaine as far as convulsions are concerned.

Pradal noticed that a dose of cocaine incapable of causing convulsions produced immediately an epileptiform crisis if an equal dose of morphine was added. Nevertheless, habitués of morphine can take a great quantity of cocaine without danger. *Chouppe* explains this by saying that the cerebral cells have their excitability so depressed by the continued action of the former alkaloid that they can no more respond to the action of the latter.

Finally, temperature has a manifest influence on the convulsions.

Grasset and *Jeannel* have denied this influence, but *Richet* and *Langlois* have proved that cocaine does not differ from other convulsive poisons. Numerous experiments have permitted them to establish this fact "that the convulsive dose of cocaine varies with the organic temperature of the animal. It is weaker when the temperature is raised, and the reverse." These experimenters believe that a chemical combination takes place between the living cell and the poisonous substance. This chemical combination, the determining cause of convulsion, takes place only at a certain temperature and is more or less complete according to the temperature.

From this it seems easy to explain the absence of convulsions in cold-blooded animals. *A priori*, according to *Richet* and *Langlois*, we might suppose that the temperature is too low to permit of convulsive phenomena; but frogs heated to 30° do not exhibit convulsions; and, on the other hand, dogs cooled to 28° have very slight convulsions, it is true, but still characteristic ones.

Consequently, temperature can explain but one part of the phenomena; another factor must intervene. *Richet* believes in the preponderance of the cerebral system, which, more or less developed, becomes impregnated with a greater or smaller quantity of toxic substance and reacts in proportion. In one word, there is a direct relation between the convulsive dose and the cerebral mass.

A few experiments made with the advice and under the

direction of M. Richet have enabled us to establish this relation.

In our researches we have found that cocaine does not act convulsively on cold-blooded animals. However, *Kobert* obtained convulsions with frogs. *Richet* in his numerous experiments encountered nothing of this nature. I have myself injected very variable doses into frogs; a number of them died, but I had not a single convulsion. The only explanation I can offer is that German cocaine is not as pure as the French, although chemists, wrongly, decry the purity of the latter. In fact an absolutely pure product introduced into the subcutaneous tissue of the frog will never give rise to convulsive movements.

The same result occurred with all the other cold-blooded animals operated on.

Very different are the warm-blooded ones: with them convulsions are the rule, a moderate dose will produce them. This dose varies with the size of the animal. To get results that can be compared we have chosen an arbitrary point, an invariable unity. We have used as a standard the kilo weight of the animals. Consequently, when we inject 5 w., 15 centigr. of active substance this figure independent of the total weight of the subject will always be subordinate to the unity chosen by us.

In the course of our experiments, one fact has struck us. With two animals of the same kind, but of different weight, the one weighing the least was always more sensible to the action of the drug; although the dose was proportionately the same.

The reason, we believe, is that the relation between the total weight of the body and the weight of the brain is to the advantage of the smaller subject. This relation is very important; and this importance we shall show by the comparative study of doses of cocaine necessary to produce convulsions according to the kind of animals. Here are the results found in standard writers combined with our own experiments. We give a résumé of them in the form of a table.

216 *Use of Cocaine and Accidents Resulting from it.*

Cobaye: Injected into the cellular tissue or peritoneum.

	Dose of Cocaine.	
Compain, Paris '86,	0.02	slight excitation.
Personal observation,	0.03	excitation.
“	0.06	lively excitation.
“	0.07	convulsions, recovery.
“	0.08	convulsions, death.
“	0.08	“ “
Laborde,	0.08	“ “
<i>Convulsive dose,</i>	0.07	

Rabbit: Injection of Peritoneum.

Personal observations,

Dose.

0.05	nothing.
0.10	excitation.
0.12	“
0.15	lively excitation.
0.15	convulsions, recovery.
0.18	lively excitation.
0.18	convulsions, recovery.
0.20	“ “
0.20	“ death.
0.20	“ “
0.22	“ “

Convulsive dose. 0.18

If we compare these two results we see that the rabbit is much more refractory to cocaine. It is true that the other possesses a more considerable cerebral mass. This is perfectly in accordance with our law.

If we take as unity the kilo weight of the animal the rabbit will have a brain of 4 gr. and the other one of 7. (It is, of course, understood that these figures represent only an average.)

Let us continue our study with birds. Here is the result of our experiments on pigeons :

Pigeons: Injected into the large pectoral muscle.

Personal observations.

Dose of Cocaine.

0.02	excitation.
0.05	loss of equilibrium.
0.06	convulsions, recovery.
0.07	“ death.
0.08	“ “

Thus the convulsive dose for pigeons is 0.06. Our figures, and those of the authorities, permit us to fix the average weight of the brain in its relation to the weight of the animals at 8 gr.

For dogs, Richet and Langlois have proved that the convulsive dose is 0.02. We have contented ourselves with finding the weight of the brain, and, bringing it down to our unity, we have obtained a weight of 9 grammes.

Now, if we group the results obtained we shall see that hypothesis of M. Richet is verified. The following table is significant in this respect :

Weight of the brain brought down to kilo of the animal.

		Convulsive dose.
Rabbit,	4	0.18
Cobaye,	7	0.07
Pigeon,	8	0.06
Dog,	9	0.02
Ape,	18	0.012

On examining this table we find that the dose necessary to produce convulsions is smaller in proportion as the brain is larger.

This given, can we not determine approximately the dose in man ?

According to Cuvier the average relation between the cerebral mass of man and the total weight of the body is $1/28$. This gives the figure 35 if we bring this proportion to our standard. Now, by consulting the above table we see that the difference in the cerebral mass is less between the dog and the ape than between the ape and the man ; consequently the difference in the convulsive dose between the ape and the man must be greater than between the ape and the dog. It will then be less than 0.005. We shall then fix it, in a somewhat arbitrary way, at 0.002 or 0.003.

When we employ a quantity of cocaine superior to that which is capable of provoking epileptiform movements, the animal is often killed. We need only refer to our table to

see that the mortal dose follows the convulsive dose. The same law governs the evolution of these two phenomena; and to kill an animal a less quantity of cocaine is necessary in proportion as the brain is more developed.

The proof of this has been given in our experiments on warm-blooded animals. We have been pleased to see that the results obtained by ourselves on cold-blooded animals confirmed the law of *Richet*. Thus the frog and the tench, whose cerebral mass brought to our standard is practically the same, have nearly the same mortal dose, 0.08 to 0.10 cent. On the other hand, the tortoise, whose cerebral mass is less, is killed by 0.20 of cocaine.

In the course of our experiments we at one time thought our law at fault. Great was our surprise to see that a dose superior to the mortal dose did not kill a rabbit. *Richet*, to whom we submitted this result, told us that he had observed the same result with strychnine. It is the same with chloroform. We know that this anæsthetic often produces toxic phenomena, characterized by vomiting, and that the best way to arrest the vomiting is to continue to give chloroform. All these substances are their own antidotes.

We shall no longer follow our physiological study of animals. What we have learned will enable us to understand the action of cocaine on man, and to take up afterwards the critical study of the poisonings which have been made public up to this day.

Action of Cocaine on Man.

Cocaine produces on man local effects identical to those we have obtained on animals. The mechanism of the analgesia is absolutely the same. A local chemical action always takes place which suspends the physiological functions of the sensory cells.

The general effects are equally easy to understand. We must notice, however, that they are exceedingly variable in their evolution. To-day we may obtain one phenomenon; to-morrow, one directly opposite. It appears that cocaine, in its general action, is not to be compared with itself.

Thus, poisoning by this substance may present itself under a thousand different forms.

In a general way, however, the intoxication manifests itself by an extreme paleness of face, acceleration of the heart-beats, frequent and superficial respiration, precordial anguish, incomplete loss of consciousness, with a feeling of the end being near; in one word, collapse, bordering on coma.

Many of these phenomena may be observed on animals when we do not exceed what we have termed the physiological dose. Hence, at first sight, a similarity in the action, and this similarity continues when we employ a stronger dose of cocaine, *i. e.*, when we reach the convulsive dose. Then, as in the animal, we obtain, almost without premonitory symptoms, jerks which become, or which are closely allied to, convulsive movements.

This convulsive dose cannot be determined in an absolutely precise manner. We have fixed it (see above) at 0.002 or 0.003 to the kilo, which gives for an adult the figure of 0.20; and, in fact, the published observations, on the whole, seem to prove that this quantity, subcutaneously injected, is likely to produce convulsive movements.

If now we take, one by one, these phenomena, we shall see that all may be explained by the action of cocaine on the nervous system, and especially by the excitation of the cerebro-spinal axis, and this excitation, varying with the dose of the alkaloid, will give rise to phenomena equally variable in their evolution, *i. e.*, more or less grave.

In the lighter form of intoxication the spinal cord will be the first and often the only part attacked. Hence the paleness of the face and ligaments; for in the spinal cord are principally found the origins of the grand sympathetic, and we know, from the works of Dastre, that the phenomena of the circulation are under the influence of the sympathetic system. We can thus conceive that the excitation of the spinal cord, due to cocaine, manifests itself, thanks to the vaso-constrictor fibres, by a notable diminution in the caliber

of the vessels. In fact, the paleness of the teguments is sometimes extreme.

We understand that under the same influence the circulation of the brain is modified. Schilling has given a direct proof of this; in a case of poisoning he examined the eye with an ophthalmoscope, and found the vessels of the retina to be hardly visible.

The fact of cerebral anemia is to be remembered, for there, we believe, is the true cause of certain accidents which will not fail to break forth if a circumstance, insignificant in itself, should favor their explosion. Should the subject operated on remain standing; should he be in a state of profound anemia, or should he be under the influence of an emotional state whose effect is to lessen the circulation of the brain, anemiated already by cocaine, we may easily comprehend that we shall find ourselves in the neighborhood of accidents of vertigo, of tendency to syncope, and even to syncope itself.

These symptoms, due to a simple cerebral anemia, are more scaring than dangerous. It will often suffice to make the patient inhale two or three drops of nitrite of amyl to bring back to its normal state the cerebral circulation, and to cause, at the same time, the phenomena of syncope to disappear.

It is also to the predominant influence of cocaine on the medullary axis that are due the trouble of the circulation. For the excitation of the cervico-dorsal marrow, in which the sympathetic takes its cardiac fibres, produces a precipitation of the heart-beats, which raises them to 150 and 160 a minute. We understand that the blood pressure rises in the first moments to lower soon after, for the heart-beats, although numerous, are very weak, losing in force what they gain in speed. (Marey's law.)

This excitation of the grand sympathetic may also explain many of the phenomena. Under its influence all the organs with unstriated muscles may contract; and this action will manifest itself particularly in the pupil, which

will dilate ; in the stomach, whose contractions will often be increased to the point of producing vomiting ; in the intestine, whose peristalsis may produce purging.

At other times the medullary phenomena will pass unnoticed, or even will not exist. The effects of the cocaine will be localized in the medulla. We shall then see the respiration increase in frequency, thanks to the direct excitation of the origins of the pneumogastric. At first the frequency of the diaphragmatic contraction becomes extreme, the movements are hurried, weak, superficial, then slow, by degrees, through nervous exhaustion.

If, on the other hand, the cocaine acts on the encephalon, we see a series of psychological phenomena break forth. The patient may have sudden attacks of tenderness ; then, without transition, an access of fury. Sometimes the intellectual faculties will be excited to the highest degree ; he will suddenly remember facts which occurred 20 or 30 years ago, and which he had entirely forgotten.

Lastly, if the dose is too strong, we shall see the gravest symptoms, — convulsions. The movements, at first tonic and then clonic, become more violent as the fatal end is approached. During the convulsive period we see the face become cyanotic, the respiration embarrassed, the heart-beats less and less perceptible, and the patient dies. However, all who exhibit convulsions are far from succumbing. Their number is even very limited, as we shall see. But in the cases made public death has always been preceded by convulsions ; and if we remark that warm-blooded animals give us precisely similar results, we may conclude, not without a show of reason, that these two phenomena, convulsions and death, are intimately allied. As the convulsions are due to an excitation, by the cocaine, of the higher nervous centers, we must believe that death is the result of a toxic action on these centers.

A last problem merits solution. Why does cocaine offer such varying results with different individuals ? Why does it localize its action, sometimes in one part of the cerebro-

spinal axis and sometimes in another? The size of the dose certainly influences the evolution of these phenomena. Perhaps we must take into consideration idiosyncracies, individual susceptibilities. This is a point we cannot decide. We must content ourselves with indicating it.

(Continued in October Number.)

NEW TREATMENT FOR CONSUMPTION.

Dr. Paquin of St. Louis has been most successfully experimenting with anti-Tubercle Serum in the treatment of consumption. He introduces into healthy horses tubercle toxines, and from this produces a serum which is anti-tubercle. This has been found of great value in arresting, and in some instances curing cases of tuberculosis. The theory is that an anti-tubercle toxines are formed which arrest the growth of the tubercle germ, and in certain cases stops it altogether. This in practical experience proves to be true. The use of this serum is increasing and every case where it is used proves its great value. We urge our readers to write Dr. Paquin for some particulars of this new discovery, at St. Louis, Mo.

Inebriate asylums may not be the sum of perfection, and doubtless some of them are controlled by quacks, the class that owe their lives to the gallows, and ought to pay the bill at once, but, when rightly managed, we believe these institutions are a decided benefit. They are conducted on the theory that drunkenness is a disease and curable, and we believe this doctrine will be universal in the near future. So far building up and deprivation of alcohol are the principal remedies in these asylums, but they are, strictly speaking, psychical and natural remedies. In the application of such things as these new and more valuable agents may be discovered. These and similar institutions are schools for the study of alcoholism and we recognize them as important auxiliaries in temperance work.—*Dr. Flint.*

ALCOHOLIC INEBRIETY.

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To those who delight in the employment of statistics to emphasize the importance of the points under consideration and prove the truth of their deductions, the study of alcoholic inebriety is not very satisfactory.

The statistics are too confusing. They are modified by ignorance and indifference; they are distorted by prejudice and cunning, and suppressed by the pride and conceit of those whose duty it is to give information on the reception of the patient for medical treatment.

It appears about impossible to view the alcoholic inebriate from anything but a sentimental standpoint. Some reformer whose philanthropic eyes have never seen the sun except when at the zenith, starts the story that eighty per cent. of crime and insanity has its origin in the use of distilled liquor, and every printing-press in the country is at once engaged to educate the masses on this interesting point.

That intemperance in the use of alcoholic liquors entails misery to the living and the unborn, no one can deny. As no two human beings are constructed on precisely the same lines, we cannot expect that they will endure the same strain with equal degrees of resistance. When a man is suddenly subjected to any great physical or mental depression he must thank his heredity for the consequent result; whether he acts on the impulse of the moment and blows out his brains, or drowns his grief in the fabled oblivion found from drink, or whether he bends and not breaks, and quietly resumes his proper relationship in life.

An inherited predisposition that is shown by a peculiar

neurotic temperament, coupled with unfortunate early companionship, leads many into the well-worn path trod by the alcoholic inebriate.

Emotional overstrains, like worry and grief, may lead some to inebriety ; while physical disease, or injury to the head, may induce others to fall.

That eminent English authority on inebriety, Dr. Norman Kerr, claims that eighty-seven per cent. of his cases have been of a nervous temperament. I think that this is not far from the proportion that we find in the United States.

Regarding the nativity of cases of alcoholic inebriety, we find that they are usually in the following order of frequency :

- (1) United States.
- (2) Ireland.
- (3) England.
- (4) Germany.

The proportion varies, of course, according to the nationality of the district supplying the patients.

The ingenuity of many writers has developed singular facts from the causes leading to alcoholic inebriety. Perhaps some of these simply illustrate the meeting of the extremes in nearly all conditions of life.

Alcoholic inebriety claims most of its wrecks from the believers in the Christian religion, Protestant as well as Romanist, educated as well as unlearned. The Jewish race in England as well as in the United States, is singularly exempt from the vices of drink, while the followers of Buddha and Mohammed put us to shame 'by their immunity from this induced disease.

Dr. Kerr, in speaking of this condition, says : "As a whole, Anglo-Saxons seem to be more prone to this disease than any other race ; but the Russians, the Swedes, the Belgians, the Germans, the Swiss, the French, and the Austrians seem to be steadily coming up to the English and the Americans. In this statement I am not referring to acts of

drunkenness, but to the overpowering impulse to intoxication, the disease of inebriety or narcomania. It is interesting to note that as Jews carry their sobriety into every country (some parts of Russia excepted), so do the Anglo-Saxons carry their insobriety all over the world. We British are the finest colonist extant, but to our shame be it recorded, our triumphant march over the inhabitable globe has been marked by a disgraceful and damning trail of alcoholic drunkenness, destruction, and death. Our demoralization and decimation of native races by the drinking habits which we have taught them, are a hideous blot on the escutcheon of our fame, a reproach to us as a people, a dishonor to us as a civilized nation." (Page 132.)

Alcoholic inebriety is a constitutional disease of the higher nervous system, caused by continued indulgence in alcoholic liquors.

At different vantage-grounds of observation, an alcoholic inebriate presents a view of diverse proportions. To the moralist, a self-constituted and self-perpetuating sinner stands out silhouetted against the light of his "might have beens." According to the moralist all that is required is a change of habit — a dropping of old associations and methods of living; not alone a change of heart, but a complete revolution of the individual's mental and moral life. In theory these views are good, and cover the case with nebulous possibilities. To be sure, these views are entertained to a greater or less degree by all who have considered this subject. They represent themselves boldly when we state causes, and they insist on recognition in the management and treatment of the disease.

To the judicial mind the alcoholic inebriate represents vice. He is a self-seeking despoiler of his own prospects, and of his family's happiness, and stands in need of the law's disciplinary, "Ten dollars, or ten days."

To the physician, who watches the changes taking place in the one who is gradually yielding to habitual inebriety, there is but one conclusion to be satisfactorily reached when

viewed in the light of cause and effect, and that is — that it is a disease. As proof, he may state his post-mortem findings in the congested stomach, the nutmeg liver, the degenerated kidneys, the fatty, flabby, and weak heart and atrophied brain, shrunken membranes, hypertrophied neuroglia, atheromatous and tortuous vessels, with shrunken and distorted brain-cells, as shown by microscopic examination.

The action of alcohol on nervous tissue is able and does produce as great degenerative change in the physical and moral strength of the drinker, and results in as much of a disease as is found in terminal dementia or chronic dyspepsia.

If the physician should be in doubt whether the disease has progressed far enough to be called insanity, let him stand the inebriate up alongside of this definition of insanity, and see if it fits: "Insanity is the prolonged departure from the state of feeling and methods of thinking usual to the individual when in health, as a result of disease of the brain." Through the possession of a neurotic taint there are some predisposed to the drink habit, with whom bad company and bad advice are in the train of first steps, and an occasional indulgence degenerates into a habit. It does not stop there, but goes beyond that stage, and, taking deeper pathological hold, becomes a disease over which the patient has only a limited control, owing to the toxical enfeeblement of his mental faculties.

The full and free public consideration which this subject has had through the newspaper and magazine press during the past five years has been productive of benefit in educating the masses to a more intelligent comprehension of this disease.

What the alcoholic inebriate needs is proper medical treatment, and until he has had this we cannot feel at all sure what practical use to himself or to society it is possible to make of him. When a man's system becomes saturated with liquor from continued drinking, he is in a peculiar physical and mental condition. Physically, he offers to labor

and to disease less than his healthy degree of resistance ; for he tires with the one and succumbs easily to the other. Mentally, his condition is not only peculiar, but lamentable. From the capable, attentive, pleasant, generous, yet positive man of business, endowed with clear ideas of his social obligations, you see, traduced by drink, through various degrees of transformation, the incapable, inattentive, irritable, yet vascillating spendthrift, whose ideas are indefinite, and who often becomes possessed of no more originality than an echo. His moral sense becomes obtuse, the corners knocked off to such a degree that his conscience is seldom pricked, and there is scarcely a day in which he does not attribute blame to others for a condition in which he has industriously labored to place himself. This state leads to thoughts of suspicion of those about him and depression of spirit, until judgment is seriously impaired. All these symptoms and more exist, not when the individual is drunk, but when he is free from the immediate effects of drink. There is a change in his normal mental condition, and while he may not be considered insane by those who seek for delusions, yet his mental strength is enfeebled and he may be properly called an alcoholic dement. There remains in him no apparent mental elasticity. This condition is as others see him, not as he views it ; and to others who know what his symptoms denote, they point to disease. He is willing to admit that his habit is an unfortunate one, but claims he need go no further ; and if he is recovering from a more than usually free indulgence, may promise to stop, may give his word as a man that he will drink no more, and may sign a pledge with such forms of solemnity as seem most fitting to himself or friends ; but the instances are few when these vows are not traced in sand, and the first returning tide of desire finds the resolve effaced. His reason for relapsing would seem nonsensical, were we to consider his situation a result of habit, and not that of an enfeebling mental disease. Two illustrations will suffice : After several days of drunkenness a gentleman who was a man of long business experience and

superior education, was pressed for a reason for breaking a long-continued period of sobriety, at last reluctantly admitted that it was owing to having received a letter from his mother, whom he dearly loved. Another of the same grade of intelligence said it was owing to a desire to see his mother. He began drinking when he first felt this desire, and traveled to the city where his mother lived, avoided the house, and finished drinking in Boston — over two hundred miles away from home. Neither perceived the foolishness of his excuse, but clung to it as if it were wholly sufficient for his conduct. Coupled with this obtuseness of judgment is a conceit of their mental and moral strength, to which they look for future freedom from the relapses that have been in the past steadily working to wreck their lives. This tendency is shown after a few days of treatment, when the patient imagines he has the whisky out of him, recalls the possibilities of the past, with the degrading necessity for present treatment, and looks forward to the future and its kaleidoscopic possibilities, with no apparent thought that his downfalls are ever to be repeated, and that his pathognomonic story has been told by travelers on his route from all time.

It is with pleasure that I quote Dr. Isaac Ray regarding the state of mind held by the patient: "The restoration of the bodily condition to something like its customary strength and firmness, with all the pleasing sensations which follow such a change, excite no distrust of their power to resist temptation. On the contrary they are always hopeful, confident, sanguine, and impatient of delay. They say they feel perfectly well, have not the slightest desire for drink, and therefore their further seclusion would be not only unnecessary, but prejudicial to their mental and bodily health. The amazing confidence such persons invariably express in their future security is one of the curious traits of this condition. A great many have come under my observation, but I have never known one, not even of those who had repeatedly fallen and had most deplored their infirmity, to express any

apprehension of falling again. On the contrary, from the moment when they begin to resume their proper consciousness until they leave the hospital, the burden of their story is that they are safe forever after; that not the slightest danger exists of their again disregarding the terrible lesson of experience. Instead of returning into the world with fear and trembling, as one would naturally expect to see them, and seizing upon any excuse for postponing the day of trial, they go out eager and jubilant, as if bound on a festive excursion.

“Thus beguiled by a morbid confidence in themselves, they determine to resume their liberty in spite of entreaty and argument, and the institution has no power to prevent it. Neither the hospital for the insane nor any asylum for inebriates can hold persons in confinement against their consent, for any other cause than insanity; and though our account of this class of persons does not indicate in them a very healthy condition of mind, yet inasmuch as they are apparently rational after the first day or two, both in conduct and conversation, they cannot be called insane in the ordinary acceptance of the term. While in the paroxysm, or suffering under its immediate effects, they may very properly be called insane, and so long they may, unquestionably, be deprived of their liberty for the purposes of custody or cure. But when this condition shall have passed away, forcible detention in any institution, whatever it may be called, would be clearly a violation of constitutional rights, and would not be sanctioned by the legal tribunals.

“A notion prevails, I am sure, that the inebriate asylum is to be unprovided with bolts, bars, and guards, and no means of detention allowed more forcible than the offices of kindness, good will, and love. Respecting this notion it need only be said that it indicates but a schoolboy’s knowledge of human nature, and a still deeper ignorance of that special phase of it which results from long-continued irresistible inebriety.”

The inebriate has no reason to complain that efforts have

not been made from time to time to bring about a reform in his style of living. Probably no treatment for drunkenness has ever been recommended that has not been of some benefit to some one. He has been prayed with and sworn at ; he has been treated with loving tenderness, and he has been abused ; he has been thrown on the support of his word as a man, and he has bowed his head to the decrees from the bench ; he has taken long voyages on water and land, and he has been kept at home ; he has been kept from liquors by trusty nurses and relatives, and he has been fed with liquor in every manner that a cunning ingenuity could suggest. What to do with him has puzzled many. When we consider that he is suffering from a disease, we are on the threshold of learning what can be done for him. About everything that enters into and is a part of him in life and associations becomes a matter of interest when treatment is contemplated.

His ancestry, early training, habits, moral and physical caliber, must be considered in order to determine what kind of material you have on which to begin.

A man who possesses a weak will, but little moral sense of responsibility, and a love of low associates can be sobered up ; but the length of time he will remain sober depends upon time, place, and circumstances. The chances are that no treatment known will be of permanent benefit to this class of patients. From sobriety to drunkenness they relapse with disheartening regularity, becoming more enfeebled mentally and physically, until they finally represent the driftwood of a community. If the individual has become demented through the effects of long-continued liquor drinking it is useless to expect that his mental integrity will be wholly restored, only that portion of the brain that is uninjured by alcohol is going to act in a fairly healthy condition after the most satisfactory of treatments.

Every community has a number of men and some women who are rapidly becoming nothing more or less than shiftless, habitual drunkards. They are useless to themselves and to

everybody else, and it is simply a question of time before they become public charges. If they do not become so themselves, their children stand a good chance of being wards of the state in one capacity or another, and this should not be forgotten.

These points are too often overlooked when patients are completing a course of drug treatment for inebriety. Some expect a complete change to occur in the character of the individual—a change making it impossible ever to drink liquor again. Now this is nonsense, born of ignorance of the subject. No treatment is going to benefit permanently one who has no wish to stop drinking, and who prefers to associate with those who do drink. An exasperating condition of affairs awaits the physician who treats these patients. He cannot judge, to begin with, just what the outcome of the treatment may be. The case that appears favorable in the beginning may relapse quickly, while the one surrounded by doubt may make a good recovery and return to usefulness after years of spasmodic effort to keep sober have made his friends weary and disgusted. This simply illustrates that the effects of liquor may conceal more will-power, self-control, and judgment than we may be aware of. In favorable cases you may expect one of three results—an improvement, a reformation, or, in a number of instances, nothing more or less than a regeneration.

I believe that it is safe to say that about ten per cent. of the patients who are now under treatment in our state hospitals have become insane by the use of distilled liquor. Many of these will go out recovered, and some will never relapse. The majority is likely to break down if circumstances are moderately favorable. Uncomplicated cases of alcoholic inebriety that have reached the stage of insanity will not number in this population of our hospitals more than two (2) per cent. of this number.

The importance of intelligent medical treatment cannot be too strongly urged, and the less they associate with their kind during this time of treatment, the better is their chance

of recovery. Otherwise they while away their time during treatment by recounting to each other their past experiences, with a certain amount of fool pride that is little calculated to establish a sound moral tone, or to allow them to use what self-control has not been destroyed by reckless indulgence.

The instability and unreasonableness of the recovering inebriate is similar to that of most of the insane at the same stage. In the inebriate it means, however, a returning craving for drink. When the period is reached in which the immediate effects of liquor have passed away and the mind has cleared up, the necessity of at once attending to business becomes the one serious wish of his life. It is at this point in his treatment that the foundation is frequently laid for relapse from the liberty allowed him by his medical attendant. In some instances the doctor is led to believe that ruin of the mind, person, and estate, with a *habeas corpus* attached, is going to be the result of prolonged custody.

A number of years ago Dr. Portugaloff, a celebrated Russian physician, used with marked success a solution of one grain of strychnine to 200 of water, injecting five drops every twenty-four hours. So confident was he of the good results likely to follow that he recommended the establishment of dispensaries under public control, for the purpose of giving his treatment to those who needed it. This is believed to be a practical and good idea by those who have given the subject of drug-treatment a thorough trial.

The single remedies that have been used with success for the treatment of inebriety are: Nux, belladonna, cinchona, capsicum, macrotin, stramonium, and veratrum viride, generally in low potencies. It has not been my fortune to see the results that have been said to follow the use of high potencies for the treatment of inebriety, recommended by the celebrated Dr. Gallavardin.

In addition to medicine regularly administered, hot milk at frequent intervals, say every two or three hours, as the condition of the patient demands, should be given, care be-

ing taken not to overload the stomach, yet giving it something to do. Hot milk is not only one of the best of foods, but it is a tonic in its effects.

It is well to tell the patient the need of time and care, and the importance of treatment. Tell him it will not perform miracles. No one should be permitted to take treatment who does not honestly wish to be relieved of the drink thralldom. The taking of medicine will not render it impossible for a person ever to take liquor; nor will it restrain him from associating with those who habitually use liquor. It will not change the natural disposition of any individual, and it will be useless to expect such a change. Should a man be demented by much drinking, there will be nothing certain about the results of treatment. The chances are against any help for him. Prolonged treatment will, however, generally do these things :

It will remove the desire for liquor, rendering it unnecessary for the patient to drink again. It will also improve the patient's general physical condition, and enable him to entertain for himself some degree of self-respect.

It will bring out the better qualities of the patient that have been lying dormant under the influence of this drink habit. This fact must be seen to be understood. Should the patient attempt to recultivate the habit of drinking, there is no earthly reason why he should not do it. Liquor will have the same effect upon him that it has always had. Recollect that treatment will enable a man to remain sober if he so desires, and resolutely cultivates his regained self-control.

To talk of alcohol as the sole specific cause of inebriety is a mistake, that reflects on the powers of observation of a medical man. In almost any circle of life facts to the contrary can be found. Inebriety is a disease of degeneration involving and depending on many and most complex causes, and not alone on one drug like alcohol.

SOME REMARKS ON THE MORPHINE HABIT.*

BY HENRY FREEMAN WALKER, M.D., NEW YORK.

No one denies the evil effect of the habitual use of morphia, and all admit, I think, that its employment hypodermically is peculiarly seductive. I have seen the craving established, so that it was clearly manifest, after the third daily repetition of the dose. Opium in no other form, and by no other method of administration, will so speedily produce this untoward result. In a measure this would seem due to the fact that the relationship of cause to effect is so clearly established. In a moment one passes from intense suffering to complete relief; and at the same time experiences such sensations that he realizes the process; which, in other methods of exhibiting the drug, is obscure or wholly occult.

Opium itself, its tinctures, extracts, or elixirs, may be given for weeks in oft-repeated dose, and their withholding may be followed by only slight depression and little craving for the definite thing. But this cannot be affirmed of the surest and speediest method of relieving suffering. The depression is greater and the consequent craving is stronger.

I feel the more strongly with reference to the use of morphia by the hypodermic needle, because it is a vice for which the physician is peculiarly responsible. Opium smoking or eating may be first begun in curiosity, and the habit continued for the pleasure induced. But the first in the long series of hypodermic injections is always given by the physician. Unpleasant consequences, in the way of nausea or active sickness are no safeguard to the patient, though these may deceive him. Often I have heard patients

* Read before the Practitioners' Society of New York, November 1, 1895.

say, "There is no fear that I shall take morphine, for its effects are so unpleasant." Their very self-confidence betrays them. They soon discover that the repetition of the dose affords relief to the unpleasant feeling, and that in one respect the bane is its own antidote.

Opium taken by the mouth habitually hardly seems to shorten life, except through the accident of an overdose, sleepily taken. But the hypodermic needle surely undermines the health, as care in asepsis is always after a time neglected. But I do not think we compass the evil of the habit when we view it alone or chiefly in its physical effects.

To me the greatest evil of the morphine habit is the perversion of the moral sense. It obliterates in the victim's mind the distinction between truth and falsehood, right and wrong. And here the evil may not be limited to the patient himself, but this may entail hardship and suffering on all those about him.

The first effect of opium, in all its forms, is stimulant; and opium, of all the narcotics, except, perhaps, cannabis indica, particularly stimulates mental activity. Imagination replaces observation, and the judgment is in abeyance. We see this often in cases of illness where the drug has been exhibited, in which there is no delirium except that induced by the drug. The patient will describe confidently his hallucinations as facts, which are as definite as the images of alcoholic delirium. I have often been told by patients of the ill-treatment received at the hands of nurse or some member of the family, which statements I am morally sure were false. The only explanation is that vivid impressions on an excited imagination have fixed themselves like facts, and that the perversion of judgment is due to morphia alone.

In the description of symptoms, you cannot rely on the morphine taker's statement. Anticipated pain is so clear to the patient's mind that the future is present, and he declares himself a sufferer before pain has begun; nor, if in actual

pain, can you trust his statement as to the real amount of present distress. Nor can you trust his statement in regard to the actual occurrences of his daily history. Imagination supplies the place of fact, and he dreams in a world of ideas.

And this brings me to the chief point that I wish to make—a medico-legal one. As you cannot, without other reason than his own statement, believe the habitual morphine-taker with regard to himself, nor as a narrator of events occurring in his daily life, so his testimony on oath is worthy of discredit in legal matters. Alcohol, when it fevers the brain, excites the imagination but little, and it benumbs the memory so that the devotee to alcohol may make a poor witness by stupid forgetfulness. But the morphine-taker clearly remembers his so-called facts and mingles equally the truth and fiction of his narrative. I would not believe a man addicted to the use of morphine on oath, were there any reason to doubt his statement. It might be truthful and it might, equally, be false. I do not know if this has ever been made a point in taking legal testimony, but it might, and should be, in a criminal trial. A man's character or his life may be sworn away by a witness rendered incompetent, by the use of morphine, to discriminate between truth and falsehood.

In any important matter under trial, I believe that the habitual use of morphine by a witness should be a proper subject for investigation, and that the character of a witness, as a witness, is deserving of impeachment if the morphine habit is found to have made him its slave. It would not be so if the effect of opium were only to make a man oblivious or forgetful. Forgetfulness is a venial fault and the stupid man is merely a poor witness, not needfully a dangerous one. But the mind of the man who uses the hypodermic syringe and gives himself morphine is clear, often preternaturally clear. It works logically, and granting impressions to be facts, his conclusions, drawn from given premises, would be correct. For this reason he is the more dangerous witness. Cross-examination would not shake him; he

believes his impressions correct, and his reasoning is logical. His statement would be overthrown, if at all, by direct denial.

There is nothing in behavior or general appearance often to reveal the habit. Alcohol confesses itself, and one is on guard against the drunkard. As a witness the man who has been tipsy with drink will be stupid or forgetful, but not malicious in perverted remembrance. The morphine-taker will, on the other hand, go about his business, irascible perhaps and moody, and able to state a case or conduct an argument, yet unable to hold the clear distinction between fact and fiction. If these propositions are true, I believe that the challenging of the testimony of the user of morphine should be a thing which the court could sustain.

During the past few months I have been much interested in the cases of two of my patients, both victims to the morphine habit and the use of the hypodermic syringe. The first was a young man of great intelligence, unusual business capacity, and with great business responsibilities. As an occasion of additional nervous strain, he had a wife to whom he was devotedly attached, but who was a victim of ill-health and a complication of nervous troubles. There could not be a case where the temptation to resort to means that should produce sleep and forgetfulness could be greater. The introduction to the use of the syringe had been an in ercurrent illness of his own, at a time when his wife was a great sufferer. He felt the need of overcoming the habit, and determined to do so, and came to me for such help as I could give him. I found him changed from my former acquaintance, neat and almost dapper in appearance, to a man unshaven, almost unwholesome in looks, and with the air of one who did not get home at all, all night. I urged him to surrender himself, to close guardianship, give up all business except that of cure. He quite insisted that, if I would trust him, he could, with intelligent sympathy, work out a cure. He knew my faithlessness in the word of a morphine-user, for it had been repeated to him as a part of a

(supposedly) confidential conversation I had had with his parents in reference to his case. In answer to his inquiry, I had to admit the fact of having expressed such opinions; but I added that if he would always give me his full confidence, his failure as well as his success, I would believe him. The result was a complete personal history of his case. He went out of town to be occupied, and sent me daily and voluminous bulletins of his success or failure. I allowed him codeia, bromide of potassium, and triopal only as his need should seem to himself extreme. He within four weeks conquered his habit, and has since lived, not in full confidence that the desire is gone forever, but with the determination to resist its most insidious approach.

This case in its bare outline interests me as one of those exceptional ones where a man of power, mentally, has been able to dominate his appetite, when he seemed lost. There is nothing new claimed in the narrative, only the increased courage derived by the exceptional proof of self-control makes me look more hopefully on others.

My second case was that of a physician, a friend. He had been under my care for various illnesses, including last, a year before, an attack of rheumatic gout which disabled him for months and was a threat to his life. Before this, during it, and up to the time when he consulted me, in March last, he had taken regularly hypodermic injections of morphine of half-a-grain strength at four o'clock in the morning, and sometimes at other periods during the day. He was anxious to be broken of the habit, but dreaded the suffering of the immediate stopping, or the protracted discomfort of gradually diminished dosage. He had read accounts from Paris of the employment of hypnotism in such cases, and treatment by hypnotic suggestion. He came to me and begged that I would hypnotize him for this purpose, saying that he believed I was the only man in New York who could hypnotize him, and that I certainly was the only one whom he would allow to do so.

I had always felt a consciousness of certain power in that

direction, but had always resisted it, and was wholly without practical knowledge of the method. His appeal was such a personal one, however, that I told him that, if I could get sufficient instruction from my friend, Dr. Starr, I would attempt the treatment. I had no difficulty. He became hypnotized the first time in five minutes, at the subsequent sittings in three. The first time I used a bright coin, and in the others the eyes only. From the first three trances I wakened my friend; in the two next he was sleeping quietly as I left his house. He wakened in about half an hour. During the seances I talked to him, rather iterating and reiterating the phrase, "Do not be the slave of the drug," than bringing up new thoughts to his mind.

After the first three treatments he took his morphine as usual, after the next two he did not take it, and had no craving or sense of loss, and slept quietly and refreshingly through the night. Since that time he has been practically well of his habit. I write on June 16th.

In this case I had in treatment the earnest co-operation of my friend, the patient. He was eager to be free of the drug, was desirous of being hypnotized, and was sure that it would be helpful to him. So far it can hardly be considered an ordinary example of such method of treatment. The point which most interested me in the case was the cessation of craving, which ceased suddenly and completely.

My previous notes were written in June. I saw my friend a few days ago. During the summer past he has had administered, for pain too great to bear, two or three doses of morphia, but these have been isolated, and the craving has not followed its exhibition.

SOME REMARKS ON DR. WALKER'S PAPER.

Dr. George L. Peabody, referring to Dr. Walker's first case, wished to know whether the patient had had a strong enough will, on going to the country, to entirely refrain from morphine.

Dr. Walker replied that he had, but at the beginning he took a little codeia.

Dr. Peabody thought the patient had shown unusual power of will. Regarding codeia, while it was recommended as a means of weaning patients from morphine, he believed that in the form in which it usually came it was equivalent to morphine, and giving it to these patients was practically allowing them to taper off from the morphine habit. So far as he had been able to learn, the weight of evidence was in favor of rather rapid withdrawal of morphine in the treatment of those addicted to its use. He would suppose that, as with alcoholism, gradual withdrawal of the drug would not be successful.

In the second case, it seemed an unusual train of circumstances had favored the success of the treatment adopted. The patient was a doctor, he wished to be hypnotized, had faith in it, and desired to be rid of his habit. Dr. Peabody doubted the general applicability of hypnotism to the morphine habit.

Dr. Robert Abbe had been impressed with the fact emphasized by Dr. Walker—absence of moral force on the part of the morphine habitué. He thought the loss of will-power was equally striking. The few whom he had seen who wished to break themselves of the habit had followed the physician's directions to a certain point, but when it came to cutting the drug down below a certain amount their resolution always failed. He had seen two or three very earnest people try it, but after reaching a relatively small dose they seemed absolutely unable to go farther. Morphine habitués suffered from certain sensations or cravings which they called pain, but which probably were only allied to the pain sense, and these prevented them from giving the drug up entirely, although only a small dose might prove sufficient to allay these sensations. He believed there was a mental deterioration in the chronic cases which possibly might be overcome by hypnotism, but he had had no experience with it. The loss of the moral sense seemed to him a grave phase of the question. Personally he would not trust all the statements of morphine habitués.

Dr. Hermann M. Biggs asked an opinion, based on two cases of the morphine habit seen by him. A woman, fifty-three years of age, had begun to take morphine seven or eight years ago, for the relief of pelvic pain, and during the last three or four years had taken the drug continuously. She was taking eight grains a day when he first saw her. Within four or five days the amount was reduced considerably, and it was then that he had occasion to examine the urine carefully and found that it contained sugar. On inquiring into her previous history, it proved very suggestive of glycosuria, from which she had not entirely recovered. There had been frequent micturition, great irritation, thirst, etc. He reduced the quantity of morphine from seven or eight grains to half a grain in the course of a week, and the sugar in the urine increased considerably, until it was about four per cent. She had used in the interval some trional and bromide. She became somnolent, with muttering delirium, and her condition became so serious that he did not dare withdraw more morphine, nor did he think it desirable in view of the glycosuria. Indeed, he gradually increased the quantity to a grain a day. The patient improved slowly, and at the end of two weeks was in her normal condition, taking a grain of morphine a day. The diet was then restricted, and the glycosuria disappeared, but if a quantity of starch were eaten the sugar immediately reappeared in the urine. She had been under observation over two years, the quantity of morphine taken had remained at one grain a day, being administered by her daughter or son, and it seemed she had made no attempt to obtain morphine outside. She had, however, a craving for stimulants, and it was necessary to keep these out of her reach. Her health was very fair.

The second patient was a woman, aged about fifty, who had been addicted to the use of morphine twenty-five years. She had begun taking the drug occasionally when she was twenty-five years old for the relief of pain during the menstrual period, and for fifteen years had taken it continuously, in any form she could get it. When, a year before he saw

her the opium was cut off, she had been taking ten ounces of McMunn's elixir a day. For seven months before he saw her she had received no opium, but during that time she was in poor health and had had several attacks of serious illness. During these attacks she was given alcoholic stimulants, and later during an attack of hay fever was given cocaine in spray, and she immediately contracted the cocaine habit. She had always had a craving for stimulants, and when Dr. Biggs first saw her she was taking a large quantity of cocaine (about twelve grains a day) and as much alcohol as she could get. On withdrawing the cocaine she passed into a condition resembling acute alcoholism — delirium, sleeplessness, hallucinations, illusions, delusions.

The question arose whether in such a case it was possible or desirable to entirely withdraw the opium and attempt to keep the patient free from narcotics. He supposed it was a sort of heresy, but he had had the feeling that where a patient had been so long addicted to the habit, had lost the power of moral and physical resistance to its influence, and yet who was in good health, as this patient was, the entire withdrawal of the drug would require constant surveillance, and would be followed by enfeeblement of health; and it had also seemed to him that if any narcotic were allowed, opium by the mouth, in restricted amount, would prove the least harmful. He asked for an expression of opinion upon that point.

Dr. A. Alexander Smith said he felt more hopeful after hearing the histories of Dr. Walker's cases than he had felt before, for he had always doubted the ultimate result in any case of confirmed opium-taking. Many years ago Dr. Sands had remarked to him, on observing a morphine habitué in the street, that he did not believe any woman who had become confirmed in the use of the drug could stop it. Dr. Smith was then inclined to doubt this statement, but many years' observation had since convinced him that it was exceedingly rare for patients to become entirely cured of this habit.

Dr. A. A. Smith said further, that he had been interested in the medico-legal aspect of these cases. "Some years ago I was asked by a friend to go to a neighboring state and testify in a suit which he had brought against his father-in-law for keeping his wife and children from him. 'What is the matter with your wife?' 'She is an opium-eater.' 'You had better let the case stand, then. If she is an opium-eater, it seems to me your father-in-law has relieved you of a very great responsibility.' 'I accept that, but I want the children.' And then he asked me what view I took with regard to the reliability of the testimony of any opium-taker, and I said I thought it was absolutely unreliable. I felt that an habitual opium-taker was an habitual liar, and when I took the witness stand and made that statement I was berated by the opposing counsel, and was asked what I regarded as an habitual opium-taker. The judge seemed very much interested in the question of the reliability of the opium-taker, and he turned to me and said: 'Are you not making a very strong statement?' 'I hope so, for that is exactly what I intended to make, having been impressed with the utter unreliability of these people. It is not because of a vicious purpose, but rather a want of capacity to tell the truth.' I should like to ask Dr. Walker what he considers the smallest quantity of morphine which will make one a confirmed opium-taker, and render his testimony unreliable?" Dr. Walker having replied that he thought it would depend upon the case, and the effect upon the patient, Dr. Smith went on to say that his reply upon that occasion was, two grains at least, and from that amount up. That it would differ according to the individual and the circumstances. On that statement his testimony was very much damaged, for in the case in court it was shown that the woman tolerated large quantities of morphine because of severe pain.

Dr. F. P. Kinnicutt thought it would be a very important fact if further experience should corroborate Dr. Walker's as to the value of hypnotism in the treatment of opium

habitués. He had also seen some striking examples of the perversion of the moral sense in the particular direction of inability to distinguish between truth and falsehood. The word of the opium-taker was not to be relied upon; absolutely not. Regarding the semiology, one point had been impressed upon his mind many years ago which now was probably well known to all. He was asked to see a case with an eminent physician, to determine the cause of an irregular fever from which the patient seemed to be suffering. They were baffled, but later he read of observations made in Europe on temperature of irregular type observed in opium-takers, which at once explained the case.

As to treatment: For the past ten years he had employed only one method, that of sudden withdrawal of all opium, not even permitting the patient to use codeia. While the suffering was great, yet patients who had used both methods had told him that they preferred sudden withdrawal to the prolonged suffering of gradual withdrawal. In some cases the symptoms had appeared alarming, but no untoward result had ensued. He allowed the patients alcohol in any form, in any quantity, and also trional, sulphonal, or bromide, during the treatment. Regarding the ultimate prognosis he must say that he had not very great hope. Out of a considerable number of patients treated by him, only one had left off the drug for a long period. In the one case there had been freedom for ten years. Of course he was speaking of the habit of months' and years' duration.

Dr. Beverley Robinson said he agreed in the main with the previous speakers, but he did not think it wise to suddenly withdraw all opium from one who had long been in the habit of taking a large quantity. It caused unnecessary distress. Nor did he think other stimulants would take its place satisfactorily. Regarding the question of prescribing opium, he thought that sometimes it could not be avoided. That day he had used morphine in a case of headache in a woman who had consulted many prominent practitioners in the city without obtaining relief. There were certain men-

tal troubles calling for it, and a neurologist had given it occasionally to one of his patients suffering from melancholia. Druggists sometimes prescribed the drug, or repeated prescriptions containing it, without instruction from the doctor. He thought our prescriptions for opium should be allowed to go only to druggists whom we knew to be too conscientious to repeat them unless so directed.

Dr. Peabody said, in relation to giving morphine subcutaneously for the relief of headache, that about five years ago he was asked by a woman to see her husband, a doctor, who had been in receipt of a very large income from his practice, but who had suddenly gone abroad for many months and had only recently returned. The doctor patient quieted his suspicions by immediately telling him that morphine was the cause of all his trouble. He asked Dr. Peabody if he remembered who had given him his first dose of morphine, and stated that it was Dr. Peabody himself, who, seventeen years before, had administered a hypodermic injection for the relief of headache. The patient had continued its use ever since, although there had been intervals.

Dr. Peabody thought we ought not to administer morphine to people troubled with headache.

Dr. Kinnicutt said he fully agreed with Dr. Peabody. Women came to us with sick headache, and it did sometimes seem that morphine was the only drug which would give them relief, but he was positively of the opinion that it should not be used in those cases. A migraine was likely to last a number of years, and if morphine were once used it would likely be continued.

Dr. Peabody added that his patient died a most miserable death as a result of a combination of morphine and cocaine habit. Neurotic people, suffering from chronic neuralgia, were the very ones to whom morphine should not be given.

Dr. Robinson said it must be assumed that those physicians who sometimes gave morphine exercised some precaution and solicitude. They did not put the drug into the

patient's hands and walk away. There were some cases which could not be afforded relief in any other way, so that all one could do was either to administer morphine or walk out of the room and leave the patients to suffer for hours with extreme headache. He was not talking to the general practitioner, but to members of the Practitioners' Society.

The president, Dr. Andrew H. Smith, could see no reason why opium should tend any more toward destruction of the moral sense than alcohol. The only difference was, he thought, that the person taking alcohol usually found no necessity for concealing it, while one taking opium always did so stealthily. At first he lied only with regard to this habit, but by degrees he became accustomed to prevaricate. He thought it was wrong to try to corner such patients and convict them of their habit against their statement, for it only precipitated the habit of untruthfulness.

Regarding gradual withdrawal of opium, the usual method was to reduce the quantity by, say, one drop a dose. This meant a reduction perhaps of one-tenth the first day, one-ninth the next, one-eighth the next, and so on, the increase becoming rapid and distressful to the patient. The president had found a better method to consist in filling up the bottle, if a liquid preparation were taken, by adding water or alcohol after each use. By this method the reduction was by a smaller percentage each subsequent dose, but the amount of opium taken finally became infinitesimal. He found in practice two classes of opium habitues. The first class took the drug for the relief of pain or some form of suffering, and for that reason had not the fortitude to lay it aside. The second class, much less numerous, could lay it aside, but continued to take it because of the mental excitement which it caused. The latter were the most intractable. He had known such persons to drop opium for a long time, until all necessity for it must have been lost, and then, when the favorable opportunity came, they deliberately returned to its pleasant sensations.

The president said he had not been able to detect opium

in the urine unless it were taken in considerable quantity. He asked for the experience of others in that direction. He supposed all knew that a single dose might send the temperature up, but he did not know whether, after continued use of the drug, the system ceased to respond in this way.

As to depriving the patient of the drug suddenly and entirely, he recalled the case of a physician, an intelligent man, who had been under the care of many doctors at different times. At one time his life seemed to be a complete wreck. Finally it was found that by allowing him a certain amount of morphine every day it would not incapacitate him, and he could attend to a large consultation practice. There was no reason why this moderate amount of morphine, which was essential to him as his daily food, should be cut off. He knew one woman who had become a wretched creature through the use of morphine, mentally, morally, and physically. Under some influence she gave up the drug, regained her health and beauty, and happiness was restored to her family. After a number of years, within the last year or two, she had gone back to opium, and was again becoming a wreck. It was difficult to understand why a person, after such an experience, and after so long a respite, should fall a victim to the drug again.

Regarding habitual headaches, they were difficult to meet at times, and often it seemed cruel to withhold a single injection of morphine which was capable of giving relief. He could hardly bring himself to say that it was wrong to use the drug in such cases when the intervals were long and the danger of establishing the morphine habit was not so great. In one case the woman had suffered about once a month for years, and he was in the habit of giving her relief with a single hypodermic injection of morphine. Finally, he induced her to consent to an operation for very slight strabismus, and from that time the headaches had ceased, and she had received no more morphine.—*Medical Record.*

HABITUAL DRUNKARDS IN AUSTRIA, AND
THE CURATEL PROCEDURE.

BY PROFESSOR SCHLANGENHAUSEN.

Drunkenness, whether in the form of delirium or of chronic alcoholism, or as the origin of divers mental disorders, lays claim in Austria—at all events according to statistics—about as frequently as in other countries, to a number of victims in about equal proportions amongst the lower, middle, and upper classes of the population.

Undoubtedly statistics of different provinces show different results; but the fact remains that, taking all the patients in the different asylums for the insane, the number of habitual drunkards varies from ten per cent. to forty per cent. of the entire patients in each asylum. Thus, for instance, the asylums for insane persons in Lower Austria are, according to the reports of the Provincial Committee, overcrowded, owing to the fact that forty per cent. of the patients annually admitted are habitual drunkards. The procedure actually in force affecting habitual drunkards who, owing to their unconscious condition, or to their state of excitement, or as the result of crimes committed by them, or of attempts at suicide—have in some way or another come into collision with the police, is precisely the same as that which is applicable to the rest of the insane patients. Drunkards, as a rule, are first handed over to the charge of a “*Psychiatrische Klinik*” or to the charge of a hospital for examination and subsequent observation, and are thence transferred after a certain interval to a Provincial asylum for the insane. It is there where, in their case, as in the case of other mental sufferers, the Curatel Procedure first comes into operation; for the law says: “persons who require Curatorship are

those who are incompetent to manage their own affairs, themselves, and to guard their own rights themselves;" and these psychologically degenerated drunkards are just the persons who are the least able to do this. (The manner in which the Curatel Procedure is carried out has already been explained by the author of this paper in his *Austrian procedure re-Curatel*.) Drunkards then remain months, even years, in asylums; and, in complete accordance with the views expressed by Dr. Kesteven at the meeting of the Society for the Study of Inebriety, their detention in such asylums has proved itself to be in the highest degree conducive to recovery and in fact has frequently led to that result. Intoxication gradually vanishes from the organism, the power of resistance becomes strengthened, the sufferers become morally stronger, the manager of the asylum, where they are confined, feels that he can conscientiously discharge them, the curatel which has been put in force is annulled, and the patients enter again into full possession of their civil rights.

But after a shorter or longer interval spent in the outer world, owing to the patient associating with former companions, the power to resist alcohol diminishes; and it frequently happens that after months, and occasionally after weeks, the whole procedure—that is to say the reception into the asylum and the application of the curatel—must be gone through over again, so that drunkards have been known to have been placed under curatel and to have had their curatel annulled from ten to twenty times until finally their complete psychological degeneracy renders them only fit to be permanent inmates of an asylum or death puts an end to these recurring scenes.

Inasmuch as a large number of habitual drunkards are not brought to the asylums by the police and consequently do not share the protection afforded by the application of the curatel, and whereas it is precisely the drunkards in the asylums who harm the other poor suffering inmates; and whereas the former enjoy the free treatment now in use in

the asylums and are well able to abuse the advantages of the said free treatment; and whereas the said drunkards also manage to provide the other patients with alcoholic liquors supplied within the asylum or smuggled inside the asylum; and whereas being generally morally depraved individuals they exercise the worst possible influence upon all around them; and whereas finally these said drunkards cannot always be suitably treated and looked after, the Austrian government purpose constructing special asylums for drunkards to be placed under state control and to be similar to those which, built principally by private individuals, already exist in Switzerland, in the United States, in Germany, in Sweden and Norway, and in some of the English colonies.

Into these asylums persons are received whom the ordinary measures provided by the legislature have failed to keep from drink; such persons, in fact, who, by reason of their shattered and failing constitutions and in consequence of their ever increasing mental and moral decay and degeneracy, and owing to the danger to others arising from their irritability and tendency to violence, and finally on account of the baneful influence which they exercise in all family and household matters — have made existence in the outer world impossible for themselves.

Briefly, the above grounds induced the Austrian government to bring forward last year in the XI Session of the Chamber of Deputies a Bill to authorize the construction of Public Asylums for drunkards.

In accordance with paragraph 10 of this bill, habitual drunkards could be brought to one of these public asylums for inebriates on the order of a judge at the instance of nearest relatives or of guardians, or on the application of the manager of an asylum for insane persons, or at the request of a magistrate based on the written reports of experts in lunacy; and the final decision respecting the removal of the patient to such asylum rests with the Supreme Court. (Paragraph 11.)

In the event of an habitual drunkard possessing property, a curator must be appointed for such a person, the procedure being the same as that in force in the case of an insane person. The period of detention is limited by the bill to two years; and in the event of a relapse on the part of the drunkard, a further detention may be enforced for a like period of two years. So much for the procedure at present contemplated by the Austrian government respecting the future detention of habitual drunkards in public asylums specially constructed for them.

In conclusion, attention must be again called to the fact that up to the present time in Austria habitual drunkards, in common with other persons suffering from mental disorders, have for their own welfare and for the welfare of those around them been confined and treated in asylums for insane persons; and the application of the curatel has been found to act beneficially in such cases and to promote the cure of the patient.

On the summit of Lookout Mountain at Chattanooga, Tenn., over half a mile above the sea level, is a hotel of great beauty and comfort for invalids and persons needing rest. The panoramic scenery, which includes places of great historic interest, is unsurpassed by any other place in this country. The hotel, its management, and surroundings are without question the most pleasing and attractive of any mountain resort in America.

The second Pan-American congress will be held in Mexico, November 16th, and continue four days. Dr. Reed of Cincinnati is *ex officio* secretary, and a most cordial invitation is extended to all physicians to attend. The occasion and place and unusual facilities offered will make it one of the most attractive journeys of a lifetime. Send to Dr. A. L. Reed of Cincinnati for particulars.

Abstracts and Reviews.

ON THE EXCEPTIONAL EFFECTS OF BROMIDES.

BY S. WEIR MITCHELL, M.D., LL.D., PHILADELPHIA.

The ordinary or excessive use of bromides sometimes occasions symptoms which are familiar in their milder expressions, but which, I am sure, are rarely seen in their more interesting and aggravated forms; or, if so seen, are not always suspected to be due to the use of these salts.

In certain people these rare and extreme results are not due alone to the bromides. The prodromes, or the consequences, of an epileptic fit may, because of the bromides, be intensified even in those whose attacks are being lessened in number. This, I am sure I have seen, and I have several times had remarked by the nurse, or the patient's relatives, that the irritability so often seen before or after a fit was the worse for bromides.

Menstruation admits of the same comment. The curve of irritability or melancholy being sometimes higher at this time in epileptics under free use of bromides.

Trauma affecting the brain, as from fractures or internally called lesions, may give us to see excessive displays of bromic influences causing bad temper, suicidal or homicidal tendencies, temporary delusions. Cases of necrotic changes, from emboli or thrombi, may be thus responsible for unusual bromic effects; but it is to be remembered that of all the mental symptoms evolved by bromides irritability alone is common, and the rest exceptionally rare.

Most people take the usual doses of bromides without other ill effects than acne, roughened skin, and excess of urine, especially if it be the lithia salt which is used.

Dr. Da Costa calls my attention to the fact that, although ordinarily these salts do not disturb the circulation, they may do so when certain functional failure of heart-force exists. He says, "I have been struck with the fact of the depressing, and even serious, effects in those who have weak hearts, and especially the form of cardiac weakness designated as chronic cardiac asthenia. The action of the heart becomes distinctly feebler under the continued, decided use of bromides, and sweats are apt to break out ; all of which symptoms disappear when their employ is discontinued."

In a few patients even moderate doses occasion the parietic symptoms always seen soon or late in such as are using immoderate amounts of these agents.

One of the earlier physical effects, as Dr. Rudisch, of New York, has pointed out to me, is a tendency to ptosis ; the lids fall more than is common, the eye space is narrowed. Next comes increasing paresis of all the limbs, even to inability to walk, and this febleness may be so much more notable on one side as to look like a hemiplegic condition. As the weakness increases, the spinal muscles are affected, and, for a time, the spinal curves are altered and to sit erect is difficult. The pupils are moderately dilated. On the side of the mind, there is failing memory, difficulty as to fixation of attention, hebetude, and so, at last, a general condition like that of some partial imbeciles.

With paresis there may be indifference as to body habits, or the sphincters may be so relaxed that the feces or urine cannot be retained. This extreme state of things we rarely see, but now and then accident or reckless lay use of the drug in question gives an opportunity of the utmost interest.

I saw, in 1887, a child of 15 years, long subject to Jacksonian epilepsy ending in general convulsions. The father, an apothecary, determined to suppress the disease by the use of bromides. "If," he said, "a drachm a day holds the fits in check, two or more should put an end to them." On this theory he increased the doses to 150 grains a day. After ten days of this treatment I saw the child. She was unable

to stand, and when seated, her head dropped forward, and she remained, as the mother said, "all of a heap." The eyes were a third open, the pupils large, the sphincters relaxed, and the saliva flowed from the fallen jaw. As to her mind, she was quite imbecile, hard to arouse, and stupidly indifferent. The general convulsions had ceased, but the lesser fits were quadrupled in number,—a not rare incident. A few days without bromides restored her to normal conditions of body and mind, and the state of partial idiocy was exchanged for normal condition of rather unusual intelligence.

I saw, many years ago, and at nearly the same time, in my wards at the Infirmary for Nervous Diseases, two children, each of whom took daily, owing to a mistake of the nurse, nearly 100 grains a day of lithium bromide. I had just introduced this bromide into medicine, and was giving it to all the cases to which previously potassium bromide had been given. These two children were between 10 and 13 years of age, and were both cases of mild epilepsy. In a few days both were brought into a condition of extraordinary feebleness of mind and body. Memory was impaired in both, so that one forgot the letters of the alphabet, and, of course, could no longer read; the other had some curious confusion as to the time of events,—misdating them. My visit, she declared to the nurse, was made the day before, although I had just left her bedside. Her dinner, she said, had been taken early that day, and yet the tray was still before her. Her memory of events was, if not sharp, at least such as to enable her recall all things of recent occurrence, but she never succeeded in relating them correctly to the time of week or day.

This interesting state of altered memory was naturally of brief duration, passing away within two days after the bromides were withdrawn. In both of these cases the weakness was very great; both could stand, swaying somewhat, but neither could walk. When this was attempted they both fell to the left, the left leg being manifestly worse

than the right, as is often the case in drunkards, some of whom are often more drunk on the left side than on the right.

There are a few cases in which bromides (sixty grains daily) occasion at first a mere depression of spirits, as we say, which, save in rare cases, is not lasting. Now and then we find people who do not bear any effective dose of bromides, and who are in a state of moderate melancholia so long as we give the drug. In a still smaller number the effect of each dose is felt in a deepening of the sadness.

In exceptional cases this influence may rise to the grade of danger and occasion suicidal impulses. Of this I saw, a few years ago, a strange example. A lady, the wife of a physician, consulted me as to long-continued sciatica. She had had, four years before, three severe convulsions while nursing her last child. Ever since she had continued to take sixty grains daily of mixed bromides, being in constant dread of another attack. The medicine did not trouble her, nor was there the least sign of acne. She was, at this time, about 47 years old, and was becoming slightly irregular as to the time of menstruation. Within a year she had begun to be intensely depressed at, before, or a few days after the menstrual onset. Of late this recurrent melancholy was such as that for four days at the beginning of the flow she had suicidal impulses. The mid-interval was, she assured me, free from this distress of mind. About this time she reluctantly confessed to the constant use of bromides, which I induced her to abandon. To her surprise, the next period, which came two weeks after disuse of the drug, was nearly free from melancholy, and the next entirely so. These abrupt endings of any type of melancholy are rare, but still clinically possible. However this may be, the melancholia was seen no more for a year. Then, while suffering from temporary loss of sleep, she was given for three or four days ninety grains a day of some bromide. It plunged her into deep melancholy, although she was not at the time menstruating. The drug was abandoned and the symptom went

with it. The dose was larger than that which with the menstrual crisis had before seemed competent to occasion melancholy.

I have seen other examples of grave melancholy from bromides in males, as well as in females, and in one notable case of bromic habit a very intense melancholia with a face so sombre as not easily to be forgotten.

It is far more common to see irritability of temper occasioned by bromides. In old epileptics it is laid to the score of the disease, but that it is not always of this parentage is a matter worth remembering in extreme cases.

I know of several cases of old epilepsy in which the families of the sufferers came to understand that the bromides were the causative factors in giving rise to states of irritability, abruptness of manner, or peevishness in persons by nature gentle and amiable. When the outbreaks of temper were extreme in these cases, it was customary to stop the bromide for a week, and to take the risks of an attack for a time at least.

Last year I saw in my clinic service two young epileptics (both boys) who were what their parents termed "ugly-tempered" while using bromides, apt to break things, short of temper, "sudden-like," was the description given of one them.

This tendency to destructive outbreaks with unrestrained violence of temper does, in a few people, rise to the danger-line.

Ten years ago I was consulted as to an epileptic lad, the son of a physician, who could not take bromides a week without becoming homicidal. I disbelieved the account given me, or rather thought some mistake might have been readily made in an epileptic as to the cause of these outbreaks. I was reluctantly permitted to give forty-five grains a day of potassium bromide. The experiment came near to resulting in a tragedy, and I became amply satisfied.

Another case of like nature, also an epileptic, was seen in a young and sturdy farmer. All use of bromides had to

be laid aside. If he took them he began within a week to be both irritable and depressed; later, the melancholy lessened and the irritability rose to conditions of unrestrained anger, often upon the slightest provocation. If the bromides were still further pushed, this man grew sullen and dangerously homicidal.

I saw a case much like this a few years ago while acting as consultant to the City Hospital Insane Wards. The sufferer was a partial dement from years of epilepsy, but under bromides became violent and dangerous. No doubt the asylums could tell us of other and similar cases.

My friend, Dr. Draper, permits me to relate a case within his experience. A lady in middle life, ill in Paris, was seen by Charcot and Brown-Séquard on account of some disturbance of general health and loss of sleep. Very soon she became excited, and soon after so wildly maniacal as to give rise to the gravest prognostications. Her friends in this country heard by cable of her state. Dr. Draper promptly asked if she were taking bromides. She had been, but they had been laid aside by Charcot's suggestion. In a few days she was well. Dr. Draper's previous experience of the case enabled him to suggest the cause of this sudden mania.

Hitherto I have spoken of these unusual effects of bromides in the healthy, or in those who have no more pronounced lesions than the ordinary types of epilepsy present. Occasionally persons who have had emboli, or destructive necrotic processes about clots, or from thrombosis, or those who have had traumas show extraordinary susceptibility to bromic influences of unusual nature.

The worst case of almost sudden bromic toxication I saw years ago in consultation. A young man had rheumatism, heart-disease, and multiple emboli, one in the middle cerebral artery on the right side. After a perilous rise of temperature it fell to 100° F. for two weeks, with increasing evidences of destructive irritative changes in the brain. At this time one drachm of potassium bromide used daily for

three days resulted in acute mania. It was laid aside, and only when used anew had I the suspicion that my drug was to blame. A third experiment satisfied me.

I have seen but of late an intelligent and able engineer, who was so injured during a railway accident as to become palsied on the right side and comatose, until relieved by trephining and the removal of depressed bone and a small spicula of bone which penetrated the brain about one-fourth of an inch at the anterior parietal margin.

A skillful operation was followed by swift and entire recovery. Living at a great altitude, and subject always to neuralgic headaches, he now began to sleep badly and to have severe headaches. For this insomnia he took without orders a bottle or two a day of some proprietary stuff known as bromoseltzer. The amount thus taken could not have exceeded eighty grains a day. His very competent physician at this time, learning of the habit, told him to give up the bromoseltzer, and later, under the impression that he had obeyed orders, prescribed the use at bedtime of a small dose of chloral with thirty grains of potassium bromide. Meanwhile, with increasing irritability of temper came lessened capacity to manage affairs. Then at times he became violent and threatening and at last even dangerous. It was thought well that he should live at a lower elevation, and with this in view he was sent hither and put under the care of Dr. John K. Mitchell.

To get a full knowledge of his condition all drugs were laid aside, and we then learned that despite his physician's orders he had continued to take bromides in excess. A week after he ceased to take them he was freed from all the distressing symptoms which we and others naturally put to the credit of the cerebral lesion. He was no longer irritable; he became, as he was before the accident, amiable and merry, and has been able to write long letters and to discuss and decide matters of business. Those who know him best can see little difference between his present condition and that with which they have been familiar in past years.

It should be said that this excitability could be as easily and more quickly awakened by the smallest amount of alcoholic stimulus or any large use of tobacco.

Escheverria was the first, I believe, to call attention to the fact that bromides are competent to give rise to suicidal and homicidal impulses.— *University Medical Magazine*.

ENGLISH EXPERIENCES IN TREATING FEMALE INEBRIATES AT HOME.

The following, as a nurse's experiences in treating women, appeared in the *Temperance Record*:

"The patient was a girl barely sixteen years of age, the only child of a man whose name is something to conjure with in the commercial world.

"I was shown into the library, where the father was waiting to speak to me.

"'Cure my child, and be it money or money's worth, you have only to ask and you shall have it,' were his first words.

"The girl had been sent home from boarding-school in disgrace. The principals of the seminary, anxious to retain their best-paying pupil, had shielded her from time to time. But when, at length, not content with drinking to the verge of intoxication herself, she was found to be leading several of the other pupils in the same direction, there was nothing for it but the sternest of measures.

"I asked how long the girl had been drinking, and the father's face fell. 'It is all my fault,' he acknowledged with tears in his eyes; 'from the time she was a little thing— five or six years old— every time I had a few friends to dinner, she would pretend to go to sleep so as to get the nurse out of the room. Then, when the dining-room was empty, she used to steal down and drink what was left in the glasses on the table. When I found this out I treated it as a joke. But as the years went on, the joke developed into a grim reality, and before she was twelve years of age

my child was a confirmed drunkard. The doctors tell me if anyone can do anything, you can. And you will, won't you?' he concluded.

"I promised to do my best, and I did all I could.

"My patient was not violent, but she would lie for hours on a couch by the window, staring up at the ceiling till I feared her reason would go, although the doctors assured me there was no danger of such a calamity. I had been there about ten days watching her as a cat does a mouse, when all at once she began to brisk up, a state of all but coma being replaced by a condition of positive animation — such, in fact, as occasionally arises from the moderate use of alcohol. But with the watch that was kept over her I ridiculed the idea that she could get hold of any intoxicant. They could not get anything of the kind past me, and during the few hours I was off duty my place was taken by the girl's mother, who would have seen her daughter perish at the stake before she would have given her a drop of alcohol.

"I came on duty at five one afternoon to find my patient not precisely drunk, but pretty far gone in that direction. I questioned the mother. She answered me that no one save herself had been in the room since I had left it in the morning. I asked my patient. As is usual with dipsomaniacs, she gave me her most solemn vow she had never touched a drop of stimulant. It was a mystery, but, like most mysteries, capable of solution, and I had not long to wait for the *eclaircissement*.

"My patient's couch was drawn across one of the windows, which, as the weather was mild, was opened for an hour or two in the afternoon. On the ledge outside the window there was what appeared to be a flower-pot.

"I had noticed it more than once, and wondered why the pot was kept in that particular position when it displayed no signs of vegetation. My charge's mother having some calls to make one afternoon, I came on duty at half-past three instead of five. I was sitting about the middle of the room, and had just picked up a paper, when my attention

was attracted by a sound like the trickling of water. My patient was lying on the couch with her eyes closed as I darted to the window and looked out.

“The top of the imitation flower-pot was off, and into the receptacle there was trickling from a gutta-percha tube a stream of—whisky! I looked into the grounds for the propelling power, which I found in the shape of the under-gardener, who was skillfully manipulating a garden engine. This kind of thing had been going on for some time. Had I not come on duty earlier than usual that afternoon, it might have gone on indefinitely, as the lady of the house, though keen of sight, was hard of hearing. The funds for the whisky had been provided by my patient throwing into the grounds an occasional article of jewelry, which her accomplice pawned. I cannot say how they finished up with the under-gardener, but two days later the young lady was removed to a Home for Inebriates, where she still remains. How much did the flower-pot hold? Very nearly a quart. A pretty fair allowance of whisky for a girl not sixteen years of age, was it not?

“There’s no doubt but that the taste for drink is hereditary. Sometimes it is the girls who suffer, at others the male branches succumb—only too frequently both sons and daughters fall victims. Now and again the disease skips a generation, only to break out after a lapse of years.

“There is one family I attend with almost clock-work regularity. It consists of three sons and four daughters. The sons never touch intoxicants; the daughters drink, and drink hard. The father is a wealthy man who could give his daughters good portions. They are handsome and accomplished girls, and yet not an eligible suitor dare come forward. The one failing of the young ladies is too well known, and the go-ahead man of the present day is not so blind as to tie himself for life to a woman who will drink, at all hours of the day, anything she can lay her hands on. Strange to say, the father and mother are staunch teetotalers, but both the mother’s parents had been heavy drinkers.

“Are no steps taken to cut off the supplies of drink? Most certainly. The allowances of the girls are stopped. They sold the contents of their wardrobes and pawned their jewelry, to get money for drink. When these sources of revenue became exhausted, they went into town, bought new things on credit, only to sell or pawn the articles within half an hour of the purchase. Their father closed their accounts at the shops where they were known. Not to be beaten, they ran up an account for over £50 at a hotel not far from their house. This their father paid, naturally much against his will. Still, his standing in the commercial world would not permit of his being dunned day by day for a publican’s bill.

“What do women drink? Anything; and the stronger it is the better they like it. Spirits of wine will do if they can’t get anything else. Brandy is the first favorite. When they can afford it, champagne and brandy mixed. They take little or no water in their spirits, and the amount they can get through would surprise you. I had one lady patient who, when she was going about, would dispose of a bottle of brandy in less than an hour. And to talk to her you would not think she had touched a drop. That was the danger signal. It showed the drink was being absorbed into the system to presently complete its work by mounting to the brain.

“The woman who has a craving for alcohol will descend to any meanness to obtain drink. The husband of one young married lady I attended cut off her pocket money and her credit at the same time, save in one quarter—a livery stable. He did not think she could get any value she could turn into drink in that quarter. After lunch she used to dress in the most elaborate fashion, send for a hansom, and be driven to a certain public-house. She would sit down in the bar-parlor, take up a newspaper and pretend to read. She had not long to wait before one or other of the customers would ask her to have a drink. The invitation was always accepted. When the male generosity was ex-

hausted, or the male purse gave out, she used to step into her hansom and be driven to another public-house, where a similar programme would be gone through.

“The credit at the livery stable was stopped. The young lady went out just the same every afternoon, only on foot instead of on wheel. Her excuse was that if her husband did not think fit to trust her with money, she was not worth trusting at all. So she went on day after day, until the inevitable result was attained. I was called in to attend; the best possible medical advice was brought from all quarters. But the commonest and most fiery of public-house whisky won the day, and she died in delirium.”

DALRYMPLE HOME, RICKMANSWORTH.

EXTRACTS FROM A REPORT OF MEDICAL SUPERINTENDENT,
DR. BRANTHWAITE, FOR THE YEAR ENDING
JANUARY 31, 1896.

Although actual admissions fall short of the number published in my last report, the house has nevertheless been practically full throughout the year. This apparent discrepancy is accounted for by the fact that two patients in the house at the close of last year still remain under treatment; and, furthermore, no less than fourteen of the thirty admitted entered for the full period of twelve months. This, of course, only left limited accommodation for applicants at shorter terms.

Twenty patients remain under treatment. Adding this number to those detailed as discharged, the total of admissions—four hundred and twenty-seven—is obtained, since the opening of the home.

When the inebriates acts became law, there were many who foretold the probability of an entire want of applicants who would be willing to place themselves under its provisions. It is interesting, therefore, to note that, (although the way has always been open for entry under private contract), no

less than forty-eight per cent. of all admissions have been "under the act," and of these thirty-five per cent. have entered for the full possible period of twelve months.

On the question of admission it is greatly to be regretted that statutory powers demand such a formidable barrier as signature before two justices. This has proved a great deterrent to many who would otherwise perfectly willingly have availed themselves of the provisions of the act.

After an intimate contact and constant association with patients for nearly twelve years, I am more than ever convinced that could we but obtain an earlier chance, much more good would result. As it stands at present, the forbidding obstacles placed around admission under the act are such as to prevent many from attempting to surmount them except as a "dernier resort," or until they have lost all hope or care for the future.

Although many, even under these advanced conditions, recover absolutely, still the outlook would be brighter and percentage of good results greater could we but obtain power over patients earlier in their habits. This result will only obtain when admission to a retreat has more of a restorative and less of a judicial aspect.

Just a word on another point. Were it not for the urgency of the question I should apologize for again referring to it,—but year after year the demand forces itself upon my attention, and as often I am impelled to mention it to you,—can nothing be done for our destitute male inebriates and for those of limited means? There is an enormous field here for philanthropic enterprise, and much of the energy and money freely given for external purposes might be applied in this direction at home. The desire for intoxication is as much a diseased condition as any other monomania; but because it is associated with vicious surroundings and productive of vicious results, the whole question is apt to be shelved, by some of even the most earnest philanthropists, as wholly vice, and consequently without the pale of consideration. Much more should vice and crime

be regarded as the direct result of excessive drinking, in a large majority of instances, and excessive drinking as the external evidence of a morbid nervous condition, the victims of which more justly claiming assistance and help than repulsion and neglect.

Returning to our work here, we have completed a quiet and useful year. Many patients who have left us have derived full benefit from their residence, and it may interest you to mention that two patients of whom I had lost touch (one hitherto classed as "not heard from") have turned up to report themselves, after periods, respectively, of four and seven years' total abstinence.

The house and buildings generally have been maintained in good repair, and the heating apparatus, fitted to workshops and concert room, has been of great value in adding to the comfort of the patients.

The general health of the inmates has, throughout the year, been uniformly good, and no case of serious illness has occurred.

CANNABINOMIA.

Thomas Ireland of British Guiana, October, 1893, states that the Coolie immigrants introduced Indian-hemp intoxication into British Guiana, importing the seeds for cultivation. The drug is used by religious fanatics as an excitant to deeds of sacrifice or violence, and was taken by Sepoys, in the Mutiny, to increase their courage.

Comparatively few females have given way to the indulgence. Mohammedans are rarely addicted.

Wise of the Dacca Asylum, in 1873, stated that in Indian asylums, on an average, between 30 and 50 per cent. of admissions were due to abuse of Indian hemp, and that at the Cairo asylum one-third of the admissions were due to this narcotic.

In British Guiana fully 30 per cent. of the Coolie patients in the Barbice asylum had been habitual smokers of cannabis.

Rich and poor Hindoos alike indulge, bhang being the cheapest form.

Water is added to the ground leaves and stalk till a liquid paste is formed, which is strained through a cloth; $\frac{1}{2}$ to 1 drachm (2 to 4 grammes) is mixed with milk and sugar and then drank. The poor add black pepper.

The effects are quiet, pleasant delirium and stupor. Churrus causes excitement and violence.

It is the dried, sticky resin extracted from all parts of the plants, especially from the pith within the stalk. It is mostly imported into India from Persia and Afghanistan. The color is greenish black, the taste bitter, and it is smoked with or without tobacco in a cigarette on a hookah over glowing charcoal, after having been rubbed down fine with the hand. Upla, or cow-dung fire, is preferred to charcoal, on which the pill or bolus is placed, and the smoke forcibly drawn through the pipe and then inhaled. One puff sometimes makes the eyes red, four puffs make a moderate smoke, $\frac{1}{2}$ drachm (2 grammes) being sufficient for two or three men.

Majoon, a dirty, greenish toffee, is another preparation of cannabis, made from the ground leaves mixed with butter, sugar, and milk, and then baked. About an ounce (30 grammes) is eaten at a time, and this sweetmeat is often used by thugs or thieves as a poison in India.

Ganje is made from the dried flower tops rubbed to a fine powder in the hands, and then smoked in a native clay pipe mixed with tobacco.— *Annual of Medical Sciences.*

In accordance with a bill passed by the present Congress, Carroll D. Wright, United States commissioner of labor, has begun the work of investigating the liquor traffic in relation to its moral and scientific effects in the industrial world. His report, which he hopes to present to the fifty-fourth Congress, will be awaited with equal interest by liquorites and prohibitionists.

TETANUS FOLLOWING REPEATED INJECTIONS
OF MORPHINE.

The May number of the *Medical Chronicle* contains the following account, by Dr. D. J. Leech, of two cases of tetanus which came under his observation : The first case was that of a man, thirty-five years old. Two days before the author saw him he complained of pains in the muscles of the neck. Tetanic paroxysms very soon set in, and on the afternoon of the third day they occurred at frequent intervals, and were quite characteristic. He died a few hours afterward.

He had not suffered from any injury, but he had contracted the habit of injecting himself frequently with large quantities of morphine, and after death, marks left by the injection of morphine were found all over the anterior surface of the body. The thighs especially were closely covered with nodules, some of which were dark at the top. The lower part of the abdomen was less closely covered by them. There were no ulcerations, but here and there some cicatricial tissue. Several dirty syringes for the injection of morphine were found, and one or two bottles containing turbid morphine solution. The patient had been in the habit of injecting into himself considerable quantities of morphine, and there was reason to believe, says the author, that he had paid but little attention either to the cleanliness of the syringe or the clearness of the solution he used.

The second patient was under the care of Dr. Elliott of Rochdale, who had given him morphine occasionally for four years, but, finding that the man had begun to purchase morphine for subcutaneous use by himself, had refused to give him any more, and nothing was heard of the patient again until February in this year, when Dr. Elliott's partner, Dr. Brooks, was sent for, and found the man suffering from violent tetanic paroxysms, from which he died in a few hours. The illness dated only from the previous evening.

He had not suffered from a wound or injury of any kind, but the body, arms, and legs were found covered with marks

due to the hypodermic injection of morphine. No ulceration could be found, but in many places there was cicatricial tissue.

Several somewhat similar cases, says Dr. Leech, have been placed on record. In the *British Medical Journal* for November, 1879, there is an account of the death of a woman from tetanus, who had long administered to herself subcutaneously large quantities of morphine. The front part of the body was covered with innumerable scars from the punctures caused by the hypodermic needles.

Osborne (*British Medical Journal*, July, 1892) records the death of a man, aged twenty-four years, from tetanus which was evidently connected with a suppurating sore near the right shoulder, following the hypodermic use of morphine. This man, too, had been in the habit of injecting himself with morphine.

A series of cases, says Dr. Leech, have also been recorded of tetanus occurring after the subcutaneous injection of quinine, and Dr. Anderson, in the *British Medical Journal* for 1892, states that tetanus is by no means uncommon after the use of the hypodermic needle.

It is worthy of note, says Dr. Leech, that in most of the cases in which tetanus has occurred after the injection of morphine the injections were self-administered. Habituation to the use of the drug, he says, seems to engender carelessness as to the condition of the syringe and the solution employed.

In England from 1861 to 1871 the mortality of all males was 11.82 per cent. annually. At 35 years, mortality of all classes was 13.05; laborers, 10.80; blacksmiths, 11.24; railroad servants, 14.97; publicans, 20.44.

Inebriety is always reñritritional and functional in its expression of disorder of the nervous system. It is also a disease of heredity and degenerative changes, which are increased by states of poisoning.

NEURO-RETINAL TOXÆMIA FROM EXCESSIVE USE OF ALCOHOL AND TOBACCO.

Amblyopia, partial or complete, associated with various nervous phenomena, simulating cerebral disease, is an affection more often met with than is supposed; it is probably more prevalent with male than with female, not on account of sexual differentiation at all, but because of the fact that these and other similar drugs may find their way into the system by habitual use in men more than in women.

From the fact that not all of the symptoms are referable to the eye, and from the further fact that the amblyopia comes on as a later symptom, sometimes long after the other manifestations have become well marked, we find that these cases are easily mistaken for cerebral affections, and treated as such, thereby allowing much valuable time to be lost before the true nature of the affection is discovered.

The deterioration of vision from the abuse of tobacco has long been known as a clinical fact, although it was not well understood, and no very clear explanation, based on anatomical and physiological ground, have been given. The action of tobacco, for instance, in different individuals is so various and uncertain, some persons apparently becoming immune, as it were, to its toxic effects by long usage, while others give earlier evidence of its ill effects in nervous tremors, cardiac, and other disturbances, that we have no certain landmarks to guide us in our relations as physicians to those whom we know to be more or less given to its use. Moreover, amblyopia from alcohol, as a rule, is not so prevalent in those individuals who are classed as inebriates; in such persons we find that periodical excesses are followed by intervals of freedom from its use, during which the process of elimination goes on quite readily, and nature comes to the relief of the patient so completely as to leave behind but very little traces of its effects. It is, however, in the habitual, though not excessive, drinker that we find the evil effects of alcohol on the eye. In Europe, on the continent, where the laboring classes are accustomed to rise early and

seek their employment with a very light breakfast, sometimes not eating for an hour or two after they rise, they are in the habit of taking the early morning draft of "liquor" or "schnapps" upon going to work, and at nine or ten o'clock stopping for a half hour or so for breakfast. In this country also, while we find no such habits of life among the laboring classes, yet there are many individuals who do take spirits early in the morning before they eat their breakfast, and follow this practice for years. They are not classed as drunkards; on the other hand, bear the opposite reputation; but with all that will be found on close examination to be steady drinkers.

Concerning the treatment, but little need to be said beyond the first and most important point, viz., the establishing of a clear, rational, and unerring diagnosis; the rest follows "*Ex necessaria sequitur.*" Total separation from the toxic agent in question once and for all; in the case of lead this will be easy enough in most instances, but with tobacco and alcohol not so easy. Resolutions and promises made in good faith will frequently be broken. Alteratives among the drugs will avail something, among which we hale iodide of sodium, strychnia nitrate, by hypodermic injection will accomplish much, and electricity and the Turkish bath will avail. The insomnia which so frequently accompanies these cases should be controlled, but this will usually give way to refreshing sleep as the improvement from the other remedial measures progresses. The prognosis is in many cases good, but much time may be consumed, and great patience be required, both on the part of the patient and the doctor, before a final recovery occurs.

Kirchhoff says: We know nothing of the anatomical basis of epilepsy. Its most frequent cause is heredity, then follow alcoholic excesses. Next come cerebral diseases in early childhood. Concussion and physical and psychical traumas are also causes.

ACTION OF TEA ON THE DIGESTIVE ORGANS.

An interesting account is given in the *Dublin Medical Journal* for October of Dr. Peter M'Kechnie's experiments on the action of tea on the organs of digestion. The experiments were carried out partly in test tubes, partly in the stomach of a monkey, access to which was formed by a fistula.

The aliments experimented with consisted of egg-albumen and beef-fibre. Weighed quantities of each were used, and were mixed with glycerol extract of pepsin and hydrochloric acid. To these mixtures a measured quantity of infusion of tea was added. The infusion of the tea occupied periods varying from five to twenty minutes. Six test tubes were used, a seventh being employed to test the action of the tea on meat-fibre alone. That process lasted 110 minutes before the meat-fibre was dissolved. Experiments with the tea infusion showed that the digestion of the mixture occupied 118.5 minutes. The time was not affected by difference of strength of the infusions of tea. Tea from which its tannic acid had been precipitated by means of gelatine was not more readily digested than ordinary tea.

In the case of the monkey it was found that when the ingesta were altogether introduced through the mouth, digestion occupied five minutes longer than when the ingesta, except the tea, were introduced through the mouth and the tea by the fistulous opening into the stomach. From this it is to be inferred that the tea exerted an inhibitory influence on the salivary glands. The author is of opinion that it is not the tannic acid, but some of the more soluble constituents of tea, which retard digestion.

The comparative values of different kinds of teas were investigated. The Indian and Ceylon teas yielded the greater proportions of extract, *i. e.*, made stronger infusions than the Chinese teas. Digestion took place more rapidly when the stronger infusions were used. The author believes that the larger proportion of caffeine in the Ceylon and Indian teas as compared with the Chinese teas is the cause of the

more easy digestion of the former, the caffen acting as a stimulant to the motor nerves, and increasing the flow of bile, and stimulating peristaltic action.

Dr. M'Kechnie does not share the somewhat general belief that, on the whole, tea is not a wholesome beverage. I agree with this opinion. Since the general use of tea has been adopted in these countries the state of public health has not deteriorated, but, on the contrary, has improved. Dr. E. Smith, in his work on "Health and Disease, Etc." (London: Walton & Maberly, 1861), says of tea, that "it has both lessened the supply of nutriment and made better use of that which is supplied, and hence it has contributed most powerfully to the prevention of accumulations within the system, and the most perfect discharge of effete matter."

Dr. M'Kechnie deprecates the practice of infusing tea for more than five minutes, and states that by twenty minutes infusion the tea yields a much less wholesome beverage than if it were infused for a moderate time. As the tannin of tea, being very soluble, soon goes into solution, it would be interesting to determine the nature of the body or bodies which are dissolved out by long-continued digestion, and which have a bitter flavor. — *Times and Register.*

AN ISLAND INEBRIATE HOME.

Medical Island is the name which has been given by a syndicate of physicians from New York, Paris, London, and Berlin to a tropical island of volcanic origin eleven days' sail from San Francisco. Here is to be elaborated a model sanitarium for the cure of the drink and opium habits.

There will be no hotels or boarding-houses, but in their stead there will be three handsome club-houses without bars. Patients must consent to remain away from the continent for one year and pay all expenses for that time in advance.

The island is under the jurisdiction of Great Britain, from whom the syndicate will secure its needed concession.

HYGIENIC TREATMENT OF DIPSOMANIA.

BY DR. H. M. WYMAN.

Neurologists as yet have failed to find any special medicine for the cure of dipsomania.

Total abstinence with enforced confinement for an indefinite period is effectual while the confinement lasts, and has in well-authenticated instances proven a permanent cure, when the patient on his release has been environed by conditions conducive to his material prosperity and happiness. Just what treatment should be enjoined aside from the old line outlined, together with suitable and congenial employment (the latter of paramount importance) during the long period of seclusion, is a matter not a little perplexing when looking forward to a permanent cure. With its long time commitments, the Massachusetts Hospital for Dipsomaniacs and Inebriates at Foxboro has exceptionally good advantages for the employment of methods of treatment hitherto untried, the nature of which is indicated by the caption of this article.

It was the privilege of the writer to witness the initial introduction of calisthenic exercises and the accompanying needle bath as a feature experimental in the treatment of dipsomania at the above institution some eight months since, and judging from up-to-date results, the enthusiasm is pardonable, if premature.

From the heterogeneous gathering of humanity to be found in an institution of this character, with the concomitant infirmaries arising from the excesses that resulted in their presence here, it was not an easy task for Prof. Boos, of Boston, to select a considerable number eligible to take the exercises. However, excluding those whose mental and physical conditions unfitted them entirely, a class of some sixty were enrolled to take the calisthenics daily.

With a fairly well equipped gymnasium and campus for outdoor games, the patients, after some hesitancy and coercion, soon began to manifest an interest unlooked for, until

now, fully aware of the benefit derived, they are loath to neglect the exercises.

Statistical evidence from actual measurements as to increase in muscular development is, up to date, very gratifying, and as time goes apace the results in this direction are obvious.

The all-important change for the better is apparent in the feelings and appearance of the patients. The calisthenics, with the necessary apparatus, have, with their variety of movements, brought into action separate sets of muscles, that from inaction have impeded the functions of others, and have become practically useless themselves. The shambling and faltering step, the stooping shoulders, the blear-eyed, expressionless-faced victims of former excesses have given place to the certain step and supple movements — perfect control of movements governs the body — while the eye has luster, and the mobile face, with erect bearing, denotes interest in life and hope in the future. Without going into the pathology here of inebriety, it is sufficient for practical purposes to know the physiological needs of the unfortunates: that the inebriate is very apt to have organic or functional lesions of visceral parts of varying degrees of gravity is to be expected and judiciously prescribed for, but that the brain and nervous system are the chief deciderati, especially when anticipating a permanent cure. Calisthenic exercises, as scientifically supplemented by wholesome food and regular hours of rest, are accomplishing wonders. The daily exercises are systematized, and as the varying movements with Indian clubs, dumb bells, chest weights, parallel and horizontal bars, together with bag punching, boxing, running, jumping, balancing, marching, and outdoor ball games go on, *blood and tissue metamorphosis is taking place*, and the excrementitious products of the body are being *eliminated*, while nervous co-ordination and reflexes are improved, and the former neurasthenic condition is succeeded by a feeling of strength and security that better enables the unfortunate to resist the *enemy*.

The carefully temperatured needle bath—consisting of hose and spray attachment—following the exercise, cleanses the body of its transudations, reawakens nervous energy from periphery to center, heightens capillary circulation, and, the body gradually cooling, a feeling of buoyancy and strength pervades the entire system that is not followed by a stage of depression. Thus tissue change takes place from scientific exercise; the waste materials are eliminated, and followed by wholesome food and rest, the morbid condition gives way to health and happiness. The intricacies or complication incident to the various exercises is a school for the mind as well as the body. The full term of commitment at the institution is for two years, but discretionary with the Board of Trustees as to a patient's fitness for leave of absence in a much less time, the usual time being six months. Having taken the exercises is a prime requisite to an applicant obtaining a leave of absence at the expiration of his first six months.

To Prof. H. D. Boos of Boston is due great credit in awakening apathy of inmates, and for his patient efforts in bringing such tangible evidence to the Board of Trustees of the beneficent results to be obtained from calisthenics in the treatment of dipsomania.—*Journal of Hygiene*.

SOME CAUSES OF MENTAL IMPAIRMENT IN CHILDREN.

Dr. J. M. Taylor of Philadelphia, in a very valuable paper on this subject, concludes as follows :

In order, then, to prevent mental enfeeblement in the young we must first defend them from degenerating influences of a kind competent to leave a permanent impairment upon the individual or the offspring. Next, if this be done, opportunity must be afforded for the development of both body and mind, which are absolutely interdependent. Again, protection must be afforded against accidental injury by trauma or poisons.

Of the degenerating influences, alcohol stands at the head, and admittedly accounts for nearly one-half the cases of insanity, imbecility, and crime; but if one considers fairly that the other causes, usually acknowledged, are themselves attributable to this agency, these must then be added to the other, and the blighting influences of alcohol are thus multiplied till they may be said, without exaggeration, to overtop all other factors many times. The use of alcohol causes degeneration of mind and body in the individual, and is pre-eminent in transmitting its influence to the next generation. Alcohol produces not only disorders of intellectation, but of morals, hence it becomes the basis of criminality. Moreover, alcohol admittedly decreases the power to resist evil and disease, and this increasingly from one to another generation. Lack of resistance to evil produces the criminal, the enemy of civilization, both in a moral and physical sense. Loss of resistance to disease opens up the way for other morbid influences, as tubercle and the various infectious processes which are themselves direct and contributory causes for degenerations and for mental defects.

This is, however, rarely true of an entirely sound cellular entity. The feebly resisting nervous system needs relatively little help from disease, trauma, or the various excitations to dethrone equilibrium. A sound, wholesome organism, on the contrary, may be predicted to pass unscathed through many and diverse perils, certainly so far as the competence of its nervous mechanism is concerned.

The so-called reflex causes of mental disease, including psychical and moral shock, etc., may be reduced to small power for harm upon robust natures, of stable cellular integrity and reasonable development.

Once the seeds of mental derangement are recognized as evidencing growth, the only hope for adequate repair lies in instant precautions, ample safeguards, and years, rather than months, of rest, and the enjoyment of responsibilities as little as possible.

THE NON-HEREDITY OF INEBRIETY. BY LESLIE E. KEELEY, M.D., LL.D. C. C. Griggs & Co., Publishers, Chicago, Ill., 1896.

Sudden prominence achieved through pretension and mystery often brings with it a fatal egotism, which forces the person out into the light where his knowledge and attainments can be seen and estimated. In politics many a local celebrity has been destroyed by placing him in office, where his real capacity and power can be studied above the glamor of pretense.

The Keeley Gold Cure scheme and its author were secure as long as its claims depended on the statements of circulars, newspapers reports, and the assertions of the founder and his friends. But when he writes a book he steps out into the light, where his knowledge and theories can be properly estimated. In this Keeley has committed the same old blunder, writing himself down, and putting himself into the hands of his enemies. If he had limited his writing to a general statement and defense of some rational theory of inebriety, and its non-heredity, his work might have had a place in the literature of the day. But to attempt to dogmatically decide great questions of ethics, biology, physiology, psychology, and history, is a fatal egotism that is literally a "hari-kari" for the writer.

It seems useless to examine the theory which this work pretends to defend, because many of the statements urged are notoriously false and untrue, and the suggestion that it is due to the ignorance or duplicity of the writer, leaves an unpleasant impression on the mind of the reader.

Statements like the following are common. "Before the discoveries of Dr. Koch no one could explain what caused disease, or what determined its phenomena, duration, and termination." p. 35.

"The human mind has fathomed the universe scientifically, and determined its own limits of understanding and comprehension." p. 91.

"Until within a few years no treatment except mind cure has ever been tried for inebriety." p. 97.

"Alcohol causes inebriety; there is no other cause of alcoholic inebriety." p. 183.

"No heredity or other disease can cause or is inebriety. Any disease may lead a person to begin drinking, but no agent except alcohol can cause inebriety, nor will the cure of any other disease associated with it, or caused by alcohol, necessarily exert any influence whatever either for or against the craving for drink." p. 167.

"The cure of inebriety cures the inebriate's stomach." p. 173.

"I consider myself a pioneer in the department of pathology and therapeutics. I think the medical profession will give me the credit of studying this subject from the standpoint of pathology. When I began I was the only man in the world who was treating drunkenness as a disease, exclusively, from the standpoint of medicine." p. 305.

The central theory seems to be that inebriety is a germ disease which cannot be transmitted, but is positively cured by the specific which the author possesses, and believes he should conceal from others as his private property. Whether this work is written for the laity or the medical profession it is remarkable in that it marks the death and obsequies of its author and his schemes for the cure of inebriety. There is no necessity now of making known his formula of specifics given for the cure of ninety-five per cent. or more of all cases of inebriety. He has given the theory in this work together with his views of science and ethics, and other general topics, and all the mystery and pretense has vanished. Leslie E. Keeley and his specific for the cure of inebriety have passed into history as one of the great credulities of the closing century. The egotism which supposed he was the creator will die away, and the student of the future will study the psychological conditions which gave transient prominence to a wild delirious empiricism. All unconsciously Keeley has been an instrument to arouse

up a new interest in the physical treatment of inebriety, not by his specifics but by educating the public to accept the idea of help along lines of physical means and appliances. Now all unconsciously in this book he writes his own epitaph, and pronounces the last word at the close of the Gold Cure specifics for the cure of inebriety. The curtain falls on Keeley as a teacher, writer, and physician. The Gold Cure is dead, and a period of mourning and frantic assertions that life still exists will follow for some time to come.

The Second Book in *Physiology and Hygiene*, by Dr. J. H. Kellogg of Battle Creek, Michigan, is an excellent grouping of well-known facts, with special reference to the hygienic application. The action of alcohol on the tissue is very clear and well-stated.

The *Dixon* Graphite pencils are superior to any on the market. All grades of hard and soft pencils are made.

Dr. Kellogg's work, "The Stomach, its Disorders and How to Cure Them," has become an authority at once. The critics call it one of the great works of the year.

The *Popular Science News*, formerly Boston Journal of Chemistry and Hall's Journal of Health, has succeeded in combining the best features of these and other journals, and giving a résumé of the most practical facts from all fields of science. For short, popular facts, it is one of the best journals published. The price is one dollar a year. Address 19 Liberty street, New York city.

The Thirty-eighth Annual Report of the *Washingtonian Home*, Boston, Mass., indicates a prosperous year, two hundred and forty-five patients being admitted. A very significant fact is that in this large number of cases only fifteen were delirious or suffering from delirium tremens,—a clear hint of a change of the type of cases. The superintendent,

Dr. Ellsworth, in speaking of the effects of alcohol, makes the following significant statements:—

“Drink lends excess of coloring to some ideas, and imparts dullness to others. Alcohol renders the brain more and more incompetent as a thinking and reasoning medium. Inebriates always become more or less demented. They may degenerate so slowly, both physically and mentally, as not to exhibit grades or degrees of decline from day to day, yet after a time a marked change for the worse occurs in all cases. . . .

“The moderate drinker may escape a precipitous fall, yet he too, in the course of years, will be conscious of physical and mental degeneration that cannot be logically ascribed to other causes of decline. . . .

“Just according to the extent that the brain and nerves are paralyzed, is the drinker incapable of judging correctly of anything, and, least of all, of giving a proper estimate of the paralyzing agent.”

This excellent asylum is doing grand work, fully sustaining its old-time reputation.

The *Homiletic Review*, published by Funk & Wagnalls, grows more valuable with each issue. Its terse and suggestive papers are unexcelled, and should be read by all scholars of the new philosophy and thought of the age.

Appleton's Popular Science Monthly, among the many excellent papers published, gives great prominence to medical and psychological questions. The papers by Prof. Newbold are the most suggestive and valuable to medical men. No other journal excels this in practical interest and real value to every thinking man.

Editorial.

INEBRIETY AND HOMICIDE.

Dr. Andrew White finds that there were over ten thousand homicides in the United States in 1895,—two and a half per cent. more than in 1890, and constantly increasing. He is convinced that the leading cause is a lax public sentiment and failure of the law to punish criminals for this crime. Judge Parker of the United States Court has taken up this subject and reaches the same conclusion, only he is more emphatic in his conviction that the law's delays and uncertainties, with mock sentiment for the criminals, encourage murder. Other causes are noticed as contributing, but of minor interest, such as the degeneracy and low criminal emigrants from Europe who commit murder from slight provocations.

Both of these studies assume that the treatment of the crime of murder is correct, and all first causes and means of prevention insignificant.

The statistics of the failure of capital punishment to prevent murder, so positively urged by earnest, capable men, are ignored as if unworthy of notice. An appeal to facts of cases of homicide reveals a different view of this subject. In ten homicides in and near Boston, eight were committed while under the influence of alcohol. Three were clearly insane and sent to prison for life. Of the seven, two were hung, one was liberated after a year's confinement, and four are now in prison. Five of these cases were notoriously dangerous and maniacal when drinking. Of the others a history of degeneracy and continuous drinking for years was clear.

In six homicide cases in Connecticut, five were committed while intoxicated, and one was hung—the others are

in prison. In twelve cases in New York, nine were prominently intoxicated at or before the homicide. These facts represent in a general way the condition of a very large percentage of the ten thousand murderers of 1895. The statement that from sixty to eighty per cent. of all murders in this country are the work of inebriates and persons under the influence of spirits, has been confirmed in many ways beyond question. Here are causes that these authors have not noticed.

The punishment of inebriates by death for crime has been repeatedly proven worthless. Increased vigor and severity of punishment has never stopped inebriety or checked crime by inebriates, because it failed to reach the first causes. These causes are the freedom allowed inebriates to go about freely, using spirits at all times and places without control, and the open licensed saloon encouraging and making attractive the indiscriminate use of spirits. The first causes, heredity, anæmia, exhaustion, mental defect, and degeneracy, are intensified and exploded by the saloon. Like the powder and lighted match, the degenerate finds relief in the narcotism of alcohol, and although the dissolution goes on under a mask, it is certain and inevitable.

Homicides of necessity will increase yearly, uninfluenced by the administration of law or sympathy for the offender, because the causes are unrecognized. If murders are most frequently caused by inebriety, and inebriety intensified and developed by the open saloon, the remedy is clear. If the degeneracy of inebriety predispose to crime, the inebriate is dangerous and should come under legal control before crime is committed. In many cases of homicides by inebriates the crime was clearly foreshadowed and was certain to occur, in favorable circumstances.

Rational preventive medicine will lock up the inebriate and shut up the saloon, and thus prevent the crime. A new study of this subject is essential before causes and remedies can be mentioned authoritatively. Who are these ten thousand murderers of 1895? What were the conditions of the crime?

A study of these facts will reveal the means of prevention and the proper remedies. All theories and speculations on other lines are farcical and absurd.

TWO THEORIES, WHICH ONE IS TRUE?

A noted man was arrested for incendiarism and found guilty. No reasonable motive was apparent; the property burned was that of a stranger to him, and he appeared at the fire, giving all possible assistance to extinguish the flames.

This man had been a moderate, and at times an excessive, user of spirits. Occupying a very prominent office for many years, he alternately pleased and disgusted his friends. At times he was able and generous, then reckless and wild in his conduct, associating with fast men and women, spending money lavishly and involving his friends. Finally, he resigned on the plea of ill health, and became a low politician. His drinking increased and he was intoxicated most of the time. Later, he was detected putting fire to a building, and although the evidence was not clear, yet the suspicion of other similar acts was very strong. He was examined for lunacy, and decided perfectly sane by two medical men. His friends applied to a state asylum for admission, but were refused. A few months later he was found to be insane and sent to an asylum. The interval had been spent in severe drinking. The theory that this case was simply one of voluntary drunkenness, in which bad company and political excitement, with reckless neglect, were the only causes, was accepted by his friends and the public generally. Before entering upon political life he had been a quiet church member and steady, reputable man, with a large circle of friends who respected him greatly. The medical certificate of his insanity was laughed at as a political scheme to provide for him in the asylum, and the medical men as kind, accommodating friends.

The other side of this case presents a different theory

of his condition. His grandfather died insane after a life-time of excessive drinking. His father kept a roadside tavern and drank freely at times. His son sold spirits at the bar, and drank freely in early life. On the death of his father the business was given up, and he abstained. Marrying at this time, he settled down to a quiet, steady business life. At forty-four he was elected to a prominent office by accident. A few years later he was re-elected, and became a prominent politician. From this time he began to have secret drink paroxysms of several days' duration, and was noted as a fast politician.

Resigning from office, he returned and spent his time in political circles as a man-of-all-work, "rounding up the voters," and arranging campaigns for others. His use of spirits was excessive at times and was followed by melancholy. On two different occasions he suffered from alcoholic mania for periods of a week, then recovered, but never totally abstaining. His only son became a confirmed inebriate and his wife an invalid; this, with poverty, increased his mental disturbances.

The first medical commission could not find any mental disease, and the asylum superintendent concurred in this, although it was proven that he had delusions of sudden death at night in sleep, and this, with insomnia, caused him to walk the streets at night, seeking company of any one who would talk to him. In the morning he would go home and sleep.

The second commission, two months later, recognized delusions and melancholy, and he was committed to an asylum.

The inebriety in this case was clearly an inheritance, which appeared in early life, then subsided and broke out again under the favorable conditions of political life. The pyromania which appeared was a marked sign, and a closer examination would have revealed other defects. He was suffering from the disease of inebriety, which had become a pronounced insanity, and was not in any way a voluntary

condition within his control. Given the heredity and conditions of early life, and inebriety was almost certain to follow. Manias of any form were likely to develop as the degeneration increased. His political life was favorable in its surroundings for the growth of inebriety. There were no accidents, or chances, or moral conditions in his case. No moral theories can account or explain the progress of the case. There ought not to be any question as to the causes and nature of such cases.

THE TREATMENT OF RELATIVES OF INEBRIATES.

The paranoic and degenerate inebriate is regarded by his relatives generally as a very bright, capable person, who voluntarily gives way to the morbid impulses of the moment, and one who could always do better with more will power. He is considered sane at all times when not drunk, and able to judge of his condition as clearly as any one. The drink impulse, like a garment, can be put on and off almost at the will of the victim and surroundings. The honesty of the patient is unquestioned when not drinking. On admission to an asylum severe measures are demanded by the relatives, or great leniency. Punishment, fear, and alarm must be roused in the mind of the victim; or great tenderness, love, confidence, and trust. The friends assume to be able to judge from intimate acquaintance what is best in treatment, especially in matters of restraint and general care. The inebriate soon learns the conceptions of his relatives regarding his case, and where they are in accord with his own views of perfect freedom and trust, and power to decide on what is best for his case, are fostered industriously. But where they are opposed to his views, he resorts to intrigue and cunning to neutralize them.

The rules of the asylum are always in conflict with either the patient or his friends. The patient is controlled, but the friends at a distance are difficult and uncertain.

Almost endless correspondence and explanations are

required constantly. Often the patient joins to complicate and increase the difficulty. He will write of his great temptation and power of resistance and the free use of spirits in the asylum by every one. The explanation by the managers are doubted, and the patient's statement is considered true in part or entire.

The mercenary motives of managers are always prominent in advice to stay longer. Consent to do this or that is supposed to have some similar object or purpose. Fears that the management may acquire undue influence over the patient, and keep him away from his family, or if he has property influence him in some way to his future injury. If a patient relapse the management are condemned as criminally negligent, or wanton; if the patient has manias of slander and intrigue, and complicates matter about him seriously, the management has failed. If after a few months stay, during which the patient has done well, his cure is not confidently predicted, the management is at fault. Should the patient have proved incurable and received but little help it is equally a fault of the management. Thus the managers of asylums often have a more difficult task to educate, teach, and treat the relatives of inebriates, than to care for the patient. Most relatives of patients seldom realize the unstable defective brains of inebriates. The degeneration of the higher centers, the depressed and disordered sense, with enfeebled powers of reasoning, are concealed by the assumptious egotism of the patient. The idea of brain disease other than temporary functional disturbance is put aside as not true.

Happily, these views are passing away, and relatives of patients understand in some way, that inebriety is insanity, and the inebriate is diseased, and irresponsible on all matters pertaining to his own case.

The managers of asylums look forward to the time when the treatment of relatives will pass away, and patients placed under care can be effectually treated, controlled, and guided, without counsel and interference from those who now assume to know what should be done.

NEWSPAPER TREATMENT OF INEBRIETY.

In a small section of the New England States four murders occurred within a month. In each instance the murderer was an inebriate, and the crime was committed in the delirium of intoxication. The newspapers of that section claiming to represent public sentiment were violent in their denunciation of inebriates and the lax laws which failed to punish severely all persons who drank to intoxication. Speedy and most summary capital punishment was demanded. One paper suggested lynch-law as a means of intimidating other offenders. One case of a farmer who had been placed in an asylum two years before, and was taken out on a writ, as unjustly confined, had been the subject of much comment and condemnation of laws which permitted any one to be confined on small pretense. The papers said his drinking was not insanity, and he was fully sane, and it was great injustice to confine such men in asylums. Now that murder had followed nothing could be too severe in punishment. The second case had been repeatedly sent to jail for ten days for assaults when intoxicated. He was considered sane and responsible, and should not be locked up long. The third case was a periodic, who at intervals drank to excess, and had been sent to jail for disturbance. The fourth was a cider-drinker of notoriously bad temper, and very unreasonable and dangerous man at times. Two of these cases were clearly insane, and of defective brain control, when not using spirits. The other two cases were delirious when drinking, and without control of themselves, or conscious of the surroundings and their relation to it. All of them were unfit to be at large, and almost certain any time to develop acute mania from the slightest exciting causes. The certainty of crime in each one of these cases was beyond question. It was simply a matter of circumstances and conditions which were sure to occur sooner or later. The folly of permitting men of this character to go about unrestrained, and when crime follows demand pun-

ishment, should come to an end. The time is near when crime of this class will be prevented by placing such men under restraint and demanding sobriety as the price of liberty and freedom. Public indignation, after the commission of the crime, is childishness. The public should demand the removal of all conditions favoring crime in advance. No man should be permitted to poison himself, and become insane at any time and place. The removal of the causes of crime should be the treatment urged by the papers. This is the way to effectually "stamp out" and lessen crime of all descriptions. Shut up the inebriate and drinking man who persists in using spirits of his own free will, and all times. Punishing these four murderers, before the commission of the crimes by short sentences, and hanging them after, is monumental stupidity in this day of civilization. The newspaper treatment of inebriety reflects the sentiment and theories of an age of ignorance, which fortunately is fast passing away.

PRECOCITY IN CHILDHOOD, FOLLOWED BY INEBRIETY.

Many of the most degenerate inebriates have a history of precocity in early life. This occurs often in families in which the father is a moderate or periodic drinker, and the mother a nervous, highly sensitive woman, whose intelligence has roused a fear of heredity. Both parents may watch with anxiety the early developments of the mind of the child, and any form of precocity is encouraged as evidence that inheritance of any weakness will not appear in this case. In a single instance an intelligent physician who was a moderate drinker, and whose wife was a neurotic, had a son who prepared for college at ten, and who was a prodigy in memory and intellect. He was a poet and mathematician of fair physical development. He graduated at sixteen with the highest honors, and at twenty entered the medical profession with great promise. The death of his father brought him a large professional business, which he seemed

incompetent to conduct. He became despondent and melancholy, and suddenly drank spirits and used morphine, and died two years later from excesses. In early life he was encouraged by his parents, who believed intellectual training and early development would overcome any inherited weakness which might have been transmitted from them.

The frequent wrecks of prize and honor men of colleges and universities suggest precocity and bad inheritance. The sentiment prevalent in many colleges that wine gives intellectual power and mental clearness, is fatal to many precocious students, who in the stress of later life turn to spirits for help only to become wrecks. Precocity and extreme mental or physical development in the children of drinking ancestry are frequently signs of early failure and physical disaster. A noted surgeon and moderate drinker sneered at the doctrine of heredity, and pointed to his precocious and highly developed son as evidence that the father's conduct had no influence in his organization. Two years later he died of delirium tremens.

It may be stated, as a general fact, that the phenomenal young men and women who astonish and delight their parents and friends with extraordinary attainments are doomed to any early death, and inebriety, hysteria, and various forms of insanity associated with exhaustion are almost sure to precede death. Inebriety seems most common, particularly of narcotic drugs, and especially where any inherited neurotic tendencies exist. Children showing this unusual development should have unusual care and restraint to check the mental growth by building up the physical, and the danger of inebriety should never be overlooked.

It is a curious fact of history, so often repeated and yet seldom recognized, that the disbeliefs and denials of great men concerning new facts are often radically wrong, particularly when opposed to the observations of men of lesser note and equal honesty. A denial of the facts by scientific

or educated men on *a priori* grounds of absurdity or impossibility is, as a rule, worthless. The opinions of learned specialists in nervous or mental diseases that inebriety has no basis to be called a disease, are still echoed in some circles as authoritative facts. The investigations of many persons who are admittedly honest and sane, and whose conclusions have been examined and reaffirmed in many ways, are more reliable than opinions of learned men who have not studied the subject clinically.

The true scientific spirit is to ask for evidence and examine the statements of new facts, not deny and contradict them. This is the position this JOURNAL has taken in regard to all the new schemes and theories of the cure of inebriety. Years ago the moral theories of the vice origin of inebriety were studied by examination of cases, and found to be unsupported and untrue. During the last three years a number of new methods of cure of inebriety by special specific remedies have been presented for our opinion. In each case up to the present time the particular value of the remedy has been found to be in the credulity and faith of its reception. The mental effect of these remedies are of equal value to their therapeutic action. All we have examined are found to be combinations of well-known narcotics, and concealed drugs of the same nature as those used in the addiction. Notwithstanding this experience, this JOURNAL is pleased to examine any new facts and theories which may be offered. Each one will be treated fairly and scientifically.

The American Association for the Study and Cure of Inebriety was organized November 29, 1870, in the parlors of the Young Men's Christian Association of New York city. In December, 1876, the first number of THE JOURNAL OF INEBRIETY was issued. Both of these events were great starting points for the scientific study of inebriety. It is proposed to hold a memorial service in the same hall, to celebrate these events and place on record some historic facts

which may be lost in the future. Any reader who may know of any efforts to establish asylums in different parts of the country, or laws passed relating to inebriates, will confer a great favor by writing Dr. Crothers, the secretary. An effort will be made to record all the early means used to rouse public interest in the scientific study of inebriety, particularly in the sixties and seventies. The time has come to gather the facts of these pioneer efforts, and leave some permanent record for the historian of the next century.

TEACHING THE DANGER OF THE USE OF ALCOHOL IN PUBLIC SCHOOLS.

It is difficult to explain why persons of intelligence not engaged in the traffic of spirits should oppose all efforts to combine instruction relative to alcohol with the teaching of physiology in the public schools. To sneer at the term, "scientific temperance," and to object to faults of expression and words that are used loosely in text-books, is not scientific, to say the least. To admit that such instruction is needed and useful, and object to the way and means of doing it, is an assumption of superiority that calls for a demonstration in something more than words. If the term "scientific temperance" is meaningless and faulty, a more accurate term should be given. If the expressions in the school-books are weak, dogmatic, and imply more than the facts sustain, a correction should be suggested.

In the large number of books which are published to meet the demand for school instruction of the use of alcohol as a beverage, it may be said that, with hardly an exception, the facts they present are true. In the effort to popularize and make clear these facts much difference exists, mostly of words and expressions. There is no doubt great improvement possible, and the same books, after future revisions, will be materially changed.

If the facts they teach are true, objections of any form

will merely reflect the mind of the objector. Like the question of the disease of inebriety, the more violent the denials the more rapidly the truth grew and was accepted. Opposition and criticism may obscure and retard the acceptance of a truth for a time, but this only brings to it more power and greater value in the future.

The danger of alcohol which should be taught in public schools to children is not a matter of theory or sentiment; it is a necessity which is called for, and cannot be ignored by whims and personal prejudice. It is a reality that has come to be a part of the realism of to-day. It has passed beyond cavil and question, and is accepted as an advance movement of the age. Its opponents and critics must fall back and content themselves with discussion far in the rear. Their frantic shouts of what should be done will never be heard on the front lines.

WEIR'S INDEX TO THE MEDICAL PRESS.

An index of all the current articles and every book from every American medical writer, published in a form convenient and within the financial reach of every physician (monthly, \$3.00 per annum) is something long desired by the doctors of America. The JOURNAL therefore welcomes the new publication into the medical field, with a sincere wish for its prosperity, and a confident hope that the publishers, Frank Weir & Co. of New York city, will make a great success of this most practical work. Send for a prospectus.

Clinical Notes and Comments.

INEBRIETY AND SOBRIETY IN ROYAL CIRCLES.

While statisticians are at variance as to whether the amount of crime and insanity due to the abuse of stimulants shows any serious signs of decline, yet they are perfectly agreed upon one significant and gratifying fact, namely, that inebriety is each year becoming more and more restricted to the ignorant and poverty-stricken masses, occupying the lowest degrees of the social and intellectual scale. While this is manifestly attributable, in the main, to the extraordinary progress and rapid extension of popular education since the last three or four decades, it is likewise due, in no small measure, to the example set by those who, as sovereigns and princes of the blood, may be justly regarded as leading the fashions, influencing the manners, and acting as arbiters of society in monarchical countries.

Inebriety is no longer fashionable, as it was in the times of their fathers and grandfathers, when a man who went to bed sober was regarded with distrust as a moral anomaly, and the diner who could not put away at least his three bottles of port at a sitting as unworthy of the title of gentleman. To-day drunkenness is condemned as bad form, and society, instead of viewing it with favor, or even with good-natured indulgence, frowns upon it with every manifestation of disgust and even anger. For this radical transformation of an old-time custom and fashion Europe is indebted to those who act as its leaders in such matters, namely, the Anointed of the Lord.

Abstemiousness constitutes to-day the predominant note at every one of the royal and imperial courts of the Old World, and the rulers who now occupy the thrones of Europe are as distinguished for their temperance alike in

drinking and eating as their predecessors were the reverse. Thus King Humbert restricts himself to wine diluted with water, whereas his father, King Victor Emmanuel, the "Re Galant 'uomo," was wont to indulge in drunken carouses with his morganatic wife, the gamekeeper's daughter, Rosina, whom he created Countess of Mirafiore, and who used, when inebriated, to respond to his blows by hurling the crockery at his head.

The favorite beverage of the Emperor Francis Joseph is Pilsner beer, which is served to him even at the grandest of state banquets, at the court of Vienna. He drinks but little wine, although the imperial cellars are the most celebrated in the world. Indeed, it is to his abstemiousness that he is chiefly indebted for the remarkable preservation of his elasticity, of his physical as well as mental vigor, and of his health; this, too, in spite of a far heavier succession of misfortunes, national as well as domestic, than fall to the share of most men. His predecessor on the throne, the semi-imbecile Emperor Ferdinand, was renowned for his drunken habits, and it is no secret that the appalling fits of epilepsy which wrecked his mind and rendered his abdication imperative were, in the most cases, the result of excessive indulgence in what are described as "the pleasures of the table."

The insanity that made necessary the removal of the late King Louis from the Bavarian throne, and that resulted in his tragic death, was, according to the official diagnosis of the medical authorities, superinduced by alcoholism, and under the circumstances those who were his subjects may rejoice that they are now governed by a regent who, in spite of his deriving a large proportion of his revenue, official as well as private, from the brewing and sale of beer, is not only temperate himself, but has also inculcated this particular virtue on his sons and grandchildren.

In Wurtemberg a young and brilliant cavalry officer who, even when serving with his hussar regiment, was noted for his reluctance to participate in the drinking bouts of his fellow officers at mess, has taken the place of the gross, sensual,

and semi-demented King Charles, who would have been deposed over and over again by his disgusted lieges had it not been for the care of his clever Russian wife, who practically governed the country after he had become mentally unbalanced through inebriety.

The Grand Duke of Baden succeeded to a brother who was deposed for lunacy due to the same causes, while the closing scenes of the long life of old King John of Saxony were saddened for his relatives and friends by the perpetration of a number of astounding freaks that could only be attributed to an excessive indulgence in stimulants.

Those who have had the opportunity of glancing over the illustrated and comic papers of the fifties may possibly recall to mind the cartoons and caricatures which were published, especially by *Punch*, at the time of the international congress held at Paris at the close of the Crimean War. To Prussia was allowed no share or representation in the proceedings on the ground that she was not entitled to rank as one of the Great Powers of Europe, and the cartoons represent the Prussian king, Frederick William IV, clamoring in vain for admission to the congress, in a state of manifest inebriety, with his crown cocked on one side of his head, several champagne bottles under arm, his face inflamed and his uniform unbuttoned, while the doorkeeper is urging him to "go home" on the ground that he had been dining, "not wisely, but too well." Sad to relate, this was no overdrawn picture in so far as the habits of the Prussian sovereign of that day were concerned. His excesses at the table were such that the most extraordinary scenes and incidents would ensue during the receptions and balls that followed the court dinners, the king being subject to all sorts of drunken hallucinations, some of which were ludicrous and others of exceedingly painful character.

Of Denmark it is merely necessary to repeat what has so often been said, namely, that its court is a pattern for the remainder of Europe in matters of temperance as well as in every other respect, and it is impossible to overestimate the

good achieved by the influence of the aged queen and king, the latter presenting an agreeable contrast to his predecessor, whose court was such as to cause it to be subjected throughout the latter part of his reign to something akin to ostracism by the other crowned heads of Europe.

The late King Charles of Sweden was famous as a *bon vivant*, and while not a drunkard, could by no means be regarded as a temperate man, whereas the views of his successor, King Oscar, are best shown by the significant fact that he has permitted his queen to join the Salvation Army, and his favorite son and namesake, Prince Oscar, to assume the presidency of the temperance movement of Sweden and Norway.

The young Czarina of Russia, with her strong, high-principled mind, added to her cleverness and beauty, may be relied upon to counteract any disposition that her husband may have inherited from his ancestors in connection with a taste for stimulants. During his sojourn of several months in England prior to his marriage, however, he surprised those with whom he was brought into contact by his very un-Slavonic abstemiousness, Russians being noted for their hard-drinking propensities.

King Charles of Roumania, like King Leopold of Belgium, is temperate in the extreme, being far too cautious a man ever to permit his brain to become clouded by stimulants.

The King of Portugal, although he delights in conviviality and enjoys the reputation of being a good fellow in every sense of the word, has never been known as a heavy drinker.

The King of Spain, from his earliest infancy, has displayed a pronounced aversion to the bottle, and has objected to being brought up "by hand," as the saying is. It is to be hoped that this ill-will toward the bottle may continue throughout his life. Much apprehension need not be entertained on the subject, since the Bourbons have always been more noted for their excesses in eating than in drinking.

But the sovereign to whose influence the growth of temperance is due more than to any one else is assuredly Queen Victoria, the *doyenné* of all the monarchs of the world. Her father and her uncles, particularly those who immediately preceded her on the throne, namely, King George IV and King William IV, were typical "six-bottle men," and seldom if ever went to bed sober, Carlton House, the residence of King George, being the scene of some of the most infamous drunken orgies of the present century. At the same time, the British court was renowned for the many scandals by which its atmosphere was tainted. No gentleman arose sober from table, and no gentleman uttered a single phrase without garnishing it with the most frightful and blood-curdling oaths. Queen Victoria was but a young girl of barely eighteen when she succeeded to the crown; yet, in spite of this and of the influences by which she had been environed since her childhood, she quickly succeeded not only in purifying the court, but also in inaugurating an entirely different tone in society, the coarseness and drunkenness which had flourished until then giving way to refinement and abstemiousness. She was aided in her task by her blameless husband, the late Prince Consort, and since his death his good work in this particular has been carried on by his son, the Prince of Wales, to whom those interested in the cause of temperance owe a far greater debt of gratitude than most people would be willing to believe. For no one is more intolerant of inebriety and of the vulgarity which it invariably engenders than England's future king.—
Life and Health.

SOME PERSONAL EXPERIENCES.

In an experience of nearly a quarter of a century in the association, cure, and treatment of inebriates many strange events have passed under my observation. Years ago the views of disease which I urged were sharply ridiculed and condemned. Clergymen and reformers were especially severe in their criticisms. A clergyman of much promi-

nence, and a most excellent man, thought it his duty to warn his people of the danger of believing that inebriety was a disease and the bad influence of my preaching in this direction. Some years later this clergyman came a long distance to consult me regarding the inebriety of his son.

A reformer and lecturer, who was for many years a severe critic of my work and writings, became an inebriate and begged to be placed under my care. He recovered, but died from drink excess a year later. An increasing part of my daily work is consultation regarding the capacity and incapacity of inebriates and moderate users of spirits. Many years ago a lady consulted me respecting the marriage of her daughter to a young man of wealth, from a good family, who drank to excess. He had promised to abstain after marriage, and craved the privilege of using wine at the wedding, after which he would become a total abstainer. I advised against this marriage on these terms, and gave the mother a gloomy prediction of the future in such a case. A short time after the father of the young man consulted me in this same case, thinking that his son would recover by marriage. My advice against this was taken, and within a year this young man married into another family. He continued drinking, and died two years later in great wretchedness. His wife was left a comfortable fortune. The girl he wished to marry at first, whose mother had consulted me, married a clergyman, and a few years later was left a widow in destitute circumstances, with two children. Both families are severe in personal denunciations of my judgment, and believe that had the first marriage taken place this man would have become an abstainer, and at least his wife would at his death have been left comfortable,—the same old story of what would have happened, that rises up to distress many good persons.

In reality the best judgment of the time and place is all that should be expected, and in the larger number of cases this is the best wisdom and is followed by the best results. A W. C. T. U. society had gathered a sum of

money to build a hall and reading-room, and a private banker, who was a drinking man, held the money on deposit. Some members objected to this and appealed to my judgment. I could only urge on general principles that this was perilous. When the society was ready to build it was found that this banker could only pay a small part of the money, as his property was involved. Severe recriminations have followed, but the mistake was the failure to act on sound common-sense principles.

In all these questions associated with inebriety there is a common-sense view that must be the basis of all judgment. A man who has pursued a line of conduct for years and proposes to stop or change at once by the mere act of will power, and then urges that you have full confidence in his ability to do what he says he will, demands that which is opposed to common sense. The restoration of inebriates is a gospel of works; the reforms and revolutions we are all so anxious to help on are also a matter of works. The faith and confidence we expect others to have in our labors must be based on realities and works that will bear the tests of time. The theory that inebriety is a disease and curable, if it had been a mere opinion or guess work, would long ago have been put aside. Reformatory efforts to build up a correct public sentiment regarding the evils of the use of spirits and other social perils, will never succeed unless founded on great principles and supported by laws of growth and evolution.

Two devoted women organized a W. C. T. U. in a New England village in opposition to the best and leading society. They gathered a few factory girls and began, conscious of their final triumph and the reality of their work. The criticisms and sneers and social ostracism of the first two years only paved the way for great popularity, which came at last by works and solid realities that rose above all theory.

To the scientific man criticism and doubts, even to persecution, have no perils or discouragements. If the facts he urges are true they will only grow the stronger by

opposition, and if they are not true, he will be the first to discover their error and put them aside. There can be no fears of true work, real facts, and common-sense opinions. Criticisms and denials of the reality of any facts or work are very common and very cheap in the market. Anybody can indulge in them, but the men or women who can recognize the truth, and have the courage to urge and defend it, are the real workers of the ages. The many great questions concerning the drink problem and its associate evils are unknown in the general world, and hence a wide difference of personal opinion must exist. Men and women who have made much study and observation of these topics, are the least assertive, and most tolerant and quick to welcome any new facts based on study and experience, while those who know least are the most dogmatic and positive. The theorist who describes inebriety and its causes with startling minuteness, and points out the exact remedies, and announces that specifics have been found, and is able to explain their action, is always the most ignorant, and literally has no real knowledge of what he is talking about. The person who knows all about these confusing questions is always the one to be avoided, while the real student, who possesses real knowledge, is so conscious of how little he knows compared with the unknown, that he states his facts modestly and as views that may change from a larger and more complete knowledge.

Every year's experience brings into greater prominence the necessity of accurate, sociological, and scientific study of all these problems, and the means of prevention and cure. If the W. C. T. U. should through its large membership gather facts on the various disputed points, and put them in available form, it would be a recognized and valuable advance. If the burning reformers who are so anxious to help on the march of the race will become fact-gleaners everywhere, they can do permanent work, the influence of which will be felt far down the coming years. This age wants *facts*, not opinions or theories.— *Extract from a lecture by Dr. Crothers.*

SOME STATISTICS OF TOBACCO, TEA, AND
CHAMPAGNE IN ENGLAND.

The great increase in the consumption of tobacco, especially among growing lads, cannot fail to have its due effect on the development of both mind and body. The net revenue yielded last year by the tax on tobacco amounted to fifty-two and a half millions of dollars, this being in excess of the sum yielded from the same source during the preceding year by more than a million and a half. The excess is mainly attributed by the chancellor of the exchequer to the increase in the consumption of cigarettes. Another point revealed by the budget is the increase in the consumption of tea, ten million more pounds having been consumed during the past than in the previous year. That we are not necessarily becoming a more temperate nation is shown by the fact that in 1895 no less than 1,200,000 extra bottles of champagne were drunk. As usual, with returning prosperity the first rush is to the whisky-bottle and the decanter, and the increase in the consumption of the lighter wines and of tea does not redeem the outlook as regards the national health.

—*Therapeutic Gazette.*

TREATMENT OF ALCOHOLIC CIRRHOSIS OF
THE LIVER.

While the line of treatment to be pursued in cases of alcoholic cirrhosis of the liver are pretty much the same whether the viscus is enlarged or diminished in size, the prognosis is much less favorable under the latter than under the former condition. The diet should consist essentially of milk, not less than three quarts being given in the course of the day in divided amounts. Alkaline waters in moderate quantity may be permitted. If the milk is badly digested, to each glassful may be added a tablespoonful of the following solution :

℞. Calcium chlorid, 15 grains.
Water, - - - 3 ounces.

VOL. XVIII.—46

Or, with each glass of milk a tablet of the following composition should be taken :

℞. Pancreatin, } aa - - 3 grains.
 Pepsin, }
 Sodium bicarbonate, }

When the ascites has disappeared and the digestive functions are improved, in the course of from six weeks to four or five months, the severity of the regimen may be mitigated and white meats, green vegetables, and a small amount of farinaceous food permitted, while alcohol in any form, red meat, fat fish, and condiments are to be withheld. When possible, the milk-cure may be conjoined with the raisin-cure. Medicinally potassium iodid may be given in doses of from $7\frac{1}{2}$ to 30 grains, if necessary, for a period of several months. This drug is especially useful if the liver is fatty. When the disease is advanced iodism is to be guarded against, as this condition is attended with an increased probability of hemorrhage. If the enlarged liver is painful, and congestive exacerbations occur, calomel is to be administered — either gr. i-6 or gr. i-3 every morning for several months, or, beginning with gr. 3-4 four times the first day, administering gr. 1-5 four times a day for six days, then intermitting for fifteen days and then resuming as before. Meanwhile, the mouth is to be carefully watched for signs of mercurialism. Local revulsion meets the same indications as calomel. Vesication is to be avoided, as the kidneys are rarely healthy. As a diuretic calomel may be employed in doses of from gr. jss to gr. iij four times a day. A combination of squill, potassium nitrate, and potassium acetate may also be employed, or lithium carbonate with potassium nitrate, or a combination of the powder and the extract of squill. As a purgative gamboge may be employed, or euonymin with extract of hyoscyamus, or a combination of magnesia with flowers of sulphur. When, in spite of diet, diuretics, and purgatives, the ascites does not diminish or occasions dyspnoea, the fluid must be evacuated by puncture, repeated if need be. (*Gaz. Hebd. de Méd. et de Chirurgie*, 1895, No. 28, p. 335.)— *Medical News*.

ALCOHOLIC NEURITIS IN OLD AGE.

In a recent number of *Brain* Dr. Maude publishes a brief account of a most interesting case. The patient, who was a robust country gentleman of sporting habits and used to an out-of-door life, had taken stimulants in considerable excess for at least twenty years. Even eighteen years ago no unusual daily allowance was half a gallon of beer, a bottle of sherry, and eight or ten liqueur glasses of "neat" whisky. His favorite drink was beer, and even in the summer of 1894, although over seventy-five years of age, he would often consume two quarts of beer, a bottle of sherry, and half a bottle of whisky in a day. He had had no serious illness, except broken bones from riding accidents and a fractured humerus at the age of seventy-three from a fall downstairs one evening after dinner. During the year 1894 his great muscular power became much impaired, and toward the end of the year he began to complain of severe darting pains in the left lower limb. A few weeks later the hands and feet began to swell rather suddenly, the skin became thin and glossy, while there were small echymoses over it. A similar condition was present on the insteps of both feet, while the calves and thighs were aedematous and the muscles shrunken. The knee-jerk could not be elicited, and the pupils were small and did not react to light. The heart sounds were somewhat feeble, but they were regular and there was no sign of dilatation. Without any previous marked change in his symptoms he died suddenly after a few minutes' dyspnoea about two months after the onset of the symptoms. Dr. Maude considers the case to have been one of peripheral neuritis, and directs attention to several interesting points, such as the advanced age of the patient, the excess of his alcoholic indulgence, and the absence of mental change; the fact, also, that he was essentially a beer drinker is interesting, with reference especially to the views of the late Dr. James Ross as to the kind of alcoholic beverage most likely to produce neuritis.—*The Lancet*, October 19, 1895.

HOMES FOR INEBRIATES ASSOCIATION.

This association is composed of eminent bishops, members of Parliament, and medical men, for the special purpose of promoting the formation and growth of asylums for inebriates in England. The following extracts of report for 1895 are worth a note:

The experience of another year has proved strongly confirmatory of the presence of a diseased condition in many inebriates, and of the fair prospect of a cure of the disease of inebriety, especially if treated at an early stage of the malady.

The Committee have now had a record of the results of systematic treatment of inebriety, so satisfactory as to justify them in the expression of the hope that efficient legislation may ere long be enacted for the scientific treatment, for purposes of cure, of inebriates of every rank and position in life, and for the compulsory reception of such victims of this disease as are too broken down in will power to apply of their own accord for admission and detention.

The Committee are glad to know that two Government Departmental Committees have been taking evidence on the subject, from experts and others in a position to know the truth, and that they have found a general concensus of opinion in favor of legislation for the compulsory reception and therapeutic detention of habitual drunkards.

**INEBRIETY AND MODERATE DRINKING
AMONG ACTIVE WORKING RAILROAD MEN.**

The Voice recently made an active canvass of the drink question among railroad men. Twenty-five of the great leading railways in the country answered a series of questions through their managers. These roads employ 180,000 men.

Allowing the usual family of 5 to each employe, it follows that these 25 managers in a measure control the destinies of 900,000 souls. Out of these 25 managers, every one

denounces habitual drinking among employes as making them inefficient for work. Nineteen of these magnates forbid the use of liquor by all employes while on duty; five forbid it to trainmen only while on duty, and one did not reply to the query. Eighteen of these managers require total abstinence on the part of their employes in their train service, and many require it in all branches. Moreover, these 25 men are unanimous in their declaration that they give non-drinking men the preference, both in giving employment and in the matter of promotion. The bogus personal-liberty dogma is not recognized in a service where sober men and clear heads are required.

THE VINO-KOLAFRA.

This preparation of the kola nuts has been used as antidote for the poison of alcohol, and some authorities have called it a specific. Recently, through the kindness of *Johnson & Johnson* of New York, we have made a study of its action in several cases of acute and chronic inebriety. The plan was to discontinue all spirits and give *vino-kolafra* every two or three hours in two-ounce doses. After the third or fourth dose the acute symptoms subsided and the patient became easy, the stomach distress and demand for spirits subsided. In two cases sleep followed, from which the patient awoke rested. In two cases a marked change occurred in the restlessness and excitement, and the effects of alcohol seemed to be neutralized, the mind improved. Its action was that of a diffusible stimulant, with the narcotic tendency to relieve the irritation and psychical suffering of such cases. There are many reasons for believing that its greatest value is in replacing spirits, and lessening the suffering from the withdrawal of the drugs. In these cases this action was marked and almost a specific, and in all probability it can be used with equal advantage in other drug addictions. We shall report again on this drug, and hope our readers will try it in all cases of inebriety for

the first few days after coming under treatment. It certainly promises to be a most valuable remedy in the first stages of the treatment of these drug diseases.

The *Arethusa* spring water has already won a place among the great table and medicinal waters of the present time.

Our attention has been called to *Somatose*, a nutrient in powder form containing albumoses and other meat salts. We have found it exceedingly valuable in anæmia and wasting disease, and in degeneration from alcohol and other drugs. Send to W. H. Schieffelin Co. for a box. *Somatose* combined with cocoa and chocolate in the form of crackers is very palatable.

The *Hyde-Franklin mineral water* of Ballston Springs, N. Y., is a bi-carbonate of soda water, of great value in Bright's disease, rheumatism, and various stomach troubles.

Taka-Diastase was mentioned as a remedy for all forms of dyspepsia by mistake in the last number of the JOURNAL. In reality it is a remedy especially intended for cases where starchy elements of food are not properly converted into sugar. The well-known firm of Parke, Davis & Co., who bring out this new compound, are the pioneer chemists who are revolutionizing practical pharmacy in this country by their new drugs of estimable value.

JNO. C. LEWIS, M.D., West Bridgewater, Pa., says: "I have used *Celerina* in my own case for insomnia. Among all the hypnotic preparations and nerve tonics it stands justly pre-eminent. Several persons are now using it and report that no preparation has given such permanent and prompt relief. In a general practice of more than half a century, this is perhaps the first public testimony I have offered. *Celerina* is the very best nerve tonic now offered to the profession, and cannot be too highly recommended. To those wanting a nerve stimulant it will be just the remedy."

T. H. LINDEMAN, M.D., St. Louis, Mo., writes: "I have used *Nepenthe* (Tilden's) in the treatment of flux, cholera infantum, and diarrhoea of children, and I find it an excellent remedy, and can recommend it to the profession."

We publish in our advertising pages notice of the *Worcester Fire Pail Co.*, and believe it one of the most practical and valuable of all hospital appliances. Send for a circular.

Antikamnia is a very widely known drug, and has stood the test of critical experience. It may be used with great confidence in all neuralgiac, hysteric, and neuræsthenic states. In drug addictions we have found it valuable and free from all danger, and the least depressing of all medicines used to control pain.

"The medical profession of the United States and other English-speaking countries has long held the well-known firm of Reed & Carnrick, manufacturing chemists, in high esteem. Their name has been synonymous with honesty and integrity; the conduct of their great business has been such that no one could take exception to it. They have been most careful to maintain and strengthen the traditional dignity and conservatism of the profession."

Protonuclein and *Peptenzyme* are two new remedies that this firm are presenting to the profession, which are attracting great attention by their practical value in many diseases of digestion. A small pamphlet on this subject prepared by this firm is well worth reading. Send for a copy.

In *Maltine with Hypophosphites* the vehicle ceases to be a mere vehicle. It is a highly concentrated and partially predigested extract of the three cereals, wheat, oats, and barley, and, therefore, a positive and valuable adjunct in the treatment of every condition in which the hypophosphites are indicated.

The *Fellows' Syrup of Hypophosphites* has been on the market for years, and is always found valuable wherever

used. It is one of those remedies which become more popular and attractive as its remedial power becomes known. It is used both by medical men and the laity, and grows in popularity every year.

Horsford Acid Phosphates, like the sentiment in the song, goes on forever. Other drugs may come and go, but this compound continues the same yesterday, to-day, and who will deny that it may go on far down into the future.

Boehringer & Soehne manufacture a superior quality *Cocaine Muriate*, and various standard chemicals, alkaloids, such as atropine, codeine (pure, phosphate, sulphate, etc.), chloral, eserine, resorcin, terpin, hydrate, etc., also quinine sulphate. They are also manufacturers of the famous *Ferratine*, an iron and food tonic, also *Lactophenine*, the new antipyretic.

Arsenauro. The liquor *auri et arsenii bromidii*. This is one of the best tonics we have used in the chronic degenerations following the use of alcohol and opium. In two typical cases the effects were very marked, in the rapid improvement which followed its use. In theory it should be very valuable; in our practice it has more than sustained all expectations. We urge the extended use of this drug in all cases of inebriety, not as a specific, but as an alterative tonic that promises much for the future. We shall give some results of a larger study in the next number.

Wheeler's Tissue Phosphates is a favorite remedy in many cases of exhaustion, and should be given a trial in all such cases.

Listerine is invaluable as an antiseptic on all occasions.

THE
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THE USE OF COCAINE AND ACCIDENTS RESULTING FROM IT — CLINICAL CONCLUSIONS.*

By DR. E. DELBOSE.

Our aim being to legitimize the judicious and correct employment of cocaine, we shall take good care not to present this substance as being absolutely inoffensive. There have been cases of poisoning, and cases so serious that they have terminated fatally; but we believe that this toxicity has been greatly exaggerated.

And first of all this habit of considering all unexpected phenomena as being indicative of poisoning cannot be too strongly inveighed against. It must be acknowledged that the physiological properties of cocaine are not well known; they are even so little known that we do not yet know how to administer it internally. Thus it happens that when this medicament, employed under more or less favorable conditions, is absorbed and manifests its normal properties by modifying, although in a very slight degree, certain functions of the organism, immediately a cry is raised of poisoning.

* Continued from July number.

But, looking at it in this way, few substances would be absolutely inoffensive. How often does the administration of a medicine *not* produce the effect expected of it? And if the unexpected should happen must we call it poisoning? Thus, a common purgative administered under certain conditions may produce vomiting, but no passage of fecal matter; in order to be logical we should say that such a patient is sick as one is sick who, from overeating, has a fit of indigestion, and is attacked by violent nausea. Even this is much more serious than certain phenomena produced by cocaine and dignified by the name of poisoning.

For example, a patient is analgesiated by the alkaloid, turns pale on seeing the operator handle his instruments, his heart beats faster, and these symptoms, due to simple emotion, are looked upon as toxic and are so recorded. Medical literature is full of such statements. If we wished to relate all the observations recorded by the dentists, one volume would not suffice.

For example, Dr. Roux, in the *Revue Médicale*, February, 1889, writes as follows: "The number of fatal poisonings by cocaine reached last October the respectable number of 126." M. Roux, in reply to a letter of ours on the subject, gave us the sources of his information. He acknowledged having made a mistake. He should not have said 126 fatal cases, but 126 cases, of which some were fatal; he did not know the exact number of the latter. His conclusions were drawn from a compilation made by Drs. Dumont and Berne. Dr. Dumont, in his turn, was indebted chiefly to the works of Mattison on cocaine.

We have read an analysis of this work in the *Tribune Médicale* of January, 1888. At the beginning of the article four cases are made mention of; but, on reading the work carefully, we have been able to find nothing more about them. In fact, some observations are recorded in such vague terms that we often cannot determine whether they ended happily or not. How, then, can we discuss facts recorded with so little precision? We shall content ourselves with our own statistics.

What makes us think that we possess the correct and almost complete records of cocaine is that in a recent article by Professor Lepine in the *Semaine Médicale*, May 22, 1889, we have found few records of which we had not previous knowledge.

But before proceeding, we must confess something. It is evident that in this table (the author here alludes to a table of 77 cases which lack of space prevents us from reproducing), the poisonings have not been presented in their order of gravity, but according to the dose employed. We are obliged to acknowledge that our records are not complete for a dose less than 0.05. When, with the same dose of cocaine, several cases presented the same symptoms, we recorded but a few such. But starting from 0.05, the dose usually employed, we have recorded, without exception, every case that came to our knowledge.

Let us first of all examine those poisonings due to a quantity of cocaine less than 5 centigrams. In the first place, what are we to think of those provoked by almost infinitesimal doses? Can we seriously believe them to be due to intoxication? We must then believe cocaine to be the most dangerous of the alkaloids. We are inclined, therefore, to believe with Unkowsky and Hugenschmidt that emotion plays a prominent part in the development of certain accidents.

The following record made by Hugenschmidt is a striking proof of this theory. He was called upon to administer cocaine to a woman 60 years of age, who had to undergo a painful dental operation. She was very much excited and persuaded that the medicament to be used was exceedingly dangerous. Under such conditions, Hugenschmidt refused to administer cocaine, but, pressed by the woman to do so, he pretended to yield and injected ten drops of distilled water. In less than thirty seconds the patient complained of terrible pains in the head, rose quickly, made a few steps, and sank on a lounge, crying, "I am dying." A syncope ensued lasting half an hour.

Now suppose Dr. Hugenschmidt not to have injected distilled water; these symptoms would have been credited to cocaine, and we should have a rather serious case of poisoning, since there was syncope lasting half an hour. We are inclined to believe that a great number of cases are attributed to a like cause.

What, now, are the symptoms when the dose is less than 0.05? On consulting our table we find that the most common are: pale face, cold sweat, vertigo, weakness, dry throat, embarrassed respiration and syncope. But a simple emotion is perfectly capable of producing all these. Besides, in confirmation of this hypothesis, we may remark that in many observations the subjects were sickly, impressionable, nervous, or hysterical.

We do not, however, by any means refuse credence to all these cases; even below 5 centigrams cocaine may have active effects. But we refuse to attach any weight whatever to these accidents, which are also of rare occurrence, since for one case where disagreeable symptoms have shown themselves, we could cite fifty where all went well. We believe rather in an idiosyncrasy which, outside of all nervous heredity, renders one patient more sensitive than another to the action of the alkaloid. Cocaine, therefore, should be placed among those substances for which there exists individual susceptibilities.

From this we conclude that a dose inferior to 0.05 may be employed with impunity. The few accidents that may result will be perhaps disagreeable, but never dangerous.

But may we use 1.10? Looking at our table, we see that the administration of 0.05 has been fatal. Let us study this case in detail. It is of capital importance for, if the death was truly due to cocaine, the employment of this drug should be prohibited. It was at the meeting of the Ophthalmological Society of Paris, Oct. 2, 1888, that M. Abadie reported this observation.

“A woman 71 years old, for entropion, received in the eyelid the contents of a Pravaz syringe, containing a solution of

5 p. c. cocaine. At first no sensation; but scarcely was the operation finished when the patient staggered, lost consciousness, the face became livid, the lips blue, as in asphyxia. Artificial respiration was used, two injections of ether, caffeine. Respiration reëstablished, patient uttered a few words, and M. Abadie left, believing her to be saved. Next day he learned that the patient had succumbed in the night, five hours after the accident. No autopsy; but the daughter informed him that three months previously her mother had fallen in the same manner, and remained six hours unconscious.

This report gives rise to an exchange of observations between the colleagues of M. Abadie. Gorecki did not believe in intoxication, neither did Meyer, because the patient had the face livid and the respiration stertorous, phenomena which do not belong to cocaine poisoning, but rather to cerebral apoplexy, when taken in connection with the age and previous history of the patient.

Now do we recognize the effects of cocaine in this case? Poisoning by this substance has never caused congestion of the face. We need only look over our statistics to see that the face is always of a corpse-like pallor. It is true that the face might have been congested if the victim had had convulsions, but she fell down unconscious with no convulsive movements. This again obliges us to discredit cocaine poisoning, for in all the observations we have been able to collect there is not a single case in which death has not been preceded by convulsions. Can we then place accidents exhibiting symptoms contrary to those produced by cocaine to the credit of cocaine? We rather support the opinion of M. Meyer, and attribute this death to cerebral apoplexy.

Cocaine, then, cannot kill at 0.05, nay more, even in larger doses as high as 0.10, it is not dangerous. Nevertheless, the cases reported do present phenomena of a grave appearance. Thus, we have some observations with convulsive movements, but this symptom has been chiefly observed in nervous and hysterical subjects, and cocaine is well calculated to cause ner-

vous accidents in those who have these symptoms in the geriu. Besides, we certainly do not deny individual predispositions, idiosyncrasies which manifest themselves in proportion to the quantity of active substance used.

As to the other symptoms, some of them may be explained in the same manner as the above ones. It is beyond doubt that the state of superexcitation, the emotion inseparable from the idea of the operation, is among timid subjects the origin of certain troubles of the eyesight, of vertigo, and even of syncope.

There may be cited in objection to our theory cases resembling that of Howel Way, who, as an experiment, injected into himself one grain of cocaine, and was, as he himself reports, at a hair's breadth from death. It seems easy to explain these accidents on realizing the proprieties of cocaine. We know that one of the chief effects of this substance, employed in weak doses, is the exaltation of the sympathetic system, with consecutive diminution of the caliber of the vessels under the predominant action of the vaso-constrictor fibres. Hence, anemia of the base of the encephalon, giving rise to vertigo and troubles of the respiratory and circulatory systems. In presence of these symptoms an emotion, which may well be taken for a legitimate one, will seize upon the patient and make him think, instinctively, and in spite of himself, of a real danger. The effect of the emotion, added to the action of the cocaine, will still further slow the cerebral circulation; the two phenomena will then react, the one on the other, and syncope will be imminent. This we think was the case with Howel Way; and many other cases may be explained in the same manner.

These phenomena, which at first sight appear to be of exceptional gravity, are not to be feared. To prove this, it is enough to make the patient inhale two or three drops of nitrite of amyl to bring back the cerebral circulation to its normal state, and make every sign of syncope disappear immediately. This was the case with Howard Way and with many of patients, as is proved by numerous observations. We see, then,

that 0.10 centigrams of cocaine give rise to symptoms more frightening than dangerous.

Let us now study the poisonings which have followed doses of from 0.10 to 0.20 centigrams. Here again we find ourselves in the presence of accidents at first sight of very dangerous character, but this gravity is more apparent than real. Two or three drops of nitrite of amyl generally cause the symptoms to disappear.

We must, however, call attention to a new phenomenon, little dangerous in itself, but interesting to note because it indicates a more energetic action of the drug on the system. We allude to the cerebral excitation. A good example of this has been reported by M. Reclus, and runs thus:

A man aged 40, very nervous, impressionable, came to be operated upon for a lipoma in the shoulder. He dreaded the operation, the result of which he feared. The field of operation was anesthetized with 15 centigrams of cocaine. The operation was begun, the excitement of the patient increased, he began to weep, then got mad with himself for doing so, and was seized with fits of fury, followed by maudlin ones. Finally there was extraordinary loquacity, little in harmony with his naturally cold and reserved character. These symptoms lasted three hours.

Regarding this case, it may be said that it is extremely annoying to a patient that he should blurt out unwittingly matters of which he would be very reticent when in his normal condition. But this is not a sufficient reason for us to deprive ourselves of the advantages offered to us by cocaine. Are we not often compelled to search the past life of our patients in order to arrive at our conclusions? Besides anesthetics in general and chloroform in particular are subject to the same reproach. How often do we see patients under the influence of chloroform recount episodes in their lives, and enter into the most private details? Consequently this phenomenon of cerebral excitation must not be regarded as an obstacle to the use of cocaine.

What must make us more circumspect are the convulsions which have occurred with doses less than 0.20. This is an indication that cocaine has not contented itself with exciting the excito-motor centers, but that it is exercising a truly toxic action on those centers. Happily, convulsions are far from being the rule. In the two observations we have made, in the first case the cocaine was injected into a region very rich in blood-vessels, for hemorrhoids; in the second a highly concentrated solution was used. Thus, in both cases, there was essentially rapid absorption, and if we may credit our experience, this is one of the conditions most favorable to the exhibition of convulsive symptoms. We conclude, therefore, that cocaine may be employed in doses of 20 centigrams; however, we shall not recommend this dose in view of the phenomena we have mentioned. It is true that we could easily cite numbers of cases reported by M. Reclus when 20 centigrams have produced no evil symptoms, not even paleness of face.

But beyond this dose we think that the greatest care should be taken in the employment of cocaine. Accidents are multiplied, the symptoms become more and more grave, and although we reach the enormous quantity of 0.75 before finding the first case of death, yet we believe that 0.20 should not be passed.

We shall not discuss the cases of death we have been able to collect, but shall content ourselves with citing them, with a few details.

M. Sims, in the *Medical News*, July 11, 1888, reports the following case: "A man 29 years of age was injected in the urethra with one drachm (nearly 4 grains) of a solution of cocaine at 20 p. c. Hardly was the syringe withdrawn than the patient began to be delirious. The eyes contracted, the pupils dilated, he foamed at the mouth, respiration nearly ceased, and the whole body was shaken by violent convulsions, which increased in violence. Respiration became more and more feeble, and the patient died twenty minutes after the operation. At the autopsy the lungs were found normal, but greatly hyperemiated, heart healthy (right ventricle empty, left filled

with post mortem clots). Abdominal viscera and brain also greatly congested. Mucous membrane of urethra healthy.

The case of Professor Kolomin is too well known for us to enter into details. Cocaine employed for itching of rectum. Injection into rectum of 24 grains. Twenty or thirty minutes afterwards symptoms of poisoning. Loss of consciousness, violent epileptiform convulsions, cessation of respiration. Ether, nitrite of amyl, artificial respiration, bathing with irritating substances, all useless; death in three hours.

Another case is reported in the *Bulletin Médical* of February 24, 1889.

A house surgeon of University College Hospital had prescribed 3 gr. 25 of cocaine, which he intended himself to inject into the bladder of a man aged 30, suffering from acute cystitis. He neglected to indicate on the prescription how it was to be employed, and the druggist put it up as a potion. The patient swallowed it. At first there were no symptoms, but at the end of half an hour convulsions set in and the patient died.

Finally, the latest case was published by M. Montalti in the *Italian Journal Lo Sperimentali*.

This case is of medico-legal interest, and is that of a woman who swallowed by mistake 5 grammes of a solution of 30 p. c. chlorhydrate of cocaine, that is, 1.50 of the alkaloid. Fifteen minutes after the drug was swallowed, the patient complained of constriction of the throat, and was seized with an intense desire to vomit, without being able to do so. At the same time the sight was affected, the pupils dilated, the lips became cyanotic, pulse thready, convulsions ensued, and death. At the autopsy a small cavity was found in the right lung; the heart was slightly fatty. The brain, meninges, and abdominal viscera were congested. Death, according to the verdict returned in accordance with the expert testimony, was considered as the result of poisoning by cocaine.

These are, in short, the only causes of death we have been able to find in the authorities, for we refuse to recognize the action of cocaine in the observation published by M. Abadie.

We see that a fatal termination is, on the whole, of rare occurrence. If we were to examine the records of chloroform we should find the mortality table very much higher. Besides, cocaine is fatal only in fairly large doses. We must also remark that the evolution of the phenomena depends much on the administration of the drug. Thus, in the observation recorded by M. Montalti, cocaine was taken internally, and absorbed by the stomach; we think that half the dose, administered subcutaneously, would have been fatal. In fact, all depends on the rapidity with which it is absorbed. Our experiments with rabbits demonstrated this fact perfectly. We had fatal results on injecting into the peritoneum 20 centigrams per kilo. of the animal; and 5 centigrams injected into the auricular vein produced a like result. The size of the dose is then somewhat relative, and we might administer with impunity to the stomach a dose that we dare not inject into the cellular tissue.

This distinction is not a useless one, but deserves to be taken into consideration; for a vein may very easily be pricked by the needle, and the solution of cocaine be introduced into the circulation. This must sometimes have happened; and when in the absence of all predisposition a minimum dose of the active substance gives rise to phenomena of exceptional gravity, we should be certainly disposed to believe that the solution had been injected into a vein.

But how to guard against such accidents? This is an easy matter. We need only conform to the method of operation employed by M. Reclus as published by him, and his pupil, Isch Wall, in the *Surgical Review* of Feb. 10, 1889. This method consists in pressing the piston of the syringe as the needle sinks into the tissues. We may perhaps pierce a vein, and introduce a drop of the liquid into the caliber of the vein, but the rest of the solution will certainly be injected into the cellular tissue. We thus avoid introducing the cocaine directly into the circulation and putting it in practically immediate contact with the nervous centers.

The too rapid absorption of this substance presents grave

objections to some writers. Such is the opinion of Professor Wolfer of Groz. Judging from his own statistics, he found that it was possible to inject into the extremities a dose a third greater than into the face. He appears to consider as possible that cocaine introduced in the neighborhood of the brain may reach it in a more immediate manner (by the lymphatic ducts) than by the general circulation.

To avoid as far as possible this too rapid absorption, we must avoid using concentrated solutions. Nothing but good effects will come of so doing.

We know that cocaine produces analgesia by acting directly on the sensory nerve cells; the more attenuated the solution, the more the contact of the liquid with the cells will be multiplied, and yet the total dose of cocaine will be weaker. The 2 p. c. solution seems to us the most desirable. Now, as we have seen, we may use almost with impunity 20 centigrams, so we may inject 10 cubic centimeters of our solution. And what operatory field can we not analgesiate with the contents of 10 Pravaz syringes?

Besides, we think this dose will be rarely necessary, and it would be more prudent not to have recourse to it if we have to do with nervous, anemic, or hysterical patients. If, on account of a peculiar predisposition, accidents should happen, we should inject ether, or, preferably, make the patient inhale two or three drops of nitrite of amyl. In most cases the patient will revive immediately, and recovery will be maintained by caffeine. Should convulsions occur, give chloral. Chloroform and ether are also recommended.

CONCLUSIONS.

Our experiments have confirmed the generally received opinion, that cocaine is less toxic to animals than to man.

In spite of the most minute investigations, we have succeeded in finding in medical literature only *four* cases of fatal poisoning, and it is worthy of note that in these cases the quantity of active substance was always very considerable (0.75; 1.20; 1.20; 1.50).

With a dose of 0.20 by injection and in spite of the apparent gravity of the symptoms, the danger of death has never been real.

We may then use this dose of 0.20, though it will rarely be necessary, for with 0.10 of a 2 p. c. solution, the operatory field anesthetized will be an extensive one.

DIPSOMANIA AS A DEFENSE FOR CRIME.

By JAMES G. KIERNAN, M.D.,

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Dr. J. P. Gray testified some years ago that¹ “ ‘Kleptomania’ is a word used to express thieving; there is no such insanity. ‘Dipsomania,’ I call it drunkenness; but I do not call it insanity at all. Pyromania, incendiarism, a crime. All these terms are makeshifts to secure from punishment for crime.”

This demagogic evidence at the time represented neither American clinical nor forensic psychiatry. Dr. W. W. Godding,² a pupil of the Ray-Brigham school of American alienists, commenting on this *a priori* cant, feelingly voiced the vast majority of American and European alienists when he remarked: “ We cannot deny that the old masters were as keen-sighted observers as ourselves. I dislike to hear drunkenness called dipsomania, as I so often do; but I do not therefore say that dipsomania is only drunkenness. It might improve my standing with the legal fraternity if I should pronounce kleptomania only another name for stealing; but my personal observation convinces me that the insane have sometimes a disposition to steal, which is a direct result of their disease, and for which they are no more accountable than the puerperal maniac is for her oaths.”

Judge Doe, of the New Hampshire Supreme Court, affirmed a similar doctrine to that of Dr. Godding in the case of

¹ Trial of Guiteau, Part II, p. 1674.

² Two Hard Cases.

the State vs. Pike. The prisoner being indicted for the murder of one Brown, his counsel claimed that he was "irresponsible by reason of a species of insanity called dipsomania." The lower court instructed the jury that "if they found that the prisoner killed Brown in a manner that would be criminal and unlawful if he was sane, their verdict should be 'Not guilty by reason of insanity,' if the killing was the offspring or product of mental disease in the defendant; that neither delusion, nor knowledge of right and wrong, nor design or cunning in planning and executing the killing and escaping or avoiding detection, nor ability to recognize acquaintances or to labor or transact business or manage affairs, is, as a matter of law, a test of mental disease; but that all symptoms and all tests of mental disease are purely matters of fact to be determined by the jury; that whether there is such a mental disease as dipsomania, and whether defendant had that disease, and whether the killing of Brown was the product of such disease, were questions of fact for the jury." This instruction Judge Doe, in a decision replete with lucid grace of diction, clear logic, and scientific precision, affirmed.¹

This plea was practically a successful one in the case of the People vs. O'Brien, recently tried in Chicago. The chief forensic points involved, and the general history of the case so far as the defense of dipsomania is concerned, are excellently summed up in the following hypothetical case:

"Take a man whose mother was considered insane by her son-in-law and grandson; whose father was a periodical drunkard; whose sister was insane, and was an inmate of an insane hospital; whose other sister was peculiar, and, in the language of a layman, a 'little off'; whose maternal aunt is peculiar, and considered by at least two of her relatives insane; whose maternal first cousin is an idiot; and whose nephew has periods of seeming unconsciousness.

"Assume that this man when sixteen years old worked all night without necessity, and that, when asked in the morning

¹ Lawson's Criminal Defenses : Insanity and Drunkenness.

why he did this, was apparently unable to give either a coherent account of what he did or why he did it. That in mid-winter, when he was about sixteen years of age, he caused the machine knives to be ground to cut grass, although there was no grass to be cut; that on another occasion he ordered cows driven out of an orchard lest they eat the apples, when there were no apples there and snow was on the ground. That this man, now at the age of about 38 years, for a known period of six years immediately prior to the present time has had brief periods when he became morose, restless, gloomy, and absent-minded, and the expression of his eyes and face changed; that then follow violent drinking spells, lasting from four to ten days; that he then drinks intoxicating liquor, with or without company, in great quantities. During these drinking spells he is suspicious, extremely quarrelsome, boisterous, rough, and coarse in manner, and does not discriminate in his violence between friend and foe. That these periods terminate in prostrating sickness; that on recovering from these drinking spells he is pale and looks as though he had passed through a fit of sickness; that between these drinking spells there are irregular intervals of from four to six weeks when he is quiet in manner, neither profane nor vulgar in speech, attentive to his saloon business, and will often refuse intoxicating liquors; that just precedent to, during, and immediately after his drinking spells, his manner is in such marked contrast with the sober periods that he has been thought to be insane and crazy by several persons well acquainted with him. That his conduct during these drinking spells is marked by strange extravagances. On one occasion he took a bear in a buggy for a drive. On another occasion, on Christmas day, in one of his saloons, then well patronized, he ordered the customers and bartender out and locked the place up, and was seemingly unable to give any good reason therefor. On another occasion he shot at a colored man twice, in order, as he stated to the bystanders, "to show them how to kill a nigger." On another occasion he wished to erect a tank in the back yard and to hire a high

diver to dive off the adjacent building. That, about seven years ago he became acquainted with a married woman who had left her husband in California and was visiting in Chicago, and from that time until about the month of May, 1895, he lived with said woman in open adultery, and in said May (while in one of said drinking spells) went with her to the city of Milwaukee, where he was married to her by a justice of the peace; that from that time until November 9th, with the exception of a short interval, he lived with her as his wife; that on or about said November 9th she left him, and did not again live with him; that during the month of September, for a period of about ten days, he drank excessively and had an attack in which he was found wandering dazed about the hall of a hotel between 2 and 3 o'clock in the morning; that at the end thereof he remained sober, attending to his usual vocation as a saloonkeeper until on or about November 9th, when one of his drinking spells began, continuing until his arrest on November 19, 1895; that during Thursday, Friday, Saturday, Sunday, and Monday night, he was very restless and unable to sleep; that frequently during these times he would go about his room with a frightened look, and try the doors and windows, apparently to see that they were locked and fastened, and while so doing would carry a revolver in his hand, and, during the time that he was lying in bed, constantly kept said revolver within his reach. That he, some hours before the homicide, drank much intoxicating liquor; that about 1 o'clock of the day of the homicide, at a messenger service he asked for a messenger boy, and sent a note to his wife—the boy failed to find her, and did not deliver the message; that still later he sent another note, which was not delivered; that afterwards, at his saloon, he drank more liquor; that at or about 4 o'clock of said day he left his saloon and went to where his wife then was with her sister, and rang the bell of the flat adjacent to the door of the flat where his wife was, whereupon his wife, accompanied by her sister, went to the door of their apartments, opened it and said, "Hello, Brother," and he replied, "Don't touch me." That he had his

hand on his right overcoat pocket; that his wife went ahead and he followed her to the front parlor; that she said, "Here are those keys;" that he said, "When did you stay with that white-livered — — — —?" that she replied, "I never did;" that he then said, "Tell me or I will kill you;" that she said, "I never did;" that then two shots were heard, when the sister ran down to the street crying for help, whereupon certain persons from the street visited said parlor and found the wife lying dead from the effects of two pistol wounds; that one of the windows in the room was broken apparently by the revolver, from which the said fatal shots were fired, being thrown through it; that he, after said homicide, went down the back stairs, through the alley, to the rear of his saloon, and drank liquor; that he was in his saloon when the policeman entered it and said "We want you," and at the same time the officer placed his hand upon him and he replied, "What do you want me for?" and the policeman replied, "I guess you know." That he was then taken without resistance in a patrol wagon to a neighboring police station; that when received at the police station he was searched and some articles of personal property taken from him, among them a diamond pin; that when that was removed he said to the officer in charge, "It is a valuable pin—take good care of it—it is worth \$150." That when asked, "Where is the gun you used?" he replied, "I have used no gun." That then he asked to wash himself and was shown to the wash-room, where he washed his face and hands; that after doing so he looked at himself in the mirror and while so doing stroked his moustache. On the following morning, on his way to the inquest, he asked where he was being taken, and stated to the officer in charge that he wanted a continuance.

This evidence was admitted by Drs. Harriet C. B. Alexander, H. M. Bannister, J. A. Benson, H. N. Moyer, J. C. Spray, and myself, to be sufficient to establish the existence of dipsomania. This psychosis was defined by all these physicians as a periodical insanity, characterized by an irresistible craving for alcohol or narcotics during certain periods, preceded and

followed by mental change in the individual affected. These periods are intermingled with periods of sobriety. The alcoholic element was regarded by all as a mere manifestation determined at the outset of the periods. The victim of dipsomania, in the opinion of all, would be insane during the drinking periods even if alcohol were not used. The position of the defense on the status of dipsomania in nosology was essentially that of Krafft-Ebing, Ritti, Spitzka, Kraepelin, and Schuele. The demarcation made by the experts for the defense between dipsomania and drunkenness was essentially that of Lagrain,¹ thus given recently:

An alcoholic patient becomes insane because he drinks; a dipsomaniac is insane before he commences to drink. Dipsomania may be complicated by alcoholic symptoms, but alcoholism never leads to dipsomania. Alcoholism is an intoxication which has as its cause alcohol; dipsomania has its cause in a defective mental condition, and alcohol is but a secondary factor, which may be replaced by any other poison, leaving to the syndrome all its psychological characters. Dipsomania proceeds in paroxysmal attacks, and the appetite for strong drink is absent during the intervals between the attacks. Alcoholism has no definite course—its development depends directly upon the more or less considerable or prolonged consumption of alcohol.

The hypothetical case, it should here be stated, included, in accordance with the usual system of Judge Russel M. Wing, the chief counsel for the defense, just sufficient evidence to justify the diagnosis of the mental state, of the amount of will power, and of the specific psychosis. The case as presented to the jury contained other factors less incriminatory to the accused and other evidence more strongly demonstrating defective heredity and dipsomania. The State pursued the opposite policy: all evidence implying insanity was omitted from its hypothetical case; it presented also a mutilated copy of the hypothetical case of the defense to its experts. With two excep-

¹Tuke's Psychological Dictionary.

tions, the experts for the defense just named were not subjected to much cross-examination. Drs. Archibald Church, Sanger Brown, and Richard Dewey appeared for the State. They answered that the subject of the hypothetical case of the State was sane, as every expert for the defense would have done. They also stated that the hypothetical case of the defense had been presented to them and that the subject of it was sane. On cross-examination, Dr. Church gave the same symptoms of dipsomania as those presented by the hypothetical case of the defense, whereupon it was presented to him in its entirety. To it, Dr. Church answered that the person of that hypothetical case was insane with the type of insanity called dipsomania; that his knowledge of right and wrong was doubtful, and that he was the victim of an irresistible impulse. Drs. Sanger, Brown, and Dewey substantially agreed with Dr. Church on cross-examination. The position of all three as to the nosological status of dipsomania was identical with that of the experts for the defense. The position of Drs. Dewey and Brown as to the individual of the hypothetical case of the defense was less emphatically expressed, but was practically identical with that of Dr. Church; the results of whose cross-examination, naturally under the circumstances, strongly influenced the jury. No examination of the accused was made by the experts on either side. The jury was left to decide as to the validity of the two hypothetical cases. On the first ballot the jury stood six for hanging to six for acquittal on the ground of insanity; on the second ballot five for hanging to seven for acquittal on the ground of insanity; the third ballot resulted in a vote of eight for acquittal on the ground of insanity. The jury then agreed on a verdict acquitting the accused on the ground of insanity, conditional on the Court committing the accused to an insane hospital as a still dangerous lunatic. The Court declined to assume such powers, although permitted to do so by the Illinois criminal code. The jury then attempted to find the accused guilty of manslaughter so that he could reach an insane hospital through a penitentiary. Four, however, still

sturdily voted for acquittal on the ground of insanity. The jury was then discharged, unable to agree.

The jury was clearly convinced that dipsomania was a well-defined form of insanity, and that the subject of it was so dangerous as to require permanent insane-hospital treatment. As there was a "hanging" epidemic among juries just precedent to this trial, it must be obvious that even under disadvantageous circumstances the seemingly dangerous defense of dipsomania can be successfully made scientifically before an intelligent jury. Furthermore, the case shows that the pure hypothetical method of presenting evidence is far more just and clear to a jury than when combined with the fact of examination. Examination of an accused person often is a wild absurdity unless the physicians have the clinical history. In court the clinical history cannot be used, as it is practically hearsay evidence. The jury is hence confused, since a conscientious expert, used to legal procedures, will, in accordance with his oath, exclude all but the results of his examination, while the omniscient professional swearer will, in defiance of all laws of evidence, testify to the results of hearsay as facts resultant on examination. Fact witnesses and opinion witnesses should hence, in the interests of justice, be separated. This the Chicago Academy of Medicine, the Chicago Medico-Legal, Pathological, and Medical Societies tried to do by a bill presented to the last Illinois Legislature. This bill, as finally passed, was so emasculated in the interest of certain omniscient medical politicians, the vampires of the courts, as to destroy its essential features and convert it into a new piece of patronage machinery for judges.

I have not dwelt on the time-dishonored mob-law right-and-wrong test, since it, under the decision in the case of *Hopps vs. The People*, can only be used by trick and device of the State's attorney in Illinois.

Certain clinical data are lacking in the case which, from the psychiatric standpoint are of especial interest. The aimless insane performances during puberty suggest that cerebral au-

tomatism, which occurs in periodical types and affiliates these to epileptic mental manifestations. It would be of interest to know whether these performances passed at a later date, as seems probable, into the rather suggestive acts of the "drinking spells," and hence were an expression of a degenerative defect which would be accentuated into irregular periodicity after the age of twenty-five (the expiration of puberty), but masked by alcohol. It has been claimed by Laségue and others that dipsomaniacs never manifest the symptoms of alcoholism. This clinical criterion, as Legrain points out, is erroneous, since many cases are on record where dipsomaniacs, even if their attacks did not last a long time, showed symptoms of alcoholic poisoning—excitement, tremor, delusions, nightmares, hallucinations, etc. That at the expiration of some of the "drinking spells," alcoholic mental states were present, seems clear from the hypothetical case above cited, which also suggests that the individual at the time of the homicide was in a most forensically dubious alcoholic mental state, which, according to testimony of those present at the coroner's inquest, lasted even till then, days after. This testimony was omitted from the hypothetical case of the defense, intentionally, on the system already described.

Identity of dipsomania and voluntary drunkenness was claimed by the State, but this claim was upset by its own experts. Dr. Sanger Brown, for example, took the position that the voluntary drunkard is a sane man who drinks, while the dipsomaniac is an insane man who drinks.

Dr. Harriet C. B. Alexander, an expert for the defense, took the position, on cross-examination, that even during the sober period the legal responsibility of the dipsomaniac was dubious, and in the event of crime, the burden of proof of sanity rested upon the State. This position, from the ordinary legal standpoint of responsibility, is essentially sound. It is in full accord with that recent decision of Judge Harlan of the United States Supreme Court, which wiped out of existence the demagogic decisions of the State Supreme Courts, which

have held that the prisoner must prove his insanity beyond a reasonable doubt—decisions inconsistent with abstract justice and anarchically inconsistent with that fundamental principle of the criminal law of English-speaking countries, that every one must be presumed to be innocent until proven guilty.

The State's attorney cross-examined Dr. Alexander and myself as to the forensic bearing of the language used at the time of the homicide on the question of will-power and pre-meditation. The answer was that taken alone it was purely negative in value, and taken in conjunction with the other factors of the hypothetical case it had no significance; corroborated by other facts bearing on the existence of will-power, it might be of value. This position was based on the fact that delusional threats and suspicions are often uttered during alcoholic, post-periodic, and epileptic mental states of which the utterer has, at the best, but a dazed consciousness. The answer was further based on the broad scientific principle that intelligent acts do not legally or medically offset distinct evidence of insanity. Dr. Alexander was cross-examined most at length, and myself next, although I could hardly call it cross-examination. The policy of the State in this particular was due to the sensible plan of avoiding errors in the record.

The difficulty encountered by the jury in their disposal of the case must be felt by every thinking alienist. Some act embodying a modification of the English "commitment pending Her Majesty's pleasure," suitable to other English-speaking countries, seems desirable. Another desideratum in the interests of justice is a modification of State statutes which put a premium on judicial murder by paying fees for conviction to State's attorneys.

INTOXICATION AND INSANITY.

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I will be glad to limit the meaning of the word intoxication in this paper to the injurious effects on the cerebrum of toxic agents present in the circulation. Toxic agents in the blood, of course, have their chemic effects upon other structures, but in the ordinary interpretation of the word the symptoms of intoxication are those that belong to the brain. I will use the word in that sense.

This organ is exceedingly sensitive to the action of certain agents; so much so, in certain instances, that it seems to be the only organ affected, or affected so far in advance of others that their disturbance is not appreciated. The exceedingly soft colloid character of the functioning central parts of its nerve cells and fibers render them the most sensitive of all the structures of the body to some agents; and their excessively rapid functional motion is most delicately disturbed.

The nervous system, indeed, the whole body, may be divided into sensating and non-sensating structure. This is only a fact in a comparative sense, because there are no defined limits of the property of sensibility anywhere in the living world. The broad generalization is commonly admitted, that all *living* structures are more or less sensitive. In biology there is an advance of grade in this property as we ascend in the classification of species. Within the body of man the property is more decided and distinct in some organs and parts than in others. The nerve centers particularly have it as their function, and, among them, it improves in delicacy and distinctness until we reach the cerebrum, where its most refined excellence is called consciousness. In man, so "central-

ized" is the faculty that all conscious action may be said to be cerebral. Sensibility in the human being is carried to such a degree of centralization that the cerebrum is practically the only sensorium. It is the organ of all "feeling," the physiologic *ego*. The recognition of this as a physiologic fact will explain many phenomena of the brain; in that of intoxication it gives ready explanation to many of the symptoms produced.

In intoxication the conscious feeling of the man is affected and subjectively interests him most. His "feelings" are altered, and he is concerned favorably or unfavorably as he is comforted or discomforted.

In addition to being physiologically the conscious organ, the brain is also the organ that adjusts the entirety we call "the man" to his environment. The other nerve centers have also adjustment as their function, but they adjust the organs of the body internally to each other. The brain adjusts externally.

The comparative excellence of structure and function of one man's brain makes him excellent in his external activities, and the comparative weakness or defectiveness of another man's makes him less excellent or competent. We judge of the integrity and functional capacity of this organ by the *emissions* it makes, which in the aggregate go to make up the exhibitions of the man's intellectual capacity and constitute what we call his conduct and character.

We judge, therefore, of the effect of a toxin and of the degree of intoxication by the man's recital of his own "subjective" feelings; and we judge "objectively" by the "symptoms" shown in his brain's emissions. The symptoms of intoxication have been discussed in medicine since medicine first began. Because it relates seriously to the transcendently most important organ in the body, it is a live question.

There are a great many agents that act intoxicatingly. Some enter the circulation from within the body, are produced there; others are introduced from without.

We hear much said now-a-days about *auto intoxication*, by which is meant the intoxication that is produced by toxins produced within the body. The unqualified word intoxication popularly means the series of symptoms produced by alcohol, or some other such agent, introduced from without.

The word *insanity* is more properly a popular or a legal term than a medical one, which fact occasions the trouble often found by doctors in giving a medical definition to it for legal use. Legally, insanity relates to conduct alone, and not especially to the brain condition that produces it. The gradually increasing popular recognition of the fact, however, that all conduct, good and bad, excellent and defective, depends upon brain condition, has led, of late years, more and more to the popular and legal reference of all cases of defective conduct to the medical profession, in the same way other defective functions are referred to them.

Properly, because it is a legal term, insanity simply means that the person has reached such a *degree* of aberrant conduct that he has to be supported, controlled, or restrained by others, or by the state — he is disabled to that degree. It is always a question of degree and a matter of opinion. The doctor's opinion is taken as of most value.

Insanity indicates an *extreme* degree of cerebral defectiveness, which implies that there are other grades of impairment above the insane level. This is a fact open to every-day verification, and it is a fact particularly related to the subject before us. Intoxication can be shown to be the cause of different grades of defective conduct ranging all the way upward from the insane level.

Cerebral intoxication varies in the person according to two factors or sets of factors; the first is the character of the agent and the amount of it in the circulation; the second is the peculiarity of the particular brain, peculiar in the way of being more or less sensitive to the particular agent, or peculiar in the way of being inherently defective, which abnormality is rendered more apparent by the action of the toxin. In

other words, intoxication varies according to the toxin and the dosage, and according to the abnormality or idiosyncrasy of the particular brain.

Subjectively considered, by the man himself, the toxin produces discomfort or comfort. This is the direction in which he first considers it or principally considers it. In the action of many, probably of most, toxins, the sentient result is that of less conscious activity, which means less sensation, or a more comfortable state.

Consciousness occurs only when there is functional action going on in the cerebrum; when there is no cellular motion, there is no consciousness; this occurs naturally in sleep and artificially in anesthesia; when the brain is partially rendered less capable of functioning by the chemic action of a drug, there is diminished sensibility — more comfort. Comfort is a negative condition, meaning no discomfort. Discomfort is a constant or most frequent condition of many brains to whom all cerebral or bodily effort is more or less painful. Cerebral hyperesthesia is a very frequent condition as a part of neurasthenia or cerebrasthenia. In this condition the oversensitiveness, in time, is increased by the injurious or chemic effect of the toxin. If the agent simply stiffen or slightly harden the delicate structures so as to prevent or to make less their functional activity, it produces less consciousness — more comfort. This varies with the character of the toxin, but in time produces hyperesthesia or neurasthenia.

In intoxication there is more or less a sense of incapacity, dullness, and confusion; sometimes, a more comfortable state because there is lessened sensibility. Sometimes, on the other hand, cerebral effort or activity produces more discomfort, so that, as a sequel to continued intoxication, comes hypersensitiveness with irascibility, irritability, forgetfulness, and worry; all exhibits of cerebral impairment. If the person is naturally erratic or peculiar or hypersensitive, he is rendered more so. A cerebrum tending already toward hypochondria, melancholia, mania, or paranoia, is more inclined that way.

In short, intoxication always injures the cerebrum for the time being, sometimes permanently, and in certain persons increases original defectiveness to the permanency and grade that is called insanity.

Toxins, such as ptomains, leucomains, and other toxic albuminoids, arise from the disintegrations of disease in the system; and there are also natural waste products which, if retained in the circulation, prove highly toxic, such, for instance, as are eliminated by the kidneys, the liver, the bowels, and the lungs. Infection comes into the circulation from many directions; the scavenging of the system is most important work on that account.

Microbic disintegration of cerebral structure proper is not often seen. Inflammation of tubercular bacilli occurs in the meninges, and other meningeal inflammations are said to be microbic; cerebral syphilis may be this. Upon the true functioning structures of the cerebrum, however, microbes most often have no direct, but indirect effect by the toxins they produce elsewhere.

Diseases affecting the general system, like the exanths, fill the circulation with toxins. Some brains are very sensitive under these conditions, and delirium is a consequence; there is always more or less confusion, dullness, listlessness, and incapacity, as a consequence of such intoxication. In the extreme of life, *in articulo mortis*, the complete arrest of cerebration from this cause, in a large number of cases, removes the pain and distress of dying.

Cerebral toxicity, from disease in different organs of the body, varies with the organ. Diseases of those organs whose function it is to remove waste toxic material are always serious to the brain. The kidneys, liver, alimentary canal, lungs, and skin are organs of this character. We often have the unre-moved waste toxins of the system in the blood added to those directly produced by the inflammatory disease of the excretory organ. Acute rapid disease of such organs often produces delirium; more chronic disease for this reason sometimes gradu-

ally induces the more permanent condition of insanity. The delirium and the insanity indicate, usually, brains already sensitive, weak, and defective.

In an insane hospital, where the worst cases of defective cerebra are found, it is very easy to note the effects of auto-intoxication. The part the digestive tract plays in the rôle of insanity is often very evident. In conditions of certain forms of dyspepsia, particularly in conditions of constipation or torpidity, auto-intoxication can be shown, and its relief demonstrated by removing the toxin by cathartics and alimentary disinfection. Stercoremia, copremia, and the common condition, "biliousness," afford instances of it.

A large proportion of the insane suffer from some form of nephritis, and to it can be traced many of their more insane periods or "spells," when the already weak or defective cerebrum is made more aberrant by uro-toxicosis.

Toxemia in women, during gestation, and after their confinement, during uterine involution, especially if there is sepsis, and during lactation, is by no means an uncommon thing. Puerperal mania or insanity in some form, is a result in extreme cases. It is a rare thing that the parturient woman shows no signs of intoxication in some of its milder forms.

A long chapter could be written on auto-intoxication. Literature on this subject is getting more and more abundant. I have said enough to show its importance as it relates to insanity.

Intoxication by agents introduced from without is a frequent occurrence, and, as it relates to brain hygiene, is little appreciated.

As physicians, we would be very much handicapped in our practice if we did not have cerebral toxins among our medicines. They constitute a very popular line of drugs; popular with the doctor, because popular with his patient. All anodynes and anesthetics are of this class. Most frequently the urgent symptom to be relieved in our patient is pain or discomfort. Pain is a brain condition. If disturbed or disin-

tegrating action in distal parts cannot be conveyed to the sensating brain by nerve lines that we have rendered incapable of transmitting by our toxin, there is no sense of it; or, if we render the cerebrum unconscious by our toxin, we accomplish the same object, there is no pain. We accomplish artificial anesthesia with such an agent as chloroform by a complete suspension of cerebral functions, while the functions of the lower centers, which adjust internal actions, are left to continue. If we push the anesthetic farther we suspend them also, fatally to our patient.

Toxins nowadays are known also to have injurious effects upon peripheral nerves. Peripheral neuritis is now ascribed most often to this cause, in conjunction with exposure, fatigue, or some such condition which renders these nerves more sensitive to the toxin. Peripheral pains, such as make so prominent a symptom in grippe and dengue, probably have this source — headaches, sometimes.

I believe it is true, under certain conditions or with some toxins, toxicity can be of the peripheral nerves at the same time and by the same agent that the cerebrum is affected. The difference between an anodyne and an anesthetic may be this: the one affects more generally the nervous system, the other principally the cerebrum. This distinction is necessarily not well drawn. It is a good hypothesis, however, that anodyne or anesthetic effect in the relief of pain or discomfort occurs by the arrest of the function of the transition of motion along nerve lines, or most frequently, by the arrest of conscious motion in the cerebrum. The anodyne, cocaine, administered hypodermically, hardens chemically the nerve lines leaving the locality, so there is no transition of motion to the sensorium from the part, and no pain; though later, we have its anodyne effect on the cerebrum, obtunding in a general way the sense of disintegrating action or pain.

The effects of alcohol, on the other hand, generally begin in the cerebrum; though we do have local anesthesia in the stomach, and in time, in some cases, neuritis in the periphery

as an effect of it. We may correctly suppose that whenever we arrest or abate pain with a toxic agent, we do it most often in the brain by hardening the axis-cylinders of nerve lines, or the central part of nerve cells, in this way preventing or lessening their functional motion. A good deal is being written to show the changes in the nerve cells of the cortex, in the way of enucleation, diminution in size, and changes in length and shape of processes by the continued use of certain toxins. Degeneracy of axis-cylinders in nerve lines elsewhere is also reported. The cerebrum (the sensorium) is the most important organ that suffers; it is impaired by the excessive or the continued use of anodynes and anesthetics, in numbers of instances.

In many persons the effect of the continued use of such agents on their peculiarly susceptible or defective cerebra is so injurious as to increase the original condition of over-sensitiveness to neurasthenia, or to carry their original defectiveness or weakness to the stage of permanency and degree called insanity. The continued use of such agents as luxuries, because of the artificial comfort they give, works widespread harm. The popular and extensive use of alcohol and nicotin as luxuries, not to mention other toxins, leads to increase of cerebral and neurotic defectiveness and disease and, in some, induces the extreme cerebral condition of insanity. A narcomaniac or an inebriate, in the large majority of cases, has had an original defect of brain, preceding his drink habit, that has been rendered more decided by repeated intoxication. The brain is a very much abused organ, and one sorely omitted in our private and public sanitation. In the use of such agents as luxuries, the brain effect is the one sought after, and in proportion to the amount taken and the length of time, injury is done. Intoxication, owing to inherent peculiarities, is more injurious to some brains than to others.

ON THE EFFECT OF ACUTE ALCOHOL POISONING
ON SIMPLE PSYCHICAL PROCESSES.

From The Medical Pioneer.

Among the numerous, interesting, and valuable papers presented at the International Congress against the misuse of alcoholic liquors in Basle, last year, there was none more important from a medical point of view than that of Dr. C. Fürer, assistant in the Clinic of Psychology, Aeidelbery, having the above title. This paper has just been published in full in the printed report of the Congress, and we shall now give an account of it. It gives the results of an inquiry into the effects of a single dose of alcohol, varying in quantity, but fairly large and of the kind and duration of the after effects of a single moderate "excess" of alcohol. The experiments of which the principal results are here given have been partly previously published by Professor Kraepelin, and are partly the outcome of Dr. Fürer's own experiments.

All articles of food or drink capable of affecting the mental processes were rejected during the experiments, and control experiments without alcohol were always instituted.

One series of experiments consisted of determining the time between the giving of a signal (saying "a") and the announcement that it had been heard, this being measured by a clock, which was set in motion on giving the signal and stopped by the person experimented on. (This gave the so-called "simple reaction.") In the next series there were two signals (saying "a" or "o"), the one to be acknowledged by the right hand, the other by the left (decision reaction). The average of 100 experiments was taken and, in the case of the decision reaction, the proportion of mistakes.

In a series of experiments on association of words, the act of opening the lips to say the word set an electric current in motion, and the response set free another, and the time was measured as before.

In experiments to estimate time, the person sat with shut eyes, and concentrated his attention on intervals of time (30 seconds), which were marked by calling the word "now." Then twenty-five times running he had to estimate the time between two such calls, which was checked by a watch.

Another series of experiments was made on the action of alcohol on muscular activity and its checking of muscular fatigue. Trials were made with the ordinary hand dynamometer, and also with an ergograph, after the model of that of Mosso. A finger was hooked in a loop of string which passed over a pulley and lifted a lever when the finger was bent, and this lever marked a line on a revolving drum. The rest of the hand was fixed, and the finger was bent at regular intervals following the movement of a metronome.

Kraepelin's experiments were made with varying doses of alcohol. The lowest dose was $7\frac{1}{2}$ grammes (about two fluid drachms) and the highest 60 grammes (about two fluid ounces) of alcohol, equal to from one-fifth to two litres of 4 per cent. Munich beer. The result was that for all the psychical processes investigated (simple and decision reactions, association experiments, addition, learning by heart and reading, dynamometer trials and estimations of time), with doses of from 30 to 45 grammes (1 to $1\frac{1}{2}$ fl. oz.) of alcohol ($\frac{3}{4}$ to 1 litre of beer or $\frac{1}{2}$ to $\frac{3}{4}$ litre of light wine) a more or less increased difficulty or embarrassment was shown. The duration of this difficulty increased with the size of the dose, with certain variations which depended on the temporary condition or idiosyncrasy of the person experimented on. This difficulty continued after each dose from three-quarters of an hour to several hours.

The results with regard to these processes separately was that, with the simple reaction and reaction of decision there was at first a state of excitement, inasmuch as the time of re-

action was shorter than under normal conditions. But this excitement lasted only a short time, giving place to a notable depression. With larger doses the depression came on at once as a rule, or the shortening of time was but very brief. This showed that alcohol, as was before known, possessed the property of producing a quickening of movement. This has been commonly observed in company after the use of intoxicating drinks; the inclination shows itself in individuals to gesticulate and respond generally to various stimuli, while afterwards a gradually increasing slowness of movement takes place.

But the experiment also shows that after even such small quantities as $7\frac{1}{2}$ grammes (2 fluid drachms) the appearance of paralysis (to which we must attribute the lengthening of the reaction-line) is inevitable, and that at the best an improvement can only be said to occur at the very commencement.

In the association experiments we also find a preliminary stimulation in that the time taken for establishing the association is a little shorter. But yet this by no means appears to be an improvement of power, but rather the reverse, if the character of the associations is taken into consideration. For instance, the external associations, specially rhyme, improve at the expense of the internal ones. The external associations, however, represent those of least value. We here find also that experiment is in accordance with the facts observed in common life. We can readily place the tendency to make poor jokes under the influence of alcohol on the level of association of rhyme, as in both cases it happens that a connection of thoughts, or, properly speaking, of words only, is less due to thought than to external associations. The increased output of the reflex-motor processes (speech) caused at first by alcohol plays a part here also, and this can be explained by the fact that certain inhibitions are removed which, in normal circumstances, would prevent the expression of less worthy associations. Besides this paralysis of inhibition we can also recognize a paralysis of the higher psychical powers in so far that while there is a freer entrance of associations of a lower de-

gree, based, for instance, on resemblance of sound, higher associations depending on ideas, at least of the first rank, are found to be impossible. During the succeeding depression the deterioration continues, and the times are longer, and this is also in accordance with general experience.

The same preliminary improvement and subsequent deterioration is found in the *reading experiments*, in which they had to read as much as possible in a certain time without regard to the sense; the number of syllables was greater at first and afterwards less.

A combination of reflex processes and mental work in a narrow sense was found in the experiment on *learning by heart*. At first we also find here as a rule a facilitation of repetition and learning, although in some of the subjects there was a diminution of the rapidity of learning from the beginning. With doses of 30 grammes (about 1 fluid ounce) of alcohol diminution as a rule sets in from the first. The repetition consisted chiefly of the motor element of speech.

The *addition* experiments showed that, just as with the association experiments (commencing with 20 grammes [about 5 drachms] of alcohol) there was a deterioration, inasmuch as for this kind of mental work the time required proved considerably longer than under normal conditions and the amount of work done in a given time was less.

The experiments which aimed at the investigation of the performance of work by the dynamometer and ergograph showed that there was a temporary facilitation, demonstrated by a higher mark of the pointer of the dynamometer and a higher point of the ergograph curve, but that the fatigue of the muscle set in very soon; the curve of the ergograph soon fell below the normal level. The curve is indeed longer than that furnished under, for example, the influence of tea, yet close investigation shows clearly that the increase of work performed is only apparent. The last part of the curve is only a very slight elevation. The time during which the muscle would work was indeed longer, but the total amount of work

does not correspond to the length of time it took; this amount under alcohol is decidedly less. The conclusion is that under the influence of alcohol the muscle will work longer and do less. This throws an interesting light on the popular idea that the use of alcohol facilitates bodily work. Experiment shows clearly how the subjective sensation of increased corporeal power comes about. The individual under the influence of alcohol is able to do some work for a longer time, but the diminished value of the work is not evident to him, the fatigue is regarded as coming on normally while it is nevertheless in consequence of a special paralyzing effect of alcohol. The fatigue which comes on without alcohol a little earlier leads to an earlier rest and then the work is resumed with really fresh power, and in the same period more is done, both in quantity and quality, than under alcohol.

In the experiments on the estimation of time symptoms of fatigue set in earlier under the influence of alcohol.

Summing up these results we find most decidedly that even with very small doses ($7\frac{1}{2}$ grammes or 2 fl. drachms) the weakening or paralyzing action of alcohol sets in in the course of each experiment, and that only an improvement of the motor process is experienced, but that this improvement is very doubtful, as the quality of the work is not so good. The quantity of alcohol which *perhaps* may exercise a purely stimulating effect on the bodily functions, if such a quantity can after all be defined, must be very small, far smaller than can come in question in practical life, as a commonly taken quantity of alcohol. It must be less than $7\frac{1}{2}$ grammes of alcohol, and in one-fifth of a litre (about a quarter of a pint) of Munich beer and one-tenth litre of white wine (one wineglassful) there is more than this quantity. With the use of such surely trifling quantities of spirituous liquors, the paralyzing action must be taken into the bargain.

Turning now to the results of the experiments on intoxication. It is expressly noted that in every case there was only slight intoxication, so little that in most its existence was only

noticeable to the subject of the experiment, and not at all to the bystanders. There were never any after-symptoms. During the experiment there was never the feeling that it could affect his work. This subjective feeling of the resultlessness of the experiment was confirmed from another side. The experiments were so arranged that a normal experiment of the same length corresponded to each trial of intoxication and embraced decision, association, learning by heart, and addition. There were, in the course of one such group of experiments, 3,600 trials of decision, about 30,000 numbers added and about 19,000 numbers learnt by heart. A very temperate life was lived, the use of tea, coffee, tobacco, and other things which might affect the nerves, was abandoned and all fatigue avoided. All the experiments gave in the main the same results. Individual differences never showed that any of the works performed was improved.

The following tables make clear the conclusions of the text:

TABLE I. — DECISIONS.

		Normal Condition.					
		1st day.					
13th shortest,	. . .	313	363	358	306	336	346
Mean,	. . . . .	398	418	421	374	409	412
13th longest,	. . . . .	475	477	479	473	504	474
Spread,		162	114	121	167	168	128
Mistakes, ‰.		5	1	1	4	6	5
		2d day.					
13th shortest,	. . .	345	354	340	329	307	335
Mean,	. . . . .	419	446	419	418	366	411
13th longest,	. . . . .	499	502	493	485	449	489
Spread,		154	148	153	156	142	154
Mistakes, ‰.		2	1	3	4	2	7

3d day.						
13th shortest,	362	354	360	317	335	376
Mean,	428	420	471	390	404	460
13th longest,	499	506	556	465	474	528
Spread,	137	152	196	148	139	152
Mistakes, %	8	3	1	4	6	3

After Morning Intoxication.

1st day.						
13th shortest,	348	221	221	271	240	264
Mean,	406	380	400	428	364	400
13th longest,	469	476	540	516	463	482
Spread,	121	255	219	245	223	218
Mistakes, %	1	16	18	11	19	19

2d day.						
13th shortest,	277	294	323	333	299	280
Mean,	378	408	405	434	399	396
13th longest,	478	507	512	540	510	500
Spread,	201	213	189	207	211	220
Mistakes, %	16	10	22	18	18	16

3d day.						
13th shortest,	337	331	264	231	248	258
Mean,	406	396	314	293	300	304
13th longest,	485	472	377	354	362	364
Spread,	148	141	113	123	114	106
Mistakes, %	8	2	3	7	3	6

Each column gives the result of 100 acts of decision. The numbers signify thousandths of a second. The thirteenth shortest reaction is given, and the thirteenth longest, as well

as the average, and the difference between the longest and shortest or "spread" of the reaction-times. This, in the normal condition, is not very considerable, although difference must be expected because the trials were made on different days, and times of the day. The lowest row of figures gives the percentage of mistakes made.

In the case of the intoxication trials, half a litre (about 18 ounces) of Greek wine was taken, equal to about 2 litres ($3\frac{1}{2}$ pints) of small beer. The first column shows the condition just before taking the alcohol. The figures alter entirely afterwards. The "spread" of the reaction times is much increased and also the percentage of mistakes. We find that some very short reactions occur (the effect of alcohol in stimulating the motor-processes) [this is probably due to the action being more automatic or reflex and less directed by voluntary or will power — *E. Medical Pioneer*] in connection with particularly long times in which the paralyzing effect is already showing itself. Looking at the mistakes we find that the shortening of the time of reaction in very many cases indicates a deterioration, as the question is evidently not how to make an accurate decision, but simply to move a hand at the signal, whether the right or the wrong one.

It is also very interesting and extremely important that this paralyzing effect of alcohol was experienced, in spite of a good night's rest, and although absolutely no after-effects were subjectively felt: this continued during the whole of the second day, and first began to disappear on the third. We see this most clearly from the proportion of mistakes, which again came down to normal on the third day. The shorter times of the last four rows were due to extraneous conditions, which had nothing to do with the experiment. The general result was in no way altered, as the proportional spread is the same.

In Table II we have the comparative experiment of addition without and after alcohol ($\frac{3}{4}$ litre of Greek wine = 3 litres of 4% beer) taken in the evening.

TABLE II. — ADDITION.

Normal Condition.		After Alcohol.	
1st day,	1223	1st day, 1215 (just before.)	960 (soon after.)
2d day,	1308	—	—
	1370	2d day, 1142	—
	1371	1148	—
	1329	1240	—
	—	1239	—
3d day,	1336	—	—
	1346	3d day, 1267	—
	1326	1325	—
	1368	1284	—
	—	1269	—
4th day,	1377	—	—
	1396	4th day 1321	—
	—	1309	—

These numbers indicate the total reached by addition in ten minutes. It will be seen that in the normal condition the numbers mount up on the second day to almost a level, which is maintained on the third, and even increases on the fourth. After alcohol there is a notable fall, and there is also a diminution on the following day, and there is not a fair number reached until the third day, though the performance is altogether less than when free from alcohol. The author specially emphasizes the fact that he never felt any indisposition on the day following the taking of the alcohol and that he had good rest at night, indeed he felt that he had slept better than usual, and awoke more quickly, although he was less able to work.

The experiment of *learning by heart* (Table III) shows again most clearly the injurious and long-lasting effects of an intoxication. In the evening after drinking wine there was a notable diminution of power, the whole following day still considerably less performance than one had expected according to the normal action; on the morning of the third day there was still an abnormally small performance and then first a

disappearance of the effect of alcohol. The table shows how, in the normal condition, the capacity for learning by heart increases day by day. The numbers are the totals of the number of figures learned in ten minutes.

TABLE III. — LEARNING BY HEART.

Without Alcohol.		After Alcohol.	
1st day,	777 808	1st day, 576 (just before.) 370 (just after.)	
2d day,	864 813 900 876	2d day, 622 522 651 608	
3d day,	912 930 756 966	3d day, 714 900 792 888	
4th day,	900 996	4th day, 864 816	

In Table IV the results of a series of experiments on *associations* are given. Associations are of different value, the inner or mental associations being of higher value than those which are external or affecting the senses. In this table the relative position of the associations of *sound*, which are of the very least value, are compared with the inner, and both kinds shown in their proportion *per cent.* to the total of all kinds furnished by a single experiment. It is intended to show the proportion of the worst elements of the associations under the influence of alcohol. By examining the first figures of the normal condition it will be seen that the sound associations (2d column) are quite immaterial compared with the higher or inner associations, namely, 2 per cent. compared with 66.4 per cent.

TABLE IV. — ASSOCIATIONS.

	Without Alcohol.		After Evening Intoxication.	
	All.	Sound Only.		
1st day, . . .	66.4	2.0	68.7	3.4 (just before.)
	67.3	4.0	44.2	18.5 (soon after.)
2d day, . . .	74.2	1.3	33.3	25.9
	65.3	4.0	51.2	16.5
	63.6	1.3	56.6	12.7
	68.6	2.1	61.9	10.2
3d day, . . .	64.2	4.6	65.1	6.9
	57.9	3.4	73.2	2.7
	56.1	4.7	67.5	3.7
	58.2	1.5	73.8	1.8
4th day, . . .	72.3	2.3	71.8	2.4
	56.3	3.1	72.7	2.7

With the diminution of the higher associations, the sound associations considerably increase, and reach the highest relative point on the following morning, and then slowly sink again. Even on the second morning their proportion is abnormally large at first, but on that day first becomes normal.

What do these intoxication experiments teach? They show in the first place that even a slight degree of intoxication influences the capacity for work unfavorably for many hours, certainly all kinds of mental work which take recognizable shape. An "early pint" makes its effects felt, even on the evening of the following day, and in the same way also an amount of alcohol in the evening which is still within the limits of "moderation." We see, however, that the effect varies for different kinds of work; that learning by heart and associations do not return to normal till the morning of the second day following. And all this after an "excess" which never produced noticeable intoxication nor a "morning headache." These results have a very practical application. They indicate what an enormous amount of working power is lost in consequence of the common use of alcohol. This loss is not recognized by the subjects of it, and is only proved by exact experiments. The author had no idea that these results would be obtained, and had not expected anything important; he was astonished and appalled at their weight and character. He thinks that they will prove a powerful weapon in favor of temperance.

OBSTACLES TO THE SUCCESSFUL TREATMENT OF
ALCOHOLIC INEBRIATES.

C. SPENCER KINNEY, M.D., MIDDLETOWN, N. Y.

Asst. Physician to New York State Hospital for Lunatics.

*Read at Rochester before the Homeopathic Medical Society
of the State of New York, September 23, 1896.*

The confidence which is born of uniform success is not always rotund in the treatment of alcoholic inebriates, but is frequently pretty well attenuated after one has had the usual experience with them. It is not that the inebriate does not want to get well, for he generally says he does and tries, though frequently failing; and sometimes he gets sober and keeps sober.

When a victim of drink comes to the doctor asking for help, begging that something be done to enable him to regain his self-control, promising that on his new trial he will surely redeem his unfortunate past and once more become a man, and accompanying these promises with particulars as to how much is depending on him, no one can help, under such circumstances, taking hold and doing the best that medical experience renders possible.

The inebriate comes to the doctor with his system clogged up and poisoned, and with the functions perverted, with the hope that internal medical treatment may enable him to lead a new existence. In this belief he is supported by his friends, who fervently hope and believe that internal medical treatment is going to render him incapable of ever returning to his unfortunate habits. He may relapse, and then his friends are the first to find fault with the instability of the cure. This must be taken philosophically, with the understanding that human nature is weak, and that human intelligence has its limitations.

The more one studies the class of individuals from which alcoholic inebriates come, the more one is convinced that they resemble the poets in that they are "born," and not wholly "made." The pleasant social qualities, so frequently shown by the victims of the drink habit, lead them into convivial associations in which drink becomes the chief form of entertainment, and in the indulgence of which their appetite becomes aroused. They belong to that class of good fellows of whom their friends speak pleasantly, and, when occasion offers, with charity, frequently admitting that the sole cause of their lack of success in any effort in life is the one habit of drinking.

Back of all this, in which heredity plays an important part, in which the influence of early training and associations must be fully understood, is the necessity of possessing a healthy will-power, which will enable them to carry out a resolve, intelligently and conscientiously taken, that drink in all forms must be avoided if they would succeed in whatever they undertake. If there is one thing of greater importance than another in anticipation of a successful outcome of treatment for the drink habit, it is that the patient possess a fairly strong will power. Unless this be the case, the chances are that no treatment will result in much more than a sobering-up affair. The development of the will-power, like the development of any other faculty, may depend on healthy bodily conditions. The will-power can become enfeebled by the continuance of deteriorating habits just as readily as memory becomes impaired by careless reading.

In the case of the morphine habitué we expect and find that there is an acquired difficulty in stating facts. In the alcoholic inebriate we do not always appreciate the reason for possessing feeble will-power. If, however, we accept, and I believe we have every reason to so accept, the fact that the use of liquor engenders a benumbing or paralyzing effect upon the healthy exercise of conscientiousness and judgment, we find in their place a cloudy moral perception and a capricious judgment, and the will-power, as a controlling factor, pos-

esses but little of its original healthy strength. There is established an automaticity of action to the extent that when the desire and opportunity for drink are met, indulgence is the result.

In a life without object, without ambition, idleness will destroy the self-control of an individual as thoroughly as any other form of dissipation; while, on the other hand, plenty of methodical employment that exercises the mental power and intelligence of the individual will do much in developing and maintaining the will-power in those cases in which this treatment is necessary.

Perhaps one of the most pernicious habits in enervating one's self, and one in which the memory, continuity, moral sense, powers of perception, as well as the will-power become weakened, owing to impaired nutrition of the blood, is that of cigarette smoking. From observation I have come to believe that few, if any, of those who need treatment for inebriety can be successfully treated so long as they indulge in cigarette smoking. The practice of inhaling the smoke so constantly, as is the habit of the cigarette smoker, has the effect of keeping the lung tissue thoroughly impregnated with it, and prevents the blood from becoming properly oxygenated. The fact is that for little or no time during the twenty-four hours is it possible to have fresh blood sent throughout the system. This will account for the offensive odor that invariably encircles the cigarette smoker, prominent in breath and perspiration, and shown also in the peculiar sallowness of the skin, in the lack-luster expression of the eyes, and in the listless manner that betokens the characteristic physical enervation of this class of patients. Moreover, the mouth and throat of a cigarette smoker are kept in a degree of irritation that accentuates the desire for drink more than would otherwise be the case.

The telling of degrading experiences, under the idea that the stories are "funny," is common to those under treatment for the drink habit, and is one very serious objection to treat-

ing a number under the same roof; for a man who considers that a cause that has wrecked his own life and the happiness of those dependent on him, is but a joke of which he is the hero, is not in a mental condition to appreciate the necessity for treatment for his habit, nor does he possess a conscientious desire to free himself from it. "As a man thinks, so is he" is well illustrated in this phase of the obstacles in the way of treatment.

The excuses made by an inebriate for drinking are seldom worthy of much consideration. So strong is the desire to find an excuse that, intentionally or unintentionally, a truthful statement is avoided. In most cases when the desire and the opportunity come together he succumbs. When no opportunity offers and the desire is strong within him he is ingenious in his method of securing an opportunity, and reckless to the extent that he will throw aside all moral, social, and intellectual claims to decency, and will sink to the greatest brutishness that his end may be accomplished.

Physical disease is many times given as an excuse for drinking. This excuse must be taken with care. It may be a true statement, or it may not be. There is no doubt that some patients become addicted to drink by careless prescribing by members of the medical profession, and there is no question that liquor as a "home remedy" is often employed to the detriment of the party taking it.

In a general way, I would say that any enfeebling physical disorder must be carefully treated before the liquor habit, that the patient has formed, can be considered. Everything must be done to establish the natural integrity of the willpower, to encourage good habits by avoiding old associations, by giving up cigarette smoking wholly where this habit has been formed, and by having regular and systematic work, with plenty of fresh air, nutritious diet, and willingness to do precisely what is required of him by the physician in charge. Good intentions must be supported by patience and time. During their treatment they reach a period in which they have

unbounded confidence in their own strength, and are profuse in their promises to let drink alone, begging to be trusted, and using the most solemn pledges to create impressions of their trustworthiness. At such times the one who directs their treatment must be governed, not by what they say, but by what his past experience has taught him. They cannot be trusted at a period in which there is a peculiar mingling of the emotional state, with marked irritability, and a profound desire to have everything they say taken in earnest.

In a recent lecture by Dr. Banham, professor of Clinical Medicine at the Sheffield Medical School, occurs the following:

“Again, the public mind is still to be awakened to the danger of allowing alcohol to be taken by the children of families in which nervous diseases prevail — in which there is, so to say, a defective nervous organization. The existence in a family of epilepsy, drunkenness, insanity, or even the milder disturbances of neuralgia, sick headache, or hysteria, would lead any cautious doctor to recommend its members entire absence from alcohol. Dr. Savage, whose opinion upon insanity is universally respected, says that every variety of insanity may be started by drink, and that it is a very prolific agent in causing insanity. Dr. Maudsley, in his ‘Pathology of the Mind,’ deals largely with the transmitted craving for alcohol, and he points out that the acquired disease of the parent is the inborn heritage of the child. Terrible, therefore, indeed, is the responsibility attaching to the parents who allow alcohol to be taken by their children, when a tendency to drunkenness and nervous diseases has already revealed itself in their families.”

THE MEDICAL TREATMENT OF INEBRIETY.*

BY T. D. CROTHERS, M.D.

Supt. Walnut Lodge, Hartford, Conn.

Inebriety is a more complex disease than insanity. Its progressive degeneration often dates back to ancestors, to defects of growth, retarded development, and early physical and psychical injuries.

Later, the poison of alcohol, by its anaesthetic and paralyzing action, develops more complex states of degeneration, the form and direction of which is very largely dependent on conditions of living and surroundings.

The psychical symptoms show progressive disease of the higher brain centers, both masked and open, with degrees of palsy and lowered vitality.

In insanity many definite pathologic conditions are traceable. In inebriety a wider, more complex range of causes appear, the line of march of which is often traceable in more general laws of dissolution. Its medical treatment must be based on some clear idea of what inebriety is, and the conditions present in the case to be treated.

This requires a careful clinical study of the symptoms, tracing them back to causes, and all the varied conditions formative in the progress of the case.

In such a study, heredity appears as the most frequent early predisposing cause.

The question then is, What conditions of life have been most active in developing these inherited tendencies? How

* Read before the New York State Medical Association, New York City, October 15, 1896.

can these conditions be checked and prevented? What means and methods are possible in the rational treatment?

The second class of cases most commonly noted are those due to physical causes. These are the physical and mental strains and drains, also injuries both physical and psychical. The remedies here are distinct, and the means to build up and restore these defects call for therapeutic skill and judgment. A third class of inebriates seem to be due to especially psychical causes, of which mental contagion of individuals, of conditions and surroundings are most prominent.

Here another class of remedies and therapeutic measures are required. These classes are often combined, and the various causes are blended, requiring more accurate study to determine the leading factors in each case. These are conditions which provoke the early use of alcohol, and give form and direction to the progress of the case.

The second part of the clinical study of inebriety is the effect of alcohol. What injury has it caused? How far has it intensified all previous degenerations, and formed new pathological conditions and sources of dissolution? Also what organs have apparently suffered most seriously from the drink impulse? and, most important of all, how far is the use of alcohol a symptom or an active cause?

Having ascertained these facts, the medical treatment is the same as in other diseases, the removal of the exciting and predisposing causes, and building up the body.

The first question is the sudden or rapid removal of alcohol. If the patient is alarmed, and intensely in earnest to abstain, he will consent to have the spirits removed at once. If he is uncertain, and has delusions of the power of alcohol to sustain life, the withdrawal should depend on circumstances. The removal of all spirits at the beginning of the treatment is always followed by the best results. The reaction which follows can usually be neutralized by nitrate of strychnia, one-twentieth of a grain every four hours, combined with some acid preparation. Soda bromide, in 50 or 100-grain doses every

three or four hours will break up the insomnia, and cause sleep the first two nights.

The withdrawal of spirits should always be followed by a calomel or a saline purge, and a prolonged hot-air or hot-water bath, followed by vigorous massage. Hot milk, hot beef tea, and in some cases hot coffee, are very effectual. If the patient persists in a gradual reduction of the spirits, strychnia, 1-20 of a grain, should be given every two hours. The purge and hot bath should be given every day while the spirits are used. The form of spirits should be changed from the stronger liquors to wines and beers. Some of the medicated wines are useful at this time, or spirits served up in hot milk. There is no danger of delirium from the withdrawal of spirits, particularly where baths and purging are used freely. The two conditions to be treated at this time are poisoning and starvation. The system is saturated with ptomaines from alcohol, and suffers from defective digestion. The nutrition is impaired, and organic growth retarded. Saline or calomel purges, with baths, meet the first condition, foods and tonics the second. Not unfrequently the withdrawal of spirits reveals degrees of brain irritation and exhaustion, that are practically manias and delirium, or dementia and melancholia. The essential treatment is to regulate the nutrition and elimination, then arsenic, strychnine, phosphates, and iron will comprise the chief remedies that are found most useful.

Many of the chronic cases of inebriety reveal dementia when spirits are removed; others show well-marked paresis, or tuberculosis. Symptoms which were attributed to the action of alcohol are found to be due to previous degenerations. In one case the demented talk and conduct while using spirits burst into marked dementia when the drug was withdrawn.

In another case, the wild, extravagant conduct of the inebriate appears in paresis when free from spirits.

The removal of alcohol is often followed by tuberculosis, not suspected before, which apparently starts from some trivial cause, and goes on rapidly to a fatal termination.

Rheumatism and neuritis are forms of disease which frequently appear after the withdrawal of spirits. Diseases of digestion are common, also diseases of the kidneys. The latter is usually masked, and bursts into great activity when alcohol is removed.

These and many other organic diseases suddenly come into view, and whether they have existed, concealed by the anaesthetic action of alcohol, or have started up from the favoring conditions of degeneration caused by spirits, are not known. The therapeutic requirements must reach out to meet all these unsuspected disease states which may appear any time.

The removal of spirits in all cases reveals conditions of both physical and psychical degeneration that call for a great variety of therapeutic measures.

The next question is to ascertain the special exciting causes, and remove or build up against them. In the periodic cases the early favoring causes of the drink storm are often reflex irritations from disordered nutrition, exhaustion, and excessive drains or strains. Later, a certain tendency is formed for explosions of deranged nerve energy in alcoholic impulses for relief. This periodicity is often due to causes which can be studied and prevented by remedial measures. In certain cases nutrient and sexual excesses are followed by a drink storm.

In another, exposure to malarious influences, where the disease has existed for a long time before, brings on the craze for drink. In other cases, constipation, over-work, neglect of hygienic care of the body, irregularities of food and sleep, emotional excitements or depressions are followed by an alcoholic craze. A vast range of psychical causes have been noted. Thus, a residence on the seashore or in high altitudes, on mountains, provokes this thirst for spirits, and removal to higher or lower planes is followed by a subsidence of it. Many persons never use spirits except in large cities, or at special exciting gatherings, or on holidays and festive occasions.

Here evidently some defect of the brain exists, either organic or functional, which should be reached therapeutically.

Literally, many of these cases have been cured by change of surroundings as well as medicines.

While the ostensible object of medication is to stop the drink craze, this is as far from being curative as the suppression of pain by a dose of opium.

Conditions which cause the disordered nerve force to concentrate in cravings for the anaesthesia of spirits, are to be neutralized and prevented before a cure can be expected.

The use of narcotics and drugs to check the desire for spirits at the beginning is temporary and always uncertain. Opium, chloral, and cocaine given freely at this time, often simply changes the drink craze for these drugs, which are used in the place of spirits ever after.

The return of the drink impulse at regular or irregular intervals is in most cases preceded by premonitory symptoms, which enable the physician to use preventive remedies. In certain cases calomel and saline cathartics, with prolonged baths, rest, or exercise, according to the requirements of the case, have been found curative.

Various cinchonia tonics, free from spirits, and iron preparations are often useful. Large doses of strychnine seem more valuable after the full development of the morbid impulse, given when spirits are discontinued. Some of the various coca compounds on the market have had a strong influence in breaking up the drink storm.

In a certain number of cases patients are unconscious of the approach of the drink storm, and are difficult to treat. But when they realize its coming and seek assistance, the task is easier. The general principle of treatment is sharp elimination through all the excretory organs, and the use of mineral tonics, changes of diet and living; particularly a study of the exciting and predisposing causes, and their removal. When the drink paroxysm has passed away, then radical constitutional remedies are to be used. The history

of syphilis calls for mercury, arsenic, and potassium. Defective nutrition requires a study of the diet best suited to build up the tissues.

Entailments from other diseases, as malaria, rheumatism, and various neurotic affections, require appropriate remedies.

Tinctures of any form are dangerous. The susceptibility to alcohol is so great that the smallest quantity is felt, although it may not be recognized.

Where spirits are taken continuously the system is always depressed; all functional activity lowered, and literal palsy and starvation are present.

The removal of alcohol is only a small part of the treatment. The demand for alcohol is a symptom of this progressive degeneration. Giving remedies to produce disgust for the taste of spirits, or to break up the cravings for it, are not curative. Apomorphia, mixtures of atropia, hydrastine, and a great variety of allied remedies, are all dangerous; while apparently breaking up a symptom of the disease present, they often literally increase the degeneration by their irritant narcotic properties, and further depressing action on the organism. The indiscriminate use of these, and allied drugs, in the various specifics for inebriety, is the most dangerous empiricism. It is the same as opium or other narcotics for pain in all cases, irrespective of all conditions, and calling the subsidence of the pain a cure. Thus, in the following cases, a periodic, after a gold-cure treatment, developed into acute dementia, which ended fatally. In others, epilepsy, acute mania, pneumonia, rheumatism, nephritis, followed from the chemical suppression of the drink impulse. In all probability, the narcotics used were active, contributing causes to the particular organic diseases which followed.

The masked character of inebriety makes it dangerous to use narcotics beyond a certain narrow limit. Cases which have been subjected to active drug treatment, to suppress the desire for spirits, are feebler and more debilitated than others. Those who have taken the so-called specifics are marked ex-

amples, and whether they use spirits again or not, are always enfeebled and pronounced neurotics.

In all these cases there is so wide a range of causes and conditions that specific routine treatment is impossible.

Strychnine has recently come into some prominence, and is a useful, valuable drug. In some cases, where the spirits are withdrawn, its action is pronounced as both a tonic and stimulant. Given in 1-30-grain doses four times a day, for a few days at a time, then discontinued, or given in larger doses for a shorter time, the results are usually good.

In some cases, certain susceptibilities to the action of strychnia are noticeable, and where the drug is taken to prevent the drink attack, it sometimes rouses it, seemingly precipitating the condition which it is supposed to prevent. This is often anticipated in the muscular tremors and nerve twitchings that evidently come from strychnia, when used even in small doses.

Strychnia should never be given alone, except immediately after the withdrawal of spirits. At other times, combined with cinchonia or other vegetable tonics, it is an excellent tonic. Care should be used to watch its effects on the motor nerves, and be sure that the patient is not unusually sensitive to it. Belladonna, atropia, cannabis indica, hyosciamus, and drugs of this class have a limited value, and should be used with great caution in states of irritation following the withdrawal of spirits. They are best given in combination with other drugs for a brief time and in particular cases. The bromides are valuable in the same way, and in the same conditions, only in much larger doses than mentioned in the text books. From 50 to 100 grains to a dose are requisite, always accompanied with baths, and never continued more than two or three days. Coal-tar preparations are of uncertain value as narcotics, but may be used in certain cases with good results.

The various mineral and vegetable acids are almost indispensable in selected cases, and often can be given a long time as tonics.

In the treatment of cases, after the paroxysm is over, frequent changes of the form of the tonics are most valuable. Iron, phosphorus, arsenic, potassa, and bitter vegetable tonics should be alternated with free intervals, for periods of months. The various derangements of the system should be watched and treated with appropriate remedies, and every case should be constantly under medical care. The facts of the case having been studied, the question of where the medical treatment can be applied to the best advantage must be determined from the case and its surroundings.

If at home, the physician must have full control, and his directions carried out implicitly. When the drink paroxysm appears, the course of treatment must be prompt and exact. In one case, the patient goes to bed, and is secluded from all sources of excitement; in another, he is sent away to the country, and among strangers; in a third case, a few days' residence in a hospital or asylum under the care of a physician is sufficient. Hospital treatment, with its exact care, and physical and psychical remedies continued for a long time, give the strongest promise of permanent restoration. Wisely adapted medical treatment, based on a careful study of each case, makes it possible for the family physician to treat these cases, in the early stages, with success.

No single remedy is capable of meeting a wider range of conditions than the Turkish or hot-air baths, with free massage. Next to this is hot and cold showers, and hot packs with free rubbing. Bitter tonics and salines, with regulated diet, are next of importance. Elimination through the bowels, kidneys, and skin freely, are always essential. Beyond this, the good judgment of physicians should determine when to give narcotics, and when to abandon them; always remembering their danger and very uncertain temporary action. Also that the cessation of the drink craze is only temporary. If this is accomplished by drug and chemical restraint, the permanency is very doubtful.

The subsidence of the drink symptom by the removal of the

exciting causes, and building up the system to greater vigor and health, is the only rational treatment. In this, the highest medical judgment possible and the greatest therapeutic skill are essential for success. The medical judgment, which will determine the exact condition in each case, and the possible range of remedies required; not any one drug or combination of drugs; not so-called moral remedies, or appeals to the will power, but a clear, broad, scientific application of every rational means and measures are demanded. A large number of these unfortunate cases are distinctly curable in the early stages, and later, when chronic conditions come on, the possibility of cure continues to a far greater degree than is commonly supposed.

It is the common observation of everyone that a certain number of cases recover from the apparent application of the crudest empirical remedies and psychical agencies used in the most unskillful way. This fact furnishes the strongest possible reasons for believing that when inebriety shall be studied and treated as a disease more generally by the profession, a degree of curability will be attained far beyond any present expectation. The present empirical stage of treatment should rouse a greater interest and bring the medical treatment of inebriety into every-day practice. Then the family physician, and not the clergyman and quack, should be called in to advise.

A new realm of medical practice is at our doors, only awaiting medical study above all theory, and exclusively from the scientific side.

Appleton's Popular Science Monthly is undoubtedly the strongest science journal now published. The purpose to give, in a popular form, the best conclusions of recent scientific study, is carried out with ever increasing completeness in each number. Such journals need no praise; they commend themselves to every reader.

TREATMENT OF ALCOHOLISM.*

FROM REPORTS OF ARMY MEDICAL OFFICERS RECEIVED AT THE
SURGEON-GENERAL'S OFFICE.

By DR. C. H. ALDEN, Assistant Surgeon-General, U. S. Army.

I have received so much pleasure and profit from my attendance upon the meetings of this society, of which you have kindly made me a member by invitation, that when called upon by your corresponding secretary for a paper I was very glad to respond; but having nothing of my own to offer I have, by consent of the surgeon-general, grouped together and will read abstracts from reports of several medical officers of the army, on the treatment of alcoholism and the drink habit.

It seems to me that this subject has scarcely received the attention at the hands of the profession generally that it deserves. It has been too much in the hands of charlatans and proprietors of Keeley Cures. There is no more pitiable object physically and mentally than an alcoholic wreck, and surely when such a case is met with in general practice something better can be done than to call him a drunkard and send him to an asylum or turn him over to the hands of secret-remedy men. There are, undoubtedly, many cases which cannot be successfully treated except by taking the patient away from his surroundings and putting him under restraint, temporarily, but are there not many other cases occurring in the experience of the family physician which call for treatment by the regular attendant, and which can, especially when the patient himself gives his coöperation, be successfully managed at the patient's home? I think, therefore, that efforts such as those of the

* Read before the Medical Society of the District of Columbia, and published in the *National Medical Review*, September, 1896.

writers of the reports that I shall read, to elevate this subject from the region of quackery and take it out of the hands of the charlatan, are commendable. I do not claim for these reports any special novelty, yet they contain suggestions that may be of value.

The first report is by Assistant Surgeon T. S. Bratton, a recent graduate of the Army Medical School, now stationed at Fort Niobrara, Nebraska, which reads as follows:

“ Post Hospital, Fort Niobrara, Neb., March 24, 1896.

“ To the Surgeon-General, U. S. A., Washington, D. C.:

“ Sir: I have the honor to report the results of the treatment of 52 cases of alcoholism by the hypodermic injections of strychnine and atropine. As the action of these remedies in alcoholism is quite well known to the profession it is not deemed necessary to dwell on the *modus operandi*. To ascertain fully the antidotal effects of these drugs nothing was given, as apomorphine and whisky, to create nausea and disgust for the taste of whisky; but, on the contrary, the stomach was quieted and brought to its normal condition as soon as possible. Each patient, on entering the hospital, was given 0.3 calomel and 0.6 of bicarbonate of soda, as a routine, to clean out the alimentary canal. If nausea existed it was relieved by 1 c. c. each of tincture capsicum and spirits menth. pip. at a dose and repeated, if necessary, every hour or two. Hot milk and lime water in small quantities, frequently repeated, was also used in these cases of irritable stomach with the best results.

“ As soon as the calomel acted the injections of strychnine and atropine were begun. The usual dose was strychnine sulphate 0.001 (grs. 1-60), atrophine sulphate, 0.0005 (grs. 1-120). The patient was kept in a condition in which there was dryness of the throat and slight dimness of vision. This, of course, required an increase or decrease of the dose according to the susceptibility of each individual. I found some could stand larger doses, while others required less. The strychnine was increased or decreased in the same proportion (1-60 gr. of strychnine to 1-120 gr. of atropine), and did not produce the first symptoms of poisoning, tho' some very large doses were given. These injections were continued three weeks, and at the end of that time each patient was given a bottle of elixir of iron, quinine, and strychnine enough to last a week,

3.7 c. c. three times a day; and sent to duty. The first week in the hospital they were all given 3.7 c. c. of tinct. gentian comp. to increase their appetites. When they were able they were encouraged to take lots of exercise in the hospital grounds. The whole object in view was to build up the nervous systems.

“ Many of the cases were voluntary. Some were given a choice by their company commanders of either taking the treatment or having charges preferred against them that would cause their discharge for drunkenness.

“ From the latter class almost all the relapses occurred.

“ In forming an opinion as to the merits or demerits of the treatment, these facts should be borne in mind. (Signed, T. S. Bratton, 1st Lieut. and Asst. Surgeon, U. S. A.) ”

The report is accompanied by a tabular list, giving the particulars in regard to these cases, showing how long each patient had been drinking before treatment was commenced, when they were discharged from treatment, their history since, so far as sobriety is concerned, and the cases which relapsed. Treatment, it was stated, lasted three weeks. He reports 52 cases, but of these some of them had been discharged from treatment so recently that results in their cases could not be fairly considered. Excluding, therefore, nine cases in which they have been discharged from treatment two months or less, would leave 43 cases for consideration. These patients had been drinking, I see, from seven to twenty-six years. Of these seven have relapsed.

The doctor accompanies his report with letters from the officers commanding companies stationed at his post, and all, without a single exception, speak in the highest terms of the results of the doctor's treatment in restoring men who have been chronic drunkards to the position of good soldiers; in some cases their reformation having been followed by promotion to non-commissioned officers. Several speak of the point made by the doctor in his report, that the cases of relapse were almost all those who had been compelled by their company commanders to take the treatment, and who did not do it willingly. The co-operation of the patient, therefore, seems to be an important element in its success.

The next report is by Assistant Surgeon E. L. Munson, also one of the younger officers of the medical corps, stationed at Fort Assiniboine, Montana. He reports but a single case, but one worth quoting, especially as his treatment seems to have been an imitation of that we understand to have been adopted by some of those who keep secret their methods. We cannot deny a certain measure of success to the men who have taken this unworthy method of treating the drink habit, and if their successful methods can be carried out openly and upon a rational basis, it would seem to be good practice.

Report of a case of chronic alcoholism, treated empirically, with apparent cure, by Edward L. Munson, M.A., M.D., First Lieutenant and Assistant Surgeon, U. S. Army:

“Sergeant P. C. has always been considered by his superior officers as an able, trustworthy, and painstaking man when sober, but, for the past ten or twelve years, he has been in the habit of indulging in a debauch at intervals of three to six weeks, these debauches lasting days, or even weeks, thus greatly impairing his efficiency and reliability.

“He was an irregular, rather than a steady drinker, was fully aware of the evils incident to his habits, but, while anxious for reform, appreciated that this could never be accomplished by his own unaided efforts. He had on several occasions received sedative treatment from me during the late winter and spring of 1894-5, was in hospital for alcoholism during April, 1895, and finally, on May 9, 1895, was placed in hospital and a treatment outlined, which, in nine days, resulted in cure. He entered a hospital after a debauch of a week's duration, unable to converse intelligently, breath foul, tongue coated, and tongue and extremities markedly tremulous. There was considerable gastric irritation, with constipation, and a cathartic of magnesium sulphate, with black coffee and strong beef tea was at once given. A hypodermic injection, consisting of 0.031 of a grain of sulphate of strychnine, 0.007 of a grain of sulphate of atropine, and 0.123 of a grain of sulphate of morphine, was ordered to be given three times daily, and at these times the patient was allowed to drink as much whisky or brandy as he desired, which was considerable during the first thirty-six hours of treatment.

“Immediately following the administration of the alcoholic the hydrochlorate of apomorphine was given hypoder-

nically, beginning with a dose of 0.062 of a grain, and gradually increasing to 0.092 of a grain, the intention being to produce a gradually increasing nausea, which would finally become so great as to result in actual vomiting. The patient was repeatedly impressed with the idea that the medicines administered were incompatible with alcohol, and that their continued use would result in an intolerance by the system to alcoholics. All craving for liquors disappeared at the end of the second day, and on the third day whisky had already become extremely distasteful, but was ordered continued in doses of thirty to forty cubic centimeters, as before.

“On the fourth day the atropine and morphine were discontinued, and the dose of strychnine was increased to 0.046 of a grain, which appeared to be about the limit of tolerance, and this treatment continued for three days. On the seventh, eighth, and ninth days the whisky was omitted once daily, and at these times a hypodermic injection of distilled water was substituted for the apomorphine, the previous conviction that the nausea and vomiting previously experienced were due to the antagonism between the drugs, and the alcohol being thus strengthened. At the end of nine days the above described treatment was stopped, a simple tonic of nux vomica, cinchona, and gentian was ordered to be taken for a fortnight, and the patient was discharged from hospital.

“At that time the patient was nauseated at the thought, sight, or smell of whisky, and this condition has continued up to the present time — a matter of nine months. Since this treatment, according to his own testimony and that of his superiors, he has not touched a drop of liquor of any kind; his former habits and inclinations appear to be broken off and the cure to be complete.

“The cure is, of course, due to suggestion and the association of ideas combined with whatever tonic and anti-alcoholic properties may be possessed by strychnine. The method here employed, although empirical, has certainly brought about an unexpectedly successful result in an especially unpromising case, and it would seem as if this method, in selected cases, were worthy of a more extended trial.”

The third report I shall read is one that was published several years ago in the *Medical News*, by Dr. George E. Bushnell, Assistant Surgeon, U. S. Army, then stationed at

Fort McKinney, Wyoming, and is entitled "The Treatment of Chronic Alcoholism by Hypnotic Suggestions."

It may be stated that all treatments of the alcoholic habit, even those of the writers of the reports I have already read, have depended more or less upon the imagination and the influence over the mind for their success, but, in this report, hypnotic suggestion is alone relied upon as the therapeutic agent.

I happen to know Dr. Bushnell intimately, and know him to be one of the most modest and conservative men possible. He worked over this subject of the treatment of chronic alcoholism by hypnotic suggestion for several years before venturing to publish his views.

I shall abbreviate his report, as it is somewhat longer than there is time for me to read in full, leaving out the detailed reports of cases which he gives. You will see that the Doctor does not make any extravagant claims for the success of his treatment, but simply reports the facts for the consideration of the profession. What he says is sufficient to show, it seems to me, that there is a certain power in hypnotism as applied to treatment of the drink habit, which can, in selected cases, be relied upon with success.

Abstract of Dr. Bushnell's Report.

"The treatment of chronic alcoholism has of late become a matter of especial interest to the medical profession of this country in view of the popularity of various secret 'cures' for that condition. No unprejudiced observer can deny that these methods of treatment have cured some drunkards of their addiction to liquor for periods of some years at least. Although such so-called 'specific' treatments have been repeatedly denounced by the medical press, it is a fact that many physicians send patients to the institutions in which such treatment is given, or have adopted or attempted to imitate their medicines. It appears to be generally admitted that strychnine

and atropine are the active drugs in these secret compounds, and we may well inquire whether the success of such treatment is or is not due to these alkaloids. During the past three years I have experimented with hypnotic suggestion in the treatment of chronic alcoholism and have obtained results practically identical with those reached by these methods, but, in the great majority of cases, in less time and without giving a drop of medicine of any kind. It is, therefore, a fair inference that in the methods of 'specific' cure the psychic effect produced by the frequently-repeated hypodermic injections, by the symptoms arising from physiologic doses of powerful alkaloids, and by the expectant attention of the hopeful patient, is of more importance than the character of the drugs employed. It is true that the hypodermic administration of the nitrate of strychnine was recommended by Russian physicians in the treatment of alcoholism before Keeley became known to fame, yet, it is to be noted that Dr. Korona, of Tiflis, who has had a very large experience with this method, raises the question whether its effect may not be largely due to suggestion. This question can only be answered by the experiment, which has never been tried, so far as I know, of treating an alcoholic subject with hypodermic injections of strychnine, without allowing him to suspect that the object is the cure of his appetite for liquor. But even if strychnine, alone or in combination be granted to exert a specific influence upon the liquor habit, as the tendency of alcohol is to produce fatty degeneration, the use of so powerful a cardiac stimulant as strychnine is not without danger of causing the sudden death of the patient from over-excitation of a fatty heart. This fact is recognized in the Keeley institutes. A careful examination is made of the heart of all applicants, and those are refused treatment in whom there is any reason to suspect the existence of this degeneration, thus excluding a class which most urgently needs deliverance from the liquor habit.

"The hypnotic treatment of alcoholism appears to be little known in this country. I have been obliged to work without much assistance from the literature on the subject, which is for the most part not easily accessible, and the views which I shall present are almost wholly the result of my own experience.

“The following is a condensed report of all the cases of chronic alcoholism which I have treated by hypnotic suggestion:

“Excluding one case on account of inadequate treatment, two cases because of the death of the patients, and one case because the result is not known, there remains a series of nineteen cases, which may be classified as follows:

“1. Remained abstinent to the present time or when last heard from, 8.

“2. Relapsed and abstinent after further treatment, hypnotic or ‘specific,’ 3.

“3. Relapsed after passing out of reach, 2.

“4. Relapsed and sought no further treatment, 3.

“5. Relapsed and continued to drink, notwithstanding additional treatment, 3.

“It may be fairly claimed that all of the patients were sufficiently influenced by the treatment to have become convinced that they could be cured by a continuance of it. It is, therefore, safe to assume for all the patients of class 4, which I know to be true of one, that conviviality has pleasures for them which they have found themselves unwilling to forego. The patients in class 5 were all non-commissioned officers who were induced by their company commanders to submit to the treatment, and, with the exception of one, in the early part of his treatment, were not themselves desirous of help. These men are restricted by their rank to a narrow circle of intimate friends, who are for the most part drinking men, and total abstinence means for them the loss of almost all social pleasure. The conspicuously bad result in their cases shows well the futility of attempting such reform without the hearty co-operation of the subject. Suggestive treatment can only be expected to remove the physical cravings for alcohol. But, unfortunately, after such cravings have disappeared, many motives for the indulgence still remain, such as the influence of associates, fondness for excitement and conviviality, and the desire to forget trouble or disgrace.

“In estimating the results here reported it should be borne in mind that the frontier is the most unfavorable place for the cure of alcoholism, on account of the almost universal use of alcoholic beverages by the population and the lack of innocent amusements.

“I have never failed to hypnotize a patient who sought treatment for alcoholism. Of the 23 cases here reported 18 were hypnotized on the first attempt, 3 on the second, 1 on the third, and one on the fifth.

“The method which I generally pursue is as follows: The patient, who is comfortably seated, is directed to fix his gaze and his attention upon some object before him. It is not necessary that this object should be bright, nor that it be placed so near as to strain the accommodation or cause marked convergence of the optic axes. In the meanwhile, standing behind the patient, I stroke his forehead gently and evenly with both hands. In the great majority of cases the patient's eyes close spontaneously in from two to ten minutes. In some cases the patient is on the point of being hypnotized but the eyes remain open, and must be closed before hypnosis is induced. These cases may be recognized by the fixity of the lids. The patient does not wink, or, if winking is still performed, the act is incomplete, the upper lid does not fall so as to completely cover the eyeball. A more effectual, but more disagreeable way of hypnotizing, is to sit facing the patient and look him in the eye, the patient being charged to fix his eyes steadily upon one of the eyes of the physician, which are brought within a foot or two of his own. The psychic effect upon the patient is greater than if he were looking at the inanimate object, and his attention is consequently more easily concentrated. The physician relaxes his accommodation to escape the eye-strain, which would otherwise be incurred. The eye-muscles of the patient are necessarily strained by this method, but the pain, and, in a great measure, the conjunctival injection may be removed by suggestions during the succeeding hypnosis. Verbal suggestions may advantageously be employed in connection with either of these methods. If the patient is not hypnotized in fifteen minutes it is, as a rule, best not to persist in the attempt to influence him at that sitting. The second attempt will almost always be successful. Hypnosis being induced, suggestions are given to the effect that the patient will have no craving for liquor; that it will be disagreeable to the taste and unpleasant in its effects; that sleep, appetite, and digestion will be good; that nervousness will disappear, etc. It is well to suggest that there will be no nervousness, no pain in the eyes, and no headache upon awakening, also especially in the case of those who are hypnotized with difficulty that there will be no drowsiness.

“The ease with which patients fall asleep increases generally at each repetition of the hypnosis within certain limits. That intoxication predisposes to hypnosis is shown, however, by the fact that a patient who has been hypnotized in two minutes, while under the influence of liquor, often requires three or four times as many minutes to produce that result after he has become perfectly sober.

“The treatments are repeated, if possible, every day for at least a week, after which they are given once a week for a few weeks, then once a month. The number of treatments necessarily must be determined separately for each case, as there are great differences in the individual reaction to suggestion. I have allowed the worst drunkards to continue to drink during the early part of their treatment, with the restriction that they take no more liquor than is necessary to prevent nervousness and sleeplessness. This concession saves the patient some suffering, and the effect upon his imagination is, perhaps, greater if he is convinced by actual trial that liquor is becoming more and more unpleasant in its taste and its effects. From three to six treatments generally suffice to remove the craving for alcoholic stimulants in those who abstain. In those who continue to drink, the effect of the treatment always manifests itself in a rapid loss of the acquired tolerance for liquor, which becomes more intoxicating, and at the same time more disagreeable, until a point is reached, generally after from five to seven treatments, when it appears to the patient that a sudden change takes place in his appetite. He can often state the exact hour when ‘the whisky turned on him,’ as he is apt to express it. This change he considers so profound and permanent that there is often difficulty in inducing him to return for what appears to him unnecessary additional treatment.

“It is an interesting fact that, while it is easy to render whisky repugnant to the senses of the patient, it appears to be impossible to accomplish this in the case of beer by any number of suggestions. The loss of tolerance and the cessation of cravings for alcohol are reached, however, with as great certainty in the one class of drinkers as in the other.

“It might be expected that patients would attempt to excuse themselves in case of relapse by alleging the return of irresistible cravings for liquor. This has occurred in none of my cases, except one, under circumstances already detailed.

The difficulty is almost always the temptations of conviviality, unwillingness to offend by refusing 'treats,' and the like. In the least successful cases, the first taste of alcohol reawakens the former cravings. The majority resume their old habits more gradually, and the whisky drinker will sometimes drink beer for a considerable period without excess. But in all cases the continued indulgence in drink leads certainly and generally speedily to drunkenness. The relapsed drunkard finds that he has no longer the ability to 'carry' liquor upon which he once prided himself. If he does not recognize and respect that fact, he is in danger of the deepest intoxication.

"The evil effects of alcohol upon the nervous system are marked in cases that have been treated by suggestion, and delirium tremens may result from comparatively slight excess. It is perhaps unnecessary to say that this loss of tolerance of alcohol is due simply to the character of the hypnotic suggestions which have been employed. Hypnotism may be used to produce the opposite effect.

"Suggestions, the effects of which are not intended to persist, should be avoided. It is not necessary to attempt to impress the imagination of the patient by varied suggestions, the purpose of which simply is to show the power of the physician over him. Nor is it necessary for the treatment of the great majority of cases that the subject be in the so-called 'suggestable stage' of hypnosis. Functions which are not directly under the control of the will, such as sleep, peristalsis, the appetites, natural and artificial pain, the organic sensations, etc., may be influenced by suggestion in any stage of hypnosis from the slightest drowsiness to the deepest sleep. Even a considerable degree of intoxication is no barrier to the success of such suggestion, as I have repeatedly observed.

"Hypnotism is not necessarily exhausting to the patient, as has been claimed. On the contrary, if his nervous energy is not wasted by suggestions which produce fatigue or disgust, he feels refreshed upon awakening, as from ordinary sleep. The dangers of hypnotism, as far as they exist elsewhere than in the imagination of its opponents, are due almost always to an improper use of the method. Certainly as employed for the cure of alcoholism there are no dangers to be feared from it which are at all comparable with those arising from a continuance in habits of intemperance."

Appendix. Extracts from Annual Report of the Surgeon-General of the Army for 1895.

Captain W. H. Arthur (Assistant Surgeon, U. S. Army) reduced the statistics of alcoholism at Vancouver Barracks by dealing with drunkenness as with acute poisoning. He reported as follows:

“The report of the Surgeon-General for the year ended June 30, 1892, mentions this post as having out of all the army the highest rate of admission to sick report for alcoholism. The number of cases of simple acute alcoholism that appeared at sick call, and during the day, when I first assumed charge of this hospital, was unusually large, and resulted in the laying down of certain rules in an effort to discourage drunkenness as far as it was in my power. No man is taken on the sick report or excused from any duty unless, in my opinion, his condition would make it actually dangerous for him to keep at work. I may say here that such cases are, in my experience, very rare, and that a mistaken pity for a man suffering from the effects of a debauch is liable very often to lead a too indulgent post-surgeon to excuse him from duty, when the guard-house, and not the hospital, is the proper place for him. I am confident that this mistaken kindness has done a great deal in the past to encourage drunkenness. Each man who has reported at the hospital in any stage of simple alcoholism is treated as a case of alcoholic poisoning, taken immediately to the operating room, his stomach emptied by the use of the stomach-pump, and thoroughly washed out with warm 2 per cent. soda solution. After this he is given a bowl of hot beef extract, with cayenne pepper, allowed an hour's rest, after which he is generally perfectly able, however unwilling, to do his duty. If the weather is severe, either very hot or very cold, it might not be safe, in his depressed condition, to force a man to work out of doors immediately after this procedure, but at this post the extremes are not great, and it has in no case resulted prejudicially to the patient. Occasionally some resistance is met with, but two, or at most three, able-bodied hospital corps men and a perforated wooden gag, such as comes with the stomach-pump, will, with patience and determination, overcome almost any ordinary opposition. I have found for this purpose the gum elastic stomach tube in the old-fashioned stomach-pump case, connected with Allen's surgical pump

work, very satisfactory. The ordinary soft rubber lavage tube is too easily collapsed, and is more difficult to introduce when there is resistance.

“The effect of this treatment has been uniformly excellent. The stomach, emptied of its irritating contents, and cleansed of the thick, tenacious mucus that is always present in such cases, is much less irritable, and rarely rejects the beef extract which is given immediately; the nervous symptoms improve at once, and sedatives administered by the mouth have a far more prompt and lasting effect, and, in almost all cases, the craving for liquor is very much diminished. Of course cases may occur which are too serious for such summary treatment. I have not met with any myself, and have used the stomach-pump with good effect in cases even of delirium tremens and alcoholic coma. These cases, of course, are promptly taken into the hospital and treated as dangerously sick men. The deterrent effect of this treatment is excellent. It is, of course, not agreeable, though no one can deny that it is perfectly rational and merciful. In the past ten months but one man has been admitted to hospital for alcoholism. There are no doubt other factors that enter into the production of this marked change in the past in two years, but I am confident that this method of treating alcoholism as poisoning has been a very important if not the principal one. I may add that in but one case has it been necessary to use this treatment on the same man more than once.”

Judge Parker, in the *North American Review*, says that during twenty-five years of service a thousand persons have come before him accused of murder. At least three-fourths of all these cases were due to the use of spirits. He believes that nearly all cases of murder are in some way associated with the use of spirits. In twenty-six murders, in one section of the country, twenty-five were due to the use of alcohol. These cases occurred in Arkansas and the Indian Territory, in the federal court.

Abstracts and Reviews.

THE RELATIONS OF ALCOHOLIC INDUL- GENCE TO INSANITY.

The influence of the excessive use of alcohol in the production of insanity is one of the certainties, and yet there is occasionally a question raised as to the relative importance of this casual factor. A few years ago a physician, since a superintendent of one of our large state asylums, wrote a paper to show that its effects were insignificant, and in one way or another there has been produced a considerable literature on this side of the question. Nevertheless it may be fairly assumed that alcoholic intemperance is generally admitted to be a very important, if indeed not actually the most important, cause of mental disorder. Those who would dispute it are comparatively insignificant in number among alienists, and there is not any preponderance of scientific authority against it.

There are, however, certain questions that arise in this connection that are not so readily disposed of. While it is admitted that alcoholic excesses tend to mental break-down, while acute and chronic alcoholism are disorders that are universally recognized as appertaining more or less to the specialty of psychiatric medicine, there is yet room for a wide difference of opinion as to the effect of the use of alcoholic drinks in what is called moderation. There is certainly enough excess to produce a very large percentage of insanity in our asylums, but data are too generally insufficient for us to be able to say with exactness the proportion of cases in which it has certainly been an etiological factor. These are by no means always what would be classed as cases of alcoholic insanity, as we are well aware, and often there may be nothing in the history as well as in the symptoms to point

directly to any such origin. Intemperance is a disreputable fact and is likely to be concealed or denied, even when it may have been excessive. It is very possible that this tendency far overbalances the contrary one of making erroneous *post hoc, ergo propter hoc*, diagnoses of insanity from alcoholism on account of prior known habits when really other causes are to blame, in asylum statistics, and that our figures of mental diseases of alcoholic origin are much below, rather than above, the truth.

The questions, therefore, that arise as regards the influence of alcohol in the production of insanity may be stated as follows :

1. Does alcoholic excess produce insanity? This, as already stated, may be regarded as an indisputable fact.

2. In what proportion of cases is this factor to be admitted? This is one to which various answers have been made, as indicated. The majority of reliable authorities place the percentage of cases directly due to this cause at not less than 10 or 12 per cent.; some recent writers have estimated it much higher, and consider the increase of insanity in modern times as very largely due to such excesses. This is the view held by Smith, of Marbach, in a paper read last November before the Southwestern German Society of Alienists, and Garnier, of Paris, in a communication a year or two ago, claimed that insanity had increased 30 per cent. in the last fifteen years in that metropolis, largely from this cause, and that alcoholic insanity, properly so-called, had increased in that period threefold. Those who have minimized the influence of intemperance to producing below 10 per cent. are very few and include no recent high authorities. We may therefore safely assume that at least 10 per cent., and probably more, of the cases of insanity in most civilized countries are directly due to alcoholic excesses. If we include only males, the percentage will naturally be higher, as alcoholic insanity is comparatively infrequent in women, and if we admit it as an indirect cause, we must add a considerable proportion of all cases of insanity in both

sexes as more or less influenced by this factor. The poverty and misery induced by intemperance, the impaired constitutions, the reckless exposures, the traumatisms, etc., will all have to be considered. We might also add the defective organization inherited by the children of drunkards under this head to still further swell the percentage.

3. What constitutes excess in the use of alcohol, and what is the influence on the production of insanity, of what is considered its non-excessive usage? This is the most complicated question of all, and the one that is hardest to answer satisfactorily. The often quoted experimental investigations of Anstie, Parkes, and Wollowicz, and of Dujardin Beaumetz, seems to show that, under normal conditions, between one and two ounces daily, or not much over the latter figure, of absolute alcohol is about what an average robust individual can stand, and that any amount above that is beyond the danger limit, or more than the system can dispose of with safety. This, however, only applies to perfectly healthy and normal individuals, and does not cover all the possibilities of either tolerance or intolerance of alcohol. We know very well that for almost all time some individuals have been using intoxicants to a far greater extent than is above indicated, without any very apparent directly damaging effects upon themselves, as far as known. On the other hand, perhaps, a greater number will be seriously injured by even less than the minimum here given. Moreover, the not finding alcohol in the urine does not positively show that the system is innocuously disposing of all that is injected; there may be more or less injury to the nervous system, even from a small amount. There is no class of agents that have their effects more modified by individual idiosyncrasy than stimulants, and of these alcohol probably takes the lead in this respect. The same dose will affect one man in his brain, another in his cord, and a third perhaps in neither. Steady drinking will cause often the most opposite effects, both physical and mental, according to the individual; with the same kind and quantity one man is jovial, florid, and red

nosed ; another is pallid, taciturn, and surly ; one man is incoördinate, with a comparatively clear head ; another has his judgment and temper awry, without any apparent bodily symptoms whatever.

As regards small amounts of pure alcohol, the same holds true — there is no general universal standard of moderation. When we consider, however, that it is seldom taken pure, and that its physiological action is complicated by the other more or less active constituents in the usual beverages, to say nothing of the unknown adulterations, it will be seen that the question is a very complex one. According to Dujardin Beaumetz, bad brandy is more directly toxic than absolute alcohol, and that is the character undoubtedly of a large proportion of the drinks now commonly used by more or less habitual drinkers.

The chief action of alcohol, however, is that which it exerts upon the brain and nervous system, and it is for that that it is used as a beverage by mankind ; whatever benefit it may be as a food, a retarder of tissue waste, or an assistant to digestion, is a very secondary matter, and is not usually regarded by the drinker except as a convenient excuse for the indulgence. It would not be unnatural to suppose that a normal brain has no need of alcohol, and that the effects of so active an agent on one inclined in any way to be abnormal might be deleterious, and that in the way it is commonly taken, with all its associated more or less active substances, some of which are even more potent for evil than itself, this would be still more likely to be the case. There is, therefore, a reasonable doubt, at least, as to the safety to mental health of even small continued doses of alcoholic drinks, and the burden of proof lies on the side of those who would dispute this conclusion.

Practically there is no standard of moderation in the use of alcoholic drinks, and it is therefore impossible to use statistics to determine the effect of moderate drinking in the production of insanity. What would be moderation in one would be excess in many more, and the statements of habit-

ual drinkers cannot always be accepted as to their habits. The only way actual statistics could be obtained would be from the fullest and most carefully studied individual histories, covering not only the facts of the life of the patient himself, but also those of his ancestors for at least two or three generations. Charcot is credited with saying that, "every drop of the seminal fluid of a drunkard contains the germ of all the neuropathies." This being so we will have, in order to positively eliminate the agency, direct and remote, of alcohol, to search the pedigrees and family histories to find the neuropathic taint thus originating that may develop into insanity, possibly of the alcoholic type, possibly in any other form, in the descendant of the original transmitter. A habitual user of alcohol may, it may be possibly admitted, show no bad results in his own person and yet pass on a deteriorated nervous constitution to his offspring. The effects on the individual himself may be slow in developing, and may require a skilled medical diagnosis for their recognition as of alcoholic origin, however serious they may be. It would be of interest to know what proportion of cases of senile insanity and late organic dementia occur in abstainers and in those who have been accustomed to the occasional or habitual moderate use of alcoholic drinks, and in this line is perhaps the best hope of finding any value in statistics for answering this particular question. If moderate drinking has any effect in causing insanity, it might be naturally supposed that it would be late rather than early in its appearance.

It has been already mentioned that we have to consider not merely the alcohol but the constituents of the ordinary beverages when taking account of the pathological effects of these latter. Pure alcohol is very little used as a beverage, and when so used, as by the Scandinavians in some parts of our country, it is nearly always to excess and the effects are obvious and indisputable. In the ordinary spirituous liquors we have not only ethylic, but also the higher, more toxic alcohols in greater or less proportion, together with various

ethers and other substances, many of which are powerful neurotics, to say nothing of unknown adulterations that may be more or less harmful. These last, together with the ethers, etc., occur also in the various wines, especially the imported ones. In beer we have had of late years a number of new constituents, as there have been extensive changes in its manufacture. Malt liquor would seem to be a misnomer for some of the beer of to day, as glucose is said to have largely superseded malt in some beers, and where the cereals are employed they are likely to be rice or corn (meal), etc., instead of the traditional barley. Whether these changes render the drink any worse as regards its action on the nervous system may perhaps be a question, but is one the consideration of which complicates the subject. The amount of the nervous depressant lupulin with the alcohol taken into the system is also worth bearing in mind in the consideration of the possible effects of beer, in favoring insanity. *A priori*, it would seem that it might have such action, but as yet actual satisfactory data are hard to obtain. That the moderate use of alcohol, generally in the form of beer, has a bad effect in actual existing mental disease is supported by the testimony of English (thirty out of fifty superintendents reporting), German (Kraepelin), and Swiss (Forel) alienists who have had experience with and without its usage.

The answer to the third question, therefore, is a complicated one. There is no exact standard of moderation in drink; the maximum quantity is injurious to some, while others are apparently unaffected injuriously by very large amounts. If we could put all moderate drinkers on a certain ration, really moderate and within the limit given by Parkes and others, of alcoholic drinks, and keep them to it, and we could after a time ascertain their physical personal equations as to endurance of alcohol, some generalizations could be made from statistics. Where this has been done, as, for example, in the population of some asylums in Europe, the weight of evidence is rather against the absolute innocuousness of alcohol so used. The conditions there, however, are not those of the average population, and cannot be accepted

as applying directly to the question of the production of insanity by alcohol.

There may also be some little value to statistics of organic and senile insanities as occurring in known moderate drinkers and in abstainers.

The answer to the question is complicated by the uncertainties as to the exact toxic value of the drinks used; the other neurotic constituents besides the alcohol they contain; by the effects of climate, age, individual idiosyncrasies, etc.; by the possibilities of the late developments from long-continued dosing and those of hereditary transmission, and especially by the varying and often very liberal notions of drinkers as to what moderation is, and the tendency of even moderate drinking to lead to excess in individuals possessing any neurotic or hereditary taint.

A priori, it would seem probable that even the moderate use of powerful neurotic agencies would at least have no beneficial effect on a normally constituted brain, and that in one at all abnormal, when used simply as an indulgence and not under any scientific medical supervision, there might be serious chances of positive injury.

Our knowledge of the effects of alcohol in the production of insanity may, therefore, be summed up as follows:

1. Alcoholic excesses produce insanity.
 2. They are directly the cause of at least 10 or 12 per cent., and probably of a somewhat larger percentage. Indirectly they are among the casual factors of a very large proportion of cases that cannot be directly credited to alcohol.
 3. Moderate drinking is a very indefinite term, and this fact alone makes it impossible to utilize satisfactorily any statistics as to its effect in producing mental disease. There is, however, no reason to believe that moderate indulgence in alcohol is specially conducive to mental health in the average individual, and there is, on the other hand, a certain amount of physiological *a priori* presumption to the contrary. For the victim of hereditary taint or the neurotic it is undoubtedly often disastrous in its effects in this direction.
- H. M. BANNISTER, M.D., and ALDER BLUMER, M.D., in *American Journal of Insanity*.

CONSTIPATION IN CASES OF TEA-POISONING AND INEBRIETY.

Dr. Wood, in the *Brooklyn Medical Journal*, says that the plan which was found to give the best results was to commence by interdicting the use of tea, coffee, or any form of liquor. This must be insisted upon in the strongest manner, else the patients, like all inebriates, will be found indulging their annoying importunities for tea.

The alimentary canal should be thoroughly cleared out by giving a rather large dose of calomel and jalap (8 grains of each) at night, to be followed in the morning by Rochelle or Epsom salts (1½ ounces). This will assure an almost completely empty intestine and the absence of fermenting material, which, in a large majority of cases, produces a true auto-intoxication. The patient should be kept on hot milk for several days, the only medication being 4 grains of caffeine and 8 grains of sodium bromide every four hours. This quiets the irritable nervous condition, and the limited food gives nature an opportunity to regain lost tone.

The use of cascara sagrada is commenced at this time, the dose being from 15 to 40 minims every four hours. From the third to the tenth day the patient's diet is increased to the proper amount as demanded by the work performed, care being taken to eliminate such stimulating and non-nutritious articles as the starch and sugars, so far as possible.

The dose of cascara sagrada mentioned above may be increased and the time for giving it lengthened until the patient's bowels will move freely at least once a day by the employment of from ½ to 1 drachm at night.

In a number of cases, when this regularity has been observed, the following prescription will be found of great use :—

℞ Inspissated ox bile, pure, ℥ii;
Sulphate of quinine, ℥i;
Sulphate of strychnine, gr. i;
Extract of cascara sagrada, ℥i;
Extract of euonymus, ℥ii;
Extract of gentian, q. s.

Divide into forty capsules; 2 are used morning and night.

The inspissated fel bovis prevents to a large degree intestinal decomposition, accelerates peristaltic action, improves the intestinal digestion, and increases and hastens absorption. In being taken up by the liver it furnishes a fresh impulse and available material for the formation of new bile. The strychnine serves as a bitter tonic and a stimulant to the spinal centers, and the nerves of the splenic arcade and, in turn, the glands which they supply resume their former activity. The euonymus is a cholagogue cathartic and stimulates the liver to secrete a better quality of bile. Enough of the cascara is used with the euonymus to assure a good passage from the bowels daily.

In a number of cases Fowler's solution is given so soon as the bowels are moving daily, and often with excellent results. The preparation of cascara which is given the preference over all others is the aromatic fluid extract or elixir. This palatable method of giving the drug should be resorted to whenever it can possibly be secured, and many patients who are in a neurasthenic and hysterical condition and have a horror of all medicines will offer little objection to this preparation.

The nerves of the alimentary canal during tea intoxication are in a torpid condition from over-excitation, and the secretions of the glands have been very much reduced by the large amount of tannic acid in the tea infusion. No drug has yet been found which will so well restore the lost tone of the debilitated gut and increase the secretion and peristaltic action as cascara. The action of the drug on the bowels is not sudden; the more sudden acting cathartics, in the author's hands at least, have proved harmful. What is clearly indicated is a tonic laxative which will at the same time increase the action and secretion of the gastric, intestinal, and biliary organs.

In cases of constipation of short duration the capsule above given is not used, but dependence is entirely on the cascara. It has been found eminently satisfactory. In those cases where the intoxication has extended over a number of

years other medicinal agents must be added which will restore the lost bodily tone and correct functional perversion.

Treatment should not be stopped as soon as the patients feel better; in many cases it must be continued for several weeks. After the digestive troubles have been overcome and the system shows a tendency to establish an equipoise of health, a tonic pill is used for a considerable time. The constituents may be arranged to suit the advancement made. It is as follows:—

℞ Sulphate of strychnine, gr. i;
 Hydrochlorate of caffeine,
 Extract of damiana, of each, ʒi;
 Hydrochlorate of cocaine, ʒi;
 Extract of taraxacum, ʒss.

Divide into twenty pills, of which one should be given twice daily.

This excellent formula was used by Professor Porter of New York, with the most gratifying results, as a stimulating restorative in all complaints which had associated with them loss of bodily tone. The caffeine and damiana are nutritive tonics of no mean ability to the cerebro-spinal centers and the motor nerves which supply the splenic arcade. The cocaine is only added in those cases where the hyperæsthesia of the solar plexus produces the sinking sensation in the pit of the stomach which is much complained of. By this procedure permanent relief can be given to the truly deplorable condition of by no means a rare class of patients.

INEBRIETY A DEFENSE FOR CRIME.

Dr. Norbury, the eminent editor of the *Medical Fortnightly*, in a recent editorial remarks as follows: Since the days of Spartan lawgivers, it has been held that drunkenness is no excuse for crime; in fact many judges hold it is but an aggravation of a criminal act. Jurisprudence has been slow to accept the teachings of the disease theory of inebriety, and excepting in delirium tremens has never recognized such

a plea. In criminal relations the law seems more harsh in its practical application, than in civil or social relations. That this is but just is evident, when objectively we consider that the drinking man can voluntarily place himself in a position to do criminal acts. Many courts hold that intoxication, irrespective of degree and its effects, does not alter, modify, or excuse the act. Again, the rulings of the courts as to the mental unsoundness growing out of voluntary intoxication, occurring in a person previously sane, do not alter, modify, or excuse the act, or, more carefully stated, from acts committed by him in violation of law while in that state. (Not less than twenty decisions are cited in this country on this point alone.) However, one familiar with the clinical aspect of mental unsoundness, primarily or secondarily due to inebriety, knows that there are phases of the disease which demand a thorough investigation, ere such a ruling be declared. The law holds that there must be a motive and intention to constitute crime, and this should be a modifying factor, even in diagnosis, inasmuch as unconscious acts committed during the suspension of memory, in themselves indicate incapacity to act from motive. Again, it is proper that inquiry be made as to whether the accused was in a condition of mind to be capable of premeditation. Again, to formulate the diagnosis, it is necessary that all the circumstances attending the intoxication be considered; whether or not he voluntarily placed himself in such a position so as to commit crime; so as to use drunkenness for a defense; simulation of mental unsoundness is not unheard of under such conditions.

But there are conditions of mental impairment, recognized by alienists, which indicate a diseased mind, and as such relieve responsibility, and place the crime, where it belongs, under the head of insane acts. It is, or should be, held that such evidence of mental unsoundness growing out of intoxication should be admitted to explain the conduct and intent of the accused, especially in homicide. There are certain other conditions to be investigated in the study of

such a case, the chief of which is the existence of certain constitutional or specific diseases, which affect both the brain and nervous system, and which do modify the effects of alcohol, even when taken by a person previously sane. Such a specific disease (syphilis for instance) may in itself be the primary cause of the mental unsoundness, and intoxication merely a secondary phenomenon.

Again, heredity is a factor, the individual being endowed from birth with what is termed a narcotic diathesis, that is a precocious sensitivity to narcotics, whereby a defective nervous and mental organism results, which is evident by a loss of inhibitory power, thus making it extremely difficult for the individual to resist the potent influence of alcohol. Further, this sensitivity may be acquired, as is noticed from the influence which the before mentioned specific diseases have upon the nervous and mental organism. It is this class (both the hereditary and acquired) from which spring the cases in which it is not only justifiable, but scientifically correct, that a defense of mental unsoundness be made — the marked forms of the unsoundness of mind being delirium tremens and “mania-a-potu.” During the continuance of either the patient is undoubtedly insane, he being quite unconscious of his actions, dead to all perception of right and wrong, and incapable of reasoning.

There are other forms of inebriety wholly within the domain of the disease, chief of which is dipsomania, a disease in which the periodical outbreaks of intoxication are uncontrollable — a blind, irresistible impulse to seek excessive indulgence in alcohol exists, and is not overcome by reason, will, or the thought of disgrace, family pride, etc. This form is often found in some of our most useful citizens — men of letters, culture, of refined tastes and manners, and who drink because they are impelled to it, and not for social pleasure. A medico-legal inquiry into such a case will always place the individual as a sick man — unsound mentally during his spree, and hence irresponsible. To this class belong the individuals wherein are found those freaks of unconscious-

ness, the most interesting of which is so-called "unconscious cerebration," characterized by the patient doing acts automatically, yet being without knowledge of his actual condition, at the same time appearing to be acting naturally. Such persons wander away from home, even remain away for months, engage in occupations entirely dissimilar to their previous occupations, and some day awaken to find themselves among strangers; all of this time they have no recollection of what they have been doing, the interval between the commencement of their attack and the return to consciousness being a complete blank. This cerebral automatism I have seen and know it to be possible. Medico-legal literature has recorded a number of such cases. Now, as to the application of these facts to the study of responsibility, this is the function of the lawyer and the judge; medicine merely states the facts, the law applies them. No case can be decided wholly upon its merits—it requires the patient study of all circumstances, and especially the function of diagnosis. That public opinion does sway the decision of a jury is a probability with some foundation, but upon the whole it is my belief, that a jury can, and will in the great majority of cases, be able to sift facts, from fancies or prejudices, and weave something tangible from the confusion occasioned by expert testimony, which, alas, is as yet no credit either to medicine or law, and let "justice be done, though the heavens fall."

INTOXICATED WASPS.

Concerning his observations of wasps which are addicted to the use of intoxicating liquors, Lawson Tait relates the following:

"I have been watching the wasps with great interest and have noticed the avidity with which they attack certain fruit when fully ripe, rotting in fact, and I have also noticed some of the peculiar results of their doing so. The sugar in some

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fruits which are most attacked by wasps has a tendency to pass into a kind or kinds of alcohol in the ordinary process of rotting, a fact which is easily ascertained by the use of a still not large enough to attract the attention of the excise authorities. On such fruits, particularly grapes and certain plums, you will see wasps pushing and fighting in numbers much larger than can be accommodated, and you will see them get very drunk, crawl away in a semi-somnolent condition, and repose in the grass for some time, till they get over the 'bout,' and then they will go at it again. It is while they are thus affected that they do their worst stinging, both in the virulent nature of the stroke and the utterly unprovoked assaults of which they are guilty. I was stung last year by a drunken wasp, and suffered severely from symptoms of nerve poison for several days. In such drunken peculiarities they resemble their human contemporaries."—*Registered Pharmacist.*

CHLORIDE OF SODIUM INEBRIETY.

Dr. Woodward in the *Eclectic Medical Journal* writes as follows :

It is estimated that we daily consume about one hundred and forty grains of salt, which the author concludes is entirely too much. Persons who have eaten from one to three drams of salt daily for years are affected by several of the following symptoms :

1. A thickened and partial paralysis of the vocal cords, and an almost continual sore throat.
2. A pale and waxy color. A dryness of the cuticle, which perspires too freely upon exertion.
3. Constipation.
4. Chronic diarrhœa.
5. Abnormal appetite.
6. Retarded endosmosis and exosmosis.
7. Plethora and corpulency.

8. Thins the blood, causes slow circulation, and lowers the temperature.

9. Increases catarrh and prevents its cure.

10. Causes dandruff on the scalp.

11. Causes skin diseases.

12. Causes deposits and abscesses.

A number of cases are given with one or more of the above conditions predominant. In all the salt was restricted and depurating medicines given with good results.

In catarrhal diseases, the use of salt aggravated the symptoms; removing it effected a cure. The reason given is that the skin not acting, from the effect of the salt, the mucous membrane had to perform an extra function, hence the discomfort. Removing the cause cured the disease. It is stated that acrobats eschew salt; that the Parisians, twenty years ago, deprived inebriates of salt. In six months all taste for liquor was gone.

HEREDITARY INEBRIETY.

The editor of the *Temperance Record*, in a review of Lunacy Commissioners' Report, closes in the following significant words:

“ A careful consideration of the subject of hereditary inebriety enables us the better to understand the significance of the figures we find in the Lunacy Commissioners' Report. Table 22 shows us that intemperance was the predisposing or exciting cause of the insanity in the case of 20.9 per cent. of all the males, and 8.1 per cent. of all the females admitted. Taking the general paralytics among the insane, intemperance was the assigned cause in 25 per cent. of the males, and in 18.8 per cent. of the females; and in the case of insane patients with suicidal propensity, intemperance was accountable for 20.9 per cent. of the males, and 7.3 per cent. of the females.

But the commissioners state in their report that 'hereditary influence again figures as the most potent factor in the production of insanity,' and the figures in the table inform us that it was accountable for the insanity of an annual average of 1,749 of the males, and 2,254 of the females who were admitted during the years 1890 to 1894, or 21.1 per cent. of the males, and 25.6 per cent. of the females. The diseased organization produced by intemperance does not always develop in the offspring a craving for drink. The drink-produced degeneracy takes other forms. But whatever the defects and tendencies drunken parents transmit to their offspring they are all in the direction of insanity — to which intemperance has in many respects so close a resemblance, with which it has such an intimate alliance, and to which it so frequently directly leads. And it is not to be doubted that in the case of a large proportion of the patients whose insanity is attributed to 'hereditary influence,' intemperance was the source of that influence towards insanity which is now recognized as hereditary. Looking down the list of 'causes of insanity,' we come upon 'previous attacks' as accountable for the insanity in 16.0 per cent. of the males, and 21.7 per cent. of the females; and upon 'unknown' as applicable to 18.8 per cent. of the males, and 16.6 per cent. of the females; and we maintain that there is every probability of intemperance being a considerable factor in these large proportions. If we attribute to intemperance no more than one-half of those who are reported insane under 'hereditary influence,' and one-fourth of the 'previous attacks' and the 'unknown,' we discover that of the males who find their way into asylums for the insane about 40 per cent. get there through drink, and of the females about 30 per cent. This means a large, but little considered, addition to our enormous drink bill; and who can tell what it means to the individual victims and to the family circles they taint, and whose happiness they destroy?"

The *Homiletic Review* gives a scholarly, clear presentation of the current thought in theological circles. Unlike the older literature, which was obscure and doctrinal, this journal gives a graphic, popular setting to the modern thought of religion. No better present could be made than a year's subscription. Write Funk & Wagnalls, New York city, publishers.

The *Hypnotic Magazine*, published by the Psychic Publishing Company at Chicago, Ill. This is devoted exclusively to hypnotism, its uses, and therapeutical possibilities. The August and September numbers contain some very suggestive papers of great practical interest. This study is clearly a very large one, and no doubt, in the near future, will bring to light remedial forces almost unknown at present. This is a very interesting magazine, and we heartily commend it.

The half-century of the publication of the *Scientific American* is celebrated in an anniversary number of great excellence and value. Reviews of the progress and history of many of the most wonderful inventions are given in a condensed form. This is literally one of the most valuable groupings of facts concerning these new discoveries which has appeared. This number in particular, and the journal as a weekly periodical, is unrivaled among the scientific publications of the day.

Moodics Magazine of Medicine, edited by Dr. Bell, and published at Atlanta, Ga., has made a very successful start to combine literature and medicine, and thus to reach the physician's family and associates. There is, no doubt, a vacant place in medical literature along this line which skill and genius can fill. Dr. Bell has an open field and no rivals in sight, but an ever-increasing crowd of admirers will welcome every issue of this new effort, and rejoice at its success. Send for a copy of this venture in medical journalism.

Some Physiological Factors of the Neuroses of Childhood. By B. K. Rachford, M.D., Professor of Physiology

and Clinician to the Children's Clinic, Medical College of Ohio; member of the Association of American Physicians and of the American Pediatric Society, etc. Cincinnati: The Robert Clarke Co., 1895. This little work of a hundred and twenty pages should be read by every practical physician. In a clear concise style the author gives a very suggestive study of the following topics: "The Normal Functions of Nerve Cells," "The Physiological Peculiarities of the Nervous System of Infancy and Childhood," "Fever and the Variable Temperatures of Childhood," "Heat-Dissipating Mechanism," "Autogenetic and Bacterial Toxines," "Venous Condition of the Blood," "An Impoverished Condition of the Blood," "Reflex Irritation," and "Excessive Nerve Activity." In connection with studies of the early causes of inebriety this work brings out many facts not well known, and will be found of great value to students in this field.

The leading citizens of Cape Town, Africa, have petitioned the colonial secretary to establish an asylum for inebriates. The secretary has expressed his warm support of this movement and promised that the government will aid it in every way. A bill has been prepared appropriating money and making laws for control, which will be presented at the next Parliament.

Editorial.

SUBJECTIVE AMNESIA IN INEBRIETY.

Defects of memory are very common in inebriety, but usually they do not attract much attention. Alcoholic blanks, called trance states, in which the person moves about apparently acting with a normal consciousness of his conduct and all the surroundings, but literally is in a somnambulistic state, have been studied in their medico-legal relations.

While these extreme cases are now recognized in many instances, periodical, acute, and partial amnesias are practically unknown. A blank of memory during the period of intoxication will clear up after a few days, and events be fairly clear which happened during this period. In other cases the memory is apparently unimpaired, and often events and conduct during the drink period are sharply impressed on the mind. The fact is new to literature that in these toxic states the thought and conduct of the inebriate is a blank, while the acts, conduct, and associations with others are clearly remembered. Thus, in a certain case, after a period of drinking, amnesia of all subjective phenomena will occur, but the subjective life and surroundings continue clear and distinct.

Later, when this passes off, the mind will be strained to explain and account for this anomaly. The impression prevails that an apparent full consciousness of all the subjective phenomena is associated with an equal subjective realization of all thoughts and conduct. That a memory of what others said and did to him is accompanied with a memory of his own conduct and thoughts. But often the opposite is true. The one may be clear and the other obscure or a total blank. An inebriate may describe with reasonable accuracy where he

went, who he met, and what happened during the drink craze, but he utterly unable to remember what he thought or said, or what reasons or motives he had at this time. He may remember clearly meeting certain persons, going to certain places, and certain conversation addressed to him, but his conversation and conduct are not remembered. An illustrative case was that of a hotel-keeper and periodical drinker. His periods lasted two weeks, and, after the second day, all recollection of his conduct and thoughts vanished. Yet, he remembered being invited to go here and there by certain friends, and recalled the advice of his wife and physician, certain business contracts and counsel, and appeals to do this or that, and to loan money, or help others, were distinctly recalled; but he could not say whether he carried out the suggestions or advice, or acted on the appeals of others. He remembered going about to barrooms with others, but could not tell whether he drank or what he said. He finally disputed a contract made during this period. He admitted that he remembered the conversation of others and going to consult an architect concerning the property, but he could not recall his reasons or motives, or conversation at the time, or the act of signing the paper. It was found by a study of this case that, on other occasions similar unusual acts and strange oral and verbal contracts had been made. Had his memory been as clear of subjective events and promises as it was of objective events he would have manifested anxiety to correct the errors he made when sober. The difficulty of determining these most complex amnesias is not so great as it appears to be. A man remembers distinctly the conduct of others towards him, and dwells on it, but his own acts may have been criminal, and, if memory were equally clear on this, he would seek to cover up or repair the injury at once. On the contrary, he is oblivious, showing partial and subjective amnesia. A study of the case brings out this fact, and places the diagnosis beyond question.

The practical significance of this amnesia is to call attention to the statements of inebriates and the wide sources of error

complicated with them. This new phase of memory palsy will explain many statements now attributed to vice and deceit. Also the anomalous conduct and statements of reformed inebriates.

PSYCHICAL PERIODICAL INEBRIATES.

I use this term to describe a class of persons who only drink to excess on special occasions, and in particular surroundings. At other times they are strict abstainers, and often very bitter opponents of spirit taking. One of these classes drink on holidays, such as Christmas, New Year's, Fourth of July, and other national holidays. Another class drink only on occasions of great excitement, of sorrow, of joy, such as weddings, political meetings, court trials, accidents, triumphs in business. A third class drink in the country, and away from all observation, or in certain cities, and at certain hotels or houses. A fourth class drink at the seashore or in the high mountains, or at the change of seasons, as the beginning of winter or summer.

Another class are solitary, midnight drinkers, who never use spirits except in the most favorable conditions, and in seclusion at midnight. Others never use spirits except in the company of certain persons, who seem to provoke an intolerable desire to become intoxicated. Others are always intoxicated when out on fishing and hunting excursions. A certain class never drink only at class or other reunions, or at certain club dinners, and thus the list might be extended, and would include many very strange conditions which appear as special exciting causes. These cases never use spirits except in these particular environments, which seem to break up all judgment and control for the time. Often the holiday drinkers escape by isolating themselves from all sources of excitement on these occasions. Going to the country, seeking quiet, with total change of surroundings and living, and by this means the

drink symptom is controlled. As soon as the holiday is passed all desire for spirits disappears. The states of excitement are obscure which rouse this drink craze, and pass away as quickly as they began. This excitement may continue, but the drink paroxysm dies out. One man drinks to stupor at the beginning of a political campaign, then abstains, although exposed to the same or greater excitement for weeks after. Another becomes intoxicated with some great successes of life, then never drinks again, unless the conditions are radically changed. Certain surroundings of large cities, and particular hotels and houses, rouse the drink paroxysm. One cannot visit New York, or another go to Washington, Philadelphia, or Chicago without becoming intoxicated, and this continues a certain fixed time, then ceases, or lasts until the surroundings are changed. Such persons never use spirits elsewhere, and these obscure psychical states seem to destroy all self-control at the particular place and time. The mountain and seashore inebriates, who never use spirits at any other place, display the same impulsive craving for intoxication. Such cases complain of headache, nervous trembling, and depression, with extremes of appetite, insomnia, and drowsiness, as preliminary to the drink craze. Change of surroundings brings sobriety and relief. The solitary, midnight inebriates, who never drink unless the conditions are most favorable for seclusion. Such cases will resist all temptations to use spirits in company; then go away to some secluded place and drink at midnight to stupor. If they make a mistake and the seclusion is broken up, or their presence becomes known, they become sober at once. The influence of certain fixed and particular surroundings dominates the central organism in a strangely mysterious way. These, and other drinkers who are never seen to use spirits, except in special conditions and surroundings, are neurotics with peculiar susceptibilities to unknown psychical influences. Some of these cases develop into well marked inebriates, with all the common symptoms; others remain a lifetime subject to these nerve storms. Many of these persons early recognize these

particular exciting causes and avoid them. Others never realize their meaning, and give way to the impulse to drink on the occurrence of the special exciting causes. The impression prevails that all the exciting causes are under the control of the will, and that it is always vice in the moral sense which dominates. A study of these cases indicates some very subtle causes, both in the surroundings and brain centers. Some obscure degeneration provokes these psychical nerve strains, from unknown special conditions and surroundings. A person who drank only on the Fourth of July was deceived as to the exact day, being in the country away from noise and excitement; he was strangely nervous and excited all that day, but fully recovered after a night's sleep. This indicated that something more than the memory of the past, and the dominance of the idea of drinking that day prevailed.

There are, undoubtedly, many physical and psychical causes which combine in provoking the drink impulse at certain times. These cases occur among the most active workers in the higher circles of human activity, and it is somewhat singular that they have not attracted attention or been studied in any systematic way.

INEBRIETY IN THE ADIRONDACKS.

The recent popularity of the great northern wilderness of New York as a residence for consumptives has also attracted a number of inebriates who hope, by isolation and outdoor life, to outgrow the drink impulse. The latter expectation is unrealized. Literally, this region is occupied by a large number of persons who use spirits to prevent and check consumption, and is really a dangerous resort for inebriates.

The medical advice given frequently to persons who are suffering with premonitory phthisis "to go back to the mountain regions, live out in the open air, and drink freely of spirits," is followed by many persons every year.

The cessation of the acute symptoms encourage the hope of cure, hence, spirits are used more freely. After a time, if hemorrhage does not follow, with alarming prostration, a degree of insomnia and mental feebleness comes on which sends them home in most cases to die. They always blame the climate and conditions of surroundings for their failure to receive benefit. In one instance, recently, at one small hotel there were eight consumptives who were partially intoxicated most of the time, acting probably on advice to use all the spirits they could. They were not under the care of any physicians, but had been sent off alone to treat themselves. Five of these cases used cod liver oil with the spirits. In a large hotel, and at one of the most romantic resorts, the bar trade was not only enormous, but each invalid came provided with a private supply of spirits. Very little intoxication was noticed, but a larger number of persons were in a semi-stupid state, or mildly hilarious much of the time. The drinking men who hope to keep away from spirits by going to this region, are astonished to find spirits used so freely by travelers and invalids, as so-called medicines, and also to find that they can drink more spirits with less acute intoxication. These men soon excuse their drinking as medicinal and preventive for consumption, and by being in the open air most of the time, can avert the apparent toxic effects more readily than in lower altitudes.

Many of these persons return and become inebriates, and die suddenly from pneumonia or some acute disease.

Those who use spirits freely in these regions from medical advice or other reasons are usually incurables, and die soon, either of acute tuberculosis, nephritis, or pneumonia, following inebriety. When spirits are continued low forms of dementia appear, with often fatal termination. The general degeneration, which, centered in the lungs, is concealed by the alcohol, and intensified into other and more diffused conditions of dissolution. The use of alcohol in consumption as a preventive is dangerous. In a large proportion of cases it is fol-

lowed by degenerations more serious and fatal than the original disease.

The intimate relation and rapid alternation from inebriety to consumption, and consumption to inebriety, is a well-observed clinical fact. Both belong to the same family group of neuroses, and the reckless advice to use all the spirits possible to prevent the one, while it may not always be followed by the other, will certainly intensify and provoke degenerations that are never removed.

Inebriety in high altitudes is more intense and rapid in its progress. General progressive anaemia and exhaustion follows. In some instances this is marked by intense cerebral irritation and delirium, in others by acute inflammatory affections. To send inebriates into high altitudes is not safe unless the conditions and surroundings are most favorable, and the history of the case promises relief by this change.

PARETIC STATES IN INEBRIETY.

The paralyzes noted in inebriety are obscure and often complex forms of what is termed general paralysis. They are practically progressive cerebral degenerations and are marked by organic changes in the encephalon and its coverings, or in the spinal cord and membranes, and sometimes in the sympathetic ganglia. It may include many forms of cerebral degeneration, which occur independently, and go on in steady progression or with halts and long intermissions. Pathologically it is often found to be a chronic meningitis or sclerosis of the connective tissue of the brain or degenerative lesions of the great sympathetic, a myolitis, a diffuse, chronic, interstitial, menigo-, myelo-, encephalitis, and, lastly, an affection beginning in the brain cortex or in the cord, or in the neurine organs of special sense, or in the peripheral nerves.

From this it will be evident that general dementia is an essential symptom of the disease.

Paralysis following alcoholic excess, while having all the marked symptoms of these cases, will vary in progress and duration. Often it is associated with epileptiform attacks, and appears to have reached extreme stages at once, then changes materially under appropriate treatment. One of the distinguishing symptoms, according to Regis, is the parietic character of the pupils, in some cases absolutely immobile, especially the one that is most dilated. Besides this the pupillary aperture is very often misshapen, oval, notched on its borders, the coloration of the pupil loses its sparkle and transparency, usually dull and cloudy, the visual acuteness is ordinarily diminished. The mental state is usually confused and stupid, the inequality of the pupils remain. The exaltation is temporary and changeable, with hallucinations and paroxysmal delusions. The affections of speech and ataxy of movements, associated with tremors and trembling of the muscles of the face and legs, vary widely.

Many cases have associated syphilis, sunstroke, and malaria, and it is difficult to determine which of these causes are prominent, and whether the degeneration from alcohol is an exciting cause alone. The typical forms of paralyzes may follow an excess of spirits, and pass away, when a degree of restoration follows, or appear in the case where alcohol is used constantly in so-called moderation.

All cases of inebriety in which expansive deliriums, and general exaltations of the feelings are present, may be called paralysis. Associated with this are present many mixed degrees of defective muscular and motor activities, and incoordinations of words and defective articulation.

Many varied physical and psychical symptoms appear and disappear, or continue in different degrees of intensity. If the origin is alcoholic great changes of symptoms will follow appropriate treatment. If of syphilitic, saturnine, malarious, or from lesions of fever or sunstroke, much can be expected from treatment. Final recovery is not to be expected, halts

and changes of the symptoms will occur, but the degeneration which has become so manifest will leave a permanent impress on the brain. It is difficult to differentiate a form of paralysis that is due to alcohol alone, but a careful study of the clinical history of persons who use spirits will reveal many symptoms that are common to paralysis. The terms paretic dementia, progressive palsy, with peculiar delirium, and psychical symptoms of degeneration, describe many cases of inebriety. Evidently, further study will clear up the present confusion of terms and symptoms that are so interwoven as to be difficult to separate and understand.

ANNIVERSARY MEETING OF OUR ASSOCIATION.

A memorial meeting will be held at the New York Academy of Medicine, New York city, Friday evening, November 20, 1896, to celebrate the twentieth anniversary of the publication of the *Journal of Inebriety*, and the twenty-sixth year of the Association for the Study and Cure of Inebriety.

A generation has passed since this Association and *Journal* began their work. Inebriety has become a province of science, and is studied from a higher and wider point of view. Its literature has come into full recognition, as outline tracings of a new field of pathological psychology. The closing years of the century bring into view an increasing number of problems, the solution of which must come along these lines of research. Most of the pioneers and early workers in this field have passed away. It is proposed to devote our annual meeting exclusively to a historic review of the circumstances and conditions which led to the formation of the Association and the *Journal*, and the founders and their efforts to open this new realm of science.

The following program of addresses and papers will be presented on this occasion:

The First Meeting of the Association and the Original Members, by Dr. L. D. Mason, Brooklyn, N. Y.

The *Journal of Inebriety*, its Inception and Birth, and the Early and Later Literature of the Subject, by T. D. Crothers, M.D., Hartford, Conn.

The First Asylum for Inebriates and its Founder, Dr. J. E. Turner, by Dr. C. H. Shepard, Brooklyn, N. Y.

The First State Asylum for Indigent Inebriates and its Work, by Dr. M. E. Hutchinson, Foxboro, Mass.

The First Asylum for Opium Inebriates, its Growth, Literature, and Progress, by J. B. Mattison, M.D., Brooklyn, N. Y.

The First Home for Inebriates and its Work, by Dr. V. A. Ellsworth, Boston, Mass.

Empiric and Charlatan Efforts to Cure Inebriates, by N. Roe Bradner, M.D., Philadelphia, Pa.

The Abuse of Alcohol in Medicine and its Historic Influence, by Dr. I. N. Quimby, Jersey City, N. J.

The Origin and Growth of Asylums for Inebriates in Great Britain, by Dr. Norman Kerr, London, England.

H. W. Glasenap's investigations show that cocaine can be detected either as such or as ecgonine after thirty-three days' exposure to the influence of putrefying flesh or human blood. In cases of poisoning, however, if death has ensued within two hours, it will be found unaltered, but if more than four hours have elapsed before death, it will be found (in the urine) as ecgonine.—*Journal of the London Chemical Society*.

Mathews Medical Quarterly is to be changed to *Mathews Quarterly Journal of Rectal and Intestinal Diseases*. This is to describe exactly the contents and purpose of the journal. This is the only journal in the English language in this field, and is a very valuable and useful publication.

Clinical Notes and Comments.

THE USE OF WHAT DRUGS AND MEDICINES WILL RENDER AN APPLICANT UNINSURABLE, AND WHY ?

George R. Chitwood, Jr., M. D., Indianapolis, Ind.

Many of the medicines given in health will, if long continued, produce a diseased condition of the animal organism, either affecting a part or the whole of the system.

The effect, or effects, of almost any single article known as a medicine proper, that is, a remedy used by the physician in disease, whether as a palliative or otherwise, will, if carried to the extent of forming a habit, so derange the system as to make the individual uninsurable.

Medicines are equally as deleterious as the alcoholic beverages, and are just as likely to form a habit; and the effects left by them are equally as damaging to the physical and mental health.

To undertake to give a list of such medicines is no small task, as in my opinion such a list would include a large proportion of our therapeutical and chemical agents. However, I will include the bulk of the narcotics, some of the tar products, quinine, opium, morphine, cocaine, belladonna, Indian hemp, digitalis, arterial and nervous sedatives; the active cathartics, diuretics, mineral and vegetable acids, alkalies, antispasmodics, and others.

Many physicians are aware of the bad effects of opium in any of its forms, quinine, cocaine, certain of the cathartics,

as aloes, gamboge, podophillin, calomel; how by their over and unnecessary action they may and do leave the mucous membranes of the intestinal tract in an irritated and diseased condition, which condition is frequently the cause of so many of our chronic diseases affecting this portion of the system.

Among a few of the diseases resulting from "over-physicking" may be mentioned chronic constipation, hemorrhoids, chronic diarrhoea, prolapse of rectum, occasional intussusception of bowels, and, in a few instances, paralysis of the intestines, particularly the rectum.

And so may a long and continuous use of certain of the diuretics leave their bad or diseased effects, such as a want of power to control the act of urination, paralysis of the neck of the bladder, congestion, and other diseases of the kidneys, and, occasionally, desquamative inflammation of the kidneys (Bright's disease). From a long and continuous use of opium, morphine, cocaine, and a few, if not all, of the tar products, we have, as a result, a slow poisoning of the brain, blood, nerves, and a badly deranged condition of the secretory system, with progressive and frequently rapid loss of flesh, bringing the users of these remedies down to living skeletons, with imbecile and childish intellects, and digestive organs as feeble as babes. Besides, sleep is interrupted to such an extent as to make a good night's rest a thing of the hazy past—a stranger to these strange and mysteriously-acting persons.

While alcoholics leave their diseased effects upon the brain and the digestive organs, their long-continued use quite often produces delirium tremens, and those with sympathetic imaginations, brooding over the horde of snakes, imps, and devils that crowd so thickly around their fancy, are driven to self-destruction, thinking thereby to escape these imaginary foes.

Quinine is well known to affect the brain, the mind, the hearing, the digestive organs, the blood (congesting it), and otherwise deranging the system.

The use of most medicines, if continued for a definite

period, may fix a habit on the users; and while many of these habits might easily be cured, most of them continue, simply because the use of the remedy gives an ease, which, with all medicine users, is sufficient excuse for continuing it. On this account we are inclined to believe that all who have medicine-taking habits are poor risks for life insurance, and should be rejected, as many of this class possess weakened, if not diseased bodies, which make them very liable to contract disease. All of these sickly beings have their lives shortened, and this alone should be a prime excuse for refusing an insurance policy, if insurance companies are seeking for long-lived applicants. We hold that these medicine-gorging people are not suitable risks for any kind of insurance, regular life or accident. They belong very properly to the graveyard class, for they are going to the cemeteries fast enough to be called "scorchers."

It would be almost as safe for life insurance companies to take risks on those afflicted with the first stage of consumption, as on some of our medicine fiends, as they are no more likely to cease their habit than the consumptive is to recover.

Habit, when once formed, requires a will force that but few possess to break. While those with a medicine habit may keep it a secret, they go on, realizing the slow, sapping, and killing effects, but too feeble, mentally and otherwise, to conquer it. Many of this class seek insurance, feeling that their lives are being shortened by their habit, and grow daily more anxious to keep the wolf from their poor wives and helpless little ones. Their habits make their lives dreams, and so agreeable to them that they do not care to ever again wake to their former selves, and so they go on, taking their "good medicine," building air castles that carry their fancy to the skies, almost to St. Peter's heavenly gate, hoping, if such beings ever hope, that when this earthly strife is ended, they will forever be freed from their debasing habit.

The medical examiner for a life insurance company should be an expert as regards his work with an applicant for insur-

ance. This quality is necessary for the good of all concerned in such lines of business. He should carefully study, wherever the opportunity presents, all of the applicant's habits. Of course, we admit this cannot always be done, as most examinations are hurriedly made.

But in a few instances, at least, the examiner might make a plea of more time, then shadow, as it were, the applicant, and endeavor to learn whether he has a habit injurious to his health or not. This suggestion is only made whenever the examiner entertains a doubt in regard to applicant's ability to pass a successful ordeal.

The medical examiner should never hesitate to question the applicant closely, just the same as the practising physician does his patient.

It is well known that those who seek insurance conceal everything from the examiner that might act against their chances for insurance, and hence it behooves the examiner to be ever on his guard. This class of applicants will say and do everything in their power to give themselves a "healthy standard," and the truly good and honest examiner must be on his guard, keeping his eyes and ears open for any misleading statement.

Finally, it is our humble opinion that any one addicted to a medicine habit, particularly if of long standing, and with any visible physical or other signs that the general health is being infringed upon, is unfit for life insurance, as this class is very risky, being liable to end their existence at any moment—voluntarily or otherwise.

Those free from the habit of drink, or medicine dieting, are risky enough, for many of this class will deceive, or attempt to deceive, the medical examiner as regards hereditary tendencies to disease and other transmitted conditions that are known to shorten life.

We believe it is safe to reject all who possess habits that are known to produce functional or organic diseases, and as most bad habits tend to derange health, life is shortened, there-

by greatly tending to embarrass, if not bankrupt, many life insurance companies. Reject all such, unless life insurance companies are established on the purely philanthropic and charitable order, with an unlimited capital reserve; then unlimited policies are in order.

VINO-KOLAFRA.

The note on this preparation of kola nuts, published in the last number of the Journal, has brought a number of inquiries to this office for further particulars. We reply that our experience is simply limited to cases where alcohol is withdrawn, and during the period of the gradual reduction of opium. In the former it seems to be particularly valuable. The following case is a fair illustration: An inebriate of long duration, much debilitated, and filled with morbid fears of dying if spirits were removed, was given two ounce doses of *Vino-Kolafra* every three hours. The spirits were removed at once, all fears disappeared and he became calm. Recovery followed, the *Vino-Kolafra* was stopped at the end of a week, and all desire for spirits disappeared. There seemed to be in the wine a sedative action, and in the kola a stimulating power, which overcame the depression from spirits, giving new force for building up and restoration.

The value as a substitute for spirits is beyond question, and undoubtedly it has some peculiar power to neutralize and overcome the cell and nerve irritation which demands narcotics for rest.

In two cases of opium addiction, the same stimulating tonic power was noticed. The intense depression seemed to pass away, from smaller doses, when oftener repeated. To our many correspondents we urge that this drug be tried in the first stage of treatment of alcohol and opium inebriety, using no other drugs at the time, then carefully noting its effects. As to its further use, experience must determine its value.

It can in all probability be relied upon as anti-alcoholic, and a remedy which destroys the desire for spirits at the time.

The Brunswick Pharmacal Co., of New York city prepare this drug, and they have already accumulated quite a literature, which is worthy of much consideration.

A very valuable report has recently been drawn up by a French specialist on the spread of alcoholism and its effects. In the various institutions of the Department of the Seine, in France, 775 persons suffering from alcoholism were received in 1894—624 men and 151 women. The form of alcoholism in the case of the males comprised 282 cases of alcoholic delirium, 332 cases of chronic alcoholism, and 10 cases of absinthism—a form of disease which appears to be almost exclusively confined to France and Algeria. Among the women there were 90 cases of alcoholic delirium, 60 of chronic alcoholism, and 1 of absinthism. In reviewing these cases, Dr. Magnan says: “As a consequence of alcoholism, we find an increase of general paralysis, and, what is still more serious, an augmentation in the number of idiots, of youthful epileptics, whose family history reveals almost always the alcoholism of the father, and sometimes of the mother, and frequently of both.” It becomes, therefore, a social duty, and a necessity in the interests of public health, to endeavor by all the means in our power to stay the ravages of this scourge, which is worse in its effects, because these effects are more far-reaching than the most devastating epidemics.—*Charlotte Medical Journal*.

We have called attention to *Somatose*, a meat nutrient prepared by W. H. Schieffelin & Co., N. Y., and believe that this far exceeds any beef preparations, in various disorders of the stomach and general anaemia. It is put up in the form of crackers, and is both palatable and strengthening as a food.

Protonuclein is a new remedy for all asthenic conditions, and is practically a tissue builder. It increases the white blood corpuscles, and is antoxic in its power.

Peptenzyme is a digestant of great power, and groups the ferments necessary to carry full digestion.

These new drugs are put on the market by the famous manufacturing firm of *Reed & Carnrick*, which in itself is a guarantee of their value and power.

Parke, Davis & Co. have made a most valuable addition to the list of remedies for dyspepsia in *Taka-Diastase*. This is practically a specific for faulty digestion of starch, where pepsin is of no value. These disorders are now most successfully treated, by special remedies for each condition. *Taka-Diastase* is the great remedy for this special condition, of failure to digest starch.

Antikamnia has become a popular drug in England. As an analgesic, antipyretic and anodyne drug, it has come into general use in this country. For certain neuralgias and headaches following inebriety, it has almost a specific effect. It has become one of the drugs which cannot be dispensed with in general practice.

W. Irving Hyslop, M.D., 4408 Chestnut St., West Philadelphia, Pa., says: "I have used *Celerina* quite largely both in private and hospital practice, and with gratifying results. It is void of repugnant taste, and is readily retained by the stomach. My experience with *Celerina* has been confined chiefly to its use in nervous diseases, particularly loss of nerve power, and the opium habit, in which conditions it has served me well, and I shall continue to prescribe it both in private and hospital practice.

In the treatment of atonic dyspepsia, as in that of other stomach disorders, regulation of diet is the first step to be considered. Next is the selection of food which consists of nutritious and easily-digested articles. When the powers of digestion are weakened, special aids to this function are plainly indicated, and for this, *Maltopepsine* (Tilden's) in combination with strychnia and the bitters, is the most potent of remedial agents.

One of the great table waters of this country is the *Arctusa Spring Water* of Seymour, Conn. Send for circulars.

We call attention to *Bovinine*, a new and well-known form of condensed food which has attained great prominence as a

stimulant. Its use as a restorative is very general in many hospitals, and will undoubtedly come into very general use.

We have never ceased to call attention to *Horsford's Acid Phosphate*. It has proved to be almost a specific in many cases of inebriety.

The celebrated firm, C. F. Boehringer & Soehne of Germany have introduced a new analgesic and sedative remedy called *Lactophenin*, which promises to be very practical and useful as a harmless hypnotic. This firm, through their New York house, are presenting many new remedies, and fine preparations of old ones, that attract much attention. One of these drugs is Ferratin, which feeds the blood, another, Papain, a vegetable digestive.

Wheeler's Tissue Phosphates is a nerve food, as well as nutritive tonic of superior value. It has been before the profession for twenty years, and its value is fully recognized wherever it is used.

The Worcester Fire Pail Co is an excellent extinguisher having the merit of simplicity, effectiveness, always ready for use, and always practical and to be depended upon.

Listerene is the standard antiseptic, of uniform, and of accurately determined qualities. It is becoming more and more widely used every year, and is numbered among the household remedies essential for common emergencies.

Dr. Macloud of Glasgow, in discussing the use of sedatives in insanity, said: "The most efficient hypnotic I have found in these and allied cases is a combination known as Bromida. We have found this formula to meet more conditions than any other. Its value is beyond all question.

Arsenauro has proved to be of exceptional value in several cases of inebriety, in which general anaemia existed, with a history of syphilis. After the removal of alcohol, this drug was exclusively used. In two instances a profound disgust for all spirits appeared. In one case an old eczema of long

duration disappeared, and in three cases headaches and symptoms of great weakness passed off. In all, a profound change of nutrition and improvement of all the organic processes followed. In three cases the origin of the drink craze was in all probability the reflex irritation from the poison of syphilis, and Arsenauero acted like a specific. The acute symptoms disappeared very quickly after the drug was used. In one case malaria appeared to be an early exciting cause, and this drug acted equally as prompt.

It would seem from this experience that Arsenauero is a powerful tonic, and anti-syphilitic remedy, acting directly on the trophic nerves, and general nutrition. Also neutralizing and antagonizing the poison of syphilis and the degenerations which follow from it. This would be a confirmation of the common experience of all practitioners who use arsenic.

Inebriety is always a profound constitutional disorder, that can only be successfully treated by great alternatives like arsenic, mercury, and allied remedies. There can be no question that Arsenauero is a most valuable drug in inebriety, and may be used in all cases with great confidence. We shall be pleased to report a larger experience with it in the future. The Charles Roome Parmlee Co., who prepare Arsenauero, also have Mercauro, a similar preparation of mercury, arsenic, and bromide.

Maltine and Coca Wine has proved of great value in many cases, where profound exhaustion and anaemia are present, and great dread of removing spirits. This has proved an excellent medicinal substitute.

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