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## Part I.—Original Articles.

### *The Morison Lectures.—On Insanity, with Special Reference to Heredity and Prognosis.*[1]

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#### LECTURE I.—PROLEGOMENA.

*"There are some authors whose only design and end it is to give an account of things that have happened; mine, if I could arrive unto it, should be to deliver what may come to pass."—Montaigne, Bk. I, Chap. xx.*

IN the daily routine of medical work we are called upon to deliver what may come to pass. The constant weighing and measuring of our observations and experience lead us naturally to an estimation of probabilities. Recovery or death—success or failure in the appointed strife with disease—that is the momentous question to which the physician must endeavour to find an answer. Things have happened; what is to come to pass? Much of skill in prognosis is personal, empirical, and incommunicable; but, as our science advances, with the contributory aid of all the sciences that are subordinate to the master art of healing, so, in just proportion, our premonitions will be determined.

In no kind of disease is prognosis more doubtful than insanity. For long overshadowed by ignorance and superstition, for long regarded as a mysterious calamity, for long



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obscured by confusing issues, it is only of late years that the fundamental truths have been disengaged from the fantastic phenomena which formerly dominated the attention of the observer. The tedious melancholy, the violent excitement, the bizarre ideas, and the dangerous conduct of the insane wholly occupied attention, and precluded the study of obscure and elusive bodily conditions. The mere recital of aberrant talk and morbid conduct long detained us with mere irrelevancies. Metaphysical discussions of mental aberrations issued in a reiterated confirmation of Bacon's dictum—*what was a question once, is a question still.* Pathological researches were not unknown. There is no indication of the reasons which led James Murray to devote his fortune to the humane purposes of the Perth Royal Asylum ; but it is possible that his uncle's work may have influenced him at a time when Scotland had awakened to a recognition of the public duty towards the insane—a time when public and private beneficence flowed strongly in that direction. His uncle, Dr. Marshall, practised medicine and lectured on anatomy and surgery in London. His posthumous book was published in 1815 under the title, *Morbid Anatomy of the Brain in Mania and Hydrophobia.*

Since then work in this sphere has been incessant and arduous, until, at last, there are indications that more is to be gained by research applied to the living body rather than by perseverance in morbid anatomy. Not that this is a new departure, for the oldest English writer on insanity—Dr. Timothy Bright—in his *Treatise of Melancholie* (London, 1586), discourses at great length on the somatic conditions, and especially on gastro-intestinal disorders, because "melancholic appetite is not proportional to their digestion."

It is unnecessary to discuss the history of medical literature dealing with insanity until the memorable publication of Schroeder van der Kolk's lectures on mental diseases, which took shape about the middle of last century. He arrived at the conclusion that much insanity is due to morbid conditions of the great intestine. In accordance with the medical ideas of his time he described this class of cases *sympathetic insanity.* While he clearly recognised the brain as the organ of mind, he believed that it is liable to disturbance in direct consequence of somatic conditions influencing it in a secondary manner.

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This conclusion was widely supported, and here, in Edinburgh, the influence of the body on the mind was definitely fixed and crystallised by Skae's classification of mental diseases. Dr. Skae had the advantage of an able and clear-sighted colleague in the late Dr. Howden, so long physician to the Montrose Royal Asylum, and the earlier work of Schroeder van der Kolk was thus developed along lines which are still sufficiently familiar.

But the trammels of metaphysics were not to be readily shaken off. Even Dr. Maudsley's epoch-making books, tending to freedom of thought as they did, left the position doubtful. Professor Laycock devoted his arithmetical powers to an enumeration of the brain cells, in order to arrive at the possibility of a sufficient number of cells capable of each containing one idea. Futile questions are still demanded as to the intimate nature of the thought.

The traditions of men die hard. Every now and then a case of witchcraft is reported in the newspapers, yet it is 350 years since Reginald Scot wrote his famous book on the *Discoverie of Witchcraft*. I had occasion, some time ago, to show how ancient beliefs survive in modern minds, and remain apparently indelible. Quite lately an obscure book reached me, and I make no apology for quoting part of the title-page: "Hidden things brought to light in reference both to the upper, middle, and lower worlds, or the true millenium only to be enjoyed in the new or renovated earth; also new discoveries in antiquities, with illustrations of those formerly discovered; together with a truly interesting narrative of a man under demoniacal possession, with the discovery of a remedy for the night mare." Notwithstanding the old-world suggestion of this lengthy description of contents, the book was published at Edinburgh, in 1843, by the Rev. Andrew Small, LL.D., of Abernethy, who set to work because "these demoniacal possessions are come to an alarming height, and are obviously the cause of filling the lunatic asylums." Needless to say, Satan had a very poor chance with the LL.D., as is his fate in these tales of demoniacal possession, and the cure was to be found in securely plugging up all the holes in the walls of the chamber of the afflicted person in order to prevent the demons from gaining access.

It is almost impossible to gain any useful information from old asylum records. In the earliest series the recorders note

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the reception of a lunatic, and briefly indicate that he was furious or fatuous, sometimes adding an account of heroic doses of medicaments, blistering, and bleeding, and sometimes an indication of removal by death or otherwise. The man was mad, and there's an end on't. At a later period the cases are described as psychological curiosities—how they arrived on foot or in a carriage, how they displayed their morbid ideas, how they wrote, and how they behaved. But, withal, the most chary record of physical disorders, the most elusive statements as to family or personal history. In brief, it was the study of mind apart from body—the psychological content. Having arrived at the conclusion that there is no pathology of insanity, comment on somatic conditions was, of course, superfluous.

It is to be regretted that these methods persisted so long, indeed preventing other than the baldest facts available for a survey of the insanity of the period; yet it would be discourteous and ungrateful to ignore the work that was done, just as we cannot but acknowledge the excellent intentions and practical beneficence which inaugurated and maintained the Royal Asylums of Scotland throughout the earlier years of the nineteenth century.

For example, the blood of the insane is the *dernier cri* of the modern investigator. My predecessor, Dr. Lauder Lindsay, so long ago as 1854 published a series of observations on the histology of the blood of the insane, which he had made in the Crichton Royal Institution, then under the direction of Dr. W. A. F. Browne. He did not claim that his researches elucidated the morbid conditions of mind, or its organ, the brain, but rather illustrated the laws of pathology, the natural relations of healthy and morbid states of mind and body, and, more particularly, the reaction of physical diseases on mental phenomena. The observations were made on 36 officials and 236 patients, the physical diseases under which they laboured having been duly noted. The microscope used varied in magnification from 180 to 380 diameters, and, of course, there was then no means of accurately estimating the relative proportion of corpuscles, although it was apparent to the observer that the white corpuscles were present in excess in a comparatively large proportion of cases. The *résumé* was presented under fourteen headings, the fourth being to the effect that a leucocythæmic condition frequently exists. As examples

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of this, cases of general paralysis, acute mania, and melancholia were cited. Unfortunately, Dr. Lindsay concluded that there was no connection between the state of the blood and the mental condition, but that it bore a relation to the physical disorder, debilitated conditions of the system, and general vitiation of the blood. In fact, the time had not come to determine the exact and significant facts which have but recently emerged from the chaotic state of opinion characteristic of pioneer work.

Thirty years elapsed before another systematic investigation of the blood of the insane was undertaken, when Dr. S. R. Macphail in 1884 won the medal of the Medico-Psychological Association. By that time the hæmocytometer and the hæmoglobinometer had been invented, and with these instruments of precision further advance was recorded. In general paralysis Dr. Macphail found an increase in the relative proportion of white to red corpuscles, coincident with the progress of the disease; he failed to find any great difference in the proportion of white to red corpuscles in maniacal attacks, while in a series of recent admissions the proportion was increased. Most important is his conclusion that there is a close connection between gain in weight, improvement in the quality of the blood, and mental recovery.

Another prize essay on the same subject was the work of Dr. Johnson Smyth in 1890. He inferred that the relative proportions of white to red corpuscles were so variable as to be of little importance. In many instances, however, he recorded an excess of leucocytes, and stated that the blood of the insane is in a pathological condition.

These brief references to work, which was, of course, laden with many other details, show the tendency of the times. From crude and elementary observations the advance has been remarkable. Quite recently the position has been still further developed by the researches and conclusions of yesterday. We can understand that Dr. Lauder Lindsay's investigations, aided by a high-power microscope, modern staining reagents, and precise methods of estimation, conducted in the light of the knowledge which is daily increasing in important directions, would now be stated with a fuller confidence and illumined by a brighter light.

Within the last few months Dr. L. C. Bruce has published

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his records of clinical investigations. Much of his book is concerned with observations on the blood of the insane, and specially on the leucocytoses, which he has shown to be of definite importance in diagnosis and prognosis. What was dimly discerned by Dr. Lauder Lindsay half a century ago is made clear by Dr. Bruce to-day, and especially the important conclusion that the morbid state of the blood is a dominating factor in the evolution of mental diseases. Sufficient has been said to indicate the growth of medical opinion relevant to insanity as an affair of medicine.

Similar references might be made to other somatic conditions, the true nature of which are only now intelligible and explicable. I have referred to Schroeder van der Kolk as one of the first to appreciate the toxic nature of insanity. He said : " It is evident that the brain, as the organ through which the higher intellectual powers are immediately manifested, must especially suffer in insanity. We should, however, be much in error in seeking the proper source and cause of the disease always in the brain, for the influence which many organs exercise upon the brain is evident enough." He thereafter, unhappily, reduced all forms of insanity to two principal groups, one designated *Idiopathic*—a stupid word which sticks like a burr—and the other *Sympathetic.* By the latter he means that the cause of insanity occurs primarily, not in the brain, but in other parts of the body—specially in the abdomen and the sexual system. Van der Kolk had studied the clinical symptoms of insanity for years, and eventually concluded that the prodromal indication is a " venous " congestion of the brain owing to a pathological change in the blood, and an obstinate constipation which leaves its traces on the colon, and especially and commonly on the descending part, where he found constrictions, ulcerations, and false membranes. He also noted the intimate nervous connections of the generative organs and the colon. Passing to the thorax, he observed that those members of insane families who remained sane usually died from phthisis. Van der Kolk, of course, recognised that the diseases named are incompetent of themselves to cause insanity, but that in such cases there must be, in addition, a peculiar disposition, and a particular excitability of the cerebral system.

The Hippocratic doctrine that insanity is caused by disease had been obliterated by the superstitions of the Middle Ages.

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Reil concluded that common sensation is the germinating soil of insanity, and disentangled it from Locke's narrow theory that insanity was nothing but a change in the working of the intellect. Jacobi, by an extensive research, established the somatic conditions of mental disease, and finally overthrew Heinroth's doctrine of the common origin of insanity and sin, which, indeed, is not yet unknown in these latitudes. Griesinger and his school, however, in concentrating attention on the brain led to some neglect of the position attained by Van der Kolk, but again the tide turned towards an enlargement of that narrower doctrine. The brain, as the organ of mind, infinitely complex in its own proper connections, is at present the subject of study in its relations with all pathological somatic conditions. Thus, the sympathetic insanity of Van der Kolk is regarded as a toxic affection, not always and inevitably caused by the direct continuity of nervous elements, but rather by a poisoned blood supply; and the newer view is the wider. The contributory causes of insanity are to be sought in heredity, in defect and decay of organisation, in the disordered working of the somatic mechanism, and specially in the toxic elements which may be formed by that disordered mechanism or introduced from without.

The trend of opinion in view of later experience is consonant with this toxic element in insanity, which again brings the manifestations of cerebral disorder into line with other pathological somatic conditions, and leaves the mystery of madness on a par with the mystery of rheumatism.

For the position is, that we have to deal with a constitutional disease, profoundly affecting metabolism, mainly originating in hereditary defect, and issuing in a liability to repeated attacks of insanity, of a cyclical nature, quite different from those maladies which, like smallpox, appear to confer a future immunity.

Dr. Ford Robertson, from this place last year, announced, as a result of his researches on general paralysis, that the etiology of general paralysis and tabes is to be sought in the weakening of general and local defences, and that these diseases are dependent upon an active bacterial toxæmia. I need not repeat his argument for my purpose, which is to summarise broadly the present position in respect of all forms of insanity. It is sufficient to say that the work recorded illumines the

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ancient Hippocratic doctrine and translates vague guesses into a defensible system of opinion.

When Lister was as yet revolutionising the practice of surgery and driving out the demon of sepsis from his wards, I had arrived at the conclusion that medical practice must adopt similar methods, and that asylum wards must be cleansed in accordance with the new ideal. It occurred to me that antiseptic treatment might alter the condition of the insane, and I made a long series of therapeutical observations on the internal use of carbolic acid, hyposulphite of soda, etc., which were too crude and ineffective to deserve recording. Newer drugs, such as β-napthol and eucalyptus, proved more useful, and are still valuable in certain conditions of the alimentary tract; but bacteriology has so reformed our ideas, and so explained our difficulties, that we now gain a higher level of understanding, and have good reason to hope for a higher level of treatment.

From the medical point of view mind is not a separate entity, nor can we think of mental disorders as entities. The mind, normal or abnormal, is but one, or rather one series of vital manifestations, part and parcel of the individual. The brain is the organ of mind, but it is entirely dependent upon somatic agencies for nutrition, repair, rest, regeneration, and removal of noxious products—in short, for the normal manifestations of mind. These are elementary propositions, which are constantly overshadowed by prepossessions which hinder us, as the smoke of the conflagration obscures the origin of the fire. Sir John Bucknill's aphorism that a lunatic is lunatic to his finger-tips gains an added force related to these considerations. The psychic disorder is generalised, the somatic disorder is generalised; both are constitutional. Very rarely is insanity a focal disease. Rather is it a generalised mental reduction dependent upon generalised bodily conditions. It is always a mental reduction, characterised by a loss of the finer feelings, an inability to adapt, a loss of restraint on motor manifestations; and the depth and continuance of this reduction, the severity and pathological importance of the organic concomitants, are the measure of prognosis.

All insanity is defect—at least, a degradation of function, if not a degradation of structure. Politely, we speak of mental affections, just as acute mania is softened to hysteria, and idiocy

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to feeble-mindedness, but it is by the recognition of *defect* in the earliest stages of insanity that we may hope to recover lost ground.

If the defect of original constitution—the inherent instability of the neuropathic organism—is manifested in a perverted metabolism or a failure in the somatic defences against malignant bacteria, the aspect, the way of looking at insanity, is totally changed. Insanity is a unity, not a fortuitous collection of kaleidoscopic symptoms each requiring a proper name—M or N, as the case may be. I claim some honour in having so far spent my professional life without a single Greek synonym to my discredit. No doubt it will always be convenient to speak of mania and melancholia, and so on, as convenient descriptions of common symptoms, but we may now hope to pass from these appearances to a more intimate understanding of the underlying facts.

I shall not impose upon the College a new definition of insanity, or a new classification. Definitions grow on every hedge and sprout like mushrooms—for a day. For instance, Cullen's definition—"a lesion of the intellectual faculties without pyrexia and without coma"—will no longer stand the test of the clinical thermometer. If we provisionally adopt Dr. Hack Tuke's definition—"a disease of the brain affecting the integrity of the mind, whether marked by intellectual or emotional disorder"—the content will be a vast variety of forms, the mere recital of the names of which would be intolerable. There is a strong temptation to confer a special designation on every symptom-complex, which can be agglutinated. Knowing so little of the pathological conditions, the symptoms of insanity have been erected into an undue importance, and classifications innumerable have been proposed, not one of which can be regarded as other than merely provisional. A distinguished architect evolved a leading principle in his work, which he repeatedly impressed upon me—*simplify your plans*, and I may be excused if I proceed no further than Griesinger in this matter of classification—broadly founding upon prominent symptoms, for it is still convenient to speak of states of depression, states of excitement, and states of enfeeblement—melancholia, mania, and dementia. Of course there is the familiar objection that melancholia and mania may alternate in the same patient, *e. g.*:

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OBSERVATION 2286.—Female, æt. 19. Heredity of neuroses and alcoholism. Manifested delusions of persecution and unworthiness, with hallucinations of sight and hearing, after a prolonged period of depression, ushered in by gastro-intestinal disturbance, sleeplessness, and general malaise. On admission states of depression and excitement alternated in rapid succession, so rapidly, indeed, that they appeared to be almost simultaneous. This confusional condition merged into a dreamy state, not amounting to stupor, which again issued in convalescence and recovery in four months.

This is an example of the evolution of adolescent insanity from the hereditary burden of neuroses and alcoholism under severe physical strain. I find it recorded under the heading of excited melancholia, denoting the symptoms predominating, although, as I have indicated, there were rapid alternations from despair to hilarity. Cases illustrative of the predominance of mania over melancholia could, of course, be as readily adduced.

Therefore, in this broad view of insanity, these main features find place; but it is also permissible to use the term circular insanity and delusional insanity, as denoting a pronounced mixed, alternating form, and a systematised, delusional condition, neither of which is distinctly mania, melancholia or dementia. In fact, this simple classification is founded upon symptoms in terms of time.

It is evident, however, that as our knowledge progresses we are enabled to screen off from the total numbers of insane persons certain persons affected by definite pathological forms. *I shall therefore further divide the cases under review into cases of ordinary insanity of obscure causation, and cases of definite pathological causation.*

Just here I stand at the parting of the ways—the beaten track has led us surely, if circuitously, to this position, where we discern the pioneers at work clearing the jungle of doubts and difficulties. It has long been evident that general paralysis of the insane constitutes a distinct pathological disease. The march of the symptoms, the pathological conclusions, are determined and evident. It is a gross organic disease of the brain. The evidence for a similar conclusion regarding epilepsy has also accumulated. And, of course, the senile degenerations of cerebral tissues are admitted. The crude toxic action of alcoholism on the intimate structures of the brain is so far determined as to permit of this also being regarded as truly pathological. I shall also add traumata,

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whether isolation or violence, for Van Gieson has shown that the effects of these injuries are microscopically identical. There remain cases of idiocy—brains arrested in development or pathologically and irretrievably damaged.

Therefore, on the one hand, while I regard the pathological forms as of little moment in respect of prognosis under present conditions, as fixed, irrecoverable, and already doomed, on the other hand I regard ordinary insanity as uncertain, curable and now even hopeful. It may be that general paralysis is to be lifted out of the category of reproach, that it will be fought and conquered, as has been suggested by Dr. Ford Robertson; but the difficulties are, to my mind, almost insuperable, and I do not contemplate a general vaccination to obviate the rare event. At any rate these observations are directed to the results of experience rather than the possibilities of the future. And yet it is to the future we must look for relaxation of the bonds now imposed upon us.

I propose nothing new in thus considering cases of insanity. Indeed, it is only a year ago that Dr. Graham Crookshank revived the memory of Dr. W. H. O. Sankey's brilliant generalisation—"that insanity is but the process, and that the so-called varieties are merely differentiated by non-essential phenomena; that all insanities begin with melancholia, and tend to pass through a succession of stages in the order—melancholia, mania, and dementia, a succession liable at any time to interruption by recovery." It is forty years since Sankey first published these shrewd conclusions, and emphasised the importance of the initial stage of melancholia or depression, so commonly observed, and yet so little regarded. No doubt, in his plea for simplification Sankey was carried a little too far, for it is not in every case in accordance with clinical experience. The facts of the initial stage of insanity are very obscure; they are overlooked, they are forgotten, they are minimised. Yet it is by these facts that the true somatic nature of these maladies are determined, and in the instant appreciation of them that we are to find a new and more excellent treatment.

I have said that I stand at the parting of the ways towards which Sankey's generalisation led, and at which the track becomes clearer. Dr. L. C. Bruce has lately shown, by the published account of his clinical studies, that, disregarding the

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mental concomitants, there is evidence of the toxic nature of insanity. This evidence is of such a nature as to be appreciable by the methods of the clinic and the laboratory, to be checked or corroborated by other observers. It is not a theory of disease, but the direct outcome of a long, laborious, and skilful investigation into the facts of disease, honest and unprejudiced. I cannot refrain from congratulating a Fellow of the College, and my near neighbour, upon the distinguished position he has won. His work opens up new vistas, and affords new hopes. He has finally brought insanity into the category of other somatic diseases, and established a parallel condition, long surmised and discovered with difficulty, long obscured, and at length distinguished by none other than the method of Zadig.

Briefly, it would appear that the time has already come when the conclusions formulated by Dr. Ford Robertson last year in reference to general paralysis—the failure of the organism to protect itself against bacterial invasion—may be extended to forms of ordinary insanity, which hitherto have evaded the skill of the pathologist. Whether it is consequent on a metabolic toxæmia, or on a bacterial invasion, insanity must now be regarded as a condition of disease which demands no special pathology, and therefore no exceptional treatment.

To resume, it is necessary to revise the opinions of yesterday, to recognise that a neuropathic heredity is operative in the weakening of the somatic functions and defences at an earlier or later period of the individual existence; that the physical conditions are the important considerations which now, more than ever, render insanity an affair of medicine, and finally justify the founder of the Morison lectures in the encouragement which he gave to these studies.

## *Statistics.*

The statistics of insanity present grave difficulties, and pitfalls innumerable. They are the most elusive of vital statistics. Asylum statistics are notoriously untrustworthy, and impossible in collation. There is no personal acquiescence in underlying principles, and recent proposals in this direction tend to make confusion worse confounded. There is, for instance, apparently no possibility of general agreement as to the use of the word

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"recovery," by which I mean to indicate those in whom there is re-establishment of mental soundness, permitting of return to ordinary life without need of the care and the supervision of others. Recovery may be used to designate a partial improvement in mental condition, a lucid interval more or less temporary, or a discharge from asylum care and control to the custodial care of home life. A final, permanent recovery, we shall see, is a comparatively rare event—just as rare as a true recovery from gout. The recoveries generally claimed in asylum statistics are referable to *cases*, not to *persons*. Even when referable to persons they are only declared, and that rarely, as recoveries so far as official statistics can show. No doubt the same remarks may be made regarding the medical results of general hospitals dealing with other constitutional diseases of obscure causation. The persons are received and treated, are discharged cured, and return relapsed. The vital history can only be completed on death.

Again, the stock question put to an asylum physician is: *Do you believe that insanity is increasing?* It is, of course, a question of urgent national importance, and, therefore, has to serve the purposes of the journalist and the pamphleteer, who gain a more or less honourable livelihood by their writings around the social conundrums of the day. It probably pays best to use a large brush, and to begin with the word *alarming*. It is also an opportunity for the Member of Parliament with a question to ask. The Commissioners in Lunacy of the three Kingdoms have done their best to inform and reassure, but the staid and guarded results of their investigations are not effective in ending the discussion. Besides, it is easier to ask a crisp question than to study voluminous blue books. Imagine the popular outcry if the unrecovered persons discharged from general hospitals had to be kept for life in those institutions, and the resulting dread of national *degeneration!*

I cannot regard it as possible to answer the question until to each insane person recorded in the registers of the Commissioners has been assigned one number, and no more, and until the asylums of the country use these individual numbers in any statistical returns they may make for collective investigation. The crime of the country—the criminal offences committed—is a question apart from the number of persons committing these crimes. A system of law which has regard

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to the crimes rather than the criminals is defective and uninformed; and a system of medicine which is occupied with diseases rather than diseased persons stands condemned by its own ineptitude.

No doubt the physician may take credit for cure, the return of his patient to the ordinary activities of life—always under the full understanding *je le pansay, Dieu le guerist*—but if we are to see life sanely, and see it whole, we can call no man happy until he is dead. Even in this last event suspicion may lurk.

OBSERVATION 1773.—Female, unmarried, æt. 50. Admitted in 1879, labouring under delusional insanity of an apparently intractable type. Hereditarily strongly predisposed to mental disorder, she exhibited the usual features of climacteric insanity of persecution. She was, as the French say, a persecuted persecutor, and so remained for eight years, when she made a good recovery and returned to her usual life of social and charitable interests. Seventeen years after her recovery, at the age of seventy-five, she returned to asylum care, a typical case of senile melancholia. In the course of a year or so recovery was again recorded. But for survival to the age stated she would have been regarded as a final and satisfactory recovery. No doubt the case is somewhat exceptional—firstly in regard to the delayed recovery from a delusional condition, apparently fixed, and secondly, as a relapse into insanity of a different type at an advanced age. A recurrent case is generally more steadfast in symptoms, which, almost always, are reproduced in unvarying succession in succeeding attacks.

It is therefore very difficult to attain such a degree of exactitude as is desirable, and the methods of applied mathematics are placed at a disadvantage in dealing with these problems. Further, the number of observations at my disposal is so small that any deductions must be made with reserve. The element of error, of course, increases as numbers diminish. On the other hand, the studies on which these conclusions are based have an advantage of more intimate and revised personal knowledge than those drawn from wider sources. After dealing with patients belonging to the middle class of Scottish society, throughout a long residence in the county of Perth, it appears appropriate to give some account of that experience as a retrospect.

In 1905, in the Presidential Address to the Section of Psychological Medicine at the British Medical Association meeting in Leicester, I laid before the Section the results of studies in heredity, and then expressed the hope that I should be able to follow out the histories of these cases as successes

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or failures. This occasion seemed suitable, and I therefore returned to the cases reported upon at Leicester, and have reproduced certain tables made for that purpose. The cases submitted are those under my care during twenty-five years—from 1880 till 1904 inclusive—and include those resident in Murray's Royal Asylum at the beginning of 1880.

I have omitted voluntary patients with some reluctance. The hereditary and other causal factors are so similar, and the facts are so much in accordance with those observed in the certified class, that they might well have been treated as a whole. There is a similar tendency to relapse, and the broad results generally resemble those of the certified class, especially of late; for year by year the number of voluntary patients increases—certain persons who formerly would have been certified preferring the less formidable arrangement. The somatic complications, too, are practically the same. When I gave evidence before a Departmental Committee, and entered upon a consideration of these somatic conditions, Sir Charles Cameron, the chairman, remarked, "You must have got hold of a particularly diseased lot." That is the position I still maintain; those suffering from insanity are particularly diseased, and if all the apparatus of our hospitals for the insane is not bent to the elucidation and treatment of bodily disease they are *pro tanto* medical failures, obvious and indefensible.

On the other hand, the introduction of voluntary patients would have raised questions as to the relative or comparative value of these conclusions, since it is usual to exclude them from the annual statistics of asylums.

I therefore find, as formerly, that the numbers under consideration are 419 men and 390 women, being a total of 809 persons. For the reasons I have already indicated the readmissions are excluded. They are the same persons returned to us for one reason or another. They may have relapsed, or their reappearance may be due to other causes—such as temporary absence in other asylums for medical or social reasons. The record of readmissions is generally purely official and of slight scientific importance.

It is true that of late attempts have been made to bring transfers from one asylum to another and readmissions into scientific categories. No doubt it is important to discriminate between the various official classes for official purposes, but

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these purposes are not relative to medical science. We are concerned with the conditions on first attack, on recurrence of attack, and not with the mere accidents of placement. The number of readmissions into asylums bears but an indefinite relation to occurring insanity, and is no true indication of the tendency to relapse. Nor are the first admissions an indication of first attacks. Meanwhile it is sufficient to state that 195 persons out of 809 were relapsed cases before their first admission into the Perth Royal Asylum, and I have no doubt that careful investigation would establish similar results elsewhere.

I therefore concentrate attention on 809 persons, and not on 982 cases.

Subject to these limitations, and proceeding on the foregoing general principles, I now desire to examine certain statistical tables which have been prepared as a brief analysis of medical observations for a period of twenty-five successive years—from 1880 till 1904 inclusive.

Reference to Table I will show that recoveries were recorded in 31 *per cent.* of both persons and cases, that deaths were recorded in 17 *per cent.*, and so on. But these are not true vital statistics; they are merely official statements, good only for the instant of making them. It is necessary to regard these persons more closely, and to record the life histories in so far as possible.

Table VI, to which I shall refer in detail, has been formulated as an attempt to show final results. It is my advantage to have been able to keep in touch with many discharged patients, and I have been repeatedly and greatly obliged by my colleagues in their sending me information relative to transferred cases. The two years which have passed since 1904 have brought me further information regarding patients previously under treatment, and while it is as yet too early to close the records, it is possible to add to the facts contained in our official registers.

Any study of insanity must begin with a consideration of heredity—the earliest conditions affecting the organism. I therefore reproduce certain tables, and adjust them to additional information, for the neuropathic heredity is noted throughout the statistics prepared for these lectures. We have to determine the effects of heredity, in so far as possible,

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in elucidating questions of prognosis. Is heredity effective in one direction or another in relation to recovery, relapse, incurability, and expectation of life?

Table II shows the incidence of neuropathic heredity in 809 persons observed. It has been found useful to divide it into three periods, and I lay greater stress on the accuracy of the last period (from 1895 till 1904 inclusive)—that is, a term of ten years. Taking the table as a whole, however, the percentage of those with a hereditary history of insanity may be stated as 45, while the inclusion of the whole neuropathic heredity increases that number to 72. It is a narrow view of the heredity of insanity which does not include the occurrence of the graver neuroses, want of mental balance, eccentricity, alcoholism and paralysis. These manifestations in one generation so frequently issue in pronounced insanity in the succeeding generation that the nature of the incidence is obvious. This opinion might be supported by very many cases, and I select a few illustrations:

OBSERVATION 1805.—From neuroses to insanity. Paternal grandfather neurotic. Father insane; married a neurotic person, whose sister was also neurotic. The family of these consisted of three persons—two incurably insane women and a son who died early from alcoholism.

OBSERVATION 1635.—From eccentricity to insanity. Father eccentric. Mother eccentric. The family of these consisted of four persons—three incurably insane and one dead in infancy.

OBSERVATION 2627.—From alcoholism to insanity. Father alcoholic. Mother normal. The family of these consisted of six persons—two insane, two died young, and two reported normal.

OBSERVATION 2549.—From paralysis to insanity. Father died of paralysis. Mother died of cardiac disease. The family of these consisted of five persons. The eldest son died of paralysis, the second died in infancy, the third reported normal and alive, the fourth incurably insane owing to degenerative disease of the brain, and the fifth died young.

It has been objected that paralysis is not necessarily a disease involving mental aberration, but that must be relative to the exact situation of the morbid process, and what is exactly meant by insanity. Nothing is more common in the practice of the physician than to find a certain mental degradation in cases of cerebral paralysis, but, of course, it is a relatively small proportion who require the care and control of an asylum.



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I believe that these objections are largely due to the limitations of the official mind, to which I have already referred. At any rate, when one finds records of 191 cases of paralysis among the near relatives of 623 insane persons it is evident that the facts cannot be explained away as merely accidental.

There is an important class of insane patients who become insane consequent upon arterio-sclerosis, or other degenerative changes in the blood-vessels of the brain—cases in which the cerebral circulation, nutrition, and function are deeply affected, and issue in a group of symptoms recognisable as a whole.

We have to deal with a condition which has certain hereditary relations, owing to a defect of organisation, and comparable with arterio-sclerosis, gout, and other diseases of obscure causation. It is not the crude heredity of yesterday, but a failure in development or metabolism, or a weakening of somatic defences, apparent in early life, in the period of development, in the stress of maturity, or in the decay of old age. And the more marked the parental defect the earlier will be the failure of the new organism, exactly in conformity with the vital statistics of gout.

We are so accustomed to think of somatic stigmata and congenital idiocy as inborn defects that it is easy to misinterpret the true nature of these failures. So far as I can see, the defect is of the same intrinsic nature, whether the mental disorder be manifested in early idiocy or delayed until senility. There is no adequate reason to deny the existence of prenatal toxins, assuming that toxins are effective in the production of cerebral disturbance and later insanity. By the hereditary nature of insanity I therefore mean the inborn defect which is manifested under certain conditions in the existence of the organism. Not, crudely, that fatuous and furious persons are so conceived, but that their defect of organisation is such as renders them liable to fatuous or furious manifestations throughout the course of their existence, when subjected to certain morbid influences.

Dr. John Macpherson lately declared, before the Royal Commission on the Care and Control of the Feeble-Minded, that " feeble-mindedness is a variation which tends to propagate itself, and, further, that it is useless to attempt to extirpate it by cutting short the existing obviously defective families." Dr. Macpherson has so recently addressed the College on this

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subject that I need not recapitulate what is already well known. The point for me is, that heredity works out in two directions —for better or worse. We hear so much of the latter that the former is neglected, or but partially recognised. The nimble rectifier of social diseases is always ready with worse remedies.

I look back upon the time of my university education—how small a part of professional life—as a time when scepticism was insistent and rebellious. I learnt to write prescriptions in the grand manner for examination purposes, but with mental reservations always. *Vis medicatrix naturæ* was the still, small voice which influenced many of us, and which still, with a wider, a more scientific, and a more capable method, dominates my medical intentions. Glib talk about the extinction of families and the eradication of undesirables must be balanced by the reasoned knowledge of natural processes. On the one hand, we can discern the ruin and decay of families, in spite of the constant effort of nature at reconstruction and rehabilitation; on the other hand, by the prepotency of new blood and a more favourable environment there is a reversal of the process, a rehabilitation just as important and just as certain. Of course this cannot be demonstrated by the statistics of asylums, and the official mind—"subdued to what it works in"—is obsessed by the calamities and the degradation of human nature. I daresay that the physician in daily and intimate contact with general diseases suffers the same disadvantage, for it seems to me that there are those who have finally concluded that the world was made for doctors, and that disease is inclusive in the natural order of things, constituting the best of all possible worlds.

Let us consider this question of *regeneration* at its worst. Chart 4 shows the families of neuropathic parents as derived from asylum statistics. It illustrates, by the way, the necessity for immediate reform in our method of recording insane individuals only. It further illustrates the true incidence of heredity at the time of observation, and is so designed. Thirty-eight neuropathic fathers had 240 children: 47 *per cent.* were sane, 29 *per cent.* were insane. Forty-five neuropathic mothers had 239 children: 42 *per cent.* were sane and 39 *per cent.* were insane. I have also recorded those most heavily burdened, the double heredity shown in the families of twenty-eight neuropathic fathers and mothers—145 children, of whom 33 *per cent.* were sane and 44 *per cent.* were insane. Even in this

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disastrous class the efforts of nature towards regeneration are obvious. The race tends, as Dr. Macpherson showed, to maintain average characteristics; but, as Professor Karl Pearson has indicated more recently, there is probably an intensity of correlation between want of mental balance in parents and offspring from about 0·25 to 0·30—similar to the correlation between parents and children in regard to other and directly physical characters (stature, colour of eyes, etc.). It is just here that our statistical information generally fails, for the records of special hospitals must be replaced by the statistics of the general population taken at random, and I deeply regret that work of this importance is left to a few enthusiasts instead of being undertaken by the medical profession as a whole, in furtherance of biological and sociological knowledge. This method of research does not apply merely to insanity, but to all those constitutional disorders, to all those departures from the normal which are of the greatest national importance. Until a collective investigation of the kind is completed and analysed it is vain to attempt any final prognostic in heredity. If vital histories of families, with medical details of their normal and abnormal members, could be extracted from clinical records and reluctant memories, to the number of some thousands, the inchoate condition of our opinions in reference to heredity would be reduced to order and some degree of precision.

It has been my practice, so far as possible, to construct graphic charts of each family under observation, and these have been submitted to Mr. David Heron, whose important study of the *Relation of Fertility in Man to Social Status* gained a wide and appreciative audience last year. Mr. Heron has kindly formulated Chart V, which shows the incidence of insanity in regard to individuals—one member of each family at least having been insane. The chart, with the appended table, shows the absolute and theoretical numbers, if no bias. It would appear that the incidence bears heaviest upon the eldest members of the families in fraternity, and that there is a fairly constant diminution of frequency as the families increase in size. I am not aware that this calculation has been made previously—in fact, the methods of applied mathematics and the working out of problems of probabilities in relation to biology are as yet in an early stage of development. The important

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biometric system advocated and instituted by Professor Karl Pearson will greatly enlarge our knowledge and correct our prepossessions, if the desirable data are forthcoming. We only require a collection of accurate facts in sufficient numbers to reduce the margin of error.

## Lecture II.—Statistical.

I now submit a sheaf of tables and charts which condense the various observations to which I desire to direct attention, and pass to Table VI. It will be observed that all cases of gross pathological nature have been deducted, and that the remaining cases of obscure pathology only are tabulated.

First, all cases in which alcoholism had a part in the etiology of insanity are set aside, whether these were cases in which the toxic effects of alcohol were symptomatic of the underlying malady or truly causative. The prognosis of alcoholism is indefinite and generally unfavourable. Fundamentally these persons are deeply affected by hereditary predisposition to abnormal conditions. Table XVII is designed to show this. It will be observed that of 110 alcoholic certified and voluntary cases investigated nearly 43 *per cent.* were hereditarily predisposed to insanity, and nearly 22 *per cent.* to alcoholism. The total neuropathic heredity was 70 *per cent.*, and I have no doubt that this percentage would be increased by further exact information. There can be no doubt that the alcoholic patients received into the asylums of the country are generally and heavily burdened with a morbid heredity, and that their failure is analogous to that of the ordinary insane—a failure inherent in the organism and often made more manifest by environment. I am not discussing drunkenness apart from insanity, regarding which my opinions have been repeatedly and energetically expressed—that it is a vice to be reformed rather than a disease to be cured. The insane drunkards are a class apart; for instance:

Observation 2459.—Male, æt. 59, a highly-placed official, on the point of retiring on pension. Mother suffered from recurrent mania from adolescence. The patient was admitted with the ordinary symptoms of acute alcoholism. When these wore off a deep melancholia with strong suicidal impulses was revealed. He informed me that he had been the victim of recurrent melancholia throughout his adult life, and

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had combated that morbid condition by means of whisky of the best quality in increasing quantities as the attacks became more pronounced. In the intervals he was practically a total abstainer. In the stress of winding up his affairs preparatory to his retiring a very severe attack of melancholia had supervened, and the great amount of whisky he had consumed had induced or superadded the acute alcoholism which blurred the clinical picture. Throughout his long service his true condition had remained absolutely unknown, even to his most intimate friends. He eventually committed suicide, a common termination in alcoholism.

OBSERVATION 2667.—A professional man, æt. 49, admitted in a condition indicating advanced degeneration of the brain. He belonged to a neuropathic family, but had been successful and exemplary in all relations of life until he rather suddenly, about six months before admission, began to exhibit signs of moral and mental degeneration, which his family attributed to excessive drunkenness. *Post-mortem* a tumour of the dura mater was found pressing on the right frontal lobe, described by Dr. Ford Robertson as composed of dense fibrous tissue proliferating rapidly after slow growth for many years.

No doubt these are marked cases, but they indicate clearly that the underlying condition of insane alcoholics is deep-seated and definitely pathological. The true dipsomaniac, usually characterised by periodicity of attack, is an insane person, usually—I may say *always*—of neuropathic ancestry.

A Fellow of this College cannot speak on this subject without a brief reference to the recent death of Dr. Alexander Peddie, by which an honoured name is removed from the Roll. He was one of the first to insist upon the true pathological significance of dipsomania. His writings arrested public attention and left an indelible mark.

The next column of Table VI relates to general paralysis—a disease which is practically incurable and comparatively rapid in its course. It is generally preceded by syphilis, often by alcoholism. Dr. Ferrier has discussed this so fully and so recently that I need not enter on it here, especially as his conclusions command my assent. I would just note in passing that by observations of lymphocytosis he has been able to diagnose general paralysis before the pupillary symptoms, etc., were established. In Table VII—a statement of correlations—it will be observed that out of forty cases twenty-three were undoubtedly syphilitic, and fourteen were alcoholic. There is in our records presumptive evidence of syphilis in seven other cases. The exact truth is hard to find:

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OBSERVATION 2508.—A man, æt. 46, was admitted in the maniacal stage, with the usual grandiose delusions and motor symptoms. There was no personal evidence of syphilis, and it was strenuously denied by his wife and himself. Later his wife admitted that he had acquired post-nuptial syphilis and had been treated for it, but that he would not continue the medicines prescribed. This patient, in the stage of dementia, fractured his femur in the middle third by the muscular exertion of delivering a bowl in the course of a game. The degradation of body and mind was complete, and I see no difficulty in correlating the effects of syphilis with the manifestations of general paralysis in these cases.

Three general paralytics were, in the first instance, cases of gout of a marked type, and it seems to me that the effects of gout may be similarly correlated. I do not lay much stress on sexual excess, and have correlated exhaustion with two cases only. The prevailing mental complication in causation is *worry*. It is so general as to be almost inevitable in my experience, but I shall refer to mental stress hereafter, merely remarking here that worry does not stand in our records as a sole causal factor.

My experience leads me to believe that the hereditary factor is of importance in general paralysis. It used to be regarded as not a hereditary disease, an opinion which must be revised, if my experience is common, for in reference to these forty cases of general paralysis the heredity of insanity finds expression ten times, eccentricity four times, neuroses twelve times, and alcoholism fourteen times. Rheumatism, gout, and tuberculosis are also noted. There was a distinct neuropathic heredity in thirty-two cases.

OBSERVATION 2614.—Father died labouring under senile insanity, mother neurotic. Patient acquired syphilis and became a general paralytic. Fraternity: two deaths in infancy, one sister asthmatic, one sister neurotic.

OBSERVATION 2421. Atavistic. Paternal grandmother was insane in senility. The patient was first alcoholic, and then developed general paralysis. Presumptive evidence of syphilis.

OBSERVATION 2379.—Transformation of neuroses. Father normal, mother neurotic. The patient acquired syphilis and developed general paralysis. Fraternity: eldest insane and paralysed, second eccentric, third, fourth, and fifth normal, sixth general paralytic, seventh died sane.

OBSERVATION V 76.—Maternal grandfather and grandmother alcoholic, only daughter (the mother) neurotic. Father a general paralytic, his brother's daughter neurotic—an infantile paralytic. Patient general

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paralytic, alcoholic, and syphilitic. Fraternity: one sister neurotic, one brother alcoholic—a suicide.

I need not multiply these illustrations, but might note in passing that the onset of general paralysis in two cases occurred after severe influenza, and in one case after malarial poisoning. I lately had occasion to send a specimen of a heavy brain (60 oz.) to Dr. Ford Robertson for report. The patient was a congenital imbecile, who had died of influenza at the age of 59. There was no evidence of neuroglia overgrowth, but the changes in the cortical cells were recent and acute, apparently connected with the acute toxæmia from which the patient died.

It would seem that while general paralysis is most frequently subsequent upon syphilis, alcoholism, the wear and tear of unrestricted urban life, it may find a suitable germinating soil in various diseases of an exhausting nature. Both cases of influenza noted were, however, syphilitic. The toxæmic state of influenza may, however, have been a final factor, just as it has operated so frequently in cases of ordinary insanity.

In the earlier stages general paralysis is most difficult to diagnose, especially if co-existent with chronic alcoholism. If antitoxines are to be of real service they must be employed at a very early stage, before degenerative changes have occurred to any marked extent.

I have, however, been fortunate in having discharged recovered two cases of syphilitic insanity occurring after alcoholism and presenting paralytic symptoms.

A full account of these highly exceptional cases was published in the *Journal of Mental Science* for 1887. Both were maniacal, but neither exhibited grandiose delusions nor were the pupils characteristic. One was treated with green iodide of mercury, the other with iodide of potassium. The former died of epilepsy sixteen years after discharge, æt. 50. He was not technically insane, and lived at home with his wife and family. There was, however, some slight mental dulness after epileptic seizures. Unfortunately, I lost sight of the other on his leaving the country, but for some years after his discharge I had letters from him and his medical attendant assuring me of his well-being in every respect. Voisin has reported similar cases to the number of fourteen.

Turning to the cases of epilepsy reported, it will be seen that they are few in number, and I must add that all do not repre-

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sent the ordinary cases of epilepsy which crowd the wards of the great English county asylums. The number reported in Table VI is twenty-four—twenty men and four women. Regarding these more critically, the cases of ordinary uncomplicated epilepsy only amount to five. Eleven were cases of alcoholic epilepsy—a condition implying such a degeneration of nervous elements as practically precludes the possibility of recovery. This is not an invariable result, however. The following case is unique in my experience:

OBSERVATION 2444.—A farmer, æt. 44. Admitted in a condition of alcoholic dementia. Physical state very bad, mitral incompetence, sprawling gait. Had acute rheumatism eight years previously. Had been drinking from boyhood. Father and mother both sober. The former was aged when married. The latter died aged of paralysis. Fraternity: brother died of cardiac failure after long suffering from asthma, sister died in child-bed. The patient was the youngest, married, with no children. He had delirium tremens three years and two years previously, and had at least three epileptiform seizures shortly before admission. The mental attack began with mania, and he was brought to the asylum suffering from alcoholic amnesia and in a very precarious condition, tongue black and dry, bowels obstinately constipated. It was one of the few occasions on which I have considered whisky indispensible. In the course of two months he made a complete recovery. After a lapse of seven years I hear that he is a reformed character, quite sober, and attending to his duties at the age of fifty-one.

The remaining cases of epilepsy were directly due to organic disease of the brain or senile degeneration with the exception of three, which were traumatic.

OBSERVATION 2345.—A sailor, æt. 27, was admitted in a condition of mischievous dementia with epilepsy. Father died of cerebral apoplexy, mother alive and normal. Fraternity: eldest sister subject to juvenile epilepsy which ceased in adolescence, one brother normal, the patient, and one younger sister normal. He fell into the hold of his ship and was unconscious for some weeks, about eight years before admission. The first seizure occurred two years after the fall on exposure to extreme heat in Calcutta. He is reported to have been troublesome and of a low mental standard from boyhood. He died in the *status epilepticus* at the age of twenty-nine. *Post-mortem* there was no evidence of injury to the skull. Dr. Ford Robertson found a slight degree of thickening and opacity of the pia arachnoid over the convexity of the hemispheres. The spinal dura mater was much thickened, especially in the upper cervical region. On the mesial aspect of the right frontal lobe there was a slightly depressed area over which the membrane was thickened and puckered. A large area of softening was found in that lobe, indicated by the depression above noted. Posteriorly it faded away in the lenticular nucleus. It seemed to have been the result of traumatic hæmorrhage.

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OBSERVATION V 73.—An Indian official, æt. 34, admitted in a weak and facile mental condition. Family history unimportant, except for angina pectoris in paternal grandfather. Ten years before admission he fell from his horse and was unconscious for ten hours. He thereafter slowly changed from a capable, hard-working man to a person of listless habit. Nine years after the injury he had a fit which incapacitated him from duty; subsequently several severe fits and daily *petit mal*—a momentary clouding of consciousness. The aura was marked, a feeling of the epigastrium rising to the fauces and choking him, this accompanied by an unpleasant taste, and a further feeling of his head being involved. He became very childish with marked amnesia. Right forearm pronated and trembling—a condition which at first could be inhibited by attention and control. The right side was markedly affected in convulsions. The right leg became affected. Mr. Cotterill operated and found a patch of opalescent membrane over the left motor area and evidence of high tension within the membranes. There was a distinct improvement in the motor and mental symptoms for a time after the operation, but in the course of some months he declined and fell into a state of general mental degradation, and died in an epileptic seizure at the age of thirty-eight. Dr. Ford Robertson reported on the cerebral membranes at the time of operation, having found them to consist of many bundles of dense, fibrous tissue containing a small number of capillary vessels, the result of a chronic inflammatory process. *Post-mortem* the membranes were still more affected, and an infiltrating glioma of the left cerebral hemisphere was discovered. Dr. Ford Robertson was of opinion that the growth had begun in the island of Reil, the whole of which was affected, as also were the frontal and temporo-sphenoidal lobes, the basal ganglia, the whole of the cornu ammonis, the white matter of the centre of the parietal lobe as high as the corpus callosum, the cortical surface of the anterior third of the temporo-sphenoidal lobe and the tissues in the interpeduncular space. The usual pathological conditions of the nerve cells were noted.

These cases of epilepsy, then, whether obscure in origin, or alcoholic or traumatic, are definitely of evil omen as regards prognosis. If the exhibition of bromides do not arrest the march of the morbid symptoms there is little hope that hospital treatment can do more than care for a disease which is progressive and fatal.

It is interesting to note, however, that senile epilepsy in the insane has been resolved into two factors of the same nature as true epilepsy by Dr. John Turner, *viz.*, an unstable condition of nerve cells, and a condition of stasis or cerebral anæmia resulting from arterial disease—endarteritis obliterans. The thesis of his important paper just published is that the blood of epileptics is abnormal and characterised by a special tendency to intra-vascular clotting.

The group of coarse organic diseases of the brain need not

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detain us. The recovery of a patient so seriously damaged is a very rare occurrence. I can find but one instance on our records.

OBSERVATION 1901.—A man, æt. 65, was admitted with evident symptoms of organic disease of the brain. Father died of cardiac disease. Ten years previously he was irritable and depressed for a time. Four years previously he had a fit followed by mania with aphasia. For a considerable time before admission he was exalted and excited in conduct, alternately with periods of depression and taciturnity. Tremors of the tongue, thick, indistinct speech; left-sided ptosis were marked. After a moderately severe attack of mania he made a good recovery in three months. He returned to his home and went about his affairs as usual. No doubt there was some deterioration mentally, but he was quite able to conduct himself rationally, until he was carried off by an apoplectic seizure and paralysis of short duration some months later. This case is also remarkable as a recovery after a period of Cheyne-Stokes' respiration.

It will be observed that twenty-six cases of traumatic origin are reported, as usual, mostly in men. I have included cases of insolation, where there was a probability of that cause having been effective. It is well known that no insane patient who has visited the tropics can be admitted to an asylum without a history of sunstroke. It is a facile explanation. Unfortunately my experience is that these traumatic cases are of the most serious import. Dr. Van Gieson investigated many of them in New York, where it is common to find a person stunned and senseless from a blow given by a piece of lead wrapped in flannel, which leaves no external mark whatever. He found it impossible, *post mortem*, to distinguish between a brain so injured and a case of insolation. The pathological changes were invariably those of early and widespread degeneration of the cortical cells.

I have also deducted the class of idiots and imbeciles, as persons who by early defect are absolutely incurable, and of no special interest in this relation.

Table VI therefore properly begins with a consideration of 554 persons suffering from ordinary insanity, as distinguished from 255 persons of obvious pathological significance. Further, it will be observed that the incidence of these pathological cases bears heaviest on the male sex, and illustrates the lower recovery-rate and the higher death-rate for that sex. The particular incidence of alcoholism, general paralysis, epilepsy, organic brain disease, traumata, and even idiocy recorded here is by far more excessive in affecting men than women. I need not

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discuss the underlying reasons for this excess; it is a well-established fact, and, of course, broadly renders prognosis graver for men than for women.

The numbers for ordinary insanity, therefore, stand at 235 and 319 out of the totals of 419 and 390 for males and females respectively.

The second part of Table VI deals with these cases of ordinary insanity from the point of view of *stress*. I have been accustomed to classify all cases as *innate* or *acquired*, and also as affected by mental or physical stress. Naturally a case must be either innate or acquired, but if there be no evidence obtainable as to neuropathic heredity the entry is made under "acquired." This leaves a large margin of probable error, familiar to all concerned. The total neuropathic heredity, as I have said, reaches 72 *per cent.* of the persons received, and no doubt more accurate information would enlarge that percentage materially, and, of course, at the same time diminish the numbers under "acquired."

Previous observers have recorded the heredity of insanity only. Dr. Hack Tuke calculated the percentage as 20·5 out of 136,478 admissions into English asylums; but that must be regarded as much too low, for we know that those returns are absolutely untrustworthy. Dr. H. Grainger Stewart reported 49 *per cent.* out of 901 cases at Dumfries; but he included eccentricity, and, so far as I can learn, was the first to recognise this particular form of want of mental balance as definitely important. Dr. Savage recorded 34 *per cent.* in Bethlem Hospital out of 1072 persons. Dr. W. F. Farquharson recorded 30 *per cent.* out of 3907 admissions to the Cumberland and Westmoreland Asylum. The percentage of insanity alone in my experience is 45, but it must be noted that in the latest period of observation it rose to 48 *per cent.*

With regard to mental and physical stress, these are noted when apparently of definite importance in etiology. Now severe mental strain, sudden or prolonged, is inevitably put forward as the cause of insanity in the history of every case in which it can be alleged. It is analogous to the similar assertion as to sunstroke in the case of a patient with a tropical history. Is it really effective in the production of mental disorder? I think not.

OBSERVATION 2523.—A drunken ne'er-do-well deserted his wife and

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two daughters and disappeared in early life. The daughters moved from old associations and set up a small millinery business by which they supported their mother and themselves. In old age the business still continued, although not quite so remunerative. The elder sister, æt. 65, began to worry about their future; she could see nothing but disaster and poverty before them. No doubt there was a substratum of fact in this, but it is to be noted that the younger sister did not take that gloomy view; she did not refuse food and prefer death. Indeed, she still carries on the business, and is a well-nourished and cheerful person, in spite of having been the victim of a street accident and greatly shaken. On examination of the patient, however, the usual somatic conditions were revealed. A long course of ill-considered dietary and overwork had resulted in a chronic gastritis, with a dry, cracked tongue and habitual constipation. The pulse was feeble and rapid, with a slight roughening of the aortic sound and atheromatous arteries. She was also reported to have had several slight epileptiform seizures. It is also to be noted that she sustained an abrasion of the ankle, which she neglected, and had at length to remain in bed until it healed. *There was no morbid mental symptom until she had been in bed for some time.* The history of the case was towards progressive bodily and mental degradation, until death at the age of 68. *Post mortem* the brain showed the usual degenerative changes, the left ventricle of the heart was greatly hypertrophied, the arteries were atheromatous, and the stomach and intestines showed patches of chronic inflammatory changes.

The mental stress to which these sisters were exposed was not more severe on the one than on the other. The facile explanation of her malady was ineffective and misleading.

Or, turning to mental stress of a sudden and unforeseen nature:

Observation 2148.—Female, æt. 41, admitted in a state of recent mania, said to have been caused by her brother-in-law coming home drunk and jumping with a child from a window. Investigation showed that she had previously suffered from acute rheumatism, and had been delirious in the course of the attack. She thereafter suffered from gastric troubles, irregular appetite and constipation. She was sleepless and the catamenia were deranged. She went to visit her sister in the hope of a change proving beneficial, when the drunken act of her brother-in-law apparently determined the further course of her malady, from which she made an excellent recovery. Her heart was undamaged by the rheumatic trouble, and under ordinary care and treatment she soon made progress.

In the light of these experiences I have therefore critically examined the cases in which mental stress was alleged, and find that the almost inevitable complement to mental stress is innate or congenital defect. If a person is entered under "mental stress" he is almost inevitably entered under "innate." Sixty-

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four instances of this combination are recorded. On the other hand, the combination of acquired insanity with mental stress alone is extremely rare. Three cases are recorded, and they are so recorded before my appointment to Murray's Asylum. They may be briefly mentioned: one a case of adolescent dementia who developed epilepsy in maturity, and died in the status epilepticus; one a case of adolescent melancholia who remains resident in a condition of senile dementia; and one, a case of ordinary melancholia at the age of thirty, who has long been lost sight of. They rather tend to support my conclusion.

The study of insane persons, in my opinion, must be mainly referable to the conditions of physical organisation, and the conditions of physical pathological processes.

But it will be objected that great sorrow, great affliction, great mental trouble must necessarily affect the somatic processes, and must be of weight in determining the pathological event. It is a common observation that worry has a place, and a very important place, in the genesis of general paralysis. To that I can only reply that it is not within my experience that a person of good ancestry, sound in mind and limb, is overwhelmed to the extent of the mental reduction recognised as insanity. There may be cases where mental stress alone has so affected the somatic condition of nutrition and repair in a previously normal individual that the defences are broken down or destroyed, and that insanity arises in a secondary manner. I have not been able to discern such a case among the 809 persons regarding whom these studies have been made, nor can I find a case in the records of my consulting practice, in which, of course, one sees many patients who never require the care and control of a special hospital. I cannot therefore corroborate the statement that prolonged mental stress is of evil omen in prognosis.

I shall not detain you with an examination of the totals or percentages given in Table VI, which must be submitted with diffidence owing to the comparative incompleteness of the information on which it is founded. It is evident that final results tend to show that the innate or hereditary cases recover in fair proportion, although they are more subject to relapse than the acquired. This has been widely recognised, but I do not know that the heavier death-rate among the acquired cases

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has been shown before. It may be that the more severe causal factors requisite to issue in insanity in persons not congenitally predisposed find expression in this way.

I might here repeat that the forms of mental disorders as named are used quite loosely: melancholia for cases chiefly characterised by depression, whether excited or not; mania for cases chiefly characterised by excitement or exaltation, whether depressed or not; delusional insanity for those cases dominated by delusions, generally systematised and fixed; dementia for those cases of mental enfeeblement generally issuing in terminal states, including *folie circulaire*, which always in the end tends to enfeeblement more or less pronounced. *Recent* means that the malady on reception of the patient was of less duration than one year. The recovery rates of melancholia are 33·79 and 13·51, having regard to recovered and relapsed cases in innate cases, and 28·13 and 7·81 in acquired cases. On the other hand, the recovery rates of mania are 31·16 and 24·64 for innate cases, and 39·62 and 13·21 for acquired cases. The recoveries from delusional insanity and dementia require closer scrutiny.

OBSERVATION 2180.—A farmer, æt. 27, admitted after an irritable period characterised by delusions of persecution, which had lasted for six months. Father alcoholic, two aunts insane. His delusions were well marked and apparently fixed; he was under the influence of unseen agency by means of a "norapath" for collecting sounds. These delusions persisted for nearly twelve months, when he was discharged recovered. It was a question whether he did not effectively conceal his delusions, but they did not at least interfere with his work or conduct in life for many years thereafter.

It is open to doubt whether the female dements entered as recovered should have been included in this category, for certainly both were alcoholic.

OBSERVATION 2281.—A married woman, æt. 28, with three healthy children. About two years before admission developed psoriasis and persistent vomiting, with want of appetite and gravely impaired nutrition. Six months *later* she took alcohol to excess, and so continued until peripheral neuritis and dementia supervened. She walked with a feeble, shuffling gait, her memory was a blank, she did not remember her children. Mentalisation was extremely slow, and her reflexes were generally dull. Under thyroid treatment her memory returned, the psoriasis disappeared, and she made marked and rapid improvement. A foul, purulent discharge from the vagina was successfully treated. She was sent home perfectly recovered in 1895 and so continues. There was no indication of syphilis. I believe that the alcoholism was

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subsequent to, and consequent on, the earlier symptoms described. Still, there had been excessive drinking, and, as I have previously said, the prognosis in such a case is most doubtful.

We may now glance at the *age period* of Table VI in relation to *final results*. It will be noticed that I have grouped these periods as adolescent (up to 25 years of age), mature (up to 40 years), climacteric (up to 60 years), the senile cases having been already separated. With regard to the group of melancholias the adolescents are in a marked minority, while the period of maturity exceeds that of the climacteric, the absolute numbers being 40, 97, and 75. The position is reversed for cases of mania by the numbers 83, 78, and 69. The percentage of recoveries from melancholia tends to diminish as the age periods increase—a condition of affairs directly the opposite in reference to mania. The tendency in regard to all the death-rates is towards an increase with age, the adolescent naturally showing the lowest figures.

I infer that the slight mental reduction of melancholia in youth is eminently curable, for if we add the recoveries and relapses the total is 62 *per cent.*; but the deeper reduction of mania, even omitting the development of dementia, is less likely to end favourably by 11 *per cent.* This table, however, relating to the more recent cases of adolescent insanity, cannot be considered complete, the period having ended with 1904, and the results having been only carried down two years later.

The following abstract of Table VI is of some interest:

| | Total Nos. | Pathological. | Ordinary. |
|---|---|---|---|
| Melancholia | 115 150 265 | 29·57 12·66 20·00 | 70·43 87·33 80·00 |
| Mania | 149 154 303 | 51·01 23·38 36·96 | 48·99 76·62 63·04 |
| Enfeebled | 144 83 227 | 43·75 15·66 33·48 | 56·25 84·34 66·52 |

Table VII is designed to show certain associated conditions found on first admissions in various correlations. In our search for a definite cause for insanity—an indispensable factor which can be found in every case—there is a certain impatience in the consideration of multiple causation. I do not consider that this is a reasonable attitude, nor is it likely to be appropriate in the prophylaxis of insanity. The contributory causes are certainly of sufficient importance to demand careful investigation in each individual case, and I have, therefore, constructed this table as a *résumé* of their

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incidence in association. As the table stood originally it occupied great space, having been carried to final results in each column. I submit a condensed copy which is sufficient for the present purpose. It refers to all forms of insanity in 809 cases. The total neuropathic heredity (581 cases) is thus seen to be effective in combination with other causes; for instance, it is pre-eminent in epilepsy, general paralysis, alcoholism, gout etc., tubercle, syphilis, traumata, and even in senile cases of insanity. Again, the association of general paralysis with syphilis and alcoholism is readily determined; the frequent association of tubercle with neuropathic heredity is evident; and the inevitable relation between alcohol and syphilis.

If these combinations are studied in reference to results of treatment the influence of hereditary defect is more apparent in depressing the *final* recovery rate and raising the death rate. While the neuropaths who suffer less important and less vital disorders maintain their favourable position, the combination, for instance, of neuropathic defect and alcoholism, or tubercle, or syphilis, renders the prospect of recovery much less favourable. Taking the less formidable combination of non-toxic exhaustion, by which I mean over-exertion with hereditary defect, the numbers are—from 27 persons 4 recovered, 18 did not recover, and 5 died, or 14, 66 and 18 *per cent.* respectively; or, in reference to syphilis, 7 *per cent.* recovered, 60 *per cent.* did not recover, and 32 *per cent.* died.

It was formerly thought that the association of tubercle with insanity was particularly fatal in results. I have therefore worked out the percentages of neuropathic tuberculosis as follows: In 25 persons—recovered 32 *per cent.*, unrecovered 32 *per cent.*, and died 36 *per cent.* Although these are small numbers and therefore liable to a wide margin of error, I believe that they will be found approximately correct for modern practice. In a period of overcrowding and defective hygienic conditions 13 *per cent.* of all the deaths in the Perth Royal Asylum were due to tuberculosis, nor did that represent the whole incidence of the disease, for *post-mortem* examinations reveal a much larger proportion in present asylum practice. In the period under review the percentage of these deaths was little more than half—*viz.* 7 *per cent.* Modern methods of treatment may be illustrated in results as follows:



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OBSERVATION 2488.—A male patient, æt. 28, admitted in a very exhausted condition, with delusions that he is in heaven, etc., restless and excited. Father died of cardiac disease, mother died of tubercular peritonitis. Maternal uncle insane. Brother alcoholic. Phthisis in several members of the family. The left lung was evidently seriously damaged, and his heart was affected by mitral stenosis. A more unpromising case could not have been received. Within two months, however, he was discharged recovered, and he has been engaged in his daily avocation for the last six years. I occasionally hear from him, in good health and spirits.

Table VIII is designed to illustrate the incidence of *occupation and environment*, with reference to *heredity and results of treatment*. The occupations are arranged in the census groups and represent the whole number of persons under care. The stress of life in towns is often unfavourably compared with the idyllic conditions of the country. First of all, it is difficult to decide how to place many of these patients. It seemed reasonable to divide urban and rural dwellers in accordance with the size of the towns—a population of some 5000 being reckoned rural. The usual place of residence for several years previous to admission was regarded as fixing the classification. On that principle, 456 might be considered as of urban extraction and 353 rural. In the former 73 *per cent.* were of neuropathic heredity and 27 *per cent.* were acquired cases. In the rural class 70 *per cent.* were neuropathic and 30 *per cent.* were acquired. That represents no great difference and no marked evil effect of town life as regards heredity. The towns, of course, are steadily recruited from the country, but if neuropathic disorders are degenerate that untoward influence is nearly as effective in the one as the other. Of course I am not dealing with the industrial class, but with a comparatively stable class, which has apparently attained its maximum ratio to the general population, and, at least for some years, has shown no tendency to increase.

When we turn to the nature of the mental disorder, whether ordinary or pathological, we find that these stand in the proportion of 70 to 30 *per cent.* in urban cases, and 81 to 19 *per cent.* in rural cases. The untoward side of urban environment is thus revealed. The effective soil for the germination of insanity was nearly equal, while the evolution of actual insanity was aggravated by the environment, resulting in a difference of 3 *per cent.* in the death rate.

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Chart IX is designed to show the *seasonal incidence* of insanity. The usual statistical tables of the months of admission to asylums bear no close relation to the onset of the malady. They are merely official statements, and should be so regarded. The period of importance is not the time of certification and legal interference, but the time of inception.

The onset of insanity has been comparatively neglected; it is obscure, often overlooked, and generally regarded as of little significance. On the contrary, the whole tendency of modern research is towards the elucidation of the prodromal and inceptional periods. If insanity should be proved an affair of toxines, as the studies of competent observers appear to indicate, it will be in the early stages that medical treatment will be most efficacious; even under present conditions that is conceded. I need not labour the point.

If we regard the facts of arterio-sclerosis, which in my belief frequently issue in insanity, we can discern a similar train of causation, a similar importance of early treatment, and a similar degeneration proceeding from innate defect aided, it may be, by toxines, lead, alcohol, or syphilis. Similar agencies are at work, and if the vessels of the brain be affected there is, of course, a relative anæmia resulting in vertigo, confusion, etc., which process may proceed to thrombosis, localised necroses, and softenings.

The pathology of arterio-sclerosis is therefore of great importance in insanity, not only as a cerebral degeneration, but as affecting the brain by an invasion of other vital organs; and its early recognition is essential if the disease is to be stayed and controlled, whether it issues in an anæmic atrophy of the kidney or an anæmic atrophy of the brain.

On the general principles of medicine, therefore, I have always endeavoured to ascertain and record the earliest symptoms of somatic disturbance heralding insanity, and I may say at once, and finally, that in every case these somatic disturbances can be clearly recognised and recorded if one is dealing with persons of ordinary intelligence who have been in close relations with the patient. They are well known: general malaise, gastric and intestinal disturbance, sleeplessness, irritability, inability to go about the ordinary affairs of life, and so on. The fear of impending madness is quite common, especially in general paralysis, and it is soon masked by other mental

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manifestations: but the feeling of *bien être* is never a *prodrome*—it is a symptom of declared insanity.

I regard the inception of the attack as the period when these vague prodromata culminate in indubitable insanity—that is to say, when it evolves as insanity from the medical point of view, altogether apart from the question of certification for legal purposes.

It has been found possible to determine this date in 913 cases with sufficient precision. Many years ago Sir Arthur Mitchell constructed a most interesting chart relative to deaths registered under various diseases, showing the seasonal incidence of deaths. Unfortunately, I can only refer to it from memory, but it was impressed upon me as showing the maximum incidence for respiratory diseases in spring, for nervous diseases in summer, and for abdominal diseases in autumn. That was in consonance with the undoubted high prevalence of suicide in July and the low rate for November. The chart which I now submit is more in consonance with still older observations. Dr. Edward Smith (*Health and Disease*, 1861) says that "brain diseases prevail in the cold season," and he found that writers of the seventeenth century placed diseases of the head and nerves under the sign Aries—that is, April—when, according to ancient writers, diseases began in the head, descending to the throat in May, to the stomach in July, and so on.

If we consider the total incidence in three-monthly periods, beginning with December, the inset in the chart shows a culminating rise till May, when the fall is continuous until November. My impression as to asylum excitement has been that it does not so much depend upon the season as a change in the type of weather—the more rapid and complete the alteration the more marked the effect. But although we have kept charted records of the barometer and thermometer for many years and have attempted to correlate them with the varying conditions of patients, no order has been evolved from the complicated series of facts so dealt with.

To return to Chart IX, it is evident that the points marked are at maximal elevations for April, June, and December, showing a singular abrupt fall in May and a more prolonged fall towards the autumnal months. These 913 cases have, of course, been spread over a period of twenty-five years, and there does not seem to be reason to regard the results as

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untrustworthy. The fall in May and the rise in June is inexplicable, especially when it is noted that the charts of recoveries and deaths to be found below show the same regression.

Sir Arthur Mitchell has kindly constructed a chart of incidence on onset for me (No. IXB) which shows a more equable course, for the influence of the preceding and succeeding months of any one month are taken into account. The average is carried out instead of the absolute numbers. The result is a period of greater and lesser intensity in winter and summer respectively, and I believe that this gives a better idea of the total incidence as regards seasons.

I also submit curves for the onset of the male and female cases separately, and for melancholia and mania occurring in males and females separately. From these it would appear that the weather exercises a greater effect upon women than men, and certainly meteorological conditions seem to find them more sensitive in asylum life.

Table X is designed to show the *duration of attack on admission* in relation to ordinary insanity, together with the facts of heredity and results of treatment, correlated with the age-periods. It shows that the cases who are received early and promptly treated are in better expectation of recovery, notwithstanding the hereditary burden under which they may labour, and it thus emphasises what has been already brought out by Table VI. I need not linger over it, as these references have long been emphatically expressed. The results of treatment, whether recovery or death, are mostly crowded into the earlier months of asylum life.

Chart XI is designed to show the *age on first attack*, arranged in quinquennial periods. It will be apparent that the curve rises rapidly from ages less than twenty to the maximum on the completion of adolescence. From that point it falls, with two short increases, to the eventual minimum. These regressions mark the climacteric periods of women and men when the curves for the sexes are separately studied.

Chart XIA shows the *recoveries from first attack* in relation to age on recovery. These have been calculated as nearly as possible for 253 first recoveries, and constitute a curve similar to that of the ages on first attack. This should be read in comparison with the curve for ages on first relapse, although it deals with smaller numbers.

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It is certainly disquieting to find that out of 809 persons admitted no fewer than 195 had already suffered previous attacks, as set forth on Table XIIIA. It is good reason for a thorough revision of our methods, for a closer study of the early symptoms, and for a revisal of treatment.

The cyclic order of life, the slight diurnal changes in health, are, of course, frequently magnified in disease, and there is a distinct tendency to enter upon, and to continue in a vicious circle of mental disorder. Table XIIIA shows how common these *relapses* are. I have stated that nearly a quarter of the whole number received were already relapsed persons on first admission, and may add that 76 of the 173 readmissions were returned relapsed. I am also informed that 18 relapsed after final discharge. Appended to the Table is a statement of the number of attacks referable to 250 persons. Further, the recoveries reported have been regarded as either temporary or permanent, with the result that 38 *per cent.* of the former yields but 17·18 *per cent.* of the latter.

This attempt to arrive at the true recovery rate is worked out in another way, within the limits of asylum statistics, in Table XII. The net recovered persons during forty years are stated at 29 *per cent.*—which is manifestly too high. Dr. Robert Jones (*British Medical Journal*, 1905) stated that 30 *per cent.* recover of the total admissions, and that 28 *per cent.* of the recoveries relapse—rather more than 1 in 4. Dr. Clouston, referring to this, calculated that, excluding the obviously pathological group of cases the majority recover, and of that majority one-third relapse—in proportion similar to cases of rheumatism, gout, and bronchitis; and he further added that given earlier treatment, comparable with that afforded to rheumatic patients, more would recover. But it is this loose use of the word "recovery" which confuses the issues. A hospital recovery from rheumatism or an asylum recovery from insanity is justifiably recorded for the time being; but these diseases of obscure causation have a marked tendency to relapse or recur, and must remain records of failures until our methods of treatment are efficient to prevent these relapses and recurrences. A generation ago Dr. Pliny Earle effectively exposed the absurdities of the statistical methods formerly prevalent in American asylums—methods which resulted in statements of recoveries having occurred at the rate of 100 *per cent.* He

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traced the gradual decline of these optimistic extravagances, and endeavoured to guide the specialty into a discrimination between *cases* and *persons*. The hunger for "recoveries" still exists to confound us in statistics. They must be obtained in another way. It is incredible that the methods of a previous generation were capable of inducing better results than the methods of to-day; but I have already, elsewhere, shown that the patients coming under treatment were then more acute in their malady, less aged in their years, and less deeply affected by gross pathological changes.

I have carefully reviewed and considered the recoveries of persons and cases, with the result submitted, and am certain that 17 *per cent.* of permanent recoveries represent the limits of truth in the desirable direction; yet it must be borne in mind that those relapsed cases on temporary recovery have often long periods of freedom from disorder, and are often for years useful citizens in their respective spheres of life.

The *Table of recoveries after first admission* (XIII), correlated with neuropathic heredity, age periods, and duration since first attack, need not detain us. It establishes the fact that recovery takes place in the greatest number of instances within a period of six months. Of course the recoveries noted after a long period of years do not denote first recoveries. The incidence of neuropathic heredity is thus seen from the side of recovery.

I had also prepared a table showing the increase of body weight in recoveries, but it may be summarised in a few words. The mean gain on recovery was 10·51 lb. in men, and 13·43 lb. in women. On the other hand, the mean gain among men removed unrecovered was only 1·00 lb., and among women there was an actual mean loss of 3·79 lb. The important bearing of this observation has been frequently discussed, and I need not revert to it here.

A table of patients removed unrecovered has been omitted, the results being obscured by financial, social, and official incidents.

It will be convenient now to refer to the ages of first relapses, which are also shown on Chart XIA. There is a steady and regular increase in the numbers year by year up to the age of 40, when the line falls until it marks the occurrence of the climacteric. The deaths show nothing peculiar to the

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insane on these charts, and they must be studied from another point of view.

One of the questions of prognosis has reference to *expectation of life*. This is of importance in the matter of life insurance, in the matter of financial arrangements made in the interest of private patients, in the matter of asylum accommodation for State-supported patients. Does insanity shorten the life of the individual, and if so, to what extent? Obviously the occurrence of general paralysis decides the question for that class within a year or two, although one could recite exceptional cases of a chronic type. The somatic conditions must be taken into account in individual cases, and broad generalisations must be applied with discrimination. It used to be stated that, granting that the person survived the acute attack, his life in regular and ordered routine would be actually prolonged, and every asylum of old standing records patriarchal ages on death. Dr. Robert Jones (*British Medical Journal*, 1905), investigated the death rate for asylums compared with the whole population, and concluded that death occurs amongst the insane at least six times as frequently as among the sane at corresponding ages. He also found that the average age of men received by the London County Asylum was 42 years, and the average age at death 50·7 years, instead of the normal expectation of 66 years. The results are not quite so gloomy in my experience. I find that the average age on admission for men is 36 years, and the age at death 54·65 years, as against 63·96 years for healthy males, while the average age on admission for women is 38 years, and the age at death 60·93, as against 66·83 for healthy females; but the percentage of deaths on the average numbers resident in Murray's Asylum for the past 40 years is only 6·03 *per cent.*, compared with 7·1 *per cent.* in the London County Asylums.

This question may be approached in another way, and Mr. Mayhew Allan has kindly constructed tables—comparing the percentage of deaths among the insane at various age periods with the Hm. Tables of the Society of Actuaries. Ages 15 to 25 show a better result for insane than for sane; ages 25 to 60 reverse this finding, while the results at ages above 60 return to the adolescent characteristic. The table must be presented with considerable doubt as to margin of error, a separation of the sexes having resulted in still further

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doubt, yet it tends to show the heavier mortality for males, as has been previously stated.

Tables XIV and XV deal with the *deaths* in admissions and readmissions. The former shows the general causes of death correlated with neuropathic heredity and forms of mental disorder on admission. On examining the aggregate numbers it will be seen that deaths occur most frequently consequent upon mania and dementia. Deaths from melancholia and mania do not arise from exhaustion, except in rare instances. The deaths are, like the admissions, the results of somatic diseases, the diseases of the cerebro-spinal system naturally predominating. Therefore, from whatever point of view insanity is regarded, we return to the basal fact that it is somatic. The slight degradation of melancholia finds expression in twenty-nine cases, whereas mania is represented by seventy-three cases. The enfeebled class, of course, represents the accumulated wreckage, and includes many different conditions, from idiocy to senility.

The number of deaths after first admission is 140: males 86, females 54, the percentages being 17·30, 20·52, 13·84 for these respectively. This, again, establishes the fact that insanity in men is much more fatal than in women, and is distinctly traceable to conditions previously referred to—alcoholism, paralyses, and organic diseases which preponderate in the male sex. Of course this Table does not show the complete mortality from general paralysis, nor, indeed, any of the somatic diseases, because many patients were removed unrecovered. It is merely a record of fatal results in reference to certain accidentally selected cases. Table XV mainly illustrates the heavy mortality in the earlier months of insanity, and I do not analyse the details.

To resume, 809 persons were admitted, 252 recovered, 315 were removed unrecovered, and 140 died, leaving 102 resident. The percentages are: recovered 31·14, unrecovered 38·93, died 17·30, remaining 12·60—slightly differing from the returns of Table I for admissions and re-admissions. The expectation for this class of patients therefore would be: of every 10 patients received 3 will recover, 4 will leave unrecovered, 2 will die during residence, and 1 will remain indefinitely resident. But it is to be noted that of the 3 discharged recovered it is probable that not more than 2 will remain permanently sane. This practically agrees with Dr. Thurnam's finding in a

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similar institution half a century ago: "Not more than two remain well during the rest of their lives." It is a gloomy prognosis, verified too long and too surely. I hope and trust that the future will mend it.

## Lecture III. Somatic Correlations and Résumé.

Having reviewed the clinical experience of twenty-five years from a statistical point of view, I shall now proceed to consider certain correlations between somatic and mental phenomena.

There is no doubt just at present some disparagement of psychology in these studies, and a sceptical attitude towards the assumed occurrence of a mental disorder without an operative physical cause, yet I cannot range myself with the opponents of psychology. For instance, by his researches into the phenomena of fatigue Kraepelin has explained what was formerly obscure, and improved the methods of education throughout Germany. Mental fatigue and bodily fatigue exercise the same effects upon the brain, and it is a mistake to suppose that by altering the kind of fatigue reparative processes will be encouraged thereby. Italian observers have demonstrated the toxic nature of fatigue in the lower animals, and we can precisely understand the process.

I have reported from time to time cases of communicated insanity—*folie à deux*, and have inquired into cases reported in the newspapers as they occurred. The circumstances are somewhat difficult to unravel because of the prepossessions of those who relate them, and it would appear that these incidents are more common in France and Ireland than with us. Is it possible to *infect*, so to speak, a person with insanity by immaterial communications?

Observation 2607.—Two sisters arrived at the asylum one afternoon, the younger being in possession of the usual legal papers for the detention of the elder. They both presented the same pronounced delusions of persecution, both had experienced the same mysterious influences, and both had seen the same visions. They declared that commands were issued to them simultaneously, and they had to obey simultaneously. It became evident that this account of their troubles would not stand rigid scrutiny. The elder sister, who had been successful in business, dominated the younger, and was the active partner, the suggestor of every morbid idea. She had performed the

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part of a Joanna Southcote, and her sister, her only disciple, explained the failure of intention as the direct result of Satanic interference. It also became evident that the elder sister's insanity had been of considerable duration before the younger sister joined her in lodgings; and, indeed, she remains an ordinary case of chronic delusional insanity. The younger sister, after the separation, improved somewhat at home, but was eventually sent to another asylum, where she partially recovered and was accordingly discharged. As usual, any hereditary disease was denied, and, as usual, the hereditary defect was ascertained. *I do not believe that any case of this kind could be traced to a family other than neuropathic.* In this particular instance the occurrence of two cases of insanity in the family was only what might have been predicted. It was not by any means simultaneous in inception, or development, or symptomatic phenomena; and I believe that the younger sister would have become insane had the elder remained in her foreign home. She was neuropathic, she lived immersed in morbid influences, and in such a manner as to encourage disaster.

A successful showman said the other day that the public like to be gulled, and I have no doubt that his appreciation of that psychological fact assured his success. Far-fetched and mysterious explanations of vital phenomena are assuredly popular, and there is a constant ineffective endeavour on the part of insane friends of insane patients to explain away the occurrence of insanity by the principles of Heinroth, by the dispensations of Providence, by the occult influence of hypnotism.

OBSERVATION 2522.—A clerk, æt. 27, had been leading an eccentric, irregular life, and was admitted with the information that he had been insane for a month in consequence of his having been hypnotised by a friend. It was evident that his malady had been of much longer duration, and of insidious development. He laboured under fixed delusions of persecution, was most indolent and untidy. He had no initiative or consideration for others, and his future was of no interest to him. He was removed in that condition and so remains. The family are neuropathic, and it could not be impressed upon them that the hypnotic experiment was a mere incident in a degenerative disease.

These cases need not be multiplied; indeed, it is with some diffidence that I have referred to them at all. Vulgar errors are of an incorrigible nature, however, and they are so constantly intruded on medical attention that they insist on some recognition. Esoteric Buddhists, or Christian Scientists, or some such perverts are always with us—not always under care.

The age and health of the parents at the time of conception of offspring are of importance in the evolution of the race. I

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have recorded several instances of paternal drunkenness in this connection, but the mere accident of one act of drunkenness is relatively unimportant compared with the habitual condition of the persons noted. Nor have I been able to discover any definite relation between the use of midwifery forceps and the individuals who have come under my care.

What is of real importance in the study of neuropathic children is the immediate ancestry, the environment and the education which condition them. Dr. Clouston has so lately studied the psychoses of development that I need not enter into this important branch of our subject. Dr. Dewey, of Chicago, has also investigated the early life conditions in 200 sane and 200 insane persons. This comparative method elicits a series of facts which tend to confirm the observations which I have submitted. Briefly, whatever tended to eugenics found expression in the sane in a higher degree than in the insane. For instance, excessive use of alcohol, of tobacco, of tea, of coffee appears more frequently in the insane families; tuberculosis, insanity, malarial environment follow the same rule. Neglect and poverty, lack of home discipline, defective schooling were all more apparent among the insane. In short, a neuropathic heredity was continued in a neuropathic environment, and issued in a neuropathic generation.

The evolution of character, ability, temperament, and success has not been studied with that care which the subject demands. It is not sufficient to write around the great names. We know that the race tends to average abilities, with some slight advantage to the families of exceptionally able, *well-balanced*, intellectual parents. It is the kind of mistake to which I have already referred that exclusively considers the exceptional, the bizarre, and the extremes. For the determination of the probabilities of inheritance of any character, physical or mental, within normal limits, or the possibilities of disease, a study of the general population is absolutely necessary. The successes *and* the failures must be considered in detail. Professor Karl Pearson has found that the intensity of correlation between "want of mental balance" in parents and insanity in children is from 0·25 to 0·30, probably the same as exists in regard to other characters—*e.g.*, stature, colour of eyes, and so on—thus showing, as might be expected, that somatic conditions are paramount in the first instance; how-

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ever, environment may possibly influence the organism in its growth and development. I plead that Professor Karl Pearson will have the support of the College in his endeavour to collect sufficient data for the further elucidation of this question, in the firm belief that the results will lead to a better understanding of the national requirements towards the attainment of health and efficiency.

A study of the influence of marriage, widowhood, and divorce as affecting the development of insanity is so complicated by individual circumstances that any generalisation is almost impossible. I have had little experience relative to divorced persons, and the social conditions of widowhood vary so greatly that there is no possibility of generalising upon them. Unsuitable and unhappy marriages are unfortunately only too common, and I have so seldom known a proposed marriage broken off on the grounds of insanity that there seems to be no immediate hope of relief in that direction. On the contrary, one neuropath seems to have an elective affinity for another neuropath. Probably in matrimony the average practical man looks for the average practical woman; for the fainting fits and genteel spasms of eighteenth century young ladyhood are now quite out of fashion, and athletics reign supreme.

No doubt the daily round, the common task, are irksome to the nervous and decadent.

OBSERVATION V 86.—A married woman with an adolescent family was admitted in a taciturn, apathetic condition. Her home life had for long been burdensome, although the causes are not obvious to others. From time to time she breaks out in violent paroxysms of rage, and expresses the most unjustifiable suspicions of her husband and other members of the family. From time to time she disappears, and once got so far as to engage herself as a domestic servant. She suffers from planomania—an inveterate recurrent impulse to wander. This has been studied under the descriptive title of *vagabondage* and no doubt constitutes the foundation of the myth of the Wandering Jew. The disorder is common enough, whether one regards it as an ancestral regression or a defect of yesterday. All the cases known to me have been deeply neuropathic; and I can only regard the fact of marriage in this instance as purely accidental, and irrelevant to the real issues.

I have already referred to meteorological considerations and my difficulty in placing before you any coherent account of my observations. I might add here that we had a good opportunity of studying the influence of the moon, which, when full, formerly

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so excited the Tom-all-alones of a former age, and which, in nomenclature, will remain with us while Acts of Parliament and official documents so carefully conserve the tradition. In my seafaring days sailors were full of superstitions more or less unaccountable. One particularly in evidence was the baleful influence of the moon—the superlative danger of sleeping on deck in moonshine unless under the shadow of the sails. I suppose that those old tales are already forgotten, like the sailors' chanties, for nothing suits the mariner now but the latest ditty of the music-hall.

Certainly noise and excitement were at their maximum in Murray's Asylum on bright moonlight nights for many years. That was matter of common knowledge, which we reduced to written records. The rooms for disturbed patients were lighted from the south-east and shutters had not been fitted to the windows. When that omission was remedied the change was at once apparent, and the influence of the moon was finally abolished.

As sleeplessness is the most invariable prodromal symptom of insanity, so it is of the greatest importance in the course of the malady, whether from the view of treatment or prognosis. The high pressure of the blood interfering with repose and nutrition is the chief disturbing factor. The whole endeavour of treatment must be bent towards the restoration of sleep, not so much by the crude effects of narcotics as by the wider application of medical skill. It is not my purpose to touch upon treatment or nursing, nor is it necessary to insist on the importance of this point. The management of the insane at night is quite as important as their management by day, and their conduct at night is just as indicative of their future as their conduct by day. The return of sleep is a sign of recovery or failure to recover—a good sign if improvement is concurrent in other directions, a bad sign relatively if there is no, or but partial concurrence. For insomnia is not a symptom of chronic insanity. Dr. Whitcombe forcibly directed my attention to this fact many years ago. An alarm of fire occurred in a large dormitory at night-time in the Birmingham Asylum. The fire brigade entered and retired, but not a single patient moved from her bed; most slept through the incident. Excepting a few cases of chronic mania, a few of circular insanity in the excited phase, and especially of that class in which hallu-

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cinations are prominent, or the cœnæsthesia is greatly perverted, the old standing cases sleep soundly and are aroused with difficulty. This restoration of sleep bears a close resemblance to the increase of body-weight; if the nutritive processes become active and there is a concurrence of other favourable signs the outlook is hopeful; but degeneration may go hand in hand with an unhealthy pallor, and an undesirable, flabby corpulency accompanying permanent enfeeblement of mind.

It is this morbid somnolence which permits of the frequent and necessary attention of nurses to the chronic insane. One must clearly discern the values of all the symptoms existing before coming to a conclusion that the cessation of insomnia is of good omen.

When the nightly duration of sleep is charted it is usual to find a cyclic variation, in conformity with observations in other directions. The sleep may be sufficient on alternate nights, or the cycle may extend to seven or more nights. Usually it is variable and dependent upon the somatic changes.

OBSERVATION 2627.—Melancholia, female, æt. 40. At first for about a week varied on alternate nights between no sleep and eight or nine hours of sleep. Thereafter slept well for four or five nights, with one bad night intervening, while, at the end of six weeks, sleep was re-established concurrently with marked mental improvement, which ended in an excellent recovery.

OBSERVATION 2623.—Adolescent mania, female, æt. 21. At first, for about three weeks, a tendency to alternate nights of three hours and seven hours; later, smaller irregular variations between six and eight hours. In the second and third months of residence there was a tendency to stupor, marked by taciturnity. Thereafter it was unnecessary to record her sleep and she was discharged recovered in three months. This patient was phthisical before admission, and gained nearly three stones in weight in the course of treatment.

OBSERVATION 2575.—Acute delirious mania, female, æt. 35. The posthumous daughter of a paralytic father, admitted on the eighth day of her malady. First night no sleep, second night one hour, third night two hours, fourth night one hour, fifth, sixth, and seventh nights no sleep, eighth and ninth nights somnolence followed by death. No skilled observer could have mistaken the somnolence of the two nights preceding death as an interval of reparative processes.

OBSERVATION 2559.—Recent melancholia consequen tupon sepsis, pyelitis, cystitis, and renal calculus. Admitted in a very prostrate condition. A surgical consultation resulted in the opinion that the malady was cancerous. Sleep good and bad almost certainly on alternate nights until death after a residence of four months.

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OBSERVATION 2412.—Circular insanity, observations during maniacal phase, æt. 77, January, 1905. For a week little or no sleep, then about a week of six hours nightly sleep, thereafter about a week of sleeplessness, and so on. In October, November, and December of the same year he had on an average three hours of sleep at night and none by day. But in these cases of circular insanity it is a constant surprise to observe how tireless they are, how little sleep they get, how little apparent damage is done to the brain, and, above all, how very seldom they die during the phase of excitement. A sudden onset, a period of mischievous reasoning mania, sleeplessness, without apparent mental deterioration in the sphere of memory, inevitably betrays a neuropathic heredity, and an incurable alternating insanity which may persist into a comparatively long life.

OBSERVATION 2636.—Recent excited melancholia, female, æt. 48. After admission for many weeks slept alternately not at all or little. When sleep did at length return it was liable to occasional failure for many weeks, and when it was at last re-established there was no appreciable improvement in the mental condition. She has fallen into an incurable condition of chronic melancholia. I say incurable because she shows marked somatic stigmata. She belongs to an intensely neuropathic family and her bodily condition is depraved. With a height of 4 ft. 10 in. her weight has not appreciably varied from 6 st. 3 lb. Were there no somatic stigmata, were her ancestry a healthier stock, had her malady been limited to one attack, the case might not have been so hopeless, for delayed recovery occurs from time to time, especially in the class of female melancholiacs. It is not the querulent mental condition but the somatic conditions which are fundamental.

OBSERVATION 2604.—Melancholia recent and delusional, female, æt. 38. Persistent sleeplessness on admission after three months of depression. With certain remissions sleep was re-established, but an incorrigible premature menopause resisted all treatment. During a residence of two years she increased in body weight, but the delusions were fixed and unvarying, and the somatic processes were defective; she suffered from œdema pedum and a similar condition in the face. Notwithstanding her unsatisfactory condition her body weight increased by four stone during the period of her residence. She was removed unrecovered, menstruated soon afterwards for the first time for several years, and found means to commit suicide some four months later.

When the somatic failure is general it is evident to the most casual observer. The chronic degraded patients of one asylum closely resemble those of their class in any other asylum. The physiognomy of insane persons used to find occasion for remark in the formal legal certificates almost as a matter of course, and perhaps it is a sign of more accurate scientific knowledge that these observations are less frequent in the practice of

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to-day. I do not know that it is a gain. Dr. Lionel Weatherly told me that when he went home from college to his father's practice he had occasion to see a patient suffering from pneumonia. He returned with his diagnosis, and, to the best of his ability, described the symptoms as revealed by the stethoscope. His prelection was very ill-received, and he had to go back in order to bring his father a full, true, particular account of the patient entirely apart from the precise stethoscopic condition of the lungs.

We cannot neglect the facial appearance of the patient in discussing the question of prognosis. It is characteristic of degradation, if degradation has declared itself. Apart from the emotional expression of the prevailing mental tone there is an immobile, listless, preoccupied appearance which augurs badly for the future. The nervous system is out of gear, and the enfeebled muscles indicate that failure. The complexion is pallid and the skin shares in the general inefficiency. The eyes are relaxed and their mobility is restricted. Pigmentation of the skin is of evil omen, and if it is systematically picked by the patient one can hardly look for recovery. I could cite one or two cases to the opposite effect, but they are very rare and present other counterbalancing symptoms.

The morbid condition of the skin in insanity has not been sufficiently investigated as yet. The development of nervous system and skin from the point of view of embryology may in some measure elucidate these complications. In any case, the extremes of harsh dryness in certain forms of melancholia and copious perspirations in certain forms of mania are commonly recognised. Also the greasy, offensive appearance in degraded cases. Perhaps the most important cutaneous symptom from the point of view of prognosis is the pigmentation which so frequently occurs, and which must be considered as indicative of a progressive and intractable disorder when it is unmistakable and long continued.

The appendages of the skin are also affected. The state of the hair is a valuable index to the general condition. This was most marked in a case of alternating insanity, in which the strong black hair stood absolutely on end during the excited period. Sir Arthur Mitchell expressed a doubt if this were possible without the manual interference of the patient, who was therefore closely and continuously watched for a consider-



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able period. It proved to be a true somatic condition. The patient so affected long suffered from phthisis, and as her bodily strength diminished the stark condition of her hair became much less marked. There are other records of affections of the nails, and notes of desquamation which I need not discuss at length.

A persistent high temperature is a warning of evil import, as regards recovery, and even as regards life. The high temperatures of insanity, apart from complications, are, of course, usually very moderate compared with other diseases. I have already alluded to this in speaking of observations made possible by the clinical thermometer.

The general nutrition, perhaps, is the most certain index of the progress of a case, as has been well brought out by the study of body-weight in recoveries and removals. In asylum life the periodical and exact weighing of patients is a routine practice generally adopted, and generally trusted to indicate the variations in somatic conditions which are so important in the adoption of remedial measures suitable for each particular case; also as indicative of the earliest warnings of complications such as tuberculosis. A restoration of lost body-weight, like a restoration of diminished secretions, is almost invariably one of the first signs of returning health.

The muscular system presents very many problems of interest, apart from the pareses and paralyses of pathological insanity. The fumbling fingers of a general paralytic fail in muscular energy, in co-ordination, and in the guiding direction of the higher cortical centres. In lesser degree the finer adjustments of intention and action are discernible in ordinary insanity, and as the degradation deepens so the inability becomes declared. The somatic failure is then positive. Instruments of precision are applied with difficulty in the elucidation of these conditions. The common failure in attention renders it impossible to record reaction time, or the appreciation of weight, without making large allowance for error. Again, the motor reflexes, even in cases of advanced dementia, are sometimes, and exceptionally, very brisk. But as a general rule it may be stated that the deeper the mental degradation the more obvious are the reflex defects, whether motor or mental. All cases displaying rhythmic, monotonous movements are to be regarded as most seriously damaged. In some cases these movements, apart from idiocy,

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have a gross pathological basis. I recall an extreme case of cerebral atrophy, especially of the frontal lobes.

The morbid condition of bones in the insane has long been recognised, and I believe that the anæmic failure of the chronic insane is part and parcel of the osseous defect. I shall not venture to discuss questions of craniology, in reference to which palatal deformities are of importance in determining a neuropathic heredity in many cases where information is given reluctantly. A few words may be permitted in reference to oral sepsis and a common symptom of general paralysis—a persistent grinding of the teeth.

Dr. Rayner's work in the out-patient department of St. Thomas's Hospital has been amongst the insane, and especially amongst incipient cases; and his conclusion is that one of his most important duties has been to hand over these persons to the care of the dental surgeon. The improvement in mental condition after his attentions are completed has been so remarkable that Van der Kolk might have added another sympathetic insanity to his list. I need not load this aspect of the subject with clinical details. The importance of oral sepsis as a cause of widespread mischief is now generally accepted. I have noticed, too, that recurrent insanity, or exacerbations of insanity, are often ushered in by attacks of toothache or facial neuralgia, and think it of sufficient interest to mention this fact, which may be regarded as a danger signal.

The gait of insane patients is characteristic; the bent, stiff neck, the downcast eyes, the untidy dress, the careless slouching walk are all in various degrees indicative of somatic and mental degradation. Extraordinary attitudes impress one unfavourably. Often these are assumed by adolescents who may recover, but my experience is that they are symptomatic of relapse sooner or later.

Alterations in handwriting, and tricks of voice or speech indicate the interaction of mind and body in many important directions. Vain and purposeless repetitions of phrases in the letters of a person not appreciably insane are often evidence of chronic alcoholism, and specially, I believe, of cocainism. In the case of a person tending towards chronic insanity such repetitions are a mark of incurability. The corresponding phrase of speech is not less ominous; still, there is a lower grade—*echolalia*, in which there is a repetition of words heard

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by the patient and immediately reproduced; and lower still in the scale is *verbigeration*, in which new words are invented.

OBSERVATION 1884.—Student of medicine, æt. 27. Family neuropathic. Convulsive fits in infancy. A sensitive, studious, and solitary young man, developed grandiose delusions, wrote verses and sent them to Matthew Arnold and Ruskin. They were quite ineffective in thought and construction. He then became convinced that he was poisoned, and began to invent words, most of which showed a vein of persecutory ideas—*e. g.*:

"Bothered with toothache,
Tooth with a bore;
Doctor should *jankler* take
Or no cure.

"*Ding* about talking,
No *thrapple-up*;
Take *goak* of walking,
*Joksutty* and sup."

This perversion of intellect is, of course, quite different from the confusion of mania where rhymes are commonly strung together in an incoherent succession, yet connected by some associations of sound or sense. It is, so far as I am aware, the outcome of a brain incurably perverted, and calls to mind the thesis of that interesting old book—*Wigan on the Duality of Mind*.

Long periods of absolute taciturnity may result in recovery, confusion may very readily disappear, but the occurrence of verbigeration is a symptom of degeneration not less ominous than persistent amnesia.

Stuporose states often mark the swing of the pendulum from high excitement to temporary exhaustion, and it is often very difficult to distinguish between curable and terminal dementia.

OBSERVATION 2188.—Lady, æt. 25, admitted in a condition of acute mania. Family neuropathic. A discharge from right middle-ear disease had ceased on the inception of the mental disorder. Erythromelalgia had been observed, and the usual somatic concomitants were recorded. The malady was prolonged and threatening to end in chronic insanity. A stuporose condition varied with subacute transient excitement—a complex which I regard as ominous. Under a course of thyroid treatment she made a good recovery, and throughout the years which have passed it continues necessary for her welfare to take one or two thyroid tablets weekly. A prominent feature in this case was the occurrence of drenching perspirations which Millingen long ago regarded as indicative of failure. I must refer to Dr. L. C. Bruce's clinical studies for the modern explanation of this complication, and its place in the evidence for toxic invasion.

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To resume, then, these various conditions of the organism betray, each in its own relations, the generalised nature of insanity, the generalised defect and disorder in which the mental symptoms originate, and upon which they depend. Within the compass of these brief lectures it is impossible to discuss all the somatic conditions. I rather endeavour to indicate the trend of experience, and prefer to reserve the consideration of highly specialised subjects of importance, such as the work of Flechsig relative to the association fibres of the brain demands.

I now, therefore, submit Table XVI, which represents an attempt to correlate somatic disorders with the mental phenomena of insanity. It is generally recognised that prognosis will vary with the incidence of these disorders and diseases. If bodily health can be re-established there is hope of mental improvement and recovery. For instance, if there is no possibility of restoring a damaged cardio-vascular system the outlook is gloomy. Prognosis, therefore, must await the determination of these events. However, a case may be desperate yet recoverable:

OBSERVATION 2353.—Female, æt. 46. Admitted in a condition of excited melancholia. The mitral valve was seriously damaged, the heart was dilated and hypertrophied. The state of the pulse was most alarming. She had been seen repeatedly by Dr. George Balfour, who had found that her heart was always susceptible of improvement by large doses of digitalis. He saw her in the Perth Royal Asylum when greatly exhausted by continuous excitement, and was satisfied that the treatment formerly successful would be successful again. In three months she was discharged improved, and completed her convalescence at home.

The following interesting case of myxœdema might be cited as definitely toxic:

OBSERVATION 2553.—Female, æt. 31. Admitted in a condition of acute mania. Family neuropathic. She had long been neurotic and myxœdematous. Under thyroid treatment she generally improved. She went abroad to escape the cold of winter in this country, and unfortunately took a large quantity of thyroid tabloids with her and consumed them recklessly. It was impossible to determine the exact amount, but she had suffered so greatly and had so much benefit by the treatment that she went to great extremes. After admission and a complete cessation of the drug during the acute symptoms it was resumed in small doses, and convalescence appeared to be established. Dr. L. C. Bruce kindly examined her blood in this phase, and found leucocytes

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13,424 per c.mm. as compared with 14,027 on a previous occasion. Polymorphonuclears 56 *per cent.*, lymphocytes 28 *per cent.*, eosinophiles 4 *per cent.* Blood plaques increased. He thereupon gave a good prognosis, which was fully justified within a short time.

Referring to Table XVI it will be observed that it deals with sensory disorders, appetites, instincts, disorders of emotion and delusions. In its original state these were extended to affections of memory, reason, etc., but the entries were so numerous under perversions of intellect and conduct that they practically included every case, and no further deductions could be drawn from them. Insanity is in essence from the psychological side an affection of intellect made manifest in conduct, and I therefore present the table with these deducted.

Of course those with somatic stigmata generally tend to marked mental degeneration.

It is necessary to read for hæmopoietic disorders, *anæmia*. The important variations of the blood, discoverable by modern methods can, of course, find no place in old records. In the cardio-vascular group it is interesting to note the depression and fears which are exaggerations of the usual features of these maladies. Gastro-intestinal cases are similarly affected. The great excess of the female sex under the heading of generative disorders is in accordance with general experience. I have not been able to corroborate certain American observations which record extraordinary voluminous morbid details in the sphere of gynæcology. There can be no doubt that the urine and vaginal discharges of the insane are highly toxic, but the vast array of surgical necessities alluded to is not within my experience, either by the bedside or in the *post-mortem* room.

The common concomitant of generative disorder is the irregularity or suppression of the catamenia. It is usually said that menstrual periods are accompanied by exacerbations of insanity. That is by no means the rule according to my observations. No doubt the return of catamenia is a favourable indication, and we have had several such cases after the exhibition of ergoapiol where other drugs had failed. I might also record a case of recovery in which the catamenia continued suppressed, and were restored by the introduction of a stem pessary at home. Quite exceptionally I have had good results from the use of ovarian extract after ovariotomy, but can

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present no case under asylum treatment in which that preparation altered the mental condition.

It is our routine practice to record daily on calendars the excitement or depression noticeable in individual patients. These calendars also show the days of menstruation. I have condensed these observations for years together, and on examination of the results find that it is quite exceptional to correlate the catamenia with the exacerbations of insanity; occasionally this is discovered in mania, but never in melancholia, so far as my observations go.

What is of much more importance are the toxic conditions of these tracts, whether puerperal or not.

OBSERVATION 2697.—Male, æt. 57. Family neuropathic. Admitted in a state of alcoholic dementia, with delusions of identity and hallucinations of hearing. He had lost all sense of time and space. Apparent total amnesia. Urine purulent and highly ammoniacal. His physical condition was greatly deteriorated. Under a course of helmitol the urine cleared and his mental state improved. He made an excellent recovery and returned home. I am informed that he has not resumed his habit of alcoholism; but the pathological state of the urine became again evident. He was naturally anxious as to this disconcerting experience, and helmitol was again administered; the urine cleared up and he continues in better health than he has known for years.

Dr. MacHardy (*British Medical Journal*, 1905) has recorded two cases of general paralysis improved, if not recovered, by the use of urotropine; unfortunately we have had no such result in these extreme circumstances.

One point in regard to these generative disorders and their correlation with the sense of smell is remarkable. It is generally stated that the connection is obvious and common. I have not found it so; in spite of a special examination of all the cases I have not discovered any record in corroboration of that statement, and can only conclude that it is not so obvious as has been asseverated, or that we have overlooked a series of facts.

Another general statement relates to the probability of recovery after the patient has had a crop of boils. That is quite opposed to my experience. The microbic infection of boils does not seem to me to have acted as an *alterative*, far less has it exercised a beneficial effect physically or mentally. The question of alteratives is of special importance in medicine, general and therapeutical. It offers an interesting opportunity of discussing unconscious memory in relation to insanity, in the

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light of the suggestive and philosophical work of Dr. Charles Creighton. I leave it with reluctance, and do not purpose entering on any psychological analysis of the cases reviewed. My aim has rather been to direct attention to somatic disorders and to correlate these with insanity under the two broad divisions—ordinary and pathological. Yet it is necessary to say something in general terms. For instance, the primary fact of consciousness has a relation to prognosis; if it is lost for any considerable space of time it is a measure of mental degradation indicating incorrigible defect. Mere confusion is not at all a hopeless condition, but delirium is of the gravest import. I have not found that perversions of identity are so incurable as was formerly supposed; but as a general rule it may be stated that perversions relative to self are much less intractable than those relative to others. Did time permit these opinions could be supported by clinical illustrations; but I must pass to the sphere of sensation. The general cœnasthenia is of importance in this connection. It is a common measure of convalescence to observe carefully the mental attitude relative to fatigue. A loss of the sense of fatigue, an abolition of sensation in regard to fatigue, denotes an uninterrupted course of mental disorder; on the contrary, when the patient begins to complain of fatigue and pain and discomfort the complaint is welcomed as the first sign of improvement.

The sensations colour the delusions, and in that respect the study of Table XVI is interesting. The genesis of delusions from the painful sensations of gastro-intestinal disease is readily understood: it is easy to pass from the feelings of gastritis to the feelings of poisoning. In fact, I would venture on the generalisation that perverted sensations determine the tone of the delusions, and the general mental condition. It is unthinkable that the depressing nature of abdominal disease, altogether apart from insanity, should issue in grandiose ideas or pleasurable excitement.

It would seem that hallucinations can be an affair of autosuggestion in some cases.

Observation 2514.—Female, æt. 38. Family neuropathic. Admitted in a state of chronic alcoholism with mania. She professed to have the power of calling up pictures in the fashion of a cinematograph. Waving her hands in front of the wall of her room she asked for a subject, and, failing a suggestion, preceeded to describe moving pictures with great emotional display. This is plainly fantastic rather than imagina-

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tive. She soon recovered, and stated that she had quite forgotten these incidents.

And, further, it is uncertain how far such delusions will be carried:

OBSERVATION 2164.—Female, æt. 34. Family neuropathic. Admitted in a condition of delusional insanity with fibroid phthisis. She complained of persecution and bodily torments; said that her thoughts fell from her nose and tinkled on the floor, and that I could hear them by attentively listening. I called the nurse to sweep up the litter of thoughts so falling and so tinkling. She was most indignant, on the ground that no one could sweep up thoughts.

As I have already indicated the former case, having been alcoholic, is of no importance in prognosis, but the latter case, owing to the somatic condition and the deep perversions, could only prove incurable.

The emotional states, of course, vary in every conceivable direction; perversion and degradation are only too often recorded. It is always a favourable sign when a patient returns to natural ties, when natural affections resume their sway.

The measure of degradation may be ascertained by observation of the power of attention and memory; yet these may be acute and the condition of the patient may be hopeless as regards recovery. It is commonly supposed that an unimpaired memory is an indication of sanity, yet the idiot savant may have a memory of extraordinary tenacity. The perversion of intellect may be complete, and both attention and memory perfectly unimpaired. I have, at present, two patients who are old-standing cases of delusional insanity—persecuted persecutors. They generally live in one of our detached houses. During the temporary absence of one the other gravely asked me if I would hasten his return, for her enemies were very hard upon her, and if he came back it would distract their unwelcome attentions from her. If the degradation is not wide it may still cut very deep.

In point of time we have already seen that recent cases are most favourable in expectation of recovery, and that cyclic variations are common. Also that a sudden onset and a sudden recovery almost inevitably mean neuropathic inheritance, and recurrence sooner or later. A settled periodicity is bad, yet if there are no remissions tending to recovery the outlook is not less gloomy. The best sign in this respect is intervals of

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remission, daily becoming of longer duration, and it is specially gratifying when self-knowledge returns, interest in surroundings is displayed, neatness of dress is studied—in fact, when there is an indication of an appreciation of the amenities of existence, when the prayer of the Kilbarchan weaver is answered—in moderation.

And so we inevitably come back to the initial stage of this discussion—the importance of somatic conditions in relation to the mental states. Prognosis in insanity must proceed upon a wide and careful review of the whole circumstances affecting the individual, who is in a degenerative condition physically, and therefore mentally. All that goes to make up that degenerative condition must be separately investigated and summed up. The elements of prognosis are analytical *and* synthetical, and it is determined by the nature of the degree of the involvement of the organism in the widest sense. If all the functions are involved, if the degenerative process is universal and intractable, the future of the individual is desperate indeed; if the defect is partial and amenable to treatment, naturally the case is more hopeful as these limitations of involvement decrease.

In that sense how hopeless is the case of pernicious anæmia, in which the mental manifestations are the direct result of an impoverished brain! For a time it may be possible to draw upon the reserve of red blood-corpuscles, but the stock is not inexhaustible.

It is in consonance with these observations that the toxic theory of insanity demands our most serious attention and excites our liveliest hopes.

Prognosis can never be an affair of aphorisms; these *obiter dicta* require to be fitted into the general scheme of things; they are altogether too facile and too partial for our purposes.

I shall not stand suspect of neglecting the therapeutical and general treatment of insanity in having discoursed at length upon data and deductions. The therapeutical position is being slowly won by the steady advance of our science and art.

We have, perhaps, carried architectural planning, training of nurses, farming and gardening as far as it is desirable, for there is a general consensus of opinion that this country holds an honourable place among the nations in these matters. When Mr. Holloway was moved to erect a hospital for the insane of the poorer middle-class, in the course of his inquiries he asked

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Dr. Yellowlees if asylum entertainments were undertaken in the interests of the patients, or merely in order to find notice in the local newspapers. That was a shrewd question by an expert in the gentle art of advertising. It was answered to his satisfaction by a practical demonstration, followed by no public references.

I hold it desirable that a physician should know the baths and wells of Europe, and that he similarly should know the hospitals of the country before he distributes his patients amongst them. There has been some foolish talk about the *Hanwell Wall*, and the segregation of the insane—as if the insane became insane in asylums. I know no hospital for the insane where our colleagues are unwelcome in their most intimate medical concerns; and the burden of these lectures is the burden that is laid upon our honourable profession, not to be borne by asylum physicians alone but shared by every worker, in every contributory detail. The problem does not, unfortunately, concern the mass of chronic and incurable insanity, it is relative to the inception of insanity—the early treatment of insanity as it is presented to the family doctor and none other. These metropolitan provincialisms want clarifying.

For anyone desirous of following out the individualised, mental and moral treatment of the insane, I know of no book so interesting as that of the late Dr. John S. Butler, of the Connecticut Retreat. It is a little book, a very little book, on a great subject, and it will keep his memory fragrant and green as a wise physician. It is rosemary for remembrance. And yet, Dr. Butler, occupied with this aspect of his work, insists again and again on the importance of the early somatic conditions of insanity, and the necessity of early and appropriate medical treatment.

Finally, on the general question of prognosis of insanity we have been counselled to give a guarded opinion, because it is the unexpected that happens. An eminent physician once said that he was paid for an opinion, not for a prophecy. But an opinion is truncated and ineffective if it be only relative to the moment of delivery. The questions demanded of us are urgent and necessary: Is the family business to be wound up? Are the pressing difficulties permanent or temporary? Is the home life to be altered for a time or for ever? Are careful plans for a career to be abandoned or postponed? I am impatient with

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a science that executes a strategic retreat before such a battery of questions. In the last resort the kindly words of Horace recur to us:

> "Tu ne quaesieris, scire nefas, quem mihi, quem tibi
> finem di dederint, Leuconoe, nec Babylonios
> temptaris numeros."

Yet it is a poor account of scientific medicine if it is to be recorded of us that our premonitions are of no more value than a Chaldean horoscope.

It is an excellent practice, in which throughout the years I have followed Sir James Crichton-Browne, to sum up the probabilities in the Case-book on the reception of every patient. At least, it is a stimulating corrective for self-satisfied science; at best, an incentive to the careful study of every circumstance affecting each patient. For it is only by that study, indefatigable and personal, that advance is possible to us or to our profession.

More steadfastly than ever our profession labours for the prevention of disease. That resolves in questions of eugenics, education in the widest sense, and a determined, informed study of all morbid phenomena.

(1) The Morison Lectures, delivered before the Royal College of Physicians Edinburgh, January, 1907.

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## JAMES MURRAY'S ROYAL ASYLUM, PERTH.

TABLE I.—*A General Statement of Admissions and Removals, regarding Admissions, Readmissions, and Totals; with Percentages during the Period under Review,* 1880–1904 *inclusive.*

| FIRST ADMISSIONS. | M. | F. | T. | M. | F. | T. |
|---|---|---|---|---|---|---|
| Persons admitted for the First Time | .. | .. | .. | 419 | 390 | 809 |
| Of these: Recovered | 120 | 132 | 252 | .. | .. | .. |
| Of these: Unrecovered | 163 | 152 | 315 | .. | .. | .. |
| Of these: Died | 86 | 54 | 140 | 309 | 338 | 707 |
| Remaining | | | | 50 | 52 | 102 |

| READMISSIONS. | M. | F. | T. | M. | F. | T. |
|---|---|---|---|---|---|---|
| Readmitted | .. | .. | .. | 76 | 97 | 173 |
| Of these: Recovered | 23 | 38 | 61 | .. | .. | .. |
| Of these: Unrecovered | 25 | 30 | 55 | .. | .. | .. |
| Of these: Died | 18 | 15 | 24 | 57 | 83 | 140 |
| Remaining | | | | 19 | 14 | 33 |

| TOTAL CASES UNDER CARE. | M. | F. | T. | M. | F. | T. |
|---|---|---|---|---|---|---|
| Total Cases admitted | .. | .. | .. | 495 | 487 | 982 |
| Of these: Recovered | 143 | 170 | 313 | .. | .. | .. |
| Of these: Unrecovered | 188 | 182 | 370 | .. | .. | .. |
| Of these: Died | 95 | 69 | 164 | 426 | 421 | 847 |
| Remaining | | | | 69 | 66 | 135 |

| Of the above— | M. | F. | T. |
|---|---|---|---|
| Percentage Recovered | 29·63 | 33·84 | 31·14 |
| ,, Unrecovered | 38·90 | 38·97 | 38·93 |
| ,, Died | 20·52 | 13·84 | 17·30 |
| ,, Remaining | 11·93 | 13·33 | 12·60 |

| Of the above— | M. | F. | T. |
|---|---|---|---|
| Percentage Recovered | 30·26 | 39·17 | 35·26 |
| ,, Unrecovered | 32·89 | 30·92 | 31·79 |
| ,, Died | 11·84 | 15·46 | 13·87 |
| ,, Remaining | 25·00 | 14·43 | 19·07 |

| Of the above— | M. | F. | T. |
|---|---|---|---|
| Percentage Recovered | 28·80 | 34·90 | 31·87 |
| ,, Unrecovered | 37·97 | 37·30 | 37·67 |
| ,, Died | 19·19 | 14·16 | 16·70 |
| ,, Remaining | 13·93 | 13·55 | 13·74 |

Percentage of Readmissions on Total Numbers admitted—Males, 15·35; Females, 19·91; Total, 17·61.

TABLE II.—*A Statement of Insane and Neuropathic Heredity recorded in reference to* 809 *Persons*—1884–1904 *inclusive.*

| | Total Admitted. | | | No Heredity of Insanity. | | | Heredity of Insanity. | | | Heredity of Insanity, etc. | | | Percentage of Hereditary Insanity. | | | Percentage of Heredity of Insanity, etc. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Period I. ending 1884 | 99 | 100 | 199 | 58 | 56 | 114 | 41 | 44 | 85 | 59 | 59 | 118 | 41·41 | 44·00 | 42·71 | 59·59 | 59·00 | 59·29 |
| Period II. ,, 1894 | 139 | 130 | 269 | 77 | 75 | 152 | 62 | 55 | 117 | 101 | 83 | 184 | 44·60 | 42·30 | 43·49 | 72·66 | 63·84 | 68·40 |
| Period III. ,, 1904 | 181 | 160 | 341 | 102 | 73 | 175 | 79 | 87 | 166 | 145 | 134 | 279 | 43·64 | 54·37 | 48·68 | 80·11 | 83·75 | 81·81 |
| Total . | 419 | 390 | 809 | 237 | 204 | 441 | 182 | 186 | 368 | 305 | 276 | 581 | 43·43 | 47·69 | 45·48 | 72·79 | 70·76 | 71·81 |

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TABLE III.—*Showing Neuropathic Relatives affected, Direct and Collateral (including Voluntary Patients).*
*Total Cases*, 1104. *Persons recorded: Males*, 331; *Females*, 292; *Total*, 623.

### INSANE RELATIONS.

| | | Direct. | | | Collateral. | | | Totals. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M. | F. | T. | M. | F. | T. | | M. | F. | T. | |
| Group 1 | Coll. | 2 | 2 | 4 | .. | .. | .. | 2 | 2 | 4 | Pat. | 65 54 119 |
| | F. F. | 2 | 4 | 6 | | | | | | | | |
| | F. M. | 4 | 3 | 7 | 36 | 31 | 67 | .. | .. | .. | | |
| Group 2 | F. . | 30 | 24 | 59 | | | | | | | | |
| | F. B. | 15 | 11 | 26 | .. | .. | .. | 27 | 21 | 48 | | |
| | F. S. | 12 | 10 | 22 | | | | | | | | |
| Group 1 | Coll. | 2 | 1 | 3 | .. | .. | .. | 2 | 1 | 3 | Mat. | 61 67 128 |
| | M. F. | 4 | 1 | 5 | | | | | | | | |
| | M. M. | 3 | 3 | 6 | 35 | 42 | 77 | .. | .. | .. | | |
| | M. . | 28 | 38 | 66 | | | | | | | | |
| Group 2 | M. B. | 9 | 12 | 21 | .. | .. | .. | 24 | 24 | 48 | | |
| | M. S. | 15 | 12 | 27 | | | | | | | | |
| = | B. S. | 49 | 51 | 100 | .. | .. | .. | 81 | 122 | 210 | Others. | 220 235 455 |
| | S. . | 39 | 71 | 110 | | | | | | | | |
| Group 3 | Ch. | 5 | 1 | 6 | 5 | 1 | 6 | .. | .. | .. | | |
| | Others | 127 | 112 | 239 | .. | .. | .. | 127 | 112 | 239 | | |
| Total . . | | 346 | 356 | 702 | 76 | 74 | 150 | 270 | 282 | 352 | | 346 356 702 |

### ECCENTRICITY AND NEUROSES.

| | | Direct. | | | Collateral. | | | Totals. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M. | F. | T. | M. | F. | T. | | M. | F. | T. | |
| Coll. . . . | | .. | .. | .. | | | | | | | | |
| F. F. . . . | | 3 | 1 | 4 | 20 | 16 | 36 | .. | .. | .. | Pat. | 22 19 41 |
| F. M. . . . | | 1 | 1 | 2 | | | | | | | | |
| F. . . . | | 16 | 14 | 30 | | | | | | | | |
| F. B. . . . | | 1 | 0 | 1 | .. | .. | .. | 2 | 3 | 5 | | |
| F. S. . . . | | 1 | 3 | 4 | | | | | | | | |
| Coll. . . . | | .. | .. | .. | 31 | 13 | 44 | .. | .. | .. | Mat. | 36 16 52 |
| M. F. . . . | | 0 | 1 | 1 | | | | | | | | |
| M. M. . . . | | 1 | 0 | 1 | | | | | | | | |
| M. . . . | | 30 | 12 | 42 | | | | | | | | |
| M. B. . . . | | 3 | 1 | 4 | .. | . | .. | 5 | 3 | 8 | | |
| M. S. . . . | | 2 | 2 | 4 | | | | | | | | |
| B. . . . | | 21 | 14 | 35 | .. | .. | .. | 45 | 40 | 85 | Others. | 81 66 147 |
| S. . . . | | 24 | 26 | 50 | | | | | | | | |
| Ch. . . . | | 0 | 2 | 2 | 0 | 2 | 2 | .. | .. | .. | | |
| Others . . | | 36 | 24 | 60 | .. | .. | .. | 36 | 24 | 60 | | |
| Total . | | 139 | 101 | 240 | 51 | 31 | 82 | 88 | 70 | 158 | | 139 101 240 |

### PARALYSIS.

| | | Direct. | | | Collateral. | | | Totals. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M. | F. | T. | M. | F. | T. | | M. | F. | T. | |
| Group 1 | Coll. | .. | .. | .. | 43 | 32 | 75 | .. | .. | .. | Pat. | 54 35 89 |
| | F. F. | 6 | 2 | 8 | | | | | | | | |
| | F. M. | 4 | 4 | 8 | | | | | | | | |
| Group 2 | F. . | 33 | 26 | 59 | .. | .. | .. | 11 | 3 | 14 | | |
| | F. B. | 4 | 1 | 5 | | | | | | | | |
| | F. S. | 7 | 2 | 9 | | | | | | | | |
| Group 1 | Coll. | .. | .. | .. | 27 | 24 | 51 | .. | .. | .. | Mat. | 30 28 58 |
| | M. F. | 8 | 3 | 11 | | | | | | | | |
| | M. M. | 2 | 2 | 4 | | | | | | | | |
| | M. . | 17 | 19 | 36 | | | | | | | | |
| Group 2 | M. B. | 0 | 2 | 2 | .. | .. | .. | 3 | 4 | 7 | | |
| | M. S. | 3 | 2 | 5 | | | | | | | | |
| = | B. . | 8 | 4 | 12 | .. | .. | .. | 19 | 6 | 25 | Others. | 32 12 44 |
| | S. . | 11 | 2 | 13 | | | | | | | | |
| | Ch. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Group 3 | Others | 13 | 6 | 19 | .. | .. | .. | 13 | 6 | 19 | | |
| Total . . | | 116 | 75 | 191 | 70 | 56 | 126 | 46 | 19 | 65 | | 116 75 191 |

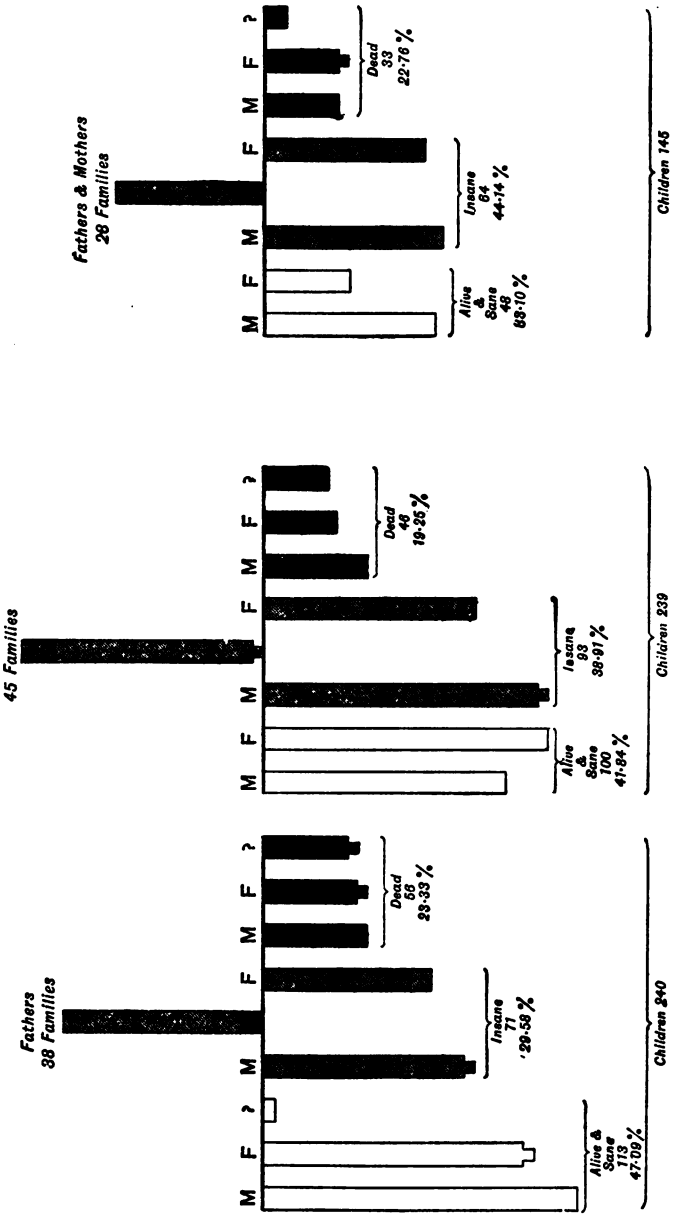
### ALCOHOLISM.

| | | Direct. | | | Collateral. | | | Totals. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M. | F. | T. | M. | F. | T. | | M. | F. | T. | |
| F. F. . . . | | 3 | 1 | 4 | 26 | 19 | 45 | .. | .. | .. | Pat. | 34 29 63 |
| F. M. . . . | | 1 | 0 | 1 | | | | | | | | |
| F. . . . | | 22 | 18 | 40 | | | | | | | | |
| F. B. . . . | | 6 | 10 | 16 | .. | .. | .. | 8 | 10 | 13 | | |
| F. S. . . . | | 2 | 0 | 2 | | | | | | | | |
| Coll. . . . | | .. | .. | .. | 11 | 4 | 15 | .. | .. | .. | Mat. | 18 5 23 |
| M. F. . . . | | 4 | 0 | 4 | | | | | | | | |
| M. M. . . . | | 1 | 0 | 1 | | | | | | | | |
| M. . . . | | 6 | 4 | 10 | | | | | | | | |
| M. B. . . . | | 7 | 1 | 8 | .. | .. | .. | 7 | 1 | 8 | | |
| M. S. . . . | | .. | .. | .. | | | | | | | | |
| B. . . . | | 23 | 22 | 45 | .. | .. | .. | 27 | 30 | 57 | Males. | 42 40 82 |
| S. . . . | | 4 | 8 | 12 | | | | | | | | |
| Ch. . . . | | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Others . . | | 16 | 10 | 26 | .. | .. | .. | 16 | 10 | 26 | | |
| Total . | | 95 | 74 | 169 | 37 | 23 | 60 | 58 | 51 | 109 | | 95 74 169 |

NOTE.—For F. F. read Father's Father, F. B. Father's Brother, etc.

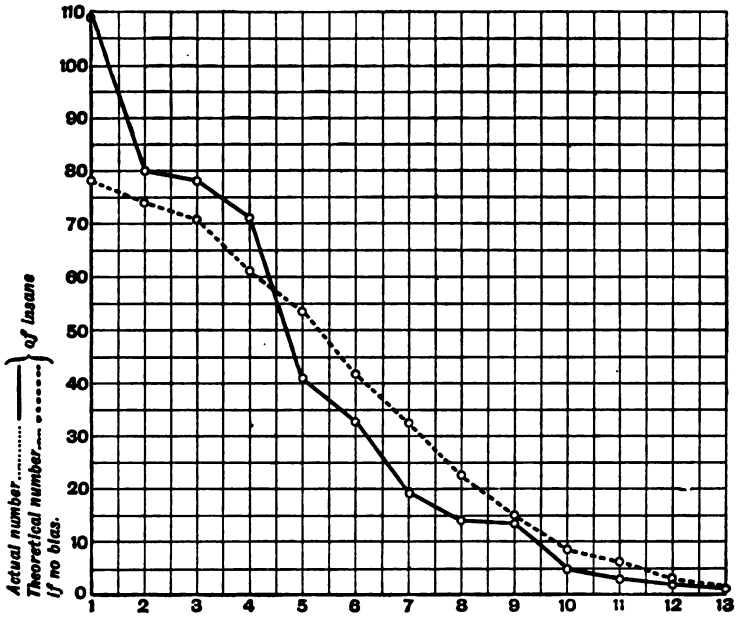
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TABLE IV.—*Chart of the Children of Parents Insane, Alcoholic or otherwise Neuropathic.*




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TABLE V.—*Chart of the Incidence of Insanity in Neuropathic Families.*






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TABLE VA.—*Families containing at least one Insane Member.*

| I. Frequency of size of Family. | | II. No. of Persons born 1st, 2nd, etc. | | III. No. of Persons born 1st, 2nd, etc., actually Insane. | | IV. No. of Persons born, 1st, 2nd, etc., and Insane, if no bias. | |
|---|---|---|---|---|---|---|---|
| No. in Family. | Frequency. | Order. | Frequency. | Order. | Frequency. | Order. | Frequency. |
| 1 | 10 | 1st | 315 | 1st | 108 | 1st | 77·3 |
| 2 | 14 | 2nd | 305 | 2nd | 80 | 2nd | 74·8 |
| 3 | 42 | 3rd | 291 | 3rd | 78 | 3rd | 71·4 |
| 4 | 30 | 4th | 249 | 4th | 71 | 4th | 61·1 |
| 5 | 48 | 5th | 219 | 5th | 41 | 5th | 53·7 |
| 6 | 37 | 6th | 171 | 6th | 33 | 6th | 41·9 |
| 7 | 41 | 7th | 134 | 7th | 19 | 7th | 32·9 |
| 8 | 38 | 8th | 93 | 8th | 14 | 8th | 22·8 |
| 9 | 20 | 9th | 55 | 9th | 13 | 9th | 13·5 |
| 10 | 13 | 10th | 35 | 10th | 5 | 10th | 8·6 |
| 11 | 8 | 11th | 22 | 11th | 3 | 11th | 5·4 |
| 12 | 9 | 12th | 14 | 12th | 2 | 12th | 3·4 |
| 13 | 5 | 13th | 5 | 13th | 1 | 13th | 1·2 |
| | 315 | | 1908 | | 468 | | 468·0 |

Family = Fraternity.

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TABLE VI.—*Certified Patients. First Admissions. Table showing the number of Patients affected by Mental Disorders, correlated with general causal Factors and Age Periods—from inception to latest information*, 1906.

| Mental Disorders. | Total Persons. | | | Deduct these Cases of— | | | | | | | | | | | | | | | | | | | | | | | | Net Total of Ordinary Insanity. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Alcoholism. | | | General Paralysis. | | | Epilepsy. | | | Organic. | | | Senile. | | | Trauma. | | | Idiots. | | | Being Persons. | | | | | |
| | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Melancholia—Recent . . | 67 | | 155 | 13 | 1 | 14 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 2 | 7 | 8 | 15 | 3 | 0 | 3 | 0 | 0 | 0 | 25 | 9 | 34 | 42 | 79 | 121 |
| Melancholia—Chronic . | 48 | 62 | 110 | 5 | 3 | 8 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 2 | 2 | 5 | 7 | 1 | 1 | 2 | 0 | 0 | 0 | 9 | 10 | 19 | 39 | 52 | 91 |
| Mania—Recent . . | 89 | 74 | 163 | 24 | 5 | 29 | 12 | 0 | 12 | 5 | 1 | 6 | 1 | 1 | 2 | 10 | 6 | 16 | 2 | 0 | 2 | 0 | 0 | 0 | 43 | 13 | 56 | 46 | 61 | 107 |
| Mania—Chronic . . . | 60 | 80 | 140 | 20 | 10 | 30 | 7 | 1 | 8 | 1 | 1 | 2 | 4 | 3 | 7 | 7 | 10 | 17 | 1 | 3 | 4 | 0 | 0 | 0 | 33 | 23 | 56 | 27 | 57 | 84 |
| Delusional Insanity . . | 53 | 43 | 96 | 8 | 0 | 8 | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 0 | 1 | 3 | 0 | 3 | 4 | 0 | 4 | 0 | 0 | 0 | 15 | 1 | 16 | 38 | 42 | 80 |
| Dementia (including circular Insanity) . . | 91 | 40 | 131 | 19 | 6 | 25 | 19 | 0 | 19 | 9 | 0 | 9 | 2 | 0 | 2 | 6 | 6 | 12 | 9 | 2 | 11 | 0 | 0 | 0 | 48 | 12 | 60 | 43 | 28 | 71 |
| Totals . . | 408 | 387 | 795 | 89 | 25 | 114 | 39 | 1 | 40 | 19 | 4 | 23 | 11 | 5 | 16 | 35 | 35 | 70 | 20 | 6 | 26 | 0 | 0 | 0 | 173 | 68 | 241 | 235 | 319 | 554 |
| Idiots and Imbeciles . . | 11 | 3 | 14 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 3 | 14 | 11 | 3 | 14 | 0 | 0 | 0 |
| Grand Total . | 419 | 390 | 809 | 90 | 25 | 115 | 39 | 1 | 40 | 20 | 4 | 24 | 11 | 5 | 16 | 35 | 35 | 70 | 20 | 6 | 26 | 11 | 3 | 14 | 184 | 71 | 255 | 235 | 319 | 554 |

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TABLE VI.—*Continued*.

| Mental Disorders. | Net Total of Ordinary Insanity. | | | Causal. On First Admission. | Final Results. Recovered. | | | Recovered and Relapsed. | | | Unrecovered. | | | Died Insane. | | | Total. | | | | Percentages. Recovered. | | | Recovered and Relapsed. | | | Unrecovered. | | | Died Insane. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | T. | | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Melancholia—Recent | 42 | 79 | 121 | Innate | 10 | 23 | 33 | 3 | 4 | 7 | 10 | 21 | 31 | 5 | 6 | 11 | 28 | 54 | 82 | | | | | | | | | | | | |
| | | | | Acquired | 5 | 6 | 11 | 2 | 2 | 4 | 5 | 11 | 16 | 2 | 6 | 8 | 14 | 25 | 39 | | | | | | | | | | | | |
| | | | | Mental | 6 | 11 | 17 | 5 | 5 | 10 | 5 | 17 | 22 | 5 | 5 | 10 | 21 | 33 | 59 | | | | | | | | | | | | |
| | | | | Physical | 10 | 25 | 35 | 2 | 6 | 8 | 6 | 24 | 30 | 2 | 11 | 13 | 20 | 66 | 86 | Innate | 27·12 | 38·20 | 33·79 | 13·56 | 13·48 | 13·51 | 42·37 | 35·96 | 38·51 | 16·95 | 12·36 | 14·19 |
| Melancholia—Chronic | 39 | 52 | 91 | Innate | 6 | 11 | 17 | 5 | 8 | 13 | 15 | 11 | 26 | 5 | 5 | 10 | 31 | 35 | 66 | Acquired | 31·82 | 26·19 | 28·13 | 13·64 | 4·76 | 7·81 | 36·36 | 40·48 | 39·06 | 18·18 | 28·57 | 25·00 |
| | | | | Acquired | 2 | 5 | 7 | 1 | 0 | 1 | 3 | 6 | 9 | 2 | 6 | 8 | 8 | 17 | 25 | | | | | | | | | | | | |
| | | | | Mental | 2 | 4 | 6 | 2 | 6 | 8 | 6 | 7 | 13 | 3 | 4 | 7 | 13 | 21 | 34 | | | | | | | | | | | | |
| | | | | Physical | 4 | 11 | 15 | 2 | 5 | 7 | 8 | 14 | 22 | 3 | 10 | 13 | 17 | 40 | 57 | | | | | | | | | | | | |
| Mania—Recent | 46 | 61 | 107 | Innate | 13 | 20 | 33 | 6 | 10 | 16 | 8 | 5 | 13 | 6 | 5 | 11 | 33 | 40 | 73 | | | | | | | | | | | | |
| | | | | Acquired | 4 | 12 | 16 | 4 | 2 | 6 | 1 | 5 | 6 | 4 | 2 | 6 | 13 | 21 | 34 | | | | | | | | | | | | |
| | | | | Mental | 7 | 14 | 21 | 3 | 6 | 9 | 5 | 2 | 7 | 6 | 3 | 9 | 21 | 25 | 46 | | | | | | | | | | | | |
| | | | | Physical | 12 | 24 | 36 | 8 | 8 | 16 | 5 | 5 | 10 | 7 | 7 | 14 | 32 | 44 | 76 | Innate | 30·91 | 31·32 | 31·16 | 27·27 | 22·89 | 24·64 | 23·64 | 26 51 | 25·36 | 18 18 | 19·28 | 18·84 |
| Mania—Chronic | 27 | 57 | 84 | Innate | 4 | 6 | 10 | 9 | 9 | 18 | 5 | 17 | 22 | 4 | 11 | 15 | 22 | 43 | 65 | Acquired | 27·78 | 45·72 | 39·62 | 22·22 | 8·57 | 13·21 | 22·22 | 20·00 | 20·75 | 27·78 | 25·71 | 26·42 |
| | | | | Acquired | 1 | 4 | 5 | 0 | 1 | 1 | 3 | 2 | 5 | 1 | 7 | 8 | 5 | 14 | 19 | | | | | | | | | | | | |
| | | | | Mental | 1 | 7 | 8 | 2 | 4 | 6 | 1 | 5 | 6 | 3 | 4 | 7 | 7 | 20 | 27 | | | | | | | | | | | | |
| | | | | Physical | 1 | 8 | 9 | 2 | 7 | 9 | 3 | 16 | 19 | 4 | 13 | 17 | 10 | 44 | 54 | | | | | | | | | | | | |
| Delusional Insanity | 38 | 42 | 80 | Innate | 2 | 2 | 4 | 2 | 3 | 5 | 19 | 20 | 39 | 8 | 8 | 16 | 31 | 33 | 64 | | | | | | | | | | | | |
| | | | | Acquired | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 5 | 10 | 2 | 3 | 5 | 7 | 9 | 16 | | | | | | | | | | | | |
| | | | | Mental | 0 | 1 | 1 | 0 | 1 | 1 | 3 | 5 | 8 | 4 | 4 | 8 | 7 | 11 | 18 | | | | | | | | | | | | |
| | | | | Physical | 1 | 1 | 2 | 0 | 0 | 0 | 10 | 11 | 21 | 6 | 5 | 11 | 17 | 17 | 34 | Innate | 3·45 | 5·66 | 4·50 | 5·17 | 7·55 | 6·31 | 62·07 | 60·38 | 61·26 | 29·31 | 26·41 | 27·93 |
| Dementia (including circular Insanity) | 43 | 28 | 71 | Innate | 0 | 1 | 1 | 1 | 1 | 2 | 17 | 12 | 29 | 9 | 6 | 15 | 27 | 20 | 47 | Acquired | 0·00 | 5·88 | 2·50 | 0·00 | 5·88 | 2·50 | 69·57 | 64·71 | 67·50 | 30·44 | 23·53 | 27·50 |
| | | | | Acquired | 0 | 1 | 1 | 0 | 0 | 0 | 11 | 6 | 17 | 5 | 1 | 6 | 16 | 8 | 24 | | | | | | | | | | | | |
| | | | | Mental | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 6 | 2 | 1 | 3 | 3 | 6 | 9 | | | | | | | | | | | | |
| | | | | Physical | 0 | 2 | 2 | 1 | 0 | 1 | 5 | 7 | 12 | 8 | 2 | 10 | 14 | 11 | 25 | | | | | | | | | | | | |
| Totals | 235 | 319 | 554 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grand Total | 235 | 319 | 554 | Innate and Acquired | 47 | 91 | 138 | 33 | 41 | 74 | 102 | 121 | 223 | 53 | 66 | 119 | 235 | 319 | 554 | Innate and Acquired | 20·0 | 28·53 | 24·91 | 14·05 | 12·85 | 13·36 | 43·40 | 37·93 | 40·25 | 22·55 | 20·69 | 21·48 |

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## TABLE VI.—*Continued.*

| Mental Disorders. | Net Total of Ordinary Insanity. | | | Period of Life on First Admission. | Final Results. Recovered | | | Recovered and Relapsed. | | | Unrecovered. | | | Died Insane. | | | Total. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | T. | | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Melancholia—Recent | 42 | 79 | 121 | Adolesc'nt | 6 | 3 | 9 | 1 | 2 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 9 | 6 | 15 |
| | | | | Maturity | 3 | 18 | 21 | 3 | 2 | 5 | 10 | 18 | 28 | 1 | 2 | 3 | 17 | 40 | 57 |
| | | | | Climacter. | 6 | 8 | 14 | 1 | 2 | 3 | 5 | 13 | 18 | 4 | 10 | 14 | 16 | 33 | 49 |
| Melancholia—Chronic | 39 | 52 | 91 | Adolesc'nt | 5 | 4 | 9 | 0 | 4 | 4 | 6 | 5 | 11 | 0 | 1 | 1 | 11 | 14 | 25 |
| | | | | Maturity | 3 | 7 | 10 | 5 | 2 | 7 | 8 | 5 | 13 | 3 | 7 | 10 | 19 | 21 | 40 |
| | | | | Climacter. | 0 | 5 | 5 | 1 | 2 | 3 | 4 | 7 | 11 | 4 | 3 | 7 | 9 | 17 | 26 |
| Mania—Recent | 46 | 61 | 107 | Adolesc'nt | 7 | 14 | 21 | 7 | 3 | 10 | 5 | 3 | 8 | 5 | 3 | 8 | 24 | 23 | 47 |
| | | | | Maturity | 8 | 12 | 20 | 3 | 6 | 9 | 4 | 3 | 7 | 3 | 3 | 6 | 18 | 24 | 42 |
| | | | | Climacter. | 2 | 6 | 8 | 0 | 3 | 3 | 0 | 4 | 4 | 2 | 1 | 3 | 4 | 14 | 18 |
| Mania—Chronic | 27 | 57 | 84 | Adolesc'nt | 2 | 3 | 5 | 4 | 3 | 7 | 7 | 8 | 15 | 0 | 9 | 9 | 13 | 23 | 36 |
| | | | | Maturity | 3 | 3 | 6 | 4 | 7 | 11 | 1 | 8 | 9 | 4 | 6 | 10 | 12 | 24 | 36 |
| | | | | Climacter. | 0 | 4 | 4 | 1 | 0 | 1 | 0 | 3 | 3 | 1 | 3 | 4 | 2 | 10 | 12 |
| Delusional insanity | 38 | 42 | 80 | Adolesc'nt | 0 | 0 | 0 | 2 | 0 | 2 | 7 | 2 | 9 | 4 | 0 | 4 | 13 | 2 | 15 |
| | | | | Maturity | 2 | 2 | 4 | 0 | 1 | 1 | 15 | 16 | 31 | 3 | 5 | 8 | 20 | 24 | 44 |
| | | | | Climacter. | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 7 | 9 | 3 | 6 | 9 | 5 | 16 | 21 |
| Dementia (including circular Insanity) | 43 | 28 | 71 | Adolesc'nt | 0 | 1 | 1 | 1 | 1 | 2 | 17 | 9 | 26 | 4 | 1 | 5 | 22 | 12 | 34 |
| | | | | Maturity | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 7 | 18 | 6 | 4 | 10 | 17 | 11 | 28 |
| | | | | Climacter. | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 2 | 6 | 4 | 5 | 9 |
| Totals | 235 | 319 | 554 | | | | | | | | | | | | | | | | |
| Grand Total | 235 | 319 | 554 | | 47 | 91 | 138 | 33 | 41 | 74 | 102 | 121 | 223 | 53 | 66 | 119 | 235 | 319 | 554 |

| | Percentages. Recovered. | | | Recovered and Relapsed. | | | Unrecovered. | | | Died Insane. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Adolesc'nt | 55·00 | 35·00 | 45·00 | 5·00 | 30·00 | 17·50 | 30·00 | 30·00 | 30·00 | 10·00 | 5·00 | 7·50 |
| Maturity | 16·67 | 40·98 | 31·96 | 22·22 | 6·56 | 12·37 | 50·00 | 37·71 | 42·27 | 11·11 | 14·75 | 13·40 |
| Climacter. | 24·00 | 26·00 | 25·33 | 8·00 | 8·00 | 8·00 | 36·00 | 40·00 | 38·67 | 32·00 | 26·00 | 28·00 |
| Adolesc'nt | 24·32 | 36·96 | 31·33 | 29·73 | 13·04 | 20·48 | 32·43 | 23·91 | 27·71 | 13·52 | 26·09 | 20·48 |
| Maturity | 36·67 | 31·25 | 33·34 | 23·33 | 27·08 | 25·64 | 16·67 | 22·92 | 20·51 | 23·33 | 18·75 | 20·51 |
| Climacter. | 33·33 | 41·67 | 40·00 | 16·67 | 12·50 | 13·34 | 0·00 | 29·16 | 23·33 | 50·00 | 16·67 | 23·33 |
| Adolesc'nt | 0·00 | 7·15 | 2·04 | 8·57 | 7·14 | 8·16 | 68·57 | 78·57 | 71·43 | 22·86 | 7·14 | 18·37 |
| Maturity | 5·41 | 5·72 | 5·56 | 0·00 | 2·86 | 1·39 | 70·27 | 65·71 | 68·05 | 24·32 | 25·71 | 25·00 |
| Climacter. | 0·00 | 4·76 | 3·33 | 0·00 | 14·29 | 10·00 | 22·22 | 42·86 | 36·67 | 77·78 | 38·09 | 50·00 |

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TABLE VII.—*Conditions associated with Insanity, as ascertained on First Admissions—all forms included. Asylum Statistics—Certified Patients.*

| Persons Observed. | Total Incidence. | | | Total Neuropathic Heredity. | | Heredity of Insanity. | | Exhaustion (non-toxic). | | Epilepsy | | General Paralysis | | Other Organic Diseases of the Brain. | | Alcoholic. | | Autotoxic (Gout, Rheumatism, etc.) | | Tubercle | | Syphilis. | | Traumata. | | Senile. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | T. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| Total Neuropathic Heredity . | 305 | 276 | 581 | 305 | 276 | .. | .. | 9 | 18 | 12 | 3 | 31 | 1 | 7 | 4 | 69 | 17 | 24 | 37 | 15 | 10 | 28 | .. | 12 | 3 | 22 | 24 |
| Heredity of Insanity . . . | 182 | 186 | 368 | .. | .. | 182 | 186 | 4 | 14 | 4 | 1 | 10 | .. | 3 | 2 | 39 | 8 | 16 | 25 | 10 | 9 | 15 | .. | 10 | .. | 18 | 16 |
| Exhaustion (not toxic) . . | 16 | 26 | 42 | 9 | 18 | 4 | 14 | 16 | 26 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | 2 | .. |
| Epilepsy . . . . . | 20 | 4 | 24 | 12 | 3 | 4 | 1 | .. | .. | 20 | 4 | 1 | .. | .. | .. | 10 | 1 | 2 | .. | .. | .. | 2 | .. | 3 | .. | .. | 1 |
| General Paralysis . . . | 39 | 1 | 40 | 31 | 1 | 10 | .. | 2 | .. | 1 | .. | 39 | 1 | .. | .. | 14 | .. | 3 | .. | .. | .. | 23 | .. | 1 | .. | .. | .. |
| Organic cerebral diseases . . | 11 | 5 | 16 | 7 | 4 | 3 | 2 | .. | .. | .. | .. | .. | .. | 11 | 5 | 4 | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | 6 | 1 |
| Hæmopoietic . . . . | 16 | 25 | 41 | 11 | 17 | 5 | 12 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 3 | 1 | 1 | .. | .. | .. | .. | .. | .. |
| Cardio-vascular . . . . | 72 | 73 | 145 | 52 | 46 | 35 | 36 | 1 | 4 | 4 | .. | 1 | .. | 1 | .. | 18 | 4 | 7 | 12 | 1 | 2 | 2 | .. | .. | 2 | 9 | 16 |
| Respiratory (not Phthisis) . . | 4 | 12 | 16 | 3 | 11 | 2 | 8 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 2 |
| Gastro-intestinal . . . . | 34 | 61 | 95 | 24 | 46 | 18 | 26 | .. | 3 | .. | .. | 2 | .. | 1 | .. | 6 | .. | 2 | 7 | 1 | 3 | 1 | .. | .. | 1 | 4 | 5 |
| Renal and vesical . . . | 19 | 16 | 35 | 14 | 11 | 8 | 4 | 1 | .. | 2 | .. | .. | 1 | 2 | 1 | 6 | .. | 2 | 3 | .. | .. | .. | .. | .. | .. | 3 | 1 |
| Generative . . . . . | 8 | 82 | 90 | 6 | 60 | 2 | 45 | .. | 5 | 1 | 1 | .. | .. | .. | 1 | 1 | 1 | .. | 5 | 1 | 1 | .. | .. | .. | .. | 2 | 1 |
| Others . . . . . | 29 | 30 | 59 | 17 | 21 | 10 | 12 | 1 | .. | 1 | 1 | 1 | .. | .. | .. | 4 | 3 | 2 | .. | .. | 1 | .. | .. | .. | .. | 2 | 1 |
| Exotoxic—Alcohol, etc. . . | 90 | 25 | 115 | 69 | 17 | 39 | 8 | .. | .. | 10 | 1 | 14 | .. | 4 | 1 | 90 | 25 | 5 | 1 | 2 | 2 | 11 | 1 | 3 | .. | 3 | 1 |
| Autotoxic—Gout, etc. . . | 38 | 55 | 93 | 24 | 37 | 16 | 25 | .. | 1 | 2 | .. | 3 | .. | .. | .. | 5 | 1 | 38 | 55 | 1 | 1 | .. | .. | 1 | .. | 9 | 1 |
| Microbic Tubercle . . . | 21 | 14 | 35 | 15 | 10 | 10 | 9 | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 2 | 1 | 1 | 21 | 14 | .. | .. | .. | .. | .. | .. |
| ,, Syphilis . . . | 33 | 1 | 34 | 28 | .. | 15 | .. | .. | .. | 2 | .. | 23 | .. | .. | .. | 11 | 1 | .. | .. | .. | .. | 33 | 1 | .. | .. | .. | .. |
| Traumata . . . . . | 20 | 6 | 26 | 12 | 3 | 10 | .. | .. | 1 | 3 | .. | 1 | .. | 1 | .. | 3 | .. | 1 | .. | .. | .. | .. | .. | 20 | 6 | 1 | .. |
| Senile . . . . . | 35 | 35 | 70 | 22 | 24 | 18 | 16 | 2 | .. | .. | 1 | .. | .. | 6 | 1 | 3 | 1 | 9 | 1 | .. | .. | .. | .. | 1 | .. | 35 | 35 |

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TABLE VIII.—*Showing Occupation and Environment in relation to Ordinary and Pathological Insanity, correlated with Heredity and Stress, and Results of Treatment. Certified Patients.*

| Occupations and Dependants. | Total Persons. | | | URBAN. | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Heredity. | | | | | | Mental Disorder. | | | | | | Final Results. | | | | | | | | | | |
| | | | | Neuropathic. | | | None. | | | Ordinary. | | | Pathological. | | | Recovered. | | | Unrecovered. | | | Died. | | | Total. | | |
| | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Government, Army, etc. | 19 | 7 | 26 | 10 | 3 | 13 | 2 | .. | 2 | 6 | 3 | 9 | 6 | .. | 6 | 1 | 2 | 3 | 5 | 1 | 6 | 6 | .. | 6 | 12 | 3 | 15 |
| Clerical | 12 | 14 | 26 | 3 | 6 | 9 | 1 | 1 | 2 | 3 | 7 | 10 | 1 | .. | 1 | 1 | 2 | 3 | 1 | 4 | 5 | 2 | 1 | 3 | 4 | 7 | 11 |
| Legal | 19 | 4 | 23 | 13 | 2 | 15 | 6 | .. | 6 | 15 | 2 | 17 | 4 | .. | 4 | 2 | .. | 2 | 14 | 1 | 15 | 3 | 1 | 4 | 19 | 2 | 21 |
| Medical | 19 | 5 | 24 | 10 | 3 | 13 | 3 | .. | 3 | 9 | 3 | 12 | 4 | .. | 4 | 4 | 1 | 5 | 8 | 2 | 10 | 1 | .. | 1 | 13 | 3 | 16 |
| Teaching | 6 | 26 | 32 | 2 | 15 | 17 | 2 | 1 | 3 | 4 | 15 | 19 | .. | 1 | 1 | .. | 6 | 6 | 2 | 7 | 9 | 2 | 3 | 5 | 4 | 16 | 20 |
| Artistic and Literary | 12 | 5 | 17 | 8 | 4 | 12 | 3 | .. | 3 | 8 | 4 | 12 | 3 | .. | 3 | 2 | 1 | 3 | 7 | 3 | 10 | 2 | .. | 2 | 11 | 4 | 15 |
| Other Professions | 11 | .. | 11 | 4 | .. | 4 | 4 | .. | 4 | 7 | .. | 7 | 1 | .. | 1 | 3 | .. | 3 | 4 | .. | 4 | 1 | .. | 1 | 8 | .. | 8 |
| Domestic Service | .. | 44 | 44 | .. | 8 | 8 | .. | 8 | 8 | .. | 15 | 15 | .. | 1 | 1 | .. | 5 | 5 | .. | 7 | 7 | .. | 4 | 4 | . | 16 | 16 |
| Commercial | 128 | 47 | 175 | 69 | 26 | 95 | 25 | 9 | 34 | 47 | 30 | 77 | 47 | 5 | 52 | 20 | 14 | 34 | 47 | 14 | 61 | 27 | 7 | 34 | 94 | 35 | 129 |
| Railways and Seafaring | 6 | 5 | 11 | 2 | 2 | 4 | .. | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 2 | .. | 1 | 1 | 2 | 2 | 4 | .. | .. | .. | 2 | 3 | 5 |
| Agricultural | 65 | 43 | 108 | 3 | 4 | 7 | 3 | 3 | 6 | 3 | 7 | 10 | 3 | .. | 3 | 1 | 1 | 2 | 3 | 4 | 7 | 2 | 2 | 4 | 6 | 7 | 13 |
| Trades | 69 | 78 | 147 | 33 | 34 | 67 | 6 | 10 | 16 | 25 | 34 | 59 | 14 | 10 | 24 | 11 | 20 | 31 | 22 | 18 | 40 | 6 | 6 | 12 | 39 | 44 | 83 |
| Manufacturers | 7 | 5 | 12 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 2 | 4 | 1 | .. | 1 | .. | .. | .. | 2 | .. | 2 | 1 | 2 | 3 | 3 | 2 | 5 |
| Hotel-keepers, etc. | 10 | 13 | 23 | 3 | 6 | 9 | 5 | 3 | 8 | 3 | 9 | 12 | 5 | .. | 5 | 2 | 2 | 4 | 3 | 7 | 10 | 3 | .. | 3 | 8 | 9 | 17 |
| Independent Means | 16 | 80 | 96 | 4 | 37 | 41 | 2 | 18 | 20 | 3 | 45 | 48 | 3 | 10 | 13 | .. | 13 | 13 | 4 | 31 | 35 | 2 | 11 | 13 | 6 | 55 | 61 |
| No Occupation | 9 | 9 | 18 | 2 | 2 | 4 | 2 | 3 | 5 | 2 | 5 | 7 | 2 | .. | 2 | 2 | 1 | 3 | 1 | 4 | 5 | 1 | .. | 1 | 4 | 5 | 9 |
| Unknown | .. | 2 | 2 | .. | 2 | 2 | .. | .. | .. | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | 2 | 2 |
| Idiots and Imbeciles | 11 | 3 | 14 | 9 | 1 | 10 | .. | .. | .. | .. | .. | .. | 9 | 1 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 1 | 10 |
| Totals | 419 | 390 | 809 | 177 | 156 | 333 | 65 | 58 | 123 | 138 | 184 | 322 | 104 | 30 | 134 | 49 | 69 | 118 | 125 | 107 | 232 | 59 | 37 | 96 | 242 | 214 | 456 |
| RURAL. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Government, Army, etc. | 19 | 7 | 26 | 4 | 2 | 6 | 3 | 2 | 5 | 5 | 4 | 9 | 2 | .. | 2 | 1 | 2 | 3 | 5 | 1 | 6 | 1 | 1 | 2 | 7 | 4 | 11 |
| Clerical | 12 | 14 | 26 | 7 | 5 | 12 | 1 | 2 | 3 | 6 | 6 | 12 | 2 | 1 | 3 | .. | 1 | 1 | 5 | 5 | 10 | 3 | 1 | 4 | 8 | 7 | 15 |
| Legal | 19 | 4 | 23 | .. | 2 | 2 | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. | 2 | 2 |
| Medical | 19 | 5 | 24 | 5 | 2 | 7 | 1 | .. | 1 | 3 | 2 | 5 | 3 | .. | 3 | 1 | 2 | 3 | 4 | .. | 4 | 1 | .. | 1 | 6 | 2 | 8 |
| Teaching | 6 | 26 | 32 | 2 | 7 | 9 | .. | 3 | 3 | 2 | 10 | 12 | .. | .. | .. | .. | 2 | 2 | 2 | 6 | 8 | .. | 2 | 2 | 2 | 10 | 12 |
| Artistic and Literary | 12 | 5 | 17 | .. | .. | .. | 1 | 1 | 2 | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | 1 | 1 | 2 |
| Other Professions | 11 | .. | 11 | 3 | .. | 3 | .. | .. | .. | 2 | .. | 2 | 1 | .. | 1 | 2 | .. | 2 | 1 | .. | 1 | .. | .. | .. | 3 | .. | 3 |
| Domestic Service | .. | 44 | 44 | .. | 20 | 20 | .. | 8 | 8 | .. | 27 | 27 | .. | 1 | 1 | .. | 5 | 5 | .. | 12 | 12 | .. | 11 | 11 | .. | 28 | 28 |
| Commercial | 128 | 47 | 175 | 27 | 8 | 35 | 7 | 4 | 11 | 20 | 10 | 30 | 14 | 2 | 16 | 9 | 3 | 12 | 12 | 6 | 18 | 13 | 3 | 16 | 34 | 12 | 46 |
| Railways and Seafaring | 6 | 5 | 11 | 3 | 1 | 4 | 1 | 1 | 2 | 1 | 2 | 3 | 3 | .. | 3 | 1 | .. | 1 | 2 | 2 | 4 | 1 | .. | 1 | 4 | 2 | 6 |
| Agricultural | 65 | 43 | 108 | 39 | 27 | 66 | 20 | 9 | 29 | 43 | 34 | 77 | 16 | 2 | 18 | 17 | 8 | 25 | 34 | 24 | 58 | 8 | 4 | 12 | 59 | 36 | 95 |
| Trades | 69 | 78 | 147 | 19 | 18 | 37 | 11 | 16 | 27 | 23 | 33 | 56 | 7 | 1 | 8 | 9 | 10 | 19 | 18 | 20 | 38 | 3 | 4 | 7 | 30 | 34 | 64 |
| Manufacturers | 7 | 5 | 12 | 3 | 3 | 6 | 1 | .. | 1 | 3 | 3 | 6 | 1 | .. | 1 | 3 | .. | 3 | 1 | 3 | 4 | .. | .. | .. | 4 | 3 | 7 |
| Hotel-keepers, etc. | 10 | 13 | 23 | .. | 2 | 2 | 2 | 2 | 4 | .. | 3 | 3 | 2 | 1 | 3 | 1 | 3 | 4 | 1 | 1 | 2 | .. | .. | .. | 2 | 4 | 6 |
| Independent Means | 16 | 80 | 96 | 10 | 18 | 28 | .. | 7 | 7 | 8 | 24 | 32 | 2 | 1 | 3 | 3 | 4 | 7 | 5 | 17 | 22 | 2 | 4 | 6 | 10 | 25 | 35 |
| No Occupation | 9 | 9 | 18 | 4 | 3 | 7 | 1 | 1 | 2 | 5 | 4 | 9 | .. | .. | .. | 2 | .. | 2 | 3 | 3 | 6 | .. | 1 | 1 | 5 | 4 | 9 |
| Unknown | .. | 2 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | . | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Idiots and Imbeciles | 11 | 3 | 14 | 2 | 2 | 4 | .. | .. | .. | .. | .. | .. | 2 | 2 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 2 | 4 |
| Totals | 419 | 390 | 809 | 128 | 120 | 248 | 49 | 56 | 105 | 122 | 165 | 287 | 55 | 11 | 66 | 49 | 41 | 90 | 94 | 102 | 196 | 32 | 31 | 63 | 177 | 176 | 353 |

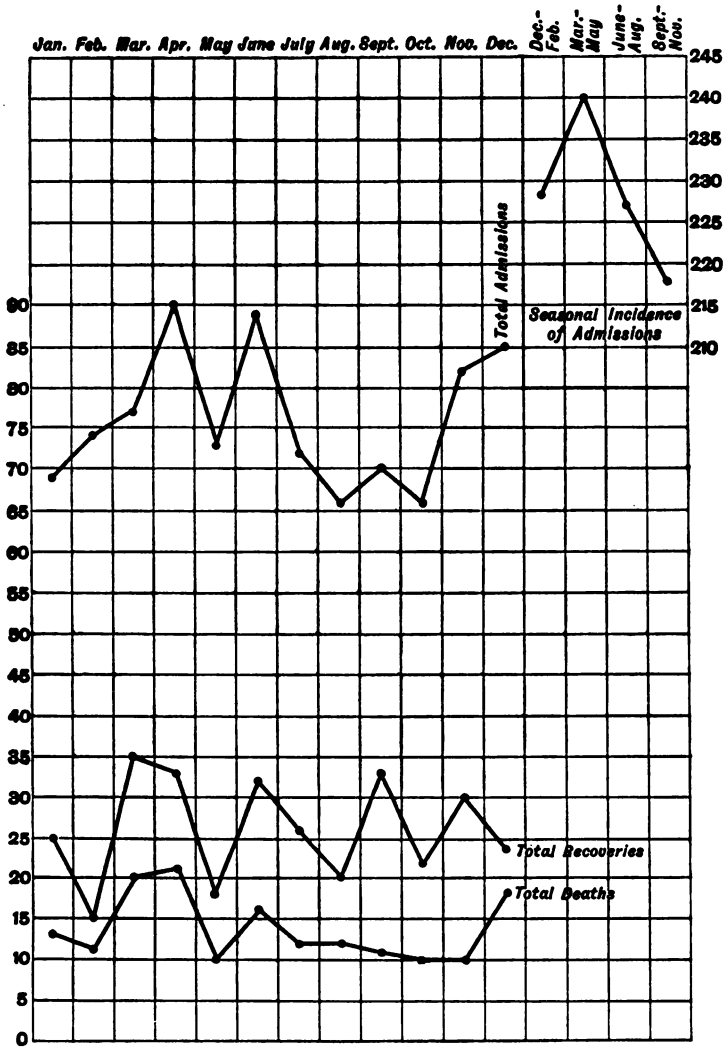
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TABLE VIII.—*Continued.*

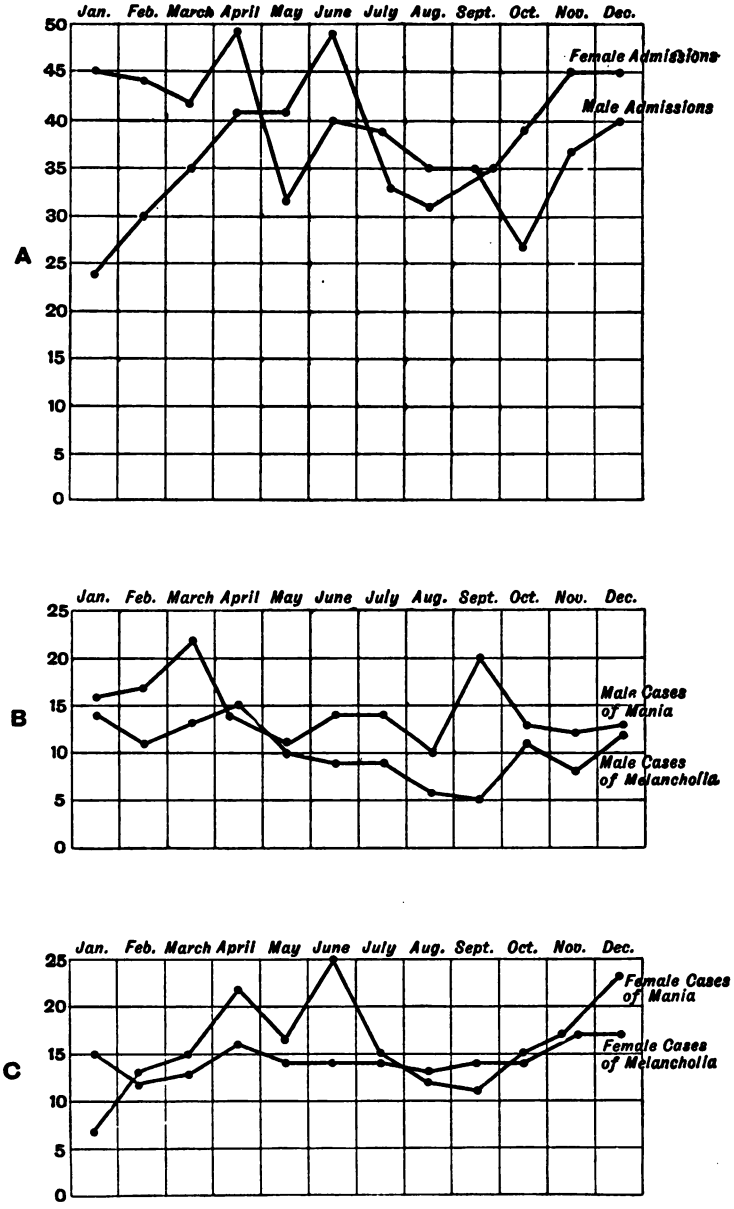
| Occupations and Dependants. | Total Persons. | | | Mental Stress. | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Heredity. | | | | | | Mental Disorders. | | | | | | Final Results. | | | | | | | | | | | |
| | | | | Neuropathic. | | | None. | | | Ordinary. | | | Pathological. | | | Recovered. | | | Unrecovered. | | | Died. | | | Total. | | |
| | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Government, Army, etc. | 19 | 7 | 26 | 1 | 1 | 2 | .. | 1 | 1 | .. | 2 | 2 | 1 | .. | 1 | .. | 2 | 2 | 1 | .. | 1 | .. | .. | .. | 1 | 2 | 3 |
| Clerical | 12 | 14 | 26 | 5 | 4 | 9 | .. | .. | .. | 4 | 4 | 8 | 1 | .. | 1 | 1 | 1 | 2 | 3 | 3 | 6 | 1 | .. | 1 | 5 | 4 | 9 |
| Legal | 19 | 4 | 23 | 2 | .. | 2 | 2 | .. | 2 | 2 | .. | 2 | 2 | .. | 2 | 1 | .. | 1 | 1 | .. | 1 | 2 | .. | 2 | 4 | .. | 4 |
| Medical | 19 | 5 | 24 | 2 | 1 | 3 | 1 | .. | 1 | 2 | 1 | 3 | 1 | .. | 1 | 1 | 1 | 2 | 2 | .. | 2 | .. | .. | .. | 3 | 1 | 4 |
| Teaching | 6 | 26 | 32 | 3 | 8 | 11 | .. | 1 | 1 | 3 | 9 | 12 | .. | .. | .. | .. | 3 | 3 | 2 | 4 | 6 | 1 | 2 | 3 | 3 | 9 | 12 |
| Artistic and Literary | 12 | 5 | 17 | 1 | 2 | 3 | 2 | .. | 2 | 2 | 2 | 4 | 1 | .. | 1 | .. | .. | .. | 1 | 2 | 3 | 2 | .. | 2 | 3 | 2 | 5 |
| Other Professions | 11 | .. | 11 | 1 | .. | 1 | 1 | .. | 1 | 2 | .. | 2 | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 1 | .. | 1 | 2 | .. | 2 |
| Domestic Service | .. | 44 | 44 | .. | 12 | 12 | .. | 3 | 3 | .. | 15 | 15 | .. | .. | .. | .. | 4 | 4 | .. | 7 | 7 | .. | 4 | 4 | .. | 15 | 15 |
| Commercial | 128 | 47 | 175 | 27 | 9 | 36 | 9 | 5 | 14 | 22 | 13 | 35 | 14 | 1 | 15 | 10 | 6 | 16 | 12 | 6 | 18 | 14 | 2 | 16 | 36 | 14 | 50 |
| Railways and Seafaring | 6 | 5 | 11 | .. | 2 | 2 | 1 | 2 | 3 | .. | 4 | 4 | 1 | .. | 1 | .. | .. | .. | 1 | 4 | 5 | .. | .. | .. | 1 | 4 | 5 |
| Agricultural | 65 | 43 | 108 | 13 | 10 | 23 | 4 | 5 | 9 | 14 | 13 | 27 | 3 | 2 | 5 | 4 | 3 | 7 | 10 | 10 | 20 | 3 | 2 | 5 | 17 | 15 | 32 |
| Trades | 69 | 78 | 147 | 18 | 21 | 39 | 5 | 6 | 11 | 20 | 25 | 45 | 3 | 2 | 5 | 6 | 9 | 15 | 16 | 15 | 31 | 1 | 3 | 4 | 23 | 27 | 50 |
| Manufacturers | 7 | 5 | 12 | 2 | 3 | 5 | .. | .. | .. | 2 | 3 | 5 | .. | .. | .. | 2 | .. | 2 | .. | 3 | 3 | .. | .. | .. | 2 | 3 | 5 |
| Hotel-keepers, etc. | 10 | 13 | 23 | 2 | 3 | 5 | 1 | 1 | 2 | .. | 4 | 4 | 3 | .. | 3 | .. | 2 | 2 | 1 | 2 | 3 | 2 | .. | 2 | 3 | 4 | 7 |
| Independent Means | 16 | 80 | 96 | 2 | 20 | 22 | .. | 7 | 7 | 2 | 26 | 28 | .. | 1 | 1 | .. | 6 | 6 | 1 | 18 | 19 | 1 | 3 | 4 | 2 | 27 | 29 |
| No Occupation | 9 | 9 | 18 | 3 | 2 | 5 | .. | 2 | 2 | 3 | 4 | 7 | .. | .. | .. | 2 | .. | 2 | 1 | 4 | 5 | .. | .. | .. | 3 | 4 | 7 |
| Unknown | .. | 2 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Idiots and Imbeciles | 11 | 3 | 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Totals | 419 | 390 | 809 | 82 | 98 | 180 | 26 | 33 | 59 | 78 | 125 | 203 | 30 | 6 | 36 | 28 | 37 | 65 | 52 | 78 | 130 | 28 | 16 | 44 | 108 | 131 | 239 |
| | | | | Physical Stress. | | | | | | | | | | | | | | | | | | | | | | | |
| Government, Army, etc. | 19 | 7 | 26 | 9 | 4 | 13 | 4 | 2 | 6 | 5 | 6 | 11 | 8 | .. | 8 | 2 | 4 | 6 | 6 | 2 | 8 | 5 | .. | 5 | 13 | 6 | 19 |
| Clerical | 12 | 14 | 26 | 6 | 8 | 14 | 2 | 2 | 4 | 5 | 9 | 14 | 3 | 1 | 4 | .. | 3 | 3 | 4 | 5 | 9 | 4 | 2 | 6 | 8 | 10 | 18 |
| Legal | 19 | 4 | 23 | 8 | 4 | 12 | 4 | .. | 4 | 9 | 4 | 13 | 3 | .. | 3 | 2 | 1 | 3 | 8 | 2 | 10 | 2 | 1 | 3 | 12 | 4 | 16 |
| Medical | 19 | 5 | 24 | 11 | 3 | 14 | 1 | .. | 1 | 7 | 3 | 10 | 5 | .. | 5 | 3 | 2 | 5 | 7 | 1 | 8 | 2 | .. | 2 | 12 | 3 | 15 |
| Teaching | 6 | 26 | 32 | 1 | 15 | 16 | .. | 4 | 4 | 1 | 18 | 19 | .. | 1 | 1 | .. | 7 | 7 | .. | 9 | 9 | 1 | 3 | 4 | 1 | 19 | 20 |
| Artistic and Literary | 12 | 5 | 17 | 3 | 4 | 7 | 2 | 1 | 3 | 3 | 5 | 8 | 2 | .. | 2 | 1 | 1 | 2 | 3 | 4 | 7 | 1 | .. | 1 | 5 | 5 | 10 |
| Other Professions | 11 | .. | 11 | 3 | .. | 3 | 5 | .. | 5 | 6 | .. | 6 | 2 | .. | 2 | 4 | .. | 4 | 3 | .. | 3 | 1 | .. | 1 | 8 | .. | 8 |
| Domestic Service | .. | 44 | 44 | .. | 22 | 22 | .. | 14 | 14 | .. | 34 | 34 | .. | 2 | 2 | .. | 7 | 7 | .. | 14 | 14 | .. | 15 | 15 | .. | 36 | 36 |
| Commercial | 128 | 47 | 175 | 71 | 25 | 96 | 25 | 9 | 34 | 36 | 28 | 64 | 60 | 6 | 66 | 23 | 13 | 36 | 41 | 13 | 54 | 32 | 8 | 40 | 96 | 34 | 130 |
| Railways and Seafaring | 6 | 5 | 11 | 4 | 2 | 6 | 1 | 2 | 3 | 1 | 3 | 4 | 4 | 1 | 5 | 1 | 1 | 2 | 3 | 3 | 6 | 1 | .. | 1 | 5 | 4 | 9 |
| Agricultural | 65 | 43 | 108 | 24 | 21 | 45 | 12 | 11 | 23 | 20 | 30 | 50 | 16 | 2 | 18 | 10 | 7 | 17 | 17 | 21 | 38 | 9 | 4 | 13 | 36 | 32 | 68 |
| Trades | 69 | 78 | 147 | 37 | 41 | 78 | 10 | 20 | 30 | 29 | 50 | 79 | 18 | 11 | 29 | 13 | 25 | 38 | 27 | 26 | 53 | 7 | 10 | 17 | 47 | 61 | 108 |
| Manufacturers | 7 | 5 | 12 | 3 | .. | 3 | 2 | 1 | 3 | 3 | 1 | 4 | 2 | .. | 2 | 2 | .. | 2 | .. | .. | .. | 1 | 1 | 2 | 5 | 1 | 6 |
| Hotel-keepers, etc. | 10 | 13 | 23 | 3 | 6 | 9 | 5 | 2 | 7 | 2 | 7 | 9 | 6 | 1 | 7 | 3 | 1 | 4 | 2 | 2 | 4 | 3 | .. | 3 | 8 | 8 | 16 |
| Independent Means | 16 | 80 | 96 | 10 | 39 | 49 | 2 | 16 | 18 | 7 | 44 | 51 | 5 | 11 | 16 | 3 | 12 | 15 | 6 | 31 | 37 | 3 | 12 | 15 | 12 | 55 | 67 |
| No Occupation | 9 | 9 | 18 | 3 | 5 | 8 | 2 | 4 | 6 | 3 | 9 | 12 | 2 | .. | 2 | 3 | 1 | 4 | 1 | 7 | 8 | 1 | 1 | 2 | 5 | 9 | 14 |
| Unknown | .. | 2 | 2 | .. | 2 | 2 | .. | .. | .. | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | 2 | 2 |
| Idiots and Imbeciles | 11 | 3 | 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Totals | 419 | 390 | 809 | 196 | 201 | 397 | 77 | 88 | 165 | 187 | 252 | 389 | 136 | 37 | 173 | 70 | 88 | 158 | 130 | 144 | 274 | 73 | 57 | 130 | 273 | 299 | 562 |

TABLE IX.—*Chart of Total Numbers, showing the Monthly Incidence of the Attacks, Recoveries, and Deaths. All Certified Cases.*



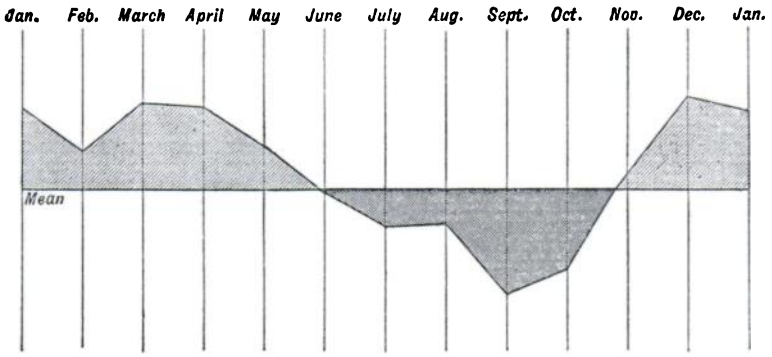

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TABLE IXA.—*Chart of* (a) *Male and Female Admissions*, (b) *Male Cases of Mania and Melancholia*, (c) *Female Cases of Mania and Melancholia, showing the Monthly Incidence of the Attacks. Certified Patients.*




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CHART IXB.




767 Cases, showing the curve of monthly incidence at inception of attack, constructed from percentages, and showing the incidence in the month immediately preceding and the month immediately following any month.

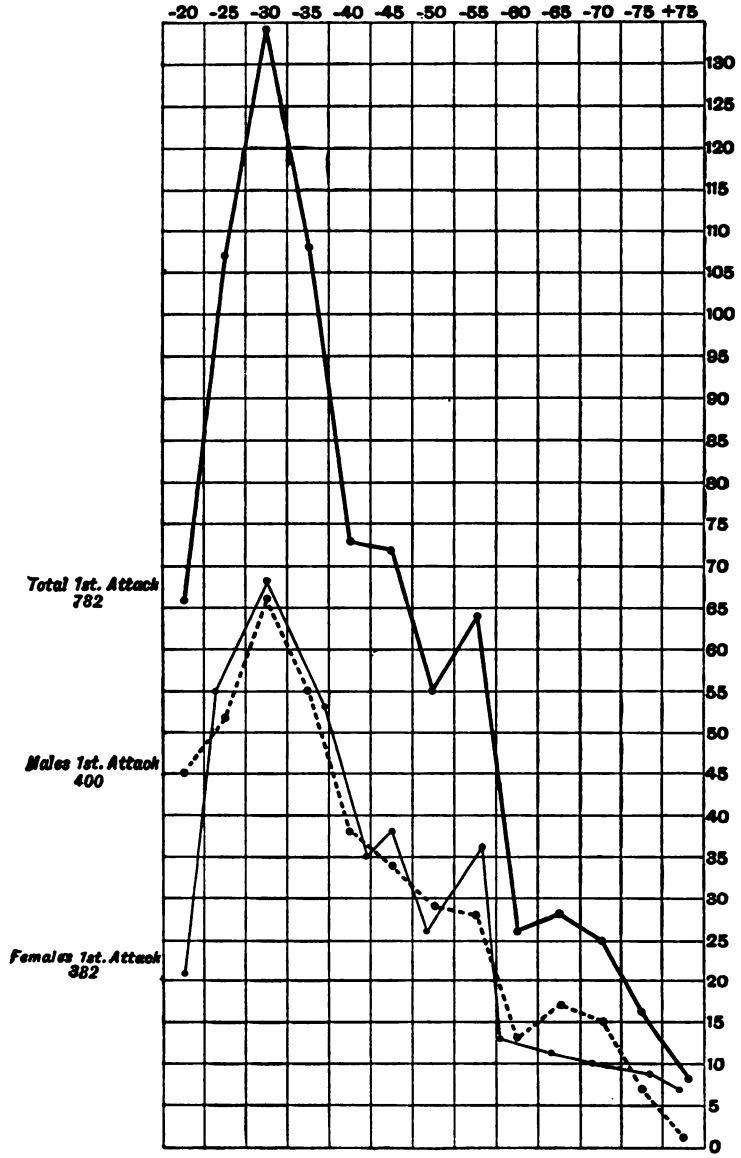
https://doi.org/10.1192/bjp.53.221.233 Published online by Cambridge University Press

TABLE X.—*Showing the Duration of Attack on admission in relation to ordinary Insanity and the facts of Heredity, and the Results of Treatment correlated with the Age Periods. First admissions. Certified Patients.*

| Duration of Attack. | Ordinary Insanity, including Senile Cases. | | | | | | | | Age Periods. | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NP. Hered. | | | | No Heredity. | | | | Adolescent. | | | | | | Maturity. | | | | Climacteric. | | | | Senile. | | | |
| | | | | | | | | | NP. Hered. | | | | No Hered. | | | | NP. Hered. | | | | NP. Hered. | | | | NP. Hered. | | | |
| | Recovered. | Unrecovered. | Died. | Total. | Recovered. | Unrecovered. | Died. | Total. | Recovered. | Unrecovered. | Died. | Total. | Recovered. | Unrecovered. | Died. | Total. | Recovered. | Unrecovered. | Died. | Total. | Recovered. | Unrecovered. | Died. | Total. | Recovered. | Unrecovered. | Died. | Total. |
| **Males—** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Less than three months | 20 | 14 | 3 | 37 | 8 | 7 | 2 | 17 | 7 | 5 | 1 | 13 | 3 | 1 | .. | 4 | 10 | 7 | .. | 17 | 3 | 1 | .. | 4 | 2 | 1 | 1 | 4 | 2 | 3 | 1 | 6 | 1 | 1 | 1 | 3 | .. | 2 | 1 | 3 |
| Three to six months | 7 | 6 | 1 | 14 | 4 | 7 | 2 | 13 | 4 | 2 | .. | 6 | 2 | 3 | .. | 5 | 3 | 1 | 1 | 5 | 1 | 1 | .. | 2 | .. | 1 | .. | 1 | 1 | 2 | 1 | 4 | .. | 2 | .. | 2 | .. | 1 | 1 | 2 |
| Six to twelve months | 6 | 16 | 3 | 25 | 2 | 4 | 2 | 8 | 1 | 4 | 1 | 6 | 1 | .. | .. | 1 | 4 | 7 | 1 | 12 | .. | 2 | 1 | 3 | .. | 4 | 1 | 5 | .. | 2 | 1 | 3 | 1 | 1 | .. | 2 | .. | 1 | .. | 1 |
| More than twelve months | 25 | 67 | 17 | 109 | 5 | 24 | 9 | 38 | 11 | 26 | 3 | 40 | 3 | 11 | .. | 14 | 9 | 33 | 5 | 47 | 2 | 7 | 5 | 14 | 2 | 7 | 5 | 14 | .. | 3 | 2 | 5 | 3 | 1 | 4 | 8 | 1 | 2 | 2 | 5 |
| Totals | 58 | 103 | 24 | 185 | 19 | 42 | 15 | 76 | 23 | 37 | 5 | 65 | 9 | 15 | .. | 24 | 26 | 48 | 7 | 81 | 6 | 11 | 6 | 23 | 4 | 13 | 7 | 24 | 3 | 10 | 5 | 18 | 5 | 5 | 5 | 15 | 1 | 6 | 4 | 11 |
| **Females—** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Less than three months | 36 | 18 | 7 | 61 | 14 | 12 | .. | 26 | 13 | 3 | 2 | 18 | 4 | 3 | .. | 7 | 17 | 7 | 2 | 26 | 5 | 4 | .. | 9 | 5 | 7 | 1 | 13 | 4 | 4 | .. | 8 | 1 | 1 | 2 | 4 | 1 | 1 | .. | 2 |
| Three to six months | 13 | 14 | 1 | 28 | 4 | 10 | 2 | 16 | .. | 1 | .. | 1 | 1 | .. | .. | 1 | 5 | 5 | 1 | 11 | 2 | 6 | 1 | 9 | 8 | 6 | .. | 14 | 1 | 3 | 1 | 5 | .. | 2 | .. | 2 | . | 1 | .. | 1 |
| Six to twelve months | 3 | 15 | 5 | 23 | 1 | 6 | 0 | 7 | 1 | .. | .. | 1 | .. | 1 | .. | 1 | 1 | 8 | 1 | 10 | 1 | 4 | .. | 5 | 1 | 5 | 2 | 8 | .. | 1 | .. | 1 | .. | 2 | 2 | 4 | .. | .. | .. | .. |
| More than twelve months | 38 | 83 | 14 | 135 | 10 | 30 | 13 | 53 | 13 | 20 | 4 | 37 | 2 | 9 | 2 | 13 | 13 | 39 | 2 | 54 | 1 | 16 | 3 | 20 | 10 | 20 | 4 | 34 | 5 | 5 | 3 | 13 | 1 | 5 | 4 | 10 | 2 | .. | 5 | 7 |
| Totals | 90 | 130 | 27 | 247 | 29 | 58 | 15 | 102 | 27 | 24 | 6 | 57 | 7 | 13 | 2 | 22 | 36 | 59 | 6 | 101 | 9 | 30 | 4 | 43 | 24 | 38 | 7 | 69 | 10 | 13 | 4 | 27 | 2 | 10 | 8 | 20 | 3 | 2 | 5 | 10 |
| **Totals—** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Less than three months | 56 | 32 | 10 | 98 | 22 | 19 | 2 | 43 | 20 | 8 | 3 | 31 | 7 | 4 | .. | 11 | 27 | 14 | 2 | 43 | 8 | 5 | . | 13 | 7 | 8 | 2 | 17 | 6 | 7 | 1 | 14 | 2 | 2 | 3 | 7 | 1 | 3 | 1 | 5 |
| Three to six months | 20 | 20 | 2 | 42 | 8 | 17 | 4 | 29 | 4 | 3 | .. | 7 | 3 | 3 | .. | 6 | 8 | 6 | 2 | 16 | 3 | 7 | 1 | 11 | 8 | 7 | .. | 15 | 2 | 5 | 2 | 9 | .. | 4 | .. | 4 | .. | 2 | 1 | 3 |
| Six to twelve months | 9 | 31 | 8 | 48 | 3 | 10 | 2 | 15 | 2 | 4 | 1 | 7 | 1 | 1 | .. | 2 | 5 | 15 | 2 | 22 | 1 | 6 | 1 | 8 | 1 | 9 | 3 | 13 | .. | 3 | 1 | 4 | 1 | 3 | 2 | 6 | .. | 1 | .. | 1 |
| More than twelve months | 63 | 150 | 31 | 244 | 15 | 54 | 22 | 91 | 24 | 46 | 7 | 77 | 5 | 20 | 2 | 27 | 22 | 72 | 7 | 101 | 3 | 23 | 8 | 34 | 12 | 27 | 9 | 48 | 5 | 8 | 5 | 18 | 4 | 6 | 8 | 18 | 3 | 2 | 7 | 12 |
| Totals | 148 | 233 | 51 | 432 | 48 | 100 | 30 | 178 | 50 | 61 | 11 | 122 | 16 | 28 | 2 | 46 | 62 | 107 | 13 | 182 | 15 | 41 | 10 | 66 | 28 | 51 | 14 | 93 | 13 | 23 | 9 | 45 | 7 | 15 | 13 | 35 | 4 | 8 | 9 | 21 |

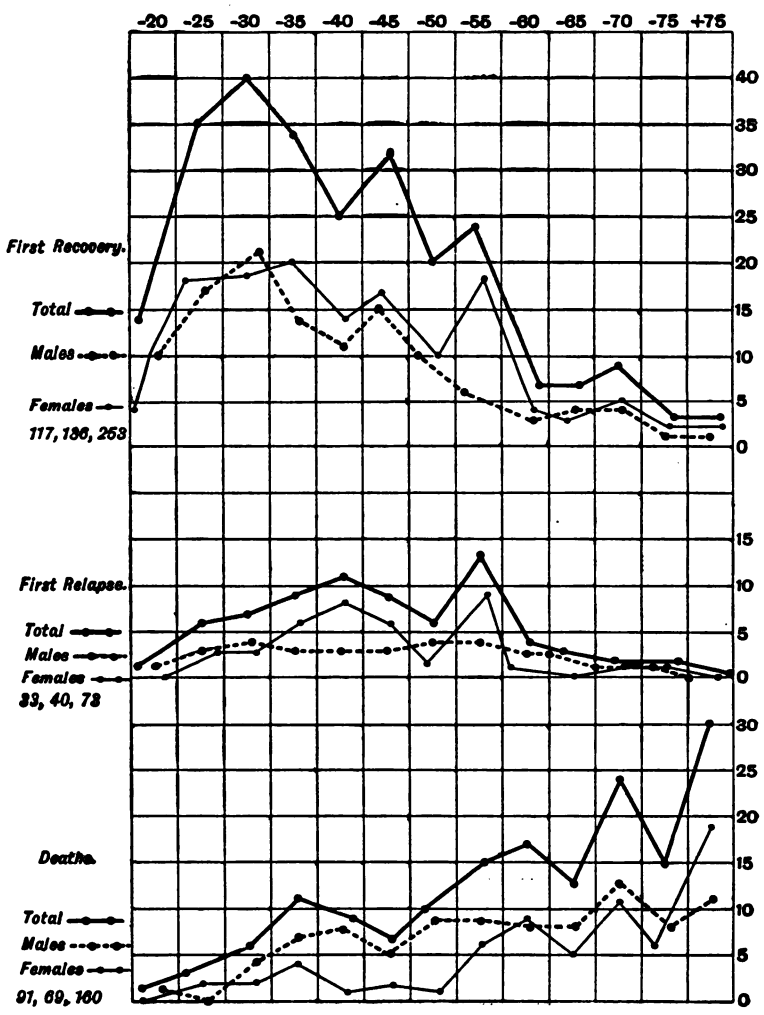
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TABLE XI.—*Chart showing Age on First Attack by Quinquennial Periods—Males, Females, and Totals.*




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TABLE XIA.—*Chart showing Ages on First Recovery, First Relapse, and Death—Males, Females, and Totals.*




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TABLE XIB.—*Showing Age on Death of Patients under observation, compared with the Tables of the Institute of Actuaries.*

| Age Group. | INSANE. | | HM. TABLE. | | Age Group. |
|---|---|---|---|---|---|
| | Average Age at Death. | Percentage of Number of Deaths to Total Number. | Average Age at Death. | Percentage of Number of Deaths to Total Number. | |
| 15–25 | 21 | 2 | 20 | 5 | 15–25 |
| 25–40 | 33 | 16 | 32 | 11 | 25–40 |
| 40–60 | 51 | 31 | 51 | 24 | 40–60 |
| 60–75 | 67 | 33 | 68 | 36 | 60–75 |
| Over 75 | ... | 18 | 82 | 24 | Over 75 |

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TABLE XIc.—*A Statement of Age on First Attack, First Recovery, First Relapse, calculated from information obtained. Age on Death from Asylum Statistics.*

| Age on First Attack. | | | | First Recovery. | | | First Relapse. | | | Age on Death. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| -20 | 45 | 21 | 66 | 10 | 4 | 14 | 1 | ... | 1 | 1 | ... | 1 |
| 25 | 52 | 55 | 107 | 17 | 18 | 35 | 3 | 3 | 6 | ... | 2 | 2 |
| 30 | 66 | 68 | 134 | 21 | 19 | 40 | 4 | 3 | 7 | 4 | 2 | 6 |
| 35 | 55 | 53 | 108 | 14 | 20 | 34 | 3 | 6 | 9 | 7 | 4 | 11 |
| 40 | 38 | 35 | 73 | 11 | 14 | 25 | 3 | 8 | 11 | 8 | 1 | 9 |
| 45 | 34 | 38 | 72 | 15 | 17 | 32 | 3 | 6 | 9 | 5 | 2 | 7 |
| 50 | 29 | 26 | 55 | 10 | 10 | 20 | 4 | 2 | 6 | 9 | 1 | 10 |
| 5 | 28 | 36 | 64 | 6 | 18 | 24 | 4 | 9 | 13 | 9 | 6 | 15 |
| 60 | 13 | 13 | 26 | 3 | 4 | 7 | 3 | 1 | 4 | 8 | 9 | 17 |
| 65 | 17 | 11 | 28 | 4 | 3 | 7 | 3 | ... | 3 | 8 | 5 | 13 |
| 70 | 15 | 10 | 25 | 4 | 5 | 9 | 1 | 1 | 2 | 13 | 11 | 24 |
| 75 | 7 | 9 | 16 | 1 | 2 | 3 | 1 | 1 | 2 | 8 | 7 | 15 |
| +75 | 1 | 7 | 8 | 1 | 2 | 3 | ... | ... | ... | 11 | 19 | 30 |
| | 400 | 382 | 782 | 117 | 136 | 253 | 33 | 40 | 73 | 91 | 69 | 160 |
| Unknown | 8 | 5 | 13 | | | | | | | | | |
| Idiots . | 11 | 3 | 14 | | | | | | Idiots | 4 | ... | 4 |
| | 419 | 390 | 809 | | | | | | | 95 | 69 | 164 |

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TABLE XII.—*Showing the Admissions and Recoveries of Persons during Forty Years, so far as Asylum Statistics go.*

| | M. | F. | T. | |
|---|---|---|---|---|
| Persons admitted . . . | 504 | 475 | 979 | |
| Of whom discharged recovered | 156 | 166 | 322 | Being 32·89 per cent. of the persons admitted (M. 30·95, F. 34·94). |
| Of whom readmitted relapsed . | 39 | 48 | 87 | |
| Leaving recovered and not relapsed . . . . | 117 | 118 | 235 | |
| Relapsed persons recovered . | 26 | 25 | 51 | |
| Net recovered persons . . | 143 | 143 | 286 | Being 29·21 per cent. of the persons admitted (M. 28·37, F. 30·10). |

*Showing Admissions and Recoveries of Cases during Forty Years. Asylum Statistics.*

| | | | | |
|---|---|---|---|---|
| Admitted . . . . | 599 | 585 | 1184 | |
| Recovered . . . . | 180 | 204 | 384 | Being 32·43 per cent. of the cases admitted (M. 30·05, F. 34·87). |



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TABLE XIII.—*Recoveries after First Admission, correlated with Neuro-*
*Persons recovered and not*

| Form of Mental Disorder on First Attack. | Heredity Neuropathic or None. | Number of Recoveries. | | | Age Periods. | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | On First Attack. | | | | | | | | | | | | On Recovery. | | | | | | | | | | | |
| | | | | | Adol. | | | Mat. | | | Clim. | | | Senile. | | | Adol. | | | Mat. | | | Clim. | | | Senile | | |
| | | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Melancholia, Recent | NP. | 19 | 22 | 41 | 6 | 4 | 10 | 8 | 11 | 19 | 2 | 6 | 8 | 3 | 1 | 4 | 5 | 4 | 9 | 9 | 11 | 20 | 2 | 6 | 8 | 3 | 1 | 4 |
| | None | 8 | 7 | 15 | .. | .. | .. | 4 | 6 | 10 | 3 | 1 | 4 | 1 | .. | 1 | .. | .. | .. | 4 | 6 | 10 | 3 | 1 | 4 | 1 | .. | 1 |
| | Both | 27 | 29 | 56 | 6 | 4 | 10 | 12 | 17 | 29 | 5 | 7 | 12 | 4 | 1 | 5 | 5 | 4 | 9 | 13 | 17 | 30 | 5 | 7 | 12 | 4 | 1 | 5 |
| Melancholia, Chronic | NP. | 19 | 14 | 33 | 6 | 5 | 11 | 8 | 6 | 14 | 4 | 3 | 7 | 1 | .. | 1 | 2 | .. | 2 | 7 | 5 | 12 | 9 | 8 | 17 | 1 | 1 | 2 |
| | None | 5 | 7 | 12 | 3 | 1 | 4 | 1 | .. | 1 | 1 | 4 | 5 | .. | 2 | 2 | 1 | .. | 1 | 3 | 1 | 4 | 1 | 4 | 5 | .. | 2 | 2 |
| | Both | 24 | 21 | 45 | 9 | 6 | 15 | 9 | 6 | 15 | 5 | 7 | 12 | 1 | 2 | 3 | 3 | .. | 3 | 10 | 6 | 16 | 10 | 12 | 22 | 1 | 3 | 4 |
| Mania, Recent | NP. | 30 | 30 | 60 | 8 | 10 | 18 | 15 | 12 | 27 | 7 | 8 | 15 | .. | .. | .. | 8 | 9 | 17 | 15 | 13 | 28 | 6 | 8 | 14 | 1 | .. | 1 |
| | None | 10 | 14 | 24 | 6 | 4 | 10 | 2 | 4 | 6 | 2 | 5 | 7 | .. | 1 | 1 | 4 | 4 | 8 | 4 | 4 | 8 | 2 | 5 | 7 | .. | 1 | 1 |
| | Both | 40 | 44 | 84 | 14 | 14 | 28 | 17 | 16 | 33 | 9 | 13 | 22 | .. | 1 | 1 | 12 | 13 | 25 | 19 | 17 | 36 | 8 | 13 | 21 | 1 | 1 | 2 |
| Mania, Chronic | NP. | 13 | 26 | 39 | 7 | 8 | 15 | 3 | 9 | 12 | 1 | 8 | 9 | 2 | 1 | 3 | 5 | 2 | 7 | 4 | 9 | 13 | 2 | 13 | 15 | 2 | 2 | 4 |
| | None | 11 | 5 | 16 | 2 | 2 | 4 | 5 | 2 | 7 | 2 | 1 | 3 | 2 | .. | 2 | .. | 2 | 2 | 7 | 1 | 8 | 2 | 1 | 3 | 2 | 1 | 3 |
| | Both | 24 | 31 | 55 | 9 | 10 | 19 | 8 | 11 | 19 | 3 | 9 | 12 | 4 | 1 | 5 | 5 | 4 | 9 | 11 | 10 | 21 | 4 | 14 | 18 | 4 | 3 | 7 |
| Delusional | NP. | 1 | 4 | 5 | .. | .. | .. | 1 | 2 | 3 | .. | 2 | 2 | .. | .. | .. | .. | .. | .. | 1 | 3 | 4 | .. | 1 | 1 | .. | .. | .. |
| | None | 2 | 1 | 3 | .. | 1 | 1 | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | .. | 2 | .. | .. | .. | .. | .. | .. |
| | Both | 3 | 5 | 8 | .. | 1 | 1 | 3 | 2 | 5 | .. | 2 | 2 | .. | .. | .. | .. | 1 | 1 | 3 | 3 | 6 | .. | 1 | 1 | .. | .. | .. |
| Dementia | NP. | 2 | 1 | 3 | .. | .. | .. | .. | .. | .. | 2 | 1 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 3 | .. | .. | .. |
| | None | .. | 1 | 1 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. |
| | Both | 2 | 2 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. |
| Totals Neuropathic | | 84 | 97 | 181 | 27 | 27 | 54 | 35 | 40 | 75 | 16 | 28 | 44 | 6 | 2 | 8 | 20 | 15 | 35 | 36 | 41 | 77 | 21 | 37 | 58 | 7 | 4 | 11 |
| ,, None | | 36 | 35 | 71 | 11 | 8 | 19 | 14 | 13 | 27 | 8 | 11 | 19 | 3 | 3 | 6 | 5 | 7 | 12 | 20 | 13 | 33 | 8 | 11 | 19 | 3 | 4 | 7 |
| ,, Both | | 120 | 132 | 252 | 38 | 35 | 73 | 49 | 53 | 102 | 24 | 39 | 63 | 9 | 5 | 14 | 25 | 22 | 47 | 56 | 54 | 110 | 29 | 48 | 77 | 10 | 8 | 18 |

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*pathic Heredity, Age Periods, and Duration since First Attack. Also relapsed. Certified Patients.*

| Duration since First Attack in Months and Years. | | | | | | | | | | | | | | | | | | | | | | | | | | | | Recovered. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -3 mos. | | | -6 mos. | | | -12 mos. | | | -2 years. | | | -3 years. | | | -5 years. | | | -10 years. | | | -20 years. | | | -30 years. | | | +30 years. | | | Relapsed. | | | Not Relapsed. | | |
| M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| 2 | .. | 2 | 7 | 6 | 13 | 5 | 8 | 13 | 5 | 5 | 10 | .. | 1 | 1 | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 4 | 12 | 11 | 18 | 29 |
| 2 | 1 | 3 | .. | .. | .. | 5 | 4 | 9 | 1 | 2 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 | 6 | 5 | 4 | 9 |
| 4 | 1 | 5 | 7 | 6 | 13 | 10 | 12 | 22 | 6 | 7 | 13 | .. | 1 | 1 | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 7 | 18 | 16 | 22 | 38 |
| 2 | .. | 2 | 3 | .. | 3 | 3 | .. | 3 | 6 | .. | 6 | .. | 3 | 3 | 2 | 3 | 5 | 1 | 4 | 5 | 2 | .. | 2 | .. | 2 | 2 | .. | 2 | 2 | 16 | 12 | 28 | 3 | 2 | 5 |
| .. | .. | .. | 3 | .. | 3 | 1 | 1 | 2 | 1 | .. | 1 | .. | 1 | 1 | .. | 2 | 2 | .. | 1 | 1 | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | 4 | 4 | 8 | 1 | 3 | 4 |
| 2 | .. | 2 | 6 | .. | 6 | 4 | 1 | 5 | 7 | .. | 7 | .. | 4 | 4 | 2 | 5 | 7 | 1 | 5 | 6 | 2 | 1 | 3 | .. | 3 | 3 | .. | 2 | 2 | 20 | 16 | 36 | 4 | 5 | 9 |
| 8 | 7 | 15 | 12 | 12 | 24 | 7 | 8 | 15 | 3 | 2 | 5 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 14 | 25 | 19 | 16 | 35 |
| 1 | 3 | 4 | 5 | 7 | 12 | 4 | 3 | 7 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 5 | 11 | 4 | 9 | 13 |
| 9 | 10 | 19 | 17 | 19 | 36 | 11 | 11 | 22 | 3 | 3 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | 19 | 36 | 23 | 25 | 48 |
| 3 | .. | 3 | .. | .. | .. | 4 | 2 | 6 | 2 | 4 | 6 | 1 | 5 | 6 | 2 | 3 | 5 | 1 | 6 | 7 | .. | 4 | 4 | .. | 2 | 2 | .. | .. | .. | 10 | 26 | 36 | 3 | .. | 3 |
| .. | .. | .. | 4 | .. | 4 | 2 | .. | 2 | 3 | 3 | 6 | .. | .. | .. | 1 | .. | 1 | 1 | 1 | 2 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 8 | 4 | 12 | 3 | 1 | 4 |
| 3 | .. | 3 | 4 | .. | 4 | 6 | 2 | 8 | 5 | 7 | 12 | 1 | 5 | 6 | 3 | 3 | 6 | 2 | 7 | 9 | .. | 5 | 5 | .. | 2 | 2 | .. | .. | .. | 18 | 30 | 48 | 6 | 1 | 7 |
| .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 1 | 1 | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 2 | 1 | 2 | 3 |
| .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | .. | 2 |
| .. | .. | .. | .. | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | .. | .. | .. | .. | 1 | 1 | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 | 3 | 2 | 5 |
| .. | 1 | 1 | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 | 1 | 2 |
| .. | 1 | 1 | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| .. | 2 | 2 | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 | 2 | 3 |
| 15 | 8 | 23 | 23 | 19 | 42 | 19 | 18 | 37 | 16 | 12 | 28 | 1 | 10 | 11 | 5 | 8 | 13 | 3 | 12 | 15 | 2 | 4 | 6 | .. | 4 | 4 | .. | 2 | 2 | 46 | 58 | 104 | 38 | 39 | 77 |
| 3 | 4 | 7 | 12 | 7 | 19 | 13 | 9 | 22 | 6 | 6 | 12 | .. | 1 | 1 | 1 | 3 | 4 | 1 | 2 | 3 | .. | 2 | 2 | .. | 1 | 1 | .. | .. | .. | 21 | 17 | 38 | 15 | 18 | 33 |
| 18 | 12 | 30 | 35 | 26 | 61 | 32 | 27 | 59 | 22 | 18 | 40 | 1 | 11 | 12 | 6 | 11 | 17 | 4 | 14 | 18 | 2 | 6 | 8 | .. | 5 | 5 | .. | 2 | 2 | 67 | 75 | 142 | 53 | 57 | 110 |

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## TABLE XIIIA.—*Relapsed Cases.*

| | M. | F. | T. | | M. | F. | T. |
|---|---|---|---|---|---|---|---|
| First Admissions | 419 | 390 | 809 | —of whom these had one or more previous attacks | 92 | 103 | 195 |
| Readmissions . . | 76 | 97 | 173 | —of whom these were admitted relapsed . . | 31 | 45 | 76 |
| Total . | 495 | 487 | 982 | | 123 | 148 | 271 |
| | | | | Add reported relapsed after final discharge | 11 | 7 | 18 |
| | | | | | 134 | 155 | 289 |

### RELAPSED PERSONS.

*(289 Cases as above referable to 250 Persons.)*

| | M. | F. | T. | | | | | |
|---|---|---|---|---|---|---|---|---|
| Of 250 persons | 81 | 74 | 155 | had | 2 | attacks, being | 19·15 | % of 809. |
| | 16 | 22 | 38 | ,, | 3 | ,, ,, | 4·69 | ,, |
| | 2 | 13 | 15 | ,, | 4 | ,, ,, | 1·85 | ,, |
| | 0 | 3 | 3 | ,, | 5 | ,, ,, | 0·36 | ,, |
| | 3 | 2 | 5 | ,, | 6 | ,, ,, | 0·61 | ,, |
| | 12 | 11 | 23 | had many | | ,, ,, | 2·96 | ,, |
| | 5 | 6 | 11 | unknown number, | | ,, | 1·36 | ,, |
| | | 131 | 250 | | | Sum | 30·98 | ,, |

*Or*

| | | Recovered here after First Admission. | Recovered after Removal. | Recovered after Removal and Readmission. | Total. |
|---|---|---|---|---|---|
| Of Males . . . | 419 | 120 | 25 | 1 | 146 |
| ,, Females . . | 390 | 132 | 26 | 3 | 161 |
| Total . . | 809 | 252 | 51 | 4 | 307 |
| | | | Not Relapsed. | | |
| Of Males . . . | 146 | 53 | 12 | 1 | 66 |
| ,, Females . . | 161 | 57 | 14 | 2 | 73 |
| Total . . | 307 | 110 | 26 | 3 | 139 |

| | | Percentages. | | |
|---|---|---|---|---|
| Of Males . . . | 419 | Total Recoveries 34·84% | Permanent Recoveries | 15·75% |
| ,, Females . . | 390 | ,, ,, 41·28% | ,, ,, | 18·71% |
| Total . . | 809 | ,, ,, 37·94% | ,, ,, | 17·18% |

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TABLE XIV.—*Causes of Death, correlated with Neuropathic Heredity and Forms of Mental Disorder on admission. Certified Patients admitted and readmitted. Asylum Statistics.*

| Cause of Death. | | Forms of Ordinary Insanity. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Melancholia. | | | Mania. | | | Delusional. | | | Dementia. | | | Aggregate. | | |
| | | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. | M. | F. | T. |
| Cerebro-Spinal . | NP. | 3 | .. | 3 | 11 | 10 | 21 | 3 | .. | 3 | 15 | 2 | 17 | 32 | 12 | 44 |
| | O. | 2 | 2 | 4 | 7 | 6 | 13 | 3 | 1 | 4 | 8 | 1 | 9 | 20 | 10 | 30 |
| Aggregate . . | T. | 5 | 2 | 7 | 18 | 16 | 34 | 6 | 1 | 7 | 23 | 3 | 26 | 52 | 22 | 74 |
| Circulatory . . | NP. | 1 | 3 | 4 | 2 | 4 | 6 | 1 | .. | 1 | 2 | 1 | 3 | 6 | 8 | 14 |
| | O. | .. | 2 | 2 | 2 | 4 | 6 | 2 | .. | 2 | 1 | .. | 1 | 5 | 6 | 11 |
| Aggregate . . | T. | 1 | 5 | 6 | 4 | 8 | 12 | 3 | .. | 3 | 3 | 1 | 4 | 11 | 14 | 25 |
| Respiratory . . | NP. | 3 | .. | 3 | 3 | 4 | 7 | .. | .. | .. | .. | .. | .. | 6 | 4 | 10 |
| | O. | 1 | .. | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | .. | 2 | 5 | 2 | 7 |
| Aggregate . . | T. | 4 | .. | 4 | 4 | 5 | 9 | 1 | 1 | 2 | 2 | .. | 2 | 11 | 6 | 17 |
| Alimentary . . | NP. | .. | 3 | 3 | 1 | .. | 1 | .. | .. | .. | .. | 1 | 1 | 1 | 4 | 5 |
| | O. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Aggregate . . | T. | .. | 3 | 3 | 1 | .. | 1 | .. | .. | .. | .. | 1 | 1 | 1 | 4 | 5 |
| Urinary . . . . | NP. | .. | 1 | 1 | 2 | 1 | 3 | .. | 2 | 2 | .. | 1 | 1 | 2 | 5 | 7 |
| | O. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Aggregate . . | T. | .. | 1 | 1 | 2 | 1 | 3 | .. | 2 | 2 | .. | 1 | 1 | 2 | 5 | 7 |
| General . . . . | NP. | 2 | 3 | 5 | 3 | 5 | 8 | 2 | .. | 2 | 4 | 2 | 6 | 11 | 10 | 21 |
| | O. | 1 | 1 | 2 | 1 | 3 | 4 | .. | 1 | 1 | 2 | 2 | 4 | 4 | 7 | 11 |
| Aggregate . . | T. | 3 | 4 | 7 | 4 | 8 | 12 | 2 | 1 | 3 | 6 | 4 | 10 | 15 | 17 | 32 |
| Accidental . . . | NP. | .. | 1 | 1 | 2 | .. | 2 | .. | .. | .. | 1 | .. | 1 | 3 | 1 | 4 |
| | O. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Aggregate . . | T. | .. | 1 | 1 | 2 | .. | 2 | .. | .. | .. | 1 | .. | 1 | 3 | 1 | 4 |
| Grand Aggregate | NP. | 9 | 11 | 20 | 24 | 24 | 48 | 6 | 2 | 8 | 22 | 7 | 29 | 61 | 44 | 105 |
| | O. | 4 | 5 | 9 | 11 | 14 | 25 | 6 | 3 | 9 | 13 | 3 | 16 | 34 | 25 | 59 |
| | T. | 13 | 16 | 29 | 35 | 38 | 73 | 12 | 5 | 17 | 35 | 10 | 45 | 95 | 69 | 164 |

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TABLE XV.—*Age at Death, with duration of Fatal Malady and duration of Mental Disorder from First Attack. All Deaths from first admissions and readmissions. Asylum Statistics.*

| Age at Death in Years. | Duration of Fatal Malady. | | | | | | | | Duration of Mental Disorder. | | | | | | | | | | | | | | | Total Deaths. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | −1 mo. | −3 mos. | −6 mos. | −9 mos. | −1 yr. | −2 yrs. | −3 yrs. | +3 yrs. | −3 mos. | −6 mos. | −9 mos. | −1 yr. | −2 yrs. | −3 yrs. | −4 yrs. | −5 yrs. | −10 yrs. | −20 yrs. | −30 yrs. | −40 yrs. | −50 yrs. | −60 yrs. | +60 yrs. | |
| **Males.** | | | | | | | | | | | | | | | | | | | | | | | | |
| −15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| −20 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| −25 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| −30 | 1 | 1 | 1 | .. | .. | 1 | .. | .. | 1 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 4 |
| −40 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 7 | 2 | 1 | 4 | 1 | .. | 4 | .. | .. | 1 | 2 | .. | 2 | .. | .. | .. | 17 |
| −45 | 2 | .. | .. | .. | .. | .. | .. | 2 | 1 | .. | .. | .. | .. | .. | 2 | .. | 1 | .. | .. | .. | .. | .. | .. | 4 |
| −50 | .. | .. | .. | 1 | 1 | .. | 3 | 4 | .. | .. | .. | 1 | 2 | 3 | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | 9 |
| −55 | 1 | .. | .. | .. | 1 | .. | 2 | 5 | 4 | .. | 1 | 1 | .. | 2 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 9 |
| −60 | 5 | 1 | .. | .. | 1 | .. | .. | 1 | 3 | 2 | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | 1 | .. | .. | .. | 8 |
| −65 | 3 | .. | .. | .. | .. | .. | 2 | 4 | 1 | 1 | 1 | .. | 1 | 1 | 1 | .. | .. | 2 | .. | .. | .. | 1 | .. | 9 |
| −75 | 9 | .. | .. | .. | 1 | 2 | 1 | 9 | 2 | 3 | .. | .. | 3 | 1 | .. | ... | 1 | 6 | 1 | 2 | 2 | 1 | .. | 22 |
| −80 | 4 | .. | .. | .. | .. | .. | .. | 3 | 2 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | 2 | .. | .. | 7 |
| −90 | 2 | .. | .. | .. | .. | .. | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | 3 | .. | 5 |
| **Totals** | 30 | 3 | 2 | 2 | 5 | 5 | 10 | 38 | 16 | 7 | 7 | 3 | 8 | 11 | 5 | 1 | 6 | 12 | 4 | 5 | 5 | 5 | .. | 95 |
| **Females.** | | | | | | | | | | | | | | | | | | | | | | | | |
| −15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| −20 | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| −25 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| −30 | 1 | .. | 1 | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| −35 | 2 | .. | 1 | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | 2 | .. | ... | .. | 1 | .. | .. | .. | .. | .. | .. | 4 |
| −40 | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| −45 | .. | 2 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 2 |
| −50 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| −55 | 1 | .. | .. | .. | 1 | 1 | .. | 3 | .. | 1 | .. | .. | .. | 2 | 1 | .. | 2 | .. | .. | .. | .. | .. | .. | 6 |
| −60 | 1 | 1 | 2 | .. | .. | .. | .. | 5 | .. | .. | 2 | .. | .. | 1 | .. | .. | 3 | 2 | .. | 1 | .. | .. | .. | 9 |
| −65 | 3 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | 1 | 2 | .. | .. | .. | 5 |
| −70 | 5 | 2 | .. | .. | .. | .. | .. | 4 | 2 | 1 | .. | .. | .. | 1 | 1 | 1 | 1 | 2 | 1 | 1 | .. | .. | .. | 11 |
| −75 | 3 | .. | .. | .. | .. | .. | .. | 4 | .. | .. | .. | .. | .. | 1 | 2 | .. | 1 | .. | .. | 1 | .. | 2 | .. | 7 |
| −80 | 3 | 1 | .. | .. | .. | 1 | .. | 6 | .. | 1 | .. | .. | 1 | 1 | .. | 1 | 3 | .. | .. | .. | 2 | 2 | .. | 11 |
| −90 | 4 | 1 | .. | .. | .. | .. | .. | 3 | .. | .. | 1 | .. | .. | .. | 2 | .. | 1 | .. | .. | 1 | 1 | 1 | 1 | 8 |
| **Totals** | 26 | 8 | 4 | .. | 2 | 3 | .. | 26 | 7 | 5 | 4 | .. | 3 | 8 | 6 | 2 | 13 | 4 | 2 | 6 | 3 | 5 | 1 | 69 |
| **Grand Totals** | 56 | 11 | 6 | 2 | 7 | 8 | 10 | 64 | 23 | 12 | 11 | 3 | 11 | 19 | 11 | 3 | 19 | 16 | 6 | 11 | 8 | 10 | 1 | 164 |

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TABLE XVII.—*Showing the Incidence of Heredity in Patients addicted to the intemperate use of Alcohol and Drugs. Certified Class.*

| Heredity of— | | | | Percentage calculated on 110. | | |
|---|---|---|---|---|---|---|
| | M. | F. | T. | M. | F. | T. |
| Insanity . . . | 39 | 8 | 47 | 45·88 | 32·00 | 42·73 |
| Neuroses . . . | 5 | 1 | 6 | 5·88 | 4·00 | 5·45 |
| Alcoholism . . . | 16 | 8 | 24 | 18·83 | 32·00 | 21·82 |
| None ascertained . . | 25 | 8 | 33 | 29·41 | 32·00 | 30·00 |
| | 85 | 25 | 110 | 100·00 | | |
| **By Periods—** | | | | **Percentage calculated on 110.** | | |
| First to 1884 . . . | 10 | 3 | 13 | 11·77 | 12·00 | 11·82 |
| Second to 1894 . . | 22 | 5 | 27 | 25·88 | 20·00 | 24·54 |
| Third to 1904 . . | 53 | 17 | 70 | 62·35 | 68·00 | 63·64 |
| | 85 | 25 | 110 | 100·00 | | |

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TABLE XVI.—*Correlations of Somatic Disorders.*

| Bodily Disorders, etc. | | Sensory Disorders. | | | | | | | Appetites. | | | | | | Disorders of Emotion. | | | | | Delusions. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sight. | Hearing. | Smell. | Taste. | Touch. | Visceral. | Total. | +Food. | −Food. | +Sex. | −Sex. | +Sleep. | −Sleep. | Total. | Depression. | Excit. | Pervert. | Weak. | Total. | Deprec. | Grand. | Persec. | Fear. | Identity. | Others. | Total. | Suicidal. | Homicidal. | Marked Degeneration. |
| Somatic Stigmata | M. 21 | 1 | .. | 1 | .. | 1 | .. | 3 | 1 | 1 | 1 | .. | .. | 2 | 5 | 2 | 2 | 1 | 1 | 6 | 2 | 1 | 3 | 1 | 2 | .. | 9 | 2 | .. | 16 |
| | F. 9 | 2 | 1 | .. | 1 | .. | .. | 4 | .. | .. | 1 | .. | .. | 2 | 3 | .. | .. | .. | .. | .. | 1 | 2 | .. | .. | 1 | .. | 4 | .. | .. | 9 |
| | T. 30 | 3 | 1 | 1 | 1 | 1 | .. | 7 | 1 | 1 | 2 | .. | .. | 4 | 8 | 2 | 2 | 1 | 1 | 6 | 3 | 3 | 3 | 1 | 3 | .. | 13 | 2 | .. | 25 |
| Hæmopoietic | M. 12 | .. | 1 | .. | .. | .. | 1 | 2 | .. | 2 | 1 | .. | .. | 3 | 6 | 1 | 4 | .. | 7 | 12 | 1 | .. | 7 | 2 | 3 | .. | 13 | 1 | 3 | 9 |
| | F. 25 | 4 | 3 | 2 | 3 | 1 | 4 | 22 | .. | 3 | 5 | .. | .. | 9 | 22 | 4 | 6 | 3 | 3 | 16 | 6 | 3 | 9 | 3 | 5 | .. | 26 | 3 | 4 | 4 |
| Cardio-vascular | M. 58 | 3 | 3 | 3 | .. | 1 | 6 | 21 | 2 | 7 | .. | .. | .. | 21 | 30 | 12 | 11 | 3 | 5 | 31 | 9 | 10 | 27 | 2 | 5 | .. | 53 | 13 | 7 | 15 |
| | F. 69 | 11 | 9 | 2 | 3 | 2 | 10 | 37 | .. | 11 | 6 | .. | .. | 42 | 59 | 18 | 21 | 9 | 5 | 53 | 23 | 5 | 21 | 10 | 11 | 2 | 72 | 18 | 5 | 25 |
| | T. 164 | 18 | 26 | 7 | 6 | 4 | 21 | 82 | 2 | 28 | 12 | .. | .. | 75 | 117 | 35 | 42 | 15 | 20 | 112 | 39 | 18 | 64 | 17 | 24 | 2 | 164 | 40 | 19 | 53 |
| Respiratory | M. 5 | 2 | .. | 1 | 1 | .. | .. | 4 | 1 | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 2 | 3 | .. | 1 | 2 | 1 | .. | .. | 4 | .. | 1 | 3 |
| | F. 5 | .. | .. | 2 | .. | 1 | 1 | 4 | .. | .. | .. | .. | .. | 1 | 1 | .. | 2 | 1 | 1 | 4 | .. | 1 | 2 | .. | 1 | .. | 4 | 1 | .. | 3 |
| | T. 10 | 2 | .. | 3 | 1 | 1 | 1 | 8 | 1 | .. | .. | .. | .. | 1 | 2 | 1 | 2 | 1 | 3 | 7 | .. | 2 | 4 | 1 | 1 | .. | 8 | 1 | 1 | 6 |
| Gastro-intestinal | M. 72 | 5 | 13 | 4 | 3 | 1 | 12 | 38 | 5 | 8 | 4 | .. | .. | 30 | 47 | 18 | 15 | 9 | 5 | 47 | 16 | 8 | 28 | 11 | 6 | 1 | 70 | 19 | 7 | 16 |
| | F. 75 | 11 | 14 | 5 | .. | 4 | 10 | 44 | 1 | 20 | 10 | .. | .. | 38 | 69 | 20 | 24 | 8 | 7 | 59 | 22 | 6 | 24 | 6 | 9 | 1 | 68 | 23 | 6 | 21 |
| | T. 147 | 16 | 27 | 9 | 3 | 5 | 22 | 82 | 6 | 28 | 14 | .. | .. | 68 | 116 | 38 | 39 | 17 | 12 | 106 | 38 | 14 | 52 | 17 | 15 | 2 | 138 | 42 | 13 | 37 |
| Renal and Vesical | M. 5 | 1 | 1 | .. | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | .. | .. | 3 | 3 | 1 | 1 | 1 | 2 | .. | 8 | 3 | .. | 1 |
| | F. 4 | 1 | 1 | 1 | .. | .. | 1 | 4 | .. | 2 | .. | .. | .. | 1 | 3 | .. | .. | .. | 1 | 1 | .. | .. | 2 | .. | .. | .. | 2 | 1 | .. | .. |
| | T. 9 | 2 | 2 | 1 | .. | .. | 1 | 6 | .. | 2 | .. | .. | .. | 1 | ? | 2 | 1 | .. | 1 | 4 | 3 | 1 | 3 | 1 | 2 | .. | 10 | 4 | .. | 1 |
| Generative | M. 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 1 | 1 | 1 | .. | 1 | 1 | .. | 4 | 1 | .. | .. |
| | F. 79 | 11 | 10 | .. | 3 | 4 | 10 | 38 | 1 | 13 | 11 | .. | 1 | 31 | 57 | 10 | 11 | 12 | 7 | 40 | 28 | 7 | 29 | 11 | 13 | 2 | 90 | 21 | 10 | 18 |
| | T. 80 | 11 | 10 | .. | 3 | 4 | 10 | 38 | 1 | 14 | 11 | .. | 1 | 31 | 58 | 11 | 11 | 12 | 7 | 41 | 29 | 8 | 29 | 12 | 14 | 2 | 94 | 22 | 10 | 18 |
| Skin | M. 14 | .. | 2 | 1 | 1 | .. | 1 | 5 | .. | 2 | 1 | .. | .. | 1 | 4 | .. | 2 | .. | .. | 2 | 2 | 2 | 3 | 1 | .. | .. | 13 | .. | .. | 4 |
| | F. 13 | .. | 3 | 2 | 1 | 2 | 1 | 9 | .. | 1 | .. | .. | .. | 2 | 3 | 1 | 1 | 2 | .. | 4 | 2 | 2 | 2 | .. | 1 | .. | 7 | 2 | .. | 5 |
| | T. 27 | .. | 5 | 3 | 2 | 2 | 2 | 14 | .. | 3 | 1 | .. | .. | 3 | 7 | 1 | 3 | 2 | .. | 6 | 4 | 4 | 10 | 1 | 1 | .. | 20 | 2 | .. | 9 |
| Tot. of above—M. 188, F. 279 = | 467 | 52 | 71 | 24 | 16 | 17 | 57 | 237 | 11 | 76 | 40 | .. | 1 | 183 | 311 | 90 | 100 | 43 | 44 | 282 | 116 | 50 | 165 | 50 | 60 | 6 | 447 | 113 | 43 | 149 |

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TABLE XVI.—*continued.*

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